

**POSTMODERN PERSPECTIVES ON
ORGANIC FARMING IN THE STATE OF NEW MEXICO**

**BY
ALISON BAKER**

**A Thesis
Submitted to the Faculty of Graduate Studies
in Partial Fulfillment of the Requirements
for the Degree of**

MASTER OF ARTS

**Department of Geography
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Winnipeg, Manitoba**

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FACULTY OF GRADUATE STUDIES

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ABSTRACT

This thesis examined organic food production and food producers in the state of New Mexico. The author employed both quantitative and qualitative research methods and procedures. The quantitative procedures yielded data that addressed issues of the distribution and extent of organic food production in the state, the quantities of organic food produced, crops grown and managed. Very early, it became apparent that traditional models of explanation were going to fall short of being able to explain the distribution of organic farms within the state of New Mexico.

The author chose to examine the discourse and rhetoric of organic food producers in the context of a set of postmodern perspectives. Postmodernism is not a monothetic theoretical paradigm; it is, rather, a set of positions that are often shifting but share the common sense of privileging the speakers rather than the author. It also privileges multiple reverberating rhetorics and discourses and images and parts of images. Even though much of the thesis reveals and reflects the diverse discourses of a variety of organic farmers, there were a number of very interesting phenomena that emerged.

What emerged was that there were at least two very different groups that practiced and engaged in organic production. One group contained people whose families had had a long multiple generation history of farming and the other group was composed of people who had immigrated into New Mexico as part of a kind of a "back-to-the-land" movement. People in this latter group had had no or very little history with farming organic or otherwise.

Many of the people who have become involved in organic farming believe that

what they are doing will, ultimately save the world. They also construct that their methods of farming are wholly innovative - that what they are doing is a brand new form of farming that exists in contradistinction to large corporate farming that is associated with agri-chemical businesses. Even though they often construct that their move to farming is a version of a performance or commitment of a "back-to-the-land" movement, they do not connect with the notion of organic farming as the form of farming that preceded agri-chemical farming. They are really attached to the notion that what they are doing has no precedent either in recent history or in the histories of other cultures. Most North American agriculturalists do not realize that much intensive and sophisticated agriculture was prevalent among other cultural groups substantially predating the advent of euro-derivative immigration and agriculture. Their perception of what they are doing is something wholly innovative rather than, for example, a revitalization of something that did exist. Both groups of people, those with farming histories and those without any history or experience believe that whatever they are doing is much better than anything that preceded their efforts. They are guided by a monumental concern for an ethics of food production.

The postmodern positionings and renderings throughout the thesis reveal a set of rich texts and textuality provided by the voices of organic farmers. The "readers" of this thesis will weave through a variety of textual forms, including the words, the views, the self-drawn maps and the photographs. If every picture is worth a thousand words, then there are more words in this thesis than there appear to be.

ACKNOWLEDGMENTS

For the most part the author financed this project but gratefully acknowledges the Harry Colnett Scholarship. The funds from this scholarship did facilitate the initiation of the fieldwork.

I thank the members of my committee: Dr. Romanowski, Dr. Foster and Dr. Mysyk. Dr. Romanowski was a patient and supportive supervisor. Additional thanks go to my mother for patiently transcribing my audio tapes, Brian McGregor for his help constructing a map and St. Louis Community College for all their assistance with the final production. A big thank you and heartfelt gratitude is extended to the Santa Fe Farmer's Market Association, the New Mexico Organic Commodity Commission, and the New Mexico organic growers. Without these people there would be no thesis. Last, but not least, I thank the state certifying agencies and organic growers from across the United States who contributed in a variety of ways to this project.

More than anything, this thesis is embedded with memories of Calamity Jane, my most wonderful German Shepherd (Figure A). Calamity accompanied me as a research assistant throughout my fieldwork and as a friend throughout her life.

Figure A. Reo's Calamity Jane in Santa Fe, New Mexico



(August 30, 1984 - March 29, 2000)

TABLE OF CONTENTS

	Page
ABSTRACT.....	i
ACKNOWLEDGMENTS.....	iii
LIST OF FIGURES.....	vii
LIST OF TABLES.....	x
CHAPTER 1 INTRODUCTION	
- Back to Basics.....	1
- Purpose and Objectives.....	5
- Theoretical Context.....	11
- Tradition, Traditional and Traditional Agriculture.....	16
CHAPTER 2 REVIEW OF THE LITERATURE	
- Post- Modernism and Its Application Within Geography.....	23
- What Is Post-Modernism/Post-Structuralism?.....	23
- Analytical Motifs in Post-Modernism: 'Text' and 'Discourse'.....	25
- History of Contemporary Organic Farming.....	27
- Regulations Governing Organic Production.....	31
CHAPTER 3 METHODS	
- Introduction.....	35
- Qualitative Data Collection.....	37
- In-Depth Open-Ended Interviews.....	37
- Direct Observation.....	38
- Archival Materials.....	39
- Quantitative Data.....	40
- New Mexico Numbers.....	40
- The 'Other' Numbers.....	40
CHAPTER 4 RESULTS	
- Farms in Space - Location of Organic Growers in New Mexico.....	41
- Farm Sizes.....	52
- Crops.....	58
CHAPTER 5 CULTURAL DATA	
- How Do I Name Thee?... Let Me Count the Ways.....	69
- A Garden is a Garden by Any Other Name - The Concept of 'Farm'.....	74
- Profiles of Organic Growers.....	90

- Don Bustos.....	90
- Sally Harper.....	100
- Le Adams.	105
- Linda Prim.....	110
- Ric Gaudet.....	114
- Susan Higgins.....	118
- Eddie Vallarde, Eduardo Vallarde and Gilbert Silva.....	122

CHAPTER 6 ANALYSIS AND CONCLUSIONS

- The 'Kitchen Garden'	124
- Mi Jardin Es Su Jardin.....	126
- As You Sow, So Shall You Reap: The Future of Organic Farming.....	129

REFERENCES CITED.....	152
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APPENDIX.....	163
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LIST OF FIGURES

	Page
Figure A. Reo's Calamity Jane in Santa Fe, New Mexico	iv
Figure 1. Physiographic Divisions - New Mexico	42
Figure 2. New Mexico Soils Map	43
Figure 3. Approximate Locations of Certified Organic Operations - 1997	45
Figure 4. Approximate Locations of Certified Organic Operations - 2000	46
Figure 5. Organic Industry Growth in New Mexico	48
Figure 6. New Mexico <i>Aridisol</i>	50
Figure 7. Number of Organic Farms Per Acreage Category (1997)	57
Figure 8. Common New Mexico Organic Crops	59
Figure 9. Sabinal Vineyards in Bosque, New Mexico	60
Figure 10. Stahmann Farms Pecan Orchard in San Miguel, New Mexico	61
Figure 11. Map of New Mexico Farmers Markets	63
Figure 12. Albuquerque Growers Market	64
Figure 13. Santa Fe Farmers Market	65
Figure 14. Santa Fe Farmers Market	66
Figure 15. Santa Fe Farmers Market	67
Figure 16. Santa Fe Farmers Market	68
Figure 17. Le Adams' 'Farm'	77
Figure 18. Le Adams and The Author on a 'Raised Bed'	78
Figure 19. Susan Higgins' 'Farm' In Her Car at The Santa Fe Farmers Market.....	80

Figure 20.	Gaudet's Irrigation System Transporting Water From the <i>Acequia</i>	84
Figure 21.	Rolls of PVC and Laser Tubing At Edge of Gaudet's Garden	85
Figure 22.	Raised Bed in Gaudet's Garden Irrigated Via 'Laser Tubing'	86
Figure 23.	'Laser Tubing in Gaudet's Garden	87
Figure 24.	Don Bustos Shows His Place in Space	91
Figure 25.	Big Leaf Spinach Growing Through Plastic - Don Bustos' Farm	93
Figure 26.	Don Bustos Shows The Author a Field With Experimental Black Plastic	94
Figure 27.	Don Bustos' Experimental Red Plastic in Field	95
Figure 28.	Don Bustos At Santa Fe Farmers Market	97
Figure 29.	Bustos' Chile Roaster	99
Figure 30.	The Harpers' Pecan Orchard in Mesilla Park, New Mexico	101
Figure 31.	Sally Harper Educates The Author About Pecans	102
Figure 32.	Experimental Insect Trap	103
Figure 33.	The Harpers' Irrigation 'Ditch'	104
Figure 34.	Le Adams Shows Her Place in Space	106
Figure 35.	Santa Fe Farmers Market Association	108
Figure 36.	Navajo Churos	112
Figure 37.	Linda Prim's Ditch/ <i>Acequia</i>	113
Figure 38.	Ric Gaudet Shows His Place in Space	115
Figure 39.	Gaudet's Rented House on 'One Straw Farm'	117
Figure 40.	Gaudet's <i>Acequia</i>	119

Figure 41.	Susan Higgins At Santa Fe Farmers Market	120
Figure 42.	Wild Oats in Albuquerque, New Mexico	121
Figure 43.	Stahmann Farms Ditch - San Miguel, New Mexico	131
Figure 44.	Seeds of Change Organic Seed Display	136
Figure 45.	Proposed Organic Labeling	137
Figure 46.	Percent of Total Farmland Certified Organic By State - 1997	140
Figure 47.	Wild Oats Advertisement	142
Figure 48.	Wild Oats Store Directory	143
Figure 49.	Wild Oats Dairy Products	144
Figure 50.	Wild Oats Frozen 'International' Section	145
Figure 51.	Wild Oats Avocados	146
Figure 52.	Wild Oats 'Natural' Pet Care Display	147
Figure 53.	Wild Oats Organic Delicatessen	148
Figure 54.	La Montanita Brochure	149
Figure 55.	La Montanita Sales Flyer	150

LIST OF TABLES

	Page
Table 1. Organic Farms By Acreage And Crop (1997)	54

CHAPTER 1

INTRODUCTION

Back to Basics

Agriculture in general and farming in particular have often been perceived as being very basic - basic in several ways. Farming has always enjoyed or been associated with a particular view of life - a life that could have been and has been characterized as being 'close to the land' and in this sense a 'simple' or uncomplicated lifestyle. This perception, however, is an idyllic scenario. There is no question that early farmers (pioneers, if you will), led a 'simple life', in the sense that their concerns were always immediate and 'down-to-earth' both literally and metaphorically. Their jobs were, in a very real way, centered around their home; their tasks, though often laborious, were straight forward, and their technology relatively 'simple'. This view of farming involved the ability to be close to the land and close to the fruits and vegetables of one's labor. In a way, 'farming' was and has been revitalized to be a version of the 'good old days'.

Within both physical and cultural geography there has been a long-standing interest in the processes and products of agriculture. It is generally the case that the focus has been on monumental agriculture, i.e., agriculture that involves intensive use of both 'high' technology and chemical products ostensibly to contribute to ever increasing yields of single or relatively few crops. Historically this large 'first-world' agricultural package

has been seen to have been a substantial improvement over the kinds of agriculture employed by other peoples of other cultures in other times and other places. The latter could be called 'traditional' agriculture as contrasted with what could be considered the innovative, technology - intensive agriculture with which most people are familiar. It should be noted that, within New Mexico, some people use the semantic label 'traditional' to refer to the technology-intensive and chemical intensive agriculture with which most North Americans are familiar and use the semantic label 'innovative' to refer to 'organic agriculture'. This thesis, then, is focused on what is commonly characterized as innovative agricultural processes, techniques and products - what is known as organic agriculture. What people who engage in organic agriculture perceive as 'innovative', however, is in many ways, reminiscent of the processes and products of agriculture in what we might refer to as 'traditional' in other cultures. This establishes a fascinating question with respect to cultural, symbolic and technological constructions of agriculture.

No one would dispute the notion that agriculture is a primary requisite for sustaining large populations. Everyone depends on the produce of farms and farming. Farming, then, has been and continues to be more than an 'essential service'. As farmers turned away from subsistence production to mass production, the very nature and character of farming and agriculture became transformed. Agriculture became associated with increasing sizes of tracts of land, increasing 'sophistication' or intensification of technology, and increasing the quantity of production. Agriculture as we now know it is another form of the large corporate world with international markets and ever increasing costs both for production and consumption. The current reality is that farming and

agriculture have become precisely what they never were - large, complicated, technology - intensive, corporate endeavors. The view of farming as a 'simple' kind of lifestyle has become, in many ways, forever changed and for many people this has been lamentable. Rosaldo (1989) coined the term "imperialist nostalgia" to refer to the lamentation or grief for the things that we have not only lost but have had a hand in destroying. In a real and fundamental way, the organic food production movement is a response to this lamentation. While it is perceived as a 'revitalization movement' and, as such, almost an institutionalized version of 'hope', it is also clearly linked with Yi-Fu Tuan's notion of "escapism", as an escape that is a cultural performance that appears to be about 'nature'. What Tuan is concerned with is the multi-vocality or multiple rhetorics with regard to cultural articulations with nature - not actually 'nature' but the cultural construction of nature. Escapes either to or from nature are intrinsically cultural performances.

... "escape to nature" is dependent on "escape *from* nature". The latter is primary and inexorable. It is so because pressures of population and social constraint must build up first before the desire to escape from them can arise; ... What we wish to escape to is not "nature" but an alluring conception of it and this conception is necessarily a product of a people's experience and history - their culture. Paradoxical as it may sound, "escape to nature" is a cultural undertaking, a covered-up attempt to "escape from nature".

(Tuan, 1998:19)

Certainly, the world population has shown increasing concern over the impact of toxins in our world, from the air we breathe, to the water we drink and the food we eat. Equally, there is concern with what people perceive to be an excessive impact of government and large corporations on our lives. From locally reported incidents of air and

water pollution, widespread ecological disasters such as the Love Canal, and an ever present threat of nuclear devastation as demonstrated by Chernobyl, there is increasing awareness and concern about our present and future well-being. Most recently, controversy has centered around GMO's (genetically modified organisms), their presence within our food supplies and the inherent health danger associated with them. Despite accusations of corporate meddling and government laxness with regard to our food supplies, there is also an underlying general perception that we have no one but ourselves to blame for the current condition of the world. This perception includes the illusion that *if* we could only go back to the 'way things were', if we could *escape* from present dangers and tragedies, that we would be safe, or at least safer. If we could return to a relatively uncomplicated lifestyle we would rid ourselves of the complications brought about by an ever increasing complicated version of living. Part of this perception is that we act as if we are surprised that we are ecologically fragile. Another dimension to this, however, is that many people perceive that they have little or no control over fundamental and basic aspects of their lives. Part of the 'call-to-arms' of the organic food production movement has been, at least in principle, an attempt to regain control of the fundamental aspects of people's lives. The organic food production movement is dedicated to re-acquiring not only a 'purer' production but, in addition, the very means of production.

Purpose and Objectives

This thesis attempts to examine various aspects and dimensions of organic food production in general, but most particularly in the State of New Mexico. The original thesis topic was to be organic farming in Manitoba, however, the Organic Producer's Association of Manitoba (OPAM) did not respond with any useful information. After a series of favorable interactions with organic agencies in New Mexico, attention was re-focused on the American Southwest and, in particular the State of New Mexico. New Mexico was an excellent choice for several reasons: first, the State of New Mexico contains a rich multi-cultural ethno-historical mosaic including pueblo cultures, a diverse Spanish population including those of Spanish or Mexican descent, those claiming mixed Spanish/Mexican descent (Hispanic) and a considerable population of recent 'Anglo' immigrants. Second, within the boundaries of the state one can easily find both old and new 'farmers'. The 'traditional' pueblo communities have long been committed both to 'traditional' agricultural practices as well as what are now referred to as 'new organic' practices.

While a number of Spanish and/or Hispanic families have farmed their lands for more than 400 years, the Pueblo cultures, of course, have farmed the area for a great deal longer than that. Pueblo culture and farming in New Mexico extends back to Anasazi and Mogollon civilizations. Archaeological evidence suggests that agriculture in this region might have begun as early as 300 A.D., but most certainly was in existence by 1000 A.D. (Wenke, 1980:695). By comparison, the Anglo immigrants have a rather short farming history in the state. The impact of cultural diversity on farming in New Mexico has been

substantial. For example, Don Bustos, one of the farmers profiled in Chapter 5, is an excellent example of an individual whose family has farmed the same land for over 400 years. Their agricultural practices have gone through a number of transitions that are the focus of the thesis. Although the Bustos family began farming in an historic or traditional way, i.e., not using any agro-chemicals, for example, they then went through a relatively long phase of intensive chemical input. The current owner/farmer is in the process of 'returning' the land and its production to a 'pre-chemical' condition. The difficulties in accomplishing and actualizing this both from a physical aspect and a rhetorical aspect form the text and narrative of this thesis.

Inevitably, one of the purposes of any thesis is to position itself in a theoretical context. Very early in this research, it became clear that 'over arching' mono theoretical views would not be able to account for the rich diversity in communities of farmers in New Mexico. At first glance, it might have seemed reasonable to employ a model of diffusion, (for example Hagerstrand's innovation diffusion), to explain the growth of organic farming in New Mexico, however, the very nature of the people and the data they generated required a shift in theoretical emphasis. This author chose to adopt a postmodern perspective that emphasizes 'text' and 'narrative'. This approach highlights the diversity discovered rather than losing sight of it.

This thesis examines the nature and character of organic farming in New Mexico: it focuses on the environmental, social, historical and cultural aspects of organic farming within the state. The author has chosen to contextualize New Mexico organic farming within a variety of frameworks: as a revitalization movement, as a political and

environmental set of concerns and as a 'contested field' of very mixed symbols and 'rhetoric' - all well within the fields of postmodern perspectives. Preliminary research indicated that organic agriculture is becoming increasingly popular both with producers and consumers. What is equally clear is that there is substantial variation with respect to how people both conceptualize and deploy organic agricultural practices, i.e., people in different geographical areas and different cultural 'communities' have quite different commitments to organic agriculture. There are a number of different communities within the state of New Mexico each of which is dedicated to being organic agricultural producers and consumers but each of which has different ideas and approaches to organic agriculture.

If, for example, one perceives agriculture from a corporate perspective that focuses on large tracts of land and increasing intensification of technological assistance, then organic farming is perceived as being an innovation. If, however, one perceives agriculture with a greater history and diversity, then organic farming is a 'return' to an older form of farming - literally a 'revitalization' of 'days gone by'. The issue of perception, how individuals speak about their perception and how they create the texts of their perception is a central concern in this thesis.

The thesis examines how and in what ways individuals vary with respect to how they conceptualize such things as: farm, production, natural and organic. Much of this will be addressed in greater depth in Chapter 5, however, it is significant to state that most organic operations are considerably smaller than what we have come to think of as a 'farm'. 'Farm', by definition, that is, any farm in an American context, is not at all related

to the *size* of the 'farm' but, rather to the amount of money generated by the enterprise. (see Chapter 4; Farm Sizes). Although the figures vary from state to state, in some states an operation that generates as little as \$500.00 qualifies to be designated a 'farm' (Anderson, 1999 pers. com.). Within New Mexico many of the organic farmers have farms of quite diminutive size. In fact, many people would perceive the operations as small to large gardens rather than farms. Without exception, however, all organic growers, at least in New Mexico, apply the term 'farm' with respect to their enterprise. Size, it appears, is not a particularly important criterion, and, neither is the amount of revenue generated.

Many organic farmers state very clearly that they do not farm organically for 'the money' but rather the quality of their food; others invite and encourage people to become involved in the transition to growing organically because the profit margin increases four fold (Nebraska Sustainable Agriculture Society, 1999). This latter group of people is well aware that there is a high demand market niche for certain organic products and that this market share is quite willing to pay dearly for a certain quality of product (or the performance of a certain quality of product). One of the best examples of this phenomenon is the 'farmers market' in Santa Fe, New Mexico. Many 'higher-end' restaurants purchase organic produce to use in their restaurants. Organic farmers, in response, plant and grow crops that fulfill the market demand. Restaurants are then able to claim in their menus that they use *locally grown organic produce*; produce that rather wealthy people are prepared to pay high prices for the privilege of consuming. In this case, privilege buys privilege. The demand for 'elitist' menus and produce has

contributed to a proliferation of 'different crops' in the perceptual fields of organic growers. Some growers refer to their main 'crop' being 'salad mix'. Chapter 5 explores the mixed and complicated rhetoric, texts, scripts or narratives employed in this context, but it is sufficient to state here that it is an intriguing concept - the idea of salad mix as a crop - rather than a row in a garden in which one might grow the kinds of things that after minimal processing could be transformed into a salad.

Most organic growers are quite prepared to engage in and perform a rhetoric that indicates in no uncertain terms that they are 'against' any and all uses of agro-chemicals or other aspects of a large chemical complex. Much of this is centered on the notion of being able to control the quality of the food they produce and ingest. Associated with this is a sustained discourse on the merits of not using high-tech implements or tools. This, too, is part of the behavioral landscape that is being re-invented and revitalized. Chapter 5 deals with these issues in considerable depth. In the main, however, there is a concern that organic growers not use 'high-tech' implements such as very heavy tractors for clearing new plots of land. Such implements could cause considerable compaction and this is perceived as not being a particularly positive phenomenon. The tractor, of course is a historical icon that signifies the state of the art in farming. Certainly it may compact soil but, more importantly, it is a vital and contested symbol. Therefore, despite the fact that a tractor may reside within a farm shed, in New Mexico, many organic producers are committed to a process called 'double-digging' (discussed in Chapter 5). What this involves is 'hand-labor' - no vehicle assisted tilling here. In reality, then, there is a concurrent revitalization of 'older', more 'simple' technologies. Double digging is less

expensive and, in the long run, causes far less damage than that caused by heavy equipment. This, of course, has a direct impact on the size of the organic plots. Additionally, many organic producers do not 'own' their land - they lease or rent it. Quite interestingly, this evokes the notion of 'sharecropping', which links to another perceptual field. This field is quite clearly linked to another commitment and performance - the notion of 'liminality' (Turner, 1969). This notion is very clearly linked to notions of purity, purification and, to a great extent, the appearance of, if not poverty, at least not wealth. Chapter 5 explores this interesting perceptual landscape. One of the things that is intriguing in this regard is that many of the organic growers who have taken this particular position are recent immigrants to New Mexico and are often members of very well known and very wealthy families.

Organic food production is, quite simply, a 'quilt' of many colors: this is an apt metaphor because, of course, quilts are associated with 'old tymie' technology and ways of living. But we will take a message from the metaphor and that is that quilts are sewn together to make a whole unit from bits and pieces of fragments of material that were once parts of other things - now hafted together to present the reality and the image of a unified whole or a set of shifting images or texts consistent with a postmodern position. Chapter 5 will explore this performance in organic food production.

Theoretical Context

Much of the analysis in this thesis is situated within a post modern set of perspectives, in which almost everything becomes a 'discourse' or a set of 'statements', either literally or metaphorically, that can be 'read' either literally or metaphorically. The metaphor of a patchwork quilt is particularly appropriate in the analysis of organic farming in this context. Many of the people who have become organic farmers for the first time believe that they are doing something entirely new. It is, perhaps, easier for many of these people to think this because many of them have no history in farming - either individual history or family history. They perceive their actions and enterprises as being wholly innovative and, perhaps, because, there is often little or no farming history in their families, they are not aware of the nature and conditions of agriculture prior to the state of agriculture to which they have placed themselves in counterpoint. They are, in fact, living in a 'constructed' reality. Although they do have a sensibility that they are using some 'traditional' methods they choose to perceive these as wholly innovative. Many of these people would be quite comfortable with the mobilization of the quilt metaphor because of the association of quilts and quilting with an 'old style lifestyle' - when people were innovative and inventive and basic and 'down-to-earth'.

This thesis falls in the domain of multiple sets of metaphors - a key or essential one being the 'social-life-as-text' metaphor and a trope of this: the land/farmscape as textual metaphor. What this leads to (tropes to) is the notion that we can 'read' all manner of phenomena in much the same way as we would read a book. The 'reading' of necessity is intrinsically connected to the notion of 'interpretation'. Thus, this thesis involves a

reading of the various constructions of organic farmscapes complete with narratives, texts and interpretations from the constructors of these farmscapes. The organic farmers construct farmscapes from a 'reading' of their primary concerns, a reading of 'traditional' and what that means, and a reading of 'farm'. From these constructions and performances the author is reading their constructions and performances in much the same way that the author might read a book. The farmers and the farmscapes are and become 'text' waiting to be read.

"Reflecting on the text metaphor, the intellectual historian, Dominick LaCapra (1983:19) suggests that, although it involves a certain 'linguistic inflation', its value is in allowing us to understand the problem involved in taking " 'reality' or 'context' as unproblematic ground or a gold standard". Following his reasoning, we suggest that 'text' is also an appropriate trope to use in analyzing landscapes because it conveys the inherent instability of meaning, fragmentation or absence of integrity, lack of authorial control, polyvocality and irresolvable social contradictions that often characterize them ..."

(Barnes and Duncan, 1992:7)

The notion of 'text' as it is being used here is not confined to a single discipline, but it is the case that Anthropology has made extensive use of the notion of 'culture as text'. Clifford Geertz, who began his academic career as a cultural ecologist and evolutionist, turned his emphasis to this metaphoric notion of reading culture as a text or rather as if it were a text. For Geertz (1973, 1988), culture is something that is 'read' by an ethnographer - read much in the same way as one might read written material. The written form of the ethnographer's text becomes another text and so what we see is text upon text in which various texts inform and re-inform other texts, producing what is understood as an 'inter-textuality' - a quilt-like product and process.

Before the work of Geertz and others, ethnographic accounts were portrayed as objective and objectivist description; however, another Anthropologist, Tyler (1987), argued that ethnographic texts are better or more accurately portrayed as intertextual works that are “highly mediated by a traditional corpus of anthropological monographs and theories” (Barnes and Duncan, 1992).

“Furthermore, it is not simply our accounts of the world that are intertextual; the world itself is intertextual. Places are intertextual sites because various texts and discursive practices based on previous texts are deeply inscribed in their landscapes and institutions. We construct both the world and our actions toward it from texts that speak of who we are or wish to be. Such ‘texts in the world’ then recursively act back on the previous texts that shaped them. This perspective is explicit in the work of some geographers” (Cosgrove and Daniels 1988; Duncan 1990; Duncan and Duncan 1988).

(Barnes and Duncan, 1992:70)

The notions of text are often accompanied in analytic commentaries with notions of ‘discourse’. In a way ‘texts’ are part of a larger, even more open-ended phenomenon referred to as discourses or, even, discourse. Discourses are frameworks or contexts that enjoin and embrace particular “combinations of narratives, concepts, ideologies and signifying practices, each relevant to a particular realm of social action” (Barnes and Duncan, 1992:8). There are plural and variable discourses within agriculture and within organic agriculture, all of which create a complex set of intertextualities. Between discourses words often have different meanings or connotations so that people who appear to speak the same language often misinterpret what each other is saying - actually, often, without realizing that misinterpretation has occurred. This should not be surprising because words and “other signifiers have no natural connection with their signifieds”

(Barnes and Duncan, 1992:8; Wagner 1981). The relationship(s) between signified and signifier is a wholly social and cultural construction. In this thesis the author conceptualizes the world of organic farming in New Mexico as a cultural phenomenon if not, in fact, a culture in its own right. Because these relationships between signified and signifier are constructions, they are also texts and as such they are variable with variable interpretive domains.

The concept of 'text' is a key analytical tool that is mobilized throughout this thesis but, it is 'paired with' another key analytical tool, i.e., discourse. In many ways 'text' became transformed or troped into discourse. The concept, idea of discourse (as well as text) is a key term in both poststructuralism and postmodernism. Discourse...

"represents a clear break with earlier ahistorical categories of human nature, timeless meaning or universal rationality. Although structuralism successfully decentres the individual and, in this sense, is clearly a break with humanism (modernism), it is not fully a postmodern project in that it posits transhistorical structures underlying discourses (best seen in Levi-Strauss' work). Poststructural discourse theory, however, sees discourses as conventional and historical. It assumes that discourses, and the 'truths' that they construct, vary among cultural groups and among classes, races, gender-based or other groups whose interests may clash. In the most anarchic versions even the existence of different interest groups within society is questioned, along with the very notion of culture..."

(Barnes and Duncan, 1992:9)

The mobilization of the notion of 'text' in a metaphoric manner has been very powerful throughout social sciences; discourse is perceived to be even more powerful - at least it is more inclusive. Almost anything and everything can be a discourse whether it be actual acts of speech and language or considerably more metaphoric performances or actions.

Postmodernism constructs or creates a renewed 'relativism', itself a return to thick description. The primary aim of this relativism is to work "against the potentially repressive power of theoretical metalanguage which can act to marginalize a nonconforming discourse" (Dear, 1988:265 in Curry, 1992). This becomes particularly applicable to the material and people presented and represented throughout this thesis. Many organic farmers have chosen to be organic almost as if they are deliberately choosing a marginalized or liminalized performance of agriculture - at least when compared with the monumental agriculture with which most people are more familiar. One of the main foci in this thesis is how these people perceive and 'speak' their world - the world of organic food production. Language is not only the vehicle for culture but, in many ways, is actually culture as it is being acted or performed.

"Language is central here, for two reasons. First, there appears today, according to postmodern geographers, to be a crisis of the sign, occasioned by the realization that language does not derive its meaning by 'pointing at' reality. And, second, language now appears to be a fundamentally social phenomenon; Lyotard compares the using of language to the playing of a chess game (1984:10). Because language is now seen as centred in individual practices, it appears that our knowledge is fundamentally 'local'. There are many different language games - a heterogeneity of elements. They only give rise to institutions in patches - 'local determinism' (1984:xxiv). And that again, implies that grand schemes no longer have the power to capture reality".

(Curry, 1992:107).

No word carries the same meaning for different local cultural groups, i.e., there is considerable variation in the meaning of even single words. And because this is the case, it is important at this point to explore the polysemous aspects of the single word or concept - 'traditional'.

Tradition, Traditional and Traditional Agriculture

There is an intrinsic difficulty encountered when attempting to formulate an accurate, workable and working definition and understanding of the concept 'traditional'. The difficulty stems from the lack of an overt distinction between that which is 'traditional' and that which is 'historical'. While the term historical is generally used in reference to that which has occurred in the past, the term traditional, although possibly also reflecting past occurrences, tends to be used more readily in tandem with the words 'primitive' or 'archaic'. This constructed notion of traditional appears to imply that tradition is in direct opposition to modernity, yet in reality, that which is modern, may in fact also be traditional. The confusion surrounding the usage of the term traditional appears to demand an examination of its intended, as well as its practiced applications. Through the provision of generally accepted lexical references and selected other applications, the purpose of this section is to determine the defining parameters of the word and notion 'traditional'. From this determination, a conclusion could be formulated as to whether the term traditional has been and is being used within its correct context, which, specifically, in this case is within the context of its application to agricultural practices.

A provision of the defined terms traditional and tradition specifically notes that traditional actions are those that are in the practice of "relating to, or being a tradition" which, defined more extensively is the "handing down from generation to generation of customs and beliefs" or "a specific custom or practice of long standing" (Collins Concise Dictionary Plus, 1989:1381). Although, by definition, 'traditional' implies that it is also

historical, it is not necessarily (although it may be) true, that traditional actions are formulated within an historical context. This statement, however, operates with an assumption that the 'past' associated with the term historical, implies a long (as opposed to a short), period of time. This is not always the case with tradition. Tradition may also be the result of a repetition of practices over a short period of time to become known or understood as a 'tradition'.

What becomes evident, though, upon an examination of the usage of the term 'traditional', is that it involves a further implication that tradition is synonymous with stagnation. This implication then becomes linked to the means by which tradition is transmitted. Tradition is generally linked to that knowledge which is of an oral nature and takes the form of myths, legends and folklore. In the past, these forms of knowledge have been generally disregarded as valid knowledge claims as they are not considered to have employed the 'scientific method' and therefore have not been subjected to rigorous testing. This position does not consider testing of practices outside of scientific domains to be valid, but rather to be of an unproven and 'primitive' nature. This aspect of tradition, although extremely important is, however, beyond the scope of this discussion at this time.

What does fall within the realm of this discussion, however, is that, little or no explanation of the term 'traditional' exists within the literature, although there are conclusions or inferences that can be drawn regarding its meaning. This is accomplished by noting those words which are commonly used in reference to those peoples who engage in 'traditional' agricultural practices. The most common of these references

includes the words 'peasant', 'primitive' and 'indigenous'. These terms, when used in reference to agriculture, make clear distinctions between those which are perceived to be 'primitive' and those which are attributable to a 'peasant' society. With this distinction being made, specific examples from the literature are provided to illustrate that specific usage of the term traditional and the related terminology used in reference to 'traditional', do not appear to exist synonymously with the term 'historical' but rather in opposition. The point being made here is that the term 'historical' is usually used to suggest a degree of civility, while 'traditional' is commonly implemented as an unspoken acknowledgment of 'primitive' as well as 'historic' practices.

Although the implication exists within the work of Eric Wolf that traditional can be either 'primitive' or 'peasant-associated', he notes three specific aspects that distinguish peasant culture. Wolf's distinctions, in order, are that peasants are generally: 1) small landholders; 2) in retention of control of their production processes; and 3) have goals of subsistence rather than reinvestment (Wolf, 1967: 503-504). "The peasant", Wolf states, "exists on marginal land, and the land is exploited by means of traditional technology, which is the continuous physical efforts of community based manual labor" (Wolf, 1967: 508). In an additional example, Forde and Douglas contend that what constitutes a 'primitive' economy is one in which a "low degree of technical knowledge" and a "severely restricted productive capacity due to the use of hand tools" are present (Forde and Douglas, 1967:14). In addition, they assert, "a primitive economy exists primarily as a subsistence (or hand-to-mouth) economy" (Forde and Douglas, 1967: 18). In contrasting Wolf's 'peasant' culture with Forde and Douglas' 'primitive' economy, it

seems that similarities exist. The 'primitive' and the 'peasant' society are constructed as being technologically 'simple' with both engaged primarily in subsistence economies. The obvious difference is that 'peasant' society appears to be in the position of land ownership, while Forde and Douglas, in this instance, suggest a nomadic, rather than a stationary existence for a 'primitive' society. The notions of 'primitive', 'subsistence economy' and 'hand-to-mouth-existence' are directly relevant to some aspects of organic farming in New Mexico.

The significance of these two examples is the intrinsic suggestion within both examples that 'traditional' 'tool kits' are: 1) primitive; and 2) technologically 'inferior'. This use of technology as an indicator of 'advancement' fails, however, to take into consideration anything but sophistication of equipment. By excluding the role of social organizations, and decision-making processes, traditional technology is unable to display its complexities and specialized knowledge. Assuming that individual cultures are capable of defining their needs, it seems only reasonable to assume that they are also capable of providing for the satisfaction of their needs according to their own logic. This aspect of culture is not reducible to the notion of technology, as it exists in a western capitalist society.

As a method of explanation of why technology becomes a major player in this definition of 'traditional', it is helpful to examine Marshal Sahlins' concept of the "original affluent society" (Sahlins, in Schultz and Lavenda, 1995: 723). Sahlins, challenging the supposition that 'subsistence' meant near-starvation, defined subsistence as "having more than enough to meet consumption needs" (Sahlins, in Schultz and

Lavenda, 1995: 723). There are, according to Sahlins,...

“ ...two ways in which to create affluence: 1) to produce much (as in western capitalist society); and 2) to desire little...To desire little did not mean a suppression of natural greed but rather it meant that greed was neither institutionalized nor rewarded”

(Sahlins, in Schultz and Lavenda 1995: 723).

Goals or ends may be modest in a ‘primitive’ or ‘peasant’ society, (in comparison with those goals constructed by a ‘Western’ or corporate monumental form of agriculture), but they should not, be considered to be ‘poor’ because of a lower material standard of living. Although the goals are different, it does not mean that the goals are ‘inferior’.

Of the other references consulted, most tried to minimize generalizations about what constitutes traditional practices, although the suggestions remained the same. These suggestions are: 1) that traditional practices lack technology and are therefore, by definition, primitive; 2) that traditional practices do not employ scientific techniques and are therefore seen to be not valid; and 3) that traditional societies lack initiative and are therefore perceived to be lowly. With these suggestions exists an underlying assumption that peoples judged to be less advanced are perhaps ‘closer to the land’. This notion of ‘closeness to the land’ is a key discursive motif among organic producers and consumers in New Mexico.

This underlying assumption is also evident within the paradigm of cultural ecology, which was developed by Julian Steward. The ‘ecological approach’ was used by Geertz to explain a process of ‘involution’ that became evident in Inner Indonesia, a labor-intensive agricultural society (Geertz, 1968). In this study, however, Geertz failed to provide any explanations for the ‘involution’ by ignoring the human element of

traditional Javanese society and more importantly the possibility that a 'traditional' society may desire less. Cultural ecology as a paradigm, however, provides an interesting aspect as to why 'traditional' is defined in a certain way. Since most cultural ecologists studied hunter-gatherer or shifting horticulturalists, (groups they had deemed to be technologically inferior), they were allowed to resurrect the notion of the 'noble savage'. These determinations would later contribute to the demise of cultural ecology, as they were seen to be inappropriate assumptions that societies could or should be ranked in that way.

Throughout the literature, inferences to 'traditional' practices generally consist of terminology such as 'primitive', 'peasant' and 'subsistence'. While no presumption is being made as to each writer's intent of interpretation of his/her usage of the words in reference to traditional, it should be pointed out that this work reflects the author's personal 'reading/interpretation' of the terminology. 'Constructions' of what is perceived to be 'technologically inferior', do not at any time consider that, although the technology may be simple, the tools are usually multi-purpose and require little capital investment (Wilken, 1987: 270). In regions where money is scarce and available labor is plentiful, traditional practices make perfect economic sense. In those regions where soil exploitation is an issue, Jones and Woolf, point out that these (exploitive) practices are as "common among 'primitive' Africans as they are amongst 'civilized' Algerians and North American farmers" (Dumont, 1957: 4).

'Traditional' then, could be considered a classist and generally racist construction, reserved for those practices that are not technologically and economically 'civilized'. Its

literal definition although accurately representative of its meaning, has been taken out of context to mean 'historic', 'primitive', and 'stagnant'. "Tradition", according to Kenneth Zaretske, however, "does not represent a stultified past, but a living past that is interpreted in the light of a significant present" (Zaretske, in Wilkin, 1987: 263).

'Tradition' represents practices that have proven worthy of preservation; a concept not clearly understood in today's 'modern', 'technologically-superior', 'disposable' society.

As the reader will see, organic producers and consumers in New Mexico establish themselves in opposition to this position; however, some of them perceive that what they are doing is 'traditional' while some of them perceive that what they are doing is completely 'innovative'. Although both groups generally perceive that they are in the first order 'close to the land', members of neither group perceive themselves as being 'peasants'. For the purpose of this thesis the author shall use 'traditional' to refer to pre-chemical and/or pre-technology agriculture and/or people and practices.

CHAPTER 2

REVIEW OF THE LITERATURE

Post-Modernism and its Application Within Geography

What is Post-Modernism/Post-Structuralism ?

**“Post-modernism is stimulating and fascinating;
and at the same time it is always on the brink of
collapsing into confusion”.
(Rosenau, 1992:14)**

Before defining the elements of a post-modern position some distinctions are required. The first distinction to be made is that, while post-modernism and post structuralism appear to be identical, they are not: although, at times they may overlap and are often mobilized as if they were synonymous. Post-modernism, however, is specifically oriented toward cultural critique while post-structuralism emphasizes method and epistemological matters. The other distinction in terms of scope is that, “post-structuralists concentrate specifically on deconstruction, language, discourse, meaning, and symbols, while post-modernists cast a broader net” (Rosenau, 1992:3). For the purpose of this chapter, however, post-structuralism/post-modernism will be discussed in the broader more general sense of post-modernism.

From a post-modernist perspective the possibility of “rigid disciplinary boundaries

between the natural sciences, humanities, culture and life, fiction and theory, and image and reality” is questioned (Rosenau,1992:6). Post-modernists consider “conventional tight definitions and categorizations of academic disciplines in the academic context simply to be remains of modernity” (Rosenau,1992:7). A post-modernist position with its radically interdisciplinary character challenges modern rational organizations: conventional and academic styles of discourse are rejected. Post-modernists prefer “audacious and provocative forms of delivery, vital and intriguing elements of genre, style or presentation” (Rosenau, 1992:15). Such forms of presentation shock, startle, and unsettle the complacent social science reader; in fact, they are designed to destabilize the reader. Post-modernist ‘texts’ are explicitly designed to instigate new and unaccustomed activity of a post-modern reading. Delivery is more literary in character while modern discourse presents a performance that is exact, precise, pragmatic and rigorous in style. Post-modern emphasis on style and presentation, however, does not signify an absence of concern with content (Rosenau, 1992:7). A post-modern approach to social science focuses on alternative discourses, processes and meaning rather than on goals, choices, behavior and attitudes (Potter & Wetherell, 1987). The position of the post-modern social scientist supports a “re-focusing on what has been taken for granted, what has been neglected, regions of resistance, the forgotten, the irrational, the insignificant, the repressed, the borderline, the classical, the sacred, the traditional the eccentric, the sublimated, the subjugated, the rejected, the non-essential, the marginal, the peripheral, the excluded, the tenuous, the silenced, the accidental, the dispersed, the disqualified, the deferred, the disjointed” - all that which the “modern age has never cared to understand in any kind of detail” (Nelson,

1987; Pfeil, 1988 in Rosenau 1992:8). By defining everything as a 'text', post-modernists seek to 'locate' meaning rather than to 'discover' it; they offer 'readings' not 'observations'; 'interpretations' not 'findings'; they 'muse' about one thing and another. They restore a sense and sensibility of 'wonder', with the world being 'constructed', not 'given'.

Analytical Motifs in Post-Modernism: 'Text' and 'Discourse'

In current discourses across disciplines and 'sub-disciplines' there has been a dramatic shift to focus on two analytic motifs and praxes for analysis. The focus is currently less on the 'objects' of knowledge or the process of the objectification of knowledge and considerably more on the processes of constructing and performing knowledge and knowledge claims to both truth and validity. As a result, there are two key symbols that refer to this 'moment' in knowledge constructions and claims: 'text' and 'discourse'. At first there was a clear difference between the two notions of 'text' and 'discourse'; however, the original distinctions are becoming quite blurred, as post-modernism and post-structuralism mutually construct each other. If one were to give an essentialized characterization of the 'difference' between these two motifs or forms of discursive analysis, the suggestion would be that, 'text' primarily focuses on various notions of 'product', whereas, 'discourse' is primarily focused on 'process'.

The notion of 'text' has been used both literally and metaphorically or both denotatively or connotatively. In the literal meaning of 'text' what we are discussing are such things that appear in written format (simulacra of tablet) such as textbooks and

journal articles. What is important here is what particular 'texts' reveal in their performance of being not only a 'text' but, also, textuality. In the metaphoric or tropic notion of 'text' we see a shift to move away from materials that have been literally, inscribed as a slightly different notion of 'text' and 'textuality', i.e., what the literal 'text' reveals about a sometimes hidden 'textual agenda'. An extension of this is that the notion of 'reading' a text shifts from a literal notion to a metaphoric notion, with no single 'reading' having a claim to being 'correct', i.e., 'all' 'readings' are equivalent.

If we treat the notion of 'text' as 'frozen' in the sense that we deploy the notion of 'text' as metaphor for 'tablet' then it is difficult to see how 'text' is dynamic, moving, shifting and troping. If we invoke the notion of a polysemous 'reading' of 'text' as Obeyesekere (1990) does, then we can see, in the sense of envision, the tropic nature of both text and textuality. Post-modernists often assume that discourse is a more dynamic 'moment' than 'text'; but, this often depends on the reader/hearer. A major epistemological problem is incurred when any reader/hearer makes utterances of text or discourse static. In assuming a universalist position, science tends to treat both text and discourse as static events or products rather than dynamic, troping processes. The radical nature of deconstructing inscribed products of science, in this case, geography, lies in the demand and expectation of trope itself. In this instance, the stage has been set for a non-static 'reading' of this text.

In the analytic motif of 'text', anything can be mobilized as text. For example, a map could and should be perceived as 'text'. The validity of a map operates under the illusion of the excellence of science, providing the most obvious instance of subjectivity

masquerading as objectivity. As both a structured and constructed 'text' the content of the map is subject to the perceptions and values of the cartographer and could potentially result in a 'propaganda map'. For example, the cartographer, who "deliberately selects or omits information to produce a map", could become, as Ager states, "a propaganda cartographer" (Ager, in Pickles, 1992:195). This is not to say that the map should not be regarded as a knowledge tool, just that it should be acknowledged as a subjective, multi-textual performance. While alluding to objectivity in its construction, a map when 'read' as a text, becomes a presentation of multiple meanings. The 'text' or map does not remain frozen or static, but rather it becomes, as Barthes suggests, "speech that is stolen and restored" (Barthes, 1972:125). With this tropic or metaphoric action the 'text' or the 'map', when restored, "is no longer quite that which was stolen, when it was brought back, it was not put exactly in its place" (Barthes, 1972:125). The author has included a number of maps, some formal as well as some of the informal directional maps generated by the farmers themselves. The latter are clearly texts of how they 'place' themselves both literally and metaphorically. As a result, these informal maps are good examples of how places and perceptions are destabilizing and destabilized - they bring you to where they are literally, but where they are metaphorically, is not quite where they were.

History of Contemporary Organic Farming

Health, environmental concerns and performances of land stewardship have dominated the last decades of the twentieth century. The green movement and the peace movements following World War II, became modern society's attempt at atonement for

what it had destroyed - a clear example of 'imperialist nostalgia'. Modern society was suddenly health-conscious and mindful, in an almost utopian way. Sustainability was re-defined and re-formulated to apply to agriculture instead of development. It has been suggested that in this context of sustainability, organic agriculture gained its credibility, when, in 1980, Lady Eve Balfour, a prominent individual in the Soil Association of England pronounced organic agriculture as the "only sustainable form of agriculture" (Rodale, 1990) and a viable alternative to conventional agricultural practices (Clancy, 1989). Conferences and workshops operating like 'pep rallies', began to educate and promote 'safe' food, 'safe' water and stewardship (Ziomek, 1990). Using the principle that the 'past is the key to the future' research began to focus on diversity of agricultural systems (Brookfield and Padoch, 1994), ancient techniques in application to modern systems (Dazhong and Pimentel, 1986) and strategies for incorporating indigenous knowledge and systems (Cashman, 1989). The techniques of 'modern' organic agriculture were applied to various industries such the Welsh dairy industry (Campbell, 1988) and viticulture in Germany (Dabbert and Oberhofer, 1990). Variations of 'organic' practices and 'local' knowledge were integrated and adopted in other parts of the world. Organic farming is practiced, for example, in a locally innovative form, as alley farming in southwestern Nigeria (Cashman, 1988) or natural farming in Central India (Aggarwal, 1988).

Organic agriculture, however, is not merely concerned with 'growing' crops without synthetic assistance. One concern that has emerged and continues to be a main 'player' is the attempt to 'control' vermin, insect and otherwise, without use of synthetic

chemicals. Many proponents of the organic enterprise, for example, advocate using companion flora to reduce weeds (Werner, 1988). Gillis (1993) discusses usage of common components such as nicotine or ivory dish soap as insecticides within the context of historical 'folk remedies'. Similarly, Holden (1993) discusses the potential use of cocaine, and more recently, catnip as pesticides. Geier and Vogtmann (1988) discuss cultural practices that do or might replace the use of herbicides. Perceptions on the effectiveness of cultural control alternatives, however, were solicited in a poll of farmers in the United Kingdom. More than half of the farmers polled believed that these approaches were not effective (Peacock and Norton, 1990). Additionally, it has been suggested, biological and cultural control of pests as alternatives to synthetic pesticides may pose a substantial threat to the environment (Pimental et al., 1983). All preceding authors agree that considerably more research needs to be completed on this issue alone.

Another aspect of organic research has focused on the competing problems associated with the transition to organic farming. For example, Werner and Dindal (1990) concluded that while organic amendments tend to enhance soil fertility, a variety of tillage practices tend to degrade the soil. The implications for double digging are substantial. There is no question that organic farming offers some very clear benefits but it is also highly probable that yields are reduced (Bateman and Lampkin, 1986). Reduced yields, in and of themselves are and would be associated with increasing prices for the consumer. Dabbert and Madden, in their (1986) analysis, mobilized a computer simulation to determine the economic impact during the transition period. They concluded that yields and profits decline substantially in the early transition period, a characteristic experienced

farmers are well aware of. Dabbert and Madden (1988) extended their analysis concluding with a number of very important issues to consider in the transition process. They point out that even if there is a high proportion of alfalfa in a transitioning crop rotation, manure is still required to bridge the gap until the alfalfa has become established. Additionally, if there is no perennial legume in the transitioning organic system, nitrogen needs to be added. These observations concluded that farmers in transition have to spend more on nutrients (Dabbert and Madden, 1988). All of these factors cause increasing market prices for consumers.

There is no question that organic farmers get premium prices for their produce (Batte, Forster and Hitzhusen, 1993) and this fact alone helps offset the fact that many organic farms are smaller than conventional ones, i.e., even though farms are smaller and produce less, they are able to offset this by premium pricing. Economic factors are critically important in the transition to organic farming, both for the farmer and consumer. Although organic farming is clearly associated with the notion of an improving environment, many consumers are very supportive until they realize the potential cost. This is understandable given the economic impact on consumers. As a result a number of researchers have suggested that consumers need to be educated about the importance of continuing to support organic production in spite of increasing costs (eg. Clancy, 1988; Parr, Papendick and Youngberg, 1983). Some researchers have focused on this aspect, by concentrating on the marketing aspects of organic farming and organic produce (Jolly and Norris, 1991; Auburn, 1988 and Amano and Ichiraku, 1988). Similarly, Blobaum (1983) focuses on impediments during the transition to organic farming.

While there has been considerable discussion of the advantages/disadvantages of making the transition (Cacek, 1984), farmers cite lack of available information as their main reason for being hesitant to make the leap from conventional to organic farming. There is no question that a great deal more research needs to be accomplished (Bezdicek and DePheps, 1994; Lampkin, 1988 and Stockle et al., 1994). In recognition of this, the United States Department of Agriculture has been committed to promoting and funding more research on organic farming and the transition from conventional to organic farming (Smyser, 1979).

Regulations Governing Organic Production

**“Organic farming in New Mexico is intelligent farming, supported by a grower-run organization that provides organic certification, technical education, market networking and consumer assurance”.
(The Organic Commodity Commission, n.d.).**

The Organic Food Production Act (OFPA) was passed by the United States Congress as part of the 1990 Farm Bill. This act required that the United States Department of Agriculture (USDA) develop national standards and regulations to govern marketing of organic produce and provide assurance for consumers that organic products are consistent with a national standard and facilitate interstate commerce of organic produce (Federal Organic Foods Production Act of 1990). The National Organic Standards Board (NOSB) and the National Organic Program (NOP) were established as a result of the 1990 Act. To assist in the formulation of the NOP, state, private and foreign

certification programs were reviewed by the USDA (National Organic Program Revised Proposed Rule, 2000). In December 1997, a proposed rule, with similar standards to most organic agencies, was published in the *Federal Register* where it was available for public comment. The USDA, upon review of public commentary, revised the proposed rule and released the Revised Proposal Rule on March 7, 2000 (Glickman, 2000). Commentary on the new rule ran from March 13, 2000 to June 12, 2000. It is important to note that the “OFPA and the proposed rule do not address food safety or nutrition” (National Organic Program Revised Proposed Rule, 2000).

The New Mexico Organic Commodity Commission (NMOCC), was created by the state legislature in 1990, in response to organic consumers and farmers in New Mexico. The NMOCC was modeled after the NOSB (The Organic Commodity Commission, n.d.). The Commission consists of 5 members appointed by the governor and an agency director selected by the commissioners (Viers, 1997 pers. com.; The New Mexico Organic Commodity Commission, 1992). Established as a state agency, NMOCC’s funding is shared by the state and certified organic producers. As certification increases it is expected that the NMOCC will eventually become self-funding from fees. (Viers, 1997 pers. com.; The Organic Commodity Commission, n.d.). For as long as even part of the funding continues to come from the state government, there is an intrinsic irony in the lived lives of organic producers in the state of New Mexico. Inasmuch as many, although not all, of them engage organic production as an *escape* from far-reaching governmental controls, the very survival of organic farming in this state relies on the very thing many are trying to escape. In an American context, one could argue, and many do, that government is, “of the

people, by the people, for the people". This is a general core value, nonetheless, it is a core value not shared equally by all.

Certification is available to all organic producers, processors and handlers. The application process consists of a series of detailed forms to be filled out "completely and accurately" for certification even to be considered (The New Mexico Organic Commodity Commission, 1992:2). (Please refer to the Appendix for actual examples of these forms). The certification process can take up to 100 days. Upon certification an applicant is granted a certification certificate, classifying the applicant as a Producer or a Handler (The New Mexico Organic Commodity Commission, 1992:1). Certification may be granted or revoked upon non-compliance to certification standards or if practice or activities are inconsistent with the New Mexico Organic Commodity (NMOC) Act or the National Organic Food Production (NOFP) Act of 1990 (The New Mexico Organic Commodity Commission, 1992:1). Certification is for the grower whose annual organic produce sales are in excess of \$2,000.00 The cost of certification in 2000 is \$125.00, an increase of \$25.00 from the \$100.00 fee in 1999 (Viers, 2000 pers. com.).

The NMOCC also has a Registered Organic Gardener (ROG) Program for growers who sell less than \$2,000 annually. This program requires that growers submit an application fee of \$45.00 for which they receive "ROG program information, ROG standards of compliance, the NMOCC Organic Certification Handbook, and an application with an affidavit form" (New Mexico Organic Commodity Commission, n.d.). A completed application and a notarized affidavit acknowledging compliance and an understanding of acceptable organic practices allows small growers to sell their produce as

‘organic’. Regulations for the ROG suggest that a ‘random’ inspection could occur to ensure compliance with state organic standards, however, Joran Viers, the Agency Director for the NMOCC, informed the author that an inspection “had never been done” on a ROG operation (Viers, 2000 pers. com.).

The New Mexico Organic Commodity Commission is one of 15 ‘state’ certifying agencies. The other fourteen states with certification programs are: Colorado, Idaho, Iowa, Kentucky, Louisiana, Maine, Maryland, Nevada, New Hampshire, Oklahoma, Rhode Island, Texas, Virginia and Washington (State Organic Certifiers and State Contacts, 2000). According to Cathy Greene, from the Economic Research Service of the USDA, there are “51 listed certifiers, including state certifiers, although eleven of these appear to be defunct” (Greene, 1999 pers. com.). Of the 40 operational certification agencies, 25 are private.

CHAPTER 3

METHODS

Introduction

“Though one of the attractions of geography is its lack of confinement or narrowness, probably all geographers would agree that there are five essential elements to geographical enquiry: 1) study of location (spatial location), 2) study of place (how abstract space is transformed, 3) study of regions (as area of shared characteristics), 4) study of human-environment interaction and 5) the study of movement (people and activities) through time and space”.

(Jordan, Domosh and Rowntree, 1994:524-525)

The content of this thesis represents geographical enquiry of all five essential elements and sets them within a theoretical context that neither confines nor restrains but rather allows movement and discussion within the fields of cultural and physical geography as an interwoven discipline separate only by name.

A term credited to Eratosthenes, geography (meaning earth description), has existed since humans first engaged in methods of enquiry in an attempt to gather “logical and useful knowledge” (James and Martin, 1981:2). Cultural methods of explanation, i.e. recording early travel tales, were initially employed by geographers, but have since been elaborated on and developed into separate disciplines such as anthropology and sociology. Similarly, geographical accounts or records of travel and exploration have provided the foundation or basis for the discipline of history. Through an integrative and innovative combination of what now appear as multi-disciplinary approaches, it is rather fitting that

the methods 'mirror' the content in the sense that they are both a revitalization of their traditional selves.

It seems appropriate, therefore, that the author of this thesis has drawn upon techniques that have developed within and been attributed to, offshoot disciplines of Geography, notwithstanding their origins. From the disciplines of Anthropology, Sociology and Psychology the author has drawn upon qualitative techniques of data collection; these qualitative methods are comprised of : 1) in-depth, open ended interviews; 2) direct observation; and 3) archival materials (Patton, 1987). The in-depth interviews in this instance have been employed in the context of anthropology in which the "interview is never an isolated event, but is always a part of the participant observation process" (Becker and Geer, 1957 in Crane and Angrosino, 1992:57) Data collection is not exclusively qualitative, however, but includes sets of quantitative data/statistics for purpose of comparison and mapping; to bring 'alive', in the context of post-modern geography, those symbols that are 'frozen', in a positivist geography. "Maps are...", in the viewpoint of Harley (1992:232), " better understood - and used - not so much as discrete or 'unique' images but as accents within a theory of representation".

Qualitative Data Collection

In-Depth Open-Ended Interviews

Despite the fact that the author did have a formal set of questions, these were not rigorously adhered to because the 'interviews' were more like conversations. Most questions that had appeared relevant when the author formulated the questions were answered without prompting during conversation. The interviews (conversations) occurred with only a small number of the certified organic growers within New Mexico. Other interviews were conducted with those associated with the various agriculture and organic agencies within New Mexico.

The interviews could be characterized as both formal and informal: formal in the sense that certain meetings were solicited i.e. organic agencies and some organic farmers, but mostly informal, as chance encounters were more frequent than planned meetings. Informal interviews arose out of introductions in the context of obtaining archival material from the various organic agencies. Other contacts were initiated by interested organic growers offering to assist.

These interviews could be further characterized as structured and unstructured. A structured interview is one in which there is a series of questions while an unstructured interview occurs when the questions are never formally asked (Crane and Angrosino, 1992:57-58). It was mostly the case that questions were answered by most individuals in their narratives concerning their farms and their application of organic practices. Additional commentary has been included from organic growers and agencies outside

New Mexico. This material was in most cases provided while the author was collecting state specific quantitative data for the United States. This commentary is representative of individuals who act as private organic consultants, directors of organic agencies and organic farmers. In many cases it is both professional and personal commentary.

Direct Observation

During the process of accumulating quantitative data the author not only talked with representatives from organic agencies and farmers markets but also organic farmers. By engaging in conversation with organic growers within the context of their operations the author was able to spend considerable time examining various fields, crops, groves and irrigation systems. Through direct observation the author was also able to observe 'first-hand', digging techniques, planting patterns and methods and 'natural' and 'innovative' methods of insect control. One entire day was spent touring the southern New Mexico agricultural region with Benjamin (Benji) Segovi, a marketing specialist from the New Mexico Department of Agriculture. This trip, although unplanned and a complete surprise, at least to the author, provided incredible insight into New Mexico agriculture since Mr. Segovi was not only an agricultural specialist, but, as the son of a migrant farm worker from Mexico, had grown up on a large pecan operation south of Las Cruces. Unfortunately, an additional multi-day trip into the northern region of Chihuahua, Mexico, also planned by Mr. Segovi, did not occur, as he had unexpected work demands.

Archival Material

This material was obtained largely from government and government related sources, and independent organic agriculture agencies. For New Mexico these sources include the New Mexico Organic Commodities Commission, the New Mexico Department of Agriculture and the New Mexico Farmers Market Association. Materials from other regions of the United States were obtained from government and private websites and personal correspondence. Some of the sources include the United States Department of Agriculture (USDA), state agriculture departments, state certifying agencies, private third party certifying agencies, and a variety of other organic agencies/associations. Within this material are certification standards and procedures, commentary from organic agency directors and commentary from organic growers outside the state of New Mexico. Additional information was obtained from application forms filed by individual growers for certification with the New Mexico Organic Commodities Commission. (Samples appear in appendix). These applications contain detailed physical descriptions of land under organic production, techniques used, justification for methods and crop selection in addition to personal commentary about their farms and organic practices.

Quantitative Data

New Mexico Numbers

This series of data was accessed through the New Mexico Organic Commodities Commission, New Mexico Department of Agriculture, USDA, state organic certifying agencies and private third party certifiers. These numbers represent acreage in agricultural production for the state of New Mexico, number of acres devoted to organic production, crops grown and acreage allotted to specific crops and numbers of certified growers. Portions of the data have been graphed and/or mapped to show patterns of farm size and areas of concentration for organic agriculture.

The “Other” Numbers

Acreage in agriculture and acreage in organic production for the other 49 states have been accessed through the USDA Economic Research Service and mapped to show percentage of agriculture in organic production per state and to provide a general overview of agricultural acreage committed to organic production. Chapter 4 contains a representation of both quantitative and qualitative data.

CHAPTER 4

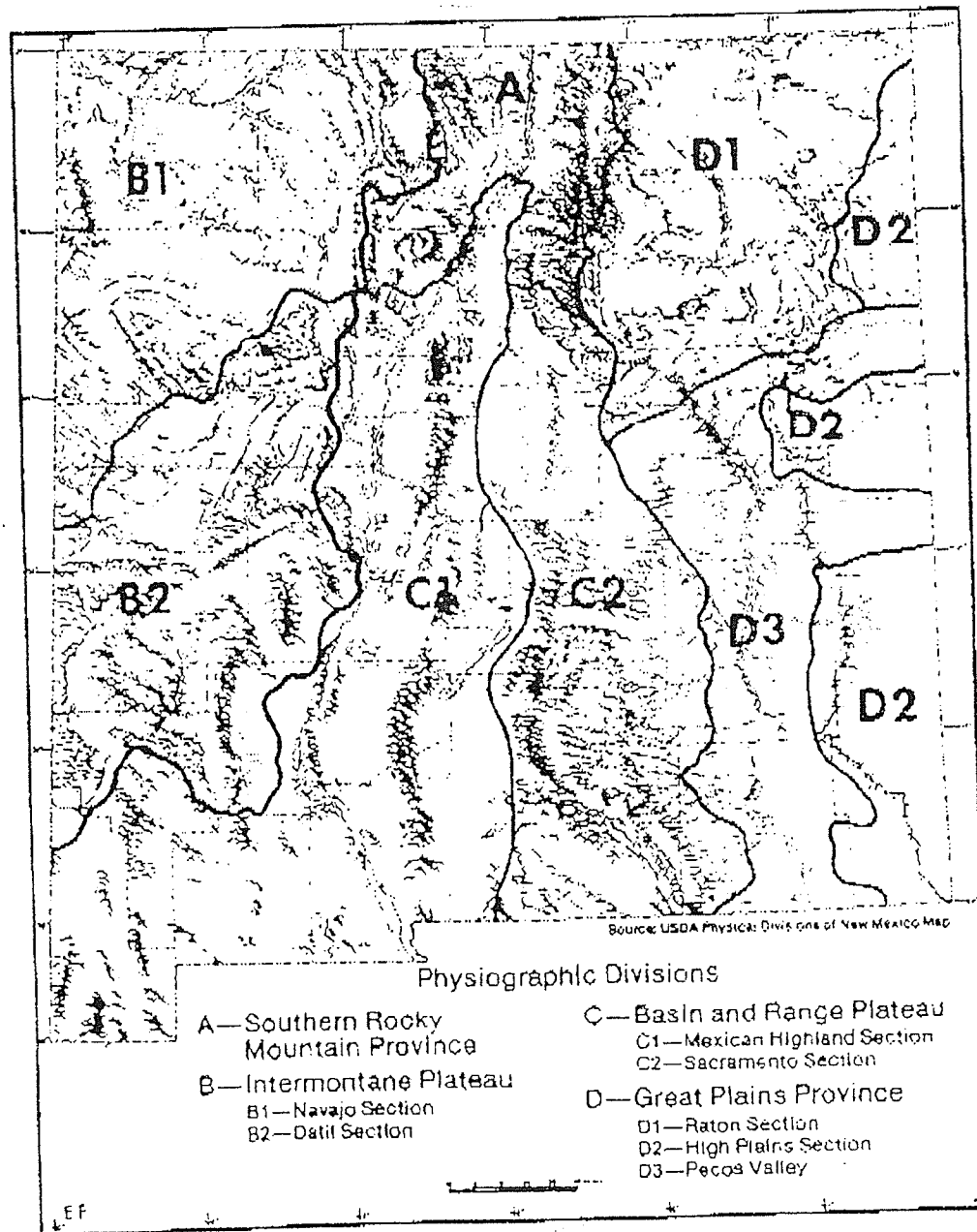
RESULTS

Farms in Space - Location and Distribution of Organic Growers in New Mexico

The state of New Mexico, located within the southwestern United States, covers an area of 121,666 square miles making it the fifth largest state (Beck, 1977:3; Snead, 1981:6). New Mexico is bounded by Colorado to the north, Arizona to the west, Texas and a bit of Oklahoma to the east, and Texas and Mexico to the south. It is an extremely diverse state in terms of topography, vegetation and climate. Wheeler Peak at an elevation of 13,160 feet is the highest elevation point in New Mexico, while Red Bluff Reservoir at slightly less than 3,000 feet is the point of lowest elevation (Snead, 1981:6). Although 75-85% of the state lie above 4,000 feet, most areas within New Mexico lie between 5,000 and 6,000 feet (Beck, 1977:6; Snead, 1981:6). Of eight major U.S. topographic divisions, four are represented in New Mexico (Figure 1). They are the Sonoran Rocky Mountain Province, Great Plains Province, Basin and Range Province and the Colorado Plateau Province (Beck, 1977:6; Snead, 1981:6). As topographic diversity clearly correlates with diversity in vegetation and climate it is no surprise that New Mexico's vegetation represents all major biomes with the exception of tundra and tropical rainforest (Morain, 1981:22). Diversity of climate within New Mexico is indicative of a region in which altitudinal variation has a greater impact than latitude (Beck, 1977:9; Eisenhood, 1981:8)

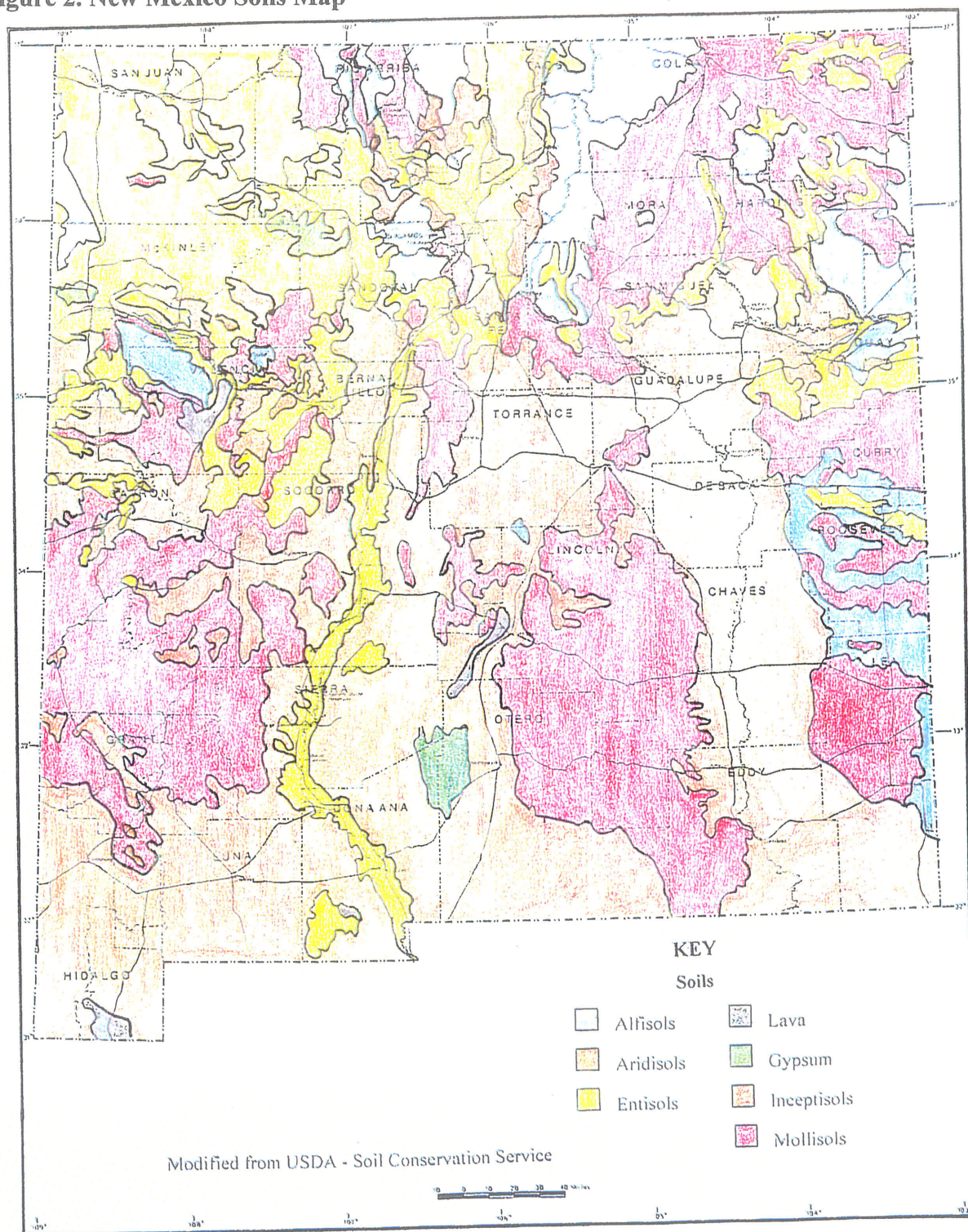
Another example of the diversity of New Mexico could be demonstrated by the soil types found within the state. Figure 2, presents a color coded soil map indicating

Figure 1. Physiographic Divisions - New Mexico



(Snead, 1981:6)

Figure 2. New Mexico Soils Map



locations of the five soil orders found in New Mexico. The five soil orders represented are the Aridisols, Mollisols, Inceptisols, Alfisols and the Entisols. The Aridisols within New Mexico are *Argids*, which are characterized by a clay horizon. They are generally dry soils, low in organic matter; productive if irrigated and problematic if groundwater is present and soluble salts accumulate (Brady,1990:74). They are the largest represented soil type within New Mexico. The Mollisols, also quite significant within New Mexico, are high in organic matter and are important agricultural soils. Entisols are weakly developed mineral soils and are only productive when fertilized and water controlled, although they are productive on floodplains (Brady,1990:67; Morain,1981:20). Alfisols by contrast are highly productive although they do not represent a large portion of New Mexico soils. Inceptisols generally include significant agricultural soils which are limited by factors such as poor drainage (Brady,1990:67). Within New Mexico, Inceptisols are barely represented.

The significance of Figure 2 is, that when compared with location maps of organic growers (Figures 3 and 4), it appears that organic farming operations within New Mexico are located on what would be considered liminal soils. The author's expectation had been that most organic farms would be located within the basin or valley regions (given the topography), with the soil type being Aridisols. What emerged, however, was that a large number of organic operations were located along the Rio Grande, an area characterized by Entisols. In one respect the results were not surprising because, as has been suggested, many of the organic farmers are in some way liminal themselves. It was unexpected that this liminality would extend into agricultural knowledge. Certainly, however, there were clear indications that many growers were liminal with respect to sense of community and

Figure 3. Approximate Locations of Certified Organic Operations - 1997

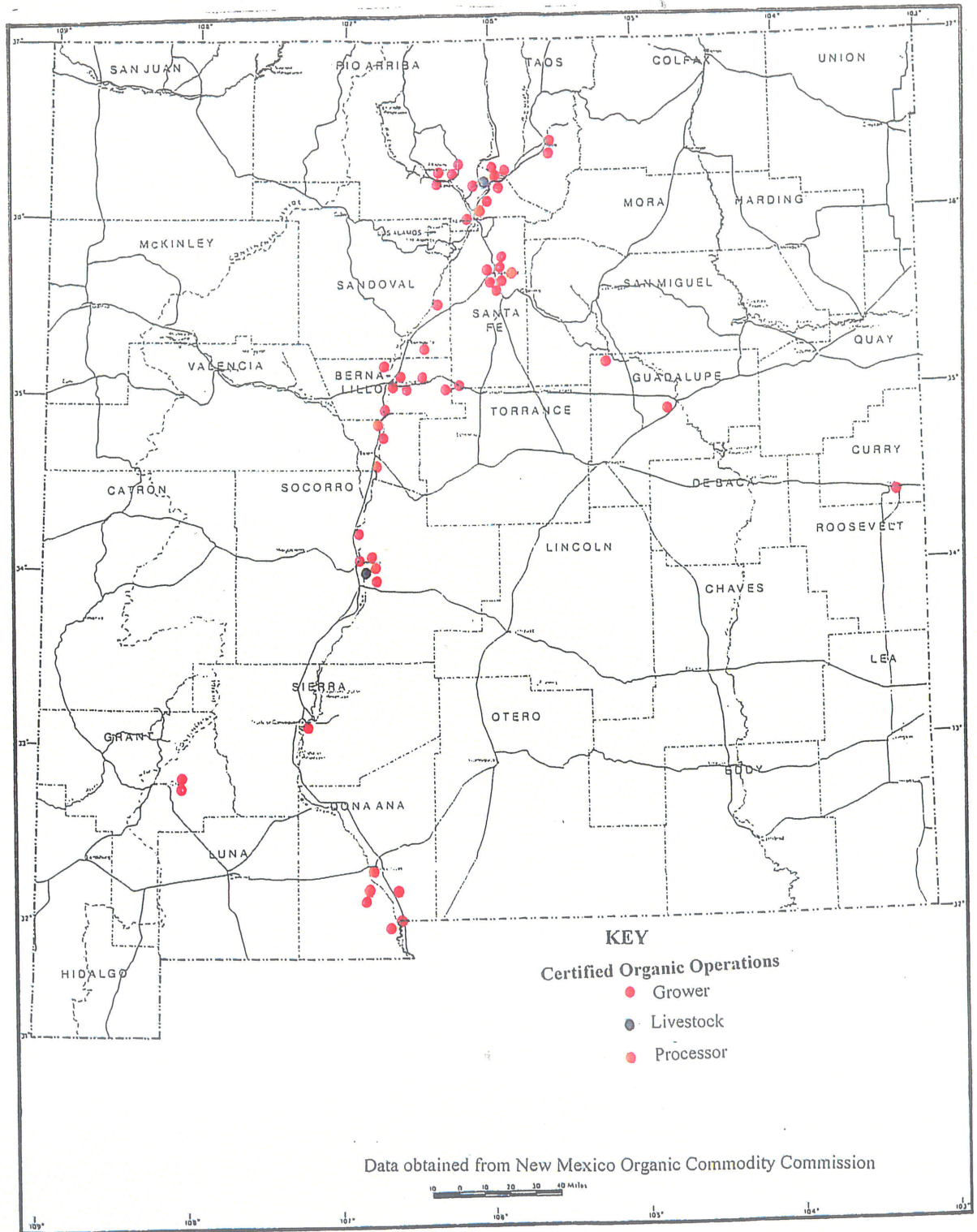
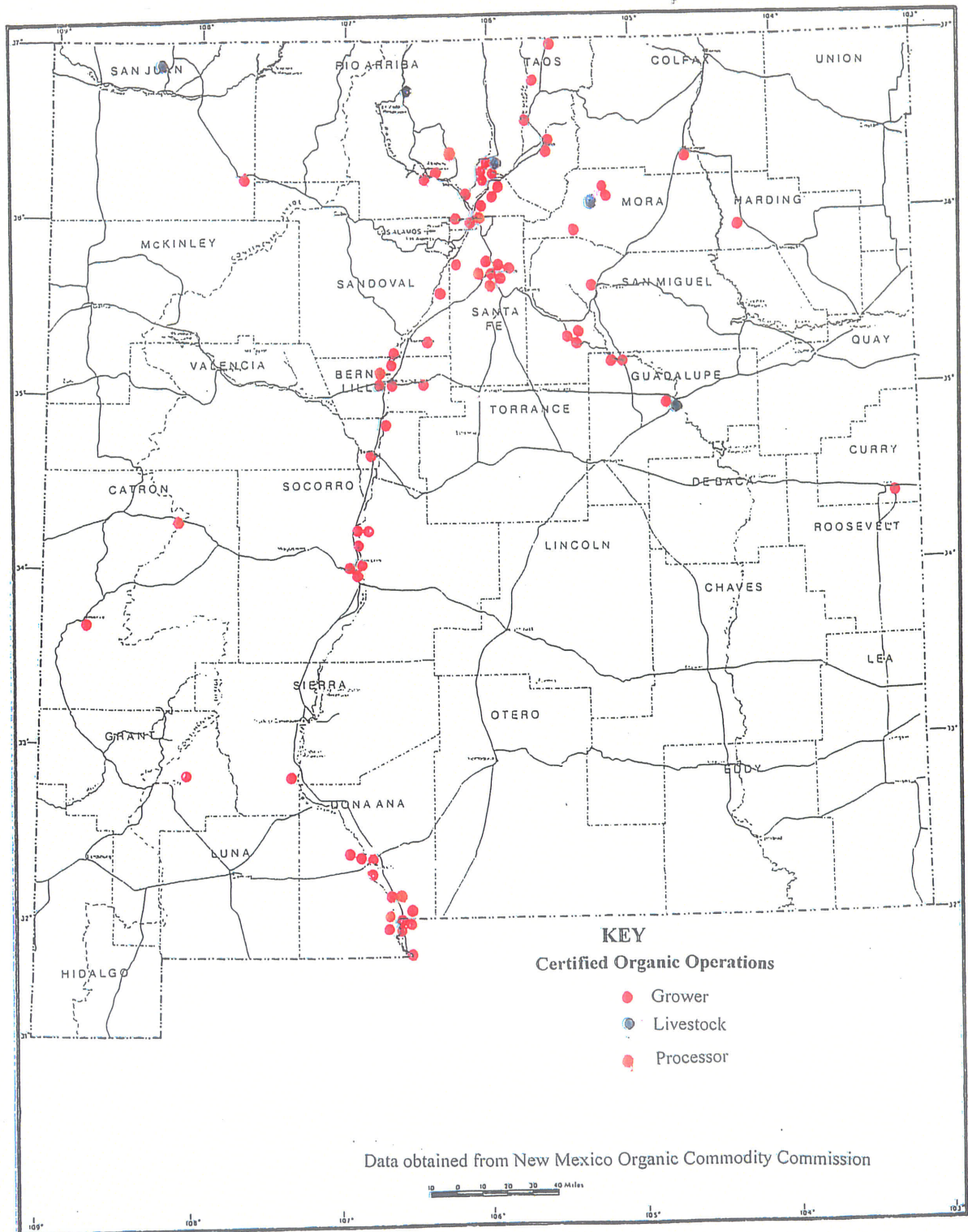


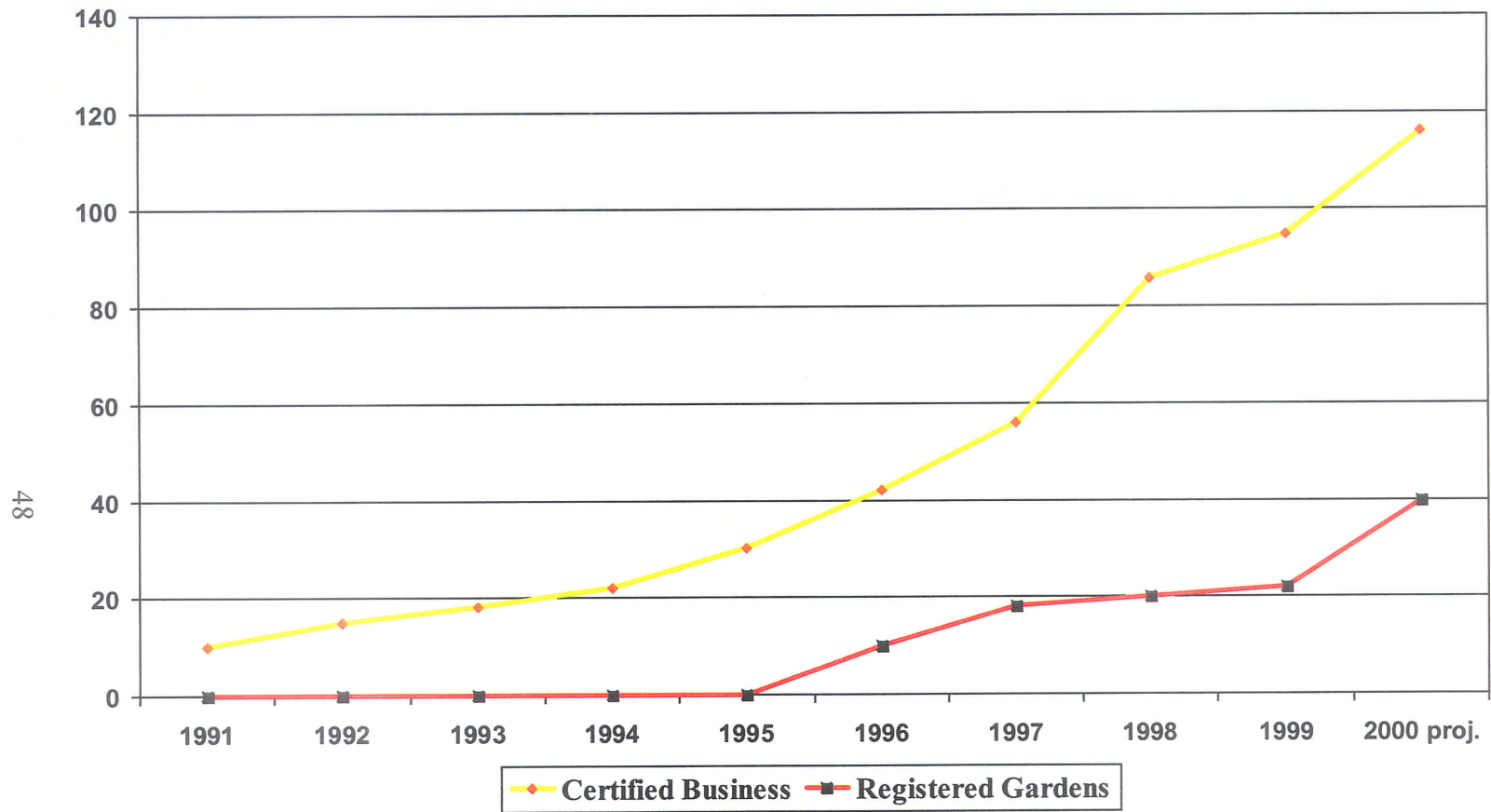
Figure 4. Approximate Locations of Certified Organic Operations - 2000



commitment. In fact, of the organic farmers plotted within Figure 3 and Figure 4, only a small number remain committed to organic farming in 2000. Although the data from 1997 and 2000 show an increase of certified organic operations from 48 to 78, only 27 of the original operations certified in 1997 remain certified in 2000. This number becomes lower yet if other factors are considered, such as amalgamations of operations and sales of existing operations to new operators. Within the group that has remained certified from 1997 to 2000, is an even smaller group with an actual farming history within their families, further suggesting that many organic farmers have no previous knowledge of farming and likely no knowledge of soil types. It is quite plausible then that the 21 organic operations that ceased to exist into 2000 had done so because agricultural production was hindered by lack of knowledge and/or experience and/or land. Many organic growers also deliberately choose to live and farm in isolated areas, making connections with the community appear that they are solely for the purpose of marketing. These factors considered, suggest a possible correlation between liminal land, liminal folk and organic farming.

The greatest concentration of organic operations is in the northern part of the state, particularly around the Taos area (Figures 3 and 4). They are the “stereotypical small grower...part of a back to the land movement from the 60's and 70's” (Viers, 1997 pers. com.). This concentration of organic growers (Figure 5), is in terms of numbers, not dollars (Viers, 1997 pers. com.) and the locations are not entirely locations of choice. According to Joran Viers, Agency Director for the New Mexico Organic Commodity Commission, “there was an attempt to expand organic farming into the eastern plains, an

Figure 5. Organic Industry Growth in New Mexico



Provided by New Mexico Organic Commodity Commission

area of former rangeland, that was met with resistance” (Viers, 1997 pers. com.). It was the perception of Joran Viers that communities in New Mexico, although having a history of tolerance and a willingness to co-exist were still not ready to embrace an organic way of life. Viers, qualified his comment by saying that this was in the context of an organic way of life as embraced by the new immigrant organic farmers, many of whom were part of the ‘back to the land’ movement, and many of whom used to live on communes. It would be very difficult to assess to what extent the resistance was directed against the organic farmers rather than the organic farming methods, although the suggestion of Viers was that, a primary issue was one that focused on outsiders immigrating into New Mexico.

It would, however, be incorrect to assume that all New Mexico organic farmers are liminal with regards to themselves and their land. The valley region in which most organic operations exist, is, the author was assured, “very fertile” (Maple, 2000 pers. com.). With the intention of verifying or nullifying my findings about organic growers and liminal land, contact was made with Craig Maple of the New Mexico Department of Agriculture. Although Maple was as surprised as the author was by the results, he offered no reasonable explanation but agreed with the suggestion that perhaps the soil map was not specific enough. Had not this author actually ‘seen’ a number of New Mexico farms and soils while completing the research she might have not have been so yielding. What was observed while in New Mexico, however, was that many of the farms had soil that resembled fertile Manitoba ‘gumbo’ (Figure 6), with one exception; a farmer whose soil was soft and sandy. Coincidentally, this particular farmer was one of two organic growers the author spoke with whose families had farmed their present land for over four hundred

Figure 6. New Mexico *Aridisol*



years! There were actually many organic growers who were not liminal but rather were engaged in techniques that required an advanced understanding of soil properties and organic techniques. A possible conclusion to draw, however, could be that an interpretation of increasing number of certified organic growers from 1997 to 2000 as an indicator of increased acceptance and popularity would be completely false.

It should be noted that the data presented exclude those organic operations that have chosen to certify through private certifying agencies instead of the New Mexico Organic Commodities Commission. The data also exclude those organic growers who do not exceed \$2,000 in sales per year. These growers are not required to certify their operation although they may be Registered Organic Growers. There is also a large number of 'claimed organic' growers. Inclusion of this latter group could have increased the 'number' of organic growers, altered location patterns and possibly presented a greater statement of commitment and stability about the organic community. The focus of this thesis is, however, the *certified* organic grower in New Mexico.

Farm Sizes

**“The definition of a farm for census purposes was first established in 1850. It has been changed nine times since. The current definition, first used for the 1974 census, is any place from which \$1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the census year. The farm definition used for the outlying areas varies according to the area. The report for each U.S. territory varies. The report for each territory includes a discussion of its farm definition”.
(U.S. Census Bureau, 1992)**

In a North American context, the ‘farm’ was conceptualized and actualized as a domestic mode of production, an enterprise that was family owned and operated with a labor pool that was largely drawn from the pool of family members. There is a substantial depth to the history of the transformation of the family farm to the farm as an agro-corporation. Much of this was driven by a concern and a technological ability to increase the amount of product (yield). Increasingly, the ‘farm’ either became a corporate entity or a subsidiary of large Agro-chemical and Agro-corporations.

It is common knowledge that each year more family farms dissolve; in many instances because of a family’s inability to sustain their operations as a source of income or in others cases as a result of being swallowed up by corporate interests. In fact, there has been a substantial public lament - a lament that includes benefits such as Farm Aid, often associated with rural/country icons such as Willie Nelson. There has been a sustained public effort to prevent the demise of this American icon/key symbol - the ‘family farm’. It is linked to an American notion of individualism and family values. It is a

way to fight back and something to fight for - a way to fight large corporations as well as large governments.

Organic farming thrives ideologically in this context - as counterpoint to the notion of farm as large agricultural corporations. That is because organic farming is in part a version of a 'back-to-the-land' movement, a movement best characterized as a revitalization of core American values and processes. While the concept of 'farm' was transformed by large agro-business, it has changed again in this revitalization movement and process, most noticeably in terms of size.

For example, there is an interesting 'pattern' that emerges from the list of certified growers supplied by the New Mexico Organic Commodity Commission (Table 1). If one examines the size of 'farm' (certified organic), some of the farms listed are as small as one acre. In fact, the largest number of certified farms are one acre or less. As acreage increases, the number of certified growers decreases notwithstanding the small increases from the 2 to 20 acre categories. (Figure 7). At 20 acres, however, there is a sharp increase followed by a plummet in numbers of growers. Only two farms are greater than 100 acres.

Having spent time as a child visiting 'family' farms in Saskatchewan, the author's impression of farm size was that it was measured in sections not acres. A section of farmland is equivalent to 640 acres, a figure not unusual for minimum farm acreage. An agricultural unit of 1 or even 20 acres was not a farm, but rather a garden. Understandably someone with little agricultural exposure may well see anything larger than a window box as a 'farm'. A definition of 'farm' from a dictionary, however, defines it as a "unit of land or water devoted to the growing or rearing of some particular type of vegetable, fruit,

Table 1**ORGANIC FARMS BY ACREAGE AND CROP (1997)**

<u>ACRES</u>	<u>FARM</u>	<u>CROP</u>
1	Capua Health Resources Gagnon Herbs Sungreen Living Foods Sabinal Vineyard Apple Tree Mesa Farms Coop. Rancho La Paz Processing	sprouts herbal extract processor sprouts juices vegs, fruit, herbs cotton ginning seed cleaning
2	Bluebird Herb Farm Kartar Khalsa M Mountain Organic El Rancho Nido Las Golondrinas	herbs, vegs green house herbs, vegs mixed vegs vegs, alfalfa (2.25acres)
3	Moon Mountain Farm	apples, vegs
4	M and T Connaughton Wilderness Flowers	herbs, asparagus
5	El Manzanar de Maria Turtle Rock Herb Farm Sol y Sombra	fruit, veg herbs vegs, herbs, flowers
6	Abiquiu Organics Silent Spring	vegs, flowers vegs, herbs, flowers
7	Tecolote Farm	fruit, vegs
8	Herbal Roots	herbs, vegs, flowers

Table 1 cont.

10	Big Willow	vegs, fruit
12	Rancho la Paz Chama River Organic Farms	fruit, seeds herbs, veks
14	No Cattle Farm	apples, veks, herbs
15	Home Grown Organic Embudo Family Organic Embudo Valley Organic Little Tiny Farm	herbs, veks turkeys cover and feed crops vegs, pinto beans
17	Del Valle Pecans Del Valle Pecan Processing Ron's Organic	pecans pecan processor vegs, flowers
18	B and B Enterprises	veg and feed grain
20	Kernel of Life Pollo Real-Chile Real Pollo Real-Chile Real Pollo Real-Chile Real Spectrum	wheat poultry processor poultry vegs mixed veks
21-30	Calhoun Farm (29) Bear Paw (22)	pecans, compost apples
31-40	Mimbres Farms (31) La Bajada Ranch (37)	mixed fruit, veks vegs, herbs, hay
41-50	Sabinal Vineyards (50)	grapes

Table 1 cont.

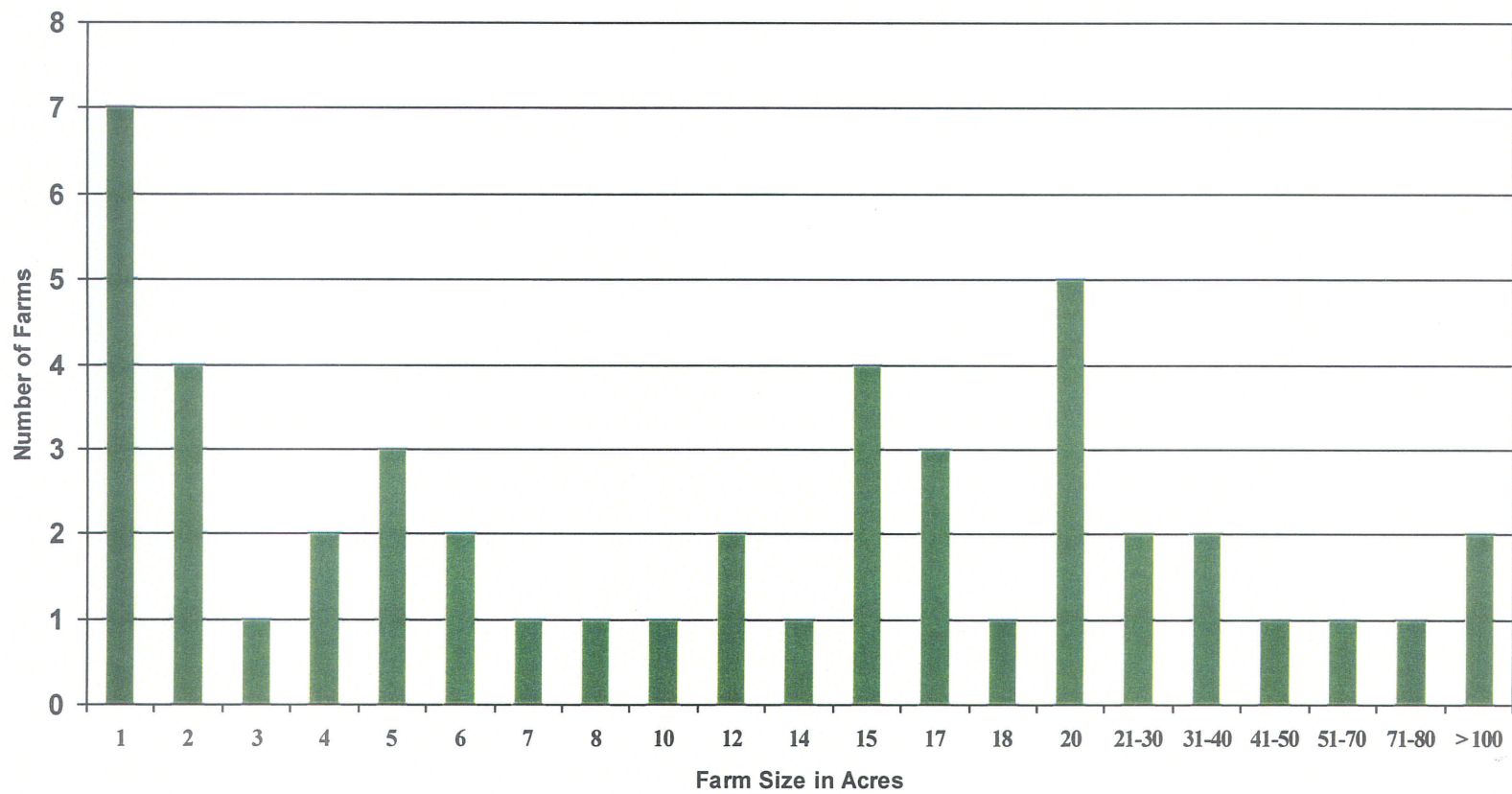
51-70	Hinker Ranch (65)	alfalfa, chile
71-80	Blue Moon (80)	alfalfa/pumpkins
over 100	Big Sky (320) Alvarez Farms	ostrich, grain org. and trans. cotton

Acreage unspecified - under 1 acre

Biad Chile	chile processor
Valencia Flour Mill	flour milling
Gore Bros. Inc.	animal feed
Fox Clan Inc	herbs

(New Mexico Organic Commodity Commission, 1997)

Figure 7. Number of Organic Farms Per Acreage Category (1997)



Data provided by New Mexico Organic Commodity Commission

animal or fish” (Collins Concise Dictionary Plus, 1989:447). In this definition there is no mention of farm size: what is relevant is the activity that takes place on the land. A farm then could be said to be defined by activity or economics, not necessarily size, although all of these factors influence the perception of what a ‘farm’ is.

Crops

Diversity in New Mexico is not limited to geography and culture but is equally apparent in crops grown (Figure 8). Almost any crop imaginable can be found here including squash, pumpkins, eggplant, tomatoes, okra, corn, onions, cabbage, garlic, mushrooms, potatoes, berries, figs and melons. It is common to see vineyards (Figure 9), and peach and apple orchards. Pecan groves are abundant (Figure 10): other nuts grown are pistachios and peanuts. Of course, any crop that can be grown conventionally can also be grown organically.

Multiple varieties of certain crops are also common. For example, one grower whose farm was visited grew 50 varieties of tomatoes and 25-30 different varieties of chile peppers. Almost all mixed growers grow at least one edible variety of chile pepper. The most common is a longish green pepper used to make New Mexico ‘green chile’, a staple in New Mexico cuisine. In 1995, the “estimated production for green chile was 62,000 wet tons” (conversion to dry weight can be calculated at a ratio of 8:1) (New Mexico Agricultural Statistics Service, 1995:69). It is unknown what percentage of this estimation would be organic.

Most crops grown by New Mexico organic growers are grown in response to



Santa Cruz Farms & Green House

Don Bustos * P.O. Box 5045
Espanola, NM 87533 * 753-2516



Figure 8. Common New Mexico Organic Crops

Transplants

- * Chili
- * Bell Pepper
- * Yellow Hots
- * Red Bell Pepper
- * Egg Plant
- * Red & Green Cabbage
- * Broccoli
- * Jalapenos
- * Tomatoes
- * Yellow Tomatoes
- * Beef Steak Tomatoes
- * Cucumbers (4 varieties)
- * Squash
- * Spinach
- * Brussel Sprouts

- * Zinnas
- * Marigolds
- * Herbs:
- * Basil
- * Bay Leaf
- * Spearmint
- * Chives
- * Peppermint
- * Lemon Balm
- * Rosemary
- * Dill

Local Fresh Produce Available in Season

- * Sweet Corn
- * Broccoli
- * Cucumbers
- * Squash
- * Radishes
- * Beets
- * Onions
- * Cabbage
- * Spinach
- * Chicos

Open 7 days a week

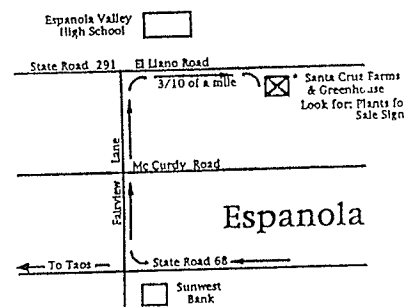


Figure 9. Sabinal Vineyards in Bosque, New Mexico

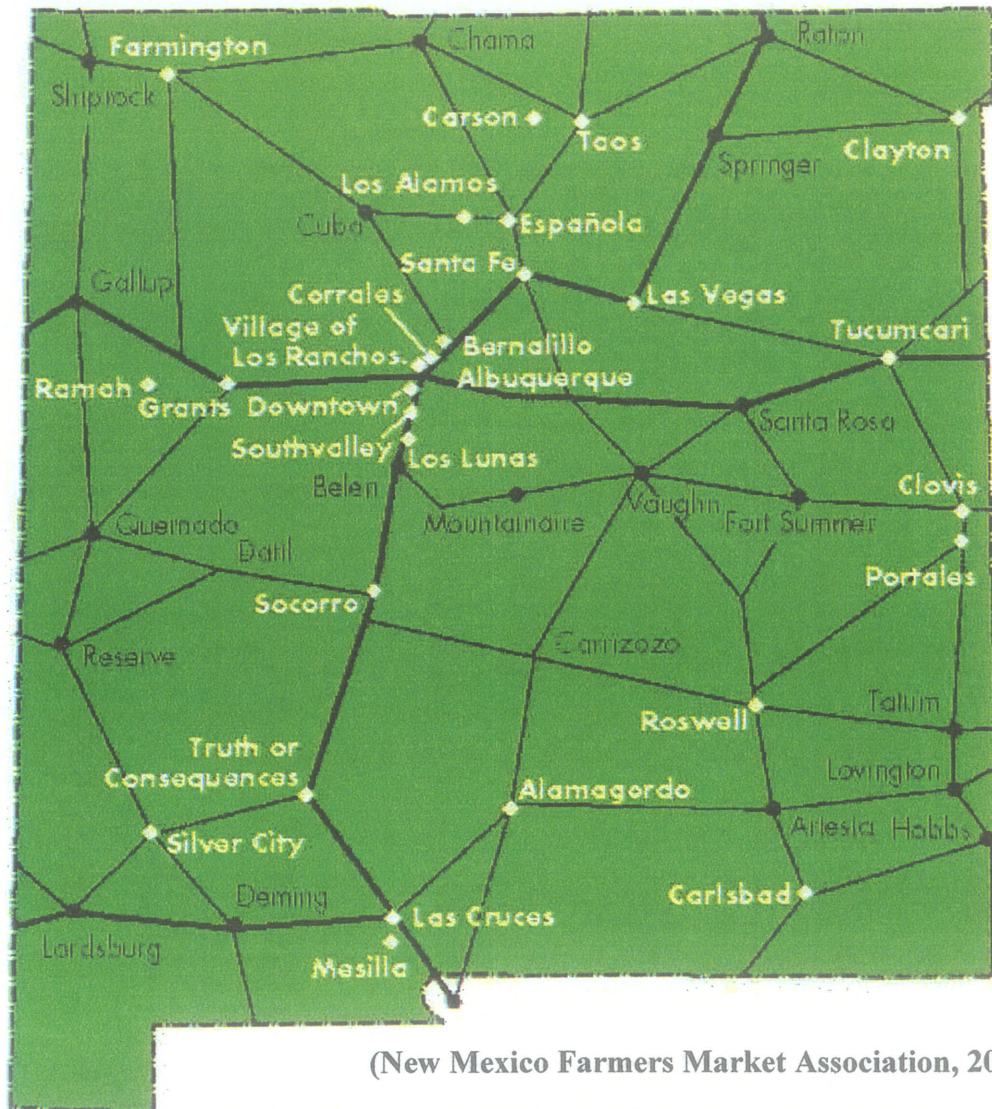


Figure 10. Stahmann Farms Pecan Orchard in San Miguel, New Mexico



'market' demands. In this case the market is a real market - the farmers market. Although there are 27 farmers markets within New Mexico (Figure 11 and Figure 12) the most popular and profitable for the organic grower is the Santa Fe Farmers Market (Figure 13, Figure 14, Figure 15 and Figure16). Wealthy area residents and celebrities are known to frequent the Santa Fe market. Organic growers respond to 'local' needs by growing what is in demand. Real 'local' Santa Fe-ans, however, do not shop regularly at the farmers market, in fact, most local people can no longer afford to live in Santa Fe itself. While in principle organic produce appears to be a more 'healthful' choice, economic factors prevent many from obtaining the benefits.

Figure 11. Map of New Mexico Farmers Markets



(New Mexico Farmers Market Association, 2001:1)

Figure 12. Albuquerque Growers Market



Figure 13. Santa Fe Farmers Market



Figure 14. Santa Fe Farmers Market



Figure 15. Santa Fe Farmers Market



Figure 16. Santa Fe Farmers Market



CHAPTER 5

CULTURAL ANALYSIS

How Do I Name Thee?...Let Me Count the Ways

“Show your pride. How about a name for the home or the farm? The naming should be based on natural surroundings and conditions. For instance, it is ridiculous to name a place ‘Shady Nook’ when there isn’t a bit of shade within a mile, or to call a farm ‘Cherry Hill’ when it possesses neither cherries nor hill... When the right name is chosen, let’s *use* it. Have it painted on a board, in neat letters, and nail it up in plain sight from the road”.

(Farm Journal, 1906, in Yepsen, 1997:3)

There are a number of things that are important in this citation. Given its vintage, it is clearly linked to a time gone by or a more ‘traditional’ time. The suggestion is that first and foremost, naming the farm or home is very important - almost like a core value. Naming a farm or home or farm-home provides a symbolic link between the land that is the substratum and the people who work and live on it - it also provides a link between insiders and outsiders, i.e., people who live on/in a particular place and people who pass by. A sign at the outer boundary of a piece of land, no matter how big or small, is a public performance for the two sets of people, those who live in a particular location and those who pass by. Those people who would pass by would be a combination of neighbors, friends, other family members, other relatives, people from nearby communities, and various strangers. For the people who pass by, it is an overt performance of pride, ownership and workmanship. Amongst other things, it informs passers-by about something important with reference to a parcel of land and the people who live on it. In

this sense, then, it is a text intentionally written for the benefit of any reader, but it is simultaneously a text that is intentionally written for the benefit of the home dwellers. Each time they leave, they leave both the physical aspects of home, hearth and garden, but, more importantly, when they return, they read what they themselves have written. In this way authorship of the signage is an overt performance, in a general way, of the 'narrative that we tell ourselves about ourselves'. This makes the 'narrative' equally important internally and externally. The suggestion in this citation is that the name should be 'basic' - that it should connect with something that is a natural feature of the farmscape. Very specifically, it admonishes not to choose a name that has no actual natural referent. This naming is both secular and, frankly, sacred - it is a baptism of both the land and its people, linking them in a productive relationship that is about producing crops or living things as well as providing for the reproduction of the people. Each time people leave the farm and, more importantly, return, they engage in a specific performance of a reaffirmation of both themselves, and the land that is the context for their life's work, their work in life, and their livelihood. What this author is referring to here is a specific, repeating and observable act that is clearly linked to the general notion of a narrative of selves. Even though this enterprise might appear wholly secular, it is, however, intrinsically sacred.

"Beyond a reverence for life, organic farmers frequently have a deep religious faith. Organic farmers are innovators, or at least individualists. In standing up to ridicule, many farmers draw the strength they need from their faith. In fact, some have chosen their farming techniques because of what they regard as the direct guidance from God. One Iowa organic farmer speaks in awe of the tornado that left his house and land virtually untouched, while destroying many of his neighbors' farms. ...

Organic farmers often leave their land fallow one year out of seven, in accordance with the Biblical injunction of Exodus 23: 10-11 and Leviticus 25: 1-7. As the seventh day is the day of rest for people, so the seventh year is the year of rest for the land. Giving the seventh year to God is to demonstrate that man (sic) is really only a steward of the land; the real owner is God. ... Since Old Testament times the devout have believed that natural disasters and wars are the result of not observing ... divine laws. The exile of the Israelite nation from its homeland for 70 years is interpreted in the Old Testament as punishment for working the land for that many fallow years (II Chronicles 36:21)".

(Oelhaf, 1978:148)

There is no question that many farmers, both organic and not, perceive their connection to the land and their livelihood as sacred. This belief gets them through hard times and good times. Many of the organic farmers whose families have farmed the area for more than 400 hundred years maintain an intricate connection with both Old and New Testament beliefs and core values. The pueblo organic farmers have also not deviated from their traditional belief systems. Many immigrant organic farmers also claim a connection with some generic 'belief system' but, often, this connection is through New Age performances of mosaic belief systems. These belief systems are often associated with Anglo appropriation of bits and pieces of the cultures of other peoples, in this particular location, the belief systems of American Indian cultures. By and large, however, there is a deep commitment to farming both as a lifestyle and a way of making a living. This is certainly what all organic growers say in one way or another; however, there is an interesting disjuncture on the part of some of the immigrant organic growers. In a publication of the New Mexico Department of Agriculture that is a catalogue of both certified and claimed organic growers there is the following statement:

“...Farming like other things is a dynamic business, and people move in and out of it like anything else...”

(Sarah Grant, 1995:2)

This is fascinating because both the Pueblo farmers and the multiple-generation farmers would not and did not indicate anything closely resembling this. For these two groups of people, farming is most assuredly at least a life-long relationship with the land and more often than not a multiple-generation relationship with the land. Sarah Grant was the ombudsman with the New Mexico Organic Commodities Commission in 1992, with strong connections with the Santa Fe Farmers' Market. In 1997, Grant was the managing editor of The Farm Connection, a newsletter devoted to organic farming issues. Clearly she is committed to organic production: she has been employed by the New Mexico Department of Agriculture and is credited with compiling the information used to generate the New Mexico Produce Buyer's Guide.

As one reads, both literally and figuratively, the list of certified organic farmers in the State of New Mexico, it is a fascinating revelation, discursive performance, that some of the names of organic farms appear to coincide with this 'traditional' call to arms. Some of the farms, particularly, those owned and operated by people with a familial history in farming, write names that are straightforward, either a name that refers to some actual natural feature or actually carries the name of the family linked to the land. Good examples of this would be the farm owned by Don Bustos whose farm name is Santa Cruz. Bustos and his family have farmed this same land for over four hundred years. Not only is there a cross on the property, but the land is also in proximity to the Santa Cruz mountains. Sam Calhoun's farm has the name, Calhoun Farms. Fred Hinker's farm is called Hinker

Ranch.

There are, however, other kinds of names. The group of people who are recent migrants to the state of New Mexico as well as being committed organic farmers have also chosen names for their farms and for the same dual textual reasons. The underlying textuality is not so readily apparent or 'readable' - in fact, it often requires a direct question regarding the motivation for a particular name. For example, the Morningstar Farm is owned by Melinda and Bill Bateman. Unless a 'reader' knew a particular kind of history, the reader would not necessarily see the connection to the name of an old commune near Taos, New Mexico. The Morning Star Commune originated in California and relocated to Taos (Bateman, 2000 pers. com.). The name of this farm carries the name of the commune into a different location in New Mexico. Flying Fish Farm was named after a much loved race horse (Artschwager, 2000 pers. com.). Marsha Mason (2000 pers. com.), a recent immigrant originally from St. Louis, named her farm Resting in the River. The farm is along the Rio Chama but, the real connection for Marsha Mason is that it resonates a Buddhist intonation that evokes, in her mind, serenity. She, herself, is not Buddhist; she simply likes the Buddhist concept of serenity. Magpie Meadow, the author was told, teamed with magpies but the critical issue was not just that there were magpies but that these magpies were/are a part of a cycle in which much is interrelated. The author of this name (Linda Prim) was primarily concerned with the cyclicity of things (Prim, 2000 pers. com.).

Big Willow Farm is a new name for an old place. The original name was Obscurana meaning a 'dark place'. The owners renamed the farm to be less ominous and

more simple and straightforward, in fact to coincide with the existence of a most substantial willow on the property. El Manzanar de Maria, literally, the apple orchard of Mary will soon have a new name: Ranchos Arcos Iris - Rainbow Farms, because there are a lot of rainbows there (Campbell, 2000 pers. com.). The new name is clearly not associated with a Catholic tradition as the original name was.

Sandhill Farms has an interesting connection that would not be 'readable' to any passerby, or geographer, for that matter. According to Juliet Harrell, (2000 pers. com.) they love the name of their farm and it was so baptized because her husband's father farmed in the Sand Hills area of Nebraska and her husband is the only one in his family to recommit to a farming lifestyle.

A Garden Is a Garden by any Other Name - The Concept of 'Farm'

This project accomplished many interesting things: one of them was that it provided a context in which the researcher's notions about farms and farming could be easily contrasted with many of the New Mexico organic farmers. In a geographical context, fieldwork enabled documentation of culturally constructed interactions with the cultural and physical landscape of New Mexico. Additionally, as in an anthropological context, it became a simultaneous search for the 'other' and the 'self'. This prairie author is accustomed to thinking of farms as large expanses of land that are, for the most, part multi-purpose enterprises as in the original sense of 'mixed farming' that, at least historically, has been family based and family centered. These farmscapes more often than not included large amounts of acreage devoted to the production of cereal grains, most or

all for sale in a large marketplace, and cattle or hogs, again mostly for external sale, although some was for consumption by the family. Chickens were raised as much for their daily egg production as an alternate source of meat. There was sometimes an orchard and almost always a very large garden. The produce of the orchard (eg. apples) was for the marketplace and the produce of the garden was primarily for family or domestic consumption. The garden produced a substantial variety of vegetables such as carrots, beets, cucumbers, beans, peas, and lettuce as well as herbs such as dill to be used in conjunction with preserving or conserving the vegetables. The garden also sported a large section devoted to flowering plants; some of these were sold, some cut for display inside the house and many were in the garden to add to garden aesthetics.

By and large, the organic farmers in the state of New Mexico who had been farming most or all of their lifetime as an extension of previous generations, had farms that were much like this image. It was also the case that not all of the family farmland was 'organic', but only certain sections of it, however, their perception of farm was familiar. On the other hand, the 'farms' of recent migrants to the state were, and are, quite different. On numerous occasions the organic 'farm' looked far more like what this author recognized as a 'garden'.

While standing in the rain with Le Adams, listening to her 'narration' of her 'farm', the author was struck by a number of things. When arriving to talk with Adams, it was a cold and wet New Mexico day - a day that made labor with the crops impossible. Clearly this meant that there was affordable time to spend with a geographer. We walked out to the field and after a very short walk from the 'house' we arrived at the 'farm'

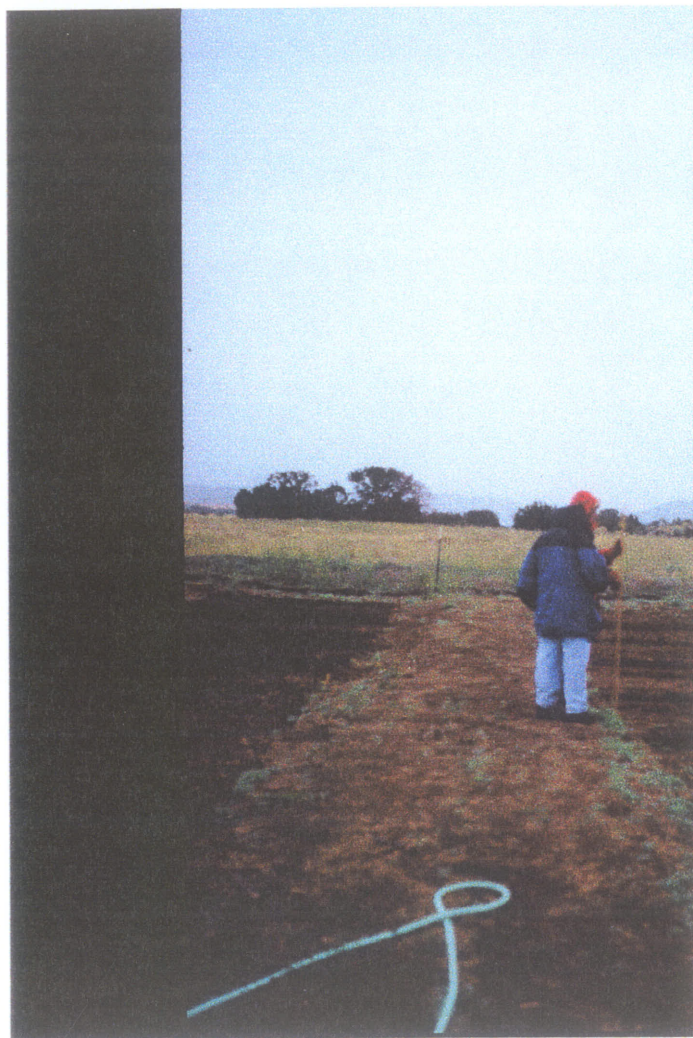
(Figure 17), which looked just like a fenced garden, with about half of the fenced area under production. In addition, Le Adams told the story of her garden. She pointed out that her crops were in 'raised beds'. This was intriguing because the author's home garden had a version of raised beds. The author's choice to design the garden this way was an attempt to gain some of the benefits of traditional South American raised beds. The most significant of these benefits was a 'slightly' longer growing season, as raised beds allow soil temperature to remain several degrees higher and lessen the risk of frost. The higher soil temperature also reduces the duration of frost. Le Adams' version of raised beds (Figure 18) was and would be consistent with 'hilling', slightly elevating the row in which plants are placed. This is done in one of two ways: either digging and moving soil to raise the row or by digging trenches between the rows. Although this was a frequent practice amongst the immigrant organic producers, no one was aware that some forms of 'traditional raised bed' agriculture dated back to 1000 B.C. (in the Lake Titicaca region of Bolivia and Peru) (Erickson, n.d.:11). Raised bed farming was perceived to be 'innovative' by the New Mexico organic farmer.

Adams' farm had other interesting features. The house in which she lived was 'rustic' - in many ways not quite complete, befitting the image of both liminality and poverty. Adams had clearly intended to build another abode - an adobe home; however, the adobe bricks had been left untended and unprotected from the rains and, as a result, the home was incomplete and the building materials in an amorphous heap so badly deconstructed that they would not be useful for further construction. This farmer was not native to the "Land of Enchantment" but was, clearly, enchanted with aspects of both local

Figure 17. Le Adams' 'Farm'



Figure 18. Le Adams and The Author on a 'Raised Bed'



and historical Santa Fe, New Mexico, including domestic architecture. Adams also had an apprentice who worked the 'farm' with her as a way of learning about organic farming although the teacher was, herself, just learning about organic methods. A single farmer clearly needs help with the labor of the farm and this apprentice was surely that. In her own words Le Adams said that her only experience with 'farming' came from the fact that her mother had a rose bush in California. Not only was this story true, she assured the author, but it was her original source of experience. Clearly the perception of 'farm' for a person from suburban California is not conceivably similar to the perception of 'farm' for a person whose family farmed for generations. It was abundantly clear that Le Adams had no idea of the nature of the labor involved in farming nor the technical expertise. Looking after a rose bush provides little or no necessary experience. But... the choice to farm was, for her, a genuine 'back-to-the-land' performance.

Susan Higgins can carry her farm in the trunk of her car (Figure 19). Her 'farm' is composed of flats of sprouts, nicely contained in transportable containers that if placed at higher levels certainly qualified as raised beds. However, given the organic commitment to double digging, this was clearly a symbolic problem. She purchased her farm much in the same way that one might purchase a business. It is true that people do buy farms and it is true that people purchase businesses and it is true that farms are businesses, but rarely would it be the case that these would fit in the trunk of one's vehicle. But, and this is a most critical 'but', she referred to her sprouts as a 'farm'. Frankly it was reminiscent of ant farms - certainly there is a similarity at least with reference to size. The produce of her farm was sold at the farmer's market and to local restaurants. She was, in the main, a

Figure 19. Susan Higgins' 'Farm' In Her Car at The Santa Fe Farmers Market



mono-cropper but her perception was that she really was a 'farmer' as opposed to, for example, someone who grew sprouts for sale. When her farm was not in the trunk of her car, it resided in the backyard of her rented accommodations in the heart of Santa Fe. Higgins, like Le Adams was an immigrant to the State of New Mexico and her perception was that New Mexico was a rural state. In addition, her description of the gatherings of women that she belonged to and attended was wholly consistent with feminist versions of 'new age' philosophy. 'New age' philosophy is for the most part a combination of liminal beliefs and practices that claim 'spiritual' and 'supernatural' superiority. This topic is well beyond the scope of this thesis. Susan Higgins was born and raised in Winnipeg, Manitoba, later moving to the American east coast and finally to Santa Fe. Her perception of 'farm' then becomes more intriguing. Even people growing up in urban Winnipeg have a relatively prairie contextualized image of what a farm is. At the very least, urban Winnipeggers have historically driven to areas to purchase farm produce directly from the farmers. Susan Higgins' sensibility, then, connects with the 'politics of sprouts'.

There is yet another dimension to this version of organic farming. The perception of what constitutes a 'crop' or crops is very much related to the perception of 'farm'. Ric Gaudet is another recent immigrant and he, too, is deeply committed to organic farming. He also has raised beds (exactly the same as Le Adams) and is committed to what is referred to as 'inter-cropping'. What this means is that 'rows' are not mono-crops but each row contains more than one species - a limited version of the kind of cropping seen in 'slash-and-burn' gardens in New Guinea for example. One of his main crops is 'salad mix'. Gaudet harvests the salad mix and sells it to local restaurants. Other farmers might

grow a variety of 'crops' in their gardens from which they might make salads for their families. This area of New Mexico (around Santa Fe) has many restaurants that cater to the politically 'right-minded' vegetarian population. It is efficient for them to buy ready-mixed salad as a 'crop' rather than buying the components of salad independently and then making the salad. No prairie farmer would say that they grow salad mix as a crop. In fact, most prairie farmers would not use the term 'crop' to refer to things that are grown in their garden.

On the rented property 'farmed' by Ric Gaudet there was clear evidence of a circle near the house, i.e., a circle of wear between the house and his garden-farm. He was quick to point out that neither he nor his partner, part of the family of Brigham Young, had participated in the 'gatherings' of this circle. This circle was not a 'crop circle'; it was connected with 'new age' practices. In the context of revealing that their respective families were wealthy the connection with Brigham Young was made. While this made their move to "back-to-the-land" more poignant, Gaudet also quickly pointed out that the families were capable and willing to subsidize their performance of organic farming. Not surprisingly, given the family historic and religious background, neither Gaudet nor his partner were 'comfortable' with the circle. Gaudet's library, however, contained many publications about 'biodynamics', a 'new age' collage of beliefs and practices that claim relevance to organic farming. While Gaudet made it clear that he was not in any way associated with the 'new age' circle, he did allow that he had an interest in the new age publications. What he was really interested in was learning how to farm successfully and, for him, this clearly meant organic farming. Ric Gaudet was deeply committed to organic

farming and to certain actual and symbolic performances of organic farming such as 'double digging' and 'inter-cropping'. Double digging is connected to a labor intensive industry that in the case of recent immigrants to the area is also connected to a performance of economic liminality.

A major consideration of New Mexico agriculture is water and irrigation. In fact, water and who controls it is probably the *most* critical issue in New Mexico. Water is politics and politics is often about water. Most organic farmers in the area find relatively simple ways of effecting irrigation, such as diverting and controlling the flow of allotted water from irrigation ditches through hand dug trenches and/or hoses. Ric Gaudet had very expensive PVC piping which transported water from his *acequia* throughout his crops (Figure 20 and Figure 21). The PVC piping was connected to thin irrigation hoses that Gaudet referred to as 'laser tubing' (Figure 22 and Figure 23). Of all growers, including the multi-generational farmers, Gaudet was the only one with this kind of very expensive watering system,.

The irrigation ditches are generally referred to, by the multi-generational farmer, as 'ditches' while almost all of the immigrants call them acequias. *Acequia* is the Spanish word for ditch. While many multi-generational families are Spanish, not just Hispanic, but Spanish, one might have expected these people to retain the term *acequia*, but this was uniformly not the case. Only recent migrants used the Spanish word *acequia*. The performance here is being 'more traditional' than the people who have traditionally farmed the area but it is also an appropriation of part of another group's culture.

Water is allotted to New Mexico farmers via irrigation ditches, according to their

Figure 20. Gaudet's Irrigation System Transporting Water From the *Acequia*



Figure 21. Rolls of PVC and Laser Tubing At Edge of Gaudet's Garden



Figure 22. Raised Bed in Gaudet's Garden Irrigated Via 'Laser Tubing'



Figure 23. 'Laser Tubing' in Gaudet's Garden



water rights or entitlement to a share of the ditch water. The Spanish word, *pion*, refers to a share of water available from an *acequia*, but not to any fixed area of land to be irrigated (Crawford, 1988:173). The *pion* is...

“...a share of water in the ditch: it is not, however, a water right in relation to a river, which is granted by the State. Under Spanish water law, water and land go together, and are not transferred or sold separately from one another”.
(Crawford, 1988:173)

Ditches do not own water; they only convey water. Ditch commissions control water rights but only those rights pertaining to the delivery of water (Crawford, 1988:174). In New Mexico, there are sections of water that have been ‘adjudicated’ and sections that have not been adjudicated. Once the process of adjudication is completed, then a water right is transformed into a commodity and, as such, can be leased or sold within the State of New Mexico, subject to the approval of the State Engineer. Sections of water that have not been adjudicated remain under traditional Spanish water law (See Appendix) which predates deep wells and diversion and storage dams (Crawford, 1988:175). Stanley Crawford was at one time a *mayordomo* in New Mexico. This is essentially, a commissioner of water in a Spanish context even though Crawford is Anglo. Although an honor for an Anglo, the position of *mayordomo* is not a simple one. It is linked with tradition, specifically Spanish tradition; and Spanish is the language of the ditch (Crawford, 1988:43).

There are, however, at least three cultural ‘worlds’ in the state of New Mexico, especially in the context of organic growing. The Pueblo cultures have been involved with horticulture as a way of life for over a thousand years and they farm now much in the same

way that they did long ago. They never used chemical additives, so, for them, organic growing is hardly an innovation. These people are truly both modern and traditional at the same time. The Pueblos are largely closed, both culturally and politically so there was no opportunity to speak with the many people who lived and farmed inside the Pueblos. Traditional Pueblo agriculture is beyond the scope of this thesis. This work has concentrated primarily on the multi-generational Spanish derived organic growers and the recent immigrant organic growers. This recent immigration is almost completely Anglo. The Spanish growers perceive that they are in a 'back-to-basics' process, i.e., they are revitalizing traditional and historic processes. The Anglo immigrant organic farmers perceive that what they are doing is completely innovative. This would come as a very large surprise to the Pueblo peoples or the Spanish organic growers for that matter. The latter (Spanish organic growers), are returning to a kind of 'golden age'.

Profile of Organic Growers

“Mary, Mary Quite Contrary How Does Your Garden Grow?” (Common Old Nursery Rhyme)

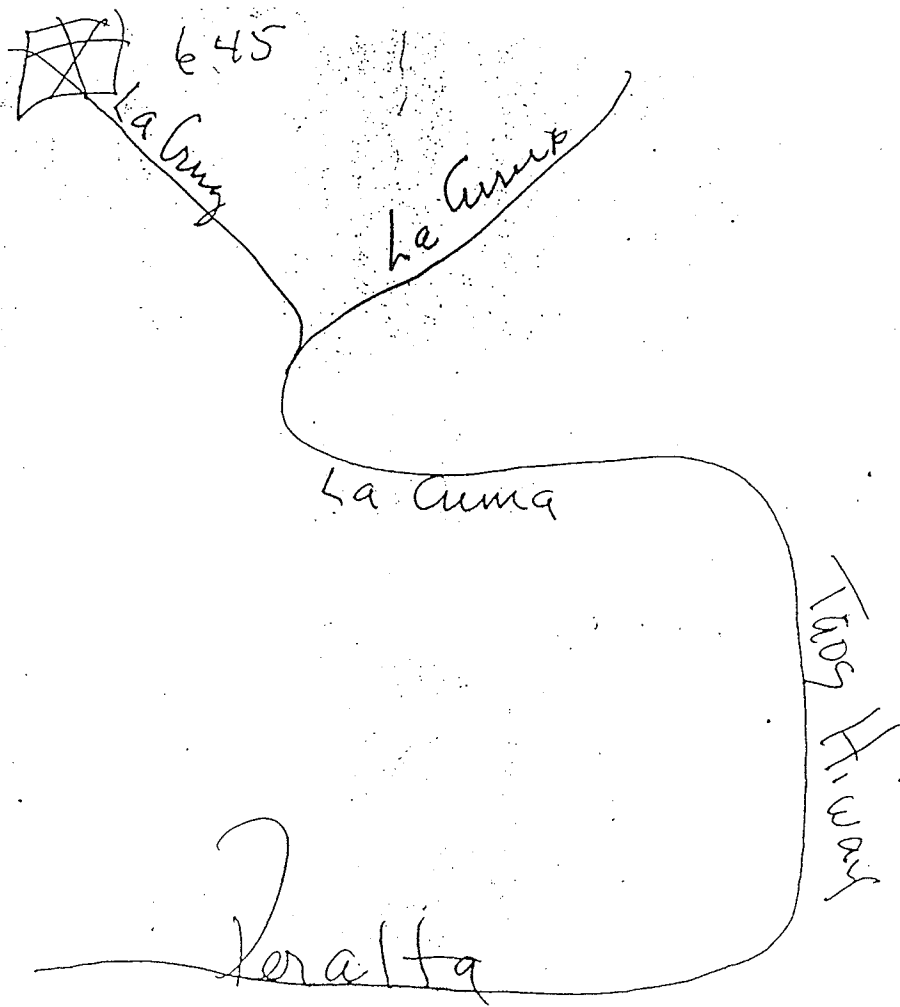
The author has chosen to highlight some of the organic growers. Some of them are Spanish and have farmed the area for generations and others are relatively recent immigrants. Even though each person was exposed to the same roster of questions, there was considerable variation with respect to which ones they spent considerable time addressing. In addition, there was tremendous variation with respect to what each individual considered important. They were allowed to direct and/or drive their discussion with respect to the questions and what they perceived to be important. As stated earlier, most questions were answered within conversations: few formal questions were asked.

What is presented here, then, is a series of rhetorical images as texts and key symbols. At the very least it is consistent with a postmodern approach in which textual images are not necessarily either unified or coherent. Each profile, then, presents and re-presents the views and critical images for each person. The profiles are but a sample of the people with whom the author talked and who generously provided their time for a curious geographer.

Don Bustos

This farm is in transition: the land has been farmed by this family for 400 years (Figure 24). Don Bustos was able to remember the times before - before his grandfather

Figure 24. Don Bustos Shows His Place in Space



had a tractor and before his grandfather used synthetic fertilizers. In his memory tractors and synthetic fertilizers were linked in time. Bustos continues to use a tractor but he has ceased using synthetic fertilizers. For him, not using chemicals is a return to a state that existed on this family land many years ago and thus, is both innovative and traditional at the same time. While many organic farmers avoid using tractors and like equipment, Bustos continues to do so for at least two reasons: 1) his sandy soil does not compact; and 2) he has a very substantial acreage - so much so that hand labor would be highly inefficient.

Because Bustos does not use chemical weed suppressants, he has been experimenting with ways of controlling weeds that do not involve hand picking each and every weed. For example, he is using plastic of various colors. Bustos runs the plastic in what appears to be large and wide 'rows' in which his plants grow. The plastic apparently heats the soil which, according to Bustos, is very good for the crop plants and additionally destroys unwanted weeds. The crop plants are able to pierce through the plastic (Figure 25); and Bustos believes that in this medium, the plants grow faster and larger with little or no weed interference. In his own words:

"Underneath the plastic, it cooks it (the soil). And at the same time it's helping us sterilize our soil for weeds, for less weeds the following year. ...this is what I experiment with. Black is really good for weed suppression and heat retention. ... Red is very, very good for vigorous growth and fruit production. ...red is good for tomato production and squash production. Green is real good for chile peppers because, you know, different colors affect different plants differently" (Figure 26 and Figure 27).

(Bustos, 1997 pers. com.)

Figure 25. Big Leaf Spinach Growing Through Plastic - Don Bustos' Farm



Figure 26. Don Bustos Shows The Author a Field With Experimental Black Plastic



Figure 27. Don Bustos' Experimental Red Plastic in Field



Some of this discussion was based on what Bustos said he had read in publications from the University of California at Davis. Bustos wanted to experiment with silver plastic because it is supposed to be good for aphid control and he particularly wanted to try it out on his squash to deal with the 'squash bugs'.

Don Bustos uses a 'transplanter' hauled by a tractor to transplant seedlings. The seedlings have been started in his green house from seeds that he has harvested from his own plants from previous growing seasons. As the seedlings are transplanted (literally pushed through a cut in the plastic), Bustos applies fish emulsion and water to avoid any transplant shock. Clearly, the use of the plastic is innovative from his perspective. This innovation, Bustos believes, assists with a short (120 day) growing season, and weed control. In this case the use of something innovative is really in the context of returning to something traditional.

As one might expect, Bustos grows a great variety of crops (Figure 8) including chiles and specialty chiles such as New Mexico Sunset, New Mexico Sunrise, New Mexico Eclipses and jalepekin. All of the specialty chiles are grown for decorations and are also sold at the Santa Fe Farmers Market (Figure 28). Bustos makes chile strings out of the specialty chiles. Don Bustos' family is Spanish and while Anglo people have adopted the term *ristras* to refer to the strings of chiles, Bustos refers to them quite simply as chile strings. The chiles turn different colors and the strings are purchased as ornamentals just as pumpkins are, another of his major crops. While the specialty chiles are completely edible, they are purchased for decorative purposes only - the buyers 'performance' of acquiring elements of local Spanish culture. In addition to the specialty chiles Bustos also grows

Figure 28. Don Bustos At Santa Fe Farmers Market



many 'regular' chiles that are differentiated by the thickness of the meat, how well they dry (Figure 29), and the heat (Bustos, 1997 pers. com.). These chiles are his major cash crop sold primarily for local consumption.

Regarding his motivation for 'transitioning' to organic production, Bustos considers it critically important to be able to control what he and his family consume. He uses some new techniques, like the plastic, but he is returning to the historic ways of his family. The year 1997, was his second year not using chemicals and, according to Bustos, the market has been changing. "More people prefer organically grown food. It's like about 20% mark-up than regular conventionally grown food" (Bustos, 1997 pers. com.). His opinion was that this was not a market fad - that there would be longevity to organic production. Bustos was also concerned that his son have a way to make a living from the land, working for himself rather than for someone else.

Quite unsolicited, Bustos offered that it was his impression that women were leading the way in being actively involved in organizing the organic movement. Clearly, men are involved but women were the strength of the movement and this was, for him, culturally consistent with the role of women in Spanish New Mexico.

"Look - our land was passed down to my great, great grandma, my grandma and my mom. Men were not, men have never really been the caretakers of the land ..."

(Bustos, 1997 pers. com.).

Figure 29. Bustos' Chile Roaster



Sally Harper

This farm is nestled in the Mesilla Valley, in the extreme south of New Mexico. Some of the farm is certified organic, some is in transition: the crop is pecans. Pecan orchards, a common sight in the Mesilla Valley (Figure 30), have fewer pest and disease problems than other pecan growing areas (eg. Georgia). This is due partly to the arid climate and partly because of their isolation from other growing areas (Harper, 1997 pers. com.). For example, aphids, a common pecan pest, are controlled by natural populations of ‘beneficials’, in this case the lady bird beetle. Additionally, Harper, like Don Bustos has been experimenting with a variety of innovative ways to control what pests they do have without the use of chemicals. At the time of the author’s visit (Figure 31) Harper was testing an experimental insect trap for New Mexico State University (Figure 32). Weeds on Del Valle Farm are controlled by cultivation, although Harper was searching for a suitable ground cover. The problem here is that the flood irrigation used by pecan growers ‘drowns’ most ground covers. Flood irrigation may also cause soil erosion. This was not a problem at Del Valle because the orchard was level. Harper’s water supply is diverted from the Rio Grande via the ‘Apache Lateral’. Harper was well aware of the history and politics of water in the area and referred to the irrigation ditches (Figure 33) as ditches, not as *acequeias* as many of the recent immigrants to the area do.

This operation has been certified organic since 1992. In addition to growing pecans, Sally Harper and her husband also have a substantial pecan processing and mail order business. Harper’s family had a history of farming in Colorado; her husband is on the faculty of agricultural economics at New Mexico State University in Las Cruces

Figure 30. The Harpers' Pecan Orchard in Mesilla Park, New Mexico



Figure 31. Sally Harper Educates The Author About Pecans



Figure 32. Experimental Insect Trap



Figure 33. The Harpers' Irrigation 'Ditch'



(Harper, 1997 pers. com.). The certification application of Del Valle farm, indicates frequent soil and water tests. In conversations with Harper, it was clear that she was extremely knowledgeable about these results and their significance. This degree of understanding was not so readily apparent among other New Mexico organic growers.

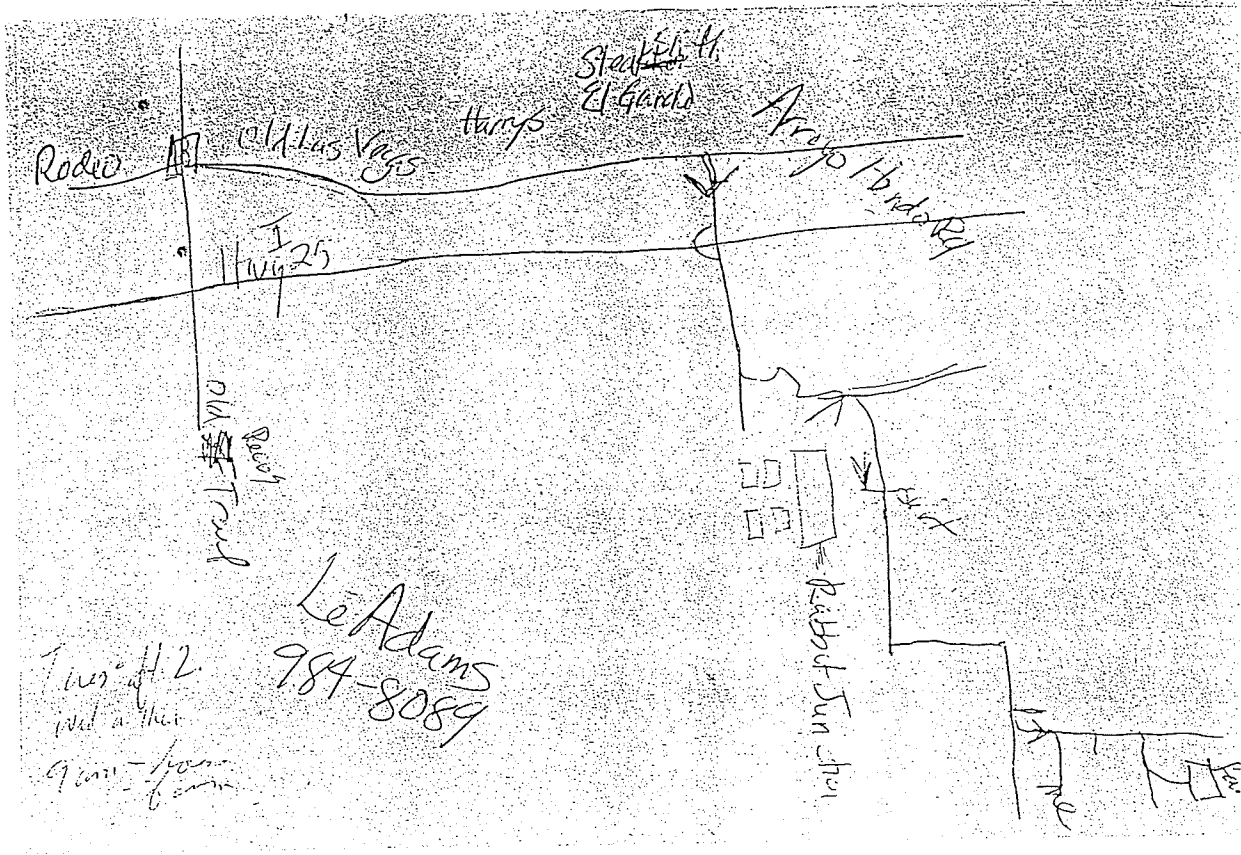
Harper is not attached in any way to notions of 'healing the earth' nor any other version of 'new age' connection - she is 'just' a farmer trying to produce a safe, quality product for her family and others to consume. For the Harpers, however, it is also a viable economic endeavor.

Le Adams

This 'farmer' had no farming experience. Adams clearly pointed out that she had been from California and that her mother had had a rosebush but that was the extent of her exposure to 'growing things'. She did, however, provide an interesting clarification. Adams said that, 'we' use the term 'traditional' to refer to the large corporate monocropping enterprises characterized by extensive use of herbicides, pesticides and chemical fertilizers. This extractive technological package she linked to the 1950's. Before the 1950's there was 'conventional agriculture', characterized by little or no chemical use and 'low-tech' technology (Adams, 1997 pers. com.). The 'old days' for this farmer predate the 1950's. Her farm (Figure 34) is not certified organic and she has been told not to use the term organic with reference to her produce, but to use the term 'chemical free' when marketing her products. Adams would really prefer to use the term 'organic'.

Adams grows a variety of things and is committed to raised beds, double digging,

Figure 34. Le Adams Shows Her Place in Space



inter-cropping and the notion of making the soil 'healthy'. She grows a wide variety of garden crops including varieties of corn with which she was experimenting. For example, she was growing blue corn and pointed out that this was a common and a historically traditional crop in the area especially among native Americans who used it for grinding to make flour and tortillas; however, she grew it to sell to the people in the city for decoration. This notion of transforming what were traditional crops into decorative crops emerged very frequently and as much with farmers who had a family history of farming as well as those who did not. Adams, like Bustos, grows jalapekines for the decorative market, in her case to people who make wreaths.

This farmer, a relatively recent migrant to the area, was not particularly interested in the political dimensions of organic farming. She was, however, interested in economics, in the sense of farming to make a living. In her words she was "... trying to find the niche, and as our farmers' market gets bigger and bigger and I'm also selling to restaurants, and there are more and more people growing the same kind of thing" (Adams, 1997 pers. com.).

Adams, unlike others, ran a single-person operation and had no apparent help with the farm other than an apprentice who came regularly to work - to learn how to farm - in return for produce from the farm. There is a fairly extensive apprentice program, in part organized out of the office of the Santa Fe Farmers Market Association (Figure 35). People who want to learn how to farm give their labor in exchange for experience, knowledge and produce. Some apprentices work with very experienced farmers, others do not. Here is a good example of someone learning from someone who really is just

Figure 35. Santa Fe Farmers Market Association



learning.

For Le Adams, the choice to do what she is doing was a 'lifestyle' or 'quality-of-life' decision. She repeatedly made it clear that it was the kind of work that was important, including the ever back-breaking 'double digging' and the construction and maintenance of 'raised beds'. The choice of 'inter-cropping' is a deliberate choice against large row-organized mono-cropping. Inter-cropping, of course, brings potentially 'beneficial' species into closer proximity. Because Adams employs inter-cropping, she believes that her yields are much higher than if she row cropped in the same amount of available space. She has high yields, in her view not so much because she tries to farm organically but because of the intensive planting associated with inter-cropping. This is part of her discourse and perception that what she is doing is innovative even though she is farming in a manner associated with times long ago. Adams does not think that organic farming is a passing fad "because there are people who are educated enough about the dangers of pesticides" (Adams, 1997 pers. com.). In addition, it is her perception that there "are large numbers of organic eaters here, ...(who) will only eat organic food, and, to tell you the truth, I'm not one of those people. I eat non-organic food" (Adams, 1997 pers. com.).

Additionally, Adams has made a commitment to a kind of poverty - to a real liminality, both economic and political. She made it very clear that she did not make very much money farming and, in fact, this was the reason why she ate non-organic food, i.e., because non-organic food is cheaper than organic food. Clearly, she would have eaten the produce from her garden, with the exception of eggplant, which she said she did not like but had a popular market. Presumably Adams' non-organic diet would have included meat

which was not raised organically. In a peculiar way she is liminal even to her own enterprise.

Linda Prim

Linda Prim is committed to the organic enterprise. She has been employed as an agricultural inspector, not only in organic farming operations but conventional farming operations as well. Prim also ran a research farm in Abiquiu: her emphasis was on crop rotation (as a performance of cyclicity) and 'restoring the land to health'. In 1997, she had been farming organically for twenty years and has become quite concerned about the state of organic agriculture. First of all, she acknowledges that, in transition from chemical to non-chemical use, yields will drop, often quite dramatically but then, as the soil becomes 'healthy', the yields can and do increase substantially. Prim sees that there are certain problems with some organic operations. While her main complaint about 'traditional' farms is the use and overuse of chemicals, she sees that there are problems in certain organic operations with the overuse of manures. The overuse of manures is increasing the concentration of nitrates and salts and this is creating 'unhealthy' soil. Many organic producers, in her view are not using crop rotation or cover crops and both of these lead to 'unhealthy' soil. As an example, Prim suggested that one of the gardens will be planted first in potatoes, followed by oats and then run in the rotation again because "it's just a healthy rotation for the soil" (Prim, 1997 pers. com.). After a number of rotations the soil would be allowed to 'rest' and return to pasture.

Prim's organic farming is linked to a perception of cyclicity and beneficial inter-

relationships among a variety of species. Prim raises turkeys because, among other things, they keep the grasshopper population in check. She 'encourages' bull snakes because they keep gophers under control. In addition to Prim's commitment to sets of beneficial interrelationships, she is equally committed to restoring and maintaining parts of natural ecosystems, especially those that are part of or border her land. For example, she has worked to restore the *bosquet*, "which is a natural riparian environment that used to run all along the Rio Grande - all along these rivers" (Prim, 1997 pers. com.). Cattle wreaked considerable havoc in this zone, so she keeps cattle out of the riparian environment. The riparian environment is recovering, including the Rio Grande cottonwoods, roses, hackleberry and willow (Prim, 1997 pers. com.).

"... we have a very reciprocal relationship with our animals. I mean, they get grain, they get homeopathic and herbal veterinary care and they get nice straw-built housing, you know, grass and grazing and eventually ..."

(Prim, 1997 pers. com.)

Prim and her partner also raise sheep - Navajo Churos (Figure 36) - originally brought to the area by the Spanish settlers. Their experience with sheep, however, has been slightly less than positive. The sheep 'got loose' and cropped the entire garden. They had to replant. The sheep are for hand spinning wool and for selling breeding stock - all organic, of course.

A number of things that Prim said were interesting, including the fact that when discussing irrigation she moved back and forth between the two terms: ditch and *acequia* (Figure 37) although she used the latter term far more frequently. She also perceived that the effort expended producing food for market was 'work', but it was not 'work' if it were

Figure 36. Navajo Churos



Figure 37. Linda Prim's Ditch/Acequia



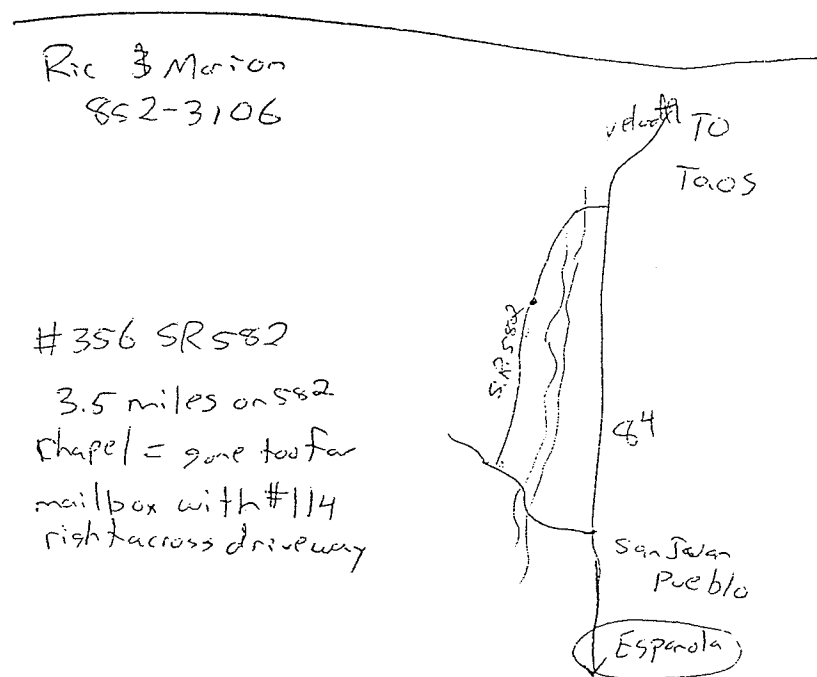
for her own consumption. In terms of their own consumption, they also have bee hives; the honey is for their own consumption or for trading. The bees are also important for pollination purposes.

They also produce handmade soap and grow nettles for a local herbalist who sells them at a general store not far from the Prim Farm. Linda Prim referred to this woman as a *remedias* lady, telling me that was what the locals called her. A *remedias*, or a healer/medicine person, is well contextualized within the Spanish culture in the area; however, the author met the woman to whom she referred and this woman was Anglo, not Spanish in any way. This is an example of new immigrant Anglos adopting parts of the cultural performances of other cultures.

Ric Gaudet

This farm is in the Espanola Valley on what used to be a river flood plain that does not flood any more (Figure 38). Gaudet pointed out that there is just a little strip of land that is fertile but with double digging “you can turn anything into good soil” (Gaudet, 1997 pers. com.). Gaudet thought that they should find out what kind of soil they had, although he believed that theirs was some kind of “*aridisol*” (Gaudet, 1997 pers. com.). The point here is that, like many other organic farmers, his knowledge did not include a knowledge of soil types. He had been gardening for at least eight years, especially in the Santa Fe area. He had one garden in full production and another one in preparation but the soil was very different in each plot. The area under preparation he characterized as being a heavy clay, while the one in full production was more a silt loam (Gaudet, 1997 pers. com.).

Figure 38. Ric Gaudet Shows His Place in Space



Gaudet had begun the process of hand digging the new garden but the soil was too difficult to manage. As a result they used a tractor to plow and disc the field.

The name 'One Straw' was chosen for this farm (Figure 39) because it resonated with a 'bit of radical politics'. Gaudet perceives that what he is involved with is not only innovative but radical. Not coincidentally, 'One Straw' is the apparent 'revolution' and focus of a 1978 book about 'natural farming' written by Masanobu Fukuoka. Fukuoka is a 'folk hero' of many 'new' organic farmers. In Gaudet's view his/their One Straw Farm could be characterized as being traditional in some ways but not in other ways. "We are using a lot of high tech stuff ... like laser tubing (tube irrigation stuff), timers and PVC irrigation lines ... but we are not using tractors" (Gaudet, 1997 pers. com.). He added that what he considered to be traditional was that which was 'historic to that particular area' and that certainly did not apply to their enterprise. The people who use fertilizers are 'traditional' in his view and so, by extension, to not use chemicals is innovative. It is not that they do not use tractors, they do ... "sometimes". Gaudet did, however, refer to a machine that was a "fancy rototiller but it doesn't rototill. ... It's a tractor with a feature on it - a feature that allows double digging". This machine would have to be designed and built by themselves (Gaudet, 1997 pers. com.).

In order to sustain this enterprise, Gaudet has a winter job and parents to assist him. His partner also works at an 'outside' job and both do so or have done so in order to pay the bills. One of their main crops is 'salad mix', which they sell at the Santa Fe Farmers' Market. At the time, they were able to sell salad mix for \$8.00 per pound. Gaudet was quite concerned about a market niche and pointed out that many people who actually

Figure 39. Gaudet's Rented House on 'One Straw Farm'



live in Santa Fe do not purchase food from the farmers' market simply because it is too expensive. He observed that he cannot make money at the market in Espanola and that is why he and his partner sell in Santa Fe and Los Alamos.

In terms of using chemicals, Gaudet told the author that he and his partner are "pretty much committed to not using nasty chemicals"(Gaudet, 1997 pers. com.) and even so they were in the process of becoming certified. He pointed out that some farmers "have to go through a three year transition because they have been spraying Roundup for too long" (Gaudet, 1997 pers. com.).

Like other organic farmers, their water supply is provided by an irrigation ditch or *acequia* (Figure 40). Gaudet and his partner use a system of raised beds, on which they practice double digging and a good crop rotation. Their experience has been that they have been able to produce much more this way than if they row cropped. Their beds are "four feet wide by, in the upper field twenty feet long, and in the lower field they're forty feet long. That's sort of for ease of irrigation so that we can use the same pieces of plastic" (Gaudet, 1997 pers. com.). Gaudet acknowledged that some people say that they have reduced yields. His explanation was that this resulted from insect damage; however, he also pointed out that if the soil is 'healthy' insect damage is less of a problem.

Susan Higgins

This is a unique operation. It really is an 'urban farm'. It is a containerized sprout business, the produce of which is sold at the Santa Fe Farmers Market (Figure 41), local 'high end' restaurants and Wild Oats (Figure 42), an organic grocery store in Albuquerque.

Figure 40. Gaudet's *Acequia*



Figure 41. Susan Higgins At Santa Fe Farmers Market



Figure 42. Wild Oats in Albuquerque, New Mexico



Higgins' cost is approximately \$2.00 per flat and she sells the flats wholesale for \$7.00 per flat. She was one of the few organic farmers who spoke very clearly about using certified organic seed.

Her motivation for her involvement is connected with a commitment to 'healthy eating'. Higgins had experience working as a farm laborer on organic vegetable farms in Vermont. As she said, she is committed to "supporting organic agriculture and to avoiding toxic residues in food" (Higgins, 1997 pers. com.).

Eddie Vallarde, Eduardo Vallarde and Gilbert Silva

The Vallarde family has farmed in the area for 400 years and, in fact, the town of Vallarde, New Mexico bears the family name. Eddie Vallarde, the son, was able to talk with the author for only a short period of time because *Life Magazine* was there to do an interview on the same day. Most of the discussion was with Eduardo Vallarde and his friend, Gilbert Silva. As well as chiles, radishes and green peppers, the Vallarde operation is largely an orchard with peaches, cherries, plums, pears and apples - approximately 7,000 trees in all. The fact that the Vallardes and Silva had orchard operations meant that they had unique problems and particular views about organic farming.

Their perception was that there was a current and increasing demand for organically grown fruit and produce and for that reason they would have liked to have been able to grow completely organically; however, they were also aware that people wanted 'perfect fruit', which they could not provide if they grew organically. There were, and are, serious insect problems for orchards and orchard owners. If they did not use

chemicals to eradicate insect infestations, they would lose not only a current seasonal crop but their entire orchard. Trees once lost represent a far greater loss than even the loss of a season's crop; trees once lost would be almost the same as losing the land itself. The impact would be for multiple years, not just one year. At the very least, to farm their orchards completely organically would, without question, be associated with dramatically reduced yields.

The problem, according to Vallarde and Silva, was that even if they did not use chemical sprays, many of their neighbors still did, do and would. If *even* one neighbor sprayed, then the spray would be distributed over the crops of would be organic orchard growers. In any case, their concern was with what they perceived to be 'a need' to protect themselves by protecting their orchard crops, especially given that, in their view, organic growing is really just a fad. Something that both amused and annoyed Vallarde and Silva was that there was a 'seasonality' to organic buying. In the summer, people want organic produce and are quite willing to purchase less than perfect apples, for example; however, when fall comes, these same buyers want the fruit to last through the winter and that necessitates chemical intervention. Vallarde and Silva were merely pointing to the mixed rhetoric both on the part of would be organic buyers and growers alike (Vallarde and Silva, 1997 pers. com.). Both were intrigued to see the people who claim to be organic buying their seed from the same store as they do. What they found distressing was that many of the local organic growers 'talked' that they were organic but, apparently this did not apply to seed stock (Vallarde and Silva, 1997 pers. com.). Vallarde's and Silva's commentary simply addressed the very mixed performance found among organic farmers and growers.

CHAPTER 6

DISCUSSIONS AND CONCLUSIONS

The 'Kitchen Garden'

"The double purpose of a garden - for use and pleasure - has been forgotten in landscape gardening. You either get a kitchen garden, useful but ugly, or a pleasure garden not useful, and only redeemed from ugliness by the flowers themselves. The charm of the older garden is in the combination of the two". (Roberts, in Yepsen, 1997)

Gliessman (1988) states, that what is at the core of organic growing is a 'grassroots-based' approach to agricultural production. Much of what he is concerned with is organic gardening in the tropics, which, amongst other things, has a much longer growing season, certainly compared to the state of New Mexico. What Gleissman stresses, though, is the need "to combine traditional and local knowledge about agricultural systems and practices with an ecological understanding of how the design and management of the system can lessen dependence on outside inputs, reduce environmental impacts of farming practices, and make better long-term economic as well as ecological sense" (Gliessman, 1988 :445). One of the main characteristics of the home garden 'ecosystem' is the relatively high diversity index. Having gardens that have high diversity indices is a way of approaching the conditions in natural ecosystems. Gliessman notes that families that combine both cash and subsistence crops have the most diverse gardens. Maintaining such gardens allows families to be more or less independent from large supermarket chains,

flagship grocery stores and the large corporate conventional farming system with which they are associated.

Kitchen gardens are very popular and many of them are organic. It is just as important that kitchen gardens allow urban dwellers to grow their own food, in part as a connection or re-connection with the land and as an historic occupation, i.e., farming. Kitchen gardens are popular all over the United States. In Houston, they are associated with a 'new' word or label: the *potager*. The word, *potager*, is an old word for an old kind of garden. It is derived from the French word for soup and the garden represents "a style of gardening that puts vegetables to work in a somewhat formal design so that they are decorative as well as useful" (Huber, 1999). There is considerable variation with respect to the composition of these gardens but they all have one thing in common - the produce is for family or household consumption. The main issue is that this interest is about the ability to take control of the things people eat and while most urban dwellers, historically, have been alienated from the means of producing edible products, there is considerable comfort in the fruits of the kitchen or family garden.

Many of the organic growers represented in this thesis were working with 'kitchen gardens'. The exception here is that they have chosen to treat their gardens as not only their cash crops but their livelihood as well, even though many have other jobs to make 'farming' feasible. Additionally, they are not urban, with the exception of Susan Higgins.

Mi Jardin Es Su Jardin

On a number of occasions the author sent e-mail communication to a variety of organic associations, governmental and otherwise, outside the state of New Mexico. What then happened was a reverberated discourse: e-mails were re-directed and communication began with people from all over the country. What became clear was that although New Mexico has a uniqueness in it's organic growers; diversity amongst organic growers was not unusual. In fact, the diversity could not even be categorized as regional variation. To represent all of these would be far too much for this thesis but one in particular has been chosen because her numerous communications embody what this author believes is the heart and soul of organic growing. Donna Fisher lives and grows in California and is deeply committed to organic gardening. She points out that most people who garden...

“whether it be organic or conventional do not do so because it is cheaper than buying in the store. It's simply a commitment to knowing where your food is coming from. Personally, I don't know why anyone who wants to grow their own food would want to put poisons on it”.

(Donna Fisher, 1999 pers. com.)

The Fishers make no money from their organic garden. She and her husband both have outside employment and she characterizes their operation as a family garden. Fisher also refuses to be registered with the government agency that registers organic farms and gardens. She points out that they cannot sell anything as 'organic' if they are not registered with the state which assesses a fee for the registration. Apparently, in California, you do not have to be certified organic to be registered as an organic producer; you can just claim that you are organic for the purposes of registration (Fisher, 1999 pers. com.). It is as if the

State controls the labeling but appears less than concerned with the quality of certification.

Fisher states that they are considered a 'small farm'. "The definition ... is because we have less than \$20,000 in sales. In fact, I think they have moved that dollar amount up to \$100,000. It has always seemed to me that \$20K in sales for a family of four is pretty close to not making it financially" (Fisher, 1999 pers. com.).

"...we have 47 acres in the program. We actually only have maybe a couple of acres in production. Most of our land is steep and wooded. We are certified because it is basically a philosophical reason. We just want to protect ALL of our property. This is because we have two county maintained roads through our place as well as a power line easement. We are also only a quarter of a mile from Bureau of Land Management land. It's a great deterrent against roadside or aerial spraying of pesticides and herbicides".

(Fisher, 1999 pers. com.)

There is, clearly, a great variety of reasons and motivations for being involved in organic production. One thing that is abundantly clear to the author was that everyone was most generous with his/her time. Some were beyond generous. For example, when Don Bustos said '*mi casa es su casa*', it was real: he meant it. The Vallardes offered samples of their dried chiles, processed as part of their operation. Sally Harper gave large samples of her organic pecans. The people of Sabinal Vineyards gave samples of their ciders and fruit drinks. And Donna Fisher shipped a box full of spices, pickled beans and spaghetti sauces, both mild and spicy. As she said:

"Research should not be confined to only the printed or visual sense. It's kind of like my garden. My stepdaughter asked me years ago why I planted so many flowers in the vegetable garden. It wasn't just for the bees. She couldn't understand why I would spend all that extra money on

flower seeds and we couldn't eat them. I told her the veggies were food for the body but flowers are food for the soul. ... I'd really like to share some of our bounty with you".

(Donna Fisher, 1999 pers. com.)

This last comment, about sharing the fruits and vegetables of her labor, goes to the core of organic production. This was all the more compelling because Fisher's parents were interred in the Owens Valley at Manzanar in California during World War II . In Spanish, Manzanar means apple orchard and, in fact, one of the organic farms in New Mexico bears the name, Manzanar de Maria. The California Manzanar was no orchard experience to be sure. The bounty of Fisher's harvest is, however, always shared - truly an orchard for everyone.

Just as Fisher's bounty is shared, each New Mexico organic grower unselfishly gave this author a glimpse of 'self', a true bounty to be shared by all who engage it. Each 'reading' promises a revision of understanding. Postmodernism, as an approach, became a compelling choice because it privileges revealing and reflective plurality of points of view, rather than privileging one 'most frequent' or common 'seam'. Postmodernism privileges the speaker rather than the writer and the reader rather than the author.

As you Sow, so Shall you Reap: The Future of Organic Production

It was the author's original intention to apply a model of diffusion to the 'grower statistics' as a means to determine organic growth patterns in New Mexico. It became clear, however, that this model had serious limitations and was not applicable in this context. The author's initial perception about organic farming was that it was a very substantial enterprise; a growing and thriving one. In many ways, this was the case, however, a number of unexpected patterns and issues emerged. One of the great problems encountered in doing this work was that many farmers who had a history of organic farming were not certified. As a result the numbers of certified growers do not reflect accurately the actual numbers of organic growers. If a Hagerstrandian explanation of innovation diffusion had been applied, the 'incomplete' numbers would have shown a distribution of organic growers that would 'appear' to fit the model, particularly if northern New Mexico were perceived to be the center or origin of the innovation (in this case organic farming). For example, the fact that the distribution for the year 2000 showed an increased density in the north from 1997 (Figures 3 and 4), would confirm a diffusion model although the appearance of diffusion is an illusion; a false image. In this case the 'diffusion', if examined over a longer period of time, would have undoubtedly been an American example of 'involution'. In fact, the criticisms of Hagerstrand by Blaut and Ormrod (in Jordan et al., 1994:17) are precisely those applicable to Geertz's work in Indonesia. Geertz (1968), when examining agriculture in inner and outer Java, failed to consider cultural and religious factors to explain the failure of agriculture in one region to expand economically while the other expanded and increased in farm size as well. This

agricultural failure resulted in what Geertz called 'involution'. In New Mexico, culture and religion may distort or restrict a particular diffusion pattern. The danger in this is that when examined over a short period of time, diffusion 'appears' as if in progress, however, it is more likely over time to become itself involuted.

Postmodernism is unlike other "isms" such as diffusionism, structuralism, historical particularism, or Marxism. It is not a theory but a set of perspectives, theoretical and otherwise. These perspectives are both literal and metaphoric. Postmodernism allows a 'reader' to see, as in perceive, rather than being instructed, or the material rendered or 'meaning' predetermined. In a way, postmodernism is most comfortable with multiple and reverberating rhetorics and discourses. Postmodernism privileges images and parts of images: in this sense, it is 'poetic'. This is the strength of the photographs and maps. Whereas they are themselves images, they are truthfully only parts of images. As might be the case in a perspective other than postmodernism, the images are treated as if they were entire images. They are not: they remain parts and images of parts. An example of this is the photograph in Figure 43 and other similar photos within the thesis. Figure 43 is a photo of an irrigation ditch on Stahmann Farms in San Miguel, New Mexico. The reference to this waterway as a ditch comes from Benjamin Segovi, the author's contact person from the New Mexico Department of Agriculture. Segovi spent his childhood on Stahmann Farms, as the son of a migrant Mexican worker. Although Spanish is Segovi's first language, to him, this waterway is not an acequia but a ditch. Similarly Sally Harper referred to their waterway (Figure 33) as a ditch. The commonality in this instance is that both of these ditches (Figure 43 and Figure 33) are lined with cement. In contrast, the

Figure 43. Stahmann Farms Ditch - San Miguel, New Mexico



waterways at both Prim's and Gaudet's farms appear to be 'natural' streams (Figure 37 and Figure 40). Prim and Gaudet each refer to their waterway as an acequia. On appearance this could be an appropriation of Spanish language to lend authenticity to their endeavors. It is, however, possible that Prim and Gaudet believe that acequia is a term reserved for 'natural' ditches. Still yet, Eduardo Vallarde and Don Bustos referred to their individual waterways as ditches. Vallarde's ditch was cement lined; Bustos' was 'natural'. While both Bustos and Vallarde claim Spanish ancestry and 400 years of history in New Mexico neither engages in the rhetoric of Prim and Gaudet. These images then have multiple meanings dependant on the reader. Pictures, maps and images become another form of readable, interpretable 'text'. Postmodernism is and becomes both shifting and elusive. Postmodernism eliminates stasis in text and defies confinement and restriction. It frees a text creating a rich interwoven texture.

The grower profiles presented earlier added considerable texture to the thesis as a reflection of the variation and/or diversity. Each grower, while sharing certain things with other organic growers, certainly had a unique perception of his/her enterprise. The theoretical strength of a post modern perspective is that it has allowed diversity to be able to be perceived rather than being 'lost' in summary statistics. Differences are privileged in postmodernism. On the ground, difference may be tolerated in New Mexico but a significant point here is, that while differences may be tolerated, difference is also a present and potential barrier to diffusion. This may provide an explanation of why most organic farming remains centered in the north. The Pueblos which are also located within the northern region are self-contained and not generally open to the public and so may co-

exist while maintaining their 'intactness'. The Spanish Catholics are not so insulated.

Like Indonesians, many New Mexico farmers are part of families that have farmed the land for many years (in this case, over 400 years). These farmers are traditionally and historically farmers; Spanish and Catholic. Still there are Pueblo cultures that have a longer and more grounded history of agriculture and farming within New Mexico. In contrast, many of the immigrant organic farmers had little or no experience in farming, were Anglo and often associated with alternative belief systems associated with what has been referred to as 'new age' practices, beliefs and performances. The location of these new immigrants in northern New Mexico suggests that they believe they have some type of alliance with Pueblo culture and community. This is consistent with 'new age' belief systems; to adopt a culture and/ or its 'spiritual' beliefs. New age philosophy, as a bastardized conglomerate of various religions and cultures tends, however, to view its beliefs as superior to all other beliefs and/or religions and its practitioners as superior to all other beings including all gods/higher beings of other belief systems/ religions. There is no indication of this worldview amongst the Catholic Spanish people. There is, instead, a '*mi casa es su casa*' kind of tolerance toward 'other', however, it is a guarded tolerance. Much is tolerated in New Mexico, but the tolerance is often accompanied with resistance.

What is very clear is that there are two very distinctly different groups of organic growers in the State of New Mexico, traditional farmers (Spanish and Pueblo) and the newcomers who believe that what they are doing is completely innovative, if not critical for a continued existence of the world. In fact, the immigrant group often spoke as if they were in control of saving the very earth that others had tilled for ages; the Spanish

Catholic farmers were considerably more humble in their relationship to the land in spite of the fact that they were a group with considerable farming history and knowledge. A long history of agricultural knowledge and experience would also apply to the Pueblo peoples, although this was and is clearly beyond the scope of this thesis.

While there is a need for substantial quantitative research, this thesis was positioned in a more qualitative context as an expression or example of forms of postmodernism. What has been critical in the text has been the reverberating and resonating dialogues, not only between the author and the farmers but, at a more theoretical level, between and among the key symbols within postmodernism, i.e. scenarios, texts and narratives. Of the many theoretical expressions that the author has read, both literally and metaphorically, the work of Yi-Fu Tuan has sounded with substantial resonance. In particular, Tuan's (1998), discourse on escapism, resonates clearly among the organic framers of New Mexico. They live within the notion and actuality of escape and escapism. In a fundamental way, the New Mexico organic farmers are escaping from high tech agro-chemical governmental complexes to a revitalization of a time gone by.

In a way, the author has written this thesis in the same vein; with an escape from over-generalizing perspectives and approaches to a return of a form of 'traditional writing'. There has been much description and metaphorizing in the writing, much in the way that earlier writers, (eg. Darwin) wrote. The end result, the author hopes, has been a writing that destabilizes the 'reading'. There is no neat mono theoretical package into which the work could have fit, primarily because there was such substantial variation

amongst the farmers themselves.

There is no question that all of the people with whom the author had contact were committed to organic growing; however, there was substantial diversity with respect to the extent of commitment to organics and farming. For example, only one individual in New Mexico indicated that it was important to begin with organic seeds. This was surprising, given that Seeds of Change (Figure 44), an organic seed company, had a research farm just north of Santa Fe. Organic seeds were readily available locally, however, accessibility does not influence their use. While possessing great market potential, organic farming demands premium prices for startup supplies. The high cost associated with organic seeds, for example, would clearly have an impact on profits. It might seem reasonable to think that the National Organic Program (NOP) proposed rule 2000 (Appendix) would disregard cost and regulate seed stock to provide consistency throughout the organic industry. In actuality the proposed rule states that although "preference would be given to the use of organic seeds and other planting stock...a farmer could use non-organic seeds and planting stock under certain specified conditions" (National Organic Program Revised Proposed Rule, 2000). There is no revision in regard to seed stock in the final NOP regulation, which went into effect on April 21, 2001. Clearly this was not an issue raised when the proposed rule was published for commentary. Given the overt commentary about commitment to organic production, it is interesting that people were less concerned about the quality of seed stock than they were about labeling requirements. For example, the proposed labeling requirements of fresh produce, raw and processed foods were based on percentage of organic ingredients in a product (Figure 45). Package information would

Figure 44. Seeds of Change Organic Seed Display



Figure 45. Proposed Organic Labeling



Organic Food Labels Made Simple. The U.S. Department of Agriculture's revised proposed organic standards will make it easy for consumers to tell if the food they are buying is organically produced. The sample cereal boxes above illustrate the four labeling categories. From left: cereal with 100 percent organic ingredients; cereal with 95-100 percent organic ingredients; cereal made with 50-95 percent organic ingredients; and cereal, with up to 50 percent organic ingredients. The makers of the cereal with up to 50 percent organic ingredients may list specific organically produced ingredients on the information panel of the box-but may not make any organic claims on the front of the box.

(National Organic Program Revised Proposed Rule, 2000)

(The final rule on national organic standards has since been released which changes the minimum percentage of organic ingredients from at least 50% to at least 70%)

include the actual percentage of organic product within the container and a certifying seal with the name and address of the certifying agent would be required. A USDA seal would be affixed if the product were determined to be and, therefore, labeled as 100% organic. Additional rules were proposed for those products less than 95% organic. A revision provided in the final rule addressed respondents' concerns and raised the minimum percentage of organic ingredients from 50 to 70% in those labeled "Made with Organic Ingredients". It is unclear why labeling percentage amounts are of concern while use of organic seed stock remains negotiable. It is unlikely, however, that non organic seed stock would run 'afoul' of national organic standards. In theory, national standards will provide assurances for consumers of organic produce that what they are buying is really organic. Potentially, a consistency of standards as outlined in the final rule will also provide a body of knowledge for organic growers, particularly those growers who are new to farming. These standards will, however, have little impact on the traditional experienced farmers who have been farming organically for years. For them, 'organic innovation' is merely a re-invention of the wheel. What is innovative for these traditional farmers is the notion of certification. For new farmers, certification is merely a marketing technique and clearly one associated with a growing and profitable market. At least, this is what the statistics suggest.

Without a doubt, a large amount of research still needs to be done, particularly in the compilation of 'real' and accurate statistics on organic growers and organic production. In this regard, national standards should minimally provide a national data base of organic growers and production. An accurate and clear representation of growers and production

will allow for a greater degree of certainty in predicting acceptance and growth of the organic industry and future economic prospects.

Trends do not, however, always come to fruition. Consider a prediction made by Oelhaf in 1978 suggesting that the demand for organic food growing was increasing at 30 per cent per year. "A simple mathematical calculation shows that, if that rate were to continue, in twenty-three years, half of our food would have to be organically raised; and in twenty-six years, 100%. But it appears highly unlikely that such a heady growth rate can be maintained..." (Oelhaf, 1978:140). In fact, in the year 2001, we are twenty-three years from 1978 and no such growth has occurred either nationally in the United States or locally in the State of New Mexico. Figure 46, clearly demonstrates that, in the year 1997, the percentage of total farmland that is certified organic was very low. Thirty of the fifty states are in the 0 to 0.1% category, including New Mexico. Quite interestingly the state that has the highest proportion of certified farmland is Alaska, however, this is in relation to land farmed, not actual numbers of acres. If one examines actual acreage, Idaho leads all states in certified organic acreage (Greene, 2000:12), although one must consider that not all certified acreage is in production. In terms of production, California, for example, led in vegetable production because it had six times more certified vegetable acreage than any other state. Even in 2001, there are no numbers available for actual produce amounts.

Certainly there are clear indications of substantial market growth. Within the United States alone there are over one hundred stores owned by Wild Oats Incorporated. These stores/supermarkets almost exclusively feature organic products. Operating under a variety of names such as *Alfalfa's*, *Nature's Northwest*, *Sun Harvest Farms* and *Wild Oats*

PERCENT OF TOTAL FARMLAND CERTIFIED ORGANIC BY STATE - 1997

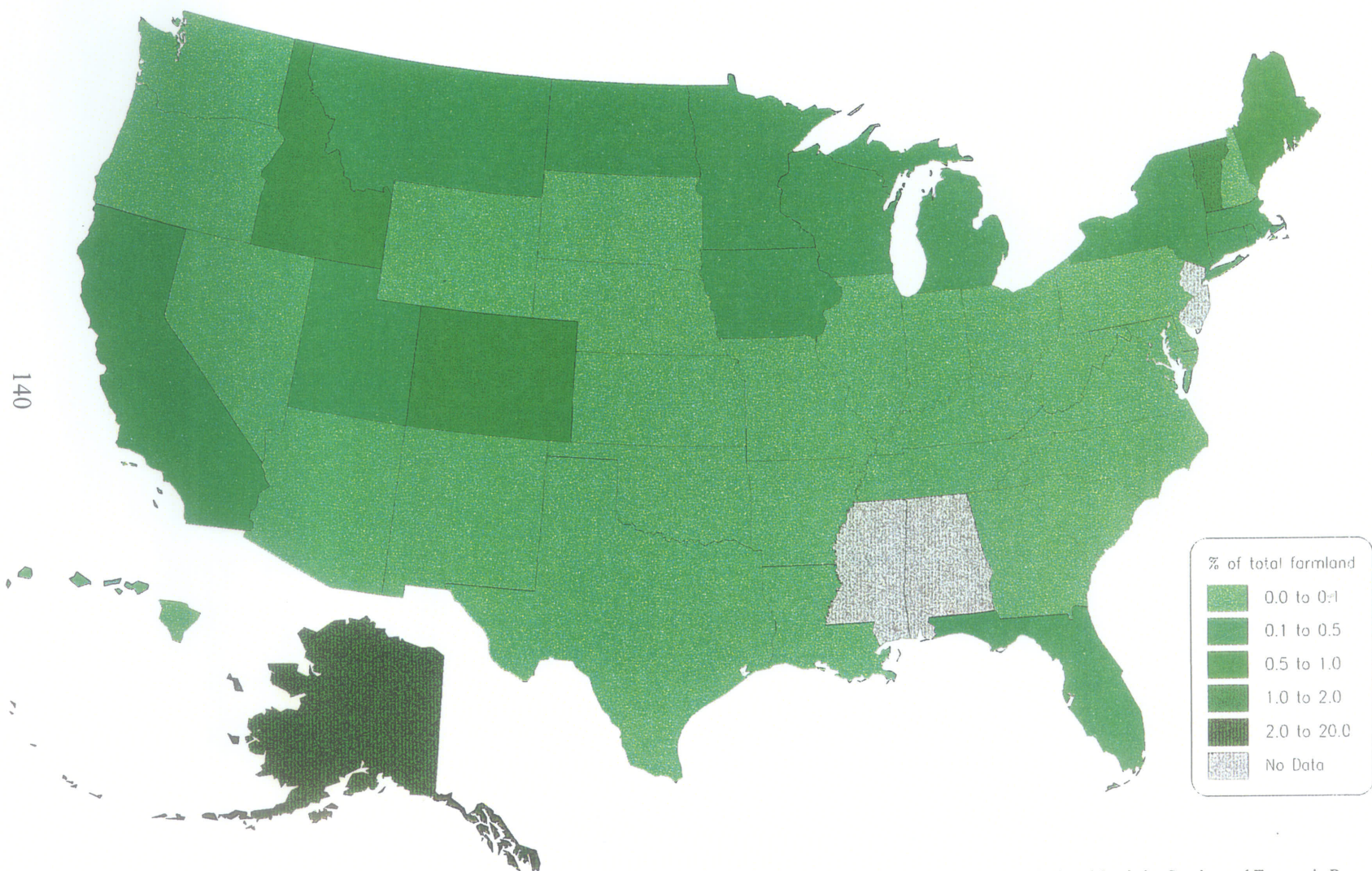


Figure 46. Percent of Total Farmland Certified Organic By State - 1997

Data Obtained From USDA - National Agricultural Statistics Service and Economic Research Service

Market, these stores offer aisle after aisle of organic boxed and canned goods (Figures 47 and 48). Typically these stores include large dairy and meat sections, a produce department, a 'natural' pet product section, a 'natural' health care section and even organic delicatessens (Figures 49, 50, 51, 52 and 53). In Albuquerque, New Mexico there was an equally large organic 'co-op' called *La Montanita* (Figure 54 and 55). Although some of the organic growers the author spoke with indicated that they sold small amounts of their produce to *Wild Oats* or *La Montanita* it was discovered that this was not a common practice. In fact, *Wild Oats* stocked almost no locally grown produce but rather California produce. Although *Wild Oats* and similar 'natural' supermarkets continue to gain popularity they appear to show little or no 'local' support for organic growers. As the market or demand for organic produce increases, local growers in New Mexico must still rely on the Farmers Market to sell their produce. Although growers at, for example, the Santa Fe Farmers Market demand premium prices for their produce it is unlikely that they will ever attain the financial stability of the organic/natural supermarket. For example, figures indicate that sales of organic commodities in natural food stores were up from \$2.08 Billion in 1995 to \$3.3 Billion in 1998 (Dimitri and Richman, 2000:11). This growth is not limited to organic or natural food specialty stores such as *Wild Oats* and *La Montanita*, but is extended to major supermarket chains, many of which now include large organic sections within their stores. The successful growth of the organic market, however, contains within itself the seeds of its own demise. As consumers demand more organically produced food, large supermarkets respond. This response limits the success of small organic markets and producers.

Figure 47. Wild Oats Advertisement

VISIT OUR BEAUTIFUL
NEW STORE IN THE HEIGHTS
OPEN 7:30 - 10PM DAILY IN THE
FOOTHILLS SHOPPING CENTER AT
JUAN TABO & MENAUL

WILD OATS



COMMUNITY MARKET®

Nature's Supermarket

WHERE IT'S EASY & FUN TO SHOP HEALTHY!

ORGANIC PRODUCE, A FULL LINE OF NATURAL
GROCERIES & BULK FOODS, BOTANICAL BODY CARE,
FRESH NATURAL MEATS, JUICE
& JAVA BAR, ALBUQUERQUE'S
FINEST FULL-SERVICE DELI,
FRESH SUSHI, GOURMET PIZZAS,
PASTA BAR, OLIVE BAR &
A FULL SCHEDULE OF ACTIVITIES
& COMMUNITY EDUCATION
EVENTS



OUR PLEDGE

THE BEST SERVICE...ANYWHERE;
PRODUCTS THAT ARE SAFE FOR
OUR BODIES AND THE ENVIRONMENT;
THE HIGHEST QUALITY PRODUCE AVAILABLE;
SERIOUSLY SAFE MEATS, POULTRY & SEAFOOD;
SUPERIOR VITAMINS, HERBS & SUPPLEMENTS;
CRUELTY-FREE PERSONAL CARE ITEMS & COSMETICS;
DELI FOOD THAT'S NOT FAST FOOD;
& COMMUNITY CENTERED SHOPPING!



Isn't it time you gave us a try?

FOOTHILLS SHOPPING CENTER
11015 MENAUL AT JUAN TABO NE
OPEN DAILY 7:30 - 10 PM 275-6660

COME IN FOR BREAKFAST!



11015 MENAUL BLVD. NE, ALBUQUERQUE, NM
275-6660

Wild Oats Store Directory

Item	Aisle	Item	Aisle
Alce	6	International Foods	3
Baby Food	4	Juice (bottled)	2
Baked Goods	1	Juice (fresh)	1
Bath Care	5	Juice (frozen)	rear
Beans	3	Lotions	5
Body care	5	Macrobiotics	3
Books	5	Meat & Seafood	rear
Bread	1	Nut Butters	1
Bread (frozen)	rear	Pasta	3
Bulk Foods	7	Pasta (fresh)	1
Cereal	4	Paper goods	4
Cheese	rear	Pet Food	4
Chips	2	Pizza (fresh)	1
Cleaning products	4	Pizza (frozen)	rear
Cleansing products	6	Prepared Foods (hot)	1
Coffee	6	Preserves	1
Community Room	front	Produce	7
Condiments	3	Rice	3
Cookies	4	Salad Bar	1
Cooking oils	3	Salad Dressing	3
Crackers	2	Salsa	2
Dairy	rear	Sauces	3
Delicatessen	1	Shampoo	5
Extracts	6	Skin Care	5
Facial care	5	Soap	5
Greeting Cards	5	Soda	2
Fresh Juice & Espresso Bar	Soup		3
Frozen Foods	rear	Soy Milk	4
Ginseng	6	Spices	4
Haircare	5	Sports Nutrition	6
Herbal Tinctures	6	Sweeteners	4
Herbs (bulk)	7	Tea	7
Homeopathic	6	Vitamins	6
Housewares	5	Water (bottled)	2
Ice Cream	1	Water (station)	7

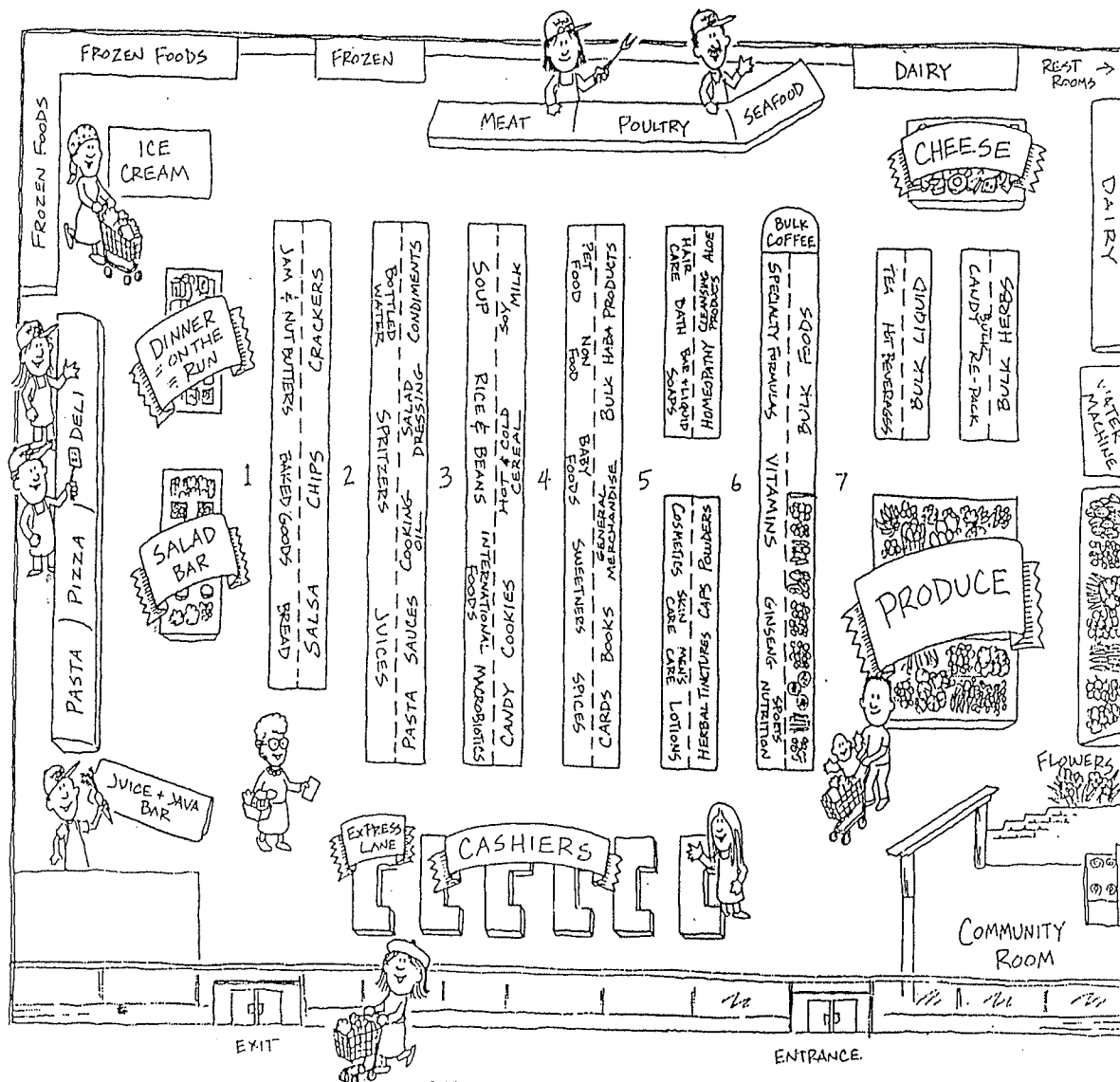


Figure 48. Wild Oats Store Directory

WELCOME TO WILD OATS-FOOTHILLS MALL!

Figure 49. Wild Oats Dairy Products



Figure 50. Wild Oats Frozen 'International' Section



Figure 51. Wild Oats Avocados



(Green labels (left) indicate organically grown. Yellow labels (right) indicate conventionally grown)

Figure 52. Wild Oats 'Natural' Pet Care Display



Figure 53. Wild Oats Organic Delicatessen

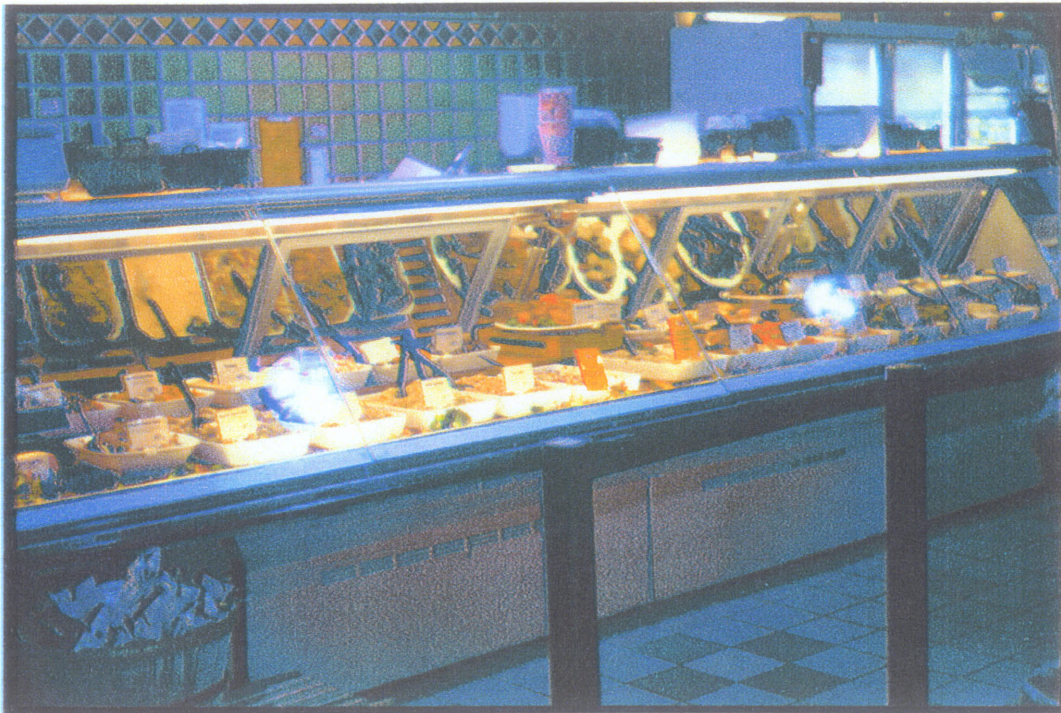


Figure 54. La Montanita Brochure

11 GENERAL MEMBERSHIP MEETINGS, BOARD POSITIONS & VOTING: Guide your Co-op into the future by participating in the meetings. You may vote in elections right away. Run for the Board of Directors in the November elections if you have been a member for 4 months or longer, and take a more active role in guiding your Co-op.

12 MEMBERSHIP PARTICIPATION PROGRAM: Members can participate in the Co-op through our community outreach committees or through our skilled member participation program, and earn an 18% discount on purchases for 3 hours of participation per week. Please ask the staff at the Information Desk for more details.

WE ALSO OFFER:

- ▶ FREE NOTARY SERVICES
- ▶ POSTAGE STAMPS
- ▶ CITY RECYCLE & GARBAGE BAG PICK-UP SITE
- ▶ HEALTH & ENVIRONMENTAL ISSUES AWARENESS

IN HISTORIC NOB HILL SHOPPING CENTER
CENTRAL & CARLISLE 265-4631

STORE HOURS ▶ MONDAY-SATURDAY 7AM-10PM
SUNDAY 8AM-8PM

How To Become A Co-op Member:

3 EASY STEPS!

1. Fill out an application at the Information Desk
2. Pay your membership dues at the cash register.
3. Return to Information Desk with your receipt to receive your Membership I.D. Card and other goodies!

"WELCOME!"



OUR HISTORY

La Montanita Co-op Supermarket was incorporated on September 1, 1976, and was managed for 3 years largely as a collective, with the Board of Directors serving as staff. The original membership consisted of 300 families.

By 1980, the collective management had given way to a 3 member management team.

Today we are 7,000 member households strong, with a 9 person Board of Directors elected to represent the membership. The Co-op employs over 80 full and part-time staff with an emphasis on team management within each department.



NATURAL FOODS MARKET

MEMBER BENEFIT INFORMATION

Your Chance to Support a Store Committed to Bringing You the Very Best...

"FOOD FOR PEOPLE... NOT FOR PROFIT"

Printed on 100% Recycled Paper with Soy Ink

Welcome to La Montanita Co-op Supermarket!

OUR MISSION STATEMENT:

La Montanita Co-op Natural Foods Market strives for excellence in all we do.

Our mission is to provide to our members, at the lowest price possible, exemplary customer service, environmentally sound products, and the highest quality natural and organic food.

We are committed to ethical business practices, participatory management and cooperative principles.

Our intention is to provide to the entire community, through practice and education, a working model for a healthy, sustainable future.

MEMBERSHIP DUES

\$6 FOR 6 MONTHS
\$12 FOR 12 MONTHS
- PLUS TAX -
FOR YOUR HOUSEHOLD

SEE OTHER SIDE FOR DETAILS

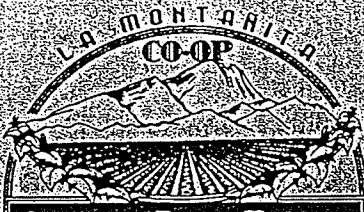
12 GREAT REASONS TO BE A LA MONTANITA CO-OP MEMBER:

1. **YOUR CHANCE TO SUPPORT A STORE THAT IS COMMITTED TO BRINGING YOU THE HIGHEST QUALITY** organic produce, antibiotic- and hormone-free meats, rBGH-free dairy products, import and domestic cheeses, healthiest grocery, bulk foods, fresh deli and juices, natural body care, cosmetics, vitamins, herbs, and more!
2. **MEMBER REFUND PROGRAM**, at the end of each fiscal year, if earnings are sufficient, refunds are returned to members, based on their purchases (just in time for the Holidays!)
3. **RECEIVE OUR MONTHLY NEWSLETTER**, mailed to your home, full of information, including Co-op activities, to help you stay your healthiest and most aware.
4. **WEEKLY MEMBER-ONLY COUPON SPECIALS**, as featured in our Weekly Sales Flyer. Pick-up our in-store Weekly Sales Flyer for storewide savings.
5. **EASY CHECK-WRITING**, and cash (\$30) over purchase amount. We also accept ATM cards, VISA and MasterCard.
6. **BANKING MEMBERSHIP AT NEW MEXICO EDUCATORS FEDERAL CREDIT UNION**, with 7 Albuquerque Branches to serve you.
7. **ASSOCIATION GROUP HEALTH, DISABILITY AND LIFE INSURANCE**, through Mutual of Omaha. Call Caroline M. Hallett, Representative. For details Call: 281-5999; Out-of-Town: 1-800-687-0962.
8. **FREE DELIVERY** for seniors, housebound and differently-abled people within Albuquerque city limits, every Thursday morning.
9. **MEMBER ONLY DISCOUNT DAYS**. Take advantage of our special discount events for members only - throughout the year! During these events either everything in the store is discounted, or the more you buy the bigger the discount at the register.
10. **SPECIAL ORDERS**: You can special order large quantities or hard-to-find items, at a 10% discount for members.

CONTINUED ON OTHER SIDE

Figure 55. La Montanita Sales Flyer

JUST A REMINDER...
THE STORE WILL
CLOSE EARLY FOR
QUARTERLY INVENTORY
SATURDAY, MAY 31
AT 8:00 PM
PLEASE SHOP EARLY!



LA MONTANITA CO-OP
NATURAL FOODS MARKET
Now Hill Center • Central & College • 245-4631

★ WEEKLY ★
SALES FLYER

ADVERTISED PRICES EFFECTIVE:
MAY - JUNE

SUN	MON	TUES	WED	THURS	FRID	SAT
			28	29	30	31
1	2	3				

The Deli is Now Serving
Exclusively
Organic Coffee
and Espresso
(EXCEPT DECAF)

EDEN FOODS
ORGANIC
BAKED BEANS
15 OZ
\$1.79 EA
REG. \$2.19 EA
SAVE 40¢

SESAME BLUES
ORGANIC
15 OZ
\$1.99 EA
REG. \$2.49 EA
SAVE 50¢

APPLE JUICE
ORGANIC
12 OZ
\$1.79 EA
REG. \$2.49 EA
SAVE 70¢

BULK

Casbah HUMMUS MIX
SAVE 50¢
\$3.19 LB
REG. \$3.69 LB

MAPLE WALNUT GRANOLA
SAVE 30¢
\$1.69 LB
REG. \$1.99 LB

PRODUCE

ORGANIC NECTARINES
\$2.59 LB

ORGANIC PEACHES
\$2.39 LB

CHEESE

MUENSTER
 UNPASTEURIZED
 NO RENNET
\$3.29 LB
REG. \$3.79 LB
SAVE 50¢

MEAT

NEW YORK STRIP
\$10.39 LB
REG. \$10.89 LB
SAVE 50¢

FROZEN

CHICKEN-FREE NUGGETS
 HEALTH IS WEALTH
 VEGETARIAN & VEGAN
\$3.49 EA
REG. \$4.19 EA
SAVE 70¢

FROZEN

ROASTED VEGETABLE PIZZA
 WITH ORGANIC SHIITAKE MUSHROOMS
 SWEET ONIONS & ROASTED RED PEPPERS
 NO CHEESE
\$4.89 EA
REG. \$5.69 EA
SAVE 80¢

HBA

NATRADE STOMACH FORMULA
 DOUBLE STRENGTH ALOE GEL
 W/NATURAL HERBAL BLENDS
\$9.99 EA
REG. \$12.99 EA
SAVE \$3.00

BAKERY

EZEKIAL 4:9
 LOW SODIUM BREAD
\$1.99 EA
REG. \$2.59 EA
SAVE 60¢

DAIRY

ORGANIC MILK
 ASEPTIC PACKAGE
 NONFAT • LOWFAT
\$1.99 EA
REG. \$2.49 EA
SAVE 50¢

"FOOD FOR PEOPLE . . . NOT FOR PROFIT"

It is impossible to predict, without an operational crystal ball, the actual economic future of organic food production, although, “industry experts expect the average annual growth rate of 20 -24 percent for organic food sales to continue into the next decade” (Dimitri and Richman, 2000:11). If it is more than just a ‘fad’ it will most certainly peak in cost and then level off; becoming affordable to everyone. One would not expect that organic philosophy and issues of food safety were exclusionary and, therefore, not extended to all consumers. The irony here is that an increased demand and production of organic produce will ultimately exclude and eliminate the small grower, in the same way that conventional small farmers have been disenfranchised.

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APPENDIX

	Page
- Information Letter - New Mexico Organic Commodity Commission	164
- New Mexico Organic Certification Program Application for Re-Certification (1996) - Sally and Wilmer Harper (Del Valle Pecans).	166
- New Mexico Organic Certification Program Application for Re-Certification (1996) - Susan Higgins (Sun Green Living Foods).	191
- Spanish and Mexican Water Law	206
- National Organic Program Revised Proposed Rule	
- National Organic Program Background	211
- Organic Production and Handling Standards	213
- Labeling and Marketing Information	215
- Certification	217
- National Organic Program Overview	219

NEW MEXICO ORGANIC COMMODITY COMMISSION

118 AMHERST DR. NE, ALBUQUERQUE, NEW MEXICO 87106-1303

(505) 266-9849

FAX 266-0649

NEW MEXICO ORGANIC CERTIFICATION PROGRAM

Dear Producer,

Thank you for your interest in New Mexico's organic certification program. The following information describes the general procedures and costs involved with becoming a certified organic grower, livestock producer or processor. If you have further concerns or questions, please call our office and we will be glad to help.

THE CERTIFICATION PROCESS

The certification process involves three basic phases:

- 1) the application phase
- 2) the inspection phase
- 3) the commission approval phase.

The application phase begins with you purchasing the "*NMOCC Organic Certification Handbook*" (\$15) which contains various applications along with the details of New Mexico certification standards, a materials ratings list and other information. After reading through the handbook, you complete and mail the appropriate application for your type of operation, a sworn affidavit and the annual application processing fee of \$100. When the commission receives an application, it is first reviewed for completeness and compliance with the regulatory standards set forth in the handbook. If it is complete, you are sent a completion notice and the name of the inspector who will be calling you to make an appointment.

The inspection phase begins when the inspector calls you and schedules the on-site visit. The inspection process is thorough, yet informative and helpful in getting you certified. After the inspection, a written report is prepared and then submitted to the Commission.

The commission approval phase begins when the inspection report is received in the commission office. Copies of the application and the inspector's report are sent to each of the commissioners for their review. The Commission then meets and discusses your application and the inspector's report. A decision is then voted on to either:

1. approve the application and grant certification;
2. approve the application and grant certification with conditions that must be met by a specified date;
3. conditionally approve the application pending submission of additional information upon the receipt of which certification may be granted;
4. reject the application and deny certification.

TIME LINE FOR CERTIFICATION

The following is an approximate Time line for the certification process:

- | | | |
|----|---------------------------|---------|
| 1. | Application Phase | 7 days |
| 2. | Inspection Phase | 14 days |
| 3. | Commission Approval Phase | 21 days |

Some applications will take more or less time. The care with which you prepare your application and the attention to completeness of your answers will decrease the time needed to complete the certification process.

A NOTE ON RECORD KEEPING

Adequate record keeping for an organic operation is the responsibility of the grower/producer and required by law (Organic Commodity Act and U.S. Organic Food Production Act). The National Organic Program standards require adequate records, as indicated in the "NMOCC Organic Certification Handbook," so that an accurate assessment can be made concerning farm inputs and activities. The types of records required are: a "Farm Activity Log," a file of farm expense receipts and a record of your sales (form 5 in the NMOCC handbook). The Farm Activity Log can be a simple notebook where date and activity (input application, cultivation, harvest, etc.) are listed on each line. If an adequate record keeping system has not been utilized in the past, an acceptable system must be in place by the time of inspection.

NEW MEXICO CERTIFICATION FEES: AN EXPLANATION

When the New Mexico Organic Commodity Commission certifies a farm or processor in New Mexico, a non-refundable \$100 application fee is initially required. This fee helps to offset some of the cost (approximately \$250) for processing, an onsite inspection, and application review which is incurred by the Commission. The Commission also collects an annual 1/2% assessment on gross sales of organically produced agricultural commodities. The assessment structure is set forth in the Organic Commodity Act appearing at NMSA §76-26-16 (1991 Repl. Pamp.) This money is used for operating costs, producer/consumer education and developing an expanded organic market for New Mexico producers.

So what does it initially cost to become a certified producer in New Mexico?

1. The NMOCC Handbook cost (one time only)	\$15.00
2. The application fee (yearly)	<u>\$100.00</u>
Total:	\$115.00

If the operation becomes certified, the Commission collects an annual assessment that is paid by the producer at the end of the crop year. The annual assessment is calculated at one-half of one percent (.5%) of gross organic sales :

Examples:

If your gross sales are \$20,000.00, your annual assessment is \$100.00 (\$20,000.00 X .005).

If your gross sales are \$10,000.00, your annual assessment is \$ 50.00 (\$10,000.00 X .005).

The total first year certification costs for an operation with \$10,000 annual sales would be:

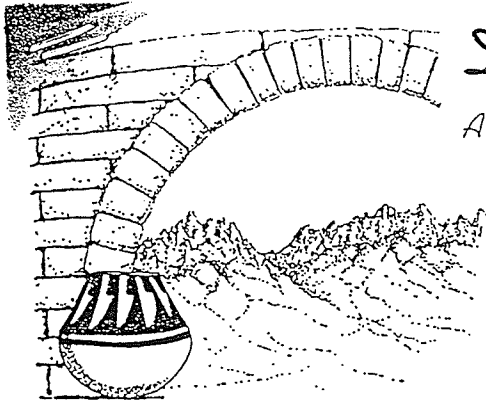
1. Handbook (1st year only)	15.00
2. Application fee	100.00
3. Annual Assessment	<u>50.00</u>

Total certification costs: \$165.00

Please call if you have any concerns or questions. Thank you for considering organic certification and best wishes with your plans and endeavors.

Sincerely,

Rich Pate, NMOCC Agency Director



Del Valle Pecans

A Product of New Mexico

1 June 1996

New Mexico Organic Commodity Commission
ATTN: Rich Pate
113 Amherst Dr, NE
Albuquerque, NM 87106-1303

Dear Rich:

This letter accompanies an application for re-certification as an Organic Crop Production Operation dated 1996 and is to expire December 21, 1997. Del Valle Organic Crop Production Operation identification number is (#017). This letter will also address a request to waive the use of Zintrac 8 to control micronutrient deficiency. This request will cover three areas listed below.

1. The need for foliar zinc applications in pecan trees in southern New Mexico and west Texas documented in a letter to the NMOCC dated 27 Oct 1994. Please review.
2. Orzin is no longer available--zinc product that met CCOF organic standards.
3. Tissue analysis demonstrating a need for foliar zinc applications.

The Del Valle application dated 27 Oct 1994 addresses the importance of zinc in pecan production, the inadequacy of soil applications of chelated zinc, and the availability of a foliar zinc(Orzin) that met CCOF standards. Please review this application and all addumdems substantiating the need for foliar zinc in pecan trees in southern New Mexico and west Texas.

Due to a delay in start-up production and shipping delays, Orzin was not applied to our orchard in 1995. We used Zintrac 8 which was approved by NMOCC. The Orzin finally arrived November 1995. Our first scheduled foliar application was early April 1996. At this time, we found that the Orzin had broken down(turned to a heavy sludge) and was growing some unknown substance on the top of it. The manufacturer--Shield Brite--confirmed that stability was a problem and that it was no longer in production. We then secured and applied Zintrac 8--3 applications in April and May.

P.O. Box 104



Mesilla Park, New Mexico 88047



(505) 524-1867

After visiting Rich Pate on May 24, he informed me that national standards referred to a "demonstrated need" for zinc applications. This meant a leaf tissue analysis. Obtaining a leaf tissue analysis for the current year is not feasible. Zinc applications are applied at bud break, one week later, and then 2-4 weeks after that. Therefore, by the time zinc deficiency would become apparent the effective time frame for applications would be past. I have attached a tissue analysis from 1991 prior to our establishing a well managed spray program. Notice that the zinc analysis is far below optimum levels with recommendations of 1 to 2 more applications of zinc. Our 1994 leaf tissue analysis(also attached) shows optimum levels of zinc in both samples. We have reduced our foliar applications from 4 to 3 and are considering reducing them to 2 based on 1996 soil and leaf analysis which will not be taken until 1 Aug 1996. We are speculating that the addition of foliar fish meal to the zinc(inhancing the uptake of zinc) and better soil management practices may further reduce the need for so many zinc applications. No soil or tissue analysis were taken in 1995 due to a family medical emergency. I submit the 1991 and 1994 leaf tissue analysis as "demonstrated need" and the material dated 27 Oct 1994 as supporting documentation.

As a future note, we will be clean cultivating until July then mowing natural growth until harvest. The regional pecan farmers have had good results with this practice --reducing wind and irrigation erosion as well as establishing a habitat for beneficials. We hope to begin this year, but will depend the purchase of a mower.

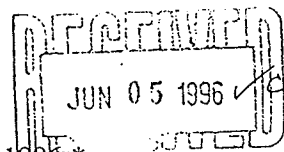
Sincerely,

X
Sally M. Harper
Owner/Manager

THE NEW MEXICO ORGANIC COMMODITY COMMISSION

118 Amherst Dr. NE, Albuquerque, NM 87106-1303 (505) 296-9849

1996 Application for RE-CERTIFICATION Organic Crop Production Operation



* Application and fee are due (post-marked) by March 8, 1996 *
(Please note! There is a \$25 to \$50 late fee with additional requirements for late submission)

(Please Print or Type)

Applicant Name(s): Dal Valle Pecans - Sally Harper Producer ID# 017
Farm or Business Name: Dal Valle Pecans
Address: P.O. Box 104 Town Nezalla Park State NM Zip 88047
Telephone Number: (505) 624-1867 County: Doña Ana

I. Production Operation Profile

- 1) Is your farm a mixed operation? (part conventional and part organic) ☒ Yes ☐ No
- 2) How many acres are you applying for organic certification this year? 21 acres
- 3) What crops do you want to certify organic this year? Pecans

- 4) When does your harvest begin and end? begins about 25 Nov. (depending on freeze date)
ends - 3 day operation
- 5) Are your irrigation practices the same as last year? ☒ Yes ☐ No
If not, please describe: We may use more well water due to
FBI restrictions on allotted river water due to drought.

II. Soil Fertility Program

The certification program requires that all crop producers describe in detail the production practices relied upon to enhance soil fertility. Enhancement of soil fertility should be achieved by the use of appropriate management practices including, proper tillage, crop rotation and green as well as animal manuring.

- 1) Describe any green manure crops grown: _____
- 2) Is raw animal manure applied to your cover crops? ☐ Yes ☒ No
If so, please explain: _____
- 3) Is animal manure used in your regular crop program? ☒ Yes ☐ No
If so, please describe its source and how it is composted: Compost - Use compost
from Calloun Farm Services. No composting description available at this
time.
- 4) Please fill in soil related information in the Field Data Table on page 4.

III. Insect, Disease and Weed Control

- 1) Briefly describe your problem insects, diseases and weeds. _____

Insects: Aphids - sufficient number Lady Beetles & Lace wings - Orchard never sprayed - 25 years
Plum Case Bears - setting traps - slowly moving up from W. Texas - just monitoring this year.
Diseases - None Weeds: all local varieties - control by cultivation or mowing - New ditch banks

- 2) Are there any materials, or practices you have found to be effective in addressing a particular problem?
Used Foliar Fish Fertilizer in conjunction with our Zinc application - Good visual results again this year. Will do a leaf analysis 1 Aug. to analyse N content.
- 3) Please list materials used to control insects, disease and weeds in the Field Data Table on page 4.

IV. Starts and Transplants

- 1) Please describe in detail your production methods for starts and transplants.

Transplants: Transplanted mature trees from old (17 Acres) orchard to new field - used
severe pruning (trunk 2'-18' without limbs) & moved with tree spade.
New field has 3rd & 2nd season transplant. Will start certification at this
field this year - 4 Acres.

- 2) If you do not produce your own starts or transplants, please list in the table below where they were purchased and all materials the grower used in the production of the transplants. If the grower is not certified as an organic producer, a notarized affidavit from the grower stating compliance with all NMOCC standards is required.

Crop	Company/Greenhouse	Materials Used
N/A		

V. Farm Equipment

- 1) What equipment have you added and/or deleted since last year? (Please list) _____

20' gooseneck to transport pecans¹ Farm to cleaning plant 2) Cleaning
plant to sheller 3) Sheller to commercial freezer.

- 2) Have you added any new fuel tanks on the farm since last year? ☐ Yes ☒ No

- 3) If so, please describe what type fuel and how far they are from crop production and storage.

Post-Harvest Handling and Storage of Farm Crops

To be certified as organically produced, the harvested crop must be protected from impermissible substances and other conditions which might compromise the integrity of the organically produced food.

1) Post-Harvest Handling:

- a) By what method do you harvest your crops? Custom Mechanical Harvest.
Equipment: Shaker, Sweeper, Harvester. Equipment used only on
pesticide free orchard & our organic orchard.
- b) Do you employ a field tagging system on your own or in conjunction with a handler? Describe.
Yes. All boxes are tagged as they leave the field with Farm Name & Organic
to go to cleaning plant. At the cleaning plant, pallets of 20 bags each are tagged (2) with
farm name, Organic & pallet clean weight. I put a 3rd tag (color code) on each pallet before
transporting to shelling plant.
- c) Describe any manual practice or substance that you apply to stabilize the crop in the field immediately after picking?

NA

- d) In what size unit do you typically sell your crops? List the crop and the unit next to it.

25-30 lbs case - Shelled pecans

- e) How is your crop transported to market? Pecans are shipped UPS - a few via
Roadway & 2-3 customers have their own trucks.
- f) What is your greatest difficulty in the organic post-harvest handling of your crops?
Post harvest requires my full attention to make sure all inventory is
properly tagged (Pesticide free vs Organic) Color coded tag system has
helped in that no one has to stop to read.

2) Storage:

- a) Do you have crop storage on the farm? ☒ Yes ☐ No

If yes, please list the bin number, capacity, what crops are to be stored and when, on a separate sheet of paper. 5 Home freezers to hold pecans prior to shipping. Each box
is already labeled with Organic or pesticide free & Farm name.

- b) Do you use any off-farm storage? ☒ Yes ☐ No

If so, please describe storage location, distance from the farm, and if the storage area includes both organic and non-organic crops.

Yes. El Paso Terminal Warehouses, Inc, 5850 Welch, El Paso, TX. 79963.
42 miles from farm. Stores both organic & non-organic (mainly ice cream)
products. Mike Alexander inspected this facility Nov 1994.

Field Data Table: *

Please Note: Field numbers must correspond with the numbers on your farm map, page 5. Use the same field numbers as submitted last year.

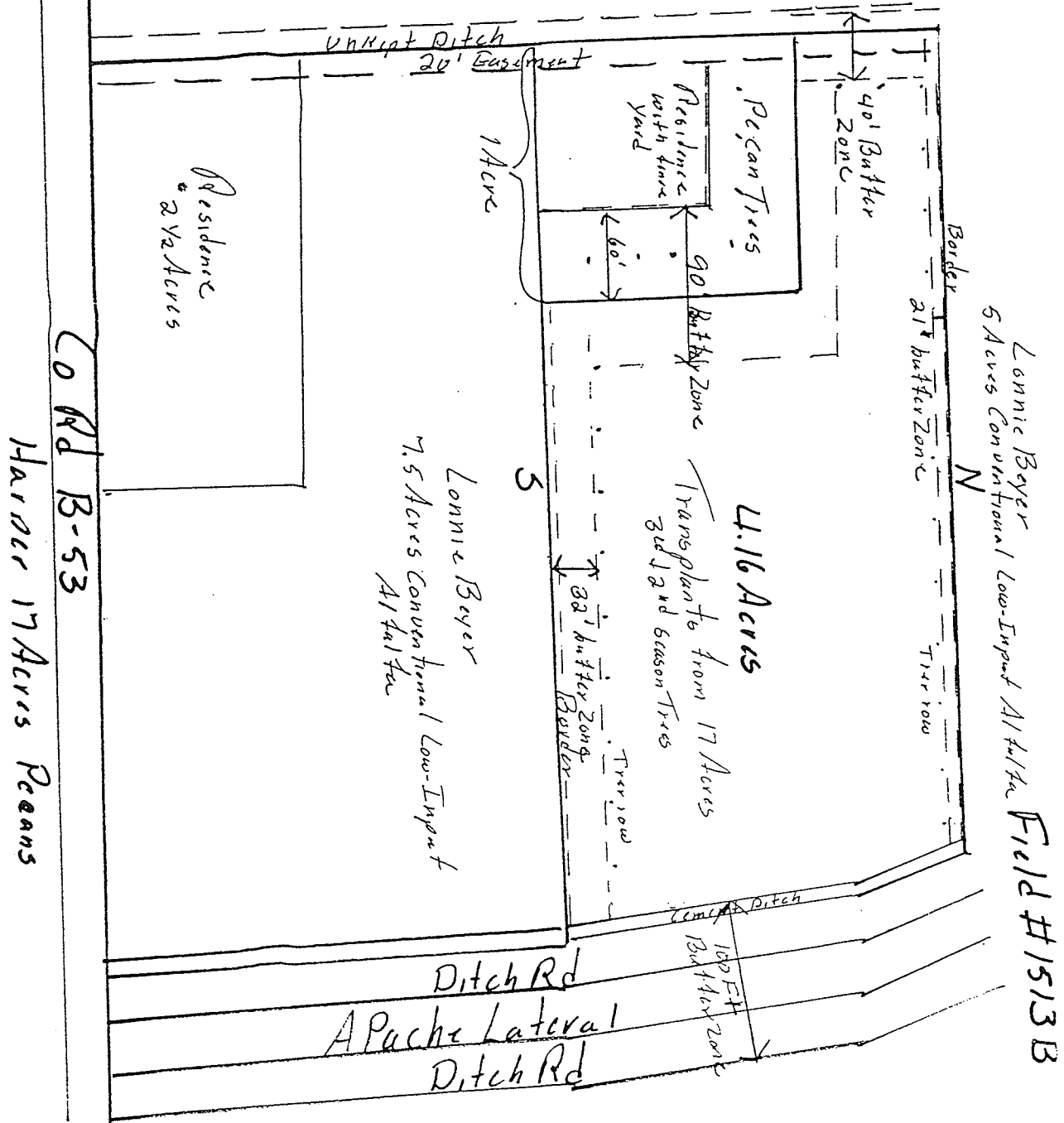
Soil Fertility Program

Pest/Weed Control Program

Field No.	Cover Crop(s)	Soil Amendment and Source	Tillage	Pest/Weed Material Applied	Brand/Trade Name and Source	Applicate Rate	Applicate Date
17 Acres		3 Foliar Fish Fert 3 Foliar Zinc	disk or knife once or twice a month for weed control		Mermaids Organic Fish Dezin + Zintra 8 (Shull Bros)	4 lb/Acre 1.5 ph/Acre	Apr, May, June
1292	N/A	Compost		N/A	Calhoun Farm Services Compost	8 Ton/Acre	"
4.1 Acres 15133	"	"	"	"	"	"	"

* Please list all fertilizers, insecticides, herbicides, seed treatment, and soil builders, used or planned, and include the rate applied per acre. (Use additional sheets if necessary.)

- A. Transplanted pecan trees. Minimal production for 3-4 years. All production will be sold as Pesticide Free while in 3 year transition
2. We are negotiating purchase of 5 acres to the north & south for transplanting. Negotiations going very slowly.
3. 1 Acre Residence. The pecan trees on the outer edge of the 1 acre are incorporated into our orchard. All inputs-irrigation, fertilizer cultivation--are done with ours. Owner harvests his 9 trees by hand.



F-14/d # 1513 B

PLAT OF SURVEY OF A 5.164 ACRE TRACT
LOCATED IN SECTION 23, T.24S., R.2E., N.M.P.M. OF THE U.S. SURVEYS

AS U.S.R.S. TRACT 15-47C

ALSO BEING PART OF LOT 34 OF THE RESUBDIVISION OF LOTS 4 & 5 OF THE BRAZITO GRANT SUBDIVISION
PLAT FILED OCTOBER 13, 1908 IN PLAT RECORD 1, PAGE 1 OF THE DONA ANA COUNTY RECORDS
SOUTH OF LAS CRUCES, DONA ANA COUNTY NEW MEXICO

SCALE: 1" = 100'

U.S.R.S TRACT 15-473

TIE TO A CONCRETE.
MOVEMENT FOUND
FOR THE NORTHWEST
CORNER OF U.S.S.
TRAC 15-478

FAST

200
(FOLLOWS)

FAST

208.71

1/2 IRON
END
(SET)

663.30

5/6 IRCA
EODS
(FOUND)

4.16A ACRES

PART OF U.S.R.S. TRACT 15.47C

1.000
ACRF

PART OF U.S.R.S.
TRACT 15.47C

71105

WEST

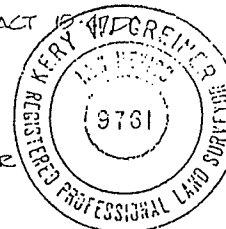
$$1/2 \cdot 12 \text{ rad}$$

513.53

722.74

45.R.S. TRACT

TIE TO A SPINDLE FOUND IN THE CENTER OF DONA ANA COUNTY ROAD 15-CROSS (A 40' WIDE ROAD) FOR THE SOUTHWEST CORNER OF LOT 31 OF THE RESUBDIVISION OF LOTS 4 & 5 OF THE BEAZITO GRANT SUBDIVISION, IDENTICAL TO THE SOUTHWEST CORNER OF U.S.S. TRACT 15-47A, TRACT 2



I HEREBY CERTIFY THAT I AM A REGISTERED
LAND SURVEYOR IN THE STATE OF NEW
MEXICO AND THAT THIS PLAN WAS MADE
BY ME OR UNDER MY SUPERVISION FROM
THE NOTES OF A QUALIFIED SURVEYOR
AND THAT IT MEETS ALL THE REQUIREMENTS
FOR LAND SURVEYS AS SET FORTH BY THE
NEW MEXICO BOARD OF REGISTRATION
FOR PROFESSIONAL ENGINEERS AND LAND
SURVEYORS AND THAT IT IS TRUE AND
CORRECT TO THE BEST OF MY KNOWLEDGE
AND BELIEF.

Temp. 18.5

44.1 Acres

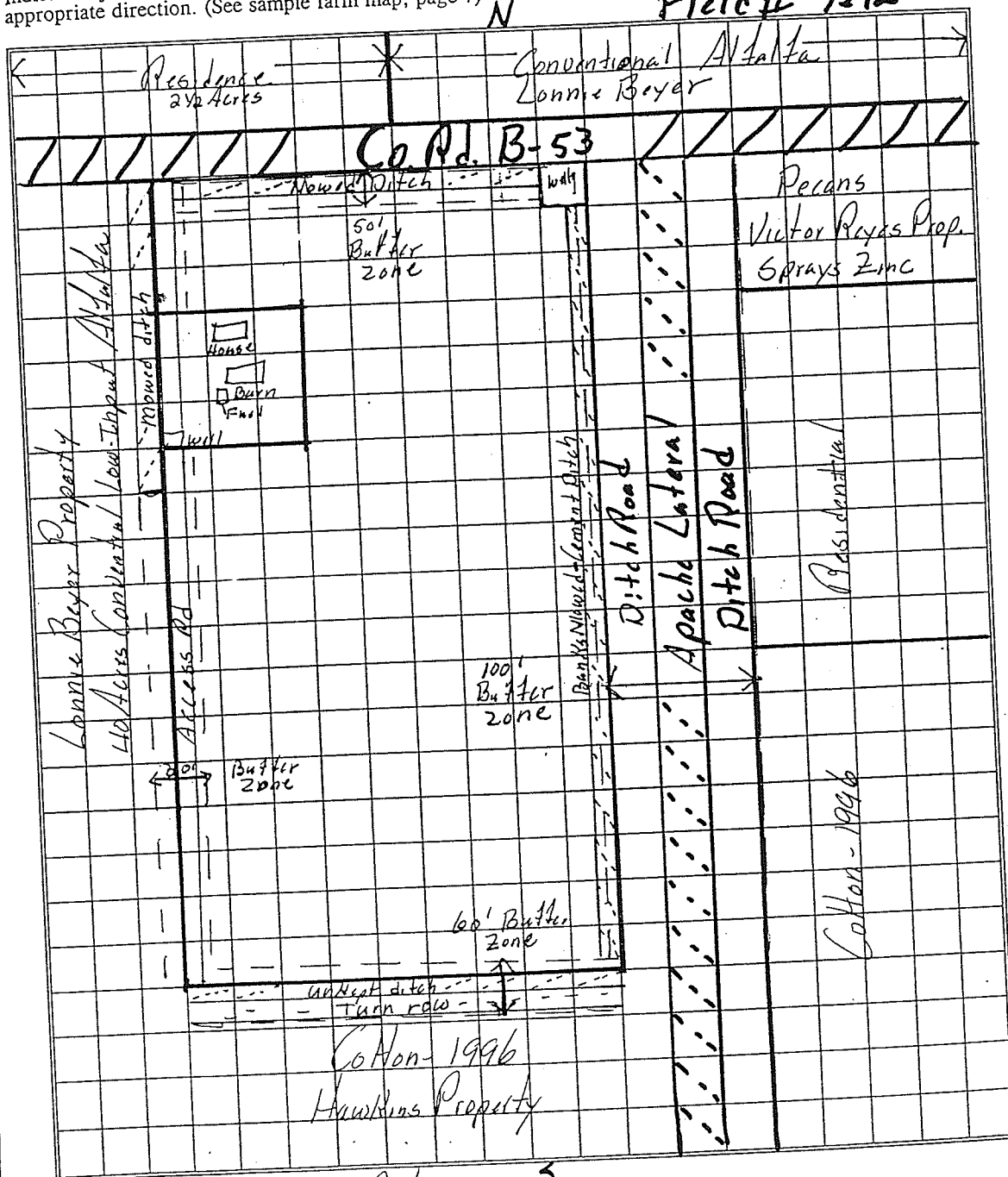
173

Farm Diagram 17 Acres - Cont. 1992 →

Please draw a diagram of your farm and number each individual field with the same numbers used last year. Indicate adjacent land use of your neighbors (to help indicate potential spray drift). Indicate North in the appropriate direction. (See sample farm map, page 7)

N

Field # 1292



Comments

- 1) Is there an area in your organic production operation where you feel the need for some advice in addressing a specific problem?

Soil building

- 2) Do you have any suggestions that would make your future interaction with NMOCC a more beneficial experience?

Retail store inspections: I have found almonds in a bin market - Del Valle Pecans - Certified Organic. I have also found pecans bins with Certified Organic labels in a store that we no longer did business with - at that time DVP was the only supplier of organic shelled pecans. I would venture a guess that inventory problems will more likely occur at the retail level than at the farm or processor level.

Please submit your application & fee (\$100) to NMOCC, 118 Amherst NE, Albuquerque, NM 87106

AFFIRMATION OF APPLICANT

Statement:

I affirm that all the information provided in this application is accurate and complete, and fully describes my farm management practices. I agree to necessary field visits and other such verification procedures (including residue tests and examination of financial records if necessary) deemed appropriate to ensure compliance with NMOCC standards. I understand that receipt of this application in no way implies granting of certification by the Commission.

I hereby make application for an organic certification license as provided by the New Mexico Organic Commodity Act. I affirm that during the period of time of this certification, I will abide by the New Mexico Organic Certification Act and the rules and regulations promulgated thereunder, and that I have read the act and am familiar with its contents.

Farm or Business Name:

Del Valle Pecans

Signature: _____

Date: 1 June 1996

Note: It is not required to notarize this document unless the above signature is different from the application submitted last year.

(Please make a copy of this application and retain for your files.)

TEXAS AGRICULTURAL EXTENSION SERVICE -- THE TEXAS A & M UNIVERSITY SYSTEM
SOIL TESTING LABORATORY, LARRY G. UNRUH

BY H. DALE PENNINGTON
EXTENSION SOIL CHEMIST

DATE RECEIVED : 7/30/91
DATE PROCESSED : 8/16/91
COUNTY :
COUNTY # :
LAB # : 10183

FOR: HARPER PECAN FARM
P.O. BOX 104
MESILLA PARK, NEW MEXICO
88047
FEE :

SAMPLE ID# 14 PECAN LEAVES

PLANT ANALYSIS

PLANT TEST RATINGS - ELEMENT

CRUDE PROTEIN	NITROGEN	PHOSPHO- RUS	POTASSIUM	CALCIUM	MAGNESIUM	NITRATE PPM	ZINC PPM	IRON PPM	MANGANESE PPM	COPPER PPM	SODIUM PPM	BORON PPM	SULPHUR PPM	CL PPM
	2.33	.13	1.43	1.50	.50		165	110	70	9.4	488			
	LOW	LOW	OK	OK	OK		LOW	OK	OK	OK				

(PPM X 0.0001 = PERCENT)

INTERPRETATION

INCREASE SOIL NITROGEN RATE BY 10%. IF YIELDS ARE AFFECTED,
APPLY 40 LBS./A OF P205. INCREASE FOLIAR ZINC PROGRAM BY ONE
SPRAY.

FURTHER INFORMATION AND ASSISTANCE CAN BE OBTAINED FROM YOUR COUNTY EXTENSION AGENT :

PLANT ANALYSIS REPORT

PAGE 1

TEXAS AGRICULTURAL EXTENSION SERVICE -- THE TEXAS A & M UNIVERSITY SYSTEM
SOIL TESTING LABORATORY, LARRY G. UNRUH

BY H. DALE PENNINGTON
EXTENSION SOIL CHEMIST

FOR: HARPER PECAN FARM
P.O. BOX 104
MESILLA PARK, NEW MEXICO
88047
FEE :

DATE RECEIVED : 7/30/91
DATE PROCESSED: 8/16/91
COUNTY :
COUNTY #:
LAB # : 10184

SAMPLE ID # 2 PECAN LEAVES

PLANT ANALYSIS

PLANT TEST RATINGS - ELEMENT

CRUDE PROTEIN	NITROGEN	PHOSPHO- RUS	POTASSIUM	CALCIUM	MAGNESIUM	NITRATE PPM	ZINC PPM	IRON PPM	MANGANESE PPM	COPPER PPM	SODIUM PPM	BORON PPM	SULPHUR PPM	CL PPM
	2.29	.10	1.65	.89	.36		36	79	30	7.8	394			
	LOW	LOW	OK	OK	OK		LOW	OK	LOW	OK				

(PPM X 0.0001 = PERCENT)

INTERPRETATION

INCREASE SOIL NITROGEN RATE BY 25%. IF YIELDS ARE AFFECTED,
APPLY 60 LBS./A OF P205 PLUS 1 LB./A OF MANGANESE. INCREASE
FOLIAR ZINC PROGRAM BY TWO SPRAYS.

FURTHER INFORMATION AND ASSISTANCE CAN BE OBTAINED FROM YOUR COUNTY EXTENSION AGENT :



624 Peach Street
P.O. Box 80837
Lincoln, Nebraska 68501
(402) 476-2811
FAX: (402) 476-8959

PLANT
ANALYSIS



402-476-2811

Submitted By:
DelValle Pecans

Submitted For:
SELF

Plant Information Sheet No.
2113

P.O. BOX 104
Mesilla Park NM 880470104

Laboratory Sample No.
602540

Date Reported: 17-Aug-94
Sample Marked: B

Laboratory Turnaround: < 3 DAYS
Crop: PECANS

Samples Will Be Stored Until: 16-Sep-94
Crop Age:

RESULTS OF LABORATORY ANALYSIS

LABORATORY TEST RESULTS	2.29	0.11	1.03	0.44	1.51	0.01	0.20	95	79	6	85	158		117
ELEMENT	Nitrogen %	Phosphorus %	Potassium %	Magnesium %	Calcium %	Sodium %	Sulfur %	Zinc ppm	Manganese ppm	Copper ppm	Iron ppm	Boron ppm		Aluminum ppm

GRAPHIC RATING OF YOUR RESULTS COMPARED TO NORMAL RANGES

NORMAL RANGE	2.50 TO 2.80	0.12 TO 0.30	0.75 TO 1.25	0.30 TO 0.60	0.90 TO 1.50	0.01 TO 0.10	0.20 TO 0.40	50 TO 100	100 TO 800	10 TO 30	50 TO 300	30 TO 45		1 TO 2000
EXCESSIVE														
EXTRAVAGANT													XXXX	
					XXXX								XXXX	
OPTIMUM			XXXX		XXXX			XXXX					XXXX	
			XXXX	XXXX	XXXX	XXXX	XXXX	XXXX			XXXX	XXXX		XXXX
LOW	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX		XXXX	XXXX		XXXX
	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX		XXXX
DEFICIENT	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX		XXXX
	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX		XXXX
	N	P	K	Mg	Ca	Na	S	Zn	Mn	Cu	Fe	B		Al

GRAPHIC INTERPRETATION USING E. R. BEAUFFILS DRIS INDEX

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NORMAL RANGES ARE OBTAINED FROM UNIVERSITY RESEARCH.

NEW MEXICO ORGANIC COMMODITY COMMISSION

118 AMHERST DR. NE
ALBUQUERQUE, NM 87106-1303

505-266-9849 Phone

505-266-0649 Fax

OFFICIAL NOTIFICATION OF CERTIFICATION APPROVAL

December 17, 1996

Wilmer & Sally Harper
Del Valle Pecans
P.O. Box 104
Mesilla Park, NM 88047

Dear Wilmer & Sally,

It is with great pleasure that I notify you that **Del Valle Pecans** has been approved for organic certification by the New Mexico Organic Commodity Commission. Pursuant to the authority vested in the Commission by State Law NMSA 1978 76-22-13(A), and by official act of the New Mexico Organic Commodity Commission on December 13, 1996, your operation is **CERTIFIED** by the State of New Mexico as an organic operation and its products deemed as "CERTIFIED ORGANIC."

We must request, however, that you comply with the following by next year:

- 1) Continued research into zinc supplementation alternatives, with reporting back to NMOCC.

This certification is in effect for approximately one year and expires on **December 13, 1997**. Your certification is non-transferable. Your producer identification number is (**#17**), and is to be used in all invoice transactions and appear upon all labeling. Your enclosed certification certificate is to be presented and/or displayed to buyers and consumers as documentation of your certified organic status until the date of its expiration.

Thank you for your participation and support of Organic Agriculture in New Mexico. Best regards in your endeavors. Feel free to call us any time with suggestions, concerns or questions. NMOCC is a grower-run agency which relies upon grower support and participation in establishing a thriving statewide organic farming community network.

Sincerely,

Richard Pate
Agency Director

Independent Organic Inspectors Association

Farm Inspection Narrative Report

APPLICANT: Wilmer and Sally Harper
FARM NAME: Del Valle Pecans
ADDRESS: P.O. Box 104
Mesilla Park NM, 88047
TELEPHONE NO.: (505) 524-1867
CERTIFICATION AGENCY: NMOCC

DATE: November 25, 1996
INSPECTOR: Michael Alexander

FAX NO.: Same
CERT. NO.: 017

BACKGROUND

Certification

Del Valle Pecans is applying for recertification of their pecans grown on 17 acres located in the Mesilla Valley of New Mexico. They grow Western Schlay pecans with 8% Wichita mixed in for pollination. This farm is numbered 1292 by the ASCS. Del Valle Pecans also has a four acre parcel of land located about one hundred yards to the north across County Rd. B-53. This is the northern part of field numbered 1513B by the ASCS. They have transplanted mature pecan trees from the 17 acre organic orchard into this land. This facilitates both planting the new land and increasing the spacing distance in the existing orchard. It has been shown that by opening up the traditional spacing to a more generous amount pecan trees will produce more due to better light infiltration to lower limbs. Field 1513B will be managed organically for future certified organic consideration. Del Valle Pecans has been certified organic by the New Mexico Organic Commodity Commission since 1992.

New for 1996 is the addition of 4.3 acres adjoining the home farm on the west side. This land was prepared and transplanted with trees from the orchard surrounding the home. This land will be organically managed for the next three seasons in anticipation of certification. It was previously in conventionally fertilized alfalfa.

General

Del Valle Pecans is owned and operated by Wilmer and Sally Harper. It is registered as a limited liability company. Wilmer Harper is an agriculture economist at New Mexico State University. Sally manages the farm business doing most of the operations by herself. At the time of the inspection Wilmer was at work. The inspection was conducted with Sally.

A condition to certification for the 1994 season was to discontinue the use of, and dispose of the prohibited zinc supplement "Zintrac 8". A certification memorandum dated 12/19/94 stated that "Regarding the use of "Zintrac 8", the Commission previously approved its use based on the general commercial unavailability of a non-synthetic foliar spray containing zinc. At this time it appears that non-synthetic products are becoming generally available. Please submit any product information to the Commission for timely review. Please discontinue the use of "Zintrac" at the close of the current production season and seek an alternative. Should you be unable to find an alternative in a commercially available quantity and at a reasonable commercial price, the Commission may, at its discretion, entertain another request for the use of "Zintrac 8". However, should you wish to petition the Commission for the use of "Zintrac 8" during the next production cycle, please be prepared to demonstrate you have made your best efforts to obtain the non-synthetic products." Consequently Del Valle Pecans sent a letter to the Commission dated 11/28/95 which stated "Use of "Zintrac 8" was approved for 1 or 2 applications (1995) until the "OrZin"—approved foliar zinc spray—could be accessed. OrZin was not in commercial production until April 15, 1995. Our shipment did not arrive at Helena Chemical until June 15, 1995 due to a series of miscommunication between Helena and Shield Brite. We sprayed "Zintrac 8" three times—April, May and June. Then in late June due to a family medical emergency my husband and I were in Albuquerque for the following six weeks. Therefore, we did not get a fourth foliar zinc application on the orchard. We now have the "OrZin" in our possession and will use it for the 1996 crop year. Both the receipt for the "OrZin" and the

delivery voucher are attached to the original request for temporary waiver." Documentation bared out that the acceptable product was not available at the farm until 11/30/95.

For the 1996 season Sally started with the acceptable zinc product "Orzin". Upon opening the container she found that the material had coagulated into a lumpy mass. She stirred, chopped and strained it until she hoped it would work in the sprayer. It did work with some difficulty. The following month when she opened the container for the second application the material had coagulated further and was growing some type of mold on the top. She contacted the company. A company spokesperson said that they had other reports of the products instability and had subsequently discontinued its production. The company was unaware of what was growing in the container. The recommended not using the product and offered to replace it with the previous prohibited product "Zintrac 8". This was outlined in a letter to the Commission dated 1 June 1996, a copy of which accompanies this report. The Commission director spoke with Sally on 24 May 1996 and discussed "demonstrated need". Sally included materials with her letter to try and demonstrate this need to use the prohibited material "Zintrac 8".

I am unaware of any conditions to the 1995 certification.

Farm maps supplied with the application were accurate and complete including buffer zone distances, adjacent land use fuel storage areas, and cropping areas. The revised 1996 map includes the new location of the fuel tank which is closer to the house and barn. The 4.3 acres recently purchased to the west of the existing orchard does not appear on the current map, it will be added to future maps.

CONDITIONS OF CROPS

At the time of inspection harvest was under way. The trees had been shaken and the nuts were being swept into windrows and vacuumed up. The trees were bare of leaves and nuts. There was little evidence of disease or pests at this time. A random sampling of nuts showed healthy fully formed nut meats with little evidence of insects or undeveloped nuts. She said that it had not been an exceptionally good year, she felt weather conditions had not been optimal in the spring. She thought that the trees where the thinning had taken place produced better than where they were still crowded. There was no evidence of non-conforming input use.

FERTILITY MANAGEMENT

General

Sally does not grow any specific green manure crop on the orchard floor. Other local growers experiments with different green manure has been discouraging. The biggest problem is the flood irrigation methods needed for the trees drowns out most covers. Locally adapted weeds grow on the orchard floor through the growing season and are subsequently tilled under. The leaves and prunings are also incorporated into the soil. Most of the equipment used in the orchards has high flotation tires minimizing soil compaction. The farm has performed many soil tests. These tests reveal a high soil PH. This may account for unavailable micronutrients.

This year Sally is working with Dave Fischer from the Soil Conservation Service to improve soil management. At their recommendation she has ordered a mower to be used in the future. They expressed that her current management system included too much cultivation. I agree with this assessment and feel that the change in management systems will better bring the farm into compliance with organic standards. Currently only the volunteer species will be grown. Working with the Service and other area growers a suitable cover crop may be found. Dave has expressed a desire to find species of plants which will encourage beneficial insects as well. The Service loaned the farm nine tensionometers which were used this season. They were placed around the orchard. Three each at one foot, two feet, and three feet. Sally said the results were inconclusive since they didn't show her the proper way to keep them primed. They will be used again next season.

Inputs

The farm utilizes both systemic and foliar applied nutrients. For the 1996 season compost, fish emulsion, and zinc were applied.

In April 151 tons of composted dairy manure purchased from Calhoun Farm Services was spread between the 17 acres around the farm house and the 4 acres across the street. This works out to around seven tons to the acre. Sally has been pleased with this product.

In April the approved zinc product and fish were applied. In May, and June the "Zintrac 8" product and a foliar fish emulsion were applied together. The fish product is an organically acceptable product from Peaceful Valley Farm Supply and Bozeman Biotech called "Mermaid Organic Fish". The fish was applied at 3 lb. to the acre and the zinc was applied at 1.5 pts. to the acre. (Please see "BACKGROUND" for an explanation of the zinc product use.)

SEEDS AND SEEDLINGS

The farm has not used any seed or seedling in the production of it's pecans. Mature trees from the Certified orchard have been transplanted into the new ground with a mechanical transplanter.

GREENHOUSE PRODUCTION

The farm does not utilize a greenhouse in it's production.

WEED MANAGEMENT

All weed control is done manually. The weeds in the orchard are controlled with a disc, orchard knife, or weed cutter. The irrigation ditch banks are mowed with a gasoline "weed wacker". At the time of inspection the orchard floor was very clean having just been sweep harvested. The ditch banks were mowed short and there was no evidence of prohibited herbicide use. The shade from the tree canopy and the deep flood irrigation prevents the establishment of many weeds. In 1997 the farm will switch to mowing the entire orchard throughout the season.

PEST MANAGEMENT

The only appreciable pest the farm deals with are aphids. Natural populations of beneficials (ladybird beetles) has helped to keep them under control. Sally said she also thinks the foliar fish may discourage them as well. There are surrounding alfalfa fields which do not receive insecticides that may provide alternate habitat for beneficials and there prey. Sally's future commitment to growing a cover crop on the orchard floor will increase the habitat for beneficials. The Pecan Case Bearer, an insect pest of pecans, has shown up in the area. It had not previously been detected. It's occurrence coincides with several mild winters. Sally said that she had seen some damage, but not enough to warrant control measures. Sally will continue to monitor this pest.

DISEASE MANAGEMENT

The pecan trees do not appreciably suffer from any diseases. No controls are necessary.

WATER

The irrigation water for the farm is diverted from the Rio Grande River of New Mexico. Water is delivered via the "Apache Lateral". The farm is located near to this ditch and receives it's water first. The Elephant Butte Irrigation District manages this water.

A water study entitled "Intensive Water Quality Survey of the Rio Grande in the Vicinity of Las Cruces New Mexico" was conducted in 1988 by the New Mexico Environmental Improvement Division. Samples collected at this time "revealed no detectable levels of 34 common biocides". A full copy of this report should be on file at the Commission office.

All orchards are flood irrigated. A new high flow gate has been added to the new field to the west. Sally did this to lessen the impact of her irrigation on her neighbors. The entire 4.3 acres is irrigated from this one gate.

STEWARDSHIP

There is little chance for water erosion of soil since all orchards are level. There is slightly more of a chance for wind erosion since there is little covering of the soil with low growing grasses or forbs. The conscious decision to change from clean cultivation to a mowed cover crop will help to lessen the impact of wind erosion. The trees help to minimize the action of the wind by acting as a windbreak themselves. All of the irrigation ditches are permanent and some are concrete lined.

There is only a small part of the farm which is not cropped. The area around the house is planted in a variety of landscape plants. Some of these provide habitat and food for wildlife.

ADJOINING LAND USE

The farm borders a variety of conventional and low input farms, roads, ditches, and residences.

To the east is the farms concrete supply ditch, then the main ditch road, then the main ditch, then the neighbors homes, pecan orchards, and conventional row crop fields. The row crop area was in chile for the 1996 season. There is a space of approximately 100 feet between the dripline of the conventional crop and the farms pecan trees. There was no evidence of herbicide use on any of the roadsides or ditch banks. Sally said that these areas may occasionally get mowed. There is no aerial spraying performed in the area.

To the south of the farm is a conventional row crop farm. This was in chile for the 1996 season. There is an area of no trees, a ditch, and the turn row between the chile plants and the trees. This border is measured at 60 feet. The ditch is flame weeded.

To the west is a 40 acre field of alfalfa. The farms access road runs along this border. From the alfalfa to the pecan trees is measured at 30 feet. This alfalfa field receives minimum inputs. A conventional fertilizer has been used, no insecticides have been used.

To the north of the farm is an irrigation supply ditch managed by Sally, then Co. Rd. B-53, and then a residential area on the west half and a conventional alfalfa field on the east half. There is 50 feet from the pecan trees to the road right-of-way. Sally has a good relationship with her neighbors and they are aware she is certified organic.

HARVESTING AND HANDLING

Ideally the trees have experienced temperatures in the 28 degree Fahrenheit range before harvest. The 1995 season was very mild postponing the normal Thanksgiving harvest until December. The 1996 season had an average frost date and harvest proceeded on schedule.

The nuts are harvested mechanically. The first piece of equipment used is a tree shaker. This machine grabs the trunk of the trees and vigorously shakes them. This loosens and drops the nuts from the tree. Sally said high tech advancements in this machine have lessened the damage to bark and young twigs. A sweeper then sweeps the fallen nuts into windrows. The windrows are then collected with a harvester. The harvested nuts are packed into large wooden bins for transport to the cleaning plant.

The cleaning plant separates the nuts from the leaves, twigs, rocks, dirt and other debris. The nuts are packaged in large bags to either be sold in the shell or to be taken to the shelling plant. All of Del Valle Pecan's nuts are transported in bins marked with their name and "Organic".

All of the harvesting is done by custom operators. The farm owns a large goose neck trailer which they use to transport both the raw and finished product from the farm, cleaning plant, sheller, and cold storage.

Sally receives weight tickets from the cleaning plant for all of her bags of nuts. She compares this to the weight the shelling plant records when they receive the cleaned nuts. This figure will normally vary by 1 to 5 percent. This is due to several variables such as weather, humidity, maturity of crop at harvest, or time between cleaning and shelling. She said that a variance of 10 percent would raise some concern. A variance of this much may signal a math or recording error.

The nuts carry the farm name tag all the way through the processing and to the finished boxes of shelled pecans. The finished pecans are packaged into plastic bags which are then put into cardboard boxes. Each box has a NMOCC label with the growers name and certification number.

STORAGE

The farm uses a commercial freezer storage company to store shelled nuts. This company is called El Paso Terminal Warehouse located at 5850 Welch Street, El Paso Texas 79983. Sally uses a hand written log to keep track of what nuts are in storage. The warehouse gives her receipts for product which is taken into the storage area. She keeps a running total of product which has been taken out with a balance.

There is a steel barn on the farm which contains five home size freezers which Sally uses for short term storage. She will pick up a quantity of boxes in El Paso and bring them to the barn before shipping them to buyers via United Parcel Service.

Both storage facilities handle product other than certified organic. The terminal warehouse stores ice cream and other products which require frozen storage. At the barn on the farm Sally stores pesticide free pecans she sells from another area grower. By the time the pecans reach either of these facilities they are sealed in bags which are sealed in boxes. The pesticide free pecans have a fluorescent orange sticker which says "Pesticide Free". In 1995 the farm started using different colored boxes for the organic and pesticide free pecans. Sally said this simplified the separation of product during handling. Since the nuts are never removed from their respective packages, the chance of co-mingling is remote.

Pest management at the El Paso location is unnecessary since the entire storage space is kept below freezing temperatures. Pest control at the farm barn is done with the family cats. These cats are allowed into the barn at night. Sally said she has had no trouble with mice or rats in the barn.

OTHER BUILDINGS

The home and the barn are the only buildings on the farm. The barn stores farm inputs as well as the freezers. These materials are stored at the opposite corner of the barn, approximately 45 feet away. At the time of the inspection there were several gallons of the "Zintrac 8" and 1 gallon of the "Or Zin" which Sally kept to show what condition it had turned to. Upon opening the container we found it to be coagulated into a stiff mass with some liquid on top. The neck of the container showed hardened material with discoloration.

This barn also is used as a shop to repair equipment. The area was very clean with no open containers of grease, oil, ext.. This barn is well kept minimizing the risk of contamination. The home and farm yard are also well kept. The waste oil is stored in a 55 gal. drum outside the back of the barn. A local service station accepts the oil to recycle along with their waste oil.

ON FARM PROCESSING

Wilmer and Sally do not perform any on farm processing.

TRANSPORTATION

Wilmer and Sally use their own truck along with a goose neck trailer to haul their harvested nuts to the cleaner, the cleaned nuts to the sheller, the shelled nuts to the terminal warehouse, and the boxed frozen nuts from the warehouse to the farm freezer storage. This trailer is kept clean and in good repair.

MARKETING

Del Valle Pecans wholesales it's nuts to a variety of natural food stores, co-operative markets, and restaurants. The nuts are packaged in plastic bags inside cardboard boxes. They are sold either as pecan halves or pecan pieces in 25 or 30 pound cases. Del Valle aggressively markets organic and pesticide free pecans. So much so that they are able to purchase and resell other area growers product. They purchase NMOCC certified organic nuts from Calhoun Farms and pesticide free nuts from J. O. Charles and Lynn Mullholland. This provides a valuable market for these other area growers. Each growers nuts are processed and packaged separately. The certified organic nuts have the growers ID number on the package and the pesticide free nuts have bright orange stickers attached. The boxes are color coded for organic and pesticide free. Sally keeps very good business records separating these products.

AUDIT TRAIL

I reviewed a number of documents concerning the existence of a complete accountable audit trail. Complete receipts and records of all inputs was available including the compost, "Zintrac 8", "Orzin", and fish fertilizer. Complete sales records are also maintained. Tracking product from field to sales is made easy since the orchard is continuous with only one area to account for. All product from the farm is located in this orchard. The separation of other growers product was clear and understandable.

EQUIPMENT MAINTENANCE

The farm has a newer model Ford, 70 horsepower tractor at the time of the inspection it was parked in the farm yard near the metal shop building. It was clean and showed no sign of gross fluid leaks. The many attachments were also in good repair.

The fuel tank was located in an area away from the buildings on the west side of the orchard. It has been moved to a more suitable location near the equipment and shop areas. It is over 30 feet away from any crops.

RECOMMENDED SAMPLING

There was no sampling conducted or recommended at the time of inspection. The farm has done some sampling of soils and plant tissue in the past. Leaf analysis for 1991 and 1994 accompany this report. The 1991 samples were taken in July and showed a deficiency of zinc. The 1994 samples were taken in August after the application of "Zintrac 8" and showed adequate levels of zinc. Sally says she is going to continue close observation of zinc levels hoping the new soil management system will decrease or eliminate the need for supplemental zinc applications. An analysis of the compost purchased from Calhoun Farm Services accompanied the 1995 application for certification.

OTHER CONSIDERATIONS

Sally's understanding of the organic standards has shown steady improvement over the years. As new situations arise she is willing to take any necessary steps to make sure the operation is in compliance with NMOCC standards. The instability and subsequent discontinuation of the approved zinc product has been a set back to the farms operation. **Continued use of the prohibited zinc spray is of concern, and jeopardizes the farms certified organic status. A recommended condition to certification is that the farm take a proactive approach to the elimination of this product. This recommendation does not specify actions to be taken. A more specific time limit and action recommendation would be appropriate.**

The farm has many strengths. The good business management is one others include; adequate border/buffer areas, a strong marketing skill, limits on soil erosion due to perennial nature of crop, a good local source of compost, a good relationship and support from other growers in the area, and equipment suited to the operation.

The farms weaknesses are fewer. The soil fertility management could be more innovative. Sally is headed in the right direction with the involvement of the Conservation Service. The past lack of a green manure crop on the orchard floor increases the need for off farm inputs and exacerbates wind erosion. Raising the soil OM could improve the PH buffering capabilities and may free up more micronutrients, lessening the need for the foliar applications. Some trial and error would be needed to find a suitable cover. Some of this experimentation has been done by other area growers. Building on their knowledge may well produce a suitable cover crop. There would also be the possibility of marketing something from this crop. Handling of other growers product complicates the audit trail but Sally has shown a good method of separation and record keeping. The lack of space for any wildlife habitat limits the benefits of these creatures to the transient. Having conventional neighbors always increases the risk of inadvertent contamination.

RECOMMENDATIONS

I recommend the 17 acre field number 1292 for recertification. The crops grown here are pecans. A recommended condition to recertification is that the farm take a proactive approach to the elimination of the prohibited foliar zinc product "Zintrac 8".

LIST OF ATTACHMENTS

- 1.) Copy of 1 June 1996 letter to the Commission explaining use of prohibited zinc product.
- 2.) 1991 tissue analysis results showing zinc deficiency.

6

3.) 1994 tissue analysis results showing acceptable levels of zinc.

Inspector; Michael Alexander, Signature; _____

Date; Nov. 24, 1996

The information contained in this report is confidential between the inspector, the inspected party, and the certification agent. This report does not constitute certification or consultation, nor should it be used for promotional purposes.

NEW MEXICO ORGANIC COMMODITY COMMISSION

118 Amherst Drive, NE
Albuquerque, New Mexico 87106-1303

1996 CROP PRODUCTION INSPECTION FORM

(Please print)

Grower Name(s): Wilmer & Sally Harper
Farm Name: Del Valle Pecans
Address: P.O. Box 104, Mesilla Park NM Zip: 88047
Telephone: (505) 524-1867 Date Inspection Assignment Received: / / 96
Certification I.D. # 017 (for recertification) Date Inspection Conducted: 11/25 96
Date Report Submitted: / / 96
Final Report Deadline (postmark): / / 96 Total Inspection Time days*

* If Total Inspection Time exceeds 15 days, please explain:

I. Certification Information

A. Operation Information

Is the farm in transition to organic production? ☒ Yes ☐ No (New Ground)
Is the farm a mixed operation? ☐ Yes ☒ No
Estimated farm gross sales: \$ 68,000
Date of last inspection: 12/13/95 Last Inspector: Michael Alexander
Total acreage farmed by grower: 26 acres Acreage currently certified: 17 acres
Current certification status: (check one) ☒ Certified ☐ Certification Lapsed ☐ Not Certified
1996 Crop(s): Western Schley and Wichita Pecans
1995 Crop(s):
1994 Crop(s):
1993 Crop(s):
Date last prohibited material was applied: (mandatory for first-time certification)

B. Recommendations

Please check one: ☐ Certification ☒ Certification with Conditions ☐ Deny Certification
Total acreage to be certified: 17 acres

Inspector's Name: Michael Alexander
Inspector's Signature: Michael Alexander Date: 11/25/96

II. Questionnaire / Check List

1. Is the grower's application provided to you by NMOCC complete? ☒ Yes ☐ No
List any missing documents: _____
2. Are the grower's responses to questions on the application clear? ☒ Yes ☐ No
If not, clarify these responses with the grower and indicate in the narrative.
3. List the names and titles of the people responsible for the operation's management and describe the management structure: Wilmer & Sally Harper - owners operators, limited liability Co.
Which of the above people were interviewed? Sally
4. The following aspects of the farm operation were reviewed/inspected:

A. Farm History ☒ Yes ☐ No B. Farm Map ☒ Yes ☐ No C. Soil / Water Test ☐ Yes ☒ No D. Record keeping ☒ Yes ☐ No E. Buffer Zones ☒ Yes ☐ No F. Cropping Areas ☒ Yes ☐ No	G. Propagation Facilities... ☐ Yes ☒ No H. Packing & Storage ☒ Yes ☐ No I. Labeling ☒ Yes ☐ No J. Equipment ☒ Yes ☐ No K. Materials Storage ☒ Yes ☐ No L. Harvested Crop ☒ Yes ☐ No
---	--
5. Does the operation grow any organic product on land not in the NMOCC program? ☒ Yes ☐ No
If Yes, please list in narrative report. New Ground managed organically - product marketed as pesticide free.
6. Does the grower broker or handle any product not in the NMOCC program? ☒ Yes ☐ No
If Yes, describe system to separate product and distinguish labeling in narrative.
Attach samples of receipts, invoices and labels.
7. Assess the operation's compliance with NMOCC standards, and provide details in narrative report:

A. <u>Record keeping / Audit Trail</u> Farm Maps up-to date? ☒ Yes ☐ No Complete receipts? ☒ Yes ☐ No Dates/amounts/locations of all materials applications? ☒ Yes ☐ No Harvest records maintained? ☒ Yes ☐ No Storage records maintained? ☒ Yes ☐ No Sales records maintained? ☒ Yes ☐ No	D. <u>Compliance w. Previous Certification Conditions</u> ☒ Yes ☐ No ☐ N/A
--	---
- | | |
|--|--|
| B. <u>Growing Practices</u>
Soil management compliance? ☒ Yes ☐ No
Pest/weed cntrl. compliance? ☒ Yes ☐ No
Annual transplants organic? ☐ Yes ☒ No
Restricted materials comply? ☐ Yes ☒ No
Adequate buffers? ☒ Yes ☐ No
Equipment maintenance? ☒ Yes ☐ No | 8. Indicate all potential sources of contamination:
a. Neighboring land uses <u>Yes</u>
b. Previous land uses <u>Limited</u>
c. Equipment residues <u>No</u>
d. Irrigation/wash water <u>Limited</u> |
|--|--|
- | | |
|---|--|
| C. <u>Separation of Product & Handling</u>
Adequate separation, mix op.? ☒ Yes ☐ No
Proper labeling? ☒ Yes ☐ No | 9. What time of year is best for inspection?
☒ Fall ☐ Winter ☐ Spring ☐ Summer
Why? <u>Harvest time</u> |
|---|--|
10. General notes: 2 intrac 8 use - see narrative - general

*State of New Mexico
Certified Organic Producer*

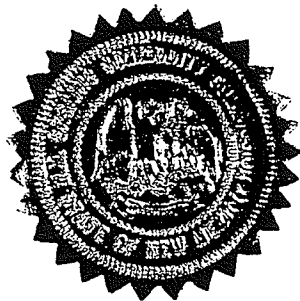
*Del Valle Pecans, processing
Mesilla Park, New Mexico*

PRODUCER IDENTIFICATION NUMBER: 65
EXPIRATION DATE: **December 13, 1997**

This certificate has been issued by the New Mexico Organic Commodity Commission, and verifies that the above named producer has complied with all of the terms and conditions of the New Mexico Organic Certification Program. This certification is non-transferable and is intended for the sole use of the certified producer named below.

**NEW MEXICO
ORGANIC COMMODITY COMMISSION**

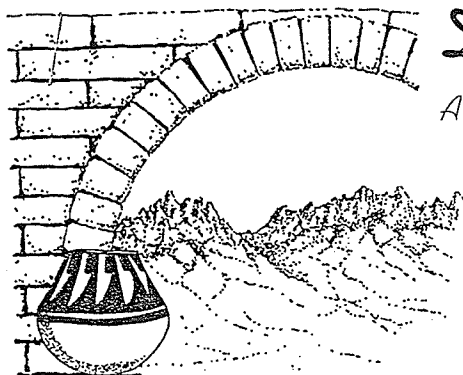
118 AMHERST DR. NE
ALBUQUERQUE, NEW MEXICO 87106-1303
(505) 266-9849



v.3

Richard Pate, Agency Director NMOCC

Wilmer & Sally Harper
P.O. Box 104
Mesilla Park, NM 88047
U.S.A.



Del Valle Pecans

A Product of New Mexico

DIRECT FROM OUR ORCHARDS TO YOU
CERTIFIED ORGANIC PECANS
PESTICIDE FREE PECANS

The Del Valle Pecan Orchards are located along the Rio Grande River in south central New Mexico. The fertile, irrigated land along the Rio Grande coupled with the arid high plains produces a bright, consistent kernel. The orchards produce predominately the Western Schley variety. The Western Schley is a high quality improved pecan variety that yields the finest nut kernels available in the pecan industry today.

Isolated from other pecan producing areas and supported by strong New Mexico Department of Agriculture inspection, the Mesilla Valley experiences few pecan diseases or pest problems. The arid climate and good populations of beneficial, predator insects have allowed progressive producers to achieve good production results without the use of insecticides. These conditions allow Del Valle to offer both a certified organic product and a pesticide free product.

Del Valle pecans are guaranteed to be from the current crop. To insure a quality product, Del Valle pecans are placed in freezer storage immediately after harvesting and processing are completed.

When stored properly, pecans are long-lasting. It is essential that they be kept cold, preferably in the freezer, refrigerator, or a dry, cool place. Stored in a freezer, pecans will maintain their freshness and quality for up to two years. Pecans can be thawed and refrozen several times with no loss of quality.

Protein	2.2 gm	Cholesterol	0.0 mg
Carbohydrate	5.2 gm	Sodium	3.0 mg
Fat	19.2 gm	Potassium	111.0 mg
Polyunsaturated ...	4.8 gm	Phosphorus	83.0 mg
Monounsaturated ...	12.0 gm		
Saturated	1.5 gm	Calories	190.0

NUTRITIONAL INFORMATION

PER 1 OZ. SERVING

P.O. Box 104



Mesilla Park, New Mexico 88047



(505) 524-1867

THE NEW MEXICO ORGANIC COMMODITY COMMISSION

118 Amherst Dr. NE, Albuquerque, NM 87106-1303 (505) 296-9849

1996 Application for RE-CERTIFICATION Organic Crop Production Operation

MAR 11 1996

* Application and fee are due (post-marked) by March 8, 1996 *
(Please note! There is a \$25 to \$50 late fee with additional requirements for late submission)

(Please Print or Type)

Applicant Name(s): SUSAN HIGGINS Producer ID# 074
Farm or Business Name: SUNGREEN LIVING FOODS
Address: PO BOX 15242 Town SANTA FE State NM Zip 87506
Telephone Number: (505) 474-7420 County: SANTA FE

I. Production Operation Profile

- 1) Is your farm a mixed operation? (part conventional and part organic) ☒ Yes ☐ No
- 2) How many acres are you applying for organic certification this year? N/A acres
- 3) What crops do you want to certify organic this year? ALL EXCEPT SPROUTED BEAN MIX -
i.e.: SUNFLOWER SPROUTS, DAIKON RADISH SPROUTS, BUCKWHEAT GREENS, WHEATGRASS,
SPROUTED GREEN PEAS
- 4) When does your harvest begin and end? YEAR-ROUND
- 5) Are your irrigation practices the same as last year? ☒ Yes ☐ No
If not, please describe: _____

II. Soil Fertility Program

The certification program requires that all crop producers describe in detail the production practices relied upon to enhance soil fertility. Enhancement of soil fertility should be achieved by the use of appropriate management practices including, proper tillage, crop rotation and green as well as animal manuring.

- 1) Describe any green manure crops grown: N/A
- 2) Is raw animal manure applied to your cover crops? ☐ Yes ☒ No
If so, please explain: _____
- 3) Is animal manure used in your regular crop program? ☐ Yes ☒ No
If so, please describe its source and how it is composted: _____
- 4) Please fill in soil related information in the Field Data Table on page 4.

III. Insect, Disease and Weed Control

- 1) Briefly describe your problem insects, diseases and weeds. *No current problems. Only disease in last year has been fungus called SCLEROTINIA SCLEROTIUM. Occurred only on sunflower in cold weather & frost.*
- 2) Are there any materials, or practices you have found to be effective in addressing a particular problem? *Using a seed that is very resistant. When I buy other seed that is more susceptible, keeping frequent air circulation helps, and I scoop out & dispose of affected plants.*
- 3) Please list materials used to control insects, disease and weeds in the Field Data Table on page 4.

IV. Starts and Transplants

- 1) Please describe in detail your production methods for starts and transplants.

N/A

- 2) If you do not produce your own starts or transplants, please list in the table below where they were purchased and all materials the grower used in the production of the transplants. If the grower is not certified as an organic producer, a notarized affidavit from the grower stating compliance with all NMOCC standards is required.

Crop	Company/Greenhouse	Materials Used

V. Farm Equipment

- 1) What equipment have you added and/or deleted since last year? (Please list) _____
- 2) Have you added any new fuel tanks on the farm since last year? ☐ Yes ☐ No
- 3) If so, please describe what type fuel and how far they are from crop production and storage.

VI. Post-Harvest Handling and Storage of Farm Crops

To be certified as organically produced, the harvested crop must be protected from impermissible substances and other conditions which might compromise the integrity of the organically produced food.

1) Post-Harvest Handling:

- a) By what method do you harvest your crops? cut sprouts with a knife about 1" above soil level, pick out only remaining hulk, trim if necessary & dry in front of fan
- b) Do you employ a field tagging system on your own or in conjunction with a handler? Describe. I mark flats of sprouts with plastic date & record harvest date
- c) Describe any manual practice or substance that you apply to stabilize the crop in the field immediately after picking? None
- d) In what size unit do you typically sell your crops? List the crop and the unit next to it. SPROUTS: Sunflower & daikon radish in bulk in 1 LB bags. Sunflower, Daikon & Buckwheat also in 402 ZIP-LOC bags with a label, fill sprouts at Farmer's Market out fresh from flats brought to market & weighed as sold to customer
- e) How is your crop transported to market? I deliver 4 or 5 days a week. Product is transported in coolers with "blue ice"
- f) What is your greatest difficulty in the organic post-harvest handling of your crops? Picking over the sprouts for occasional hulk or cull, but generally not a big problem

2) Storage:

- a) Do you have crop storage on the farm? ☒ Yes ☐ No

If yes, please list the bin number, capacity, what crops are to be stored and when, on a separate sheet of paper.

- b) Do you use any off-farm storage? ☐ Yes ☒ No

If so, please describe storage location, distance from the farm, and if the storage area includes both organic and non-organic crops.

just regular refrigeration? but most are delivered per day.

Field Data Table: *

Please Note: Field numbers must correspond with the numbers on your farm map, page 5. Use the same field numbers as submitted last year.

Soil Fertility Program

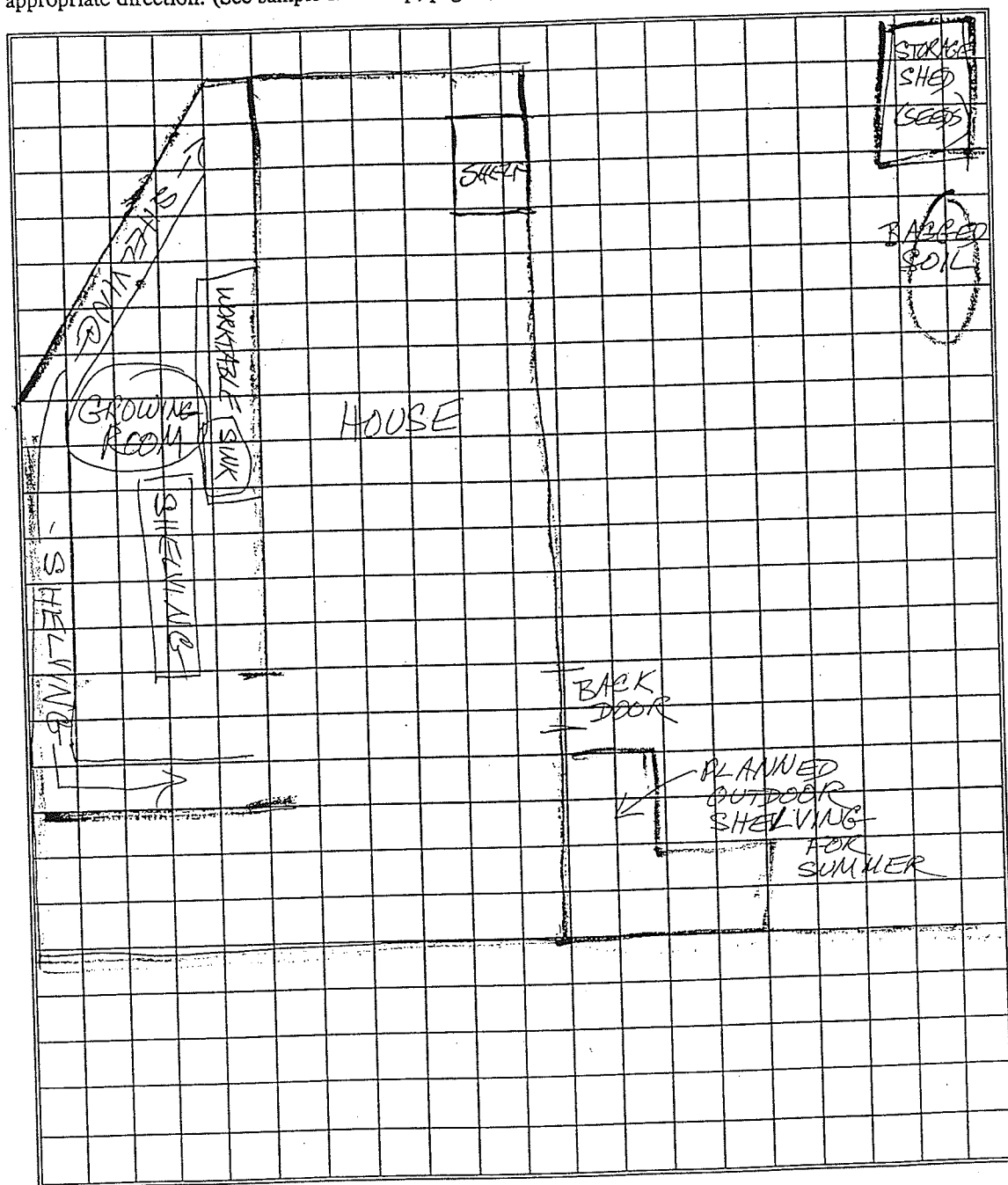
Pest/Weed Control Program

Field No.	Cover Crop(s)	Soil Amendment and Source	Tillage	Pest/Weed Material Applied	Brand/Trade Name and Source	Applicate Rate	Applicate Date
all growing flats		Soil mix is 50% organic potting Soil from Rocky Mts Soil in Colorado 45% peat moss 5% perlite		none			
		Sometimes use a little liquid seaweed to soak seeds					

* Please list all fertilizers, insecticides, herbicides, seed treatment, and soil builders, used or planned, and include the rate applied per acre.
(Use additional sheets if necessary.)

VII. Farm Diagram

Please draw a diagram of your farm and number each individual field with the same numbers used last year. Indicate adjacent land use of your neighbors (to help indicate potential spray drift). Indicate North in the appropriate direction. (See sample farm map, page 7)



THE NEW MEXICO ORGANIC COMMODITY COMMISSION
118 Amherst Dr. NE, Albuquerque, NM 87106-1303 (505) 266-9849

1996 Application SUPPLEMENT for RE-CERTIFICATION
Organic Crop Production Operation

(Please Print or Type)

Applicant Name(s): SUSAN M. HIGGINS Producer ID# 074
Farm or Business Name: SUNGREEN LIVING FOODS

VIII. Farm/Facility Inspection Information

- 1) Do you reside on your farm? ☒ Yes ☐ No
If not, what is your residence address? _____
- 2) Which is a more convenient time of the week for you to be inspected? (please check all that apply)
☐ Monday ☒ Tuesday ☐ Wednesday ☒ Thursday ☐ Friday ☒ Saturday ☐ Sunday
- 3) Is a 4-wheel drive vehicle required to access your farm during the growing season? ☐ Yes ☒ No
→ best in afternoons & sometimes M, W, F in PM
OK as well.

IX. Farm/Facility Location

- 1) What direction off a major highway or county road and out of what city or town is your farm located.
(Example: West off highway 285, 12 miles north of Santa Fe)

AGUA FRIA ST., SANTA FE

- 2) Please give clear and detailed directions to your farm from the closest city or town, including approximate distance between turns, landmarks, and "if you see this you've gone to far" advice.

only driveway between MAEZ RD & HARRISON ST.
on AGUA FRIA. This is in the county, so no street
no., but mailbox prep 158. Two houses
(2-story w/solar panels) in this driveway
I am the one at rear.

Comments

- 1) Is there an area in your organic production operation where you feel the need for some advice in addressing a specific problem?

Not at present

- 2) Do you have any suggestions that would make your future interaction with NMOCC a more beneficial experience?

Please submit your application & fee (\$100) to NMOCC, 118 Amherst NE, Albuquerque, NM 87106

AFFIRMATION OF APPLICANT

Statement:

I affirm that all the information provided in this application is accurate and complete, and fully describes my farm management practices. I agree to necessary field visits and other such verification procedures (including residue tests and examination of financial records if necessary) deemed appropriate to ensure compliance with NMOCC standards. I understand that receipt of this application in no way implies granting of certification by the Commission.

I hereby make application for an organic certification license as provided by the New Mexico Organic Commodity Act. I affirm that during the period of time of this certification, I will abide by the New Mexico Organic Certification Act and the rules and regulations promulgated thereunder, and that I have read the act and am familiar with its contents.

Farm or Business Name: Sungreen Living Foods

Signature: [Signature] Date: 3-8-96

Note: It is **not** required to notarize this document unless the above signature is different from the application submitted last year.

(Please make a copy of this application and retain for your files.)

NEW MEXICO ORGANIC COMMODITY COMMISSION

118 AMHERST DR. NE
ALBUQUERQUE, NM 87106-1303

505-266-9849 Phone

505-266-0649 Fax

OFFICIAL NOTIFICATION OF CERTIFICATION APPROVAL

September 13, 1996

Susan Higgins
Sungreen Living Foods
P.O. Box 15242
Santa Fe, NM 87506

Dear Susan,

It is with great pleasure that I notify you that **Sungreen Living Foods** has been approved for organic certification by the New Mexico Organic Commodity Commission. Pursuant to the authority vested in the Commission by State Law NMSA 1978 76-22-13(A), and by official act of the New Mexico Organic Commodity Commission on August 22, 1996, your operation is **CERTIFIED** by the State of New Mexico as an organic operation and its products deemed as "CERTIFIED ORGANIC."

We must request, however, that you comply with the following:

1) That you keep records to track your organic and non-organic production; that you store and handle organic and non-organic seed, production supplies, and product separate from each other; and that you submit a written statement concerning your efforts to eventually switch back to a full organic operation.

This certification is in effect for approximately one year and expires on **July 21, 1997**. Your certification is non-transferable. Your producer identification number is (**#74**), and is to be used in all invoice transactions and appear upon all labeling. Your enclosed certification certificate is to be presented and/or displayed to buyers and consumers as documentation of your certified organic status until the date of its expiration.

Thank you for your participation and support of Organic Agriculture in New Mexico. Best regards in your endeavors. Feel free to call us any time with suggestions, concerns or questions. NMOCC is a grower-run agency which relies upon grower support and participation in establishing a thriving statewide organic farming community network.

Sincerely,

Rich Pate,
Agency Director

NEW MEXICO ORGANIC COMMODITY COMMISSION

118 Amherst Drive, NE
Albuquerque, New Mexico 87106-1303

1996 CROP PRODUCTION INSPECTION FORM

(Please print)

Grower Name(s): SUSAN HIGGINS
Farm Name: SUNGREEN LIVING FOODS
Address: _____ Zip: _____
Telephone: (505) _____ Date Inspection Assignment Received: 7/19/96
Certification I.D. # _____ (for recertification) Date Inspection Conducted: 7/20/96
Date Report Submitted: 7/29/96
Final Report Deadline (postmark): ____/____/96 Total Inspection Time 10 days*

* If Total Inspection Time exceeds 15 days, please explain: _____

I. Certification Information

A. Operation Information

Is the farm in transition to organic production? ____ Yes ☒ No
Is the farm a mixed operation? ____ Yes ☒ No
Estimated farm gross sales: \$ 20,000
Date of last inspection: _____ Last Inspector: PRM
Total acreage farmed by grower: <1 acres Acreage currently certified: <1 acres
Current certification status: (check one) ____ Certified ____ Certification Lapsed ____ Not Certified
1996 Crop(s): SAROUTS, 4 HEARTSEASES
1995 Crop(s): SAROUTS, "
1994 Crop(s): _____
1993 Crop(s): _____
Date last prohibited material was applied: (mandatory for first-time certification) _____

B. Recommendations

Please check one: ☒ Certification ____ Certification with Conditions ____ Deny Certification
Total acreage to be certified: <1 acres

Inspector's Name: RCH PATE
Inspector's Signature: _____ Date: 7/29/96

II. Questionnaire / Check List

1. Is the grower's application provided to you by NMOCC complete? ☒ Yes ☐ No
List any missing documents: _____
2. Are the grower's responses to questions on the application clear? ☒ Yes ☐ No
If not, clarify these responses with the grower and indicate in the narrative.
3. List the names and titles of the people responsible for the operation's management and describe the management structure: SUSAN HIGGINS
Which of the above people were interviewed? (same)
4. The following aspects of the farm operation were reviewed/inspected:

A. Farm History ☒ Yes ☐ No B. Farm Map ☒ Yes ☐ No C. Soil / Water Test ☒ Yes ☐ No D. Record keeping ☒ Yes ☐ No E. Buffer Zones ☐ Yes ☐ No <i>N/A</i> F. Cropping Areas ☒ Yes ☐ No	G. Propagation Facilities... ☒ Yes ☐ No H. Packing & Storage ☒ Yes ☐ No I. Labeling ☒ Yes ☐ No J. Equipment ☒ Yes ☐ No K. Materials Storage ☒ Yes ☐ No L. Harvested Crop ☒ Yes ☐ No
--	--
5. Does the operation grow any organic product on land not in the NMOCC program? ☐ Yes ☒ No
If Yes, please list in narrative report.
6. Does the grower broker or handle any product not in the NMOCC program? ☐ Yes ☒ No
If Yes, describe system to separate product and distinguish labeling in narrative.
Attach samples of receipts, invoices and labels.
7. Assess the operation's compliance with NMOCC standards, and provide details in narrative report:

A. <u>Record keeping / Audit Trail</u> Farm Maps up-to date? ☒ Yes ☐ No Complete receipts? ☒ Yes ☐ No Dates/amounts/locations of all materials applications? ☐ Yes ☐ No Harvest records maintained? ☒ Yes ☐ No Storage records maintained? ☐ Yes ☒ No Sales records maintained? ☒ Yes ☐ No	D. <u>Compliance w. Previous Certification Conditions</u> ☒ Yes ☐ No ☐ N/A
---	---
8. Indicate all potential sources of contamination:

B. <u>Growing Practices</u> Soil management compliance? ☒ Yes ☐ No Pest/weed cntrl. compliance? ☒ Yes ☐ No Annual transplants organic? ☐ Yes ☐ No <i>N/A</i> Restricted materials comply? ☒ Yes ☐ No Adequate buffers? ☐ Yes ☐ No <i>N/A</i> Equipment maintenance? ☒ Yes ☐ No	a. Neighboring land uses b. Previous land uses c. Equipment residues d. Irrigation/wash water
--	--
9. WI  **SUNFLOWER SPROUTS**
Certified Organic
N.M.O.C.C. No. 074
Keep Refrigerated
Net wt. 4oz.
Lot No. _____
10. G  **DAIKON RADISH SPROUTS**
Certified Organic
N.M.O.C.C. No. 074
Keep Refrigerated
Net wt. 4oz.
Lot No. _____
- C. Separation of Product & Handling
 Adequate separation, mix op.? ☐ Yes ☐ No
 Proper labeling? ☐ Yes ☐ No

Crop Production Inspection Narrative Report

Susan Higgins
Sungreen Living Foods
P.O. Box 15242
Santa Fe, NM 87506
(505)474-7420
Certification Number: 74

Date: July 20, 1996
Inspector: Richard Pate
Time arrived: 12:00 pm
Time departed: 2:30 pm
Certification Agency: NMOCC

BACKGROUND:

This is the second year of certification for Susan. Sungreen Living Foods is a sprout growing operation which sales wholesale to stores and restaurants and also retail at the Santa Fe Farmers Market. She originally bought this sprout growing business from Steve Meloy in November of 1993 (not certified organic).

Susan had originally decided not to recertify based on her not being able to locate a source of organic sunflower seeds that would drop their hulls easily when sprouted under her hand-watered system (condition for recertification). She tried the organic "black" sunflower seeds that are being used by Richard Capua of Health Resources, Santa Fe (cert. I.D. number 066) and working well with his mechanical misting system, but they did not work well with her system. But she was later able to acquire a new batch of seed that she tested and found to shed their seed hulls satisfactorily. She called two days before her certification expiration to request an inspection. Linda Prim was contacted but unable to do the inspection on such short notice so I did the inspection after my recruiting and policing visit to the Santa Fe Farmers Market.

Since this certification review is based on her March '96 recertification application and my inspection conducted before her certification inspection, I feel there is no need to consider her case as a lapsed certification issue.

CONDITION OF CROPS:

The quality of the sunflower and daikon radish sprouts and wheat grass looked good. No disease noted.

FERTILITY MANAGEMENT:

The soil mix for the sunflower sprouts and wheat grass is "Black Gold Organic" purchased from Newman's Nursery in Santa Fe. I am familiar with this mix and it does not contain wetting agents or fertilizer charge. Both Richard Capua and Susan switched to this rather expensive mix after I informed them that Rocky Mountain Soil's "Organic Mushroom Compost" was not allowable due to the company's unwillingness to provide a toxic residue test as required by CCOF materials standards which we have adopted.

GREENHOUSE PRODUCTION: None

WEED MANAGEMENT: None

PEST MANAGEMENT: None

DISEASE MANAGEMENT:

Occasionally a fungus, Sclerotia, shows up in a section of a tray of sunflower sprouts. The sprouts and tray are thrown out. All trays are cleaned in a Clorox solution and then rinsed thoroughly to prevent fungus.

WATER:

Water is from municipal water supply and a standard water test is on file.

STEWARDSHIP:

The growing area and work area were orderly and clean. Used sprout mix waste is disposed of outside

after sprout cutting. These wastes are picked up by the New Farm organization for permaculture applications. Susan has obtained a Food & Drink Service or Processor Permit from the NM Environment Department on March 31, 1996. A separate processing area was required with running water and a stainless steel sink.

ADJOINING LAND USE:

A residential setting with walls provides a suitable buffer since there are no adjacent agricultural uses and the sprout growing is indoors.

HARVESTING & HANDLING:

Sunflower sprouts are harvested 10 - 11 days after seeding, buckwheat 8 days, daikon radish 8 days, and peas 8 - 9 days. The sprouts are immediately bagged and stored in a refrigerator.

STORAGE:

Processing sprouts are stored in a dedicated refrigerator which also contains some of the sprouting seeds. Outside, a storage shed is used to store wheat grain and sunflower seed. A gallon of automotive antifreeze was found here which was moved to the house at my recommendation.

OTHER BUILDINGS: None

ON-FARM PROCESSING:

Sprouts are bagged in zip-loc bags and then labeled immediately after cutting. They are then placed in a refrigerator. (See labels affixed to the inspection form.)

TRANSPORTATION:

Product is transported to store or market in her pickup truck.

MARKETING:

Retail Stores, restaurants, and the Santa Fe Farmers Market.

AUDIT TRAIL:

Records consisted of soil mix formulas, growing logs by seed flat and sales invoices. An audit trail test on 2lbs. of bulk daikon radish sprouts sold to Wild Oats on 7/12/96, invoice #6708 proved satisfactory. However, when an audit test of ten 4oz. bags of sunflower sprouts sold to Alfalfa's was conducted, the lot number was not on the label or did it trace the product back to the specific tray where sprouted. An adjustment in the lot # used was worked out and is now being implemented and written on each label by Susan.

All seed types were verified as being organic: sunflower, American Health & Nutrition OCIA #SF7W750601; buckwheat, AH&N OCIA# BWWE353001; daikon radish, AH&N sample being tested; peas, Caudill Seed Co. OCIA # EL946P-3; wheat, Jaffe Brothers OCIA# 560BF33W.

SAMPLING: None

OTHER CONSIDERATIONS: None

RECOMMENDATIONS:

I recommend Sungreen Living Foods be certified without conditions

LIST OF ATTACHMENTS: None

Inspector Name: RICH PATE

Date: _____

Inspector Signature: _____

Susan Higgins
DBA Sungreen Living Foods
PO Box 15242
Santa Fe, NM 87506
(505) 474-7420

October 28, 1996

Rich Pate
New Mexico Organic Commodities Commission
118 Amherst Dr. NE
Albuquerque, NM 87106-1303

Dear Rich,

Here is a statement about the separation of the organic and non-organic parts of my production, and about my efforts to eventually switch back to full organic production.

First of all, I am currently unable to produce any certified organic sunflower sprouts. I will describe this situation further on. The situation with the other sprouts -- buckwheat and daikon radish, and with the wheatgrass remains as it was when you did my inspection. The seed for wheatgrass and buckwheat are, and have always been, certified organic. The daikon radish has always been a commercial seed, and as I discussed with you at the inspection, I have tried some organic seed with very poor and unusable results. I recently tried more organic seed, which likewise yielded unusable results.

All the different seed are kept in separate storage containers. Plantings are clearly identified on the flat with a code which identifies the seed and the planting date (Julian date.) Harvests are identified with this code from the flat.

Since August, I have been unable to successfully grow sunflower sprouts from the certified organic seed available from American Health and Nutrition, even using the space at Richard DiCapua's with the misting system. There was a brown rot problem which became successively worse. Richard has had a small amount of the rot problem. I think that perhaps because the shelf available for my use there was the very bottom shelf near the floor, the circulation was less, and all the shelves above drained onto it. In addition, I had to grow them at my house for the first four days, then transport the flats to his house. It eventually became impossible to harvest saleable sprouts. Now that winter is beginning, it would not be possible to transport live growing trays from his house to my house when they were ready for harvest. Also, Richard was beginning to have water pressure problems, and had to shut off the water supply for the bottom shelf, anyway, so there is no longer space there for me to use.

I have continued to use the Seedtec brand seed from California. I also recently received a bag of seed from the same source which is a different hybrid that gives indication fo growing exceedingly well. I believe this hybrid was developed primarily for sprout growing. My supplier, Ken Taylor (SunGrown Organics,) in San Diego, tells me that he believes he will soon have some certified organic seed that may be this same hybrid, so of course I will try it as soon as it becomes available.

I have continued to inquire about any certified organic sunflower seed available from all the seed suppliers, and will test any that I find.

I have strong hopes that a higher quality sprouting sunflower seed will*soon become available in certified organic. Neither Ken Taylor nor Richard DiCapua is really pleased with the American Health & Nutrition certified organic seed, the short shelf life of the sprout being one of the main complaints.

Another future possibility for me is to secure a better growing facility where I can have an automatic misting system. It is even possible that I could at some time move into the place Richard is now using, as he is quite certain he will soon secure some land and build a custom-designed growing facility. This could even happen within the next few months.

I hope this covers what is needed. I am also enclosing a copy of my water test.

Sincerely,

Susan Higgins
Sungreen Living Foods

INDEPTH WATER & SOIL SAMPLING
The Mobile Laboratory®

1010 Siringo Route East
Santa Fe, NM 87505

(505) 471-2023

WATER ANALYSIS

WATER SYSTEM # _____

ADDRESS HIGGINS

DATE 11/29/95 LOCATION _____

TIME COLLECTED 2:30 a.m. (p.m.) SAMPLE I.D. _____

COLLECTED BY GOODWATER

SAMPLE TYPE ☒ ROUTINE ☐ CHECK

SYSTEM TYPE ☐ PUBLIC COMMUNITY ☒ PRIVATE WELL

☐ PUBLIC NON-COMMUNITY

☐ OTHER (SPECIFY) _____

TEST REQUIRED ☒ TOTAL COLIFORM BY MMO-MUG 100ml PROCEDURE

TEST RESULTS TOTAL COLIFORM ☐ PRESENCE ☒ ABSENCE

E. coli CONFIRMATION ☐ PRESENCE ☒ ABSENCE

ANALYST [Signature] DATE 11/30/95 TIME 2:00 a.m. (p.m.)

OTHER TESTS REQUESTED

TOTAL DISSOLVED SOLIDS _____ mg/l pH _____ mg/l

NITRATE _____ mg/l FLUORIDE _____ mg/l

TOTAL HARDNESS _____ mg/l IRON _____ mg/l

CALCIUM _____ mg/l MANGANESE _____ mg/l

MAGNESIUM _____ mg/l

_____ mg/l

_____ mg/l

Water Law

Contents

Water Law in the Recopilación de Indias, 1680
General Regulation of Water Measurements, 1761
Residents of Cities Own Public Conduit Waters, 11/18/1803
Escriche, *Diccionario*, "Agua"

Water Law from the *Recopilación de Indias*

Law LXIII, Title II, Book III. Manner of appointing judges of waters and executing their sentences. (Felipe II, Ord. 78 of Audiencias, 1563. Felipe IV, Madrid, 5 February 1631, and 16 April 1636.)⁽¹⁾

If it is not customary for the viceroy or president, city, and cabildo to do so, we ordain that the audiencias meeting *en acuerdo* appoint judges to distribute water to the Indians. In this way they may irrigate their farms, orchards, and sown land and water their cattle, which [adjudication] shall be such that they distribute them what they need. . . .

Law XI, Title XVII, Book IV. Land shall be irrigated by this law. (Emperor Carlos and the Empress Regent in Valladolid, 20 November 1536.)

We ordain that they keep the same order the Indians followed in distribution, practice, and apportionment of water among the Spaniards to whom the land may be allotted and assigned. About the natives themselves, who previously had it as their responsibility, shall mediate regarding what lands in their judgment shall be irrigated. They shall give each person the water he ought to have, successively from one to the next, under penalty that they take the water away from anyone who takes and employs it by his own authority till all those below him irrigate the land designated.

Supplementary Spanish Water Law

1761. The General Regulation of Water Measurements states that water -- like land, minerals, and other such things -- is annexed to and incorporated in the royal crown, so it carries the denomination of *realengas*. To hold it, individual owners must prove that it was conceded to them by the king's special grant, or in his name, because the right to distribute water belongs only to the sovereign.⁽²⁾

If the royal hand did not enter into the distribution, quasi possessions in which royal right is discovered, by measurement or in any other manner, must be held void. Besides the titles of the code *De omni agri decreto* there are express and conclusive laws in the *Siete Partidas* and the various *Recopilaciones*, whose decisions show all the power, authority, and jurisdiction with which H. M. acts in the servitude of water in cases of both possession and ownership.

Narrowing this same authority to what is peculiar to the Indies, he concludes with the same doctrine as don Juan de Solórzano on the laws cited; that the Spanish sovereigns have strict royal privilege. So all water not specifically conceded by royal grant must remain under the sovereign's absolute and despotic dominion.⁽³⁾

Through this liberty, anyone may take what water he wishes to provide for his domestic necessities. It follows, therefore, that without the crown's permission no one may conduct public waters to his estates for irrigation. This is especially true in New Spain, where it is documented that H. M. granted ample authority to the viceroys and presidents of the royal audiencias to make grants of land and water, as property belonging to his royal crown.

Excerpts from 18 November 1803 Cedula

Declaring the Denizens of Cities to Be the Owners

of All Waters from Public Conduits.

[The King revokes the Decree of 11 August 1802, which granted the Archbishop water to irrigate the house, garden, and orchard in Tacubaya in the manner in which his predecessor enjoyed it, stating:]⁽⁴⁾

... The population of that city is the true and only owner of all the waters conducted by public conduits. Whenever it needs them for distribution, private individuals who enjoy the waters by the ayuntamiento's grant or concession should be deprived of them, and the amounts that might have satisfied said grants should be restored. Royal permission must precede the making of these grants, for a price or without one. ...

Henceforth, that city must not make any new concessions or grants of those waters or of those of the other aqueduct of Chapultepec -- with or without payment -- without my Royal permission. Instruction of the actions before the Viceroy must precede so that reporting to me with testimony, my resolution may be handed down. Such is my will.

San Lorenzo, 18 November 1803. By command of the ²⁰⁷King our lord.

-- Antonio Porcel.

Excerpts from Escriche, *Diccionario* under "Agua."

Sec. I: The right or obligation that lower properties have to receive waters from those above:

[*Siete Partidas*,] *Partida* 3, title 32, law 14: lower properties have the right or obligation to receive the waters, stones, and earth that naturally and without human intervention flow or descend from those higher up. Their owners do not have the right to demand any compensation whatsoever for the damages they cause.

Partida 3, title 32, laws 13 and 14: the owner of the lower property cannot build any wall, fence, barrier, or other obstacle whatsoever that might impede the current and make the water flow back in prejudice of the higher property or other adjacent land. If there is violation, he must tear down the works at his cost and satisfy the damages they caused.

The owner of the higher property may not do anything that damages the right of the lower property. In this instance, he shall incur the same penalty of tearing down the works and paying the damages if there is violation, because, although a man must be able to do what he might wish on his own property, he must do it in such manner that he does not damage or injure another.

These dispositions, which our legislation took from the title of the digest *De Aquae pluviae arcendae*, apply to rain water and waters that flow by infiltration or proceed from melting snow and to running water when it flows from the higher properties to the lower by work of nature. But [it does] not [apply] to waters for domestic use, nor to those taken or gathered by artificial means, nor even to rain water that falls from roofs because the hand of man has intervened in all these. . . .

The owner of the higher property may retain rain water and other such for whatever purposes he may desire, even if the owner of the lower property always used them. . . . This is providing, however, that the latter does not have constitutive title of servitude that gives him the right to take them on leaving the higher estate. . . .

Sec. II: An owner's right over water that rises on his property:

Partida 3, title 32, law 19: any landowner may open a spring or well in his house or property, even if his neighbor's spring or well is depleted or completely exhausted because of it. He shall, nevertheless, have the right to prevent the work or demand that it be blocked or destroyed when the former did it without necessity and in malice.

Whoever has a spring on his property may make whatever use he wishes of it because the spring is his part of the estate, and as *Partida* 3, title 28, law 1 declares: man may do with his own what he wishes according to God and law. This principle, however, has two exceptions: first when a third party has an acquired right to the spring water, and second when the spring supplies water to the inhabitants of a town. . . .

Sec. III: Waters that belong to the public are waters that are not nor can they be of private ownership. Such are the waters of the rivers that by themselves or as tributaries of others flow to the sea, whether navigable or not. If they are navigable, no one may use their water in such manner as to impede or obstruct navigation. If they are not, the owners of the territory through which they pass may use their water to benefit their properties or industry without prejudice of the communal use or the function towns along the route have given them, and with the modifications set forth in the laws, orders, and decrees given under the word "*Acequia*." Anyone whomsoever and whenever may fish in public waters.

Sec. IV. On waters passing by the border of or through a property, use of flowing waters that be not of those that no one may use without permission must be regulated by the municipal ordinances or custom and usage of the country, but lacking ordinances and customs, equity and agricultural interests dictate the following rules:

Spring waters belong to the owners of the land on which they originate, or to the lower fields of those who have acquired the right to their use while they remain within their precincts. When they exit, however, they become flowing water, *aqua profluens*, and belong, as all things common, to the first to employ them insomuch as he needs.

The first to employ them are the owners of the properties they bathe or pass through. If the flowing water passes through different owners' estates, each of them may use it to irrigate his property or for another purpose, not *in toto*, but only in that part that belongs to him, because both have equal rights. . . .

When the water passes through the interior of a property, the owner may do with it as he pleases. Since both banks are his, he does not have to subordinate himself to the interests of another riparian proprietor. At the boundary of his property, however, he must return it to its natural and ordinary course, without being permitted to absorb or consume it entirely or give it another direction, because it is not his as property, but only in its use as it passes. . . .

This principle of equality in water distribution, however, is subordinated to agricultural interests, which usually demand that a larger quantity be assigned to larger estates as in Roman law. Nevertheless, since the larger field does not always need more water, the Roman maxim should be applied only with certain restrictions.

In the same way as the higher owners . . . the owners of mills . . . factories, and other industrial establishments in the opposite direction do not have a right to all the water necessary for the movement of their machinery because this might totally deprive the higher owners of it. Nevertheless, in a country where there are few mills, and when because of a drought they need all the water, while the drought continues the irrigation of meadows and other land should be suspended in their favor for the common good.

A riparian owner may alienate the right to take water by renunciation, transfer, sale, or any other means to the owner on the other side or one lower, and if, having two pieces of property he gives up one, he may reserve the exclusive right to use the water for the one he keeps or to grant it for the one he alienates. Likewise, a riparian owner may acquire the exclusive right to the water by prescription.

A riparian owner cannot grant a third party authority to take water in the said current or on his property in prejudice of them without consent of the other interested riparian owners. Nor may he himself use it to irrigate another tract of land that belongs to him, but that is not on the bank, though he may acquire this right by prescription.

When a riparian estate is divided among various common or co-owners so that the parts that are designated or adjudicated to some of them and that now make up other estates do not adjoin the river, they all, nevertheless, preserve their right to the water as they had it before the division, even if nothing was stipulated on this matter. The owner who increases the area of his riparian estate by acquisition of adjoining lands cannot take more water than previously for their irrigation to the detriment of the other interested parties. If he were to have such a power, he could in time make the rights of the other riparian owners illusory. . . .

An *Acequia* is the ditch or canal by which to conduct water for irrigation and other uses.⁽⁵⁾

Partida 3, title 28, law 8: on a navigable river, no one may open an acequia or canal that impedes navigation. One that is already built, be it old or new, must be blocked up or destroyed at its owner's cost, because public utility must be preferred to private.

The river not being navigable, any inhabitant of the town through which it passes may extract part of its water and construct a ditch to irrigate his land or run his mill or water mill, or for any other object he may wish. He must, however, do it without prejudice of the communal use or the function the town council may have given it. If the ditch must cross another's property, or crown or council land, he must have the permission of the owner, king, or council. It is so deduced from the *Digesto*, law 8, title 28, and law 18, title 32, *Partida* 3. This is the authors' general opinion based on this and on Roman law. . . .

Notes

1. Most water law is contained in land law generally. There is little water law as a separate entity. [Return to text](#)
2. Galván, pp. 260-79. [Return to text](#)
3. Galván's note: Instit. *De rerum divit*, sec. 2, *ibi*: every river is public. [Return to text](#)
4. Translation. Dublan and Lozano, 1: 303-4, no. 55. Reaffirmed 22 June 1807, Dublan and Lozano 1:316-17, no. 65. [Return to text](#)
5. Escriche, p. 64, sources his. [Return to text](#)

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[Go to Glossary](#)
[Return to Title/Contents page](#)

National Organic Program Revised Proposed Rule

National Organic Program Background

The Organic Foods Production Act (OFPA) of 1990, adopted as part of the 1990 Farm Bill, requires USDA to develop national standards and regulations for organically produced agricultural products to assure consumers that agricultural products marketed as organic comply with these standards. The OFPA and the National Organic Program (NOP) require that agricultural products labeled organic originate from farms or handling operations certified by a State or private agency that has been accredited by the U.S. Department of Agriculture (USDA).

The OFPA and proposed regulations do not address food safety or nutrition. The USDA Agricultural Marketing Service, the part of USDA that sets marketing standards, is charged with implementing the NOP.

How the National Organic Program was developed

The OFPA requires USDA to develop national organic standards and establish an organic certification program based on recommendations of a 15-member National Organic Standards Board (NOSB).

In addition to NOSB recommendations, USDA reviewed State, private and foreign organic certification programs to help formulate the NOP. The proposed regulations are similar to most of the standards organic producers and handlers currently use, and are intended to be flexible enough to accommodate the wide range of operations and products grown and raised in every region of the United States.

In December 1997, USDA published a proposed rule and received 275,603 public comments, explaining why and how the rule should be rewritten. As a result, we have revised the rule to reflect these comments.

The public will be able to submit comments on this revised proposed rule in both written and electronic form for 90 days after it is published in the *Federal Register*. USDA will then review and categorize the comments, make any necessary revisions to the proposed rule, and submit a final rule for publication in the *Federal Register*. Discussion of public comments will be included in the final rule.

What's in the proposed rule?

The new proposed regulation will prohibit the use of genetic engineering (included in excluded methods) irradiation, and sewer sludge for fertilization. It will include the following:

- Production and handling requirements, which address organic crop production, wild crop harvesting, organic livestock management, and processing and handling of organic agricultural products. The National List of Allowed Synthetic and Prohibited Non-Synthetic Substances is also included.

- Labeling requirements for organic products, along with compliance, testing, fee, and State program approval requirements.
- Certification requirements, the certification procedure, and recordkeeping requirements.
- Accreditation requirements for receiving and maintaining accreditation, as well as requirements for foreign accreditation.
- Other administrative functions of the NOP, which include evaluation of foreign organic certification programs, the State program approval process, and user fees.
- Steps to implement the NOP.

Implementation of the program, starting with the first round of certifier accreditations, can begin when the final rule is published. During the first 18 months of implementation, all clients of certifiers are considered USDA-certified immediately upon USDA accreditation of their certifier. Certified operations must then comply with the national standards and will be assessed by their certifier on the anniversary of their original certification. Farms and handling operations that sell less than \$5,000 worth per year of organic agricultural products are exempt from certification. These producers and handlers must still abide by the national standards for organic products and may label their products as organic.

March 2000

National Organic Program Revised Proposed Rule

Organic Production and Handling Standards

The National Organic Program (NOP) proposed rule contains regulations that would ensure that organically labeled products meet consistent national standards.

What agricultural operations are affected by the proposed standards?

Any farm, wild crop harvesting, or handling operation that wants to sell an agricultural product as organically produced will be affected by the proposed national organic standards. Handling operations include processors, manufacturers, and repackers of organic products. Once the NOP is implemented, production and handling operations will have to comply with all applicable standards. These requirements include operating under an organic system plan approved by an accredited certifying agent and using materials in accordance with the National List of Allowed Synthetic and Prohibited Non-Synthetic Substances. Operations that sell less than \$5,000 a year in organic products are exempted from certification and preparing an organic system plan, but they must operate in compliance with these regulations and may label products as organic. Retail food establishments that sell organically produced agricultural products but do not process them are also exempt from certification.

Standards apply to production process

The proposed national organic standards address the methods, practices, and substances used in producing and handling crops, livestock, and processed agricultural products. The requirements apply to the way the product is created, not to measurable properties of the product itself. Although specific practices and materials used by organic operations may vary, the proposed standards require every aspect of organic production and handling to comply with the provisions of the Organic Foods Production Act (OFPA).

Crop standards

The proposed organic crop production standards say that:

- Land would have no prohibited substances applied to it for at least 3 years before the harvest of an organic crop.
- Crop rotation would be implemented.
- The use of genetic engineering (included in excluded methods), irradiation and sewage sludge is prohibited.
- Soil fertility and crop nutrients would be managed through tillage and cultivation practices, supplemented with animal and crop waste materials and allowed synthetic materials.
- Preference would be given to the use of organic seeds and other planting stock, but a farmer could use non-organic seeds and planting stock under certain specified conditions.

- Crop pests, weeds, and diseases would be controlled primarily through management practices including physical, mechanical and biological controls. When these practices are not sufficient, a biological, botanical, or allowed synthetic substance may be used.

Livestock standards

These standards apply to animals used for meat, milk, eggs, and other animal products represented as organically produced.

The proposed livestock standards say that:

- Animals for slaughter must be raised on an organic operation from birth, or no later than the second day of life for poultry.
- Producers would be required to feed 100 percent organically produced feeds to livestock but could also provide allowed vitamin and mineral supplements.
- Organically raised animals could not be given hormones or antibiotics.
- Preventive management practices, including the use of vaccines, would be used to keep animals healthy. Producers would be prohibited from withholding treatment from a sick or injured animal; however, animals treated with a prohibited medication would be removed from the organic operation.
- All organically raised animals would have to have access to the outdoors, including access to pasture for ruminants. They could be temporarily confined only for reasons of health, safety, or to protect soil or water quality.

Handling standards

The proposed handling standards say that:

- All non-agricultural ingredients, whether synthetic or non-synthetic, must be included on the National List of Allowed Synthetic and Prohibited Non-Synthetic Substances.
- Handlers must prevent the commingling of organic with non-organic products and protect organic products from contact with prohibited substances.

March 2000

National Organic Program Revised Proposed Rule

Labeling and Marketing Information

The Organic Foods Production Act and the National Organic Program (NOP) are intended to assure consumers that the organic foods they purchase are produced, processed, and certified to consistent national organic standards. The labeling requirements of the new program apply to raw, fresh produce and processed foods that contain organic ingredients. Foods that are sold, labeled, or represented as organic will have to be produced and processed in accordance with the proposed National Organic Program standards.

Under the NOP, farm and processing operations that grow and process organic foods must be certified by USDA-accredited certifying agents. A certified operation may label its products or ingredients as organic and may use the "USDA Certified Organic" seal.

Labeling requirements are based on the percentage of organic ingredients in a product.

Foods labeled 100 percent organic and organic

- Products labeled as 100 percent organic must contain (excluding water and salt) only organically produced raw or processed products.
- Products labeled organic must consist of at least 95 percent organically produced ingredients (excluding water and salt). Any remaining product ingredients must consist of nonagricultural substances or non-organically produced agricultural products approved in the National List.
- Products meeting the requirements to be labeled 100 percent organic and organic may display these terms on their principal display panel.
- The USDA seal and the seal or mark of involved certifying agents may appear on product packages and in advertisements.

Processed products labeled "made with organic (specified ingredients)"

- Products that contain 50-95 percent organic ingredients can use the phrase "made with organic (specified ingredients)" and list up to three of the organic ingredients on the principal display panel. For example organic beef stew can be labeled stew, "made with organic beef, potatoes, and carrots."
- The certifying agent seal or mark may be used on the package. However, the USDA seal cannot be used anywhere on the package.

Processed products that contain less than 50 percent organic ingredients

- These products cannot make any organic labeling claim other than on the information panel, and in doing so, designate specific ingredients that are organically produced.

Other labeling provisions

- The package information panel of any product labeled as organic must state the actual percentage of organic ingredients and use the word "organic" to modify each organically produced ingredient.
- The name and address of the certifying agent of the final product must be displayed on the information panel.
- There are no restrictions on use of truthful labeling claims such as "pesticide free," "no drugs or growth hormones used," or "sustainably harvested."

Penalties for misuse of labels

A civil penalty of up to \$10,000 can be levied on any person who knowingly sells or labels as organic a product that is not produced and handled in accordance with the National Organic Program's regulations.

After the new regulations are finalized, organic farmers and handlers will be given a sufficient period of time to adjust their growing and processing operations and revise their labels to conform to the new standards.

March 2000

National Organic Program Revised Proposed Rule

Certification

The U.S. Department of Agriculture (USDA) will accredit State, private, and foreign organizations or persons to become "certifying agents." Certifying agents will certify that production and handling practices meet the national standards.

Who needs to be certified?

- Operations or portions of operations that produce or handle agricultural products that are intended to be sold, labeled, or represented as "100 percent organic," "organic," or "made with organic (specified ingredients)."

Who does NOT need to be certified?

- Farms and handling operations that sell less than \$5,000 a year in organic agricultural products. Although exempt from certification, these producers and handlers must abide by the national standards for organic products and may label their products as organic.
- Handlers, including final retailers, that do not process or repackage products, and processors that only handle products with less than 50 percent organic ingredients.
- A handling operation or portion of an operation that is a retail food establishment that processes or prepares, on the premises of the establishment, raw and ready-to-eat food labeled "organic."
- A handling operation that handles agricultural products that contain at least 50 percent organic ingredients that chooses to use the word "organic" only on the information panel.
- A handling operation that handles products that are packaged or otherwise enclosed in a container prior to being received by the operation and remains in the same package.

How would farmers and handlers become certified?

An applicant would submit specific information to an accredited certifying agent. Information would include:

- Type of operation.
- History of substances applied to land for the previous 3 years.
- Organic products being grown, raised, or processed.
- Applicant's organic plan, which includes practices and substances used in production. The organic plan also would describe the monitoring practices to be performed to verify that the plan is effectively implemented, the record-keeping system, and the practices to prevent commingling of organic and nonorganic products and to prevent contact of products with prohibited substances.

Applicants for certification also would have to keep accurate post-certification records for 5 years concerning the production, harvesting, and handling of agricultural products that are to be sold as "organic."

These records should document that the operation is in compliance with the regulations, and verify the information provided to the certifying agent. Access to these records would be provided to authorized representatives of USDA, including the certifying agent.

Inspection and certification process

Certifying agents would review applications for certification eligibility. A qualified inspector would conduct an

on-site inspection of the applicant's operation. Inspections would be scheduled when the inspector could observe the practices used to produce or handle organic products and talk to someone knowledgeable about the operation.

The certifying agent would review the information submitted by the applicant and the inspector's report. If this information showed that the applicant was complying with the relevant standards and requirements, the certifier would approve the application and issue a certificate. Certification would remain in effect until terminated, either voluntarily or through the enforcement process.

Annual inspections would be conducted of each certified operation, and updates of information would be provided annually to the certifying agent in advance of conducting these inspections. Certifiers also would be notified by a producer immediately of any changes affecting an operation's compliance with the regulations, such as application of a prohibited pesticide to a field.

Compliance review and enforcement measures

The proposed rule would permit USDA or the certifier to conduct unannounced inspections at any time to adequately enforce the regulations. The Organic Foods Production Act also requires that residue tests be performed to help in enforcement of the regulations. Certifying agents and USDA would conduct residue tests of organically produced products when there is reason to believe that they have been contaminated with prohibited substances. If any detectable residues were present, an investigation would be conducted to determine their source.

March 2000

National Organic Program Overview

The Organic Foods Production Act (OFPA) of 1990, adopted as part of the 1990 Farm Bill, requires USDA to develop national standards for organically produced agricultural products to assure consumers that agricultural products marketed as organic meet consistent, uniform standards. The OFPA and the National Organic Program (NOP) require that agricultural products labeled as organic originate from farms or handling operations certified by a State or private agency that has been accredited by the U.S. Department of Agriculture (USDA).

The NOP is a marketing program housed within the USDA Agricultural Marketing Service, the agency that sets marketing standards. Neither the OFPA nor these final regulations address food safety or nutrition.

How the National Organic Program was developed

The OFPA requires USDA to develop national organic standards and establish an organic certification program based on recommendations of a 15-member National Organic Standards Board (NOSB).

In addition to NOSB recommendations, USDA reviewed State, private and foreign organic certification programs to help formulate these regulations. The final regulations are similar to most of the standards organic producers and handlers currently use, and are intended to be flexible enough to accommodate the wide range of operations and products grown and raised in every region of the United States.

In December 1997, USDA published a proposed rule and received 275,603 public comments, explaining why and how the rule should be rewritten. A revised proposal was published in March 2000. An additional 40,774 comments were received, many of which were incorporated into the final rule.

What's in the final rule?

The final regulation prohibits the use of genetic engineering (included in excluded methods), ionizing radiation, and sewage sludge. The rule includes the following:

Production and handling requirements, which address organic crop production, wild crop harvesting, organic livestock management, and processing and handling of organic agricultural products. The National List of Allowed Synthetic and Prohibited Non-Synthetic Substances is also included. Labeling requirements for organic products, along with compliance, testing, fee, and State program approval requirements. Certification and recordkeeping requirements.

Accreditation requirements for receiving and maintaining accreditation, as well as requirements for foreign accreditation. Other administrative functions of the NOP, which include evaluation of foreign organic certification programs.

What's changed in the final regulation?

We increased the minimum percentage of organic ingredients in products labeled "Made with Organic Ingredients" from 50 percent to 70 percent.

We adopted 5 percent of the Environmental Protection Agency's pesticide residue tolerance as the pesticide residue compliance threshold.

We allowed wine containing sulfites to be labeled "Made with Organic Grapes."

We adjusted the organic feed requirements for dairy herds when a producer converts the entire herd to organic production as a single, one-time event.

We minimized the burden on small farmers through a change in the composting standards.

We redesigned the USDA Organic Seal to minimize consumer confusion.

We made clear that use of ionizing radiation, sewage sludge, and excluded methods are prohibited throughout organic production and handling. The rule does allow one potential exception for use of animal vaccines produced using excluded methods, but only if they are first specifically recommended by the NOSB and approved by the Secretary, subject to notice and comment rulemaking.

We established a peer review process which will annually evaluate the NOP's accreditation decisions and adherence to accreditation procedures.

We added commercial availability provisions that require handlers to use organic ingredients in "organic" products whenever possible.

We established new requirements for the labeling of organic livestock feed products.

We allowed handlers to designate on the principal display panel the exact percentage of organic content of their product.

This final rule becomes effective 60 days after its publication in the Federal Register and will be fully implemented 18 months after its effective date. Eighteen months after the effective date, all agricultural products that are sold, labeled, or represented as organic must be in compliance with these regulations. The USDA Seal may not be affixed to any "100 percent organic," or "organic," product until 18 months after the final rule's effective date. Farms and handling operations that sell less than \$5,000 annually of organic agricultural products are exempt from certification. These producers and handlers, while exempt from certification and the preparation of an organic plan, must comply with all other national standards for organic products and may label their products as organic.

December 2000