



# New Mexico Vineyard Growers' Survey: Results and Implications

Circular 610

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## INTRODUCTION

In the 16th century, Spanish explorers and settlers imported European grapes to New Mexico's Central Rio Grande Valley to start some of this country's first vineyards (Sandoval County Historical Society, 1993; Peavler & Green, 1995). By the 19th century, wineries dotted the valley from Bernalillo to the Mexico border. However, it wasn't until the late 1970s that a commercial grape and wine industry developed. Strengthened in the early 1980s by contributions from European winemakers, the industry grew until the mid-1980s, then began to decline. Baker, Gorman and Herrera (1985) estimated that New Mexico's total grape acreage in 1985 was 4,100 acres. By most accounts, the grape acreage in the state 10 years later was less than 1,000 acres.<sup>2</sup>

Today, the state's wine industry is staging a comeback. According to the New Mexico Wine Growers Association, the number of wineries and tasting rooms operating in New Mexico increased from 19 to 34 between 1999 and 2004. This increase was accompanied by increased wine production (from 240,000 gallons per year to more than 400,000 per year) and industry revenues (from \$30 million to \$60 million) (Robinson-Avila, 2004). While wine production has seen significant increases, wine-grape production has not kept up with demand. Some wine producers are importing grapes from other states to meet their production needs, while some of the grapes grown in New Mexico have an excellent market in Texas (Robinson-Avila, 2004).

Initial steps are underway to help the wine-grape industry regain lost ground and compete with other U.S. grape- and wine-producing regions (e.g., California) and other New World wine-producing countries (e.g., Chile and Australia) (Robinson-Avila, 2004). For example, re-

searchers at NMSU's Los Lunas Experiment Station are working with new grape varieties that are more suitable to the state's climate and soils. Research also is underway to identify best management practices (e.g., drip irrigation) for the state's growers, and the university is in the process of hiring a viticulturist to assist grape producers in identifying and correcting production problems, with the aim of making the industry more productive and profitable.

This paper reports on a survey of New Mexico vineyard owners and managers, conducted during fall 2004 and spring 2005. Its purpose was to help researchers better understand New Mexico's grape-production industry. Specific topics addressed were acreage in grape production, varieties produced (including elevations at which specific varieties can be grown), issues facing the industry, areas of assistance desired by vineyard owners and managers, and demographics. This research does not differentiate between commercial (larger acreage) and non-commercial (smaller acreage) growers but includes all as part of the state's wine-grape industry.

## METHODOLOGY

Information in this report was obtained in one of three ways. First, researchers in the NMSU Department of Agricultural Economics and Agricultural Business developed a four-page survey questionnaire and mailed it to vineyard owners. Survey implementation followed a modified Dillman (1978) method. Responses were received from 58 growers.<sup>3</sup>

Second, an additional 31 growers were surveyed by telephone concerning grape production (total acres devoted to grape production, varieties grown and vineyard elevation). In several cases, growers who had responded

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<sup>2</sup> For a comprehensive history of New Mexico grape production, see Street (1997).

<sup>3</sup> Seven returned questionnaires from the mail survey were missing identification numbers. It is possible/likely that information for some of these seven respondents was obtained through phone or other contact. To avoid possible double-counting of acreage and variety information, this report includes information only from identifiable vineyards. Information regarding needs and issues for these seven vineyards is included as that information was not obtained during phone interviews or from others familiar with the industry.

to the mail survey were contacted by phone to verify acreage and variety information.

Finally, estimates of acreage and varieties grown in vineyards not identified from either of the two previous methods (mailed survey or phone contact) were obtained from individuals intimately familiar with the state's grape production. These individuals included county Cooperative Extension agents, industry or association leaders and prominent growers. Estimates using this method were obtained for an additional 27 vineyards.

Researchers, using the methodology and approach described above, obtained information for 108 New Mexico vineyards. While it is likely that some small (and probably relatively new) vineyards are unaccounted for in this report, the information provided below represents the most comprehensive information currently available for New Mexico's grape-growing industry.

## RESULTS

Information regarding acreage, varieties and elevations at which varieties are grown is presented first. This portion of the report uses information from all three sources identified above. Second, management information, such as manager characteristics (e.g., age, experience), issues and assistance needs, are identified. This information was obtained from the responses to the mail survey (58 respondents). When appropriate, information in this report is broken down by regions, described below.

### Geographic regions

It is possible to divide New Mexico's grape and wine industry into different and distinct geographic regions. Peavler and Green (1995) divide the state's wine production into three regions: Northern (e.g., Santa Fe), Central (e.g., Bernalillo, Albuquerque and Corrales) and Southern (e.g., Mesilla Valley, Las Cruces, Deming and Truth or Consequences). Baker, Gorman and Herrera (1985) divide the state into three grape-growing regions: Southwest, Southeast and Middle Rio Grande. In this report, the state's vineyards are divided into three geographic regions (fig. 1). The Northern region includes 48 vineyards located in Rio Arriba, Sandoval, Santa Fe, San Juan, San Miguel and Taos counties. The Central region includes 38 vineyards located in Bernalillo, Cibola, Socorro, Tor-

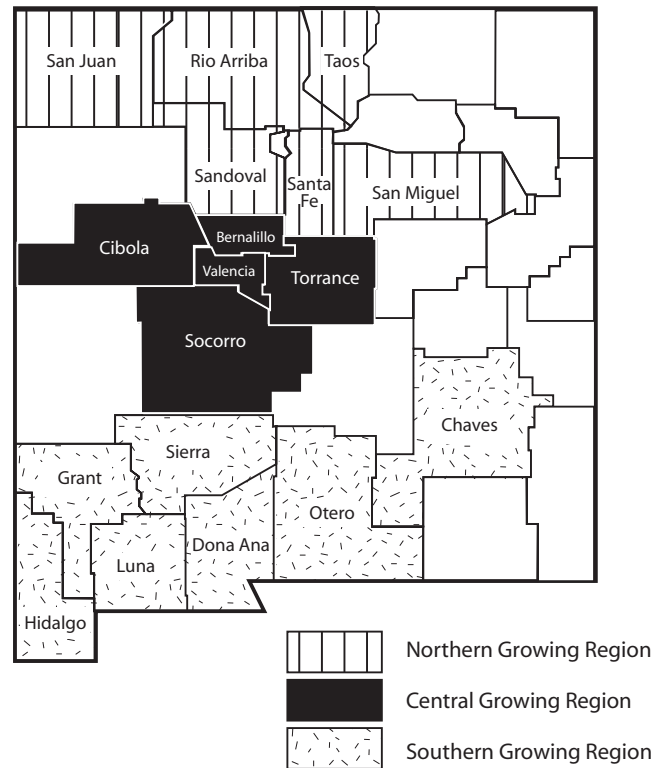


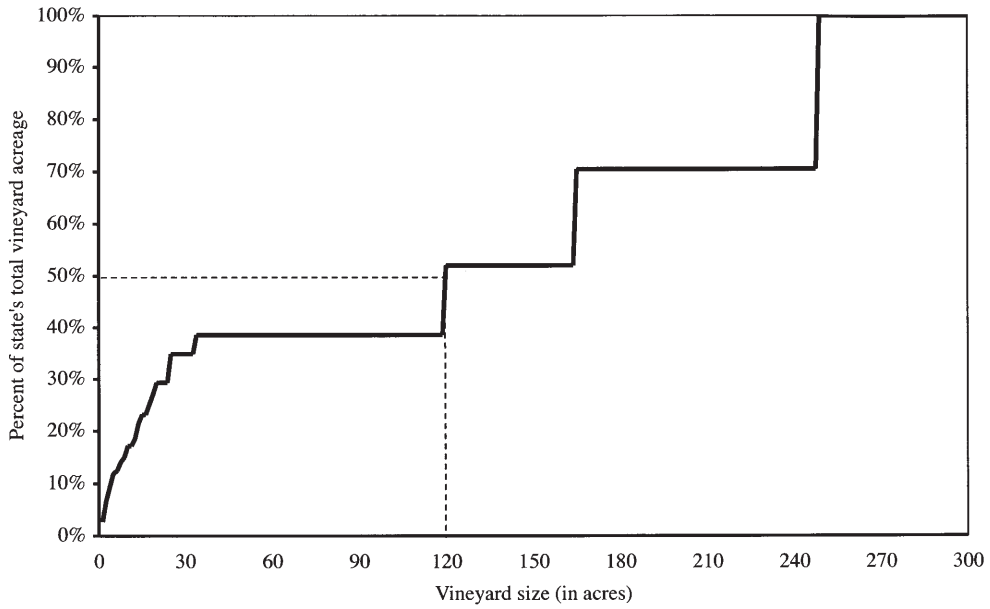
Figure 1. Grape-growing regions

rance and Valencia counties. The Southern region includes 22 vineyards located in Chaves, Doña Ana, Grant, Hidalgo, Luna, Otero and Sierra counties.

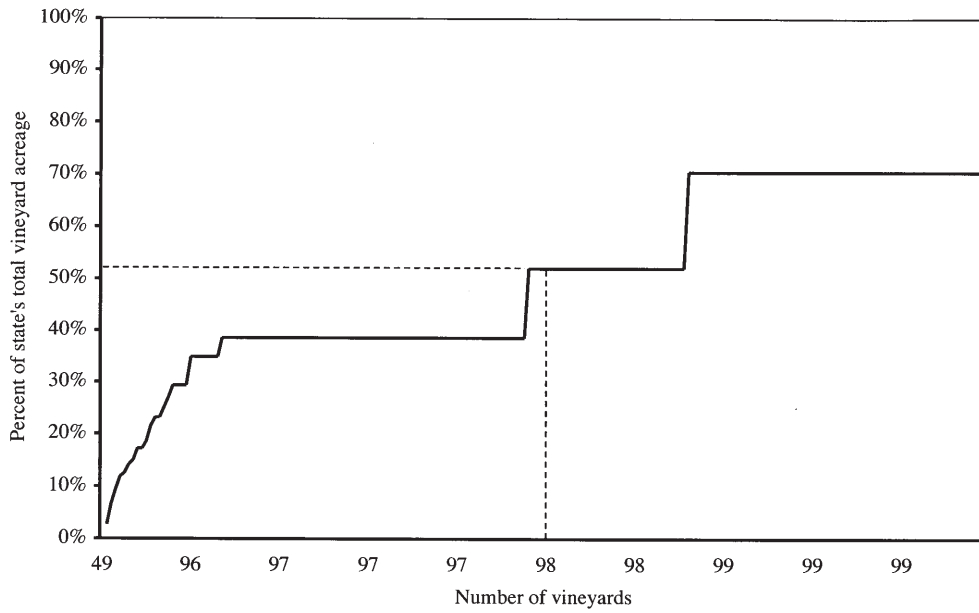
### VINEYARD CHARACTERISTICS

**Size.** Total estimated acreage for the state, based on this research, is 895 acres. The total number of vines for the sample was 671,364 vines.<sup>4</sup> Twenty-nine percent of vineyards for which estimates of acreage were available (100 vineyards) were smaller than one-half acre. Figures 2 and 3 illustrate the distribution of the state's total vineyard acreage by size of vineyard and by the number of vineyards, respectively. For example, fig. 2 shows that 50 percent of the state's total vineyard acreage (895 acres) is made up from vineyards smaller than approximately 120 acres. Similarly, fig. 3 shows that 98 vineyards account for approximately 50 percent of the

<sup>4</sup> Many smaller vineyard owners reported only the number of vines and not the number of acres. Acreage for these vineyards was estimated by assuming an average planting density of 750 vines per acre. For example, if a vineyard reported a total of 500 vines (without an acreage estimate), the vineyard was estimated to have  $(500/750) = 0.66$  acres. Throughout this paper, references to acreage will be in context of "calculated acreage" as described above. References to the number of vines will not be made in the paper, but readers desiring to approximate the state's vineyard size in terms of vines may do so by multiplying provided acreages by 750 vines per acre.



**Figure 2.** New Mexico vineyard acreage as a function of vineyard size



**Figure 3.** New Mexico vineyard acreage as a function of number of vineyards

**Table 1. New Mexico grape varieties and elevation ranges where grown.**

Variety	V / H†	T / W††	Max	Min	Vineyards†††
Agria	H	W	6,200	4,700	4
Alicante	V	W	5,000	5,000	1
Aurora	H	W	6,400	5,959	3
Aurora Blanc	H	W			
Baco Noir	H	W	6,400	4,200	15
Barbera	V	W	6,200	4,000	7
Beaujolais	V	W			
Bianca	H	W	6,200	4,700	3
Bianca white	H	W	6,000	6,000	1
Black Malvasia	V	W	6,000	6,000	1
Black Muscat	V	W	3,800	3,800	1
Cabernet Blanc	H	W			
Cabernet Franc	V	W	7,100	3,800	19
Cabernet Sauvignon	V	W	6,200	3,200	25
Canadice	H	T	5,000	5,000	1
Carignane	V	W	4,700	4,700	1
Cascade	H	W			
Cayuga	H	W	6,100	6,100	1
Cayuga white	H	W	7,100	4,200	7
Centennial	V	T	4,700	4,700	1
Chambourcin	H	W	6,200	4,200	8
Chancellor	H	W	7,100	4,200	8
Chardonel	H	W	6,000	5,900	2
Chardonnay	V	W	6,200	3,200	29
Chenin Blanc	V	W	5,660	3,800	8
Cinsault	V	W	3,800	3,800	1
Colobel	V	W	4,200	4,200	1
Concord	H	T			
Cynthana Norton	V	W	4,850	4,850	1
De Chaunac	H	W	5,959	5,300	2
Dolcetto	V	W	4,700	3,800	3
Foch	H	W	6,400	6,100	3
French Colombard	V	W	4,700	3,550	3
Frontenac	H	W	6,200	6,200	1
Gamay	V	W	6,000	6,000	1
Gamay Beaujolais	V	W	5,660	4,500	3
Gewurtraminer	V	W	7,000	3,200	14
Golden Muscat	H	W	5,700	5,000	3
Grenache	V	W	6,200	3,800	6
Himrod	H	T	6,100	5,000	3
Joannes	H	W	5,200	4,200	2
Kansas	H	W			
Lakemont	H	W			
Landott	H	W	5,200	5,200	1
Lemberger	V	W	6,150	5,300	3
Leon Merlot	H	W	6,400	5,000	5
Leon Millot	H	W	7,000	4,000	14
Malbec	V	W	5,900	4,850	2
Malvasia	V	W	5,000	5,000	2
Malvasia Bianca	V	W	5,000	3,200	6
Marechal Foch	H	W	6,200	5,300	2
Marquis Reliance	H	T	6,598	6,598	1
Mataro	V	W	4,700	4,700	1
Merlot	V	W	6,200	3,550	21
Mission	V	W	5,700	4,300	3
Mourvedre	V	W	3,800	3,800	1

**Table 1. New Mexico grape varieties and elevation ranges where grown. (continued)**

Variety	V / H†	T / W††	Max	Min	Vineyards†††
Muscat	V	W	5,000	5,000	1
Muscat Alexandria	V	W	4,700	4,700	1
Muscat Canelli	V	W	6,400	3,800	11
Muscat Giallo	V	W	5,000	5,000	1
Muscat of Alexandria	V	W	5,000	4,500	3
Nebbiolo	V	W	6,000	4,500	5
NY 62	H	W	7,100	4,700	2
NY 73	H	W	7,100	7,100	1
Orange Muscat	V	W	5,000	5,000	1
Petit Verdot	V	W	3,800	3,800	1
Petite Sirah	V	W	5,200	3,800	5
Petite Verdot	V	W	4,850	4,850	1
Pinor Noir	V	W	5,700	4,500	3
Pinot Blanc	V	W	5,660	5,660	1
Pinot Grigio	V	W	5,660	5,660	1
Pinot Grigorio	V	W	5,600	5,600	1
Pinot Noir	V	W	7,100	3,800	12
Refosco	V	W	4,700	4,700	1
Regent	H	W	6,400	4,700	5
Ribier	V	T	5,000	5,000	1
Riesling	V	W	7,100	3,550	24
Rketselli	H	W	6,100	6,100	1
Roussette	H	W			
Rubired	V	W			
Ruby Cabernet	V	W	5,000	3,800	4
Sangiovese	V	W	6,200	3,200	10
Sauvignon Blanc	V	W	6,000	3,800	8
Seedless Einse	H	T			
Seedless Glenora	H	T			
Seedless Marquis	H	T			
Seedless Mars	H	T			
Seedless Saturn	H	T			
Seedless Venus	H	T			
Semillon	V	W	6,000	4,500	5
Seyval	H	W	7,000	4,700	6
Seyval Blanc	H	W	6,400	5,200	7
Shiraz	V	W	6,200	4,200	11
Siegfried	V	W	6,200	5,000	5
Sousão	V	W	4,700	4,700	1
St. Vincent	H	W	6,598	5,700	2
Steuben	H	W			
Symphony	V	W	4,700	4,300	2
Syrah	V	W	6,000	3,800	11
Tempranillo	V	W	6,200	3,200	10
Thompson Seedless	V	W			
Tinta Roriz	H	W	4,700	4,700	1
Tokay	V	W	5,000	5,000	1
Traminette	H	W	6,400	4,700	3
Traminette White	H	W	6,000	6,000	1
Ugni Blanc	V	W	4,700	4,500	2
Vagar	H	W	4,700	4,700	1
Valiant	H	W	6,400	6,400	1
Vidal Blanc	H	W	7,100	4,200	24
Vignoles 36	H	W	5,660	5,000	2
Villard Blanc	H	W	5,500	4,000	5
Villard Merlot	H	W	5,500	5,500	1

state's total vineyard acreage (suggesting that the remaining 50 percent of the state's vineyard acreage is held by two vineyards).

Average vineyard size varied significantly among growing regions, with larger vineyards generally located in the Southern region of the state. The average vineyard size for the state was 8.95 acres. The average vineyard size was 3.3 acres (44 vineyards) for the Northern region, 1.2 acres (35 vineyards) for the central region and 33.7 acres (21 vineyards) for the Southern region.

**Grape varieties.** According to survey respondents, 112 grape varieties are grown in the New Mexico. Of the 112 varieties, 57 are viniferous, 43 are hybrids and 12 are table-grape varieties (table 1).

**Geographic location-elevation.** Among the primary criteria for assigning each of New Mexico's 18 wine-producing counties to one of three distinct regions was variation in growing conditions. New Mexico has a wide range of climatic conditions and elevations. All of the major biomes of the world, except for tropical rain forests, can be found within the state. The state's mean elevation is approximately 5,700 feet with Wheeler Peak (13,161 feet) being the highest point and Red Bluff Reservoir (2,842 feet), the lowest (MSN Encarta, 2005). These climate and elevation differences can have significant influences in grape production practices. The average elevation for the state's vineyards is 5,239 feet. Average elevations among growing regions varied from a low of 4,275 feet in the Southern growing region to a high of 5,639 feet in the Northern growing region. The Central growing region had an average elevation of 5,279 feet. Figure 4 presents the number of vineyards in each grape-growing region, the average elevation and the range of elevations (maximum and minimum) for vineyards within each region.

**Varieties by Elevation.** One area of interest related to grape production within the state is the identification of varieties and where they are (or can be) grown. For example, it is well known that many viniferous varieties may be susceptible to problems related to cold weather (e.g., winter dieback). While additional research is needed to better understand optimal (or suitable) growing conditions for grape varieties, the research described in this paper provides some insight by providing elevation ranges in which various grape varieties are known to grow (table 1).<sup>5</sup>

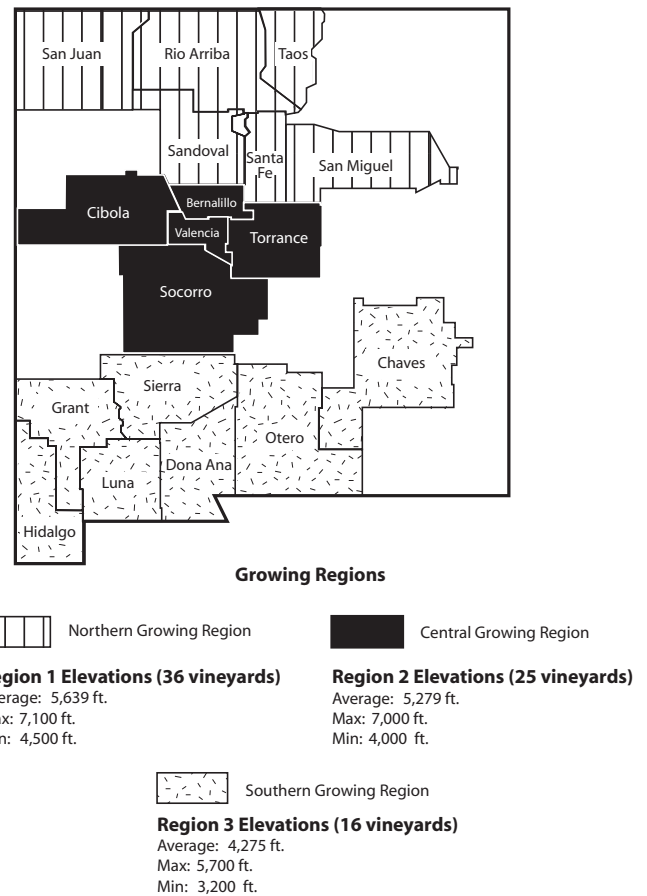


Figure 4. Grape-growing regions with elevations

**Owner/manager characteristics<sup>6</sup>**

Primary occupation. Twenty-six percent of mail survey respondents indicated that they considered vineyard work to be their primary occupations. No guidance relative to this question was provided in the survey questionnaire (e.g., no minimum standards were suggested relative to income or time). In some cases, respondents indicated that their vineyards, in conjunction with other industry-related activities (e.g., winery operations), constituted their primary occupations. In other cases, it is likely that retired individuals (e.g., individuals older than age 65 with relatively small vineyards) considered their vineyards their primary occupations. In each of these cases, respon-

<sup>5</sup> There is no information regarding productivity of the grape varieties or a history of the length of time for which the variety has been grown within the region. In addition, there is no indication that the varieties identified within the elevation ranges can be grown under commercial conditions.

<sup>6</sup> The remaining information presented in this paper draws solely on information obtained from mail survey responses. This information was published in the proceedings of the 2004 Wine and Vine Society Annual Conference.

dents indicated “yes” in the survey and were included in the percentage indicated above.

**Age and experience.** A majority of those responding to the mail survey indicated their ages to be between 35 and 65 years. Experience growing grapes in New Mexico varied among survey participants, with a majority (64 percent) having less than 10 years experience in New Mexico. The questionnaire did not ask about previous, non-New Mexico grape-growing experience.

**Viticulture and enology training.** The mail survey questionnaire did not ask for information related to formal education or training, but did request that respondents indicate whether or not they had attended grape-growing shortcourses. Sixty percent of respondents indicated that they had attended at least one shortcourse provided by the New Mexico Vine and Wine Society. Thirty-one percent indicated that they had attended grape or wine production shortcourses provided by other institutions. While respondents identified a variety of institutions as providing instruction regarding grape production, they mentioned University of California, Davis, most often as an “other” provider of shortcourse instruction.

### **Industry issues and assistance needs**

**Industry issues.** A major purpose of the mail survey was to identify important issues facing vineyard growers and their industry. Respondents were asked to identify the three most important issues facing their industry (not necessarily their own operations). The most commonly mentioned issues were related to climate conditions and grape production in regions that can and often do experience extremely cold weather. Included in this general category were concerns over winter dieback, early freezes in the fall and late-spring frosts. Other commonly cited issues were irrigation and water issues, nutrient management, soil conditions, and weed and pest control (e.g., identification of appropriate cover crops to help reduce weeds between rows).

As might be expected, industry issues differed significantly among the state’s growing regions. For example, production issues commonly identified in the Northern and Central regions were mentioned less often by producers in the Southern region, who more often identified marketing and education as industry needs. These differences reflect both differences in climate and in the general nature of vineyard production (commercial size) among regions.

**Assistance needs.** Closely related to industry issues facing the state’s vineyards and their owners were the assessments of assistance needs for the industry. In this case, respondents were asked to identify their needs for a number of pre-selected assistance categories. These categories included pruning, trellis systems, site selec-

tion, nutrient management, pest control, irrigation and organic production. In addition, respondents were provided space to list other types of assistance needed.

Generally the assistance needs identified by growers were consistent across all three growing regions (figs. 5, 6 and 7). Nutrient management and pest control ranked high among respondents in all three growing regions. Site selection assistance was the least identified area of need in all three growing regions. Figures 5, 6 and 7 provide histograms of the assistance needs identified by survey respondents.

### **CONCLUSIONS AND FURTHER RESEARCH**

The U.S. Department of Agriculture (USDA) and the New Mexico Department of Agriculture (NMDA) do not keep statistics on the wine-grape industry in New Mexico, making the information reported in this paper particularly important for documenting the status of New Mexico’s wine-vineyard industry. The data, obtained through a 2004-2005 survey of vineyard owners and managers and accompanying follow-up contact and research, show significant variation in the grape varieties produced, with more than 112 varieties represented. It is estimated that the state’s total “calculated” vineyard acreage (which includes both commercial and non-commercial production) is 895 acres. This production is spread among 18 different counties with a majority of the commercial production (as defined by large vineyards) occurring in the Southern region of the state.

Significant differences exist among the three identified production regions within the state (Northern, Central and Southern). Vineyards in the southern part of the state, with more favorable climatic conditions, tend to be larger and more commercial in nature. Differences in vineyard operations among the growing regions tend to result in different perspectives of industry issues and assessments of assistance needs.

This research represents a continuing effort to document the size of New Mexico’s wine-grape industry and to identify issues and needs associated with the industry. With continuing growth (by existing growers and new producers), continual research will be needed to keep statistics current. In addition, work to more precisely identify grower needs will be useful for designing programs to assist growers and promote industry growth and productivity.

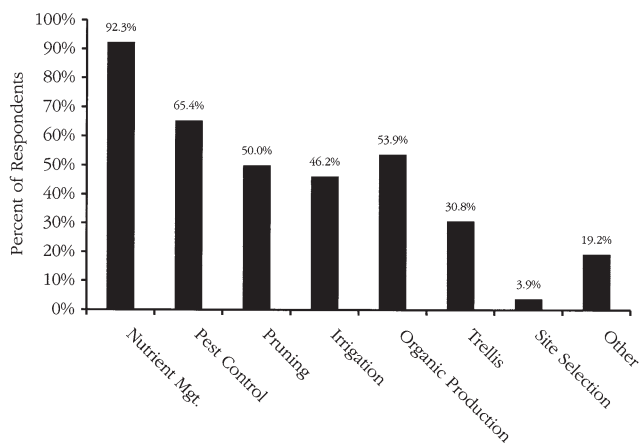


Figure 5. Assistance needs, Northern growing region

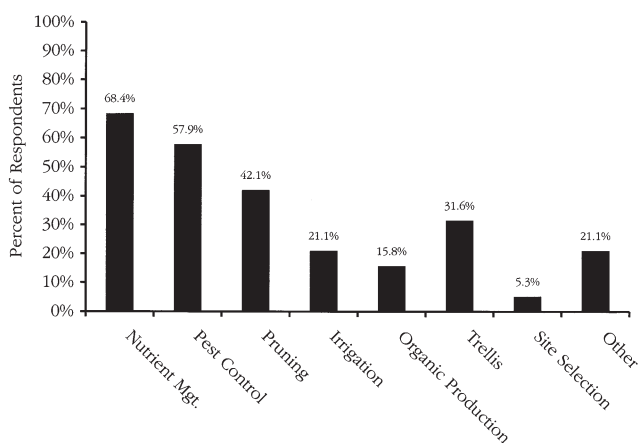


Figure 6. Assistance needs, Central growing region

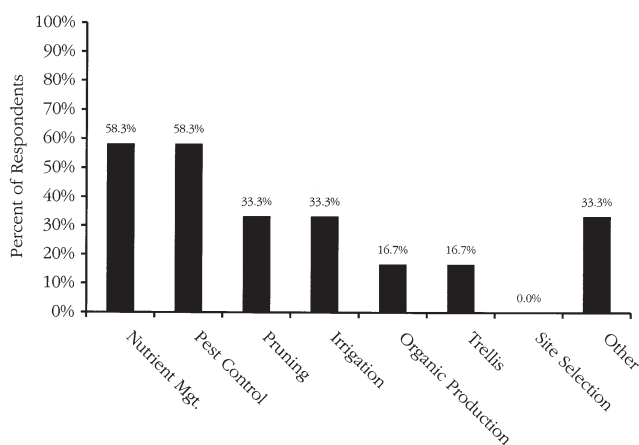


Figure 7. Assistance needs, Southern growing region

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