



# Livestock Identification in New Mexico: Current Status and Implications for National Animal Identification\*

Bulletin-792

Rhonda Skaggs and Terry Crawford\*\*

Agricultural Experiment Station • College of Agriculture and Home Economics

Department of  
**Agricultural Economics and Agricultural Business**

## TABLE OF CONTENTS

	Page
Introduction.....	1
Why the Need for Additional or Different Livestock Identification? .....	2
Livestock Identification Methods .....	3
Livestock Identification in the U.S. ....	3
Structure of the New Mexico and U.S. Cow-calf Production Sectors .....	4
Animal Identification Survey of New Mexico Cow-calf Producers.....	6
Survey Procedures.....	6
Population and Sample.....	6
The Questionnaire .....	7
Administration of the Survey.....	7
Response to the Survey.....	7
Processing and Analysis of Survey Data .....	7
Results of the New Mexico Animal Identification Survey .....	7
Total Cattle Numbers.....	7
Total Other Livestock Numbers Reported by Respondents .....	9
Number of Ranch Locations, Type of Ranching Operation, and Number of Herds.....	9
Type of Business Organization.....	9
Demographic Information for the Principle Ranch Operators .....	10
Ranch Acreages Reported by Respondents.....	10
Respondents' Animal Identification.....	11
Respondents' Individual Animal Record Keeping .....	11
Livestock Record Keeping Software and Use of Downstream Performance Data .....	12
Costs of Respondents' Electronic Record Keeping Systems.....	12
Advantages and Disadvantages of Respondents' Electronic Record Keeping Systems .....	13
Reasons for Not Keeping <i>Any</i> Individual Animal Performance or Production Records .....	13
Analysis of Respondents' Reasons for Not Keeping Individual Animal Records .....	13
Discussion and Implications.....	16
Conclusions .....	18
Acknowledgements.....	19
List of Tables .....	20
Appendix.....	21

## INTRODUCTION

Identification of livestock has a long history. Hot-iron branding may have been used to identify ownership of animals among the ancient Egyptians. Brought to North America in 1520 by the Spanish, it was carried into the Southwest with Coronado in 1540 and continues to this day as a form of owner and premises identification. Similarly, individual animal identification has long been accomplished by ear notching or other simple marking methods.

\* This document has been revised using comments received from AES review committee.

\*\* Professor, College Professor, respectively, both with Department of Agricultural Economics and Agricultural Business, New Mexico State University, Las Cruces.

Current government and industry interest in new methods of individual animal identification arises from a confluence of events. Foot and mouth disease outbreaks in Great Britain, bovine spongiform encephalopathy (BSE) appearing in Canada and the United States and its impact on trade status, and the waning influence of older animal identification programs (such as for brucellosis and scrapies eradication) have created a demand for information at the level of the individual animal. Potential phasing out of the brucellosis eradication program means discontinuation of that individual cattle identification system in North America.

The goal of the planned National Animal Identification System (NAIS) is rapid tracing of animals during an outbreak situation, since locating sick or exposed animals early in an outbreak is critical for disease containment. According to the United States Department of Agriculture Animal and Plant Health Inspection Service (USDA-APHIS), the NAIS would help limit the scope and expense of disease outbreaks and reduce negative impacts on domestic and foreign markets. USDA-APHIS also promotes NAIS as critical to the completion of existing disease eradication programs, in which millions of dollars already have been invested.<sup>1</sup>

Governments and producers have different perspectives on animal identification. Animal identification is generally assumed to be worthwhile to producers for animal performance record keeping and marketing opportunities. Governments are focused on using animal identification to control, eradicate, monitor, and survey for animal diseases. In order for this capability to be available during outbreaks, however, producers must take on the project of maintaining individual animal identification.

The land-extensive production process used in much of U.S. beef cow-calf production generally is not compatible with management-intensive technologies for individual animal identification. Increases in management intensity are driven by the need and opportunity to increase returns per unit of input of capital and management. If returns will not be significantly increased

by the adoption of new management-intensive technologies, producers are unlikely to adopt them voluntarily.

## **WHY THE NEED FOR ADDITIONAL OR DIFFERENT LIVESTOCK IDENTIFICATION?**

Proof of ownership is the primary historical reason for traditional livestock identification such as branding and ear-marking. These practices were also used to indicate age or sire, but were not used for individual animal identification. Traditional livestock identification practices employed by producers have been more akin to group or lot identification. Increasingly, however, governments, producers of beef, and consumers of beef have become concerned about the ability to track livestock at the level of the individual animal. The discovery of cattle with BSE in Canada in May 2003 and in Washington state in December 2003 had serious consequences. Major trading partners imposed a ban on U.S. beef and called for a detailed testing and traceback system. This prompted the USDA to modify rules for cattle feeding and slaughter as well as begin development of the NAIS. The NAIS is still evolving at the time of this writing, and continues to build on an October 2003 proposal called the United States Animal Identification Plan (USAIP).<sup>2</sup>

In October 2004, APHIS put forward the following reasons for implementing an individual animal identification system:<sup>3</sup>

To...

- Enhance foreign animal disease surveillance, control, and eradication.
- Facilitate epidemiological investigations.
- Improve biosecurity protection of the national live stock population.
- Distinguish animals vaccinated or tested under official USDA disease-control

---

<sup>1</sup>United States Department of Agriculture, Animal and Plant Health Inspection Service, *The National Animal Identification System (NAIS): Why Animal Identification? Why Now? What First?* (Program Aid No. 1797), Washington, DC, October 2004. Available online: <http://animalid.aphis.usda.gov/nais/downloads/print/brochure-animalID-1797.pdf>.

<sup>2</sup>United States Animal Health Association (USAHA), *United States Animal Identification Plan 2003 draft*, presented at the USAHA meeting in October 2003. Available online: [http://usaip.info/US\\_AIP\\_Plan\\_Draft\\_092903\\_Ver\\_4\\_0\\_Master\\_.pdf](http://usaip.info/US_AIP_Plan_Draft_092903_Ver_4_0_Master_.pdf).

<sup>3</sup>United States Department of Agriculture, Animal and Plant Health Inspection Service. *The National Animal Identification System (NAIS) Why Animal Identification? Why Now? What First?*, (Program Aid No. 1797), Washington, DC, October 2004. Available online: <http://animalid.aphis.usda.gov/nais/downloads/print/brochure-animalID-1797.pdf>.

or eradication programs from unvaccinated and untested herd mates.

- Furnish official identification for animals in interstate or international commerce.
- Accurately identify blood and tissue specimens used for laboratory diagnostics.
- Track the health certification status of herds, states, and regions.
- Enable effective regionalization<sup>4</sup> and risk assessment in support of international trade.

## LIVESTOCK IDENTIFICATION METHODS

Current methods of livestock identification include but are not limited to: ear notches, ear tags, back tags, neck chains, tail tags, freeze and fire brands, tattoos, paint marks, and leg bands.<sup>5</sup> Electronic identification methods such as bar code tags and readers, radio frequency identification (RFID) transponders held in ear tags, and boluses or implants are new herd-management and animal-identification technologies. Biometric identification methods and DNA sampling for livestock are also available.

The U.S. Department of Agriculture has stated that it is maintaining a technology-neutral position with regard to the methods that will be used to identify individual animals (or group lots) in the NAIS.<sup>6</sup> However, radio frequency identification (RFID) ear tags are endorsed for use by the NAIS Cattle Working Group as the “most practical technology” for implementing NAIS in the U.S. cattle industry.<sup>7</sup>

The NAIS includes identification of both individual animals and premises. A premises is defined in the NAIS as “an identifiable physical location that ... represents a unique and describable geographic entity where activity affecting the health and/or traceability of animals may occur.”<sup>8</sup> According to the NAIS Draft Program Standards, a premises can be a farm, a ranch, another production unit, markets, packing plants, quarantine facilities, ports of entry, veterinary clinics, exhibitions, etc. If the NAIS becomes mandatory, all these premises would eventually be registered in the system, each with a unique premises number.

## LIVESTOCK IDENTIFICATION IN THE U.S.

The National Animal Health Monitoring System Beef '97 Study found that 81 percent of cow-calf producers kept some form of records, although 79 percent were hand-written only.<sup>9</sup> With respect to identification of individual cows, use of branding (hot iron or freeze) was reported by 7 percent of producers, while 46 percent reported use of plastic or metal ear tags. Forty-seven percent of the cow-calf producers (from 23 states) indicated they used no form of individual cow identification, while 52 percent reported no identification of individual calves. The NAHMS respondents were stratified into those for whom cow-calf herds were the primary source of family income (14 percent of respondents) and those producers who kept cattle for supplemental income (69 percent) or for some reason other than providing family income (17 percent).<sup>10</sup> Differences in management practices for “primary income” and “non-primary income” cow-calf producers were striking. Breeding and calving management, animal health, feeding, marketing, and record-keeping varied greatly between the two types of cow-calf producers,

---

<sup>4</sup>Regionalization involves zoning or geographic compartmentalization of animal or plant diseases, where specific regions in a country are identified as affected or unaffected. With regionalization, international and intranational trade may be less impacted by disease presence or outbreaks.

<sup>5</sup>United States Department of Agriculture, Animal and Plant Health Inspection Service, Veterinary Services. Animal Identification Website: [http://www.aphis.usda.gov/vs/nahps/animal\\_id/](http://www.aphis.usda.gov/vs/nahps/animal_id/).

<sup>6</sup>United States Department of Agriculture, Animal and Plant Health Inspection Service, *National Animal Identification System: Questions and Answers*.

<sup>7</sup>U.S. Department of Agriculture, Animal and Plant Health Inspection Service. *National Animal Identification System (NAIS), Draft Program Standards*, 25 April 2005.

<sup>8</sup>U.S. Department of Agriculture, Animal and Plant Health Inspection Service. *National Animal Identification System (NAIS), Draft Program Standards*, 25 April 2005.

<sup>9</sup>United States Department of Agriculture Animal and Plant Health Inspection Service Veterinary Services. National Animal Health Monitoring System (NAHMS). *Part IV: Changes in the U.S. Beef Cow-calf Industry, 1993-1997*. May 1998. Available online: <http://nahms.aphis.usda.gov/beefcowcalf/beef97/bf97pt4.pdf>.

<sup>10</sup>United States Department of Agriculture Animal and Plant Health Inspection Service Veterinary Services. Information Sheet. *Importance of Income in Cow-calf Management and Productivity*, September 1998. Available online: <http://nahms.aphis.usda.gov/beefcowcalf/beef97/bf97income.pdf>.

with significantly more intensive management practiced by the “primary income” producers. According to the NAHMS, “average herd size is larger for primary income herds than for non-primary income herds, although larger herds are not synonymous with primary income herds.”<sup>11</sup> This conclusion is consistent with the results of Gentner and Tanaka’s (2002) cluster analysis of western public lands ranchers.<sup>12</sup>

Beef cattle are well suited to a low-input and low-cost production process, which is consistent with the objectives of many small farms.<sup>13</sup> A low-input strategy does not mesh well with the adoption of new, management-intensive technologies. The technological stability of the U.S. cow–calf industry is evidenced by the insignificant change in the average size of a U.S. beef cow herd over the last ~30 years (it went from 40 in 1974 to 42 in 2002).<sup>14</sup> In contrast, the U.S. dairy industry has moved, and continues to move, toward increased management intensity and larger scale farm-level production. Changes in dairy technology in the mid-20th century were influenced by changes in the federal milk pricing structure and continuing concern about the human health risks associated with contaminated and/or lower quality milk. These concerns can be compared to current concerns about the risks of BSE.

Technology- and policy-driven structural adjustment of the U.S. dairy industry began in approximately 1950, and continues to this day. The average size of a U.S. dairy cow herd increased from five in 1950 to 99 in 2002.<sup>15</sup> Similarly, the beef industry underwent a technological and market advance in the transition to boxed beef (introduced in 1967). Boxed beef is a cost-reducing, efficiency-increasing technology that reduces uncertainty, reduces transport, handling, and meat-cutting costs throughout the marketing chain, and increases product uniformity at the end of the marketing chain.

Segmentation of retail beef marketing has been the end result. While some may argue that the quality of individual beef cuts has decreased as a result of changes in the grading system, overall beef product consistency has been enhanced and real prices reduced as a result of boxed beef technology. The feedlot and packing sectors have dramatically increased in size and concentration to achieve economies of scale. However, similar structural adjustment at the cow–calf producer level has not occurred. Most of the advances in technology and increases in efficiency in the beef industry have occurred beyond the farm gate.

## **STRUCTURE OF THE NEW MEXICO AND U.S. COW–CALF PRODUCTION SECTORS**

The 2002 Census of Agriculture found 6,845 farms with cattle and calves in New Mexico.<sup>16</sup> Of these farms, 5,571 had beef cows while 377 had dairy cows. Almost 1,000 farms with sheep were found during the census. Small numbers of farms had hogs, chickens, and other livestock species; however, the total numbers of these animals was quite small. The total number of cattle and calves in New Mexico was estimated to be almost 1.6 million. The New Mexico dairy industry includes approximately 317,000 milk cows, while the beef industry includes more than 516,000 cows. Cattle producers in the state sold slightly more than one million calves in 2002. The number of calves sold in 2002 was almost 300,000 fewer than were sold in 1997. This reduction is likely a function of drought conditions between 1997 and 2002, which negatively affected forage availability and resulted in beef cattle herd liquidations.

The dairy industry in New Mexico employs intensive management, including individual animal identification and record keeping. The state’s dairy industry is highly concentrated, with 91% of the milk cow herd located

---

<sup>11</sup>United States Department of Agriculture Animal and Plant Health Inspection Service Veterinary Services. Information Sheet. *Importance of Income in Cow–calf Management and Productivity*, September 1998. Available online: <http://nahms.aphis.usda.gov/beefcowcalf/beef97/bf97income.pdf>.

<sup>12</sup>B.J. Gentner and J.A. Tanaka. 2002. “Classifying Federal Public Land Grazing Permittees.” *Journal of Range Management* 55:2 – 11.

<sup>13</sup>A. James Cash II. “Where’s the Beef? Small Farms Produce Majority of Cattle.” In *Agricultural Outlook*, United States Department of Agriculture Economic Research Service, December 2002, pp.21–24. Available online: <http://www.ers.usda.gov/publications/agoutlook/Dec2002/ao297g.pdf>.

<sup>14</sup>U.S. Department of Agriculture. *2002 Census of Agriculture – United States Summary and State Data*. National Agricultural Statistics Service, AC-02-A-51, Volume 1 Geographic Area Series, Part 51. Available online: <http://www.nass.usda.gov/census/census02/volume1/us/USVolume104.pdf>.

<sup>15</sup>Vandever, M., D. Blayney, T. Crawford, R. Heifer, L. Maynard, D. Buschena. 28 July 2004. *The Dairy Options Pilot Program and Risk Management in Dairy: A Report to the Risk Management Agency*. U.S. Department of Agriculture, unpublished report.

<sup>16</sup>U.S. Department of Agriculture. 2004b. *2002 Census of Agriculture – United States Summary and State Data*. National Agricultural Statistics Service, AC-02-A-51, Volume 1 Geographic Area Series, Part 51. Available online: <http://www.nass.usda.gov/census/census02/volume1/us/USVolume104.pdf>. Unless otherwise identified, all data in this section are from the U.S. Census of Agriculture.

**Table 1. Beef cows and heifers that had calved, 2002 Census of Agriculture, New Mexico.**

Farm size category	# Farms	% Farms	# Cows & Heifers that had calved	% Cows & Heifers that had calved
Farms with 1–9	1,530	27.5	6,926	1.3
Farms with 10–19	898	16.1	11,854	2.3
Farms with 20–49	1,160	20.8	32,255	6.3
Farms with 50–99	709	12.7	48,817	9.5
Farms with 100–199	584	10.5	80,671	15.6
Farms with 200–499	516	9.3	156,513	30.3
Farms with 500–999	121	2.2	80,547	15.6
Farms with 1,000–2,499	43	0.8	62,954	12.2
Farms with 2,500 or more	10	0.2	32,567	6.3
<b>New Mexico Total</b>	<b>5,571 farms</b>		<b>516,104 cows</b>	

**Table 2. Beef cows and heifers that had calved, 2002 Census of Agriculture, United States.**

Farm size category	# Farms	% Farms	# Cows & Heifers that had calved	% Cows & Heifers that had calved
Farms with 1–9	239,452	30.1	1,173,512	3.5
Farms with 10–19	178,038	22.4	2,396,265	7.2
Farms with 20–49	215,320	27.0	6,495,074	19.5
Farms with 50–99	89,874	11.3	6,000,331	18.0
Farms with 100–199	45,354	5.7	5,957,914	17.8
Farms with 200–499	23,126	2.9	6,538,095	19.6
Farms with 500–999	4,002	0.50	2,579,856	7.7
Farms with 1,000–2,499	1,110	0.14	1,536,333	4.6
Farms with 2,500 or more	160	0.02	720,891	2.2
<b>United States Total</b>	<b>796,436 farms</b>		<b>33,398,271 cows</b>	

on 121 farms. New Mexico’s beef cattle sector is dualistic (as is the entire U.S. cow–calf sector) and much less concentrated, as illustrated in Table 1. In 2002, 64 percent of New Mexico beef cow–calf operations had fewer than 50 cows. These cattle operations accounted for 10 percent of all reproducing beef cows and heifers. Cattle operations with 50 or more cows are 36 percent of farms with beef calves and heifers that had calved, but they accounted for almost 90 percent of total beef cow and heifer numbers. The 2002 Census distribution of New Mexico beef cows and heifers that had calved by farm size is presented in Table 1.

The 2002 Census distribution of the U.S. cow–calf

sector is presented in Table 2 for comparison. Nationally, almost 80 percent of U.S. beef cow–calf operations accounted for 30 percent of all reproducing beef cows and heifers. Cattle operations with 50 or more female animals are 20 percent of farms with beef calves and heifers that had calved, but they accounted for almost 70 percent of total beef cow and heifer numbers.

The U.S. Department of Agriculture considers farms with annual sales of less than \$250,000 to be small farms. By this criterion, small beef cattle operations account for 89 percent of calf sales, 48 percent of the total value of U.S. beef cattle production, and control 74 percent of the land dedicated to beef cattle production.<sup>17</sup> The largest category of small farms raising beef cattle is the “residential/lifestyle” farm, one of several types of part-time farms identified by the U.S. Department of Agriculture.<sup>18</sup>

The Census of Agriculture provides insight into farm sector structure using basic population and animal count data. Recent research in the western states has sought to improve our knowledge and understand-

ing of beef cow–calf operators and their motivations. Gentner and Tanaka (2002) examined the characteristics of public land grazing permittees in 11 western states.<sup>19</sup> They were interested in the public land grazing policy implications of rancher heterogeneity, including possible responses to changes in grazing fees and grazing reductions. However, the results of their study also have implications for advanced animal identification technology adoption and use. Using more than 1,000 responses to a random survey of U.S. Forest Service and Bureau of Land Management grazing permittees, Gentner and Tanaka identified eight distinct cluster groups of ranchers. The two primary groups of ranchers were *hobbyists*

<sup>17</sup>A. James Cash II. “Where’s the Beef? Small Farms Produce Majority of Cattle.” In *Agricultural Outlook*, United States Department of Agriculture Economic Research Service, December 2002, pp.21–24. Available online: <http://www.ers.usda.gov/publications/agoutlook/Dec2002/ao297g.pdf>.

<sup>18</sup>A. James Cash II. “Where’s the Beef? Small Farms Produce Majority of Cattle.” In *Agricultural Outlook*, United States Department of Agriculture Economic Research Service, December 2002, pp.21–24. Available online: <http://www.ers.usda.gov/publications/agoutlook/Dec2002/ao297g.pdf>.

<sup>19</sup>B.J. Gentner and J.A. Tanaka. 2002. “Classifying Federal Public Land Grazing Permittees.” *Journal of Range Management* 55:2 – 11.

**Table 3. Distribution of western public lands ranchers by cluster (n = 1,052) (Gentner and Tanaka, 2002).**

Cluster Group	# Respondents	% Respondents	Mean Cows	% Total income from ranching
Small Hobbyist	117	11.1	79.5	13.0
Retired Hobbyist	189	18.0	122.0	21.5
Working Hobbyist	162	15.4	143.0	18.2
Trophy Rancher	63	6.0	466.7	21.1
Diversified Family Rancher	142	13.5	276.2	74.9
Dependent Family Rancher	196	18.6	295.7	84.7
Corporate Rancher	138	13.1	615.2	71.9
Sheep Rancher	45	4.3	385.8	80.8

**Table 4. Distribution of survey sample and respondents for New Mexico animal identification survey.**

Size Group	# in Sample	% of Sample	# Usable Responses	% Usable Responses
1–49 Cows	302	39.3	107	34.9
50–99 Cows	160	20.8	66	21.5
100–199 Cows	154	20.1	68	22.2
200+ Cows	152	19.8	64	20.8
Unidentified size group			2	0.6
<b>All size groups</b>	<b>768</b>	<b>100</b>	<b>307</b>	<b>100</b>

and *professionals*, with each comprising approximately 50% of the total number of survey respondents.

Ranchers differed with respect to why they were in ranching, how they would respond to public land grazing policy changes, and various socio-economic attributes. A survey respondent's placement along a spectrum of behaviors from ranching as a consumptive activity (i.e., enjoyment of the ranching lifestyle) to a classic profit-maximizing, business-oriented behavior was key in determining the cluster to which he or she belonged. The hobbyist group was divided into four sub-groups: small hobbyists, retired hobbyists, working hobbyists, and trophy ranchers. The professional rancher group was also divided into four sub-groups: diversified family ranchers, dependent family ranchers, corporate ranchers, and sheep ranchers. These names describe the central characteristics of each cluster. Table 3 summarizes the clustering results. Table 3 also shows that half of western public land ranchers earn less than 22 percent of their total income from ranching, and that the mean cow herd size for hobbyist ranchers is relatively large.

Gentner and Tanaka found profit motive to be relatively low-ranked among ranching objectives for all eight types of rancher, with consumptive ranching objectives held by all rancher types. The low ranking of

profit motive was particularly strong for the hobbyists and trophy ranchers. However, even diversified and dependent family ranchers and corporate ranchers (who had the highest dependence on ranching income) were strongly motivated in their ranching endeavors by tradition, family, and lifestyle. For all groups of ranchers, consumptive motives outranked profit motives.

## ANIMAL IDENTIFICATION SURVEY OF NEW MEXICO COW-CALF PRODUCERS

In response to many of the questions raised in the preceding sections of this report by the current authors and others, an animal identification survey of New Mexico cow-calf producers was conducted in late 2004. The objective of this survey was to acquire information about existing cattle identification and record-keeping systems used by New Mexico cow-calf producers and about the nature of their cattle production operations. The study sought to gain insight into some of the complex issues which are likely to arise with implementation of the NAIS in New Mexico. These issues include the nature of premises registration and issues which could arise in the event of disease-related quarantine efforts.

### Survey Procedures

The U.S. Department of Agriculture's National Agricultural Statistics Service (USDA-NASS) New Mexico Statistical Office, located in Las Cruces, NM, assisted with the survey. USDA-NASS personnel were contacted in Summer 2004. They were informed of the objectives of the survey research and agreed to administer the survey for a small fee. USDA-NASS drew the sample to which the survey questionnaire was mailed, maintaining the anonymity of the cow-calf producers in the sample and of the respondents to the survey.

### Population and Sample

All cow-calf producers in New Mexico were included in the population from which the survey sample was drawn. Operations with 50+ milk cows were considered intensive dairy operations and were excluded from the selection. Table 4 shows the sample that was drawn by USDA-NASS and the distribution of usable survey responses. The sample was stratified into four size groups.

The distribution of usable survey responses (using the USDA-NASS size stratification codes on the questionnaires) was very similar to the distribution of questionnaires mailed (see Table 4), although the smallest size group was slightly underrepresented in the usable responses.

### **The Questionnaire**

The questionnaire (Appendix) was developed by the investigators. The survey instrument was reviewed and approved by the College of Agriculture and Home Economics Survey Review Committee and NMSU's Institutional Review Board. The questionnaire was also reviewed and approved by USDA-NASS personnel in New Mexico and Washington, DC. Final formatting of the questionnaire was done by USDA-NASS.

### **Administration of the Survey**

The questionnaires were photocopied at NMSU. The prepared questionnaires, explanatory cover letter, and postage-paid return envelopes (addressed to NMSU Department of Agricultural Economics and Agricultural Business) were delivered to the USDA-NASS office in Las Cruces. USDA-NASS personnel attached labels with anonymous identification codes on the questionnaires. They then stuffed the envelopes to be mailed to the sampled cow-calf producers. The envelopes contained the questionnaire and the explanatory cover letter. The explanatory cover letter included contact information for the NMSU investigators. A mailing address label with corresponding questionnaire identification codes was affixed to the outside of the envelope. The survey packets were mailed by USDA-NASS in envelopes with a USDA-NASS New Mexico Statistical Office return address. Reminder post cards were delivered to USDA-NASS approximately two weeks after the initial survey packet was mailed. USDA-NASS personnel attached the mailing address label to the postcards and mailed them from the USDA-NASS office. The postcards carried the USDA-NASS New Mexico Statistical Office return address as well as contact information for the NMSU investigators. All undeliverable survey packets or reminder postcards were returned to the USDA-NASS New Mexico Statistical Office.

A small number of survey recipients responded to the reminder postcard and called the investigators at NMSU to request an additional copy of the survey questionnaire. No identification codes were attached to these questionnaires, which were mailed from the investigators directly to the persons requesting them. Two of these unlabeled questionnaires were received back in usable form by NMSU.

The survey respondents mailed the questionnaires back to NMSU in the postage-paid return envelopes. Questionnaires arrived at NMSU throughout Fall 2004 and into 2005.

### **Response to the Survey**

A total of 307 usable questionnaires (40 percent of the original sample) were received back at NMSU. Twenty-two questionnaires were received at NMSU with information written on them indicating the recipients were no longer raising cattle or were no longer living in New Mexico. Eleven individuals called the investigators at NMSU to report that they were no longer raising cattle or were no longer living in New Mexico. The survey results reported here are based on the 307 usable questionnaires. A few survey respondents included detailed comments or letters with the returned questionnaire.

### **Processing and Analysis of Survey Data**

SAS<sup>TM</sup> software was used for all analysis. The analysis was performed using PROC FREQ, PROC MEANS, and PROC GENMOD routines in SAS<sup>TM</sup>.

## **RESULTS OF THE NEW MEXICO ANIMAL IDENTIFICATION SURVEY**

Results for 307 survey respondents are reported here. In the tables that follow, responses are summarized as a percentage of total respondents, even though multiple responses may have been provided for some questionnaire items. In most instances, the number of total respondents is less than 307 due to nonresponses to individual questions.

### **Total Cattle Numbers**

Survey respondents were asked to report a total number of cattle, as well as the number of cows, beef cows, dairy cows, bulls and calves (less than one year old) present on their ranch as of July 1, 2004. These questions were open-ended. Numerous questionnaires were returned with incomplete responses regarding the classes of cattle. Respondents' reported numbers by class were summarized as best as possible into a total beef animal count (Table 5), since several respondents reported a value for total cattle that was not equal to the sum of the different classes reported. Cattle numbers reported by the respondents, rather than respondents' classification under the USDA-NASS mother cow strata, were used to stratify results throughout this report. The total beef animal count stratification reflects total size differences for cattle-producing operations, regardless of their proportions from each class. This permits discussion of the im-

**Table 5. Respondents' reported cattle numbers, as of July 1, 2004.**

Animal Numbers	Total Cattle Reported	
	# Responses	% Responses
0 animals	20	6.5
1-49 animals	95	30.9
50-99 animals	47	15.3
100-199 animals	59	19.2
200+ animals	83	27.0
No item response	3	1.0
<b>All size groups</b>	<b>307</b>	<b>100</b>
<b>Total cattle reported</b>	<b>70,305</b>	

**Table 6. Total sheep and goats reported by respondents, as of July 1, 2004.**

Animal Numbers	Sheep and Goats	
	# Responses	% Responses
1-19 animals	6	1.9
20-39 animals	3	1.0
40-99 animals	4	1.3
100-399 animals	2	0.6
400-999 animals	1	0.3
>1000 animals	2	0.6
No item response	289	94.1
<b>All size groups</b>	<b>307</b>	<b>100</b>
<b>Total sheep/goats reported</b>	<b>6,382</b>	

**Table 7. Total horses reported by respondents, as of July 1, 2004.**

Animal Numbers	Horses	
	# Responses	% Responses
1-5 animals	92	30.0
6-10 animals	43	14.0
11-20 animals	20	6.5
> 20 animals	7	2.3
No item response	145	47.2
<b>All size groups</b>	<b>307</b>	<b>100</b>
<b>Total horses reported</b>	<b>991</b>	

**Table 8. Number of different locations for the respondents' ranches.**

# Locations	# Responses	% Responses
Single location	158	51.5
2-3 locations	117	38.1
4-6 locations	23	7.5
7 or more locations	3	1.0
No item response	6	2.0
<b>All respondents</b>	<b>307</b>	<b>100</b>

**Table 9. Respondents' types of ranching operations.**

Ranch Type	# Responses	% Responses
Cow-calf only	219	71.3
Cow-calf & stocker	37	12.1
Cow-calf, stocker & feedlot	9	2.9
Stocker only	13	4.2
Stocker & feedlot only	2	0.7
Feedlot only	2	0.7
Sheep only	2	0.7
Cow-calf & sheep	11	3.6
Multiple different systems	6	2.0
No item response	6	2.0
<b>All respondents</b>	<b>307</b>	<b>100</b>

**Table 10. Respondents' number of herds.**

# Herds	# Responses	% Responses
1 herd	194	63.2
2 herds	46	15.0
3 herds	24	7.8
4 herds	13	4.2
5 herds	10	3.3
6 herds	6	2.0
7 herds	3	1.0
8 or more herds	4	1.3
No item response	7	2.3
<b>All respondents</b>	<b>307</b>	<b>100</b>

**Table 11. Respondents' number of brands available and brands currently in use.**

# Brands	Brands Available		Brands Currently in Use	
	# Responses	% Responses	# Responses	% Responses
0 brands	4	1.3	5	1.6
1 brand	166	54.1	209	68.1
2 brands	82	26.7	62	20.2
3 brands	25	8.1	20	6.5
4 brands	14	4.6	4	1.3
5 brands	8	2.6	3	1.0
6 or more brands	4	1.3	2	0.7
No item response	4	1.3	2	0.7
<b>All respondents</b>	<b>307</b>	<b>100</b>	<b>307</b>	<b>100</b>

**Table 12. Respondents' type of ranch business organization.**

Business Organization	# Responses	% Responses
Sole proprietor	221	72.0
Sub-chapter S Corporation	8	2.6
General partnership	26	8.5
Corporation	17	5.5
Limited partnership	12	3.9
Limited liability company	10	3.3
More than one type reported	7	2.3
No item response	6	2.0
<b>All respondents</b>	<b>307</b>	<b>100</b>

plications of changes in animal identification procedures across a variety of types of cattle-producing operations (i.e., cow-calf, stocker, feedlot, or mixed) relative to the total number of beef animals present.

In total, more than 70,000 beef animals were reported by the respondents.

### Total Other Livestock Numbers Reported by Respondents

Sheep, goats, and horses were reported by several of the respondents. Almost 6% of the respondents reported sheep and/or goats present on their ranch as of July 1, 2004, with a total of 6,382 animals reported (Table 6). Almost 53 percent of the survey respondents reported that horses were present on their ranch, with 991 total horses reported (Table 7).

### Number of Ranch Locations, Type of Ranching Operation, and Number of Herds

Survey respondents were asked to indicate how many different locations made up their ranching operation (Table 8). Approximately one-half of the respondents indicated that their ranch consisted of a single location. The other half reported that their ranch operated at two or more locations. No information was collected through the survey about the spatial distribution of these multiple-location ranches.

Seventy-one percent of the respondents reported they were a cow-calf only ranching operation, while another 18.6 percent indicated they were a cow-calf ranch com-

bined with some other type of operation (e.g., stockers, feedlot, or sheep) (Table 9). Thirteen respondents (4.2 percent) described their operations as stocker only.

A question on the survey instrument begins as follows: "A 'herd' of animals is usually thought of as a group of animals feeding or living together. Using this definition, does your ranching operation consist of more than one herd of animals?" Responses to the question are summarized in Table 10. Sixty-three percent of the respondents reported one "herd" of animals. Two herds were reported by 15 percent of the respondents, while three to seven herds were noted by 18.3 percent. Eight or more herds were reported by four respondents, or 1.3 percent of the respondents.

Fifty-four percent of the respondents indicated they had only one brand available for use on their ranch, while 26.7 percent reported two brands, and 16.6 percent had three or more brands available (Table 11). When asked how many brands are currently in use, 68.1 percent of the respondents said that only one brand was used, 20.2 percent reported two brands, and 9.5 percent reported three or more brands currently in use.

### Type of Business Organization

When asked about the current organization of their ranching operation, 72 percent of the respondents reported that their ranch was a sole proprietorship (Table 12). The next most frequently reported form of business organization was general partnership (8.5 percent). More than one type of business organization was re-

**Table 13. Respondents' age and length of ranching involvement.**

Years	Age of principle ranch operator		Principle operator's time at current residence		Principle operator's length of involvement in ranching		Principle operator's length of involvement with current ranch	
	# Responses	% Responses	# Responses	% Responses	# Responses	% Responses	# Responses	% Responses
1-9	-	-	49	16.0	23	7.5	50	16.3
10-19	-	-	47	15.3	30	9.8	51	16.6
20-29	5	1.6	63	20.5	41	13.4	58	18.9
30-39	9	2.9	48	15.6	53	17.3	40	13.0
40-49	38	12.4	22	7.2	58	18.9	37	12.1
50-59	99	32.2	30	9.8	54	17.6	37	12.1
60-69	74	24.1	12	3.9	14	4.6	9	2.9
70-79	54	17.6	16	5.2	18	5.9	11	3.6
80 or more	17	5.5	3	1.0	6	1.9	1	0.3
Mean		59.7 years		30.0 years		38.1 years		29.6 years
No item response	11	3.6	17	5.5	10	3.3	13	4.2
<b>All respondents</b>	<b>307</b>	<b>100</b>	<b>307</b>	<b>100</b>	<b>307</b>	<b>100</b>	<b>307</b>	<b>100</b>

**Table 14. Educational attainment of principle ranch operator.**

Highest Level of Education Completed	# Responses	% Responses
Some grade school	8	2.6
Completed grade school	4	1.3
Some high school	7	5.5
Completed high school	89	29.0
Some college	83	27.0
Completed college	60	19.5
Some graduate work	19	6.2
A graduate degree	25	8.1
No item response	2	0.7
<b>All respondents</b>	<b>307</b>	<b>100</b>

**Table 15. Undergraduate college majors of ranch operators.**

Major	# Responses	% Responses
Agricultural business or business-related (accounting, finance, etc.)	24	31.6
Animal science or animal husbandry	19	25.0
Range management and/or wildlife management	8	10.5
Education (including agricultural education)	8	10.5
Agriculture	5	6.6
Biology, chemistry, math, pharmacy	5	6.6
Engineering	4	5.3
History, political science, communications	3	3.9
<b>Total responses</b>	<b>76</b>	<b>100</b>

ported by seven respondents. These included a variety of combinations of the other business types listed on the survey instrument (respondents checked more than one response for this question).

### Demographic Information for the Principle Ranch Operators

Survey respondents were asked to provide information about their age and length of involvement in ranching (Table 13). Their mean age was almost 60 years, with a mean length of involvement in ranching of 38 years. Nine percent of principle ranch operators had not graduated from high school, while 29 percent had completed high school (Table 14). Almost 20 percent of the ranch operators indicated they had completed college. Agricultural business or other business-related undergraduate majors were reported most frequently by the college graduates, followed by animal science or animal husbandry (Table 15). Eight percent of principle ranch

**Table 16. Graduate college majors reported for ranch operators.**

Major	# Responses	% Responses
Education	4	18.2
Business	4	18.2
Agriculture (including animal science)	4	18.2
Medicine or related	3	13.6
Math, English	3	13.6
Engineering	2	9.1
Social work	2	9.1
<b>Total responses</b>	<b>22</b>	<b>100</b>

**Table 17. Gender of ranch operators.**

Gender	# Responses	% Responses
Male	269	87.6
Female	37	12.1
No item response	1	0.3
<b>Total respondents</b>	<b>307</b>	<b>100</b>

**Table 18. Ethnic background of ranch operators.**

Ethnic Background	# Responses	% Responses
Anglo	219	71.3
Hispanic	63	20.5
Native American	12	3.9
Other	4	1.3
No item response	9	2.9
<b>Total respondents</b>	<b>307</b>	<b>100</b>

operators indicated they had completed a graduate degree (Table 14), with education, business, and agriculture the most frequently reported areas of graduate study (Table 16).

Almost 88 percent of the survey respondents indicated that the principle operator of their ranch was male (Table 17). As shown in Table 18, the most commonly reported ethnic background of ranch operators was Anglo (71.3 percent), followed by 20.5 percent who reported they were Hispanic and 3.9 percent who indicated Native American as their ethnicity.

### Ranch Acreages Reported by Respondents

Survey respondents were asked to provide information about the total acreage on which they conducted their ranching operation and to report their usage of various types of ranch land in New Mexico. The results are summarized in Table 19. Eighty-eight percent of the

**Table 19. Respondents' ranch land resources.**

# Acres	Deeded Acres Owned		BLM Allotment		Forest Service Allotment		Other Government		Rented from Private Owner		State Land	
	Responses		Responses		Responses		Responses		Responses		Responses	
	#	%	#	%	#	%	#	%	#	%	#	%
< 100	50	16.3	–	–	8	2.6	–	–	11	3.6	4	1.3
100–499	52	16.9	1	0.3	6	1.9	–	–	19	6.2	20	6.5
500–1,499	41	13.4	3	1.0	13	4.2	–	–	30	9.8	49	16.0
1,500–4,999	68	22.1	4	1.3	17	5.5	2	0.7	29	9.4	22	7.2
5,000–9,999	29	9.4	7	2.3	11	3.6	2	0.7	15	4.9	11	3.6
10,000–19,999	17	5.5	8	2.6	11	3.6	–	–	8	2.6	6	1.9
20,000–99,999	12	3.9	3	1.0	7	2.3	–	–	–	–	7	2.3
> 100,000	2	0.6	–	–	2	0.6	–	–	–	–	–	–
No item response	36	11.7	281	91.5	232	75.6	303	98.7	194	63.2	188	61.2
<b>All respondents</b>	<b>307</b>	<b>100</b>	<b>307</b>	<b>100</b>	<b>307</b>	<b>100</b>	<b>307</b>	<b>100</b>	<b>307</b>	<b>100</b>	<b>307</b>	<b>100</b>

respondents reported owning ranch land, with 46.6 percent of the respondents owning less than 1,500 acres. The owned acreages most frequently reported were between 1,500 and 4,999. As would be expected in New Mexico, many respondents reported operating their ranches on U.S. Bureau of Land Management (BLM) and U.S. Forest Service allotments. Almost one-fourth reported BLM land use, while 8.5 percent indicated Forest Service land use. Almost 37 percent reported conducting their ranching on land rented from private sector owners, and 38.8 percent indicated that land owned by the state of New Mexico was included in their ranch. The most frequently reported amount of state land used by the respondents was 640 acres, or one full section. A small number of respondents reported using “other government” land. Some of these respondents indicated that the land was tribally owned. Tribal land was reported in use by ranchers in all ethnic groups, with several respondents reporting the tribal lands they use under the “rented from private owner” category.

Fifty percent of the respondents reported operating on only their own deeded acres, while the other fifty percent reported use of land other than deeded acres that they owned.

### Respondents' Animal Identification

As shown in Table 20 most of the respondents (91.8 percent) used branding as a method of visual animal identification, while nearly half used ear tags (respondents could report more than one identification method). Eight respondents (2.6 percent) indicated they currently used no animal identification methods,

while use of tattoos was reported by 16 (5.2 percent) of the respondents. *Visual recognition* summarizes four respondents' descriptions of their means of individual animal identification. These responses included the following comments: “u see'em, u know'em”; “know each by name”; “visual daily”; “visual recognition.”

Respondents were asked whether they used any form of electronic animal identification technology. Only one respondent of 307 reported using radio frequency identification (RFID) ear tags. The respondent did not give an estimate of the percentage of their total herd on which RFID technology was being used, nor indicate how satisfied they were with the RFID ear tags. No respondents reported currently using any of the other electronic identification technologies listed on the survey instrument (e.g., barcoded ear tags, RFID implants).

Two respondents reported currently using some form of biometric animal identification technology. Both respondents checked DNA as the technology in use. One other respondent reported using blood typing for animal identification. These three respondents' questionnaires had handwritten comments indicating they were producers of registered cattle.

### Respondents' Individual Animal Record Keeping

Two-thirds of the respondents indicated they currently did not keep production or performance records for individual animals (Table 21). Ninety-four respondents (30.6 percent) reported they did keep individual animal records. However, in a later question, 100 respondents indicated they kept paper records only (Table 22). There

**Table 20. Visual animal identification methods currently used on respondents' ranches.**

Identification Method	# Responses	% Responses
None	8	2.6
Tattoos	16	5.2
Ear tags	150	49.0
Branding	281	91.8
RFID ear tags	1	0.3
Other:		
Ear mark, notch, cropping	25	8.2
Individual number branding	4	1.3
Visual recognition	4	1.3
<b>Total item respondents</b>	<b>307</b>	<b>100</b>

**Table 21. Respondents' individual animal performance or production records.**

Keeps individual animal performance records?	# Responses	% Responses
Yes	94	30.6
No	206	67.1
No item response	7	2.3
<b>Total</b>	<b>307</b>	<b>100</b>

were several answers handwritten in the space provided for "other" in response to Question #21, which was phrased, "How do you maintain the individual performance records?" These comments were: "mental notes"; "brain"; "memory"; "dry cows get sold off"; "if a cow misses a calf I sell her"; and "we watch our cattle." None of the survey respondents reported sending individual animal data to a remote storage provider or using web-based data storage technology.

### Livestock Record Keeping Software and Use of Downstream Performance Data

Fourteen respondents reported they were using Microsoft™ products for their livestock record keeping. A few noted both Excel™ and Access™ as the products they were using. Individual respondents reported use of Quattro™ and Quicken™, while five respondents indicated they were using breed association or specialty livestock record-keeping programs.

Eight respondents (of 307) indicated they were using cattle performance data (from backgrounders, feedlots, or slaughter plants) as a management tool.

**Table 22. Maintenance of individual animal performance or production records.**

Record-keeping methods	# Responses	% Responses
Paper records only	100	32.6
Computer spreadsheets or database programs	25	8.1
Special livestock records software	5	1.6
No item response	177	57.7
<b>Total</b>	<b>307</b>	<b>100</b>

**Table 23. Respondents' reasons for not keeping individual animal performance or production records.**

Reasons	# Responses	% Responses
It costs too much.	28	11.9
I don't have time to do much record keeping.	40	17.0
We are too small an operation & don't need a lot of records.	133	56.6
We just haven't gotten around to it.	21	8.9
We don't need individual animal records in our operation.	86	36.6
Other— See Table 24 for list	–	–
Non-respondents to this item	72	
<b>Total item respondents</b>	<b>235</b>	<b>100</b>

### Costs of Respondents' Electronic Record Keeping Systems

Respondents were asked to provide estimates of the total cost to set up their current electronic record-keeping system and the ongoing annual per head cost of maintaining and operating the system. Twelve respondents reported set-up costs, ranging from \$500 to \$2,400, with a few respondents stating that the cost of the system was "the cost of the computer." Annual per head cost estimates provided by ten respondents varied widely. Three respondents said the annual cost/head/year was \$2.00, with one indicating that the \$2.00 consisted only of the cost of the ear tag. Five dollars, \$10, and \$50 were reported by one, two, and one respondents, respectively. One individual reported the cost of annual record keeping as "none, I do it all myself," while another respondent said that his cost was approximately one man-hour/cow/year plus \$1.00 for each ear tag. One respondent reported that the cost of registration and performance papers and genetic data for registered cattle was approximately \$26/head/year.

## Advantages and Disadvantages of Respondents' Electronic Record Keeping Systems

The survey instrument included space for the respondents to report their perception of the advantages and disadvantages of their current electronic record-keeping systems. The few comments returned noted that their respective systems were easy to use, easily stored information, were inexpensive, were custom-designed by themselves, could store years of data, made it difficult to lose information, could be used for culling and tracking production of individuals, were useful for accounting purposes, or were better than paper.

Disadvantages reported by the respondents included that their current electronic record-keeping systems were time consuming, were not very complete in the livestock information provided, could lose data, used outdated software or continuously needed to be updated, or had created more headaches, paperwork, and expense. They also observed that field observations taken by hand must be entered into the computer, that ear tags could be lost, and that printouts are cumbersome to use in the field.

## Reasons for Not Keeping Any Individual Animal Performance or Production Records

Question #32 on the survey instrument asked respondents who were not keeping any individual animal performance or production records at the time of the survey to give their reasons for not doing so. A list of probable reasons was provided, and respondents could check more than one response. Space was also provided for handwritten reasons.

## Analysis of Respondents' Reasons for Not Keeping Individual Animal Records

The survey respondents' reasons for not keeping individual animal performance records (Table 23 and 24) and for not keeping electronic individual animal performance records (Table 25 and 26) were subjected to further statistical analysis to compare ranches by size and by region of the state. The general hypothesis was that there would be differences in reasons relative to respondents' characteristics, and several statistically significant differences were found. Results of the analysis are shown in Tables 27–39. The procedure was followed such that an individual's 0/1 response to a reason (e.g., "It costs too much") was a function of their size class and their region. Size classes were derived from cattle numbers reported on the survey (Table 5), rather than following respondents' size classes on record with USDA-NASS.

**Table 24. "Other" reasons given by respondents for not keeping individual animal performance or production records.**

"Other" Reasons
• Watch cows, if they don't produce, they go.
• Who is going to teach and pay us to do so[?] I'm not against record keeping—but tags come off then you don't know much about the animal.
• It is a small herd and I still remember well.
• Used only for freezer beef.
• Our cattle are in large pastures, we brand and ship calves that exist and ship open cows.
• We have not come up with a process that works.
• I have so few animals I know a great deal about each one.
• If a cow doesn't have a calf you sell it! I buy only low birth weight bulls.
• Commercial outfits tend not to keep records on individual animals, too costly, but also not needed. I take a cost analysis based on average feed costs, etc.
• It's ridiculous, cumbersome, trouble.
• I have a good memory.
• Open range operation makes matching calves to mothers very, very difficult.
• Keep most of it in my head.
• Have not found anything that fits my operation.
• The cattle are Corriente for roping.
• Need information.
• We just watch them; and can tell how each cow does.
• Big brother is watching.
• Try to make sure each cow calves alright each year.
• All our cattle and sheep are organically raised.
• I do all my ranchwork alone.
• Our records are visual and memory from watching them all year.

**Table 25. Respondents' reasons for not keeping electronic individual animal performance or production records.**

Reasons	# Responses	% Responses
It costs too much.	32	13.0
I don't have time to do much record keeping.	33	13.4
I'm not skilled in using computers.	43	17.4
We are too small an operation & don't need computer-based records.	123	49.8
We just haven't gotten around to it.	22	8.9
We don't need individual animal records in our operation.	89	36.0
Other— See Table 26 for list	–	–
Non-respondents to this item	60	
<b>Total item respondents</b>	<b>247</b>	

**Table 26. “Other” reasons given by respondents for not keeping electronic individual animal performance or production records.**

“Other” Reasons
• We need computer-based records—but who’s going to pay for them?
• There is only one sure way to keep perfect records and that is DNA. [Y]ou tell me how many ranchers know how to do DNA and CK each animal each year?
• I’m for good records but when you have a cow & bull operation you can guess the sire but you can’t be sure—so when you get one figured out let me know.
• At this point the brand is the sure and best method to trace the animal one-on-one and eyesight is the only sure way.
• I don’t have a home computer. [Multiple Responses]
• I do not have software. [Multiple Responses]
• I know each cow and I know what kind of calf she has.
• We live without electricity—no computer.
• What in the hell do we need this for with our brand laws[?]-Not one head of cattle has ever come on our ranch without being inspected and identified. This is ridiculous for many reasons, can you imagine the time and cost it would take to implement this and what a costly burden this would be to the American rancher? Isn’t it funny that that Dept. doesn’t want foreign cattle identified? Who is to say what the[y] have been fed or what their health standards are[?] The consumers would like to know!
• We do not possess computer nor believe the use of one would be an advantage vs. the hassle they cause. Our operation is family business, started in 1890. This operation has worked well despite increasingly problematic government intervention. We are opposed to any new form of this intervention in our business. New Mexico has brand laws. We feel this is plenty identification.
• Too much expense, trouble and invasion of privacy.
• It does not make any money.
• My operation is simply a retirement hobby. I keep a few cows for my pleasure.
• Technology has outpaced cost-effectiveness so far. It will be costly to implement an electronic identification system at the ranch level. Maybe, a system could be implemented at the feedlot or packer levels. The logistics at the feedlot, availability of handling ease, etc., may make this a possibility. Too many ranches are not set up to handle this kind of system.
• Ridiculous, bureaucratic mess—too much government red tape.
• Don’t want to.
• Matching calves to mothers nearly impossible—also don’t have scales due to remote location.
• Computer crashed—records lost except paper backup.
• Unnecessary, I mentally know the individual performance.
• Written records are adequate.
• The only record keeping I do is the outgoing weight and price per pound.
• Current records have so far been adequate.
• It is a lot of baloney!
• Our records are visual and memory from watching them all year.

Region was defined using the county location number provided by USDA-NASS for each survey respondent.

Table 27 presents the results for size class versus reasons for not keeping individual animal performance records. Approximately 20 percent of ranch operators who reported no cattle at the time of the survey, as well as operators of the largest ranches, indicated that individual animal record keeping was too costly. Larger ranchers were slightly more likely to report that they didn’t have time to do much record keeping, although this result was not significantly different from that for most of the other size classes. Twenty percent of the largest ranchers responded that they were “too small an operation” to require a lot of records, and this result was significantly different from the larger percentages of smaller ranchers who agreed. Almost 60 percent of the largest ranch operators indicated that they “don’t need individual animal records” in their operation, significantly more than from most of the other size categories—all of which had smaller proportions of respondents who indicated that they didn’t need individual animal records.

There were fewer patterns in reason for not keeping individual animal records relative to the region of the state where a respondent lived (Table 28). Respondents in the southeast stated significantly more often than those in the southwest that they didn’t have time for record keeping. Forty-four percent of ranchers from the northeast reported that they didn’t need individual animal records in their operation, significantly more than gave this response from the northwest. However, other differences by region in reason for not keeping individual animal performance records were not significant statistically.

Table 29 presents the results for size class versus reasons for not keeping electronic individual animal performance records. Twenty-four percent of the largest ranch operators reported that “it costs too much” to keep electronic performance records, and this result was significantly different from the responses of the smaller ranch operators. One-fifth of the respondents from the largest ranches also reported that they didn’t have time for electronic record keeping, significantly more than from the smaller ranches. A significantly larger percentage of the operators of ranches with 100–199 animals stated their lack of skill at using computers as a reason for not keeping electronic records, compared to the percentage of ranchers with 1–49 cattle who checked this reason. Three-fourths of the smallest ranchers—significantly more than from the other size groups—reported they were “too small” to need

**Table 27. Respondents' reasons for not keeping individual animal performance or production records, percentages for total cattle size categories.** <sup>1</sup>

	n	It costs too much. (%)	I don't have time to do much record keeping. (%)	We are too small an operation & don't need a lot of records. (%)	We just haven't gotten around to it. (%)	We don't need individual animal records in our operation. (%)
<b>TOTAL CATTLE:</b>						
0 animals	18	22.22 <sup>b</sup>	16.67 <sup>abc</sup>	77.78 <sup>ab</sup>	5.56 <sup>a</sup>	33.33 <sup>ab</sup>
1–49 animals	76	5.26 <sup>a</sup>	7.89 <sup>a</sup>	78.95 <sup>a</sup>	3.95 <sup>a</sup>	22.37 <sup>b</sup>
50–99 animals	40	10.00 <sup>ab</sup>	12.50 <sup>ac</sup>	60.00 <sup>b</sup>	12.50 <sup>a</sup>	37.50 <sup>ab</sup>
100–199 animals	39	7.69 <sup>ab</sup>	23.08 <sup>bc</sup>	53.85 <sup>b</sup>	12.82 <sup>a</sup>	33.33 <sup>b</sup>
200+ animals	59	20.34 <sup>b</sup>	28.81 <sup>bc</sup>	20.34 <sup>c</sup>	11.86 <sup>a</sup>	57.63 <sup>a</sup>

<sup>1</sup> = Percentages with the same letter in the same column are not significantly different at  $p < 0.05$ .

**Table 28. Respondents' reasons for not keeping individual animal performance or production records, percentages for New Mexico regions.** <sup>1</sup>

	n	It costs too much. (%)	I don't have time to do much record keeping. (%)	We are too small an operation & don't need a lot of records. (%)	We just haven't gotten around to it. (%)	We don't need individual animal records in our operation. (%)
<b>REGION:</b>						
Southwest	39	15.39 <sup>a</sup>	10.26 <sup>a</sup>	53.85 <sup>a</sup>	7.69 <sup>a</sup>	35.90 <sup>ab</sup>
Southeast	46	17.39 <sup>a</sup>	28.26 <sup>b</sup>	58.70 <sup>a</sup>	10.87 <sup>a</sup>	39.13 <sup>ab</sup>
Northwest	50	8.00 <sup>a</sup>	18.00 <sup>ab</sup>	62.00 <sup>a</sup>	12.00 <sup>a</sup>	22.00 <sup>a</sup>
Northeast	98	10.20 <sup>a</sup>	14.29 <sup>a</sup>	54.08 <sup>a</sup>	7.14 <sup>a</sup>	43.88 <sup>b</sup>

<sup>1</sup> = Percentages with the same letter in the same column are not significantly different at  $p < 0.05$ .

**Table 29. Respondents' reasons for not keeping electronic individual animal performance or production records, percentages for total cattle size categories.**

	n	It costs too much.	I don't have time to do much record keeping.	I'm not skilled in using computers.	We are too small an operation & I don't need computer-based records.	We just haven't gotten around to it..	We don't need individual animal records in our operation.
<b>TOTAL CATTLE:</b>							
0 animals	19	15.79 <sup>ab</sup>	15.79 <sup>ab</sup>	15.79 <sup>ab</sup>	73.68 <sup>ab</sup>	5.26 <sup>a</sup>	42.10 <sup>abc</sup>
1–49 animals	80	7.50 <sup>b</sup>	6.25 <sup>a</sup>	8.75 <sup>b</sup>	75.00 <sup>a</sup>	5.00 <sup>a</sup>	21.25 <sup>c</sup>
50–99 animals	38	7.89 <sup>ab</sup>	10.53 <sup>ab</sup>	21.05 <sup>ab</sup>	47.37 <sup>bc</sup>	7.89 <sup>a</sup>	30.47 <sup>ab</sup>
100–199 animals	46	6.52 <sup>b</sup>	15.22 <sup>ab</sup>	26.09 <sup>a</sup>	41.30 <sup>c</sup>	8.70 <sup>a</sup>	26.09 <sup>bc</sup>
200+ animals	68	23.53 <sup>a</sup>	19.12 <sup>b</sup>	19.12 <sup>ab</sup>	16.18 <sup>d</sup>	14.68 <sup>a</sup>	52.94 <sup>a</sup>

<sup>1</sup> = Percentages with the same letter in the same column for each reason are not significantly different at  $p < 0.05$ .

**Table 30. Respondents' reasons for not keeping electronic individual animal performance or production records, percentages for New Mexico regions.<sup>1</sup>**

	n	It costs too much. (%)	I don't have time to do much record keeping. (%)	I'm not skilled in using computers (%)	We are too small an operation & don't need a lot of records. (%)	We just haven't gotten around to it. (%)	We don't need individual animal records in our operation. (%)
<b>REGION:</b>							
Southwest	44	18.18 <sup>a</sup>	6.82 <sup>b</sup>	18.03 <sup>a</sup>	45.46 <sup>a</sup>	9.09 <sup>a</sup>	29.55 <sup>ab</sup>
Southeast	48	18.00 <sup>a</sup>	26.00 <sup>a</sup>	18.00 <sup>a</sup>	48.00 <sup>a</sup>	12.00 <sup>a</sup>	36.00 <sup>ab</sup>
Northwest	47	12.50 <sup>a</sup>	16.67 <sup>ab</sup>	16.67 <sup>a</sup>	58.33 <sup>a</sup>	8.33 <sup>a</sup>	22.92 <sup>a</sup>
Northeast	108	8.18 <sup>a</sup>	7.27 <sup>b</sup>	17.27 <sup>a</sup>	46.36 <sup>a</sup>	7.27 <sup>a</sup>	41.82 <sup>b</sup>

<sup>1</sup>= Percentages with the same letter in the same column are not significantly different at  $p < 0.05$ .

computer-based records. More than half (53 percent) of the 200+-animal ranches indicated that they didn't need individual animal records, with smaller percentages of respondents from all other size groups stating this reason.

Regional differences were apparent in reason for not keeping electronic individual animal records (Table 30). Ranchers in the southeast were significantly more likely to state that they didn't have time for record keeping than were those in the northeast or southwest. Among respondents from all regions, northeast ranchers were most likely to report that they didn't need individual animal records in their operation, although their response was significantly different only from that of northwest ranchers.

## DISCUSSION AND IMPLICATIONS

A mail survey of New Mexico cattle producers was conducted in late 2004 with the assistance of USDA-NASS. The sample of 768 cow-calf operators was randomly selected; of these, 307 returned usable questionnaires to NMSU. The sample was stratified by size group (i.e., number of cows), with the four size groups represented in the returned questionnaires in close proportion to their percentages of the total sample. The respondents were primarily male, cow-calf only, sole proprietorship ranchers, with one or two herds, ranching at one to three different locations. The mean age of the respondents was almost 60 years, with a mean of more than 38 years of involvement in ranching. Their educational attainment was high, and their ethnicity was primarily Anglo, with one-fourth of the respondents indicating they were Hispanic or Native American.

Thirty-eight percent of the respondents reported that their ranch operation comprised two or three different locations, while 8.5 percent indicated that their ranch operation included four or more sites. Almost 35 percent of the respondents indicated that their ranch operation consisted of two or more herds. These results point to the complex nature of cow-calf production in New Mexico, where a single ranch's activities may be carried out in multiple settings. Assignment of a single premises registration number to such a ranch would likely mean the quarantine of the entire ranching operation if a diseased animal is traced back to that premises number. A very large surrounding geographic area (probably multi-county) would then be subject to quarantine and movement control. An alternative would be to assign multiple premises numbers. However, this would be more complicated, would require additional effort, and could result in a higher level of data errors. The difficulty would be compounded by the multiple brands in use by approximately 30 percent of the respondents.

A diversity of land resources are used by the respondent ranchers, with cattle potentially moving, in their lifetimes, among owned deeded acres, rented deeded acres, BLM or Forest Service allotments, and state or tribal lands. The New Mexican ranching industry would be less vulnerable to wide-scale quarantine and movement control, in the event of a disease traceback, if individual ranches were assigned multiple premises registration numbers. However, if costs are attached to each premises registration number (such as has been proposed in Texas<sup>20</sup>) cow-calf producers will have a clear disincentive to register multiple premises.

From analysis of the survey results, generalizations can be made about the present circumstances of animal

<sup>20</sup>U. S. Kelton. "Stockmen's Gathering Concludes Animal ID Scheme Is Unworkable." In *Livestock Weekly*, 23 March 2006.

identification in New Mexico. Branding and traditional ear-tagging are the current dominant, accepted forms of animal identification: more than 90 percent of the respondents reported they used branding as a means of animal identification, while almost half said they used ear tags.<sup>21</sup> Only one respondent indicated use of RFID ear tags. Enthusiasm for electronic record-keeping was limited. Two-thirds of the ranchers who responded to the survey said they did not keep individual animal performance or production records. Ranchers who kept records primarily kept paper records only, though eight respondents (2.6 percent) stated they used downstream cattle performance data as a management tool. Numerous reasons were given for not keeping individual animal records (including electronic records), but more than half of the respondents said their ranching operation was too small for record keeping. Given the opportunity to offer open-ended reasons, several reported that their memories were sufficient for record keeping. Several comments also related to skepticism of computer-based records and technology.

Overall, the results of this survey lead us to conclude that there is a low level of interest in individual animal record keeping and performance analysis among members of the New Mexico cow-calf industry. The National Animal Identification System is being promoted as worthwhile to livestock producers because of performance record-keeping and marketing opportunities, although USDA-APHIS notes that the agency is focused on animal identification as a means to control disease.<sup>22</sup> Identification technology vendors also promote their products based on their abilities to improve management and marketing. However, the assumption that cow-calf producers' business-oriented motivations will lead to widespread voluntary adoption of management-intensive animal identification technologies is not supported by re-

search (either in New Mexico, or in the entire country).

Research from other states also indicates relatively low management intensity among livestock producers. For example, a 2005 survey of Wyoming livestock producers found that 53 of 145 respondents, or 36.5 percent, used animal identification as an annual management practice.<sup>23</sup> Results for Montana ranchers who participated in NAHMS were reviewed by Paterson, who indicated that 27 percent of Montana ranchers made use of data collected from where their calves are finished.<sup>24</sup> In a survey of Iowa beef producers, Lawrence and Schuknecht found that 25.7 percent of cow-calf producers used computerized cow herd performance records.<sup>25</sup>

It is interesting to contrast the New Mexico survey results presented in this report, the NAHMS results, and survey results from other states with a *Beef Magazine* survey conducted in June 2005.<sup>26</sup> According to the magazine, 83.4 percent of cattle producers who responded to the survey individually identified their cattle and 12.3 percent used electronic ID tags. The readership of *Beef Magazine* likely includes a large percentage of cattle producers who practice intensive management, have traditional income objectives from ranching, and actively use performance data in their management decisions.

Vendors of electronic animal identification technology strongly emphasize the management benefits of using their technology. The vendors hope that cattle producers are interested in the management information that can be collected, catalogued, and analyzed using their technologies. Thus, they are attempting to market their technologies based on attributes above and beyond the data collection necessary for compliance with NAIS. Technology vendors and others assume that in a voluntary identification system cow-calf operators will be mo-

---

<sup>21</sup>This is the expected result given New Mexico's stringent livestock brand laws (which include movement permitting), and the 10% of respondents who reported that they don't brand is surprising. Their livestock most likely are kept in backyard operations and never moved from the location of their birth.

<sup>22</sup>U.S. Department of Agriculture, Animal and Plant Health Inspection Service. *National Animal Identification System (NAIS), Draft Program Standards*, 25 April 2005.

<sup>23</sup>B.A. Sarchet. *Pilot Survey and Analysis of Wyoming Cattle Production (2004)*, 3 May 2005. Department of Agricultural and Applied Economics, University of Wyoming, Laramie, WY. Available online: [http://agecon.uwyo.edu/WYLivestock/2005\\_05\\_03\\_Report\\_PartA.pdf](http://agecon.uwyo.edu/WYLivestock/2005_05_03_Report_PartA.pdf).

<sup>24</sup>Paterson, J. *Management of the Cow Herd: Survey Responses of the Montana and U.S. Rancher*, no date. Animal and Range Sciences Department, Montana State University, Bozeman, MT. Available online: [http://www.animalrangeextension.montana.edu/Articles/Beef/herd\\_mgt.htm](http://www.animalrangeextension.montana.edu/Articles/Beef/herd_mgt.htm)

<sup>25</sup>J.D. Lawrence and S. Schuknecht. *Iowa Beef Producer Profile, 2005: A Survey of Iowa Cow-calf and Feedlot Owners by the Iowa Beef Center*, no date. Iowa Beef Center at Iowa State University. Available online: <http://www.iowabeefcenter.org/content/2005SurveyReport.pdf>.

<sup>26</sup>*Beef Magazine*, Volume 41, No. 11, July 25, pages 28-29. "What You Told Us." Available online: [http://beef-mag.com/mag/beef\\_told\\_us/](http://beef-mag.com/mag/beef_told_us/).

tivated to use electronic animal identification because of the potential benefits of additional productivity data and the possibility that calf buyers are likely to discount cattle that cannot be verified as to source or origin. Vendors and others are assuming that cattle producers have traditional business-oriented motivations, are concerned about individual animal productivity, and will use such data to create a comparative advantage over other producers.<sup>27</sup>

Whether voluntary or mandatory, technology and management changes will be recommended by NAIS. Some producers may opt to buy their own electronic identification technology and incorporate management information available through an electronic identification system into their existing management processes. Other producers may choose to contract with a third party (such as a veterinarian or sale barn) for collection and processing of traceability information. Blasi et al. (2003) conclude that because the average U.S. cow herd consists of 40 cows, the majority of cow-calf operations will likely not be able to economically justify an investment in electronic animal identification technology (which could range from \$4–\$25/head/year depending on herd size).<sup>28</sup> Mark (2004) assumes that smaller cow-calf producers will contract with third parties for electronic animal identification and traceability, and estimates that per head costs for animal identification would be less than \$5.00/head/year under such arrangements.<sup>29</sup>

The New Mexico cow-calf sector, like the national cow-calf sector, comprises a large number of relatively small operations currently unenthusiastic about adopting new technologies such as individual animal identification methods. Many producers are not motivated by traditional business objectives, and are instead primarily motivated by lifestyle objectives. Gentner and Tanaka (2002) provided additional insight into the motivations of western public lands ranchers and found that 44.5% of the ranchers were “hobbyists.” They also showed that business-oriented motives are not strongly held by a

majority of western ranchers. Thus, management information leading to increased profits is probably a low priority for many cow-calf producers (i.e., almost half of western public lands ranchers). Furthermore, management-intensive technologies or animal identification services are unlikely to be voluntarily purchased, adopted, or successfully used by small and part-time cattle producers. Professional cattle producers who earn the majority of their income from their cattle enterprises may be more interested in additional productivity data for individual animals, and are relatively more likely to be interested in adopting and using animal identification technology than hobbyist or residential/lifestyle ranchers. But it is not a given that all commercially-motivated cow-calf producers are interested in individual animal identification. The authors have heard anecdotal reports from large New Mexico cow-calf producers who do not individually identify all or any of their animals because they sell so many calves it isn't cost effective to identify each animal, or because they “don't like the look” of ear tags on their cattle. Our survey of New Mexico cow-calf producers found that one-fifth of the largest ranchers believed that they were “too small” for individual animal record keeping and that it “costs too much”.

## CONCLUSIONS

The cow-calf industry throughout the United States is characterized by a high percentage of small, lifestyle-oriented, consumption-motivated producers. Management-intensive technologies do not have a significant role in these types of cattle operations. Thus, it appears that the technology promoted by NAIS is inconsistent with the goals of the majority of U.S. cow-calf producers. Furthermore, the results of the survey reported here, census data, and other surveys all indicate that individual animal identification (particularly electronic) has little intrinsic value to much of the nation's cow-calf industry. Ishmael, Blasi and Spire (2005) have concluded that the worth of individual animal ID to members of the cattle

---

<sup>27</sup>Company mission/vision statements of various RFID technology vendors include the following terms or phrases: “increased commodity value”; “increase producer profitability”; “product consistency”; “management efficiency”; “improved cattle management techniques”; “assist cattle producers in maintaining cattle production, performance and marketing records”; “improve the financial performance of their enterprise”; “increased profits”; “sound and profitable beef herd management decisions”; “increase their profitability” (Beef Stocker USA 2005 Survey of the Animal Identification Industry. Available online: <http://beefstockerusa.org/rfid/grid.htm>).

<sup>28</sup>Blasi, D.A., K.C. Dhuyvetter, M.F. Spire, M.P. Epp, and B.B. Barnhardt. 2003. *A Guide for Electronic Identification of Cattle*. Kansas State University Agricultural Experiment Station and Cooperative Extension Service.

<sup>29</sup>Mark, D.R. 2004. *Effects of Animal Identification on Cattle Market Structure*. Western Extension Marketing Committee, Livestock Marketing Information Center, and Western Center for Risk Management Education WEMC FS#9-04. Available online: <http://www.lmic.info/memberspublic/animalID/IDframe.html>.

industry is only what they can get out of it for their own management purposes.<sup>30</sup> This conclusion is based on those authors' observation that few buyers are demanding or paying for verification of cattle source and process verification. Thus, given the management profile of a large percentage of the New Mexico and U.S. cow-calf industries, we conclude that individual animal ID has very little value to the producer.

NAIS is a critical wedge issue between the commercially- or business-oriented segment of the U.S. cattle industry and the lifestyle-oriented segment. Lifestyle-oriented cow-calf producers do not tend to be highly motivated by traditional economic incentives. They have few incentives to adopt new technologies. Furthermore, natural biological limits in cattle have prevented significant productivity increases over the last century in production of beef as compared to other livestock species. In the beef cow-calf sector, as opposed to in hogs or poultry, there are few incentives or opportunities to use, adopt, or exploit technological advances.

In investigating the future of new technologies in the beef cow-calf sector, it is pertinent to consider the U.S. dairy industry. There were several quality-related factors that led to widespread adoption of advanced technology throughout the dairy industry. The dairy processing sector wanted more Grade A milk because it was less costly to process and gave them the flexibility to market the Grade A milk for either fluid or manufacturing use. The Grade B market was the market of last resort for the lowest quality milk, and there were strong incentives for farmers to invest in the technologies necessary to produce Grade A milk. Yet universal adoption of new technologies is difficult to achieve. Even with all the forces for technology upgrading operating in the U.S. dairy industry over the last half-century, a 2002 survey of Vermont dairy farms found that pail systems continue to be used on 7.5% of the state's dairy farms.<sup>31</sup>

Changes in quality control in farm level milk production were driven by price differentials and health concerns. The result was an upgrading of dairy farm management through technology and education, marketing infrastructure, scientific production practices, Dairy Herd Improvement Association efforts, genetic improvements, reduction in labor requirements on dairy farms and in milk transportation and processing, and concen-

tration in the dairy industry. Retailing shifted from home delivery of bottled milk to an integrated national market for fluid milk and milk products. Assembly of dairy products in the U.S. is now accomplished with much larger and efficient units than at any time in the history of the industry. This shift seems unlikely to occur in the cow-calf sector anytime soon.

Narrow adoption of "sophisticated" production technologies, limited increases in cow-calf producer efficiency measures, and the continued small average herd size can be attributed to the lifestyle motivations of many cow-calf producers, the physiology of the beef animal, and the land-extensive production processes. A large number of cow-calf producers are not primarily motivated to maximize production or profits, particularly if these objectives conflict with lifestyle, values, or ethical choices. Because of the diversity of operations and motivations within the North American cattle industry, NAIS will need to accommodate many conflicting objectives. NAIS currently appears to be directed to the interests of the beef and cattle industry beyond the farm (or ranch) gate. If NAIS is to become mandatory, cow-calf sector structure, diversity, and cost issues will be major impediments to system implementation.

A mandatory NAIS could accelerate pressure for structural change in the U.S. beef/cattle industry to fewer and larger production units, as has happened in the U.S. dairy industry. However, it is our contention that NAIS and its proponents have yet to confront the deeply ingrained socio-cultural aspects of cow-calf production and traditional small-scale lifestyle agriculture in the United States. It also appears that proponents of NAIS have a rather narrow view of the structure, characteristics, and objectives of a significant portion of the nation's beef cow-calf industry. Whether this is intentional or unintentional can be debated and should probably be a subject of further research.

## ACKNOWLEDGMENTS

This research was made possible through the support of New Mexico State University's Agricultural Experiment Station and the assistance of the U.S. Department of Agriculture National Agricultural Statistics Service New Mexico Statistical Office.

---

<sup>31</sup>B. Parsons. 15 February 2003. Volume 67, No. 4. "Survey Looks At Technology Use On Vermont's Farms." In *Agriview Online*. Available online: <http://www.uvm.edu/extension/agriview/av03feb15bp.htm>.

<sup>30</sup>W. Ishmael, D. Blasi, and M. Spire. April 2005. *Management Drives I.D. Decisions*. Stocker Facts, a product of [beefstockerusa.org](http://beefstockerusa.org). Available online: <http://beefstockerusa.org/factsheets/ManagementDrives.pdf>.

## LIST OF TABLES

	Page
Table 1. Beef cows and heifers that had calved, 2002 Census of Agriculture, New Mexico .....	5
Table 2. Beef cows and heifers that had calved, 2002 Census of Agriculture, United States .....	5
Table 3. Distribution of western public lands ranchers by cluster (n = 1,052) (Gentner and Tanaka, 2002) .....	6
Table 4. Distribution of survey sample and respondents for New Mexico animal identification survey.....	6
Table 5. Respondents' reported cattle numbers, as of July 1, 2004.....	8
Table 6. Total sheep and goats reported by respondents, as of July 1, 2004 .....	8
Table 7. Total horses reported by respondents, as of July 1, 2004.....	8
Table 8. Number of different locations for the respondents' ranches.....	8
Table 9. Respondents' types of ranching operations .....	8
Table 10. Respondents' number of herds .....	8
Table 11. Respondents' number of brands available and brands currently in use .....	8
Table 12. Respondents' type of ranch business organization .....	8
Table 13. Respondents' age and length of ranching involvement.....	9
Table 14. Educational attainment of principle ranch operator.....	10
Table 15. Undergraduate college majors of ranch operators.....	10
Table 16. Graduate college majors reported for ranch operators .....	10
Table 17. Gender of ranch operators .....	10
Table 18. Ethnic background of ranch operators .....	10
Table 19. Respondents' ranch land resources .....	11
Table 20. Visual animal identification methods currently used on respondents' ranches.....	12
Table 21. Respondents' individual animal performance or production records.....	12
Table 22. Maintenance of individual animal performance or production records.....	12
Table 23. Respondents' reasons for not keeping individual animal performance or production records ...	12
Table 24. "Other" reasons given by respondents for not keeping individual animal performance or production records .....	13
Table 25. Respondents' reasons for not keeping electronic individual animal performance or production records .....	13
Table 26. "Other" reasons given by respondents for not keeping electronic individual animal performance or production records.....	14
Table 27. Respondents' reasons for not keeping individual animal performance or production records, percentages for total cattle size categories.....	15
Table 28. Respondents' reasons for not keeping individual animal performance or production records, percentages for New Mexico regions.....	15
Table 29. Respondents' reasons for not keeping electronic individual animal performance or production records, percentages for total cattle size categories.^ .....	15
Table 30. Respondents' reasons for not keeping electronic individual animal performance or production records, percentages for New Mexico regions.....	16

**APPENDIX**

**Survey Questionnaire**



**NEW  
MEXICO  
STATE  
UNIVERSITY**

**ANIMAL IDENTIFICATION  
QUESTIONNAIRE  
August 2004**

Please complete and return this questionnaire in the enclosed envelope which does not need a stamp. **Your individual questionnaire is confidential and used only with other reports for statistical purposes.**

Thank you for your cooperation.  
Sincerely,

- 
- How many different locations are parts of your overall ranching operation?  
Single Location       2-3 locations       4-6 locations       7 or more locations
  - Please provide an estimate of the number of acres (**by type**) which are part of your ranching operation.
    - Deeded acres owned: \_\_\_\_\_
    - Leased or rented land in acres:  
 None \_\_\_\_\_       Privately owned \_\_\_\_\_       State Land \_\_\_\_\_  
 BLM \_\_\_\_\_       Forest Service \_\_\_\_\_       Other \_\_\_\_\_  
 Allotment \_\_\_\_\_       Allotment \_\_\_\_\_       government \_\_\_\_\_
  - Which of the terms below best describes your type of ranching operation?  
 Cow-calf only       Stocker only       Sheep only  
 Cow-calf and Stocker       Stocker and Feedlot only       Cow/Calf/Sheep  
 Cow-Calf, Stocker & Feedlot       Feedlot only       Multiple different systems
  - How many animals were present on your ranch (**at all locations**) as of July 1, 2004 ?  
 Total number of cattle \_\_\_\_\_       Total bulls \_\_\_\_\_  
 Total cows \_\_\_\_\_       Total calves (less than 1 year) \_\_\_\_\_  
 Total beef cows \_\_\_\_\_       Total sheep \_\_\_\_\_  
 Total dairy cows \_\_\_\_\_       Total horses \_\_\_\_\_

5. A "herd" of animals is usually thought of as a group of animals feeding or living together. Using this definition, does your ranching operation consist of more than one herd of animals?

- Yes (*Go to Question #6*)                       No (*Go to Question #7*)

6. How many total herds are part of your ranching operation?

\_\_\_\_\_   
 Herd(s)

7. How many different brands do you have available for use in your ranching operation?

\_\_\_\_\_   
 Brand(s) available

8. How many different brands are **currently** in use by your ranching operation?

\_\_\_\_\_   
 Brand(s) **currently** in use

9. How is your ranching operation currently organized?

- Sole proprietor                       General partnership                       Limited partnership  
 Sub-chapter S Corporation                       Corporation                       Limited liability company

10. How old is the principle operator of your ranch?

\_\_\_\_\_   
 Years

11. How many years has the principle operator of your ranch lived at your current residence?

\_\_\_\_\_   
 Years

12. How many years has the principle operator of your ranch been involved in ranching?

\_\_\_\_\_   
 Years

13. How many years has the principle operator of your ranch been involved with your current ranching operation?

\_\_\_\_\_   
 Years

14. What is the highest level of education completed by the principle operator of your ranch?

- Some grade school                       Some college  
 Completed grade school                       Completed College→Major \_\_\_\_\_  
 Some high school                       Some graduate work  
 Completed high school                       A graduate degree→Major \_\_\_\_\_

15. What is the gender of the principle operator of your ranch?

- Female                       Male

16. What is the race or ethnic background of the principle operator of your ranch?

- African American                       Hispanic  
 Anglo                       Native American  
 Asian American                       Other

17. What types of visual animal identification do you currently use in your ranching operation?

- None
- Tattoos
- Ear Tags
- Branding
- Other (*Please describe*) \_\_\_\_\_

18. What kinds of electronic animal identification technology do you use?

- None
- Bar coded ear tag
- Optical character
- Smart cards
- RFID coded ear tag
- RFID implant
- Other (*Please describe*) \_\_\_\_\_

19. What kinds of biometric animal identification technology do you use?

- None
- Retinal scanning
- DNA
- Other (*Please describe*) \_\_\_\_\_

20. Do you currently keep production or performance records for individual animals?

- Yes (*Go to Question #21*)
- No (*Go to Question #32*)

21. How do you maintain the individual performance records?

- Paper records only
- Computer spreadsheets or database programs with manual entry of data
- Software especially designed for livestock records
- Other (*Please describe*) \_\_\_\_\_

22. If you keep electronic records for individual animals, do you do any of the following?

- Send data to a storage provider via telephone modem
- Send data to a storage provider on a diskette, CD, or other data storage tool
- Use Web-based storage
- Other (*Please describe*) \_\_\_\_\_

23. What percent of your total animals is included in your electronic individual animal record keeping system? \_\_\_\_\_%

24. How satisfied are you with your current electronic individual animal record keeping system?

- Very satisfied
- Satisfied
- Unsatisfied

25. What computer software do you currently use for animal record keeping?

\_\_\_\_\_

26. What software do you currently use for analysis of performance data?

---

27. Are you using performance data on your cattle gathered from other (downstream) users such as backgrounders, feedlots, slaughter plants?

Yes

No

28. What was your total cost to set up your current electronic record keeping system?

---

29. What is the ongoing per head cost of maintaining and operating the record keeping system per year?

---

30. What are some **advantages** of your current electronic record keeping system?

---

---

31. What are some **disadvantages** of your current electronic record keeping system?

---

---

32. If you **do not** currently keep **any** performance or production records for individual animals, please tell us your reasons.

It costs too much.

I don't have time to do much record keeping.

We are too small an operation and don't need a lot of records.

We just haven't gotten around to it.

We don't need individual animal records in our operation.

Other (*Please describe*) \_\_\_\_\_

33. If you **do not** currently keep **electronic** performance or production records for individual animals, please tell us your reasons.

It costs too much.

I don't have time to do much record keeping.

I'm not skilled in using computers.

We are too small an operation and don't need computer-based records.

We just haven't gotten around to it.

We don't need individual animal records in our operation.

Other (*Please describe*) \_\_\_\_\_

**THANK YOU FOR YOUR PARTICIPATION IN THIS SURVEY**

New Mexico State University is an equal opportunity/affirmative action employer and educator. NMSU and the U.S. Department of Agriculture cooperating.

**October 2007**

**Las Cruces, NM**