



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Operation Management Practices on U.S. Ranched-Bison Operations

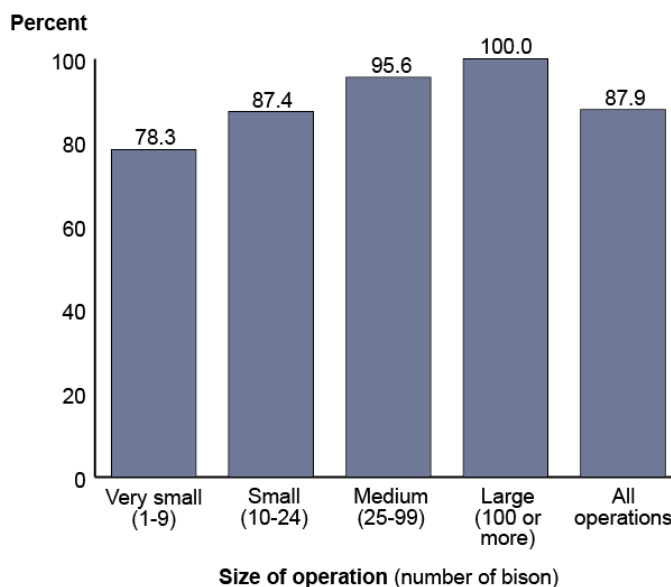
Livestock management practices are integral to an operation's productivity, efficiency, and outcome. One objective of the USDA National Animal Health Monitoring System (NAHMS) Bison 2014 study was to describe current production practices within the U.S. bison industry. This info sheet summarizes results on some common practices, including grazing and pasture management, bison identification, handling, and record-keeping.

NAHMS conducted its first national study of the U.S. ranched-bison industry in late 2014 and early 2015. All producers who reported having bison during the 2012 Census of Agriculture were eligible to participate in the mail-only study. In September 2014, the National Agricultural Statistics Service mailed the study questionnaire to 2,886 operations across all 50 States. Producers who did not respond within about 3 weeks were sent the questionnaire again. In total, 632 producers returned completed questionnaires and 222 reported that they had no bison (29.6 percent response rate). In general, the questionnaire covered the reference period of July 1, 2013, through June 30, 2014.

Pasture/grazing

Bison herds once migrated freely across the landscape using naturally available food and water resources. Today, ranched-bison herds are confined by fences, making pasture/range management essential. More than 85 percent of operations (87.9 percent) reported that at least some bison were on range/pasture at some point from July 1, 2013, through June 30, 2014 (figure 1).

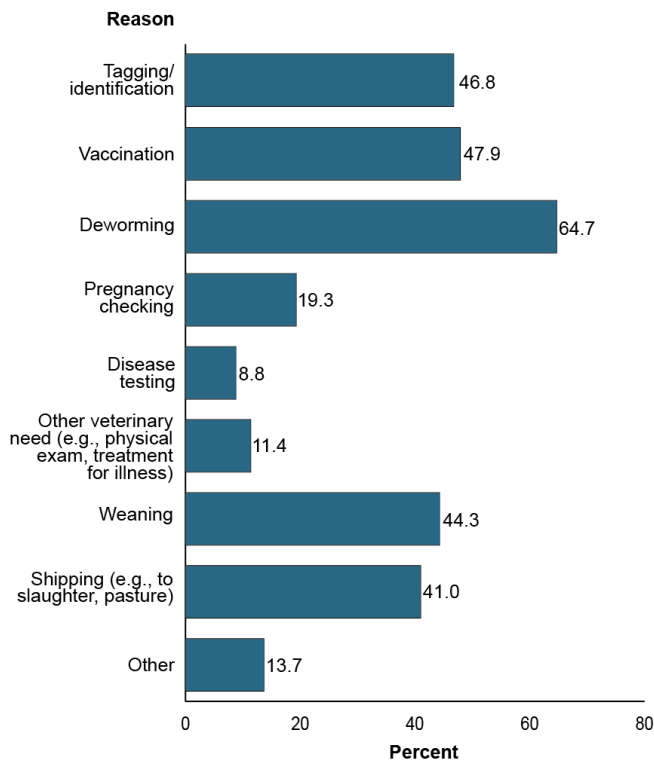
Figure 1. Percentage of operations that had any bison on range/pasture, by size of operation



Round-up

Of the 87.9 percent of operations that kept any bison on range/pasture during the reference period, 60.5 percent rounded up the majority of their pastured bison at least once (27.4 percent, one time; 17.2 percent, two times; 15.9 percent, three or more times). Almost two-fifths of operations that had any bison on range/pasture (39.5 percent) did not round up their bison during the reference period. Producers who kept any bison on range/pasture and rounded up the majority of the operation's pastured bison at least once during the reference period were asked to provide the reason(s) that bison were rounded up most recently. Bison were rounded up for deworming (64.7 percent of operations), vaccination (47.9 percent), tagging/identification (46.8 percent), weaning (44.3 percent), and shipping (41.0 percent) [figure 2].

Figure 2. For the most recent time pastured bison were rounded up as a group from July 1, 2013, through June 30, 2014, percentage of operations by reason(s) bison were rounded up



Grazing strategies are tied to many aspects of operation management, including available dry matter forage, pasture management practices, stocking rate and density, and the intended purpose of the bison.

Stocking rate

Stocking rate refers to the total number of animal units¹ stocked on a farm/ranch in relation to the total number of acres available for grazing. Stocking rate is an important factor in pasture management and in herd success. The quality of pasture and the amount available to bison influence disease transmission, parasite burden, rate of gain, breeding success, and other factors.

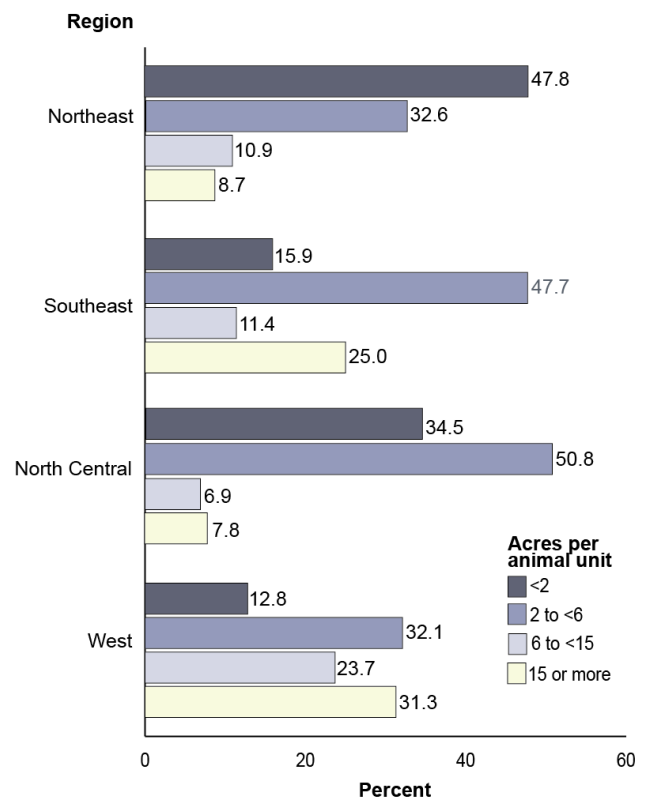
The number of acres needed to graze a bison cow-calf pair depends on local conditions and specific characteristics of the pasture, such as soil conditions, climate, and plant species. These factors are taken into account in determining the number of acres needed for a herd or the carrying capacity of a pasture.

Of the 87.9 percent of operations that kept any bison on range/pasture during the reference period, 21.6 percent had an average stocking rate of less than

¹An animal unit (AU) is typically defined as one mature 1000-lb cow with or without a calf.

2 acres per animal unit, 38.6 percent had 2 to less than 6 acres per animal unit, 17.0 percent had 6 to less than 15 acres per animal unit, and 22.8 percent had 15 or more acres per animal unit. There were no differences in acres per animal unit on pasture by size of operation. As would be expected, stocking rates differed among regions² (figure 3); however, it is important to note that the West region likely varies more than the other regions in terms of geographic, range/pasture, and climatic conditions. More than one-half of operations in the West region (55.0 percent) provided 6 or more acres per animal unit.

Figure 3. For the 87.9 percent of operations that kept any bison on range/pasture, percentage of operations by acres per animal unit, and by region



²Regions:

Northeast: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, West Virginia

Southeast: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia

North Central: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Wisconsin

West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, Wyoming

Grazing system

Grazing system refers to an operation's approach to managing bison on pasture. The objective is to optimize the productivity of the pasture while meeting the nutritional needs of the bison. Pasture management considers forage rest and recovery time and frequency of pasture rotation.

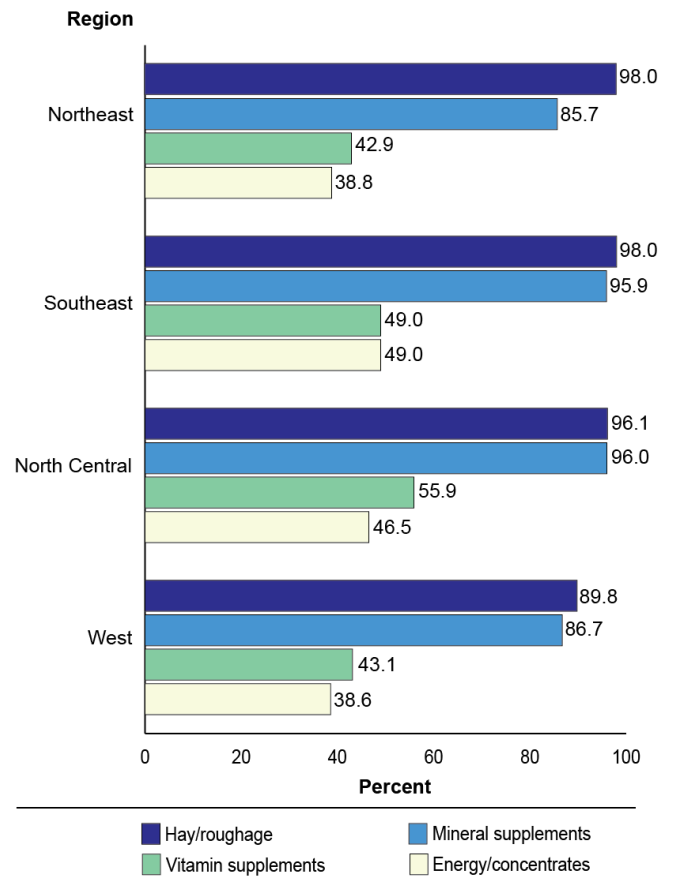
Of the 87.9 percent of operations that kept any bison on range/pasture from July 1, 2013, through June 30, 2014, not quite one-half (46.3 percent) used a rotational system as their primary grazing system and one-half (50.5 percent) used a continuous grazing system. Less than 4 percent used an "other" grazing system as their primary grazing system and specified "other" as a combination of rotational and continuous systems.

Nutrition on pasture

Bison on pasture may be provided with additional nutrition based on energy requirements for growth, breeding, or gestation; climate characteristics or extremes such as temperature or drought; the quality and productivity of soil/pasture; season; or marketing strategy (e.g., grain finishing). Of the 87.9 percent of operations that kept any bison on range/pasture during the reference period, 92.9 percent provided hay/roughage and 89.9 percent provided mineral supplements to bison while they were on range/pasture. Not quite one-half (46.8 percent) provided vitamin supplements and 41.7 percent provided energy/concentrates (such as grain).

As expected, there were some regional differences in the types of nutrition offered to bison on pasture. A lower percentage of operations in the West region (89.8 percent) than in the Northeast (98.0 percent) or Southeast (98.0 percent) regions provided hay/roughage to bison on range/pasture (figure 4). A lower percentage of operations in the West region (86.7 percent) than in the North Central region (96.0 percent) provided mineral supplements to bison on range/pasture.

Figure 4. For the 87.9 percent of operations that kept any bison on range/pasture, percentage of operations that ever provided the following items to pastured bison, by region



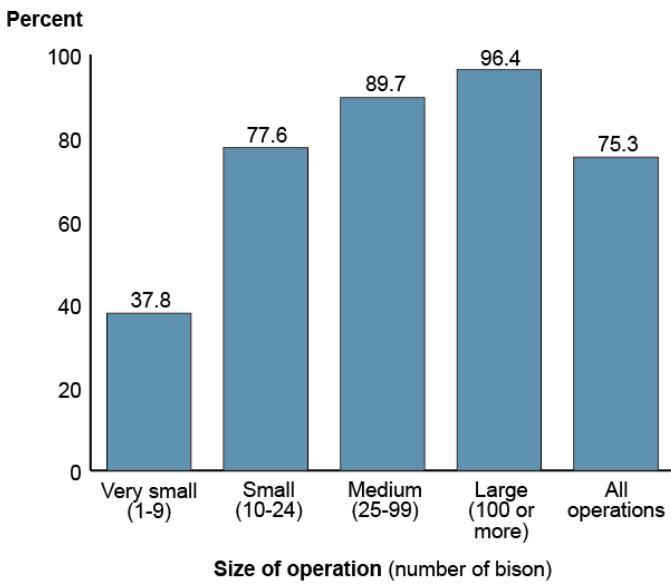
Facilities to handle bison

Handling systems can facilitate safe and efficient capture, sorting, loading or unloading for transportation, disease testing, and treatment of animals. The purpose of a bison operation likely influences its need for and type of equipment and facilities for handling the bison. Almost 70 percent of all operations (69.5 percent) had facilities for handling/restraining bison.

The percentage of operations that had facilities for handling/restraining bison increased as operation size increased, from 48.2 percent for operations with 1 to 9 bison to 97.7 percent for operations with 100 or more bison. Handling facilities and equipment can be designed specifically for bison. Such systems are developed with explicit consideration of bison behavior, size, and conformation. The goals of bison-specific systems are to maximize human and bison safety, increase efficiency in working the animals, and minimize stress on the bison. Of the 69.5 percent of operations with facilities for handling/restraining bison, 75.3 percent had facilities that were designed specifically for bison (figure 5).

Not surprisingly, a lower percentage of operations with 1 to 9 bison (37.8 percent) than operations in the three larger size categories had facilities specifically designed for handling/restraining bison. These differences across operation-size categories are likely due to the financial investment necessary to purchase bison-specific handling systems.

Figure 5. For the 69.5 percent of operations with facilities for handling/restraining bison, percentage of operations with facilities designed specifically for bison, by size of operation

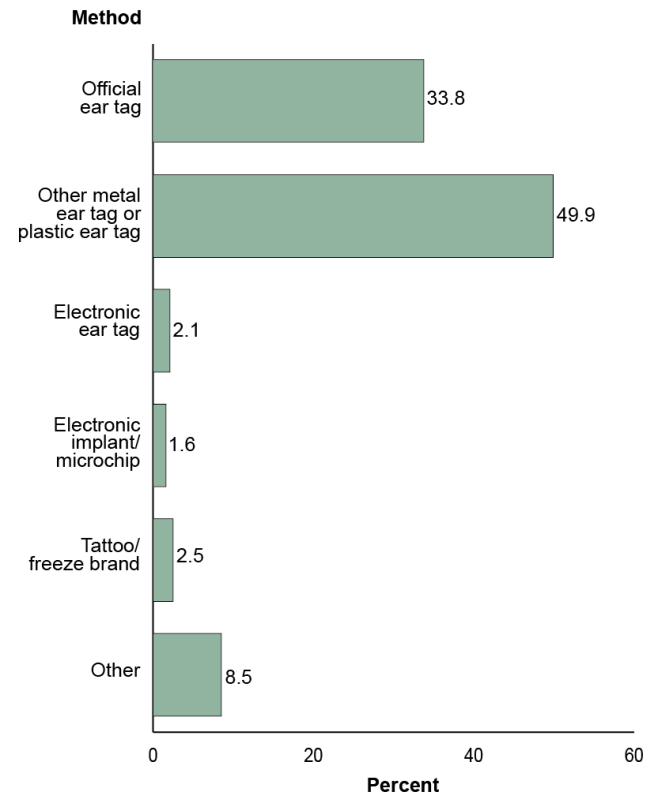


Identification

Unique animal identification can be used to track treatment, medications, performance, and vaccination of individual bison. It can also be critical in responding to diseases, such as tracking exposures to other bison. Overall, 55.9 percent of operations had some type of unique individual-animal ID for some bison (44.1 percent of operations had no bison with unique ID). Nearly two-thirds of very small operations (65.8 percent) had no bison with unique individual-animal ID, and this percentage was higher than for operations in the other size categories. This finding might be because producers on very small operations can tell the animals apart based on physical characteristics or other attributes.

On operations that had any bison with unique individual-animal ID, about one-third of bison (33.8 percent) were uniquely identified with official ear tags and about one-half (49.9 percent) were uniquely identified with other metal or plastic ear tags (figure 6). Less than 3 percent of bison on these operations were identified with electronic ear tags, electronic implants/microchips, or tattoos/freeze brands, and 8.5 percent were uniquely identified via “other” methods.

Figure 6. For the 55.9 percent of operations that had any bison with some type of unique individual-animal ID, operation average percentage of bison identified by the following methods

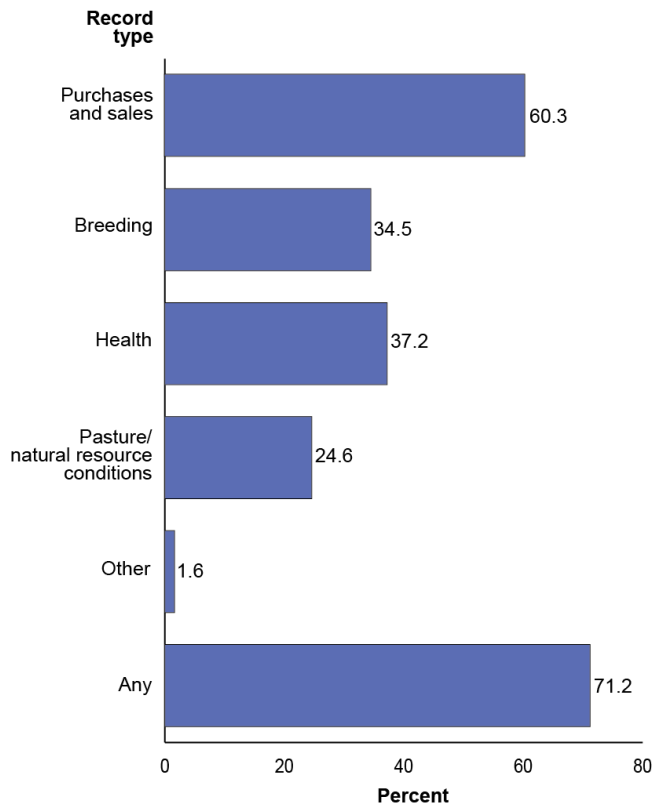


Record-keeping

Good record-keeping is an important part of running a successful livestock operation. Records may be handwritten or electronic, and the types of records kept can be quite diverse, tracking production, financial transactions, pasture and environmental quality, and/or other parameters. Thorough records, such as those related to efficiency, profitability, and performance, can be very helpful in decision-making.

Overall, 71.2 percent of all bison operations maintained some handwritten or electronic medical records for the operation during the reference time period (figure 7). About three-fifths of operations (60.3 percent) maintained records on purchases and sales, a little more than one-third maintained records on health (37.2 percent) and breeding (34.5 percent), and about one-fourth (24.6 percent) maintained records on pasture/natural resource conditions.

Figure 7. Percentage of operations by records maintained (handwritten or electronic form) from July 1, 2013, through June 30, 2014



References

“The ‘Bison Producers’ Handbook: a complete guide to production and marketing.” National Bison Association. 2nd Ed. 2015.

“The Bison Producers’ Handbook: a complete guide to production and marketing.” National Bison Association. Canadian Bison Association. 2010.

For more information, contact:

USDA–APHIS–VS–CEAH–NAHMS
 NRRC Building B, M.S. 2E7
 2150 Centre Avenue
 Fort Collins, CO 80526-8117
 970.494.7000
<http://www.aphis.usda.gov/nahms>
 #737.0619

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720–2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250–9410, or call (800) 795–3272 (voice) or (202) 720–6382 (TDD). USDA is an equal opportunity provider and employer.