

BISON PRODUCTION

LIVESTOCK PRODUCTION GUIDE

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Interest in raising bison as alternative livestock has increased dramatically in recent years. Bison meat has nutritional advantages for the health-conscious consumer. Research (1) has established that bison meat contains 25–30% more protein than beef because it has less fat marbling. Bison is lower in calories, fat, and cholesterol than beef, pork, or skinless chicken (2). Bison meat is usually prepared like beef, but bison has a quicker cooking time and can easily be overcooked.

The American bison is a member of the Bovidae family of ruminants. The misnomer “buffalo” stems from early naturalists’ comparisons of the bison to the African or Asian buffalo. The bison population was just about destroyed in the late 1800s by a government-sanctioned campaign of extermination (intended to starve the “Indians”), but thanks to private efforts by individuals the animal was saved from extinction. There are approximately 350,000 bison in North America today (3).

This publication takes a look at bison production and marketing practices. While not attempting to be comprehensive, it focuses on a number of areas that potential and current bison producers need to consider. It also attempts to show some of the diversity of philosophies and practices currently being evaluated in the bison industry.

REGULATIONS FOR BISON PRODUCTION

Before considering or starting a bison operation, the farmer or rancher needs to know the rules and regulations in their state. Each state has different requirements. Most state Departments of Agriculture regulate bison raised in their states, but in several states the Wildlife Department is in charge of regulations. It is best to

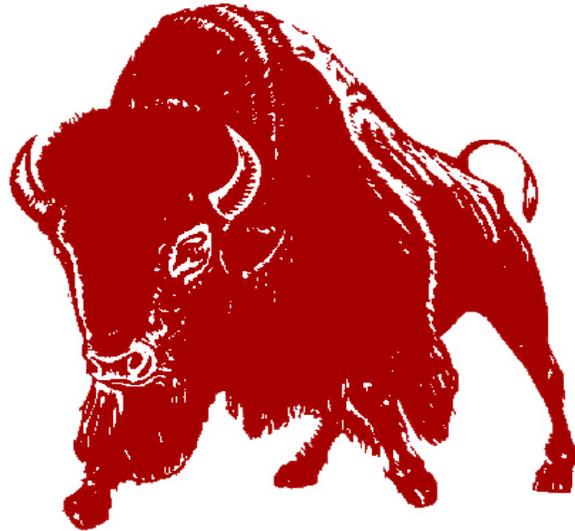


TABLE OF CONTENTS

Regulations for Bison Production	1
Health Issues	2
Bison Meat Inspection and Processing	2
Getting Started	4
Marketing	6
Grass or Grain?	7
Direct Marketing	8
Pasturing Bison	9
Fencing	11
Handling and Transporting Bison	11
Sources of Further Information	13
References	13
Further Resources	14
Websites	14
Video	16
Books	16
Magazines	16
Appendix	17

check with your State Veterinarian for specific information on who to work with in your state. The State Veterinarian's phone number and some general state health requirements can be obtained from your local veterinarian, or found in "Appendix D" at the National Bison Association's website <http://www.bisoncentral.com/nba/gtss_rules.asp>.

Transporting bison across state lines requires health certificates, testing, and in some cases vaccinations. You should consult with your veterinarian or your state veterinary office for rules and requirements on interstate transport of bison. The health certificate must conform to the regulations of the state to which the bison are going. Always check with the destination's State Veterinarian for the current requirements.

HEALTH ISSUES

Parasite control in bison is important. Check with a veterinarian who likes working with bison to get recommendations for a vaccinating, deworming, and health-maintenance schedule for the bison herd. Before anyone (new or established bison producer) buys a bison, they should check out the seller's herd and ask informed questions. It is important to learn as much as possible about bison (and bison diseases) before trying to buy them.

Outbreaks of tuberculosis in bison, deer, and elk on game ranches in Canada and the United States have raised concerns about infectious diseases being transmitted to conventional livestock. Bison are very disease-resistant; however, they are susceptible to many bacterial and viral diseases, as well as parasites, that occur in cattle and other livestock species. Some of these diseases are brucellosis, tuberculosis, anthrax, hemorrhagic septicemia, malignant catarrhal fever (MCF), as well as many others (4).

Brucellosis has been eradicated in most of the United States except for several major sources in free-living elk and bison in the Greater Yellowstone Area and adjacent land. In a very controversial proposal, the National Park Service has set a goal of eliminating brucellosis in bison and elk in the Yellowstone area by 2010. The Park Service's efforts, along with the State of Montana's policy of killing any bison that stray from the park area, have resulted in severe reduction of the U.S. bison herd at Yellowstone.

BISON MEAT INSPECTION AND PROCESSING

Three major food-safety acts regulate the U.S. food supply. These are the Federal Food, Drug, and Cosmetic Act; the Federal Meat Inspection Act; and the Poultry Products Inspection Act. The Agriculture Marketing Act of 1946 (voluntary reimbursable inspection) allows the USDA/Food Safety Inspection Service (FSIS) to inspect exotic animals (5). Most of the U.S. food safety programs are risk-based to ensure that the public is protected from health risks of unsafe foods. Risk assessment is used in estimating the magnitude of the problem faced, and in determining the appropriate risk-management response. However, FSIS regulations governing the slaughter and processing of exotic animals do not require Hazard Analysis and Critical Control Point (HACCP) or a risk assessment (5).

Under the Federal Food, Drug, and Cosmetic Act, the Food and Drug Administration (FDA) protects consumers against impure, unsafe, and fraudulently labeled food. The FDA has inspection authority over any food in interstate commerce, unless the product is regulated by the USDA/FSIS. The regulations require FDA inspection of facilities and processes involved in slaughtering and processing of food. The FDA requires that all food come from an "approved

Recent publicity has increased awareness of Chronic Wasting Disease (CWD, or Mad Deer or Elk diseases) among the general public. CWD has occurred in several Western states' wild populations of deer and elk, as well as on some elk farms in at least five states and Canada. Bison and cattle have never been reported to have CWD; however, some consumers may have heard misinformation and be concerned about CWD crossing from elk to bison or cattle. The bison producer will need to be aware of CWD and prepared to address these concerns.

source and process,” meaning that the facility where the bison was slaughtered and the slaughter process – not the bison itself – must be inspected and approved. Most commonly, the approved source is a licensed food establishment, a federally inspected meat plant, or a state-inspected meat plant (6).

The USDA/FSIS is responsible for inspection of meat, poultry, processed meats, and poultry products in interstate and foreign commerce under the Federal Meat Inspection Act and the Poultry Products Inspection Act. FSIS inspectors examine each animal before and after slaughter for visible defects that can affect safety and quality of meat and poultry products. The Meat Inspection Act and FSIS regulations require ante-mortem and post-mortem inspection of each animal and daily inspection of processing facilities by FSIS inspectors. FDA regulations do not require this intensity of inspection. FDA may inspect facilities and processes once per year (5).

The Federal Meat Inspection Act defines specifically the kinds of animals that must be slaughtered and processed under FSIS inspection. FSIS inspection is required for all cattle, sheep, swine, goats, ratites, and equines. Many animals, including bison, are not mentioned in the Meat Inspection Act. Bison are therefore “non-amenable” (not covered or answerable) under the Federal Meat Inspection Act and are exempt from FSIS requirements for meat inspection for intrastate, interstate, and foreign trade (5).

However, the USDA/FSIS does have a voluntary inspection program for producers who wish to have their bison inspected. The bison producer must pay for the voluntary FSIS inspection. This usually costs about \$40 per hour. In 1991, FSIS determined that it had no legal basis to require labeling “NOT FOR SALE” on non-inspected bison as is required for beef and other “amenable” species (5). However, many meat buyers may demand that the bison they purchase be federally inspected, because they are familiar with the federal requirements for other meats (5).

At present, the FSIS is considering the addition of bison, elk, deer, and other species to the list of animals requiring USDA inspection. Any new requirements would have to be passed by Congress and signed by the president. The USDA’s concept paper, “Extending USDA’s Inspection Program to Non-Amenable/Exotic Species,” presented at a public meeting October 31 – November 1, 2000, is available at <<http://www.fsis.usda.gov/oppde/nacmpi/nov2000/papers/species.htm>>.

A provision of the Federal Meat Inspection Act permits states to have a cooperative agreement with USDA/FSIS, whereby more than half the states have mandatory meat inspection programs that equal the federal standards. The federal law limits state-inspected “amenable” animals to intrastate commerce. Several states mandate inspection of bison and other non-amenable species under their state meat inspection acts.

To illustrate the differences among states in regulating bison inspections and sales, here’s a sampling of four states’ rules (from the National Bison Association’s discussion group, November 2001).

- Kansas and Missouri both provide for state inspections. While Kansas makes bison inspection mandatory and pays for it rather than charging the producer, Missouri does not require inspection and charges \$20 per bison. This means that while uninspected bison can be brought into Missouri and sold, the same uninspected bison could not be sold in Kansas.
- Colorado State Health Department policy states that meat products sold into commerce must be from an “approved source.” This has been interpreted to mean that all meat sold into commerce in Colorado, excepting sale of carcasses, has to be USDA-inspected.
- In Ohio, bison are considered a “voluntary” inspected species. While the Ohio Department of Agriculture does not require inspection of bison for private or retail sales in Ohio, the state’s health department does require that meat sold in retail stores come from inspected sources. Ohio provides free inspection for bison in their state-certified processing facilities, and because it is state-inspected, the bison meat can be shipped interstate.

However, because bison meat is non-amenable, “state-inspected bison meat is eligible for sale in all states, including states with state inspection programs” (6). However, it is important to remember that even if federal law does not require bison to be inspected under the Federal Meat Inspection Act, local or state health codes may prohibit the sale of non-inspected game meat including bison in restaurants and other markets. For a listing of all the state officials in the Cooperative Meat and Poultry Inspection Programs and for additional information about state inspection programs, go to <<http://www.fsis.usda.gov/OFO/hrds/STATE/stateoff.htm>>.

When food products are manufactured with bison as the sole meat ingredient, the product is under the jurisdiction of FDA (7). If the buyer or consumer wants USDA/FSIS inspection of 100% bison products, the meat for these products needs to be processed under the voluntary federal inspection program. These 100% bison products do not bear the round FSIS mark of inspection; instead they bear a triangular voluntary-federal-inspection mark (5).

Bison or other non-amenable meat from an *approved source* may be used in an amenable meat food or poultry food product that bears the USDA mark of inspection (circular mark) (7). The approved sources include: 1) slaughter inspection under provisions of the Agricultural Marketing Act; 2) an approved state inspection program; or 3) a foreign inspection program under control of FDA. Amendable meat food products contain more than 3% raw meat or at least 30% fat from U.S.-inspected and passed cattle, sheep, swine, or goats; amenable poultry food products contain at least 2% cooked U.S.-passed poultry from an amenable species (chickens, turkeys, ducks, geese, ratites, guineas, or squabs) with no bone or skin included. In other words, such a product can contain well over 90% bison meat and bear the appropriate circular FSIS inspection legend since the amenable meat content qualifies for mandatory inspection. Refer to Code of Federal Regulations, Title 9, Volume 2, Part 312, Section 312.2, and Part 381, Section 381.96 (5).

If you have questions or comments pertaining to the USDA or FDA regulations, contact the FDA Industry Activities Staff at (202) 205-5251; Robert Post with the USDA/FSIS Labeling and Consumer Protection Staff at (202) 205-0623; or

Arshad Hussain with the USDA/FSIS Inspection & Enforcement Standards Development Staff at (202) 720-3219.

GETTING STARTED

Before starting a bison enterprise, it is advisable to visit as many existing bison operations as possible, to pick up as many ideas and options as you can. Your bison operation will not be exactly like anyone else’s, but getting varied insights and opinions from others will help in designing for your particular needs.

Carol Klein, of Oakcreek Buffalo Ranch in Missouri, says that management philosophies and practices vary widely within the bison industry. She explains:

Management practices range across a broad field: one producer may dehorn all his buffalo, feed grain, wean babies, rotational graze, use only young bulls, and remove bulls from the herd in the fall. Another producer may run his herd in family groups using older bulls, which are always with the herd, naturally wean babies, not dehorn, and grass feed only. Each producer should look at these management practices and decide for himself, which works for his own farm and philosophy. (8)

The investment in fencing is fairly substantial compared to some livestock enterprises. However, the stock and handling facilities are comparable in cost to other livestock operations. Bison farming is considered a high-risk enterprise by most banks and other agencies. A large owner investment is usually needed to obtain a loan.



The Texas Bison Company's website answers some frequently-asked questions for people interested in bison. They recommend starting with bison calves:

Start small and start with calves! This is the best advice I got, and I'm passing it on. I guarantee that you will have lessons to learn if you have never worked bison before, and adult bison will not be forgiving. With calves you can get in with them and they will get used to you. Maybe eat out of your hand. They will learn not to fear you and like you, and as they will end up the oldest in your herd, the others will learn from them. I would do this all over again. The more time you spend with them the better. However, there will be a time when you have too many animals to go in the pasture with them, or as they grow up they may start to challenge you. Specifically the bulls. And don't even think of approaching a cow and a calf!

Besides, if you buy an adult animal, it may have been a cull, and it could've been due to a bad temperament: (I once bought an adult female bison and ended up with stitches because I had to dive through a barbed wire fence or risk being gored). As the herd grows and you become experienced, then you may take a risk on buying adult animals.

My herd once went through an open gate and roamed 3 miles. After I found them I shook the range cube bucket and my head female led the herd all the way home. That's because she knew me since she was a calf, and since I started out with only 3 calves. I had spent a LOT of time with them in the pasture. Now they are teaching the rest of the herd. Expect that at some time your herd may get out. How would you get them back! I suggest adding a gate to every side of your perimeter fencing. Even if it is a fence line shared with your neighbor. It will make it a lot easier to get your bison back home. (9)

While the beginner's investment in land, stock, and materials can be significant, the yearly maintenance costs of an established herd can be low. A producer probably needs at least 75-100 head to provide a minimum return for a farm family. Herds in Canada average 61 head of bison (10). The article "A Beginner's Primer...Tips on Bison Marketing and Management," published in the *Stockman Grass Farmer*, notes that for social reasons, a herd of no fewer than 12 to 15 animals should be established. With fewer animals there is a tendency for the individuals to escape, looking for the rest of the herd (11). Hobby or entertainment farmers may try to raise only one or two, but small numbers are not recommended.

The number of pasture acres required for the herd depends to some extent on the productive capabilities of the land and the length of the grazing season. A good rule of thumb is to calculate how many beef cows could efficiently be run on your property. This will apply to bison as well, though bison will not need as much winter-supplement feed or hay as the beef animals. Ac-

ording to a Saskatchewan publication, "It is believed that bison eat less because of a lower metabolic level, especially during the winter. However, for the novice, the stocking rate should be considered equal to that of a beef cow. As the producer develops experience, the stocking rate should be adjusted" (10). In northern latitudes, additional land can be used to grow hay for winter stockpiling, to supplement winter pasture forages.

Some very detailed bison production budgets have been published by the Saskatchewan Agriculture and Food Ministry and by the Alberta Agriculture, Food, and Rural Development Ministry. It should be remembered that dollar amounts are stated in fluctuating Canadian dollars (about 67 cents to the U.S. dollar at the time of this writing). The budget in the Saskatchewan publication *Bison Production - Economic and Production Information for Saskatchewan Producers* can be viewed at <http://www.agr.gov.sk.ca/docs/livestock/bison/production_information/fmb398.asp>. The Alberta budget publications

Bison Profit\$ – Alberta 20 Cow Start-up Bison Enterprise; Bison Profit\$ – Alberta 50 Cow Start-up Bison Enterprise; Bison Profits – Profit Planning Tools for a 100 Cow Established Bison Enterprise; and Bison Profits – Profit Planning Tools for Assessing the Profitability of Investing in Bison Cows can be viewed at <<http://www.agric.gov.ab.ca/agdex/400/freedex.html#special>>.

These budgets were created to aid in evaluating various bison enterprises. They present a workable combination of inputs that will produce a given output. This combination of inputs probably doesn't represent any given farm, and the actual costs of inputs are likely different for every farm. While there may be hundreds of combinations of feed, health, labor, and other inputs, the budgets only give one combination. Different production practices, such as improved pasture yield and quality, as well as various marketing opportunities, can cause the producer's actual budget to be quite different from these.

MARKETING

Opportunities for marketing bison include:

- Sale of bison meat
- Live sales of males and females for breeding
- Sale of bison skulls, hides, leather products, and so on
- Tourism

While some bison farmers "niche-market" directly to consumers or restaurants, others sell to the few existing wholesale marketing outlets. Still others are working with existing farm-marketing cooperatives. Beginning bison farmers need to realize that bison marketing opportunities are fairly new and not readily available in many locations. One of the biggest obstacles to farmers who want to produce bison in most areas of the U.S. is this lack of an organized market. There are few established national or regional marketing and distribution systems; however, several state or regional bison associations have set up marketing channels or cooperatives. Direct marketing of meat and other products is an option, depending on the efforts and initiative of the producer. Producers taking this route will need to develop a marketing plan. Developing new niche markets for bison can take a large amount of the producer's time and energy, and requires good "people skills" and a business plan.

Headquartered in New Rockford, North Dakota, the North American Bison Cooperative has the nation's first packing plant devoted solely to bison. The plant is processing more than 10,000 bison a year; the products are sold in Europe and the United States. The Cooperative's policy has been to pay their members a set price of \$2.38 per pound for their number-one-grade animals. However, marketing the product has been a bigger challenge than anticipated. In July of 2001, they had over a year's supply of unsold frozen meat (all shrink-wrapped and blast-frozen, and able to be kept at least four years). The Cooperative anticipates that increased sales in the future will reduce the carryover supply of frozen meat. Others see the large inventory as a serious problem, with co-op members having to either wait as long as 17 months to get their deferred cash payments for their animals after the meat is sold, or take the meat themselves in lieu of the cash payment (13).

For producers exploring the possibility of forming a marketing cooperative, the best source of information is USDA's Rural Business and Cooperative Development Service (RBCDS) (12). The RBCDS helps farmers and rural residents form cooperative businesses and improve the operations of existing cooperatives. They provide technical assistance, conduct cooperative-related research, and provide informational products to promote public understanding of cooperatives. The USDA Rural Business and Cooperative Service Development website is at <<http://www.rurdev.usda.gov/rbs/coops/cmdir.htm>>.

Other obstacles to bison marketing, which are diminishing as the industry grows, are:

- Lack of standards for grading meat
- The small size of the bison industry
- Insufficient amounts of bison regularly available for marketing

GRASS OR GRAIN?

Finishing on pasture or by feeding a grain ration in feedlots are both commonly practiced in the bison industry. Both these methods of finishing for slaughter feature positive aspects that contribute to marketing strategies. Several years ago, researchers at Colorado State University conducted a taste test between grass-fed and grain-fed bison meat. Consumers in the study showed no preference between grass-fed and grain-fed in terms of tenderness and juiciness, but they preferred the taste of grain-fed bison 6 to 4 over grass-fed (3). Both methods will produce an acceptable-quality product for consumers.

A study conducted by North Dakota State University showed the nutritional differences between grass-fed and grain-fed bison. The grass-fed bison had Omega 6 to Omega 3 ratios of 4 to 1, whereas the grain-fed bison had ratios of 21 to 1 (14). Grass-fed meat can be marketed to health-conscious consumers interested in its more balanced ratio of Omega 6 and Omega 3. Additional

information on grass-fed meats is available at <<http://eatwild.com>>.

While some consumers will seek out pasture-fed bison, others prefer the more consistent grain-fed flavors and white fat familiar to beef-lovers (as compared to the variable flavor and more yellow fat found in grass-fed bison). To get these grain-fed qualities, producers place young or yearling bison bulls in feedlots where they are fed a grain ration for a specific time before slaughtering. Grain finishing is receiving more emphasis because of the North American Bison Cooperative's requirement (15) that their members place animals on a grain diet 100 days before slaughter. Information on grain-feeding practices and feedlot management of bison can be found in North Dakota's Carrington Beef and Bison Production Field Days Research studies (see **Further Resources**) and in the Saskatchewan publication *Bison Feedlot: Economic and Production Information*, available at <http://www.agr.gov.sk.ca/docs/econ_farm_man/production/specializ/bisonfeedlot.pdf> (it takes a long time to load).

Carol Klein of Oakcreek Buffalo Ranch comments:

Probably the most controversial management practice in the bison industry today is whether or not to feed grain to bison. Following World War II, cattle producers began feeding excess grain to beef herds. As ranchers began raising bison, many of them followed the same practices being used to raise beef. But the animals are totally different. And even beef did not evolve eating grain—they are grazing animals. Now, producers have to decide for themselves whether or not it makes good sense for them to grain feed their animals. Our cow-herd has not received any grain supplements for three years. They graze on a grass and clover (and weeds!) pasture, and their condition is so good that they simply do not need any supplemental feeding, only mineral and hay as required. To feed them grain would be the same as over-watering a houseplant; it would be detrimental to their well being and to our pocketbook. Feeding bulls before slaughter will speed the process of growing to slaughter size. This will be offset by the additional cost of the grain. It will affect the fat deposits in the animal, both in the amount and type of fat. Even with grain feeding, bison will have a more healthy, nutritious meat that is lower in fat. The nutrition of a grass fed animal is definitely superior. Is the tenderness or taste better in grain fed animals? Everyone has his or her own opinion on the subject. Unfortunately, it is one of the things we will have to decide for ourselves. Grain feeding is closely associated with feed lots, and therefore with antibiotics and growth hormones—and with [lowered] quality of life for the animals. At all costs, my opinion is that feedlot situations are best avoided. But I refuse to tell others how to run their farms, in hopes that they will let me operate mine as I see best. We can best influence other producers with our examples and success, and keep conflicts from injuring our industry. (8)

DIRECT MARKETING

Direct marketing of meat and other products is dependent on the efforts and initiative of the producer; developing a marketing plan is an essential first step. For detailed information on direct marketing and niche markets, request the ATTRA publications *Direct Marketing* and *Alternative Meat Marketing*.

Because of the lack of organized traditional markets, some bison farms market their products on the Internet. These producers must ensure that they know and follow the rules and regulations for each state to which they ship bison meat. It is essential that all local, state, and federal food-inspection and health requirements are followed.

Marketing on the Internet is *not* easy; there are both advantages and challenges to consider. Washington State University has a publication and website that offer resources for farmers wanting to market their products. Both provide information on the pros and cons of Internet marketing, tips for success, links to other farmers' sites, resource lists for more information, and a glossary of Internet terms. The site location is <<http://king.wsu.edu/Ag/internetmarketing.htm>>.

Producers considering marketing over the Internet should also check out the Access Min-



nesota Main Street website. It has an Electronic Commerce Curriculum that provides information on: electronic commerce basics; finding business information and services online; exploring E-commerce websites; creating your website; promoting your website; Minnesota case studies; developing your Internet business plan; and much more. Check out the website at <<http://www.extension.umn.edu/mainstreet>> or contact Rae Montgomery at (612) 624-2773, <rmontgomery@extension.umn.edu>.

One of the obstacles for direct marketing of bison is that many people only want the best cuts; marketing of the poorer cuts can be challenging. Many bison farmers offer stew meats, sausage, ground burger, or patties to help market these cuts. But what to do with the bones and organs that larger slaughtering plants have markets for? Well, there is an option available: the controversial natural diet for dogs called BARF (Bones And Raw Food) diet. Many pet owners believe their pets are healthier on a raw diet. Many bison farm websites have items included in their lists such as stock bones, ham or leg bones, neck bone, and organs for sale. These items are mainly for the BARF market. To learn more about BARF and for lists of pet owners in your area who feed their pets BARF, use a search engine such as Yahoo, or visit <<http://www.onelist.com>> and search for BARF, or visit <<http://www.willowglen.com/barf.htm>>.

Some producers enhance the income of their bison enterprise by advertising and charging for bison hunts. This direct-marketing strategy can be used to reduce the herd size by either selecting culled breeding stock for harvest or offering trophy-size bulls. Some states may have specific regulations on bison hunting, so it would be best to contact your state's Department of Agriculture or Wildlife Department for specific requirements. However, because the bison are privately owned animals, the producer would probably be allowed to sell the animals to the hunters before the hunt. The hunters would then be shooting their own animals, which is probably not regulated.

Besides the meat and hunting aspects of a bison operation, making use of some of the by-products can add to the producer's income. Some producers have developed markets for bison by-products such as heads, robes made from hides,

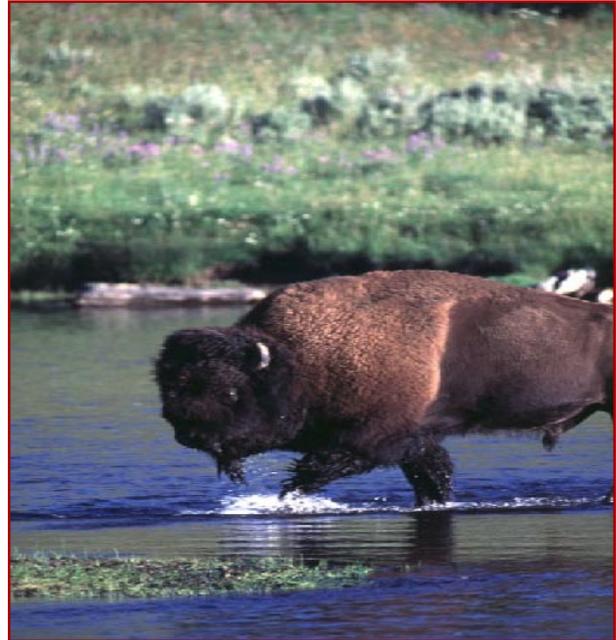
skulls, leather goods, jewelry made from bones and horns, and so on.

Another possible enterprise is tourism. The 450-acre Mason family ranch, located 120 miles north of Omaha, Nebraska, with 150 bison cows and calves, has attracted more than 6,000 tourists to take a covered-wagon tour and purchase bison sandwiches or specialized meat products (16). Reportedly, the gate admission receipts (at \$4/person) and sale of sandwiches and meat products provide a good living for the two families who operate the ranch. More information on tourism is available in ATTRA's *Entertainment Farming and Agri-Tourism*.

PASTURING BISON

Grazing bison in a sustainable and economical way can best be accomplished through a rotational grazing system. These systems have been used extensively with cattle, and not as much with bison. The Saskatchewan Agriculture and Food Ministry's publication *Bison Pastures and Grazing Management*, an excellent source of information on bison grazing, is available at <http://www.agr.gov.sk.ca/docs/livestock/bison/production_information/bisonpast.asp>. General nutrition information is available from the Saskatchewan *Basic Nutrition of Bison* at <http://www.agr.gov.sk.ca/docs/livestock/bison/herd_health/bison-nutrition.asp>.

In rotational grazing systems, animals are allowed to graze a limited area for a limited time, and are then moved to another pasture subdivision, or "paddock." This gives plants time to grow back without using up root reserves. Under rotational grazing, legumes and native grasses may reappear in pastures, and producers often report that the plant community becomes more diverse. Rotational grazing can be used to improve pasture, extend the grazing sea-



son, and enable the producer to provide higher-quality forage at a lower cost with fewer inputs.

The goal of rotational grazing is to tailor the paddock size to the number of bison, so that the pasture is used as efficiently as possible, and the animals get the quality and quantity of forage they need for the amount of time desired. When first devising a grazing plan, make big paddocks and use long rotations. As you become more familiar with the pasture plants and the herd's grazing habits, further subdivide these "starter" paddocks with more electric fence. It is best to make the subdivisions temporary to take advantage of forage growing conditions and the bison's changing feed requirements.

Fresh, clean water must always be available. In a rotational grazing system, the animals must have access to a central water source from every paddock or water must be provided to each of the pasture subdivisions. This can be a challenge and may be fairly expensive.

For more information on rotational grazing management, request these ATTRA publications:

- Meeting the Nutritional Needs of Ruminants on Pasture
- Sustainable Pasture Management
- Rotational Grazing
- Introduction to Paddock Design and Fencing-Water Systems for Controlled Grazing
- Nutrient Cycling in Pastures

Carol Klein of Oakcreek Buffalo Ranch suggests that rotational grazing is worth considering both for better economics and for the well-being of the bison. She explains:

To use the land available to its fullest potential will without a doubt require a plan of rotational grazing. It will provide an estimated 40% increase in the amount of grass available. But what will the buffalo think of all that control? After all they are independent, and roam throughout their territory at will. Trust me, if they object too strongly, they will let you know by rearranging the fences. The field they are being moved to should be better than the one they are leaving, and they will be eager for the new territory. So they will move readily when needed, and stay where they are put as long as the grazing is good. More management and fencing are needed on the part of the producer, and labor must be available when needed. What sold me on the "idea" of rotational grazing was the better quality and quantity of grass available for the animals. (8)

Lorne Klein, a Rangeland Agrologist at Regina, Saskatchewan, comments:

Bison can extract 5 to 13 percent more nutrients from low quality feeds than cattle can. At feed values above 10 percent, cattle are just as efficient as bison.

Bison's metabolic rate decreases from summer to winter. Dry matter intake of cows is estimated to be 2.2 to 2.8 percent in the summer, but only 1.4 to 2.0 in winter. This allows them to successfully overwinter on stockpiled grasses. Provided there is adequate forage volume, hay supplementation is only required under extreme snow conditions.

* * * * *

Getting thin in winter is good for bison. There is speculation that longevity and fertility are greatly reduced when cows are not allowed to lose weight in winter. Mature bison in good condition are able to lose 10 to 15 percent of their bodyweight from January to June.

The loss of weight in winter allows bison to gain weight rapidly in June and July. A rising plane of nutrition from mid-June until breeding

in September is very important. Young females in their second and third winter can lose 10 to 15 percent of their body weight, provided they enter the winter in good conditions.

Bison are genetically programmed to maximize the spring lush of pasture growth. A green season pasture sward of less than four inches is not recommended. Bison spend less time grazing in summer than beef cattle and do virtually no nighttime grazing.

During the rut, the reduction in grazing time may be as high as 12 percent. Therefore, there should be no limitation in forage quantity and quality during the rut. (17)



FENCING

Fencing—a critical factor in raising bison on pasture—varies greatly from farm to farm. Some producers get by with strong cattle fences, while others build super-strong, extra-tall fences. Whatever type of exterior fence you build—woven, barbwire, high-tensile, etc.—it should be at least 6 feet tall. Electric fencing works well with bison, as long as they are trained to know what electric fences are. Barbed wire should never be used as electric fence because of the possibility of bison (and humans) getting tangled in it and electrocuted. Fences featuring six to eight high-tensile wires with two to four electrified strands are becoming popular with producers and are a good option to consider. A good energizer is essential. A helpful publication on fencing for bison is available at <http://www.agr.gov.sk.ca/docs/livestock/bison/production_information/fmb398k.asp>.

However, even strong fences will not keep bison in if they get spooked. Robert Klessig, a bison producer in Wisconsin, says, “Well, I’m not going to promote any single type of fence, but if you’re going to raise bison, you better make darn sure that you use high-quality materials, and build it well. You don’t just drive a bison back in your pastures if they get out” (18).

HANDLING AND TRANSPORTING BISON

Bison cannot be handled like cattle. Carol Klein explained at the 2001 Missouri Bison Conference in Joplin that it is important for the bison producer, especially the new producer, to under-



stand the bison’s nature. Bison have very strong herd instincts and will react to danger as a group, first fleeing and then returning out of curiosity to see what “spooked” them. They also have a strong sense of personal self and self-preservation, and will either flee or fight. Bison relate to each other through a strict “pecking order.” The strongest bull will be the dominant animal in the herd, whose job it is to protect and breed, but the dominant cow will be the herd leader. Bison can outrun a horse and turn on a dime; they are good jumpers, kickers, and swimmers; they are strong (about four times stronger than beef cows); and they are not tame. Klein cautions producers to remember that bison are dangerous and act accordingly when handling them. She states:

Buffalo are wild animals. There is not a tame or domesticated hair on their head. You can gain their trust and friendship, but you have not really changed their basic nature – they will always be wild. This free and independent nature is a strong part of the appeal buffalo have to us. There is only one way to make a buffalo do anything, and that is to make him want to do it. Forget everything you know about cattle. These animals have a nature of their own, and that is what you will have to know and understand. It is that independent nature that will affect the ways in which you manage your herd.

Everything in life is a trade-off. As you come to win the acceptance of your animals, they will lose their fear of you. That will eliminate many problems of control, but will create other problems in their place. Their new proximity to you will create new dangers as well. Always stay safe.

Being in the middle of a buffalo herd is no place for a person. You may think they like and accept you. Look close at how they interact with each other. They like each other, but they still act very violently with their buddies. They butt and gouge at each other, and you will notice that the receiver of that action takes the threat/danger very seriously. They avoid being trapped by any animal more dominant than they, and stay out of their space. If they make a mistake, they are promptly and harshly reminded of their place. If you want to be part of the herd, you

will also be in their pecking order – and they will find out that you should be on the bottom rung. The bull will test you first, and there may not be enough left for any others to play with. But if you don't want affectionate buffalo jumping on your butt, then stay on your side of the fence. Otherwise, you will learn about tough love. **Your reaction times are not good enough to avoid the actions of a buffalo. (8)**

Colorado State University's Temple Grandin suggests that training bison calves will change their perception of a stressful, negative experience to either a neutral or even a positive experience. This will not make the bison tame or domesticated, but will simply condition them to respond to a particular situation in a calmer manner, making them easier to handle. For more specifics on training bison calves, see Grandin's website at <http://grandin.com/references/bison.calves.html>.

Handling systems have to be designed for bison and human safety. Grandin has designed handling facilities to reduce the stress of handling on the bison, as well as protect the people doing the sorting. Some of her suggestions follow.

- **Handling facilities must have solid seven-foot sides on all fences, chutes, gates, and pens, and must be designed so that the handlers can operate gates without being among the bison.**
- **Fences and chutes should have toe holds and grab bars to provide an escape route for handlers.**
- **Fill crowd pens no more than one-third full.**
- **Bison must be sorted single-file, not in a wide lane. Use a round forcing pen to direct bison into the single-file race. Bison will move easily through the round pen into single-file because as they circle around they think they are going back to where they came from.**
- **Bison will remain calmer if brought up individually to the solid-sided, solid-topped squeeze chute from the crowd pen. Bison often become agitated if left waiting in a single-file chute. The bison remain calmer if left in the crowd pen with their mates and brought to the squeeze chute one at a time. If the bison have to be held standing in a single-file**

chute, they must be held in separate compartments between solid sliding gates.

For more specifics on designing a reduced-stress handling facility and to read the article, "The Calming of American Bison during Routine Handling," see Grandin's website at <http://grandin.com/behaviour/tips/buffalo.html> and <http://grandin.com/references/bison.paper.html>.

Some additional bison-handling systems are diagrammed at the Saskatchewan Agriculture and Food website, http://www.agr.gov.sk.ca/docs/livestock/bison/production_information/fmb398j.asp. The Alberta Agriculture, Food and Rural Development Ministry has a 38-minute VHS video entitled *Handling Bison Safely and Effectively (492-VT)* (see **Further Resources**: Video for ordering information). The Prairie Agricultural Machinery Institute (PAMI) has the book *The Rancher's Guide to Elk and Bison Handling Facilities* (see **Further Resources**: Books for ordering information).

Rounding up bison is not like rounding up cattle. Georgia Derrick, a bison producer in Wisconsin, explains, "These are wild animals, you don't turn your back and you don't get into a situation you can't get out of." This usually means having a truck handy to bail into, although her husband Jim drives his tractor into the herd. Cows with calves and bulls in rut are extremely dangerous (18). In an e-mail message sent to "Graze-1" in May 1997, Robert O. Gjerdingen of Viola, Wisconsin stated, "A Canadian livestock hauler, the type of man who has hauled every type of beast in the industry, told me that a female bison was the only critter ever to lay in wait for him in a back compartment with the goal of ending his life on earth. Had he been a little fatter, and the vent holes in the side of the trailer a little narrower, he would not be alive today."

SOURCES OF FURTHER INFORMATION

The National Buffalo Association and the American Bison Association consolidated their memberships on January 1, 1995, to form the National Bison Association (19). This association provides educational and research materials, and a communications service to farmers, ranchers, and individuals concerned with the propagation and promotion of the American bison. The yearly Gold Trophy Show and Sale is held in January in Denver, Colorado, and another convention is held each year in alternating locations throughout the U. S.

The National Bison Association publishes a quarterly magazine entitled *Bison World*, which is free with membership, along with a subscription to the *North American Bison Journal*. They also sell many excellent books on bison production. They have an Information Packet available for \$20 plus \$6 shipping that contains a wide variety of basic bison production and marketing information. The cost of membership is \$150 a year. Additional information about their organization is available at <<http://www.bisoncentral.com/nba>>.

There are other national, state, and Canadian associations dealing with bison. See the Appendix for listings of associations from *The Tracker*, a monthly publication from Canada that lists events, associations, and advertisers that work with bison (see **Further Resources**: Magazines for subscription information).

Many electronic resources are now available to those with Internet access. Several websites are provided in the above listing of associations from *The Tracker*. A search engine such as Yahoo can also be used to locate other lists on the Internet.

Vern Anderson at North Dakota's Carrington Research Extension Center (20) has information available on all aspects of bison production. There is a small copying and mailing charge; contact the Center for details. Their website features the *1997 to 2001 Beef and Bison Production Field Days*, which includes many bison research papers.

The 395-page *1997 International Symposium on Bison Ecology and Management in North America Proceedings*, by L. Irby and J. Knight, contains information on bison disease, ecology, genetics,

management, and history. It is mainly scientific information; however, there is a section on viewpoints at the end of the proceedings that provides various producers' opinions on their different management styles. The *Proceedings* can be ordered for \$30 (checks payable to MSU Extension Wildlife) from:

MSU Extension Wildlife Program
221 Linfield Hall
Montana State University
Bozeman, MT 59717

REFERENCES

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- 2) Burgess, Regina G. 2001. Buffalo: The comeback of the twenty-first century. *AgVentures*. April-May. p. 6-9.
- 3) Moseley, Jan. 2001. The meat solution...The evolution of the bison industry continues. *The Stockman Grass Farmer*. August. p. 1, 10-11.
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- 6) Mammaing, Mike. 2000. Venison inspection requirements. *Deer Farmers' Digest*. October. p. 9-10. <<http://digest.deerfarmer.com/oct00.htm>>. [Reprinted June 2000 in *The Elk Scoop*, a publication of Iowa Elk Breeders Association.]
- 7) Personal communication. USDA/FSIS Labeling and Consumer Protection Staff. May 2001.
- 8) Klein, Carol. 2001. Understanding Bison Behavior and Characteristics for Effective Herd Management. Paper presented at the 2001 Missouri Bison Conference, February 10 at Joplin, Missouri. 6 p.
- 9) Texas Bison Company. 2000. Frequently asked questions: I am interested in raising bison. What do I need to know? <<http://www.bisonranch.com/questions.html>>. 9 p.

- 10) Staff. 1998. Bison Production: Economic and Production Information for Saskatchewan Producers. Saskatchewan Agriculture and Food, Regina, Sask., Canada. p. 1, 7.
- 11) Gompert, Terry, Jan Jorgensen, and Larry Mason. 1998. A beginner's primer...Tips on bison marketing and management. The Stockman Grass Farmer. March. p. 7-8.
- 12) USDA Rural Development/Cooperative Services
Stop 3250
Washington, DC 20250-3250
(202) 720-7558; Fax (202) 720-4641
E-mail: coopinfo@rurdev.usda.gov
<http://www.rurdev.usda.gov/rbs/coops/cmdir.htm>
- 13) Pates, Mikkel. 2001. Bison co-op to launch more aggressive meat marketing campaign. Agweek Magazine. July 23. <<http://www.agweek.com>>. 11 p.
- 14) Anon. No date. Omega 3 Fatty Acids. <http://www.texasgrassfedveef.com/id28_m.htm>. 2 p.
- 15) North American Bison Cooperative
RR 1, Box 162B
New Rockford, ND 58356
(701) 947-2505; Fax (701) 947-2105
- 16) Staff. 1999. Living prairie draws tourists by the thousands to small Nebraska ranch. Stockman Grass Farmer. March. p. 1.
- 17) Klein, Lorne. 2000. Bison are well-adapted for winter grazing in cold climates. The Stockman Grass Farmer. July. p. 16.
- 18) Baker, Juli. 1996. Bison on grass. Pasture Talk. October. p. 10-11.
- 19) National Bison Association
4701 Marion Street, Suite 100
Denver, Colorado 80216
(303) 292-2833; Fax (303) 292-2564
<http://www.bisoncentral.com/nba>
- 20) Vern Anderson
Carrington Research Extension Center
Box 219
Carrington, ND 58421-0219
(701) 652-2951; Fax: (701) 652-2055
<http://www.ag.ndsu.nodak.edu/carringt/>

FURTHER RESOURCES

WEBSITES:

The National Bison Association

<http://www.bisoncentral.com/nba>
http://www.bisoncentral.com/nba/gtss_rules.asp

State Veterinarians' phone number and state health requirements in Appendix D.

The Bison Centre of Excellence in Alberta, Canada

<http://www.bisoncentre.com/resources/index.html>

Features over 500 articles on Bison basics, Production information for the established producer, Bison research for academic interest, and Bison marketing and economics, as well as the International Bison Conference 2000 Proceedings.

Alberta Agriculture, Food, and Rural Development Ministry

http://www.agric.gov.ab.ca/agdex/400/492830_1.html or [.pdf](#)

Alberta publication Commercial Bison Industry.

<http://www.agric.gov.ab.ca/agdex/400/freedex.html#special>

Four Alberta budget publications:

- *Bison Profit\$ – Alberta 20 Cow Start-up Bison Enterprise*
- *Bison Profit\$ – Alberta 50 Cow Start-up Bison Enterprise*
- *Bison Profits – Profit Planning Tools for a 100 Cow Established Bison Enterprise*
- *Bison Profits – Profit Planning Tools for Assessing the Profitability of Investing in Bison Cows*

Saskatchewan Agriculture and Food Ministry

http://www.agr.gov.sk.ca/docs/live-stock/bison/production_information/fmb398.asp

Saskatchewan publication Bison Production – Economic and Production Information for Saskatchewan Producers.

http://www.agr.gov.sk.ca/docs/livestock/bison/production_information/fmb398k.asp

Saskatchewan publication section on fencing for bison.

http://www.agr.gov.sk.ca/docs/livestock/bison/production_information/fmb398j.asp

Saskatchewan diagrams of bison handling systems.

http://www.agr.gov.sk.ca/docs/econ_farm_man/production/specializ/bisonfeedlot.pdf

Saskatchewan publication *Bison Feedlot: Economic and Production Information*.

http://www.agr.gov.sk.ca/docs/livestock/bison/production_information/bisonpast.asp

Saskatchewan publication *Bison Pastures and Grazing Management*.

http://www.agr.gov.sk.ca/docs/livestock/bison/herd_health/bison-nutrition.asp

Saskatchewan publication *Basic Nutrition of Bison*.

http://www.agr.gov.sk.ca/docs/livestock/elk_and_deer/herd_health/paratuberculosis.asp

Publication *Paratuberculosis/Johne's Disease*.

North Dakota State University Bison Research Program

http://www.ag.ndsu.nodak.edu/carringt/bison_research_program.htm

1997 to 2001 *Bison Research and Production Field Day Reports*.

Temple Grandin's Website

<http://grandin.com/references/bison.calves.html>

Publication *Training American Bison (Bison bison) Calves*.

<http://grandin.com/behaviour/tips/buffalo.html>

Specifics on designing a reduced-stress handling facility.

<http://grandin.com/references/bison.paper.html>

The article "The Calming of American Bison (*Bison bison*) During Routine Handling."

Eat Wild Website

<http://eatwild.com>

Information on grass-fed meats.

USDA/FSIS

<http://www.fsis.usda.gov/OFO/hrds/STATE/stateoff.htm>

Listing of all States Officials in the Cooperative Meat & Poultry Inspection programs.

<http://www.fsis.usda.gov/oppde/nacmpi/nov2000/papers/species.htm>

USDA's concept paper, "Extending USDA's Inspection Program to Non-Amenable/Exotic Species."

<http://www.fsis.usda.gov/oa/pubs/focusbison.htm>

The USDA/Food Safety and Inspection Service publication *Focus On Bison*.

USDA Rural Business and Cooperative Service Development

<http://www.rurdev.usda.gov/rbs/coops/csdir.htm>

Washington State University

<http://king.wsu.edu/Ag/internetmarketing.htm>

Publication and website providing information on the pros and cons of Internet marketing, tips for success, links to other farmers' websites, resource lists for more information, and a glossary of Internet terms.

University of Minnesota

<http://www.extension.umn.edu/mainstreet>

Access Minnesota Main Street website provides information on: electronic commerce basics; finding business information and services online; exploring E-commerce websites; creating your website; promoting your website; Minnesota case studies; developing your Internet business plan, and much more.

Bones and Raw Food Website

<http://www.willowglen.com/barf.htm>

Information on BARF.

Yahoo! Groups List

<http://www.onelist.com>

For lists of groups of pet owners in your area who feed their pets BARF, enter BARF into the search field.

Western College of Veterinary Medicine at the University of Saskatchewan

<http://www.usask.ca/wcvm/herdmed/specialstock/>

Excellent publication called *A Literature Review of Disease in Bison*, plus good information on *Malignant Catarrhal Fever (MDF)*.

University of Wisconsin

<http://www.johnes.org>

Site on *Johne's Disease* with specific bison information.

VIDEO:

Handling Bison Safely and Effectively (492-VT)
Alberta Agriculture, Food and Rural Development
Publications Office
7000 - 113 Street
Edmonton, Alberta T6H 5T6
(780) 427-0391
Canadian toll-free (800) 292-5697
Cost \$25.00 plus \$2.00 handling and \$3.00 for U.S. orders.

BOOKS:

Bison Breeder's Handbook and The Buffalo Producer's Guide to Marketing and Management
National Bison Association
4701 Marion Street, Suite 100
Denver, Colorado 80216
(303) 292-2833; FAX (303) 292-2564
<http://www.bisoncentral.com/nba>

The Rancher's Guide to Elk and Bison Handling Facilities.

Prairie Agricultural Machinery Institute (PAMI)
Box 1150, Highway 5 West
Humboldt, Saskatchewan, CANADA S0A 2A0
(800) 567-7264
<http://www.pami.ca/pamipubs/books.htm>

MAGAZINES:

North American Bison Journal
Tri-State Livestock News
(800) 253-3656 or (605) 347-2585; Fax: (605) 347-2525

<http://bisonjournal.com>

Subscription rate is \$21 per year (12 issues) or \$21.84 for South Dakota subscribers (\$31 in Canada). They have two years of archived issues on their website.

The Stockman Grass Farmer

P.O. Box 2300
Ridgeland, MS 39158-2300
(800) 748-9808; FAX (601) 853-8087
E-mail: sgf@StockmanGrassFarmer.com
<http://www.stockmangrassfarmer.com>
Subscription rate is \$28 per year (12 issues).

The Tracker

Box 1094
Regina, Saskatchewan S4P 3B2
(306) 337-1540; FAX (306) 337-1531
E-mail: blmclash@cableregina.com
Subscription rate is \$25 (U.S.) per year (11 issues).

High Plains Journal

High Plains Publishers, Inc.
P.O. Box 760
1500 Wyatt Earp Blvd.
Dodge City, KS 67801-0760
(620) 227-7171; Fax (620) 227-7173
E-mail: journal@hpj.com
<http://www.hpj.com>
Subscription rate is \$56 per year (52 issues).

By **Lance E. Gegner**
NCAT Agriculture Specialist

Edited by **Richard Earles**
Formatted by **Gail M. Hardy**

December 2001

IP151

The electronic version of **Bison Production** is located at:
HTML
<http://www.attra.ncat.org/attra-pub/bison.html>
PDF
<http://www.attra.ncat.org/attra-pub/PDF/bison.pdf>

APPENDIX

BISON ASSOCIATIONS

Source: *The Tracker*, October 2001, p. 10-11.

Alberta Bison Association

Susanne Pohl, Office Manager
4301-50th Street, Leduc, AB T9E 7H3
Phone: 780-980-4835
Fax: 780-980-7597
email: vspohl@telusplanet.net
website: <http://www.bisoncentre.com>

Association Quebécoise Du Bison

Bruno Roy
1608, du Bosquet
Ancienne-Lorette, PQ G2E 3LI
Phone: 418-877-8868
Fax: 418-877-7179

BC Interior Bison Association

Del Myers, Sec.
21845 Hwy 97 S
Prince George, B.C. V2N 6A3
Phone: 250-330-4465
Fax: 250-330-4449
website: <http://www.ttonka.com/bciba>

Canadian Bison Association

Gavin Conacher, Executive Director
#200, 1600 Pasqua Street, Box 3116
Regina, SK S4P 3G7
Phone: 306-522-4766
Fax: 306-522-4768
email: cbal@sk.sympatico.ca

Colorado Bison Association

John Painter, Sec/Treas
303 S. Broadway Suite B522
Denver, CO 80209
Phone: 505-770-7751
Fax: 505-768-5561

Dakota Territory Buffalo Association

Jud Seaman
P.O. Box 4104
Rapid City, SD 57709
Phone: 605-923-6383
email: info@dakotabuffalo.com
website: <http://www.dakotabuffalo.com>

American Bison Foundation

Dr. Ken Throlson, President
4701 Marion St.
Denver, CO 80216
Phone: 303-292-2833
Fax: 303-292-2564

Eastern Bison Association

Deborah Tanner, Sec
Box 708
Brooklyn, CT 06234
Phone: 877-461-7555
email: ebabison@hotmail.com
website: <http://www.ebabison.org>

Great Plains Buffalo Association

T. R. Hughes, Pres.
P.O. Box 243
Seward, NE 68434
Phone: 402-643-2574
Fax: 303-665-1535
email: info@gpbuffalo.org
website: <http://www.gpbuffalo.org>

Intertribal Bison Cooperative

Tim Wapato, Exec. Dir.
1560 Concourse Drive
Rapid City, SD 57703
Phone: 605-394-7742
email: itbc@cnetis.net
website: <http://www.intertribalbison.org>

Iowa Bison Association

Tom Cink, Pres.
2103 - 210th St.
Wesley, IA 50483
Phone: 515-679-4501
Fax: 515-679-4283
email: tricbison@rconnect.com
website: <http://www.iowabison.org>

Jamestown Area Buffalo Association

Oren Krapp, Pres.
P.O. Box 112
Pingree, ND 58476
Phone: 701-252-6853
email: bison@daktel.com
website: <http://www.buffaloblast.com>

Kansas Buffalo Association

Charlies Smies, Sec./Treas.
P.O. Box 12110
Wichita, KS 67277-2110
Phone: 316-721-0970
Phone: 888-282-4766
Fax: 316-773-4720

Manitoba 1st Nation Elk/Bison Association

Harvey Payne
3411 Grant Avenue
Winnipeg, MB R3R 0K8
Phone: 204-832-9497

Manitoba Bison Association

Dave Giesbrecht, Pres.
Box 959
Teulon, MB R0C 3B0
Phone: 204-886-2221
Fax: 204-886-3336
Ray Salmon, Sec.
Phone: 204-945-2223
Fax: 204-945-4327

Michigan Bison Association

Beth O'Rourke
8450 O'Rourke Rd.
Vanderbilt, MI 49795-9703
Phone: 517-983-4149
Fax: 517-983-2077
email: double_c@voyager.net
website: <http://www.michiganbison.com>

Minnesota Buffalo Association

Dennis Tuel, Sr., Pres.
Gail Griffin, Exec. Dir.
Route 5 Box 2
Winona, MN 55987
Phone: 507-454-2828
email: info@mnbison.org

Missouri Bison Association

DeWayne Frobenius, Sec.
Box 472
Kimberline City, MO 65686
Phone: 417-739-2281
Phone: 800-365-2115
Fax: 417-739-2281
email: information@mobisonassoc.org
website: <http://www.mobisonassoc.org>

Montana Bison Association

Wayne Arnold, Sec./Treas.
HC 75, Box 467
Brady, MT 59416
Phone: 406-627-2417
Fax: 406-627-2417

National Bison Association

4701 Marion St. Ste 100
Denver, CO 80216
Phone: 303-292-2833(BUFF)
Fax: 303-292-2564
email: Info@bisoncentral.com
website: <http://www.nbabison.org>

National Buffalo Foundation

Edwin Tuccio, Pres.
547 East Main St.
Riverhead, NY 11901
Phone: 516-727-6644
Fax: 516-369-2727
email: info@bisoncentral.com
website: <http://www.bisoncentral.com>

Nebraska State Buffalo Association

Sheila Peterson, Office Mgr.
P.O. Box 1137
Grand Island, NE 68802
Phone: 402-865-4235
website: <http://www.nebraskastatebuffalo.org>

Northwest Bison Association

Maureen Durheim, Sec.
6510 North Division St. #280
Spokane, WA 99208-3993
Phone: 1-888-314-3788 (US)
Phone: 1-888-314-6922 (Canada)
Fax: 503-357-1352
email: nwba@nwbison.org
website: <http://www.nwbison.org>

North American Bison Society

Boots Delano
4570 N. Oraibi Pl.
Tucson, AZ 85749-9386
Phone: 520-749+-5654
email: bison@mciworld.com

North Dakota Buffalo Association

Paul Thomas, Exec. Dir.
4007 State St.
Bismark, ND 58503
Phone: 701-223-4130
email: ndbuff@ndbuffalo.org
website: <http://www.ndbuffalo.org>

North Dakota Buffalo Foundation, Inc.

National Buffalo Museum
P.O. Box 1712
Jamestown, ND 58402-1712
Phone: 701-252-8648
Phone: 800-222-4766
website: <http://www.jamestownnd.com/promotiontourism.buffalomuseum.htm>

Oklahoma Bison Association

Nick Anderson, Osaj Bison
P.O. Box 1347
Cushing, OK 74023-1347
Phone: 918-225-2260
Fax: 918-225-6592

Ontario Bison Association

Christina Pyke, Sec.
RR4
Wolf Island, ON K0H 2Y0
Phone: 613-385-1925
Fax: 613-385-1926

Peace Country Bison Association

Stacey Basnett, Sec.
Box 159
Fairview, AB T0H 1L0
Phone: 780-494-2407
Fax: 780-494-2869
email: snazarko@telusplanet.net

Pennsylvania Bison Association

Ann Darrow, Sec.
2708 Lincoln Highway
Schellsburg, PA 15559
Phone: 814-733-4908
Fax: 814-733-2323
email: bisonbor@nb.net
website: <http://www.pba.org>

Saskatchewan Bison Association

Leon Brin, Exec. Dir.
Box 36011
Regina, SK S4S 7H6
Phone: 306-585-6304
Fax: 306-585-6285
email: saskbison@sk.sympatico.ca
website: <http://www.saskbison.com>

South East Bison Association

Steve Wilson
4801 Greenhaven Lane
Goshen, KY 40026
Phone: 502-222-4451
Fax: 502-222-4452

Texas Bison Association

801 Wallis Ave., P.O. Box 579
Santa Anna, TX 76878

Western Bison Association

P.O. Box 60126
Reno, NV 85906-0126
Phone: 775-969-3497

Wisconsin Bison Association

Rebecca Ries, Sec./Treas.
W2749 Gold Course Road
Mount Calvary, WI 53057
Phone: 920-921-8889
Fax: 920-921-0306
email: rr1047@thesurf.com
website: <http://www.wibison.com>

