BACKGROUNDER ON ONEFOUR FOR OCT 16 MEETING

History

Onefour was officially established in 1927, although range research was conducted on the site since 1881. The Onefour Research Farm that exists today was put together over time from pieces of the Gilchrist and Blacktail ranches and a number of homesteads (see attached map).

The research station was established in response to prescribed stocking rates of 10 acres/head which was degrading the native rangeland. Many research projects have been conducted at Onefour over the years and include more than just rangeland and cattle research. For example, the farm had sheep for many years and even experimented with different varieties of fruit trees.

Today, Onefour encompasses roughly 43,000 acres including provincial crown land leased to the federal government, federal crown land and 2720 acres of deeded land owned by the federal government.

In 2013, the federal government announced its plans to close Onefour and divest the lands to the province of Alberta. The province has three main goals for Onefour: to maintain grazing and support the local community, to maintain the conservative management regime, and to find a mechanism to allow research to continue on the land base.

Issues

1. *Research:* The existing townsite of Onefour was established in a hay slough and frequently floods. As a result, many of the buildings including more than half the houses and the community hall have been condemned. The province of Alberta is unwilling to take on this liability and have asked the federal government to determine which buildings are safe and to decommission and remove the rest before transferring the property to the province. The federal government estimates this may take up to three years. The province hopes for a minimal development site with power, water and sewer where research trailers could be brought in perhaps temporarily.

   The University of Alberta has expressed interest in incorporating Onefour into their agricultural research network. The province is willing to facilitate, but unwilling to commit to financing the research or facilities.

   Considerations for SGP: Do we support continued research? Does it matter what kind?

2. *Grazing:* The existing livestock at Onefour is being sold in November or transferred to the Lethbridge Research Station (see attached article). This leaves Onefour wide open to possibilities for grazing.

   The province of Alberta plans to continue the conservative stocking rate implemented by Onefour. They plan to complete a range health assessment and the management goal will be to have Onefour in Healthy condition. MULTISAR will be retained to complete an assessment and will make recommendations for maintaining biodiversity.

   The province has been in discussion with the Sage Creek Grazing Association and is considering incorporating Onefour into the Sage Creek Grazing Reserve. The Sage Creek Grazing Association has responded cautiously with concern that there may be a substantial cost to upgrading or converting fences and watering sites. Another issue is how any proposed research might affect the timing and pattern of grazing.

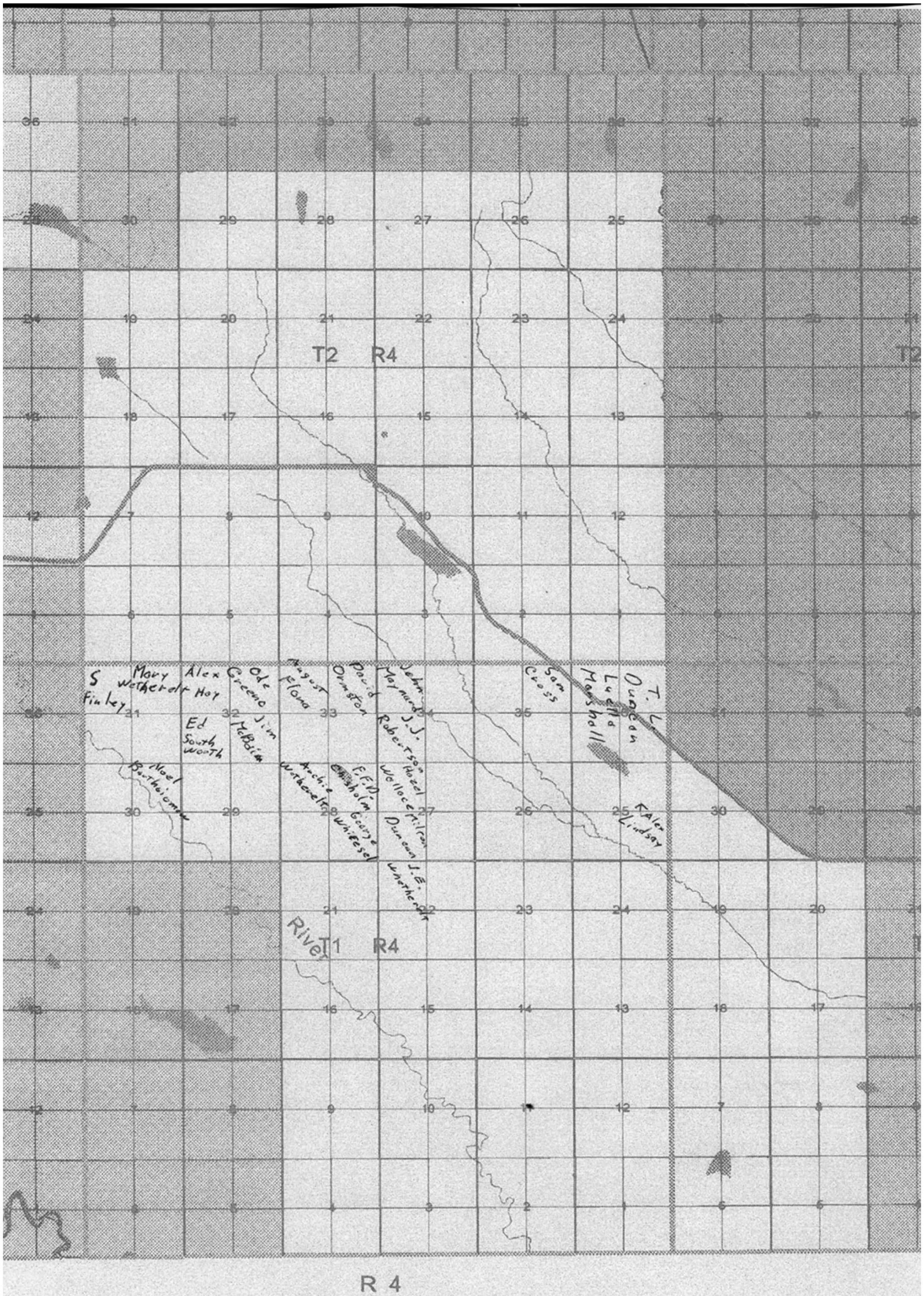
   Considerations for SGP: How do we ensure local involvement? How do we ensure Onefour is responsibly managed? Can Onefour be used to further conservation on adjacent lands? One possibility is to use Onefour as a grassbank to reward adjacent ranchers for conservation activities (see attached summary on grassbanking from the Montana Sage Grouse Initiative).

3. *Industrial Development and Surface Disturbance:* The federal government was able to substantially limit the amount and extent of industrial development and surface disturbance in Onefour. The province of Alberta may not have the same ability.

   Considerations for SGP: How do we ensure the same conservative management regime is applied to development and surface disturbance?

4. *Protected Status:* Part of Onefour is designated as a Heritage Rangeland. The province is reluctant to pursue protected area status for the remainder of Onefour because options for protection are limited under the South Saskatchewan Regional Plan, and because Public Lands will be responsible for management (Alberta Parks has responsibility for management of protected areas in Alberta).

   Considerations for SGP: How do we promote protection for Onefour with these limitations?


T2 R4
T1 R4
River
R 4
S Finley
Mary Wetherelt
Alex Hoy
Ode Greeno
August Floma
David Ormston
John Maynard
J.J. Robertson
Hazel Wallace Milroy
Sam Cross
Luella Marshall
T. L. Duncan
Ed Southworth
Jim McBain
Noel Bartholomew
Archie Wetherelt
E.F.D. Chisholm
George Whitesel
Duncan J.E. Wetherelt
Alex Lindsay

The Onefour research herd is up for sale

Research highlights

Posted Aug. 16th, 2013 *by* Debbie Furber
1 Comment

Closing the books on the 86-year-old research substation

The Onefour Research Ranch herd dispersal sale on November 28 at the Balog Cow Palace in Lethbridge will mark the end of 86 years of range and livestock research at this storied ranch hugging the U.S. border in Alberta's southeastern corner.

It is one of several hallmark Agriculture and Agri-Food Canada facilities and programs lost in the shuffle to streamline agricultural research and services across the country since the 2012 budget came down. Operating as a substation of AAFC's Lethbridge Research Centre (LRC), Onefour had its livestock genetics research program transferred to the University of Alberta in 2005. The rangeland research component will be transferred to AAFC's research centre at Swift Current, Sask., leaving the beef research program at LRC to concentrate on its work with feedlot cattle.

In recent years, the breeding program at Onefour under the management of Ian Walker has been geared toward raising market-acceptable commercial cattle selected for optimal maternal performance on the range, balanced with feedlot efficiency and carcass quality, explains Byron Templeton of XTC Hereford Farms, Lethbridge, who chairs the Canada/Alberta Livestock Research Trust (CALRT).

The trust was formed in 1990 with a volunteer board of producers and industry people to facilitate timely commercial transactions when buying and selling cattle for LRC and providing feed and all other supplies required to care for the cattle at Onefour. It also serves as a sounding board to give industry perspective on research trials.

The CALRT owns the Onefour herd and all proceeds from the sale of Onefour cattle go into the trust with profits supporting beef research at LRC. AAFC pays the lease on the provincial Crown land comprising most of the ranch, maintains the facilities, and looks after staffing.

All of the cattle produced at Onefour, with the exception of the replacement heifers, are sent to the LRC feedlot at weaning and most of the steers wind up in research programs. Cows and heifers not retained in the breeding program or required for research have been an important revenue stream that will dry up after ranch operations wind down.

"CALRT will still exist after ranch operations cease, though its workload will likely be lighter," Templeton says. Cattle for LRC research programs will be sourced from the marketplace

with a view to purchasing market-acceptable calves that will have the best salvage value possible at the end of the research projects.

CALRT board member Jamie Christie of Alberta Prime Beef at Picture Butte heads up the marketing program, which for research cattle is a different ball game because science needs blue-tag data from the packers and there is no sort, he explains. They are usually sold in small groups that aren't necessarily uniform because they're not all fed the same ration given that LRC does a lot of research looking at the feed value of various feedstuffs and feed-processing methods.

"That said, Ian has a great eye for cows. These are good, good-quality cattle that when finished are respected by packers. They have been well accepted by Cargill because they fit into the branded programs very well," he comments.

Carcass data from the past three years show that 81.4 per cent of the 616 finished calves (481 steers, 115 heifers, 20 bulls) graded Canada AAA or higher with the dressing percentage averaging 60.47.

As of early July, the fate of Onefour's 42,000-acre short-grass prairie range was uncertain. It has been an important site for research in other fields of science through the years as well and today is home to at least 23 federally listed species at risk. The provincial government has already designated parts of the ranch as a Heritage Rangeland Natural Area.

The Alberta Wilderness Association is seeking protected status for the entire range to keep it intact for Prairie research and grazing for local producers.

Research highlights

Range and livestock development were central to the federal government's goals in 1927 when it established Dominion Range Experiment Station, Manyberries, so named because the station received its mail at the post office there. However, the station was located in the Onefour district with a post office at the Wetherelt farm on the SE3-27-1-4-W4, ergo the name, Onefour.

The station eventually acquired the farm and it was later discovered that a saving on postal delivery charges could be had if the old Onefour post office could be relocated at ranch headquarters on SW2-15-2-4, where a village-like atmosphere had evolved with ranch and research facilities, homes for employees and community buildings, including a store and school. The name change to Onefour followed accordingly.

Allan Ross, CALRT secretary and former manager of Onefour from 1978 to 2000, provides a rundown of some of the major research projects as detailed in the book 75 Years of Research, 1927-2002, Research Substation, Onefour, written by former head of the animal science section, Dr. John E. Lawson.

CALRT board member and Canadian Cattlemen Association's research director Reynold Bergen says a lot of the production practices that Western Canada's beef industry is based

on, and a lot of everyday knowledge that producers take for granted exists because of the research that was done at Onefour.

The Dominion's experimental farms service branch had dispatched two agrologists to the area to determine why settlers had been abandoning their homesteads in droves. They identified soil that produced light crops, inadequate rainfall, heat and high winds, and grasshoppers as the main reasons.

This set the direction for research during the first 25 years dealing with reclamation work, developing water resources, evaluating grazing capacity, determining climate effects, assessing various forages and feed supplements and establishing management procedures for cattle and sheep handling, treating and marketing. Recommendations were laid out for dehorning, castrating, branding, parasite control, mineral supplementation, spaying heifers, breeding yearling heifers and artificial insemination.

Cattle-breeding programs to evaluate breeds and crosses for hardiness and productivity and to develop selection methods and technology started in 1950 with several long-term (15 to 20 years) projects. Work with Cattalo (cattle-buffalo cross), Brahman-British crosses, a Highland-Hereford line and the Ross project with dairy and Red Angus sires on Hereford cows, identified the advantages of hybrid vigour.

Ross recalls that when he started as a ranch hand in 1971, the program was midway through a 20-year genetic selection study to evaluate feedlot performance in Angus and Hereford lines fed either a high-energy diet (HED, 80 per cent grain, 20 per cent hay) or a medium-energy diet (MED, hay only).

Calves fed the MED had fewer digestive disturbances, bloats and founders, while those retained as cows produced more milk and offspring with heavier weaning weights than those fed the HED. Yearling bulls in the HED program had lower sperm reserves and at two years of age produced only half as many sperm with inferior quality compared to bulls managed on MED.

No sire-diet interaction was found, implying that individual animals with genetics for superior post-weaning gain would retain that advantage relative to other individuals in the same group whether fed HED or MED. Similarly, when given an HED ration, bull calves from the cows in the MED program grew as fast as those from cows in the HED program.

Next came another long-term study, the foreign cattle-breeding evaluation project, that looked at the productive value and feed efficiency of crossbred cattle using Hereford, Angus, Shorthorn, Charolais, Simmental and Limousin cattle for a total of 10 firstcrosses with the Hereford-Angus cross as the control. The heifers were bred Red Angus or Beefmaster and the mature cows to the three exotic breeds or Chianina.

This project, carried out at Manyberries and in the Parkland region at Brandon, evaluated the environmental and genetic effects on pre- and post-weaning performance of some 3,700 calves in all. Rankings were established for terminal sires of the calves and sires and dams of the cows.

Location differences were significant. The environment at Manyberries resulted in lower lifetime production efficiency than at Brandon, leading researchers to conclude that, while rankings for mature breed crosses may be similar among locations, their rankings for net productivity weren't likely to be constant in differing environments.

Researchers found that the NRC feeding guidelines would need to be adjusted to address environmental variation and that the recommendations for lactation feed requirements for all crosses had been underestimated.

Project data and simulated ranches were used to model the relative profitability of each of the crosses in both environments. It was learned that the breed of the terminal sire was an important consideration when determining the profitability of a dam cross. For example, a certain cow cross could rank first when bred to a terminal sire of one breed, but way down the list when bred to a sire of another breed.

Profitability was largely determined by the percentage of calves weaned and calf weight, with calving difficulty and feed requirements having a lesser effect. However, researchers concluded that reproductive performance should not be sacrificed for heavier weaning weights and, in a commercial herd, cow performance is more important to profitability than the terminal sire breed.

The performance of calves from firstcross cows was shown to be superior to that of backcross (one-quarter- and three-quarter-cross) females. As little as one-eighth of a change in breed composition could significantly affect carcass traits.

The top-performing first-crosses from this project formed the herd for a bioeconomic efficiency study of delved-into genetic parameters needed to assess breeding strategies, including the calculation of direct and maternal heritabilities, and phenotypic and genetic correlations on growth and carcass traits. It was discovered that simple tools, such as the bull's scrotal circumference and heifer growth traits, were good predictors of lifetime pregnancy rates.

At the turn of the century, new computer programs allowed researchers to use data from these long-term studies and the Angus and Charolais herds at Onefour to advance the technology for selecting economically important traits. Some of this work looked at the influence of eating patterns, preconditioning, shrink during transportation and real-time ultrasound on selecting for carcass merit.

When this program was transferred to the University of Alberta, most of the Charolais and Angus herds were leased to the university's Kinsella Ranch. Onefour has rebuilt a commercial herd, currently numbering 235 first-cross Hereford-Angus and 450 straight Black Angus cows and heifers.

Onefour cow herd

Walker, who has managed the station since 2000, worked with the Onefour crew for nine years in the '80s before he went on to manage AAFC's Kamloops ranch.

He looks for bulls with moderate EPDs from proven cow lines and older dams, adding that the actual birth weight of a bull's dam is just as important as the bull's own birth weight EPD. Particular attention is paid to milking ability to produce females with ample milk for calves but not so much that they won't be able to maintain body condition and rebreed on time.

Each dam is scored on conformation and mothering ability at calving. The top 200 to 250 Angus cows are bred to herdsire-quality bulls to produce fertile, moderate-type females with longevity in their lines that do well on native grass.

The replacements are wintered in the yard where they are weaned on to a ration of grass hay and screening pellets containing 20 per cent barley, which he starts feeding at about a pound per head per day, working up to 2.5 pounds. The pellets are pail fed daily so the heifers get used to having people walking near them. This makes a huge difference down the road if the crew has to lend a hand at calving, though only nine of the 240 heifers that have calved in the last two years have needed assistance.

The bulls went out for 45-day breeding seasons with the heifers on June 2 to start calving March 1, and with the cows on July 2 to start calving April 5.

Normally, the breeding season for the replacements is only 30 days and conception rates have averaged 85 to 90 per cent for the past five years. The conception rates for the cows have averaged 90 to 95 per cent, with close to 80 per cent of the calves coming in the first 21 days of calving this spring.

Average weaning weights in early October for the past three years have been 508 pounds for the heifers and 543 for the steers.

"This is an extremely rare opportunity to purchase a set of reputation, proven cows," says Bob Balog of Balog Cow Palace.

"All successful ranches keep good records, but because of the research, the amount of data on these cows is magnified three to four times. If you are building a new herd, you'll be 20 years ahead with a group of uniform cows of this calibre."

– Debbie Furber *is a field editor for* Canadian Cattlemen *at Tisdale, Sask. This feature appeared in the August 2013 issue (pages 8 to 11).*

What's good for grouse is good for ranching

A Blueprint for Creating Long-term, Market-based Incentives for Ranchers to Conserve Sage-Grouse

Vision

A sustainable conservation model that maintains large and intact landscapes in order to support viable livestock ranching and abundant sage-grouse populations. A future where ranching is recognized as fully supportive and beneficial to healthy sage-grouse habitat and populations and where public and private investments reward ranchers for providing these ecosystem services on private lands.

The Challenge

Working ranches play a critical role in maintaining large and intact landscapes needed to support world-class wildlife populations. Yet, the viability of western livestock ranching is threatened by many factors including shrinking profit margins, increased environmental regulation, and an aging ranching population.

Under these pressures, private ranchlands are increasingly being sold and subdivided for other uses generating concern among the conservation community because habitat fragmentation is one of the primary threats to many at-risk wildlife species, such as sage-grouse. Sage-grouse are a icon of western sagebrush rangelands that were recently placed on a list of species awaiting protection under the federal Endangered Species Act; potential regulatory protection that would further challenge viability of western ranching.

In response to growing concern over these issues, the USDA Natural Resources Conservation Service (NRCS) recently launched the Sage-Grouse Initiative (SGI). Through SGI, NRCS targets federal Farm Bill programs to alleviate threats to grouse and improve sustainability of working ranches. SGI has quickly become one of the largest conservation success story in the West. So far, more than $100 million has been invested with ranchers to improve over 1.5 million acres across the West.

Still, questions remain about how to ensure SGI conservation outcomes persist after short-term Farm Bill contracts expire. With record federal deficits and repeated calls to trim budgets, relying on federal incentives to produce SGI outcomes indefinitely is unrealistic at the scale needed to conserve grouse.

A Solution: Linking SGI with Grassbanking

Linking SGI with the concept of *grassbanking* is one novel idea that would provide the tangible economic incentives necessary to secure sage-grouse benefits. A *grassbank* is a physical place where forage is made available to ranchers, at a reduced fee, in exchange for conservation benefits being produced on participant home ranches. Market-based incentives for ranchers to apply conservation are generated by offering forage on the grassbank to willing participants at below market value.

Grassbanks are designed to achieve conservation while helping keep people on the land.

Building on the successes of SGI, conservation partners could establish community-based grassbanks in sage-grouse 'core areas', high abundance population centers, where ranchers have already been working to grow more grouse. Once established, these SGI-Grassbanks could use the free market to leverage forage for sage-grouse conservation indefinitely.

The SGI-Grassbank would enable SGI to provide initial federal support to assist producers in making the necessary changes to their ranch and rely on locally-run grassbanks to provide the incentives to maintain these benefits into the future, all while helping to keep private lands and ranchers in ranching. In contrast to the traditional model of setting aside preserves to protect wildlife, grassbanks represent a new working lands paradigm that leverages investments to achieve conservation at scales that are biologically relevant.

The SGI-Grassbank represents a new working lands paradigm that uses the free market to leverage wildlife conservation indefinitely.

How would it work? The SGI-Grassbank Conservation Model

Any partner interested in community-based conservation and ranch sustainability could initiate and operate a SGI-Grassbank. The grassbank would be established in a sage-grouse core area where SGI is being applied and the potential to maximize biological benefits exists. A property of sufficient size and productivity to leverage landscape-scale conservation would be purchased or leased from a willing seller and improved for sage-grouse.

Once functioning, the SGI-Grassbank would leverage additional benefits on nearby ranches willing to exchange conservation actions for access to forage at a reduced price. On the grassbank, discounts on forage would be exchanged for management actions that create a ***'Sage-Grouse Friendly Ranch.'***

Minimum Requirements of a *Sage-Grouse Friendly Ranch*:

- **Follow SGI conservation plan.** Participants agree to implement and maintain an NRCS-certified SGI conservation plan that addresses all of the identified threats to sage-grouse and either meets or exceeds NRCS quality criteria for sustainable grazing.
- **No sod-busting.** Participants agree not to convert native rangelands to cropland or other non-native vegetation.
- **No sagebrush eradication.** Participants agree to refrain from active sagebrush control.

SGI conservation plans provide the metrics for certifying ranch sustainability and sage-grouse benefits.

SGI-Grassbank Benefits

The SGI-Grassbank would play a vital role in securing outcomes currently being produced by ranchers participating in SGI by providing an enduring source of incentives for participants to continue managing sustainably after Farm Bill contracts expire. Recognized threats to sage-grouse and sustainable ranching would be alleviated across both the grassbank property and participating ranches; enhancing the integrity of a large and intact landscape and reducing the need for regulatory species protection.

The SGI-Grassbank would also have multiple societal benefits. It would help keep ranchers ranching, thereby maintaining rural ways of life and revenue for local communities. At broader scales, societal benefits would be garnered by enhancing sustainable food production while reducing the need for costly federal protection of sage-grouse under the Endangered Species Act.

Serving as a community-based demonstration ranch, the grassbank would also provide local ranchers with ready access to expertise from diverse fields to help them solve complex challenges associated with balancing the needs of livestock, wildlife, and healthy rangelands.

SGI-Grassbank Financial Plan

A model financial plan has been developed that illustrates key elements of a fiscally solvent SGI-Grassbank. Partners interested in the model can use this framework when evaluating grassbank ventures. Financial estimates are broken down into three main categories: 1) land and other initial capital expenses, 2) annual operating expenses, and 3) revenue.

The primary start-up cost for the grassbank is associated with land acquisition. Land costs could be significantly reduced if encumbered by a conservation easement.

Limited annual operating expenses would be associated with labor, equipment, and supplies needed to coordinate grassbank management. Expenses could be reduced depending upon how the ranch is managed and the activities assumed by grassbank participants as part of lease negotiations.

Revenue would be derived primarily through leasing of grazing rights on the grassbank. Projected annual revenue from grazing fees can be evaluated by multiplying expected grassbank productivity by forage value after discounts. Grazing fees start at Fair Market Value and are reduced accordingly by discounts earned. In keeping with the grassbank *quid pro quo* nature, discount values would be roughly equal to the value of conservation benefits produced on participant home ranches.

The SGI-Grassbank model is designed to generate at least enough revenue to pay for anticipated annual ranch operating expenses. Supplemental revenue could come from other opportunities offered on the ranch including recreation, hay production, or value-added product marketing. Ideally, creative ranch management strategies would be established that reduce expenses and generate positive cash flow for the grassbank owner.

Fundraising

Donors, corporations, foundations, and conservation partners should be interested in collaborating to finance grassbank establishment because it represents a true linking of triple bottom line performance; achieving important goals in environmental and social sustainability in an economically viable manner. The SGI-Grassbank builds upon existing federal investments and uses market-based incentives to leverage long-term conservation at landscape scales while providing tangible benefits for agricultural producers.

This plan was developed by NRCS in collaboration with Montana Stockgrowers Association and the Montana Field Office of The Nature Conservancy.

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service