

GREEN MATTERS

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A newsletter from the Alberta Environmentally Sustainable Agriculture Council

Grass, Grazing & Grassroots

From AESA Council's Past Chair

By Bruce Beattie, *Alberta Milk*

A short 200 years ago, it is estimated that over 30 million buffalo roamed the prairies, sustained by a sea of native grass within a natural ecosystem. Alberta's cattle have moved into the buffalo's ecological niche, and by adopting grazing systems based upon those basic tenets, producers have been able to profitably manage their cattle, maintaining forage productivity while also sustaining the many ecological functions that healthy grasslands provide.

Like an iceberg, most of the grass plant is below ground level. This provides its natural ability to regenerate after grazing, to build and hold the soil against the ever-present wind, and to survive prairie fires. Today, sustainably managed grazing lands remain the foundation for crucial environmental benefits like protecting water quality, conserving soil, and maintaining wildlife habitat.

At the same time these lands provide valuable economic benefits to cattle producers. Healthy rangeland is able to tolerate and recover from drought and has more stable forage production; allowing the producer to maintain a stable herd size and a stable cash flow. Grazing systems



Producers expand their knowledge of sustainable grazing systems

Sandi Riemersma/MRWCC

with both tame and native pastures can be managed in a complementary way, providing flexible systems that make the most of the good qualities of each.

This flexibility can allow the producer to extend the grazing season. Given Canada's climate and growing global competition, extending the grazing season makes a lot of sense. It makes economic sense because dormant season grazing, swath grazing and bale grazing are less expensive than traditional winter-feeding systems. It makes environmental sense because a well-managed grazing system distributes manure nutrients across the pastures. And it makes production sense because it's healthier for cattle to be out on the land.

These days, grass is making sense in some other ways, too. A niche market is growing among consumers who prefer grass-fed beef. And science shows that grazing is an effective way to enhance the levels of conjugated linoleic acid (CLA) in beef. CLA is a fatty acid which naturally occurs in beef and which has many health benefits for humans, including the ability to fight cancer.

Grass roots are solar batteries powering grass plants to grow each spring and re-grow after

grazing. The cattle are the "solar-powered harvesters," turning that fibrous plant material, into high quality protein, through the miracle of millions of rumen bacteria.

Sustainable grazing management is truly a "grassroots" movement, in which people at the local level are the energy source for growth and progress. As I read through the biographies of speakers from the Western Canadian Grazing Conference held in Edmonton this past December, I felt humbled by the wealth of knowledge and abilities of the individuals who spoke of their experiences in grazing and livestock management.

This edition of *Green Matters* looks at grass and the grassroots. It explores examples of the energy – and synergy – of increasing our knowledge by sharing experiences and learning about sustainable grazing management. This issue talks about how producers, extension agents and researchers are bringing together all they have learned to enhance our understanding of sustaining our grazing landscapes for generations to come.

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- Ag Practices to Conserve Rare Species

Sustainable Grazing Management for Multiple Benefits

“Managing pastures well is a real win-win situation both for the farmer and for the environment,” says Albert Kuipers, the Forage Technician/Manager for the Grey Wooded Forage Association. He explains that sustainable grazing management improves forage productivity, lowers input costs, increases net returns and reduces environmental impacts.

“Whether you’re managing tame or native forage species, the basic principles are exactly the same. After the plants have been grazed, they need to have the appropriate rest to grow into maturity before they are grazed again. The whole idea is to prevent the animals from grazing the same plant again, a second time, just when the plant is starting to grow back,” notes Kuipers. Providing appropriate rest periods ensures healthy, productive plants that provide good grazing.

Effective rest periods can be best accomplished through a rotational grazing system, where cattle graze a series of small pastures, rather than a continuous grazing system, where cattle graze a single large pasture all season long. Kuipers says, “[In rotational grazing] basically, you give the cattle just enough area to graze it to the point where you want it grazed to, and then you move them along [to the next piece of pasture].”

A rancher who has a combination of tame and native pastures can set up a grazing system that makes the most of both types. Kuipers notes that the key difference between native and tame pasture species is that most native species tend to grow much more slowly. To accommodate this difference, the rancher could put the cattle on the tame pastures in early spring, allowing

the native pastures time to get a good start. He says, “Several of the tame species work quite well for earlier spring grazing.”

Kuipers noted, “Another practice is putting animals on tame pastures pretty much throughout the growing season and saving the native pastures for winter grazing. Improvements are being observed in their native pasture health from doing that.” Some native plants are especially good at retaining their nutrients over the winter, which is another reason why some ranchers use native pastures for winter season grazing. In addition, winter grazing costs much less than a traditional winter-feeding system.

“By managing the pasture well, you can slowly increase the carrying capacity.”

“Whether you’re talking about summer or winter grazing, basically you’re managing for healthier grass and a healthier forage stand. Regardless of whether they are tame or native, healthier stands tend to produce more forage. I’ve seen quite often where, in a continuously grazed pasture, some of the best species tend to be lost [because the cattle overgraze]. And the species that are left, the ones that can survive under continuous grazing, tend to miniaturize. So over time the carrying capacity of the pasture slowly decreases. By turning around and managing the pasture well, you can slowly increase its carrying capacity,” explains Kuipers.

He adds, “With sustainable grazing, one of the advantages is increased net returns because you are getting more forage with less physical inputs. However, it does require the manager to

spend a fair bit of time monitoring what is going on and thinking things over on how to get the best job done.”

Kuipers notes that well managed pastures offer important environmental benefits. For instance, a good cover of forage plants holds moisture, topsoil and nutrients better than an overgrazed pasture. On overgrazed land, rainfall and snowmelt tends to run off, rather than soaking into the soil. This runoff can carry nutrients and soil into nearby creeks and ponds, decreasing the health of both the land and water. Healthy pastureland also provides for wildlife habitat (see *Developing Producer-Friendly Practices to Conserve Rare Species*).

He says, “Most farmers have the environment as a priority. They are living in the environment and they can see what is going on when things aren’t working well. I’ve seen over the last few years that many farmers are working at reducing their footprint on the environment.”

For more grazing management information...

Some great options for producers who want to learn more about grazing management are:

- grazing schools (see *Grazing School ‘Marathon’ in the Milk River Basin*), including some that are specifically for women
- Alberta Public Lands agrologists, PFRA staff, and municipal or producer group rural extension staff
- grazing mentors and grazing clubs (see *Graziers Helping Graziers*)
- Alberta Agriculture’s Call Centre (toll-free in Alberta at 310-FARM)
- Western Canadian Grazing Conference
- websites like www.foragebeef.ca, www.cowsandfish.org and www.srd.gov.ab.ca/land/m_rm_1.html.



Roger Bryan

Rotational grazing systems allow plants to have adequate rest before being grazed again

Range Management Extension: Building Expertise

The Southern Alberta Rangeland Network (SARN) is working to build capacity in range management extension in rural municipalities, conservation agencies, producer groups and other stakeholders. SARN is guided by Don McLennan of Agriculture and Agri-Food Canada/PFRA, Barry Adams of Alberta Sustainable Resource Development/Public Lands, and Greg Hale of Alberta Agriculture and Food.

Supported by PFRA's Greencover Technical Assistant Component, this two-year training initiative started in February 2006 and involves a combination of workshops, hands-on training, and mentoring assistance for participants. In the first year, classroom and field sessions helped participants learn more about range management and methods to extend this knowledge to producers.

In 2007, participants will work on their own project, with the advice from a coach. The project is a real-life extension activity that fits into the overall extension program of the participant's agency. It helps the participant learn more about packaging and delivering information to meet the specific needs of producers in their area.

At the end of the second year, the participants will come together in a wrap-up session to share lessons learned, tools and experiences.

"Barry Adams describes SARN as an opportunity to 'learn from the circle'," explains Hale. "When we acknowledge that all participants bring with them a level of experience and specific skills, then we can create training events where all participants can contribute to increasing everyone's understanding of rangeland and

grazing extension, without reference to a person's experience level. In short, we can all learn from each other."

Fundamental to SARN is the concept of 'building capacity' in people. From the very beginning, participants are involved in developing the concept, refining the training program, and determining what they get out of the process by their commitment.

"SARN's goal is to build a network of professionals in rangeland management who understand what it takes to work together with producers to create healthier rangelands and landscapes," says Hale.

Grazing School 'Marathon' in the Milk River Basin

Grazing schools provide an excellent, hands-on way for producers to learn more about grazing management. Schools are held in various Alberta locations each summer. For instance, a three-day, three-location school was held last June in the Milk River watershed.

"It was a co-operative project that came from Cardston County, the County of Warner, the County of Forty Mile/Cypress County, and the Milk River Watershed Council Canada," says Tim Romanow, the Extension Specialist from Cardston County. "It had been some time since grazing management principles, new technologies, and practices had been demonstrated to a lot of the producers in the Milk River watershed, which is over all of our municipalities.

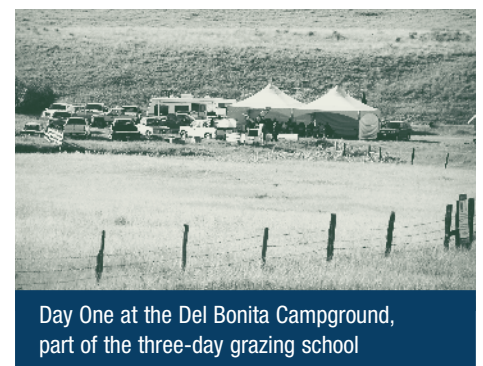
"We had a long list of topics, from range plant ID to stocking rates, grazing management strategies, riparian health, watering systems and even issues with species at risk and things like the Canada-Alberta Farm Stewardship Program. We had a split agenda, one program focused on the core principles of grazing management, and

the second program, running concurrently, had more in-depth information on specific topics."

He adds, "It was a bit of a marathon, but it came together really well. And the only way we could pull it off was with all our partners. On top of the municipalities and the watershed council, we received a lot of support through PFRA's Greencover Technical Assistance Program and Alberta Sustainable Resource Development/Public Lands. And MULTISAR (multiple species-at risk conservation initiative), Cows and Fish, Operation Grassland Community, and the Nature Conservancy of Canada all provided technical support or funding."

The school's classroom and field sessions had speakers from agricultural and resource management agencies as well as local producers talking about their innovative systems.

Romanow notes, "Many of the producers came to two days or all three days. They got a bigger picture of range management and all kinds of options to help them make their operations more economically and environmentally sustainable."



Day One at the Del Bonita Campground, part of the three-day grazing school

Tim Romanow

The partners are looking at doing a follow-up project this year with participants from the 2006 school, including possibly working one-on-one with interested producers to develop a grazing management plan for their ranch.

For more information, contact Tim Romanow (403-653-4977; tim@cardstoncounty.com).

Graziers Helping Graziers

Grazing clubs and grazing mentors are two great ways for producers to learn from each other.

Grazing clubs: “A grazing club is a group of land managers who share a common desire to learn and work together towards the goal of improved management of their grasslands,” says Arnold Mattson from PFRA’s Range and Biodiversity Division. “It’s a kind of peer support. Everybody shares their goals, and then everybody helps each other to stay motivated and reach their goals.”

He adds, “There’s a real synergy that evolves from working together. Being part of a club empowers the producers to take practical action towards improving natural resource stewardship, profitability and quality of life on their farms and ranches.”

At present there are about 25 clubs starting up in Alberta. “It’s driven from the grassroots. If people want to start a club, we’ll give them help. I’ve got a start-up kit to give them as a guideline,” explains Mattson, who is coordinating the Alberta clubs. “We’ve tried to model the clubs the same across Canada so if federal money becomes available, it can be integrated very easily.” Clubs register with Mattson so that “if new information or a new program comes along, we can make sure they’re aware of it.”

A club consists of:

- a key grass manager, who is an experienced grazer and the club’s contact person;
- a minimum of five other graziers; and
- a technical support person selected by the club.

The technical support person is an agricultural extension agent or specialist from a municipality, PFRA or other agency who has considerable grazing management experience. The tech support person does the legwork to put the club’s plans into action.

Club activities might include: pasture tours, club meetings, visiting speakers, and courses like Ranching for Profit. Topics could focus on developing grazing plans, establishing forage stands, or extending the grazing season. “Whatever they need, whatever their goal is, we figure out how to reach it and then go for it.”

For more information, contact Arnold Mattson (780-495-4593; mattsona@agr.gc.ca).



Practices like swath grazing help to extend the grazing season

A. Kuipers/GWFA

Grazing mentors: The Sustainable Grazing Mentorship Program is a consulting/mentoring program of the Agricultural Research and Extension Council of Alberta (ARECA). The program pairs experienced graziers with less experienced or novice graziers.

Albert Kuipers of the Grey Wooded Forage Association is one of the mentors. He says, “The program is designed to help people get started in grazing management. For a \$100 investment by the producer, a mentor like myself or one of the many others, will come to the producer’s place for about 16 hours of consultation over the course of several visits.”

The mentor assists the producer on things like preparing a grazing plan, adopting appropriate beneficial management practices, or whatever is necessary to help the producer develop a sustainable operation.

Kuipers gives an example. “I worked with one gentleman who had a lot of grazing background but was new to this country, having come from Europe. He just didn’t know what to make of our wild climate. So we worked together developing his grazing system so that it would be more drought proof.” Within a couple of years, this producer went from a situation where his pasture capacity was sometimes barely sufficient to get through the growing season, to having enough grass leftover after the growing season to allow grazing for most of the winter.

For more information on this program, visit www.areca.ab.ca.

Improving production efficiencies & the environment

A new, easy-to-use, readable guide called *Cow/Calf Operations and Greenhouse Gases* offers win-win options for cattle producers and the environment.

“Cow-calf producers are already making a significant contribution to the removal and reduction of greenhouse gases in the atmosphere. By altering their existing management strategies, they have the potential to increase their production efficiency, creating positive results both for the environment and their profit margin,” says Kerriane Koehler-Munro of Alberta Agriculture and Food.

The *Cow/Calf Operations and Greenhouse Gases* guide identifies certain management practices and strategies that address greenhouse gas emissions reduction and/or carbon sequestration in a cow/calf operation. The guide’s sections are arranged by practices, like ‘Incorporate legumes into tame pasture’ or ‘Chop, grind or pellet low quality feeds’, so producers can quickly find the information they want. And each section has a note about current research to help producers keep up to date on new findings.

The publication will be available online at www.agric.gov.ab.ca or from Koehler-Munro (780-427-3628; kerriane.koehler-munro@gov.ab.ca).

Agriculture and Food Council

Alberta's Agriculture and Food Council (AFC) focuses on supporting the industry's growth, competitiveness, profitability and sustainability. "We like to think of ourselves as a catalyst or an enabler to move the industry forward. And we recognize that in order to grow and be sustainable, the industry has to be profitable and that profitable isn't a bad word," says Marilyn Sharp, AFC Chair.

The Council's membership is remarkably diverse, representing Alberta's entire agri-food sector. It includes people involved in production, processing, transportation, marketing, research, and education (including educators and a student representative), as well as representatives from the provincial and federal agriculture departments. Sharp says, "We have been really fortunate with our Council members that they look at the good of the whole industry, not just their own sector."

The AFC manages a variety of term programs and projects. For instance, it is the Alberta delivery agent for Advancing Canadian Agriculture and Agri-Food (ACAAF) program. A five-year federal program, ACAAf funds projects in three areas: supporting industry-led solutions to emerging opportunities; advancing research results so the information gets to the people who can use it; and information sharing.

The Council also delivers the Alberta portion of the federal Biofuels Opportunities for Producers Initiative. This initiative provides funds for agricultural producers to develop business plans for biofuel production projects with significant producer ownership. "This program complements what the province is doing to assist

development of the biofuel industry, so we work hand-in-hand," notes Sharp.

She emphasizes the importance of the very positive working relationship between the Council and the Alberta and federal governments. "We work very well together and because of this relationship we are able to work very hard to move the industry forward."

The AFC carries out various projects related to value chains, such as holding an international value chains conference, and human resources, such as its web-based portal (www.soiltosky.ca) on opportunities in the agri-food industry.

Environmental policy is another key project area. "We have to take care of our land and animals so that they take care of us," says Sharp.

The AFC has produced environmental policy discussion papers on land use and ecological stewardship and is now following up with a public opinion survey. Sharp explains, "As the discussion about the environment progresses, the producers need to be recognized for their contribution [to environmental stewardship] and needs to be part of the discussion." The survey will be one way to engage both producers and the general public in the discussion around agriculture and the environment.

Bob Anderson represents the AFC on AESA Council. Visit www.agfoodcouncil.com for more information.

Alberta Pulse Growers Commission

Pulses – the dry edible seeds of peas, beans, lentils, chickpeas, fababeans, soybeans and lupins – have a lot going for them. They are part of a healthy diet for humans and livestock, providing agronomic benefits to growers, and generating environmental benefits for everyone.

The goal of the Alberta Pulse Growers (APG) Commission is "to drive this industry toward a more profitable, environmentally sustainable industry by linking science, technology and innovation for the benefit of our growers and the wider community," says Barry Grabo, the new APG president.

He notes, "To get to where we want to be, we want to do the right research and market development to promote the benefits of our crops. We think that the benefits are there but they haven't really been quantified at this point."

Consequently, much of the current research sponsored by this producer group centres on putting hard numbers on these benefits. For instance, APG's market development research includes clinical trials to assess the human health benefits of eating pulses and feeding trials to evaluate pulses in animal rations. Some of our agronomic research involves pinning down the numbers for the nitrogen benefits of pulses.

"Agronomically pulses really fit well in crop rotation because they fix their own nitrogen. We've always known that, but we don't know really how much they fix. In fact scientists can't even agree on how to measure how much nitrogen is fixed," explains Grabo. "So one of our calls for research proposals this year will be for a project to come up with a way to measure how much nitrogen pulses actually fix, to get the scientific community to agree that this is the standard measurement." Other APG studies compare the nitrogen fixation abilities of different types of pulses.

Since pulses fix their own nitrogen, they don't need any nitrogen fertilizer. Along with reducing fertilizer costs for growers, that saves on the energy used in producing nitrogen fertilizer. Other environmental benefits of pulses include improving soil health and tilth, and helping to break weed, disease and insect pest cycles in crop rotation.

"When we talk about growing healthy food from healthy soil, I think pulses have a great fit there," says Grabo, who farms in the Strathmore area. He adds, "I think farmers have always been good stewards of the environment - we're trying to do the best job that we can, and we're certainly getting better at it as time goes on."

Dave Hegland represents APG on AESA Council. For more information, visit www.pulse.ab.ca.

Developing Producer-Friendly Practices to Conserve Rare Species

Rangeland stewardship by generations of ranchers has helped to sustain crucial habitat for many endangered and threatened species. But the complex and diverse biology of the various species makes it challenging to know how to further enhance voluntary stewardship actions. An ambitious four-year pilot project is taking up that challenge.

Called the Prairie Species-at-Risk Beneficial Management Practices (BMPs) project, it began in 2004 and presently focuses on a pilot group of 14 species. The eventual goal is to expand the project's scope to include the full suite of species at risk that overlap the agricultural prairie landscape.

The project aims "...to work with key stakeholder organizations to build awareness and understanding of what producers on the prairies can do to enhance the compatibility of their activities with species at risk," says Michele Williamson of Environment Canada. She chairs the project's multi-agency steering committee, which includes agricultural and environmental agencies of the Government of Canada and the three Prairie Provinces.

"There are many existing non-governmental, provincial and federal stewardship program delivery agencies as well as very effective producer groups," says Williamson. "We want to enhance the good work they're already doing by providing them with consistent, producer-friendly information on BMPs to conserve species at risk, that they can then deliver to interested producers."

Although other land uses also influence species at risk, the project focuses on agriculture. That is because farmers and ranchers assistance is required to conserve Canada's species at risk. "Agricultural producers can actually steward species at risk on the lands they manage," notes Sue Michalsky, who is the project manager. "Other land users that impact species at risk can just minimize or mitigate negative impacts."

The project has two main objectives:

- to develop information on BMPs for prairie species at risk specific to bioregions/habitat types; and
- to provide technical support to extension and program delivery agencies on these BMPs.

Various existing stewardship programs include biodiversity-related BMPs, but Williamson explains that the recommended practices often "...tend to be very generic. However the biology of a species can vary across eco-regions and habitats, and under various land management practices."

To deal with this remarkable biological complexity, the project team is building a unique database. The database breaks down every agricultural practice on the prairies according to

its potential ecological impacts – from positive to neutral to negative – on each species. This is accomplished by reviewing existing studies and expertise, and then breaking out local landscape differences. Once the BMPs for the individual species are established, the project will develop protocols for dealing with situations where the needs of one species conflict with the needs of another.

"...the biology of a species can vary across eco-regions and habitats, and under various land management practices."

Collaboration with stakeholder organizations is essential. Through workshops and one-on-one consultations, the stakeholders involved will provide input into the development of BMPs, technology transfer products, and the BMP delivery process. For example, a workshop in January 2007 gathered input from representatives of about 30 stakeholder organizations, such as the Canadian Cattlemen's Association, Alberta Beef Producers, Saskatchewan Association of Rural Municipalities, and Ducks Unlimited Canada.

Each stakeholder decides how involved it wants to be in the project. Some organizations, including the AESA Program, have already joined the project's technical advisory group. "This group of advisors continues to grow as the project gains momentum," notes Williamson.

For more information or if your organization would like to participate in the project, contact Sue Michalsky (306-295-3696; suemichalsky@sasktel.net).



Species at risk, like this burrowing owl, can be compatible with agriculture

Environment Canada – Canadian Wildlife Service

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Green Matters is the newsletter of the Alberta Environmentally Sustainable Agriculture (AES A) Council. AES A Council consists of representatives from Alberta's agriculture and food processing industry, environmental organizations, and municipal, provincial and federal governments.

AESA Council's vision is that Alberta has a thriving agriculture and food industry that is operating in an environmentally responsible manner. Its mission is to lead the agriculture and food industry in addressing environmental challenges. And its goal is to develop and deliver collaborative environmental stewardship initiatives that result in sustainable growth of Alberta's farm, ranch and agri-food processing industry.

The purpose of *Green Matters* is to provide a forum for discussion of environmental issues in Alberta's agriculture and food processing industry.

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The Agricultural Policy Framework (APF) – A Federal-Provincial-Territorial Initiative