Agriculture and Agri-Food Canada | Agriculture et Agroalimentaire Canada

CANADIAN ADAPTATION AND RURAL DEVELOPMENT FUND

Manitoba Rural Adaptation Council
Performance Report 2001-2002

PROFILE

The Manitoba Rural Adaptation Council (MRAC) is a not for profit corporation whose membership includes individuals and corporations across the Manitoba agri-food sector. Sixteen of MRAC's 22 member board of directors are elected by the membership at an annual meeting. The federal government appoints two voting directors and two ex-officio directors. The Manitoba government appoints two ex-officio directors.

MRAC's goal is to assist rural Manitobans and their communities in developing and implementing long term sustainable development strategies that will maximize social, economic and environmental benefits. As such, MRAC was and is an excellent fit to administer the federal government's Canadian Adaptation and Rural Development Fund (CARD). Since 1997, MRAC has committed CARD funds in Manitoba to meet mutually held objectives:

- to foster increased long term growth, employment, diversification and competitiveness of Manitoba's agriculture and agri-food industry and rural areas;
- to promote self sufficiency and self reliance so that the sector is less dependent on government support;
- to foster greater cooperation, strategic alliances and partnerships among individual companies, segments of the industry and rural stakeholders.

MRAC is funded by an $11.46 million grant from AAFC's CARD Fund. MRAC provides funding for innovative projects to develop new products, new markets, new technology and new forms of organizations. Commercial and non-profit organizations including corporations, cooperatives, marketing boards, partnerships, individuals, institutions and industry associations are eligible to apply for grants. In general, approved projects may be funded by MRAC up to 1/3 of the total cost with MRAC's share not exceeding $100,000. In 2001-2002, MRAC was also allocated a total of $990,000 under the Agricultural Environmental Stewardship Initiative (AESI). AESI programming for the first year of its three year mandate is reported separately. MRAC was also responsible for administering $1.9 million in funds from the Canada Agri-Infrastructure Program (CAIP) all of which was committed by June 15, 1999.

In the fifth fiscal year of funding (April 1, 2001 to March 31, 2002), MRAC contributed over $**1.17** million of CARDF grants towards 77 new and continuing projects leveraging a total of over $**2.26** million of industry cash and in-kind contributions alone. Among these projects are nine initiatives funded jointly under the Western CARDF Council (an alliance between MRAC, Alberta Agriculture and Food Council (AFC), British Columbia Investment Agriculture Foundation (BCIA), Saskatchewan Council for Community Development (SCCD), Territorial Farmers Association (TFA) and Yukon Agricultural Association (YAA). The Council was created in 1999 as a way to further a client-service oriented approach to administering projects which impact more than one western province/territory. MRAC continues to emphasize client service through providing the flexibility to fast-track proposals with sensitive time considerations. This year, MRAC is administering a total of 28 projects initiated in previous years in addition to the 39 projects initiated in 2001-2002 fiscal year. Out of the 131 initiatives to be funded since the first project approval in 1997, 70 projects are complete.

REACH

MRAC=s strategic plan indicates that it will encourage individuals, groups, communities and organizations, including First Nation communities, to bring innovative proposals forward for funding consideration. All sectors of the agriculture and agri-food industry including institutions, organizations, agribusiness, commodity groups and private individuals are eligible for assistance. As well, MRAC's board of directors has formed four pro-active committees to focus on initiatives that will make Manitoba a leader in the sustainable use of environmental resources, promote and support the adoption of innovative products, processes and marketing practices, capture value-added opportunities and produce safe and nutritious food to meet consumer demands.

Primary Target (Beneficiary)

MRAC has contributed to a wide range of projects during fiscal year 2001-2002. Some of these projects are now complete, others are just beginning and most are continuing from other years. The reach of these projects is indeed enormous. Here's a taste of the innovative work CARD funds are now supporting in Manitoba.

In 2001, hog production numbers in Manitoba reached 5.9 million - 25 percent of Canada's production. This one component of the province's livestock industry accounted for over $800 million in farm-gate receipts in 2001. The industry is not without its challenges and challengers. MRAC's is supporting several major studies aimed at assisting the hog industry to achieve sustainable status within rural communities. For instance, a pilot study to implement an ISO 14000 conformable Environment Management System will provide the opportunity for the province's 1,500 pork producers to manage all environmental aspects of their operation under a single management activity, and allow for demonstration of their individual environmental stewardship efforts.

As well, the development of a minimum hog price protection program across the west should go along way toward stabilizing hog revenues. All three prairie CARD councils are supporting this project. This program will be accessible to all western hog producers and administered by producer groups in the three prairie provinces.

Hog producers in Manitoba also stand to benefit from a new network style of hog production and marketing conducted by Dynamic Pork, a joint endeavour of hog producers and a prairie grain company. MRAC funded the business plan that led to the successful establishment of several hog marketing networks in the province. Manitoba's approximately 1500 hog producers will also benefit from an MRAC supported study of Japanese consumer preferences for pork. Japan is a major market for chilled Manitoba pork but this study will provide the marketing tools to make those sales even bigger, ultimately benefiting hog producers, marketers and processors.

Development of a needleless vaccine delivery and formulation system will benefit all Canadian livestock producers in two ways. Benefits will be derived from increased farm gate receipts through the reduction of meat quality loss due to injection site reactions. Benefits may also be gained through development of additional export markets for livestock produced with fewer antibiotics.

All Manitoba cattle producers will potentially benefit from several MRAC supported projects designed to further the understanding of forage crop production and grazing practices. The Brandon Soil and Water Management Association is leading a study to reduce costs of cattle production by developing a management system for using perennial and annual forages to extend the grazing season and cut feeding costs. The Delta Ag Conservation Co-op has set up a demonstration to show the ag and wildlife sectors working together to promote sustainable livestock and crop diversification. This project is designed to expand cattle numbers and convert marginal cropland to forage.

Manitoba cattle and goat producers will benefit from an innovative idea to turn both species out on pastures infested with leafy spurge. MRAC is supporting this research led by the Manitoba Cattle Producers. The province's goat producers will also benefit from an MRAC supported study to build a goat industry through increasing forage production.

MRAC went a long way toward facilitating continued diversification by providing funds to the Manitoba Sheep Association to identify adaptation opportunities within the sheep industry. The MSA developed a multi-stakeholder strategy to capitalize on the opportunities identified. Also, the Bison Association of Manitoba embarked on an initiative to strengthen sales of bison meat through improved consumer knowledge of the industry and product, and by providing improved management and marketing skills to existing and potential bison producers.

MRAC targeted the province's approximately 130 chicken producers by supporting the design and implementation of a validation program to ensure registered chicken producers in the province are in compliance with the HACCP-based Chicken Farmers of Canada On Farm Food Safety Assurance Program.

Manitoba's approximately 650 dairy producers operate the fifth largest cow herd in Canada. Production per cow is increasing so that even though cow numbers have dropped steadily, commercial dairy producers actually sold two percent more milk and cream in 2000 than they did the year earlier. Margins are tight, so MRAC is funding a study to consider ways to optimize harvesting and processing parameters to maximize milk production using large bale forage systems.

Manure management issues are common to all livestock operations and are controversial in rural and urban communities alike. MRAC is supporting the investigation of solutions to several manure issues including the management of phosphorous in hog manure, the regional balance of phosphorous and nitrogen in hogs manure, odour management and manure management in cow-calf operations.

Due to the expanding number of hogs, cattle and poultry, Keystone Agricultural Producers has taken a pro-active approach to investigate the means by which to provide the Canadian livestock industry with high energy, economic sources of feed. MRAC contributed to the establishment of this fusarium resistant Ultra High Yielding (UHY) Wheat breeding program. The ultimate introduction of new cultivars of wheat will impact Manitoba's 8,000 wheat and cereal grain producers, as well as all hog and poultry producers in the province.

Pesticide-Free Production (PFP) continues with the development of opportunities for mainstream producers to produce commodities at reduced production costs for emerging no-pesticide food markets. MRAC contributed to the development of the technology and now is supporting the establishment of a Pesticide Free Crop Production Association and development of markets for PFP grains and grain products.

MRAC is also supporting the development of a new data warehouse on the web which will provide Manitoba Crop Insurance data to help the province's crop producers, researchers, governments and agri-businesses manage their operations using more accurate, up to date information.

A panel of experienced no-till producers is being consulted to identify the most desirable characteristics and preferences for a low disturbance no-till airseeder . The survey results will assist in the design and fabrication of a prototype suited for the residue and clayey soil conditions in Manitoba. Existing disk no-till drills fail to cut straw and instead push it to the bottom of a furrow, resulting in poor seed to soil contact, thus poor seed germination.

MRAC supported the development of a test baking facility at the Canadian International Grains Institute in Winnipeg. The new lab opened officially in the spring of 2002. The Institute provides technical research support and customer service to Canada's milling and baking industry, and to the many overseas customers of the Canadian Wheat Board.

A project funded jointly by all three CARD councils will produce an updated potato production manual for growers across the prairies. New technology since the last revision in the early to mid-90's made the update a necessity. Potato acres in all three provinces have increased dramatically in the past five years. In Manitoba, production is forecast to increase by 50 percent in the next few years. This manual will benefit the approximately 150 growers who produce potatoes for the processing market. Those growers annually employ over 1500 full-time and casual workers. The processing plants employ over 1000 workers. The manual will assist in expanding Manitoba's potato industry, and help maintain the viability of Manitoba communities.

Manitoba producers are investigating alternative crops such as sea buckthorn - a crop with particular potential in the cosmetic industry. There's no problem growing the shrub, but harvesting it is another matter. MRAC supported a project to develop a mechanical harvester for sea buckthorn. There's a great deal of interest from the thousands of farmers who have sea buckthorn in their shelterbelts.

The province's approximately 60 commercial saskatoon berry growers benefitted from MRAC supported research to develop an on-farm freezing unit and method to extend the marketing window for saskatoons.

All Manitobans now have access to informative and consumer-friendly information about the province's agricultural industry, thanks to a quarterly publication supported by MRAC. Growing Manitoba is co-ordinating publication of the magazine called *Savour,* that is available at no charge in retail food outlets. The magazine features seasonal stories of Manitoba producers, processors and chefs. It has the potential to reach up to at least a million people throughout the province.

Intermediaries/Co-deliverers

Project Name and Applicant	Co-deliverers
Minimum Hog Price Protection, Western Pork Council	Keystone Vegetable Producers Assoc., University of Manitoba, MB Agriculture and Food, Peak of the Market, McCain Foods, Kroeker Farms, DGH Engineering, Midwest Food and Products, MB Seed Growers Assoc., Canada/Saskatchewan Seed Potato Growers Assoc., SK Agriculture and Food, University of SK, Alberta Agriculture, Food and Rural Development, Potato Growers Alberta, Canadian Food Inspection Agency
Implementing a Model for Expanded Use of Native Grass, University of MB, Dr. R. Smith	Canadian Turf Research Foundation MB Forage Seed Assoc. Ducks Unlimited Industry consortium
MPP Warehouse Net, MB Crop Insurance Corp.	Manitoba Agriculture and Food
Leafcutter Bee Equipment Decontamination, MB Forage Seed Assoc.	Manitoba Agriculture and Food
Low-Disturbance No-Till Airseeder for the Prairie' s Heavier Residues and Clayey Soil Condition, ST Agritech	MB Zero Tillage Assoc. Rosset Machine Co. University of Manitoba
Building Industry Preparedness and Response Capabilities for a Foreign Animal Disease Outbreak in Canada, Canadian Animal Health Coalition	Canadian Bison Assoc., Canadian Cattlemen' s Assoc., Canadian Pork Council, Canadian Sheep Federation, Dairy Farmers of Canada, Canadian Marketing Agency, veterinary agencies of MB, SK, AB, BC and ON
Bison Management and Marketing, MB Bison Assoc.	Manitoba Agriculture and Food
Medicinal and Aromatic Plant Assoc. of MB, Medicinal Aromatic Plant Conference,	Food Development Centre, MB Industry, Trade and Mines, MB Herb Society, Assiniboine College, MB Food Processors Assoc.
Producers Making It Happen Conference, Parkland Crop Diversification,	Food Development Centre Manitoba Agriculture and Food
Think Tank Phase II, Phase II	MB Rural Adaption Council, Sk Council for Community Development - CARDS Secretariat, Agriculture and Food Council, British Columbia Agriculture Foundation
Recapturing Wealth on the Canadian Prairies - Agricultural Renewal Alliance, University of Manitoba, Dr. R Van Acker	KAP Manitoba Agriculture and Food MB Co-operator Canadian Wheat Board AAFC - PFRA
Manitoba Young and Beginning Farmer Profile, Young and Beginning Farmer Committee	Manitoba Agriculture and Food University of Manitoba MB Crop Insurance Corp. MB Ag. Credit Corp.
Agrometeorology Centre of Excellence , ACE	Manitoba Agriculture and Food
Crop Silage Variety Trial, Blanshard-Hamiota Soil Savers	Manitoba Agriculture and Food
Manitoba Goat Industry Initiative, MB Goat Assoc.	Manitoba Agriculture and Food
Hardy Roses from Somatic Embryos - Field and Pot Growth Trials, Plant Pathways	AAFC - Morden Research Centre
Safety Chain Development for Large Farm Equipment, Western CAN Testing Inc.	Prairie Agricultural Machinery Institute
Non-herbicidal Weed Control using Anhydrous Ammonia, Martens, G., McClement, R.	University of Manitoba
Delta Waterfowl Multi Functional Use Project, Delta Ag Conservation Co-op	Manitoba Agriculture and Food Delta Waterfowl Foundation

Project Name and Applicant	Co-deliverers
Multi-Species Grazing for Pasture Improvement-Leafy Spurge Control, MB Cattle Producers Assoc.	Manitoba Agriculture and Food
Economic and Sustainable Forage/Livestock Systems Utilizing Hog Manure, SPADA	Manitoba Agriculture and Food AAFC - PFRA
MB Grazing School, Manitoba Grazing School 2001	Manitoba Agriculture and Food
Evaluation of Sustainable Beef (Cow-Calf) Manure Systems in the Interlake, Ag Technology Transfer Co-op	Manitoba Agriculture and Food
MSAA Workshop: 'Sustainable Agriculture - Reality or Myth?', MB Sustainable Ag Assoc.	Manitoba Agriculture and Food
Canadian Wheat Board, Development of a Test Baking Facility at CIGI	Canadian International Grains Institute
Innovation for Pesticide Free Crop Production, University of Manitoba	AAFC - Brandon Research Centre
Fruit Crop Diversification, Prairie Fruit Growers Assoc.	AAFC - Morden Research Centre
Manitoba Sheep Industry Initiative (MSII), MB Sheep Assoc.	Manitoba Agriculture and Food
PFP Promotion and Market Development, PFPFC Ltd.	Manitoba Agriculture and Food University of Manitoba
Pilot Magazine, Growing MB	M2 Communications
Manitoba Forage Industry Development Project, MB Hay Processors Assoc.	Manitoba Agriculture and Food
Queen Bee Breeding, Interlake Beekeepers	Manitoba Agriculture and Food Interlake Agri Ltd.
Development and Evaluation of Protein Isolate from Hemp Seeds, MB Food Development Centre	Fresh Hemp Foods
New Network Style Hog Production, MB Pork Est	Paterson Grain
Weed Management in Alfalfa, MB Forage Seed Assoc.	Manitoba Agriculture and Food
Disease Management in Grasses, MB Forage Seed Assoc.	Manitoba Agriculture and Food

SHORT-TERM RESULTS

Environmental Sustainability

MRAC is supporting a wide variety of projects that contribute to the sustainability of agro-Manitoba's environment. Here is a selection that expands the list of projects noted previously under Reach.

MRAC is supporting a study to understand how management practices influence the behaviour of pesticides in soil to identify crop rotation practices that will reduce the carryover and leaching potential of pesticides. This study is part of a larger research program conducted by the Brandon Research Centre and the Manitoba Crop Development Centre to define optimum crop rotations for the production of potatoes in Manitoba, and to ensure sustainable land management during industry expansion.

Demonstration of methods simultaneously beneficial to the agricultural and wildlife sectors will provide best practices to enable expansion of the province's cattle industry, and the conversion of marginal cropland to forage, while supporting/ maintaining riparian stream management, agri-eco tourism and land set-aside activities.

Barley producers will gain information to increase their net returns from barley production, and reduce the use of herbicides. The research will determine the appropriate herbicide rates for barley cultivars that differ in competitive ability against wild oats, develop the decision support system and a complete agronomic package for new high yielding "hybrid" feed barley.

While much of the research on manure management focuses on hog production systems, MRAC is supporting a producer-initiated evaluation of sustainable beef (cow-calf) manure systems in Manitoba's Interlake. The project will evaluate, demonstrate and analyze a variety of beef (cow-calf) manure management systems and planning tools in the Interlake region that will provide producers in this area with detailed cost comparisons, as well as environmental impact information about various manure management systems.

MRAC is supporting a study by researchers at the University of Manitoba to measure the amount of water, nitrate-nitrogen, phosphorus and carbon lost from the root zone of wheat in manured and un-manured Manitoba soils. Computer simulated models summarizing various aspects of water and nutrient movement will be developed to determine the potential that fertilizing with manure has to pollute groundwater. The results will help wheat producers tailor their fertilizer practices to sustain environmental quality.

MRAC has formed a pro-active committee made up of members of its Board, who will seek out opportunities to fund projects that could make Manitoba a leader in the sustainable use of environmental resources, thus ensuring their availability for future generations. In this reporting period, the committee has brought together stakeholders involved in developing environmental/stewardship scans/plans for Manitoba producers.

Success Stories

MRAC has partnered with industry and governments to support a project identified by a grass-roots group known as the Stuartburn-Piney Agricultural Development Association. The project was designed to demonstrate the economic benefits of an environmentally sustainable "hog/cattle/forage" model. Many farmers are incorporating forage into their crop rotations, and marketing that forage through livestock operations. Some are interested in using hog manure as a fertility source for those forage crops.

All trials were run at local farm sites and included the following activities:

- An evaluation of the different systems for application of liquid hog manure to forage. The economic benefit of the systems was determined by the use of a gross marginal return, calculated by deducting the cost of application from the estimated livestock feed value of the forage produced.
- The timing of the application of manure compared a split application to a single fall application. Total forage yield and gross marginal returns were used to assess the differences.
- An evaluation was made of the adaptation of forage species to applications of varying rates of fertilizer applied as hog manure or as commercial fertilizer.
- The use of hog manure as a fertility source for grazing systems was evaluated which included both seeded and unimproved pastures. Livestock productivity, forage species changes, soil fertility levels and environmental impact were used to assess the effect of the higher fertility rates.
- Local farmers using hog manure on their forage crops were surveyed to determine current management practices.

Findings:

Differences in forage yields between the manure applications were small – much less than first anticipated.

The extensive rooting system of forage crops captured nutrients extensively.

Some forage species did not appear to respond favorably to the manure applications. Other species reacted well to the higher rates. More research is needed.

Information Valuable to Manitoba forage producers:

- Hog manure should be applied using a system that deposits the product as close to the soil surface as possible to reduce nutrient losses and odours.
- Hog manure should be applied immediately prior to crop growth, such as after the first cut or in the dormant period. There is an advantage to some incorporation if applied in the fall, but there's minimal advantage if manure is applied after the first harvest.
- Manure should be applied according to forage crop requirements at rates within provincial guidelines. Higher rates are often not profitable and could be damaging on some soils.

- Courtney tall fescue, reed canary, timothy, orchard grass, quack grass, creeping red fescue and Kentucky blue grass respond well to higher fertility rates. Birdsfoot trefoil was the only legume that adapted well.
- Grazing systems that involve a rest/recovery grazing system (rotational grazing), make the most efficient use of hog manure as a fertility source.

Information of value to hog and cattle producers:

- Hog producers have a scientific guide for applying manure to forage.
- Cattle producers in partnership with hog producers will be more profitable due to the higher yield and quality of the forage produced, and the lower cost of forage grown with hog manure as a fertility source.
- MRAC is currently supporting another hog manure/forage study with SPADA. This second project is monitoring the grazing and forage trials set up under the first project, with the goal of developing a profitable forage/beef model that will use hog manure as the fertility source.

Food Safety and Quality

MRAC is supporting several projects specific to food safety and quality issues. Here is a selection that expands the list noted previously under Reach.

There are provincial regulations governing the handling and disposal of livestock manure in Manitoba, but are they adequate to protect the health of Manitobans? MRAC is currently supporting an investigation by researchers at the University of Manitoba to determine the risk to human health from current hog manure handling practices, relative to the survival of, and subsequent movement of major pathogens.

If perception is reality, then an MRAC supported project to bring HACCP-like controls to Manitoba's chicken farms will go a long way toward making Manitoba chicken first choice with the province's consumers. The project is planned to design and test a validation program to ensure registered chicken producers are in compliance with the HACCP-based Chicken Farmers of Canada's On Farm Food Safety Assurance Program (OFFSAP). The project also includes the development of tools to communicate the program to MB chicken producers, ensuring Manitoba continues to meet the market demand for safe, high quality product.

MRAC has formed a pro-active committee comprised of members of its Board to stay on top of food safety trends and concerns, and actively solicit related projects or facilitate discussion to solve food safety problems in Manitoba.

Innovation

Projects supporting innovative production, processing and marketing practices are a major focus for MRAC funding. Here is a selection of innovation projects that expands on the list noted in Reach.

MRAC is supporting research to establish a wireless data transmission network across agro-Manitoba to process real time weather information into decision support tools for the agricultural industry. Researchers are developing a network that will enable producers to utilize information (such as the effects of weather conditions on crop, weed, pest and plant disease development) in daily production and management decisions.

Hit 'em when they're small and vulnerable. That's the strategy scientists are pursuing in an MRAC supported project looking at the impact of pre-seeding weed control strategies on plant disease. The study focuses on identification of stubble-treatment herbicides which could inhibit development of blackleg - a yield reducing disease in canola - while at the same time reducing weeds.

The Ontario Adaptation Council joined the western councils of Manitoba, Saskatchewan, Alberta and British Columbia to assist in the development of needleless vaccine delivery and formulation systems for both existing and novel vaccines being developed by the industry. Adoption of this new technology will increase farm gate receipts through reduction of meat quality loss due to injection site reactions. This could also encourage increased Canadian meat exports because of reduced use of antibiotics. CARD funding will enable expanded investigation of vaccine delivery routes, and will serve to expedite the projects.

There's a great deal of interest in expanding exports of Timothy hay for markets in Asia. MRAC is supporting an initiative by the Lake Winnipeg Hay Company to develop and test alternative transfer systems between an unroller for large round and medium square bales. The objective is to come up with a cost-effective method for processing hay for lucrative export markets.

MRAC is supporting the initial stages of developing a proposed Research and Development Centre for Functional Foods and Nutraceuticals, that will be unique in Canada and the US, in its capacity to conduct research and development of a plant product from the growth stage through to the final stage of clinical trials. This portion of the project will allow for the CEO to be involved in the Centre's development, with the objective of allowing research and fee-for-service opportunities to be initiated promptly upon completion of the facility.

Several other initiatives funded in the 2001/02 fiscal year focus on an array of innovative developments in technology. For example, MRAC supported the investigation of the feasibility of baling alfalfa using a draper style pickup installed onto a round baler, by comparing the relative feed value of the bale with the feed value from hay baled using the conventional drum pickup. The Council also supported the development of a computerized nutrient monitoring system for a manure injection machine, and contributed to preliminary research to develop a system to select and produce a new crop that can be processed into (non-food) industrial chemicals.

MRAC's pro-active Innovation Committee facilitated discussion amongst Manitoba stakeholders to initiate policies and evaluate processes that could lead to the development of renewable energy production and use in rural Manitoba.

Success Stories

Through the collaboration of western and Ontario CARD Councils, the Veterinary Infectious Diseases Organization (VIDO) in Saskatoon is working to develop needle-free delivery systems for livestock vaccines.

Vaccination is the most cost-effective method to improve livestock production and reduce animal suffering and death. Most vaccines are delivered with a needle, but this method can cause concerns. Injection sites reduce meat quality and no matter where the animal is injected, there is going to be a reaction. Another problem arises when end users find broken needles in carcasses. The discovery of a broken needle not only disturbs consumers, but can also end relationships between importers and exporters. The VIDO Project is tackling this issue, and is well on its way toward successfully demonstrating that they can eliminate the use of needles in vaccinations.

Almost two years of research is suggesting that the VIDO Project is on target. Scientists at VIDO are evaluating six delivery methods for vaccines. Two of the delivery methods showing promise are intranasal and oral. A new delivery system is probably still a good ten years from being commercially available.

Even though VIDO's mandate is to develop efficiencies for food producing animals, opportunities may exist for human applications. Just imagine how easy immunizing your children would become if there was an effective method available that did not use needles. And this revolutionary project is able to proceed because of the financial support of the contributing CARD Councils.

Sea Buckthorn is a hardy shrub that grows well in the many miles of shelterbelts throughout the prairies. Its silver-gray leaves and yellow-orange berries are ornamental - and potentially profitable. Juices and oils of the plant are a staple in many traditional medicines and cosmetics in Asia and Europe.

In the past few years, as prairie farmers began to investigate alternative crops, Sea Buckthorn looked as though it might have serious moneymaking potential. But - the cost of manual labour at harvest has proven too high for prairie farmers to make a profit from a Sea Buckthorn enterprise.

In 1999, PAMI researchers asked the board of the Manitoba Rural Adaptation Council (MRAC) to back their plan to develop a Sea Buckthorn harvester. The board agreed to add $170,000 ($50,000 from Agriculture and Agri-food Canada's CAIP research and development fund and $120,000 from AAFC's CARD fund) over three years to an account already building with help from Saskatchewan's Agricultural Development Fund, and in-kind assistance from both the Universities of Manitoba and Saskatchewan. PFRA and PAMI also pitched in with substantial in-kind contributions.

At the end of three years, the research team reports success. The study shows Sea Buckthorn berries can be successfully and economically harvested using a shaking mechanism, while the best method for collecting the shrub's leaves involves a rotating brush device. The team developed a Sea Buckthorn berry harvester that shakes or vibrates the shrubs for about a minute at one inch peak amplitude at 25 HZ frequency. To collect the leaves mechanically, the researchers came up with an adjustable arm-mounted harvester that brushes the leaves from each branch into collector hoppers.

The research team admits that the model needs refining, but the concept is there. In fact, MRAC is currently supporting research by the same team that is now in its first year of designing, building and evaluating a more sophisticated commercial berry harvester that could be adapted for other fruits such as saskatoons or chokecherries.

Market Opportunities

MRAC is directing CARD funds to several significant market studies and marketing related projects. Here's a selection that expands on the list noted previously under Reach.

MRAC supported a market research survey to solicit attitudes toward the concept of Pesticide-Free Production and the products the system turns out. The survey was designed to determine who would purchase PFP related food products, what they would purchase and for how much. Based on results of a trial survey in Winnipeg in late winter 2001, revised surveys were mailed to a total of 2000 people in Calgary, Winnipeg and Toronto. A total of 374 surveys were returned reflecting primary grocery shoppers for households with an annual income of over $60,000.

Results showed that respondents are concerned about the possibility of pesticide residues in the food supply, and support farmers' use of sustainable agricultural production practices. Nearly 80 percent indicated they would prefer to buy a PFP food product over a conventionally produced product, assuming taste and price were the same. Of the 26 food items offered in the survey, respondents selected potential PFP pasta, breakfast cereal, whole wheat bread, multigrain bread and bagels as the top five items they'd select over conventional products.

MRAC is supporting a project to provide producers with an opportunity to stabilize hog revenues through the development of an innovative hog price protection program. The program will be accessible by all western hog producers and administered by the current marketing boards located in Manitoba, Saskatchewan, and Alberta.

Insurance levels would be provided for three month periods with premiums fixed at three alternative levels for the three progressively higher coverage levels. The producer buys an insurance level for the average hog price within a three month period for an agreed number of hogs, and pays the related premium to the group operating the program. The Chicago Mercantile Exchange will be used as the benchmark to determine the insurance price levels. Innovative risk management arrangements would be established with Canadian and US trading houses, meat processing companies and financial institutions to protect or hedge the insured volumes and prices protected. The producer would receive a payout if average hog price over a given period were below the protected price.

So far, the developers have come up with an acceptable minimum price product and supporting software system. They have also identified and selected a preferred minimum price product and supporting software system developer. Current activities include negotiation and approval of a vendor contract to develop, test and implement a minimum price product/system, and

the development and testing of the minimum price product/system across western Canada.

MRAC provided assistance to the Prairie Fruit Growers Association (PFGA) to help growers develop the Manitoba strawberry industry. This research project studied plant propagation techniques suitable to Manitoba which would enable the province's strawberry/fruit producers to obtain their plants locally, and open opportunities for plant sales based on "northern vigour". Results have shown Manitoba growers have considerable room to cover production and cold storage costs and still make a profit. As projected costs for plant orders in MB for 2001-02 are $80,000, the PFGA, who handle the majority of plant orders in the province, are in the position to work with growers to establish a sizable production program to allow local production of plant stock as well as develop fledgling export possibilities to nearby provinces and the US.

MRAC has joined with the Canadian Wheat Board , Western Diversification and Public Works and Government Services Canada to build a test bakery to provide research, marketing and customer service support to Canada's wheat industry. The lab is now complete in the Canadian International Grains Institute in Winnipeg. The bakery will allow CIGI to enhance its teaching and demonstration capacity, as well as its testing and product development capabilities. At the same time, international customers will benefit from a more in-depth technical exchange regarding the suitability and use of Canadian wheat and flour in their end-products.

The test bakery will produce laboratory-scale bread loaves of 140 grams compared to the 530 gram commercial-scale loaves produced in CIGI's pilot bakery. Activities identified for the test bakery include: functional testing of new wheat varieties targeted for the baking industry, evaluation of flour blends, formulations and dough additives on baking performance, and an assessment of processing and equipment variations on baking quality.

Manitoba's sheep numbers doubled in the past five years, but an MRAC supported report commissioned by the Manitoba Sheep Association indicates those numbers will drop unless the industry starts putting its money into production and market research. And that, according to the report, requires producers to contribute to a check-off on sheep and lambs grown in Manitoba

The Manitoba Sheep Producers' Association took a close look at the industry's barriers to growth, and came up with a realistic analysis of what it's going take to grow the business. The Province has already put one of the main recommendations in place when it appointed a provincial sheep specialist this past January. This new report underlines the need for a consistent financial base on which to build such vital initiatives as flock health protocols, training programs for professionals such as veterinarians and ag representatives, distance education short courses for sheep producers, market research and consumer studies.

The strategic plan calls for market intelligence and grading seminars for producers. It also recommends research into development of a Manitoba Natural Lamb brand. It asks the MSA to investigate the possibility of acting directly or through an agent to provide logistical co-ordination of lamb marketing in Manitoba, perhaps via a value chain approach.

MRAC has established a pro-active committee made up of members of its board of directors to consider value-added opportunities for Manitoba producers, processors and retailers. The Committee has facilitated several stakeholder discussions of the potential of developing value chains that would provide a reasonable profit for everyone in the loop.

Success Stories

Joint funding from the CARD Councils in Manitoba, Saskatchewan, and Alberta is assisting farmers across western Canada in gaining a greater global market share of malting barley through the Canadian Malting Barley Technical Centre (CMBTC).

Scientists at the CMBTC are now providing the technology, skills and equipment necessary to undertake pilot scale evaluation of new malting barley varieties. The results of the variety evaluations are aimed at convincing customers to change to the new generation of Canadian malting barley varieties.

The ability to simulate a customer's processing conditions with much smaller quantities of barley for malt testing is significantly reducing the costs and risks associated with this work. Additionally, the acceptance of newer varieties will allow marketers and malting companies to select better quality barley to meet customer specifications. Over time, the CMBTC will help to develop new products to allow Canada increase its market share, which will support the value added malt sector, and maintain employment in the malt processing industries in Manitoba, Saskatchewan and Alberta.

MRAC's support of Pesticide-Free Production continues to develop new production and marketing opportunities for Manitoba crop producers. The system reduces production costs and provides product for the growing no-pesticide food market. To qualify for the PFP label, a crop must be non-GMO and not be treated with pesticides from the time of crop emergence to marketing. These crops can't be grown from treated seed produced where residual pesticides are considered to be active. Herbicides and fertilizers can be used within a strict regimen.

In the past two years, over 83 farmers have enrolled in the PFP on-farm research program. PFP crops were grown in all regions of Manitoba in 2001, with the greatest concentrations in the southwest and interlake regions. Another 100 growers have expressed interest in taking part in the program sometime in the future.

The Pesticide-Free Farmers Co-operative, a market development organization, was established in 2001. MRAC funds were used to hire a marketing manager to help move the product at premium prices. The manager will follow a marketing strategy that involves the use of a new logo as the defining symbol for PFP products._Farm meetings including PFP on the agenda were well attended in 2001. The scientific research community has also been well educated on the methodology behind PFP through talks and poster presentations in Canada and the US.

MRAC supported the development of a pilot publication to provide the urban/rural public and key influencers with an overview of agriculture and the agri-food industry in Manitoba. The magazine was deemed a success, and MRAC is now funding three more issues. *Savour* is available free at food retail outlets throughout the province. Its stories highlight producers, processors, retailers and chefs dealing with Manitoba produce. It demyths agriculture, and seeks to narrow the gap in understanding between rural and urban people in the province.

Human Resource Capacity Building

Building a knowledge and experience base for rural adaptation and renewal is a major priority for MRAC's board of directors. Here's a selection of human resource capacity building projects currently being supported in Manitoba by CARD funds.

MRAC funds continue to support an initiative led by the University of Manitoba to generate innovative ideas for recapturing wealth on the Canadian prairies. The 2001 conference called Recapturing Wealth on the Prairies was built on suggestions form participants in the first such conference held the year earlier. It focused on building alliances in order to recapture wealth on the prairies. About 200 people attended. The 2002 conference will broaden its scope to look beyond agriculture to the entire rural community.

The development of a new technology in the form of a data warehouse (the Management Plus Program (MPP) Warehouse Net) using the MCIC crop production database, will provide producers with data to solve agronomic problems, prove proper land stewardship and identify trends and changes to facilitate adaptation. Farmers will access the data via the internet free of charge, while the service will become self-sustaining through the collection of fees from agri-businesses and researchers accessing data pertinent to them and their realm.

MRAC is supporting a study by the Manitoba Forage Seed Association to determine the effect of utilizing combinations of currently registered herbicides for perennial weed control in alfalfa seed crops in Manitoba. Results from this project will add valuable information about weed control in forages to the current *slim pickins!* Data generated will provide information needed for minor use herbicide registrations. Results will be published in *Forage Seed News*, and distributed to provincial ag rep offices.

In 2000, about 75 thousand acres of grasses were grown in Manitoba. This industry has grown considerably in the past five years and is expected to continue to grow. The major impediment to growth is leaf spot and rust diseases which can cut yields by up to 30 percent. MRAC is now supporting a project to manage leaf spot and rust in grasses using crop stage, disease development and environment data for a risk forecasting model. The goal is to develop an IPM/disease forecasting program though coordinating weather data and fungicide application timings to improve seed yields in grass seed crops, and increase the quality of timothy hay.

MRAC is supporting a detailed study to come up with a model for expanding the use of native grasses. Researchers at the University of Manitoba are collecting and analysing the genetic and morphological diversity of blue grama grass, buffalo grass and prairie junegrass in western Canada and the western USA. They are taking some of the most detailed measurements of these grasses that have ever been recorded in North America. It's expected that at least the blue grama material collected via this project, and the resulting cultivars, will eventually be released to the public. When the project is finished in 2002, the proponents expect to produce a model that producers and the seed industry can use to put other native grass species into commercial production.

Success Stories

The Manitoba Value Added Agropreneurship Initiative targeted Manitoba's food agropreneurs and small business owners in rural Manitoba in helping them achieve a distinct competitive advantage, through increased knowledge and strategy development. The program provided mentors to provide participants with practical, hands-on advice. An estimated eight individuals accessed the program as entrepreneurs and are now in business. Fifty-nine training/resource manuals were purchased.

On the heels off the UK's foot and mouth disease breakout in the late '90's, all four western CARD Councils contributed to a series of awareness seminars and workshops organized by the Canadian Animal Health Coalition to acquaint producers and animal health care givers with possible foreign animal diseases and their control. Seventeen seminars for producers and four for industry leaders were held across the west. There was one crisis management workshop in each province that trained approximately 30 participants per province in incident control, emergency management and media relations. The sessions also provided an opportunity for commodity organizations to promote a minimum level of on-farm bio-security standards. Approximately 1000 farmers and about 200 industry leaders attended . Over 73,000 copies of livestock bio-security and emergency management bulletins were distributed. From now on, there will be semi-annual provincial animal health meetings involving governments and industry. It's probable that a national Animal Health Network will be formed from these regular meetings. The initial focus will be on foreign disease emergency management but it will move over time to management of all hazards to animal health.

It seems most students of veterinary science in western Canada prefer to treat small animals rather than large. This trend is very worrying for livestock producers. To encourage young people into rural, food animal practice, the three prairie CARD Councils are supporting an initiative to set up a student "experiencing practice" bursary, and develop extension materials for bovine practitioners to use to interest young people in a rural agriculture veterinary practice. The ten $2000 bursaries will come from a self-sustaining trust fund and will be paid annually to first year veterinary students in western Canada to spend 12 days in a large animal vet practice.

Who are the young farmers of Manitoba? What do they bring to agriculture? What are their challenges? What additional tools do they need to succeed? How do they want to learn? These are the questions an MRAC supported project led by the Province's Agriculture and Food Department hopes to answer. The information gained should be useful in designing future programs to help keep young people on the farm.

Rural Development

Some rural development projects have been highlighted in the Reach section. Here are more details and short comments on other rural development projects to which MRAC has apportioned CARD funds.

The Western CARDF Council, an alliance between MRAC, Alberta Agriculture and Food Council (AFC), British Columbia Investment Agriculture Foundation (BCIA), Saskatchewan Council for Community Development (SCCD), Territorial Farmers Association (TFA) and Yukon Agricultural Association (YAA), undertook a cooperative effort (Western CARDF Council Joint Initiative) to establish a new agricultural and rural "Think Tank" (the Western Agri-Food Institute {WAFI}). The Institute gathered information and conducted independent research focussing on agricultural, agri-food and rural issues within a global context.

Early in 2002, WAFI released a report - *The New Agriculture - Making the Connection*. The report examines and compares structural changes that are occurring within the agricultural industry, both in Canada and in other industrialized countries, and the impact that these changes are having on farmers and rural communities. It then explores possible strategies that Western

Canada may use to address the situation based on changing trends and market opportunities.examines and compares structural changes that are occurring within the agricultural industry both in Canada and in other industrialized countries, and the impact that these changes are having on farmers and rural communities. It then explores possible strategies that Western Canada may use to address the situation based on changing trends and market opportunities.

Governments at all levels must recognize these trends and set policies that are responsive to them. Legitimacy for biotechnology must focus on food safety and sustainability of our resources while encouraging exploration for new applications in the life science field. Governments need to continue to encourage individual self sufficiency through a number of mechanisms that enable individuals and communities to grow and flourish. Internationally, we need to ensure we stay competitive in the world economy. Government must be vigilant in setting policies that allow the industry to compete fairly.

The Great Plains Interpretive Centre accessed MRAC funding to complete the facility design and marketing and promotional package for an agricultural visitor centre to be located in Neepawa, Manitoba. This major agri-tourism and educational facility is projected to have an annual attendance of over 100,000, will focus on rural culture supported by an agricultural and natural resource base. The Centre will showcase actual examples of sustainable agricultural practices, typical crops and production methods, environmental demonstrations, and outdoor nature-oriented activities. It will promote regional, national and international issues using local examples whenever possible. It will also emphasize the culture of a rural agricultural based economy. Demonstration projects will also contribute to the long term sustainability of the project by attracting visitors and generating revenues. Some demo projects will be long term, such as lily bulb production, while others will be short term, for example a demonstration of GIS technology.

Manitoba is missing one link in its forage value chain - a stable, mature forage processing industry. It's not for lack of trying. Those now in the business need to keep working at establishing their process and accessing new markets. MRAC is supporting a project to address the needs of Manitoba's fledgling forage processing industry. Included in this project is an investigation and demonstration of all aspects in the retention of green colour in export Timothy hay and minimization of the amount of brown leaf in export Timothy hay.

MRAC is supporting a project led by the Manitoba Food Development Centre to develop a physical separation process for preparation of protein isolate from hempseed, and to evaluate functional, nutritional and nutraceutical properties of hempseed products in an effort to establish hemp as an alternate crop for Manitoba's agricultural producers and processors. Results of the project could have long term benefits for prairie communities looking to diversify and add value.

Success Stories

Dynamic Pork is a joint venture between Manitoba Pork Est and N.M. Paterson and Sons Ltd. Each partner appoints three directors to the board of Dynamic Pork. MRAC supported the development of its business plan.

Dynamic Pork was formed to develop and manage Manitoba's first network contract hog farming operation. The company has a 10 percent equity stake in each network. The remaining 90 percent is owned by local farmers and investors.The network owns the breeding stock and market hogs from birth to market, contracting with hog producers who own and operate the barns. The agreement with Dynamic Pork covers 15 years.

Networks will vary in size but the business plan is based on annual production of 37,000 hogs. The feeder barns feed the hogs with grain provided by the feed mill owned by N. M. Paterson. The network pays the sow and feeder barn owners a fixed rate for caring for the hogs. The barn operators are responsible for the proper disposal of all wastes generated from the production system. Manitoba Pork markets most of the hogs produced via Dynamic Pork.

The first network was set up in 1999 – Turtle Mountain Pork Limited Partnership – producing 70,000 market hogs a year. A second network began in early 2001 – Turtle Mountain Pork 2 - producing another 70,000 hogs a year. The two networks have created about 50 jobs in direct production. The payroll is about $1.5 million.

In April 2002, Dynamic Pork will launch another offering to build a similar third network.

LESSONS LEARNED

We are still adjusting to the failure to get a promising fusarium-resistant wheat variety registered for production in western Canada. MRAC supported research at the Cereal Research Centre Winnipeg that would have made a wheat variety available to growers in the next few years that would have potentially produced higher yields of wheat with lower levels of vomitoxin. This development would have potentially saved farmers, livestock operators and grain handlers and feed mills well over $50 million a season. But it was not to be - because the wheat was not visually distinguishable from milling wheat. We have made constructive suggestions for change to the regulatory system, and have continued to support the Ultra High Yielding Wheat Breeding Project in an effort to solve the fusarium problem one way or another.

RESOURCES

CARD Priorities

CARD Priorities	CARD $	Industry $	Provincial $	Industry In-Kind $	Provincial In-Kind $	Other Federal $	Total	% of Contrib.
Environmental Sustainability	193,694	98,475	201,707	43,297	54,110	114,220	705,503	15.1
Food Safety and Quality	18,627	4,668			14,805	89,894	127,994	2.7
Innovation	330,413	707,279	222,315	152,522	19,340		1,431,869	30.6
Market Opportunities	331,550	630,754	34,047	239,378	24,359	292,526	1,552,614	33.2
Human Resource Capacity Building	246,268	126,558	58,049	153,605	57,555	37,527	679,562	14.5
Rural Development	51,744	60,687	3,665	45,119	2,365	13,480	177,060	3.8
TOTAL	**1,172,296**	**1,628,421**	**519,783**	**633,921**	**172,534**	**547,647**	**4,674,602**	**100.0**