

Is “Win-Win-Win” Possible With  
Grazing Livestock and  
Riparian Areas?

# A Win-Win-Win outcome:

- Benefit to landowner
  - Benefit to environment
  - Benefit to local community...
- ...compared to *status quo*

# Functions of Riparian Areas:

- Sediment-filtering
- Dissipation of stream energy
- Water storage
- Aquifer recharge
- Fish and wildlife habitat

Riparian Areas are 5% of the  
Prairie Landscape, but are a major  
contributor to Prairie  
Biodiversity:

- 130 species of birds
- 30 species of mammals
- 12 species of reptiles and amphibians

# Riparian Areas Contribute to People:

- Major contributor to surface water quality
- Source of forage
- High-value hardwoods

# Green Banks Program

- Established in 1994 to deal with a “neglected” area of the agricultural landscape
- Initially focused on fencing riparian areas
- Currently assists with establishment of managed grazing and watering systems on the entire pasture



# Riparian Options

Cropland

Riparian Cover/Paddock

Paddock

Paddock

Forage Buffer Strip

- Existing Fence
- Cross-Fencing
- Willow Plantings
- Off-Site Watering



# Green Banks Program Criteria:

- +/- 30 meter riparian cooridor protected
- Cattle access to riparian area up to landowner
- MHHC: contribution is \$2,500 per landowner
- Landowners: minimum 25% cash or in-kind
- Pay for fencing materials, solar panels, off-site watering or forage seed for cover establishment



# Program Results to Date:

<b>PROJECTS</b>		<b>MILES OF SHORELINE</b>	<b>RIPARIAN ACRES</b>	<b>PASTURE ACRES</b>
Completed	42	53	1,771	10,720
In Progress	65	95	1,961	12,522
Total	107	148	3,732	23,242

To Jan 31/01

# Partners

## Partner

- Sustainable Development Innovations Fund
- Manitoba Conservation Districts
- Environment Canada (EcoAction 2000)
- TransCanada PipeLines
- Wildlife Habitat Canada
- Prairie Farm Rehabilitation Administration
- Manitoba Cattle Producers Association
- Canadian Cattlemen's Association
- Ducks Unlimited
- Manitoba Agriculture and Food
- Manitoba Conservation (Wildlife Branch)
- Manitoba Conservation (FEI)
- Landowner/Cooperators
- Grassroots conservation groups

## Activity

- Project Funding
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- Project Funding
- Project Delivery, Evaluation
- Communications, Extension, Evaluation
- Evaluation
- Evaluation, Extension
- Extension
- Project Funding
- Project Funding and Delivery
- Project delivery and funding
- Project delivery (bio-engineering)

# Evaluation Activities

- Producers have been adopting managed grazing, watering and riparian conservation options in cooperation with conservation agencies...
- What are the impacts on cattle producers?

# *I. Green Banks Cooperator Surveys*

- 100% rated projects from “satisfactory to “excellent”
- 82% said project had a positive economic impact
- 75% rated \$ incentive as “adequate”
- 96% would recommend the approach to friends and neighbours

## *II. Davison Enterprise Analysis*

- Cow-calf producer, Western Manitoba, Native Range
- Assisted with restricted access watering and cross-fencing
- Adopted “Twice-Over” grazing system
- Analysis through Ag Economics, U of M.



# Managed Grazing System





## *Daivson Analysis, (cont.)...*

- Net gain/acre: 53.8 pounds
- Net gain/cow (70 cows) \$50.50/cow
- NPV of \$1,800 investment (10yr): \$23,029
- Payback period: 0.6 yrs

## *Davison Analysis (cont)...*

- Average calf gain: 3.3 lb./day (1999 and 2000)
- Total pounds of calf gain on pasture increased from 13,466 lb. (1995) to 20,625 lb. (2000) (June to late Sept grazing period)

### *III. Prairie Wide Grazing System Study*

- Dept. of Ag. Economics contracted
- Principal researchers: Dr. Jim McMillan, Brenda Chorney and Rea Josephson
- Survey info collected in 2000

# Funding Partners

- PFRA
- Ducks Unlimited
- Manitoba Agriculture and Food
- MCPA
- CCA
- MHHC

Study cost: \$50,000

# Additional Steering Committee Members

- Alberta Agriculture
- Saskatchewan Wetlands Conservation Corp.

# Objectives

- Identify and survey producers with managed grazing, watering and riparian conservation practices
- Develop profile
- Assess perceived changes in pasture resources, herd management and income
- Lay groundwork for future work



# Questionnaire

- 850 sent out across prairies
- Response rate: 41% (348 producers)
  - 138 Manitoba
  - 103 Saskatchewan
  - 105 Alberta

# Respondent Profile

- 50% aged 30-45; 40% aged 46-60
- 50% had 16-30 yrs experience; 30% >30yrs
- <10yrs exp. with rotational grazing
- Pasture improvement a priority
- Great variability in grazing approaches -  
# passes, grazing periods, etc

# Production Trends

- Mainly cow-calf
- Tended to be intensive managers
- Most producers using rotational grazing
- Some producers using off-site watering
- Some also control access to riparian zone
- 40% with < 1.0 AUMs/acre; 40% 1.0-1.9 AUMs
- More intensively managed pastures had higher stocking rates and production

# Capital Costs...

- < \$7.00/acre (38%)
- \$7.00 - \$14.00/acre (18%)
- \$15.00 - \$29.00/acre (23%)

**Table 5.1: Comparison of 1999 to Last Year of Previous Pasture Management System**

Attribute Measured:	No. of Resp.	% that found 1999 was:		
		No Different	Greater	Lower
Average weight gain on pasture/animal	149	16.8	80.5	2.7
Pasture forage production quantity	160	6.3	91.3	2.5
Pasture forage production quality	154	9.7	87.7	2.6
Herd health cost/animal	158	60.8	8.9	30.4
Amount of pasture reseeding	158	59.5	20.3	20.3
Amount of pasture fertilization	159	62.9	27.0	10.1
Amount of weed/brush control	159	66.0	21.4	12.6
Amount of supplemental feeding	159	67.9	10.1	22.0
Amount of stubble grazing	152	67.1	13.2	19.7
Amount of hayland grazing	149	60.4	23.5	16.1
Time spent on planning and management	161	10.6	85.7	3.7
Labor requirements	161	12.4	82.6	5.0
Overwintering costs	158	43.7	3.2	53.2
1999 Overall costs per animal	158	24.1	24.1	51.9
1999 Overall net returns/animal	155	12.9	84.5	2.6
1999 Overall net returns for operation	148	10.1	88.5	1.4

# Managed Riparian Areas vs Unmanaged....

Attribute Measured:	No. of Resp.	% that found 1999 was:		
		No Different	Greater	Lower
<b>Respondents that Riparian Manage</b>				
Time spent on planning and management	82	9.8%	85.4%	4.9%
Labor requirements	83	9.6%	85.5%	4.8%
1999 Overall net returns for operation	73	4.1%	93.2%	2.7%
<b>Respondents that do not Riparian Manage</b>				
Time spent on planning and management	72	11.1%	86.1%	2.8%
Labor requirements	71	16.9%	77.5%	5.6%
1999 Overall net returns for operation	70	17.1%	82.9%	0.0%



# Reasons for Production gains...

- Greater forage quality (88%)
- Greater forage quantity (88%)
- Better forage use (85%)
- Access to clean drinking water (64%)
- Breeding stock improvements (57%)
- Improved herd health program (43%)
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- 97% cited rotational grazing for forage improvements

# Other Observed Changes...

- Improved health and herd condition (72%)
- Improved cover for wildlife (70%)
- Improved quality of water bodies (68%)
  - Riparian management: 71%
  - Free access: 51%

# Motivations for Change...

- Pasture condition (96%)
- Sustainability of land and water resources (92%)
- Stocking rate (82%)
- Income (80%)
- Wildlife habitat (43%)

# Reasons to Restrict Access to Water:

- Sustain water bodies (87%)
- Improve water quality for livestock (86%)

# Future Plans...

- Expansion of herd (66%)
- Water development (49%)
- Riparian management (37%)
- Improve seeding (38%) and fertilization (32%)
- Change rotation strategy (30%)

# Constraints...

- Labour requirements (63%)
- Financial requirements (73%)
- Management requirements (59%)
- In other words, TIME & MONEY
- Lack of sufficient water supply (59%)

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Lack of management info (26%)

Lack of economic benefit info (29%)

# Further Research...

- 72% indicated willingness to participate in further, more detailed research projects
- Detailed work should cover/control for:
  - Land and water resources
  - Weather conditions
  - Market conditions
  - Management practices and intensity







# Lessons

- A comprehensive approach to livestock grazing and watering has positive outcomes for producers
- Long-term, quantitative investigations are required
- Scale and scope of riparian area and surface water quality issue in Agro Manitoba?
- A shared approach reduces landowner risk and increases breadth of benefits
- Expanding industry and increasing public scrutiny add urgency to the issue

# Riparian Health Initiative

- Grew from a meeting called by MCPA
- Takes a pro-active, coordinated approach to issue of livestock and water quality
- Based on partnerships and voluntary approaches
- Respects needs of individual producers
- Goal is “win-win-win” outcomes...