THE WORKBOOK

This workbook is designed to put the general knowledge you've gained from the preceding chapters to work in *your* operation. It will walk you through a risk assessment and the development of your own GMP.

(You'll also see page numbers that refer to earlier explanations of some steps, in case you need a refresher.)

To repeat, planning is an ongoing process, one where you continually assess your actions and adjust for future improvements. While it requires time and effort to get rolling, the payoff is there – financially and environmentally.

The GMP involves the following planning steps:

Step 1. Develop goals
Step 2. Conduct an inventory of your streamside-grazing area
Step 3. Conduct a riparian risk assessment
Step 4. Determine forage requirements
Step 5. Analyze, interpret, and select a management system
Step 6. Develop an action plan
Step 7. Implement the plan
Step 8. Monitor and update the plan

Consider working with a grazier specialist when developing your GMP for streamside grazing.

STEP 1. SET GOALS (pg. 66)

- Develop riparian management goals that are compatible with your overall long-term farm business goals.
- Integrate production targets with financial goals and planned environmental improvements.
- Prioritize goals.
- Assess and redefine the goals if necessary.

GOAL	RANK	IMPLICATIONS

STEP 2. CONDUCT AN INVENTORY OF STREAMSIDE-GRAZING AREA (pg. 68)

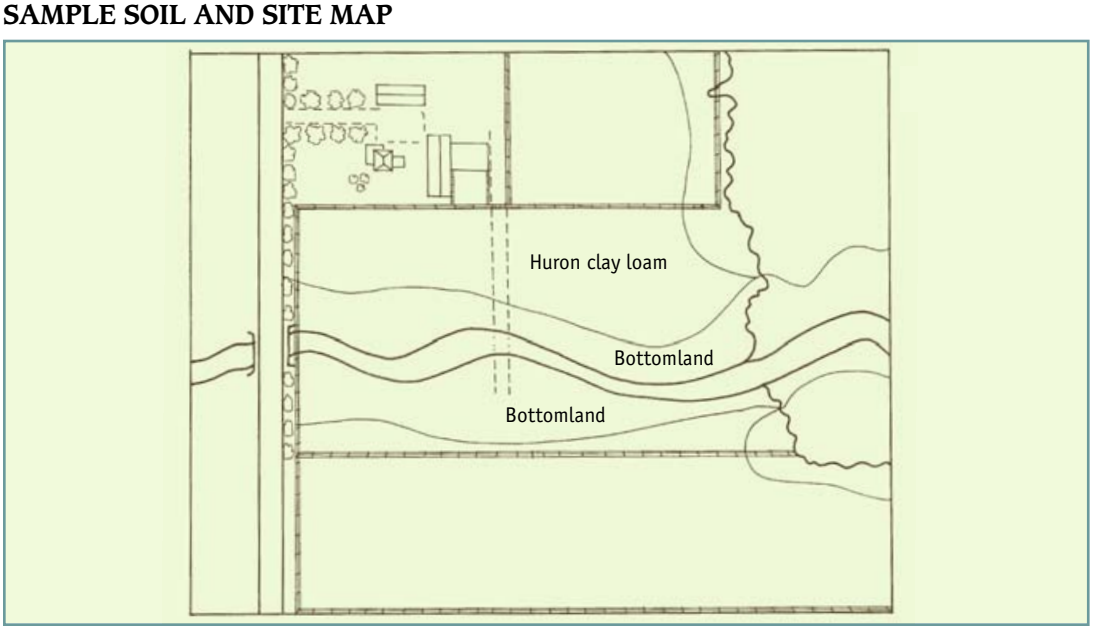
- Make a map of soils and sensitive areas. Use air photos and soil maps.
- Map the facilities. Include fences, gates, stock-watering stations, corrals, power sources, salt and mineral stations, trails and roads.
- Map pastures and paddocks. Include location, size, vegetation, management features.
- Conduct a pasture condition survey.

PHYSICAL FEATURES (pg. 68)

SAMPLE CHART

PHYSICAL FEATURE	PADDOCK/ PASTURE AREA A	PADDOCK/ PASTURE AREA B	PADDOCK/ PASTURE AREA C	PADDOCK/ PASTURE AREA D	PADDOCK/ PASTURE AREA E
	Ravine	*Floodplain*			
AREA	*7 ac.*	*5 ac.*			
SOIL	*Huron Clay Loam*	*Bottomland*			
SLOPE	*10%*	*0%*			
LIMITATIONS	*Past erosion, compaction*	*Flood-prone Ice floes*			
SENSITIVE AREAS	*Eroded knolls*	*Marsh Degraded banks*			
DISTANCE TO SURFACE WATER	*60 m. (creek)*	*0–15 m. (creek)*			

SAMPLE SOIL AND SITE MAP

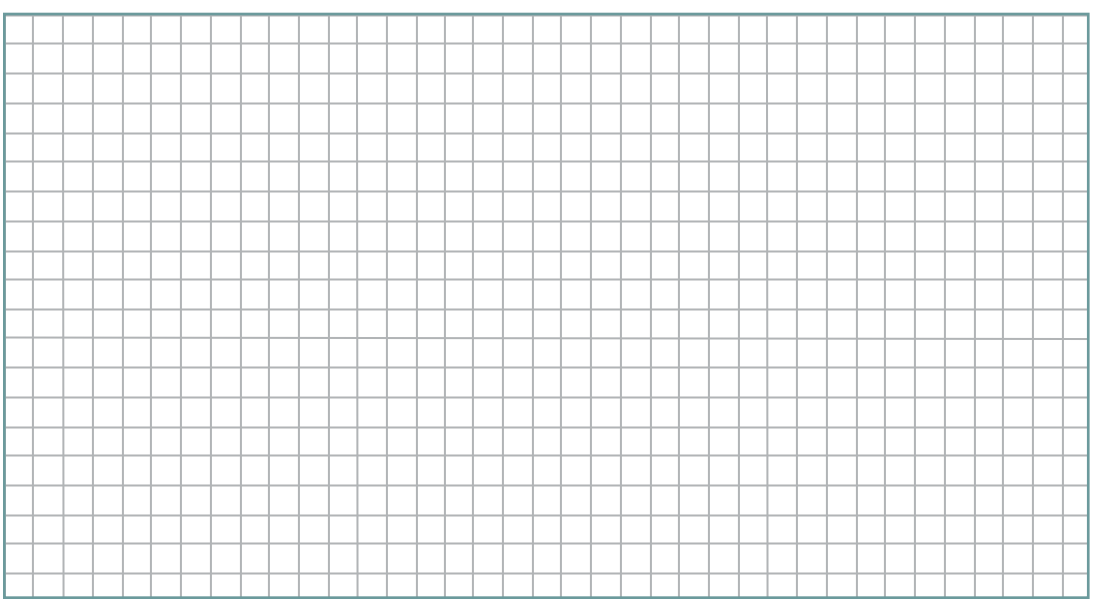


PHYSICAL FEATURES (cont'd.)

YOUR CHART

PHYSICAL FEATURE	PADDOCK/ PASTURE AREA A	PADDOCK/ PASTURE AREA B	PADDOCK/ PASTURE AREA C	PADDOCK/ PASTURE AREA D	PADDOCK/ PASTURE AREA E
AREA					
SOIL					
SLOPE					
LIMITATIONS					
SENSITIVE AREAS					
DISTANCE TO SURFACE WATER					

SOIL AND SITE MAP



MANAGEMENT FEATURES (pg. 70)

MANAGEMENT FEATURE	PADDOCK/ PASTURE AREA A	PADDOCK/ PASTURE AREA B	PADDOCK/ PASTURE AREA C	PADDOCK/ PASTURE AREA D	PADDOCK/ PASTURE AREA E
ACREAGE					
FORAGE SPECIES					
PASTURE CONDITION					
FENCING TYPE AND CONDITION					
WATER SOURCE(S)					
MANAGEMENT FEATURES					

FORAGE, FENCING AND SENSITIVE FEATURES MAP

PASTURE CONDITION SURVEY

	FIELD	PADDOCK/ PASTURE AREA A	PADDOCK/ PASTURE AREA B	PADDOCK/ PASTURE AREA C	PADDOCK/ PASTURE AREA D	PADDOCK/ PASTURE AREA E
	ACRES					
	MONTH & YEAR	M____/Y____	M____/Y____	M____/Y____	M____/Y____	M____/Y____
CATEGORY	SCORE	SCORE	SCORE	SCORE	SCORE	SCORE
SPECIES COMPOSITION	Undesirable Desirable 0 1 2 3 4					
PLANT DIVERSITY	Narrow Broad 0 1 2 3 4					
STAND DENSITY	Sparse Dense 0 1 2 3 4					
PLANT VIGOUR	Weak Strong 0 1 2 3 4					
LEGUMES IN STAND	< 10% > 50% 0 1 2 3 4					
PLANT RESIDUE	Deficient Excess 0 1 2 3 4					
BROWSE UNIFORMITY	Concentrated Uniform 0 1 2 3 4					
SEVERITY OF USE	Heavy Light 0 1 2 3 4					
WOODY PLANTS	>40% <10% 0 1 2 3 4					
SOIL EROSION	Severe Moderate Slight 0 1 2 3 4					

From the *Grazing Systems Planning Guide* – see pg. 31.

STEP 3. CONDUCT A RIPARIAN RISK ASSESSMENT (pg. 73)

Circle the most suitable score for each category. Tally the subtotals and determine your overall risk assessment score at the bottom of page 103.

CATEGORY	LOW RISK	MEDIUM RISK	HIGH RISK	VERY HIGH RISK
MANAGEMENT PRACTICE				
A. GRAZING DENSITY AND DURATION (pg. 78)	**2** • Low density (<= 0.25 NU/ac/yr) OR • Moderate density with integrated GMP	**4** • Moderate density (0.25–0.5 NU/ac/yr) OR • High density with integrated GMP	**7** • High density (0.5–1.0 NU/ac/yr) OR • Very high density with integrated GMP	**10** • Very high density (>1.0 NU/ac/yr)
B. SEASON (OR CONDITIONS) OF ACCESS TO RIPARIAN AREA (pg. 79)	**2** • No access OR • Controlled access in summer	**4** • Unrestricted access in summer only	**7** • Unrestricted access in spring or fall	**10** • Unrestricted year-long access
C. LIVESTOCK ACCESS AND CROSSINGS (pg. 79)	**0** • Exclusion with fencing • No crossings	**4** • Part of pasture fenced OR • Controlled access plus bank protection • Bridge or mid-level crossings plus fencing	**7** • Non-fencing options to control access OR • Controlled access – no bank protection OR • Bed-level crossing	**10** • Unrestricted access • Numerous random crossings
D. LOCATION OF SUPPLEMENTS, SALT SHELTER (pg. 81)	**2** • All items located >50 m from top of bank	**4** • All items located 20–50 m from top of bank	**7** • Any of these items located 5–20 m from top of bank	**10** • Any one of these items located within 5 m from top of bank
E. LOCATION AND SOURCE OF WATER (pg. 82)	**2** • Alternative water located >50 m from surface water	**4** • Alternative water located 10–50 m away OR • Controlled access plus bed and bank protection	**7** • Water provided using controlled access without bank or bed protection • Alternative water located <10 m away	**10** • No alternative water source in grazed riparian area
Subtotal :				

(continued on next page)

CATEGORY	LOW RISK	MEDIUM RISK	HIGH RISK	VERY HIGH RISK
SENSITIVITY OF RIPARIAN AREA				
F. TYPE OF SURFACE WATER (pg. 83)	**2** • Rivers >30 m wide • Lakes with bedrock or coarse-textured shores	**3** • Rivers <30 m wide • Drainage ditches • Channelized creeks • Other warm-water channels	**4** • Cool- and cold-water streams • Flowing water with shallow to bedrock riparian areas	**5** • Wetlands, natural ponds, reservoirs, sink holes, recharge areas
G. HABITAT DESIGNATION (pg. 83)	**2** • Low-level importance	**3** • Habitat with moderate level of importance – such as habitat for provincially common and/or widespread species • Migration corridors	**4** • Very important habitat – such as areas adjacent to species-at-risk critical habitat, habitat for species of special concern, or habitat for provincially rare species, or habitat used by specially protected widlife listed under Fish and Wildlife Conservation Act	**5** • Life Science ANSI • Designated fishery • Critical habitat for threatened and endangered species • Wetlands
H. SOURCE FOR DRINKING WATER (pg. 84)	**2** • Downstream urban intake >10 km	**3** • Downstream urban intake 2–10 km	**4** • Downstream urban intake 1–2 km	**5** • Downstream urban intake <1 km
I. RECREATIONAL USE (pg. 85)	**2** • Downstream recreational use >10 km	**3** • Downstream recreational use 2–10 km	**4** • Downstream recreational use 1–2 km	**5** • Downstream recreational use <1 km
J. IMPACT ON BANK CONDITION (pg. 86)	**2** • Banks are stable • Banks are vegetated • Tree roots hold soil material in place • No sloughing from hoof damage	**4** • Banks are mostly vegetated and stable • Some woody plants hold soils in place • Some evidence of damage and sloughing from hooves	**7** • Banks showing signs of instability • Bank vegetation heavily grazed • Little evidence of soils held by plant roots • Noticeable (>25% of area) evidence of sloughing from hooves	**10** • Banks highly unstable • Bank vegetation nearly grazed out and trampled • No evidence of soils held by roots • Most of the banks slumping due to hoof action
Total Points:				

Low Risk: <20 points
Moderate Risk: 20–39 points
High Risk: 40–60 points
Very High Risk: >60 points

STEP 4. DETERMINE FORAGE REQUIREMENTS (INCLUDES PADDOCK LAYOUT) (pg. 87)

FORAGE REQUIREMENTS AND PADDOCK LAYOUT

Estimate the Forage Demand

The forage demand is the amount of forage dry matter (DM) required to feed the herd/flock for one day. It is calculated based on the rule of thumb that grazing animals require an amount of forage dry matter equal to about 2.5% of their body weight per day.

Formula:

Forage Demand (lbs DM/day) = avg. wt/head (lbs) × 0.025* × # head

Calculation:

Lbs DM/day = _____ lbs × 0.025 × _____ head

(*Use 0.03 for lactating dairy cows)

Estimate the Forage Supply

This is the amount of forage DM that is predicted to be available for grazing after a 15-day growth period in the spring and a 30-day growth period in the summer and fall.

Please note: Actual pasture growth rates are extremely variable. As a result, the numbers presented are for planning purposes only. Optimum growth periods may be longer or shorter than those indicated.

Unless actual measured yields are available, use estimated yields data for grass–legume hay. Use the following table to convert to forage availability on a rotational basis.

FORAGE AVAILABLILITY ESTIMATES (DM)

HAY YIELD TONS/ACRE/YEAR	5.5	5.0	4.5	4.0	3.5	3.0	2.5
FORAGE AVAILABLITY LBS/ACRE/ROTATION	2200	2000	1800	1600	1400	1200	1000
FORAGE SUPPLY _____LBS/ACRE/ROTATION							

Select Residency Period

In other words, decide how long you want your livestock to remain in a particular paddock. One to two days is recommended for lactating dairy cows; three to seven days for all other livestock. Please note: to maximize harvest efficiency, use the shortest residency period indicated for the type of livestock operation.

RESIDENCY PERIOD _____ DAYS

Determine Paddock Size

The paddock size is based on meeting the total forage demand for the number of days of grazing indicated by the residency period.

Formula:

Paddock size = forage demand × residency ÷ forage supply

Calculation:

____ ac = _____ lbs/day × ___ days/rotation ÷ _____ lbs/acre/rotation

Calculate Number of Paddocks

The number of paddocks required is based on meeting the longest regrowth interval recommended, i.e., 30 days.

Formula:

Required regrowth ÷ residency period = # of paddocks + 1 = total # of paddocks required

Calculation:

30 days/paddock ÷ _____ days = _____ paddocks + 1 = total # of paddocks

The extra paddock is included because you need to give all paddocks the prescribed rest. If you determine the rest period is 30 days and the animals are in the paddock for one day and you have 30 paddocks, then there are only 29 days of rest/regrowth. By adding one, you give each paddock 30 days' rest and one day for harvest.

Estimate Total Number of Acres

Formula:

Total acreage required for rotational grazing = size of paddock × number of paddocks

Calculation:

_____ acres = _____ ac/paddock × _____ paddocks

STEP 5. ANALYZE, INTERPRET, AND SELECT MANAGEMENT SYSTEM (pg. 88)

- Look for risks and opportunities. Examine the information you've collected to uncover potential improvement opportunities.
- Select grazing management system and BMPs that will capitalize on those opportunities.

STEP 6. DEVELOP AN ACTION PLAN

- Redesign a paddock and facilities layout that suits the local conditions and goals.
- Schedule BMPs for pasture improvement and protection of sensitive, high-risk areas.

INDICATE BMPs AND SCHEDULED ACTIVITIES ON THE FOLLOWING CHART.

MANAGEMENT FEATURE	PADDOCK/ PASTURE AREA A	PADDOCK/ PASTURE AREA B	PADDOCK/ PASTURE AREA C	PADDOCK/ PASTURE AREA D	PADDOCK/ PASTURE AREA E
ACREAGE					
FORAGE SPECIES					
PASTURE CONDITION					
PASTURE IMPROVEMENT BMPs					
PADDOCK SHAPE AND FENCING					
ACCESS OR CROSSING POINTS					
SCHEDULED GRAZING SEASON AND DATES					

INDICATE BMPs AND SCHEDULED ACTIVITIES ON THE FOLLOWING CHART.

MANAGEMENT FEATURE	PADDOCK/ PASTURE AREA A	PADDOCK/ PASTURE AREA B	PADDOCK/ PASTURE AREA C	PADDOCK/ PASTURE AREA D	PADDOCK/ PASTURE AREA E
STOCKING RATES					
DURATION					
REST PERIODS					
WATER SOURCE(S)					
WELL IMPROVEMENTS					
ALTERNATIVE WATER SOURCES					
MANAGEMENT FEATURES					
BMPs FOR SENSITIVE AREAS					

STEP 7. IMPLEMENT THE PLAN

- Get how-to knowledge:
  - get advice
  - get permission
  - get going!

STEP 8. MONITOR AND UPDATE THE PLAN

- Monitor riparian health and pasture condition.
- Check on pasture performance in response to improvement BMPs.
- Update plan accordingly.
- Redo risk assessment to evaluate impact of GMP actions.

It's very helpful to have an up-to-date map of your streamside-grazing area as you implement and monitor your plan.

LAYOUT OF YOUR STREAMSIDE-GRAZING AREA