

Environmental FACTSHEET



BRITISH
COLUMBIA

Ministry of Agriculture and Food

Order No. 386.000-3
Updated February 1999

Environmental Evaluation of Agricultural Operations

Checklist #2 - Outdoor Livestock Feeding Areas

The following checklist is one in a series aimed at assisting the producer or environmental advisor in assessing a farm or ranch's environmental condition. It is intended to act as a reminder of the types of concerns that should be evaluated. In addition to items on this list, specific local conditions, climate and other factors unique to the area must be considered. The checklists are intended to supplement the BCMAF publications *Environmental Guidelines for Producers of B.C.* (numerous commodity-specific editions) and should only be used by those trained or experienced with the specific commodity in B.C.

INTRODUCTION

The ability to properly assess an outdoor livestock feeding area for environmental condition is not something you can expect to do without experience, even for veteran producers. While a lot of what is termed "environmental condition" could be called common sense, we all have habits which we don't usually question. Someone seeing a place for the first time may raise a concern that the owner has never "noticed".

This checklist has specific questions on siting feeding areas and the risk of runoff from feeding areas. Other, more general farm and ranch concerns, such as manure management, mortalities, etc. are covered on Checklist #1.

BEFORE YOU START

When looking at any farm or ranch site, whether your own or someone else's, try to do so with the following suggestions in mind:

- keep an **open mind** making no decisions until the complete site or area in question has been seen.
- be **critical**, acting as an outsider with no preset ideas.
- be **methodical**, looking at each item closely.
- be **thorough**, taking the time to look at all angles.
- take **notes** or use this checklist; don't trust your memory.
- ask for **advice**; there are local resource people who can assist you, such as BCMAF staff.
- be aware of pertinent **legislation** when considering changes, such as the Water Act requirement for Approvals prior to work "in or about a stream" (refer to MAF [Factsheet # 870.000-1 Environmental Legislation Affecting Agriculture](#)).

**LEGISLATION
VERSUS
GUIDELINES**

The following checklist items required by law are in **bold** and *italics*. Checks made in the shaded boxes indicate items which **do not meet** this legislation. Notes in the left hand column identify the legislation.

For Example:

Feeding Area	Yes	No
Code 29(1) <i>Is the area managed so as not to cause pollution?</i>		

A 'No' check indicates the area does not meet the Code requirement.

Items not in italics are guidelines to good practices. Answers in these shaded boxes (where present) **are not desirable** practices.

Feeding Area	Yes	No
Is there a flooding concern on the area?		

In this case, a 'Yes' check indicates an undesirable practice.

**CODE OF
AGRICULTURAL
PRACTICE FOR
WASTE
MANAGEMENT**

This Code forms part of the *Waste Management Act of BC*. It describes practices for the safe use, storage and management of agricultural wastes. It must be met to avoid having a waste permit. The Code requirements for outdoor feeding areas and access to watercourses is of particular importance to livestock producers.

The Code only regulates 'agricultural waste' that might cause 'pollution': **pollution** is defined as "the presence in the environment of substances or contaminants that substantially alter or impair the usefulness of the environment" and **agricultural waste** is defined as "manure, used mushroom medium and agricultural vegetation waste".

The Code does not deal with concerns such as the use and storage of pesticides or petroleum products which are otherwise regulated. Concerns such as streamside or riparian habitat are also not regulated by the Code but separately by the *Federal Fisheries Act*.

**DOING AND
SUMMARIZING THE
ASSESSMENT**

The following questions cover many concerns, not all of which need to be answered unless a full assessment is required.

Answer to these questions will direct any remedial works. For a summary of the assessment, use the Worksheet on the last page.

**FIRST STEP:
IDENTIFYING THE
FARM OR RANCH
SITE**

In doing this assessment, the site or the farm or ranch area should be identified, for future reference. Also, the individual doing the assessment should be recorded.

Farm/Ranch name & location: _____

Owner: _____ Operator: _____

Mailing Address: _____

Type of Production: _____

This Assessment is for: a) the entire operation: Yes ___ No ___
or b) this specific area: _____

This Assessment is done by: _____ Date: _____

If other than the Owner/Operator, is it: a) a peer advisor: _____
or b) other: _____

The Numbers

First off, what are the livestock numbers, crop acreages, etc.? These are used to balance the manure volume with the crop needs for both feeding areas and manure spreading (see specific commodity Guidelines for calculation details).

Livestock	Overwintered	Summer
Cows		
Bred Heifers		
Bulls		
Yearlings		
Calves		
Horses		
Other		

Crops	Acreage	Yield (Total Harvested & Grazed)

Outdoor Feeding Areas

Each outdoor feeding area should be assessed separately.

The outdoor feeding areas used below are as defined in the Code:

Grazing Area – livestock sustained by feed growing on the area.

Seasonal Feeding Area – crop land that is also used seasonally for feeding livestock with supplemental feed.

Confined Livestock Area – an outdoor, non-grazing area where livestock are confined, such as pens or feedlots.

Feeding Area	Acreage	Which Months Is It Used?
Grazing	#1	
	#2	
Seasonal	#1	
	#2	
Confined	#1	
	#2	

1. Siting of Feeding Areas

Feeding area siting includes items that may be either fixed as part of the area, or changed by management decisions.

Fixed, Physical Parts of the Area	Yes	No
Is the soil type and depth known?		
Is the depth to bedrock known?		
Is the depth to groundwater known?		
Is a watercourse present near the area?		
Is there a flooding concern on the area?		
Is access to a watercourse required for livestock water? (see Access to Water section below)		
Is the area sloped such that it may contribute to runoff concerns? (see Risk of Runoff section below)		
Is the precipitation and drainage such that the area is unsuitable?		

Changeable Parts of the Area	Yes	No
Does clean, upslope water enter the area?		
If yes, can this flow be diverted away from the area?		
Is the area sufficient for the length of the feeding period? (manure-to-crop balance)		
Is the area sufficient for the number of livestock? (manure-to-crop balance)		
Can the vegetation cover be improved? (possible reduction in runoff - see Runoff section below)		
Can some of the feeding be done at a separate area?		

2. Access to a Watercourse

The Code of Practice identifies three types of feeding situations and how livestock may access watercourses. These watering restrictions are intended to reduce the risk of pollution.

Fed Fish Act Sec 36

Sec 34, 35

Code 25

Grazing Areas	Yes	No
Is access to a watercourse required?		
<i>If yes, can the area be managed so manure does not cause pollution?</i>		
<i>Are streambanks being trampled and harming fish habitat? (see 'Riparian Areas' on Checklist #1)</i>		

		Seasonal Feeding Areas	Yes	No
		Is access to a watercourse required?		
Fed Fish Act Sec 36	Code 26(1) 27(b)	<i>If yes, can the area be operated in a way that does not cause pollution?</i>		
Sec 34, 35		<i>Are streambanks being trampled and harming fish habitat? (see 'Riparian Areas' on Checklist #1)</i>		
		Can runoff containing manure be contained?		
Sec 36	26(1)(b)	<i>If no, can runoff be kept from entering a watercourse?</i>		
	26(2)(a)	<i>Is feeding done on the ground or in movable feed bunks at least 30 m (100 ft) from all watercourses? (required unless written permission from BC Environment)</i>		
	26(3)	<i>If permanent, fixed feed bunks are used, has permission been obtained from BC Environment?</i>		

		Confined Livestock Areas	Yes	No
		Is access to a watercourse required?		
Fed Fish 36	Code 28	<i>If yes, it must be only a 72 hour holding area on range where the watercourse is not used for domestic purposes and the area is maintained to prevent pollution.</i>		
	29(1)	<i>Is it operated in a way that does not cause pollution?</i>		
		<i>Is the entire confined area located at least 30 m (100 ft) from any watercourse, well or domestic water intake?</i>		
	29(3)	<i>Was a report done for the area prior to April, 1993?</i>		
		Is water provided by stock troughs?		

Runoff from an Outdoor Feeding Area

The Code states that, regardless of individual requirements, agricultural waste must not cause pollution. For example, a feeding setback on its own is not sufficient unless concerns like contaminated runoff are also assessed.

Runoff can be very difficult to predict and control. It is often the overriding environmental concern of a feeding area, especially one where snow accumulations are significant or where snow melt occurs on frozen ground.

The following three sets of tables (checklist items #3, 4 & 5) look at feeding area contaminated runoff, the risk of runoff occurring and then the risk of that runoff impacting a watercourse or groundwater is assessed.

Each feeding area should be assessed separately. Check the appropriate factor then circle the low, medium or high rating in the left margin for that factor. At the end of each set of tables these ratings are combined for the risk rating. Use the Summary Worksheet for notes, etc. After a complete assessment of an area, use the risk ratings to guide improvements with the goal of an overall low to medium rating.

3. Risk of Runoff Occurring

Most of these site factors cannot be changed by management. Sites that are rated as medium or high risk of having runoff should be assessed for the risk of that runoff impacting a watercourse or groundwater in the next two sections (#4 , #5).

Slope of Feeding Area		Check One
low	Is it flat ground? (less than 2% slope)	
medium	Is it a slight slope? (2 - 10%) or moderate? (10 - 15%)	
high	Is it steep? (over 15%)	
* South facing slopes may have a quick snow melt compared to north facing; tall trees can shade and modify snow melt.		

Precipitation (during the feeding period)		Check One
low	Is there less than 125 mm (5 in)?	
medium	Is there 125 mm to 200 mm (5 in to 8 in)?	
high	Is there over 200 mm (8 in)?	
* Consider also influences like snow moisture loss to the air, snow removal from the site, precipitation distribution, etc.		

Soil Characteristics of Feeding Area		Check One
low	Is the soil well drained (course textured)? see Infiltration factor - risk to groundwater	
medium	Is the soil poorly drained (fine texture)?	
high	Does snow melt occur on frozen ground?	
* Snow melt on frozen ground is a prime factor in runoff occurrence in much of BC.		

Surface Runoff Entering the Feeding Area		Check One
low	Is off-site runoff completely diverted away from area?	
medium	Is off-site runoff partly diverted away from the area?	
high	Is off-site runoff free to run onto the area?	
* This site factor can be modified to reduce the concern by diverting clean runoff around the feeding area. This will reduce the volume of manured runoff that must be managed and can help reduce risks.		

Vegetation Cover of Feeding Area (for feed period)		Check One
low	Is the area forested?	
low	Is there long crop stubble? - to help resist runoff	
medium	Is there medium to low stubble?	
high	Is the area bare?	
high	Is the area tilled? - could lead to soil erosion	
* The importance of cover will change depending on when and for how long an area is used for feeding. Long feeding periods may reduce the effectiveness of cover.		

	Flooding Hazard of the Feeding Area	Check One
low	Is there no chance of flooding?	
medium	Is there a chance of flooding once every 5 - 10 years?	
high	Is there flooding once every 3 - 5 years?	
	* Flooding is somewhat predictable; use the worst in 25 year record. Low land should normally be avoided as a feeding area.	

RATING - RISK OF RUNOFF OCCURRING

- Low Risk** = maximum of one high (not "Soil Characteristics") or maximum two medium ratings
- Medium Risk** = maximum of two high ratings
- High Risk** = three or more high ratings

4. Risk of Runoff Impacting a Watercourse

If the risk of runoff is assessed as medium or high, these tables should be used to assess if that runoff may impact a watercourse. Many of these factors can be modified with management.

	Area Use & Normal Runoff Period	Check One
low	Is the area only used for feeding after the runoff period?	
medium	Is the area used for feeding for up to 1 month prior to the normal runoff period?	
high	Is the area used for feeding for more than 1 month prior to the normal runoff period?	

	Livestock Density (using a beef cow as one agricultural unit)	Check One
low	Is the density low? - e.g., less than 10 ag.unit/ha (4/ac)	
medium	Is the density medium? - e.g., 10 to 15/ha (4 - 6/ac)	
high	Is the density high? - e.g., greater than 15/ha (6/ac)	
	* Consider density with length of feeding period. Increased density may cause snow compaction, deep frost penetration, adding to runoff risk.	

	Feeding Period	Check One
low	Is the feeding period short? - less than 3 months/year	
medium	Is it medium? - 4 to 5 months/year	
high	Is it long? - greater than 5 months/year	
	* With livestock density, it indicates the manure concentration. Low density/short feeding period can have a low risk of runoff. High density/long feeding period can have a high risk of runoff.	

	Slope From Feeding Area to Watercourses	Check One
low	Is it flat ground? (less than 2%) - least concern	
medium	Is it a slight slope? (2 to 5%) or moderate? (5 - 10%)	
high	Is it steep? (over 15%) - greater risk of impact	
	* Affects the risk of runoff reaching surface water.	
	Vegetative Cover - Feeding Area to Watercourses	Check One
low	Is the area forested?	
low	Is there long crop stubble? - to help resist runoff	
medium	Is there medium to low stubble?	
high	Is the area bare?	
high	Is the area tilled? - could lead to soil erosion	
	* Vegetation may affect how runoff flows.	
	Distance From Feeding Area to Watercourses	Check One
low	Is the distance greater than 60 m (200 ft)?	
medium	Is it between 30 to 60 m (100-200 ft)?	
high	Is it <i>less than than 30 m (100 ft)? - doesn't meet Code</i>	
	* Must be considered with slope, vegetation cover, etc.	
	Type of Runoff From Feeding Area	Check One
low	Is the flow dispersed?	
medium	Is the flow moderately concentrated?	
high	Is the flow channeled?	
	* Must be considered with slope and distance.	
	Livestock Watering Location	Check One
low	Is there no access to watercourses?	
low	Is there access but waterers are used?	
medium	Are watercourses used but with developed access?	
high	Are watercourses used without developed access?	
	* Risk increases with access to a watercourse.	
	Runoff Containment	Check One
low	Is there containment of contaminated runoff?	
low	Has the containment been sufficient to hold the feeding period runoff in the past 5 years?	
low	Is it impervious? (groundwater concerns if it is not)	
medium	Is there containment for only the low runoff years?	
high	Is there no runoff containment?	
	Are there any other methods of dealing with runoff?	

RATING - RISK OF RUNOFF IMPACTING A WATERCOURSE

- Low Risk** = “slope” & “distance” ratings are low plus only two other ratings are medium and one is high
- Medium Risk** = “slope” & “distance” rating are medium plus only two other ratings are high
- High Risk** = three or more high ratings

5. Risk of Runoff Impacting Groundwater

If the risk of runoff is assessed as medium or high, these tables should be used to assess if that runoff may impact groundwater. Many of these factors can be modified with management.

Livestock Density (using a beef cow as one agricultural unit)		Check One
low	Is the density low? - e.g., less than 10 ag.unit/ha (4/ac)	
medium	Is the density medium? - e.g., 10 to 15/ha (4 - 6/ac)	
high	Is the density high? - e.g., greater than 15/ha (6/ac)	
* Consider density with feeding period. Increased density may cause snow compaction, deep frost penetration, adding to runoff risk.		

Feeding Period		Check One
low	Is the feeding period short? - less than 3 mon/year	
medium	Is it medium? - 4 to 5 months/year	
high	Is it long? - greater than 5 months/year	
* Considered with density, it gives the manure concentration. Low density/short feeding period can have a low risk of runoff. High density/long feeding period can have a high risk of runoff		

Depth to Groundwater		Check One
low	Is the depth to groundwater greater than 3 m (10 ft)?	
medium	Is the depth between 1.5 - 3 m (5 - 10 ft)?	
high	Is the depth less than 1.5 m (5 ft)?	
* Important for feeding area and runoff containment site. If water table is unknown, see “Distance to a Watercourse” below.		

Soil characteristics		Check One
low	Is the soil mostly clay?	
medium	Is the soil mostly loam?	
high	Is the soil mostly sandy or gravelly?	
high	Is the soil depth to bedrock shallow?	
* For both the feeding area and runoff containment site, soil type and the depth to groundwater will help determine the pollution risk.		

Containment Site Characteristics		Check One
low	Is ponded runoff on impervious soil?	
medium	If not, has an impervious layer been added?	
high	Is ponded runoff on pervious soil (ie, sandy or gravely)?	

Distance From Continent to Watercourses		Check One
low	Are watercourses at least 60 m (200 ft) away??	
medium	Are they 30 m to 60 m (100 to 200 ft) away?	
high	Are they less than 30 m (100 ft) ?	
* The presence of a watercourse may relate to the presence of groundwater. Consider with the soil characteristics.		

RATING - RISK OF RUNOFF IMPACTING GROUNDWATER

- Low Risk** = one high and two medium ratings
- Medium Risk** = “depth” rating is medium and two high ratings
- High Risk** = three or more high ratings

6. Management of Feeding Areas

A well sited feeding area with only the approved watercourse access and low risk of runoff impacting the environment needs one last item: good management.

Runoff	Yes	No
If there is more than a low risk of runoff, have measures been taken that ensure containment?		
Is someone clearly responsible for ensuring these measure are in good order & actually function?		
Is there an emergency plan in place?		

Code 25
26(1)(a)
29(1)

Waste Feed & Bedding	Yes	No
Is the feeding area <i>operated in a way that does not cause pollution?</i>		
Is waste feed & bedding cleaned up and properly disposed of?		
Is leachate from waste feed & bedding contined so as not to impact groundwater or any watercourse?		

For further information please contact your nearest B.C. Ministry of Agriculture and Food office.

Specific questions relating to use of this checklist can be directed to either:
 Lance Brown (250) 371-6064
 Brian Scott (604) 556-3107

SUMMARY WORKSHEET FOR ENVIRONMENTAL CHECKLIST # 2

HOW TO USE

Each of the six topics covered in Checklist #2 is listed below. Space is provided to comment on any assessment questions that either did not meet a legislation requirement or are not desirable practices (as identified by checks in shaded boxes).

1. Siting of Feeding Areas

2. Access to a Watercourse

3. Risk of Runoff Occurring

4. Risk of Runoff Impacting a Watercourse

5. Risk of Runoff Impacting Groundwater

6. Management of Feeding Areas
