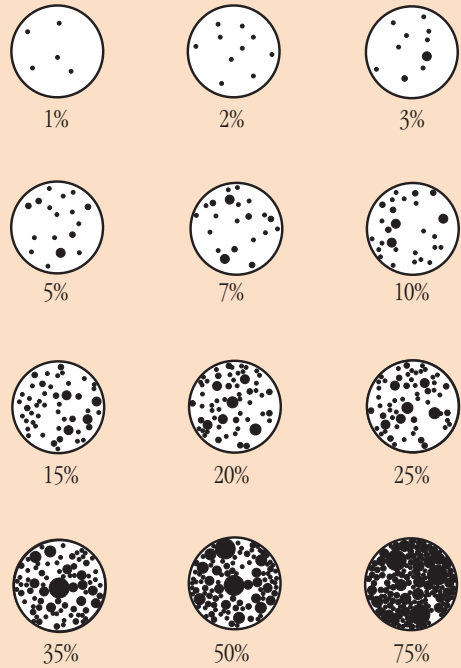


Percent Cover Examples



Natural Variations of Bare Soil Found in Natural Subregions of Alberta

Natural Subregion (soil zone)	Percent naturally occurring bare soil on sites suitable for tame pasture development
Boreal	5 (0 to 5)
Foothills Fescue, Foothills Parkland, and Montane	Loamy sites 5 (1 to 5)
Central Parkland	Loamy sites 5 (1 to 5)
Mixedgrass (Dark Brown)	Loamy sites 7 (3 to 7) Sandy sites 6 (4 to 6) Blowout sites 12 (6 to 12)
Dry Mixedgrass (Brown)	Loamy sites 10 (1 to 10) Sandy sites 12 (5 to 12) Blowout sites 15 (5 to 15)

Range Health Assessment

Field Worksheet for Tame Pasture

What is Pasture Health?

Pasture health refers to the ability of pastures to perform important functions like:

- produce plant biomass including forage for livestock and wildlife;
- maintain the soil and protect the site from erosion,
- capture and beneficially release water, and
- cycle nutrients and energy.

Healthy pastures will provide a long list of goods and services for society. For livestock producers this means sustainable grazing opportunities along with watershed and soil protection.

Why Should I Consider Pasture Health?

A pasture health assessment provides a snapshot in time of management impacts on a particular site. Monitoring of pasture health can alert livestock producers to management issues and problems so that changes can be made. Proper management will help maintain the productivity and extend the life of tame pastures, reducing costs associated with fertilizer, weed and brush control and re-seeding or rejuvenation.

How Do I Assess My Pasture?

The tame pasture health assessment process involves answering a series of questions related to the health and function of the site. Comparing your observations to the criteria for each question will allow you to assign the most appropriate score. When the questions have been answered, the total of all the scores will provide a rating of the overall health of the pasture: healthy, healthy with problems or unhealthy.

The Tame Pasture Health Assessment should be used on areas that were originally developed for tame pasture. Do not include areas that were left native or regenerating cutblocks being managed for sustained timber yield. Occasionally, areas that were cleared for tame pasture will have a substantial amount of tree regeneration. Consider using the Forested Rangeland Health Assessment on pastures that are likely to return to a forested state based on the density of tree regeneration.

Survey as much of the pasture as possible to ensure that the answers to the questions represent the entire pasture. You may need to consider subdividing the pasture into smaller sample areas to provide improved assessment of the pasture. Alternatively you may decide to only assess a smaller representative area of the pasture.

Health Categories

Healthy:

A health score of 75% or greater.
All of the key functions of healthy pasture are being performed.

Healthy with Problems:

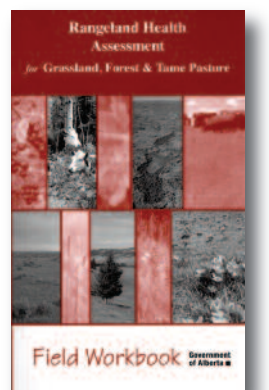
A health score of 50 to 74%.
Most but not all of the key functions of healthy pastures are being performed. This score is an early warning that adjustments to management are needed. Recovery to a healthy category can often be accomplished within a few years.

Unhealthy:

A health score of less than 50%.
Few of the functions of healthy pasture are being performed. Management changes are essential and it may take many years to recover to the healthy category or may even require pasture rejuvenation.

Need More information?

This document is an abridged version of the more detailed tame pasture health assessment. For more detailed information, please refer to "Rangeland Health Assessment for Grassland, Forest and Tame Pasture Field Workbook" available at your nearest Sustainable Resource Development Lands office or at www.srd.alberta.ca.



Litter Examples



Density Distribution

Class	Description of abundance in polygon	Distribution Score	Weeds Score	Regrowth Score
0	None		5	
1	Rare	•		4
2	A few sporadically occurring individual plants	• • •	3	
3	A single patch	•••		
4	A single patch plus a few sporadically occurring plants	••• • •	1	2
5	Several sporadically occurring plants	• • • • •		
6	A single patch plus several sporadically occurring plants	••• •••		
7	A few patches	••• •••		
8	A few patches plus several sporadically occurring plants	••• ••• •••	0	0
9	Several well spaced patches	••• ••• •••		
10	Continuous uniform occurrences of well spaced plants	• • • • •		
11	Continuous occurrence of plants with a few gaps in the distribution	••••••••••		
12	Continuous dense occurrence of plants	••••••••••		
13	Continuous occurrence of plants with a distinct linear edge in the polygon	••••••••••		

Tame Pasture Health Questions

Question #1 *Do introduced forage species dominate the site?*

The primary goal of developing tame pasture is to successfully establish and maintain a high proportion of introduced forage species. Introduced forage species include seeded and volunteer species such as timothy, brome grasses, alfalfa, clovers, creeping red fescue, quack grass and Kentucky bluegrass. An absence of seeded forages may be an indication that the health of the tame pasture is declining.

If 50% or more of the vegetative cover in the pasture is from introduced species, answer question 1A. If less than 50% of the vegetation cover in the pasture is from introduced species, answer question 1B. The pasture is considered a modified pasture. Use the percent cover diagram on the back page as a guide.

Question #1A *Is this a tame pasture?*

Estimate the canopy cover (%) of all introduced species relative to the total percent vegetation cover (live vegetation excluding noxious weeds and woody regrowth) found in the assessment area. In other words, estimate how much introduced forages contribute to the total vegetation cover.

Score: 12 = 90% or greater of the vegetation cover is from introduced forage species
 9 = 75 to 89% of the vegetation cover is from introduced forage species
 5 = 50 to 74% of the vegetation cover is from introduced forage species

Question #1B *Is this a modified tame pasture?*

Estimate the canopy cover (%) of introduced species and desirable native species, relative to the total percent vegetation (live vegetation excluding noxious weeds and woody regrowth). Desirable native species include peavine, vetch, hairy wild rye, marsh reed grass, native wheat grasses, Parry's oatgrass, and rough fescue. In other words, estimate how much of the included forages (introduced and desirable native species) contribute to the total vegetation cover.

Score: 9 = 75% or greater of the cover is from included species (introduced and desirable native species)
 5 = 40 to 74% of the cover is from included species
 0 = less than 40% of the cover from included species

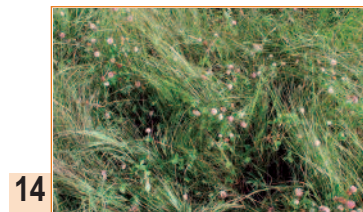
Question #2 *What kind of plants are on the site?*

Moderately grazed tame pastures that are given effective rest maintain taller, more productive forage species such as alfalfa, brome grasses, Timothy and wheatgrasses. When grazing pressure increases and effective rest is not provided, plant species changes occur and grazing resistant species such as Kentucky bluegrass, quackgrass, creeping red fescue and white clover become dominant in the pasture. Under continued long term heavy grazing, the cover of weedy or disturbance induced species can increase. Weedy species includes nuisance weeds such as dandelion, foxtail barley, hawk's beard, flixweed and mustards (noxious or prohibited noxious weeds are not included in this question). Disturbance induced species include strawberry, pussy toes, yarrow and rough hairgrass. To score this question, determine the cover of tall, more productive species (both introduced and native) relative to the total cover of all forage species. Use the percent cover examples on the back page as a guide.

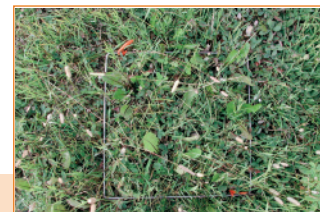
Score:

Forage Species Shift 2.1 14 = 75% or greater of the forage cover is from tall, productive introduced and native forage species. Minor amounts of grazing induced species present. 7 = 40-74% of the forage cover is from tall, productive introduced and native species. Plants may be declining in health and vigor. Grazing induced species may be replacing tall, productive species. 0 = < 40% of the forage cover is from tall, productive introduced and native species. Plants may be weak and have reduced vigor. Taller, more productive species may have been largely replaced by grazing induced species.

Weedy Disturbance Induced Species Shift 2.2 14 = 25% or less of the area is covered by weedy or disturbance induced species
 7 = 26-49% of the area is covered by weedy or disturbance induced species
 0 = 50% or greater of the area is covered by weedy or disturbance induced species.



14



7



0

Tame Pasture Health Questions

Question #3 *Is there enough litter?*

Litter is the old plant residue left over from previous years' production. Litter protects the soil against wind and water erosion. It buffers against dry conditions by aiding moisture retention and reducing moisture loss. Litter also enhances forage production through water, mineral and nutrient cycling. Litter estimates therefore provide an indirect measurement of the health and function of nutrient and water cycles. This question is scored based on the amount and distribution of litter across the site. Litter amounts are estimated by hand-raking a 1/4m² (50 cm x 50cm or 18 inch x 18 inch) plot. Use the litter examples on the back page as a guide.

Score: 25 = Thick, distinct litter layer is visible. Litter has a uniform distribution across the pasture with less than 5% of the pasture lacking adequate cover. Hand raked litter yields one handful of litter (≈450 lb/ac) 16 = Litter is patchy; 5-25% of the site has reduced litter. Hand raking yields ½ to 1 handful of litter (≈250 - 450 lb/ac) 8 = A thin litter layer is present throughout the pasture or acceptable litter cover may exist only in small scattered patches with the rest of the pasture having little or no litter. About 25-67% of the pasture has inadequate litter cover. Hand raked litter yields ¼ to ½ handful of litter (≈125-250 lb/ac) 0 = Litter is sparse or absent for the majority of the site (>67%). Hand raking yields less than ¼ handful of litter (<125 lb/ac)

Question #4 *Is the site stable?*

Early stages of soil erosion indicate the need for immediate changes in management before soil loss becomes serious and costly. Human-caused bare soil can result from the direct impacts of pasture establishment methods, grazing or equipment use or indirectly from rodent burrowing.

Score:

Erosion of Accelerated Erosion 4.1 10 = no visible macro or micro evidence of soil movement beyond the natural extent for the site 7 = some micro evidence of soil movement 4 = macro and micro evidence of soil movement; erosion features are active but limited to the site, with no off-site movement of material; flow patterns well-defined branches 0 = extreme amounts of soil movement

Human-Caused Bare Soil 4.2 To estimate human-caused bare soil, determine the percentage of bare ground on the site, then subtract the percentage of naturally occurring bare soil using the table on the back page.

Dry Mixed Grass or Mixed Grass Natural Subregions 4.2a 5 = 10% or less human caused bare soil 3 = 11-20% human caused bare soil 1 = 21- 49% human caused bare soil 0 = 50% or greater human caused bare soil

Boreal Mixedwood, Central Parkland, Foothills Fescue, Foothills Parkland, and Montane 4.2b 5 = 5% or less human caused bare soil 3 = 6-10% human caused bare soil 1 = 11-15% human caused bare soil 0 = 16% or greater human caused bare soil

Question #5 *Are noxious weeds present?*

Noxious weeds most often invade pastures where management practices have created bare soil and openings in the vegetation canopy. Effective grazing management strives to maintain plant vigor and maximum vegetation cover thereby reducing the potential for weed invasion. Use the percent cover examples and density distribution chart on the back page as a guide.

Score:

Canopy Cover 5.1 5 = no noxious weeds 3 = <1% cover 1 = 1-15% cover 0 = >15% cover

Density Distribution 5.2 5 = no noxious weeds 3 = a low level infestation (class 1-3) 1 = a moderate infestation (class 4-7) 0 = a heavy infestation (class 8-13)

Question #6 *Is woody regrowth a problem?*

Canopy cover and density distribution of tree and shrub species are used to determine whether woody regrowth on the site is acting as complimentary forage or competition. If the woody regrowth is competing with the forages on the site, some method of control and/or management changes should be considered. For this question only assess areas that were originally developed as tame pasture. Do not include areas that were left as native vegetation such as buffers or riparian areas. Use the percent cover examples and density distribution chart on the back pages as a guide.

Score:

Canopy Cover 6.1 6 = < 5% woody regrowth cover 3 = cover between 5 and 15% 0 = >15% cover N/A = not scored

Density Distribution 6.2 4 = low woody regrowth density (classes 0-3) 1 = moderate density (classes 4-7) 0 = high density (classes 8-13) N/A = not scored