Pasture & Grazing Management Overview

SKAGIT CONSERVATION DISTRICT
SOIL • WATER • WOODLAND

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Characteristics of Overgrazed Pastures

- Grazers run out of feed before grazing season ends.
- See more ribs than rib-eyes.
- See more weeds than desirable plants.
- See more bare or open spaces grasses.
- See water ponding on soil surface.
- Gate and watering areas are trampled bare.
- Fence line is clean.
- Across the fence line is clean.
- Fence line posts leaning out (not prevailing winds!).
- You’re calling around for ‘cheap’ hay!

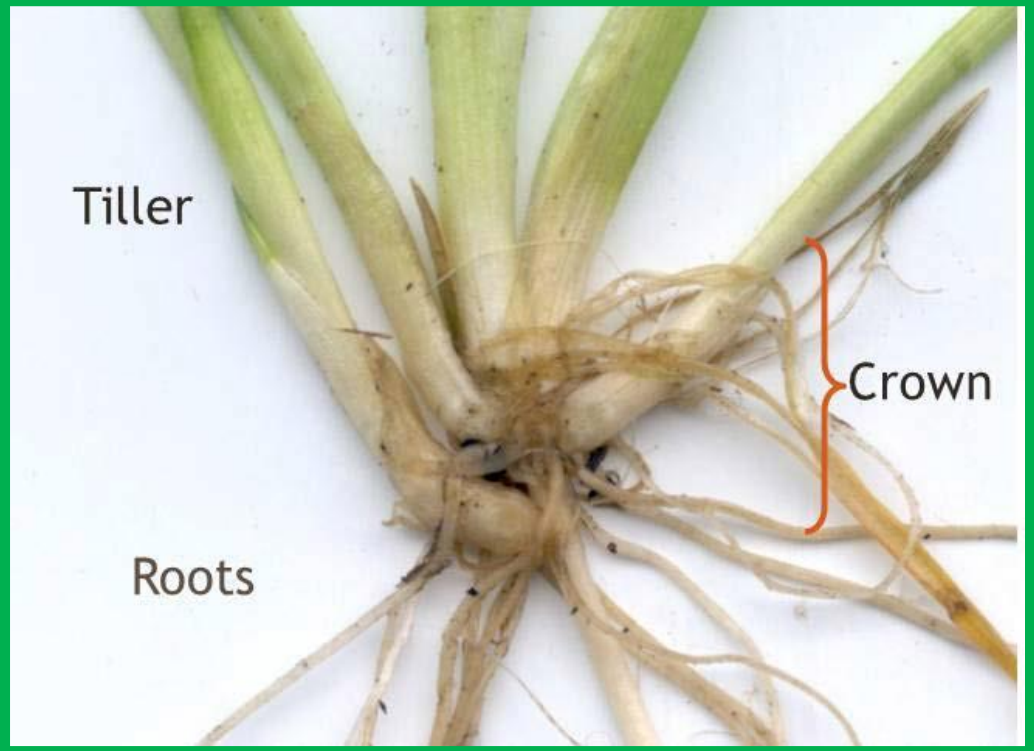
Examples of overgrazed pastures and undesirable plants

Get in the Grass Growing Business

- Community of plants we maintain to feed livestock
- Grass is a crop
- Needs management
- Control grazing and resting of pasture
- Reduce soil compaction
- Restricts root growth
- Reduces water and nutrient uptake

What is the basic unit of a pasture/ hay field community?

- **Tiller: it is composed of leaves,**
- **stem, nodes, internodes, apical**
- **meristem, intercalary meristem, axillary meristem, and roots**



The Facts About Grass

- Grass needs energy for growth, maintenance, and reproduction.
- Green plants get energy from sunlight.
- Grass need leaves and stems to collect sunlight.
- Roots need the collected energy for growth and replacement.

Why Manage Pastures??

- When livestock are allowed to continuously graze pastures, grass plants don’t have a chance to adequately rest and recover.

- As a result, the quality and amount of forage you gain from your pastures will decline over time.

- If grazing goes unmanaged, livestock will overgraze the preferred grasses until only the less desirable grasses and weeds remain.

- Pasture Management can provide significant benefits including improved forage yields, lower feed costs and improve livestock performance.

Information Tips

Growing more grass for your livestock, will lower your annual feed bills.

One acre of productive pasture, can provide two tons of feed over a growing season!!

Managing Grass Heights

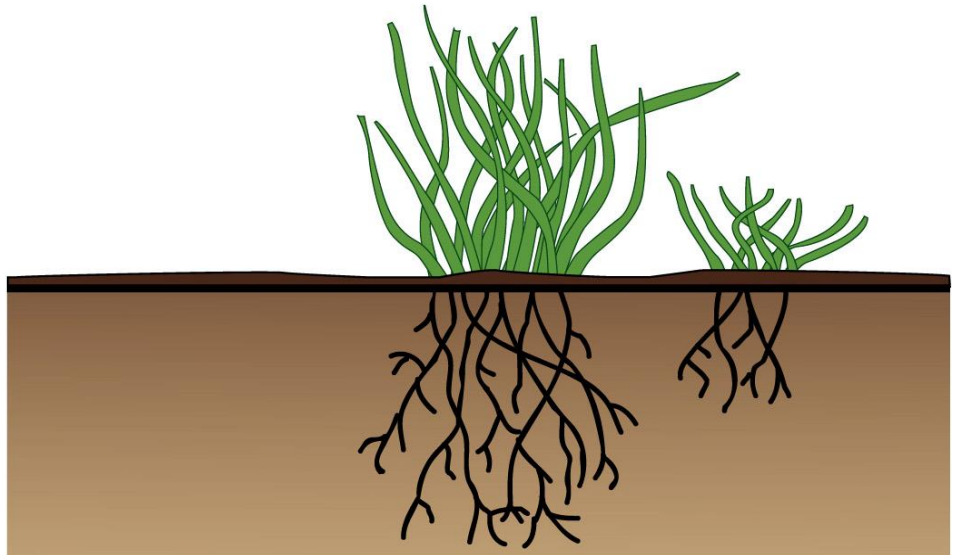
· Grasses store the energy they need to grow in the lower three inches of the plant.

· Allowing livestock to graze below three inches will severely stunt grass growth.

· **Use the "Take Half, Leave Half" rule of thumb.**

· Livestock should be turned out on pasture when the grass height is ***six to eight inches*** and removed from the pasture when grass has been grazed down to ***three to four inches.***

· Think of the bottom three inches of the plant as an 'energy bank', which should be left for plant use, not animal feed.



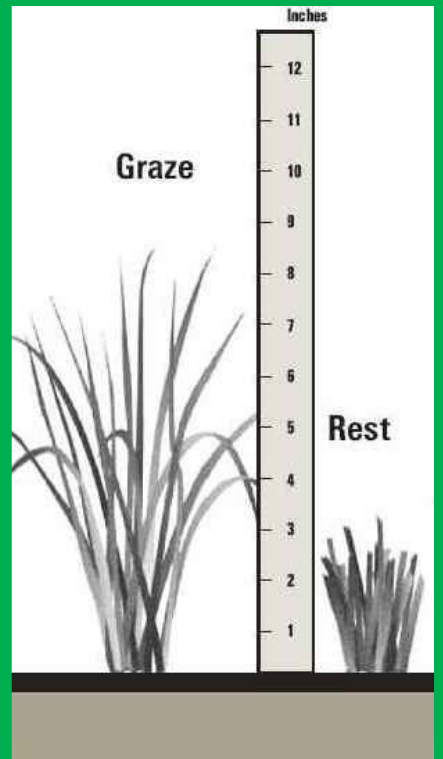
Percent leaf volume removed	Percent root growth stopped
10%	0%
20%	0%
30%	0%
40%	0%
50%	2-4%
60%	50%
70%	78%
80%	100%
90%	100%

Grazing Grasses

- Encourage rapid re-growth
- Protect lower portion of the plant
- Protect the growing points
- Energy is stored near the bottom and in roots

Grazing Height as a Guide

- **Graze no lower than 3 to 4 inches!**
- Animals LOVE the bottom 2 inches of grass, it's like candy-stored energy-carbohydrates
- **Graze again at 6 to 8 inches**



Grow Grass Grow!

- Key Growth Stages
  - Vegetative
  - Reproductive (Flowering)

Graze to keep in vegetative stage

Regrown pasture –ready to graze again

Keeping Forage Quality High

- Graze, harvest or cut for hay, before seed heads are produced
- Compromise between yield and quality
  - Yield increases with time
  - Quality decreases with time
- Manage animals and grazing

ANY QUESTIONS ABOUT ANY OF THE SLIDES YOU JUST WATCHED??

Overstocking Leads to…

- Overgrazing
- Soil compaction
- Low productivity (need more hay!)
- Bare ground and then mud
- Loss of topsoil
- Nothing to hold or utilize nutrients
- Increased weeds

Overgrazing Happens--

Two Ways:

1. Leaving animals in pasture too long
2. Bringing animals back too soon

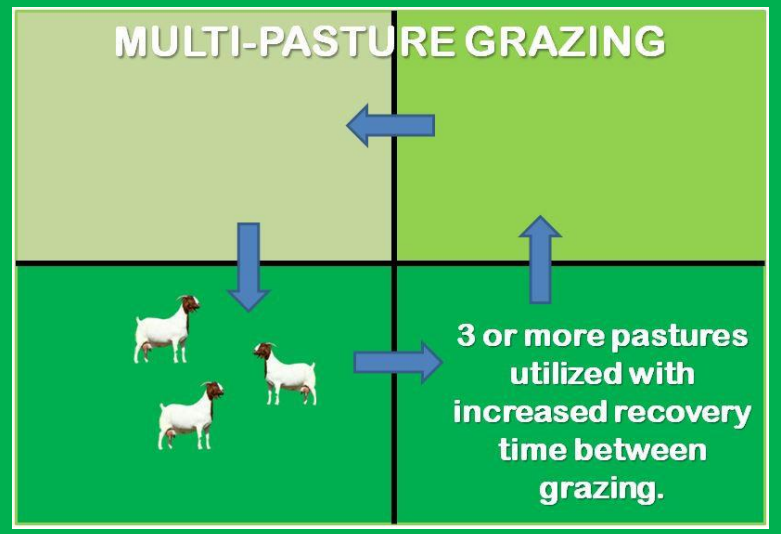
Continuous Grazing

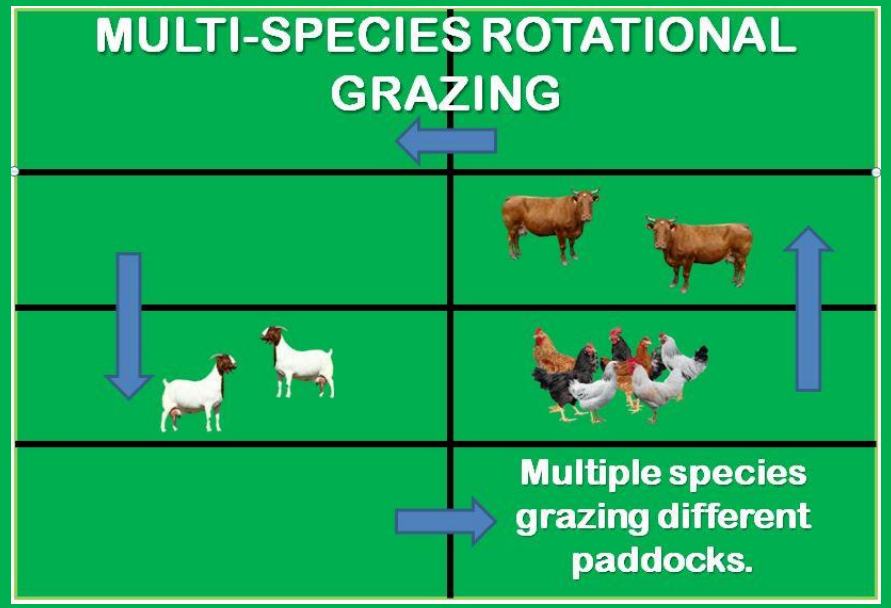
- Very common and easy
- Allows some animals to become highly selective
- Loss of desirable forages
- Increase undesirable grasses, weeds and erosion
- Only successful with large acreage and low stocking rates

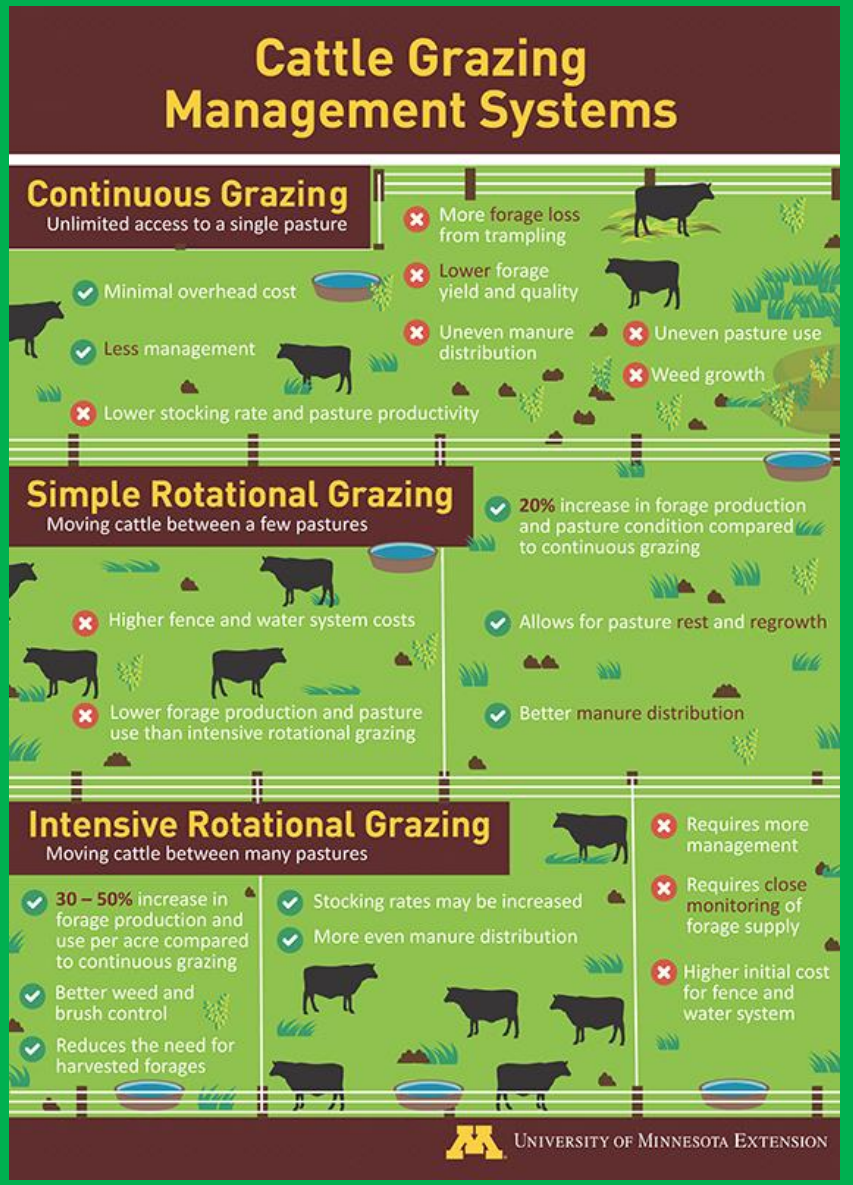
Rotational Grazing

- Rotational grazing is when you take a larger pasture, break it up into smaller sections with cross fencing and rotate animals.
- Start animals in the first pasture when grass has reached ***six to eight inches***.
- Move them to the next pasture when they have grazed it down to ***three inches.***
- Once the animals have been rotated through all the available pastures, place them in a confinement area until the first pasture has reached ***six to eight inches again***. (Read more about confinement areas on upcoming slides.)
- Water source for each pasture

More Examples of Grazing Practices







Mowing & Dragging

· After a section of pasture has been grazed, mow the remaining grass to a uniform height of three inches.

· This will help stimulate equal growth of all plants and minimize weeds.

· After mowing, drag the manure piles to equally distribute nutrients.

Create a Sacrifice Area

- Pasture that is going to be “sacrificed to save the others!

OR

- Small, non-irrigated, non-grazing areas
- Constructed with footing materials

- **AKA:**
- Turnout, Corral, Paddock, Run, Holding pen
    - So named because you sacrifice the grass here to save it elsewhere
    - “Beat it up, and clean it up”

Examples of Sacrifice or Heavy Use Area

Improved Sacrifice areas must be MANAGED:

- Animals are kept here when soil is too wet
- Animals kept here whenever grass is dormant or not ready for re-grazing
- Feed hay and if possible, don’t feed on the ground
- Pick up manure

Composting Process

- Oxygen
- Moisture
- Ideal carbon to nitrogen ratio (30:1)
- Temperature (130-150 F)

Applying Compost or Fertilizer

- *Apply a half inch of compost at a time.*
- *Do not apply more than 2 to 3 inches per year.*

· In order to grow, grass takes nutrients from the soil.
· If these nutrients are not replaced, growth will slow and weeds will thrive.
· Nutrients can be added back to the system by applying compost or fertilizer.
· Compost can be applied April through October when the grass is actively growing.
· If compost is applied at other times of the year, the nutrients will wash away before the plants have an opportunity to use them.

Basic Fertilizing Principles-NPK

- Nitrogen, Phosphorus, Potassium most limiting nutrients
- General guidelines for Nitrogen applications
    - Light applications in fall
    - Spring applications after TSUM 200
    - Heavier applications earlier in the growing season
- Phosphorus (P2O)
    - Apply in fall
    - Stable nutrient, doesn’t move in soil very much
    - Soil test to determine if soil P is rising
- Potassium (K2O)
    - Apply in fall
    - Depletes rapidly with haying systems
    - Low levels reduce grass and clover vigor

Fall Management

- New roots are forming and need all the energy they can get
- Grazing below 3 inches in the fall, 3 weeks of feed is lost in the spring
- Great time to sample soil and determine if fertilizer or lime is needed

Soil Testing

- 5 Reasons for Critical Information from Soil Analysis:
  - What plants are suitable for your soil?
  - What and How much nutrients does your soil need?
  - Knowing if you have helpful or harmful bio-organisms in soil?
  - How to prevent crop failure and avoid unnecessary fertilizing?
  - Avoid suffocation or drought

Winter Grazing

- Limit grazing since grass isn’t actively growing
- Animals are off when soils are saturated
- Utilize sacrifice pasture or heavy use area

ANY QUESTIONS ABOUT ANY OF THE SLIDES YOU JUST WATCHED??

Seeding Time of Year & Appropriate Soil Type

Seeding legume into an existing grass pasture

- *Late winter/early spring*- is the best time to seed legumes
- An early seeding will aid in the competition with weeds and grasses.
- No-till and frost seeding are options.

Seeding both legumes and grasses to eliminate existing species

- *Late summer/early fall*- is considered the best time to seed if a blend of species will be planted.
- Time your seeding accordingly so that soil moisture is available.

Species Selection

- Species selection is critical to the long-term success of the planting.
- If the species are not adapted to the intended use or the site, the best seedbed preparation in the world won't make the seeding successful.
- Use Table 1 in this publication to select species that are adapted to the soils in the field and the intended use.
- Soils are categorized by winter and summer drainage.

Table 1. Forage species adaptation by use and soil type.

Soil Type	Use: Grazing only or Grazing & Hay	Use: Exclusively for Hay	Use: Exercise or Confinement Area	Use: Temporary Cover[3]
Excessively drained, very dry in summer. Recommended seeding season: Fall.	Tall Fescue Orchardgrass Alfalfa Red Clover White Clover Birdsfoot Trefoil Subclover[5]	Tall Fescue Orchardgrass Alfalfa Red Clover White Clover	Bentgrass Fine Fescue Tall Fescue White Clover	Annual Ryegrass Barley Cereal Rye Spring Wheat Winter Wheat Triticale Austrian Winter Peas[4] Subclover[5]
Well-drained all year or shallow soil. Recommended seeding season: Spring or Fall.	Tall Fescue Orchardgrass Annual Ryegrass Perennial Ryegrass Alfalfa Red Clover White Clover Birdsfoot Trefoil Subclover[5]	Tall Fescue Orchardgrass Alfalfa Red Clover White Clover	Bentgrass Fine Fescue Tall Fescue White Clover	Annual Ryegrass Perennial Ryegrass Barley Oats Cereal Rye Spring Wheat Winter Wheat Triticale Austrian Winter Peas[4] Subclover[5]
Somewhat poorly drained in winter and early spring. Recommended seeding season: Spring or Fall.	Tall Fescue Annual Ryegrass Perennial Ryegrass Alsike Clover White Clover Big Trefoil Birdsfoot Trefoil	Tall Fescue Timothy Alsike Clover White Clover Big Trefoil Birdsfoot Trefoil	Bentgrass Fine Fescue Tall Fescue White Clover	Annual Ryegrass Perennial Ryegrass Barley Oats Cereal Rye Spring Wheat Winter Wheat Triticale Austrian Winter Peas[4]
Saturated in late fall, winter and spring. Recommended seeding season: Fall.	Reed Canarygrass[1] Meadow Foxtail[1] Tall Fescue Alsike Clover White Clover Big Trefoil Birdsfoot Trefoil	Reed Canarygrass[1] Meadow Foxtail[1] Tall Fescue Timothy Alsike Clover White Clover Big Trefoil Birdsfoot Trefoil	Reed Canarygrass[1] Meadow Foxtail[1] Bentgrass Fine Fescue Tall Fescue White Clover	Oats Cereal Rye
Mixed drainage: dry uplands and wet swales. Recommended seeding season: Fall.	Tall Fescue Annual Ryegrass Perennial Ryegrass Alsike Clover White Clover Big Trefoil Birdsfoot Trefoil Meadow Foxtail[1]	Tall Fescue Orchardgrass[2] Timothy Alsike Clover Red Clover White Clover Big Trefoil Birdsfoot Trefoil Meadow Foxtail[1]	Bentgrass Fine Fescue Tall Fescue White Clover	Annual Ryegrass Perennial Ryegrass Barley Oats Cereal Rye Spring Wheat Winter What Triticale Austrian Winter Peas[4]

Table 2. Seeding Rate Calculator

SPECIES *Place an "x" in the box under seedbed selected:*		Rate for each species seeded by itself (lb/acre)*		Calculate the pounds of seed needed per acre by multiplying selected rate (well-prepared or rough seedbed) by percentage		
		Well-prepared, tilled seedbed	Roughly prepared seedbed, little or no tillage	Fill in the percentage of each species desired in the seeding***	Multiply selected rate times desired percentage	Selected variety
Rates for permanent grass and legume seedings:						
Grasses:						
1. Bentgrass	(*Agrostis spp.*)	5	8	%		
2. Bluegrass, Kentucky	(*Poa pratensis*)	10	15	%		
4. Fescue, Fine	(*Festuca rubra*)	20	30	%		
5. Fescue, Tall	(*Festuca arundinacea*)	30	50	%		
7. Orchardgrass	(*Dactylis glomerata*)	20	30	%		
8. Ryegrass, Annual or Italian	(*Lolium multiflorum*)	30	50	%		
9. Ryegrass, Perennial**	(*Lolium perenne*)	30	50	%		
10. Timothy	(*Phleum pratense*)	10	15	%		
Legumes:		**Rate for supplementation to grass seeding)**				
11. Alfalfa	(*Medicago sativa*)	10	15	%		
12. Clover, Alsike	(*Trifolium hybridum*)	3	5	%		
13. Clover, Red	(*Trifolium pratense*)	8	12	%		
14. Clover, White	(*Trifolium repens*)	3	5	%		
15. Trefoil, Big	(*Lotus uliginosus*)	3	5	%		
16. Trefoil, Birdsfoot	(*Lotus corniculatus*)	5	8	%		
TOTAL: (sum of each column)				**%**		**lb/acre**
Rates for temporary cover or clean-up crop:						
Annual Cereal Grains:						
17. Barley	(*Hordeum vulgare*)	150	250	%		
18. Oats	(*Avena sativa*)	100	250	%		
19. Rye, Cereal	(*Secale cereale*)	150	250	%		
20. Wheat	(*Triticum vulgare*)	150	250	%		
21. Triticale	(*Triticosecale spp.*)	150	250	%		
Annual Legumes:						
22. Austrian Winter Peas	(*Pisum sativum arvense*)	150	250	%		
23. Subterranean (Sub-) clover	(*Trifolium subterraneum*)	6	8	%		
TOTAL: (sum of each column)				**%**		**lb/acre**

Legumes

- High in protein, highly digestible
- Alfalfa
- **Birdsfoot Trefoil**
- Clovers
  - **White**
  - **Subterranean**
  - Red

- Fix nitrogen from the air
- Can reduce the need for nitrogen fertilizers
- More productive in the summer than grasses
- Potential bloat issues

Orchard Grass

- Characteristics—non-native perennial, bunchgrass, with growing points occurring at the soil level
- • Longevity—10+ years
- • Palatability for livestock—high throughout the grazing season
- • Yield—high
- • Fertility needs—moderate to high
- • Site adaptation—droughty to moist soils
- • Shade tolerance—high
- • Toxicities—none known
- • Uses—forage production (pasture, hay and silage)
- • Seedling establishment—moderately rapid
- • Seedling vigor—good
- • Average number of seeds per pound—540,000
- • Other—susceptible to stripe rust which reduces forage quality while not affecting yield

Perennial Ryegrass

Characteristic—non-native perennial, bunchgrass, with growing points occurring at the soil level (diploid varieties) or slightly above the surface (tetraploid varieties)

• Longevity—5 to 8 years

• Palatability for livestock—high throughout the grazing season

• Yield—high, may decline after 3 to 5 years if fertility and management are reduced

• Fertility needs—high

• Shade tolerance—moderate

• Toxicities—internal fungus (endophyte) produces toxic products that are related to lower livestock gains and reproduction problems in horses. Toxin is concentrated in seed head tillers and basal leaf sheaths. Endophytefree varieties are available.

• Uses—forage production (pasture and silage), confinement areas and corrals • Seedling establishment—rapid

• Seedling vigor—rapid

• Average number of seeds per pound—225,000

• Other—susceptible to stem rust which may affect yield. Forage production declines more than other species during dry summer growth period, but resumes with fall rains and extends into winter.

Timothy

- Characteristics—non-native perennial, bunchgrass, with growing points occurring above the soil level
- Longevity—2+ years in pasture and 10+ years with hay and silage
- Palatability for livestock—moderate to high
- Yield—moderate
- Fertility needs—moderate
- Site adaptation—moist to saturated soils
- Shade tolerance—low
- Toxicities—none known
- Uses—forage production (hay and silage)
- Seedling establishment—moderate
- Seedling vigor—rapid
- Average number of seeds per pound—1,300,000
- Other—forage production declines more than most species during dry summer growth period

Perennial Legumes

Alfalfa

Characteristics—non-native erect perennial
• Longevity—3+ years in pasture and longer with hay and silage • Palatability for livestock—high
• Yield—high
• Fertility needs—moderate to high
• Site adaptation—dry to well-drained soils—not suited to soils with high water tables
• Shade tolerance—low
• Toxicities—bloat
• Uses—forage production (pasture, hay and silage)
• Seedling establishment—moderately fast
• Seedling vigor—good
• Average number of seeds per pound—225,000
• Other—cultivars susceptible to verticillium wilt, bacterial wilt, fusarium root rot, spring black stem, sclerotinia crown and stem rot, and Ascochyta are more likely to suffer greater stand losses. To maintain productive stands keep soil pH around 6.5.

White clover

Characteristics—non-native prostrate perennial

- **Longevity—10+ years**
- **Palatability for livestock—high**
- **Yield—moderate**
- **Fertility needs—low to moderate**
- **Site adaptation—well-drained to wet soils**
- **Shade tolerance—low to moderate**
- **Toxicities—bloat**
- **Uses—forage production (pasture, hay and silage), confinement areas**
- **Seedling establishment—rapid**
- **Seedling vigor—good**
- **Average number of seeds per pound—800,000**
- **Other—susceptible to sclerotinia, crown and stem rot, rhizoctonia, fusarium root rot**

Multiple-species VS. Two species mixtures?

- One species in a multiple-species mixture will always grow no matter what conditions
- Mixtures are hard to manage for grazing or haying because the species often differ in palatability, maturity, adaption to different soils, yield potential, and growing season conditions.
- Selective grazing, whereby we see patchy grazing, occurs when some species are avoided, and other species are overgrazed in mixed stands.
- Multiple-species mixtures can be managed successfully under intensive grazing management systems.
- For less intensive grazing systems and hay, a simple mixture with a single grass and a single legume species is recommended.

Many “weedy” grass species

Roughstalk Bluegrass

Foxtail barley
Hordeum jubatum

Velvet Grass
Holcus lanatus

Hedgehog dogtail
Cynosurus echinatus

Hare barley
Hordeum murinum

Squirrel Tail Fescue
Vulpia bromoides

Weed Control in Pastures

Buttercup

Tansy Ragwort

Bull Thistle

Scotch Broom

- Cultural Control – Cultural practices improve weed control by increasing the competitiveness of the forage.
- Mechanical Control – Mowing is one of the most often-used weed control methods in pastures.
- Biological Control – Biological control involves the use of biotic agents (e.g., plants, herbivores, insects, nematodes, and phytopathogens) to suppress weeds.
- Chemical Control – Chemical weed control includes the use of herbicides.

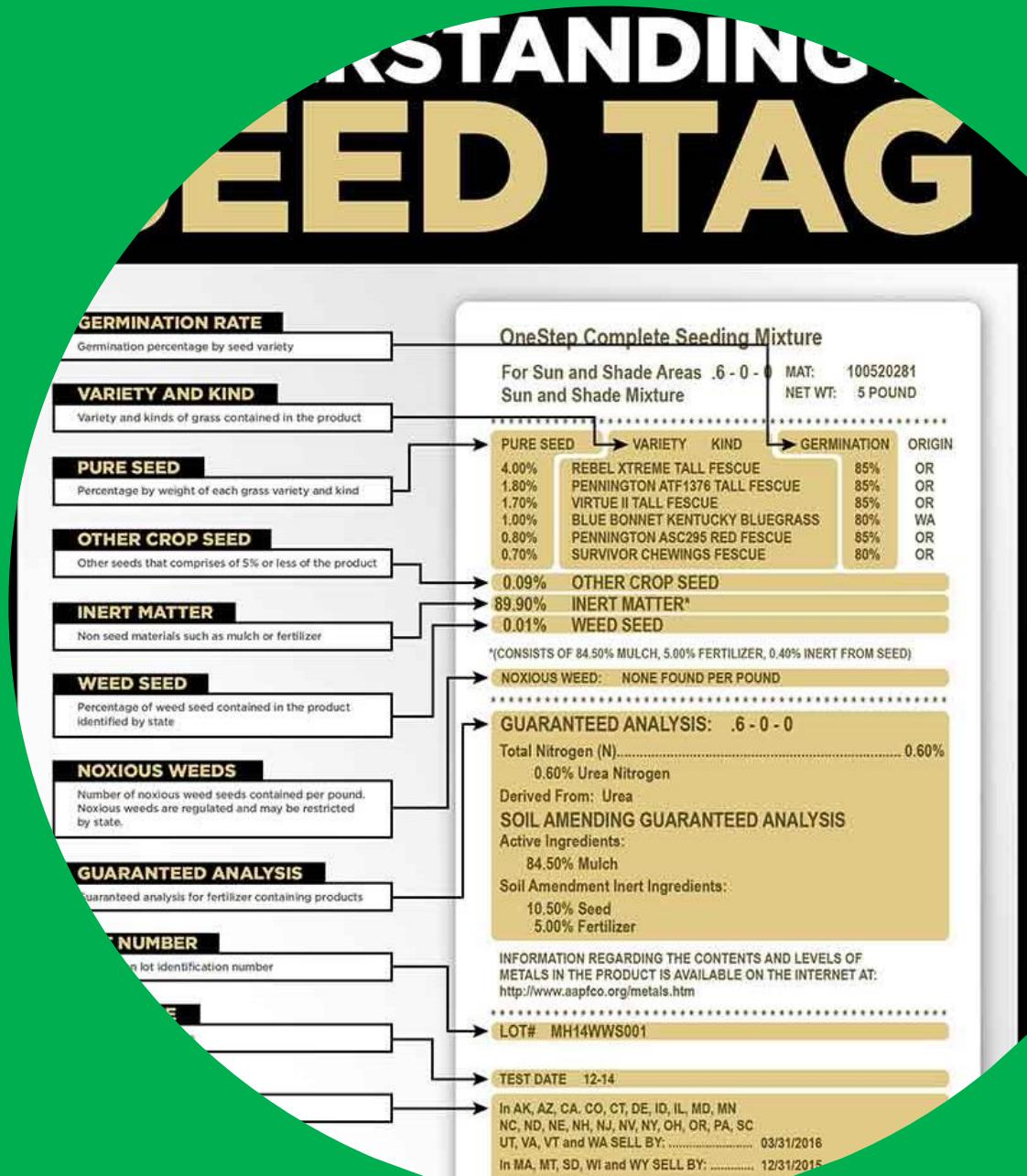
· The best way to control weeds is to use the management practices above to produce healthy, productive pastures.

· Weeds thrive when there are bare spots and grasses aren't healthy enough to compete.

· It is important to be able to identify common pasture weeds and remove them when they first appear.

Seed Tags will list minimum germination and purity.

- Germination is the percentage of seed in the bag that will germinate and grow.
- Purity is the actual amount of the species of seed you want to buy.
- Buy the purest seed you can buy.



Killing existing vegetation before seeding

- Plants with roots and leaves will always win the competition with seeds, so to favor the seeds, kill the undesired plants.
- Existing vegetation can be killed either chemically or mechanically.
- Allow at least 4 weeks between initial plowing or discing and reseeding to allow breakdown of green vegetation.

Break up compacted soil layers before reseeding.

*Fields that have been grazed in the winter are likely to have compaction related issues.

*Compacted soil restricts root growth, access to soil nutrients, and summer moisture.

BEFORE

Compacted soil layers prevent downward root growth, this causes roots to grow horizontally and matting in the upper soil layers where roots are prevented from reaching nutrients and moisture in subsoil layers.

DURING

Subsoiler legs run through all compacted soil layers, this lifts and fractures the soil structure without surface disturbance to existing pasture cover. This increases soil porosity and permeability, improving overall soil conditions

AFTER

Now the compacted subsoil layers have been removed and the soil structure is more porous and permeable with higher oxygen levels, roots are able to grow downwards and deeper, taking up nutrients and utilizing the greater oxygen levels.

Seeding depth is critical.

*Grass and legume seeds are extremely small; buried too deep in the soil, they will run out of energy before they reach the surface.

*Never seed deeper than ¼ inch. It's better to seed too shallow than to deep.

*A cultipacker seeder will do the best job of seeding, broadcasting seed followed by a light harrowing on a firm seedbed will usually give acceptable results.

Seeding Depth

- **Small-seeded forages**
  - 1/4 (.25) inch
  - If you do not see a few seed on the surface, you are too deep.

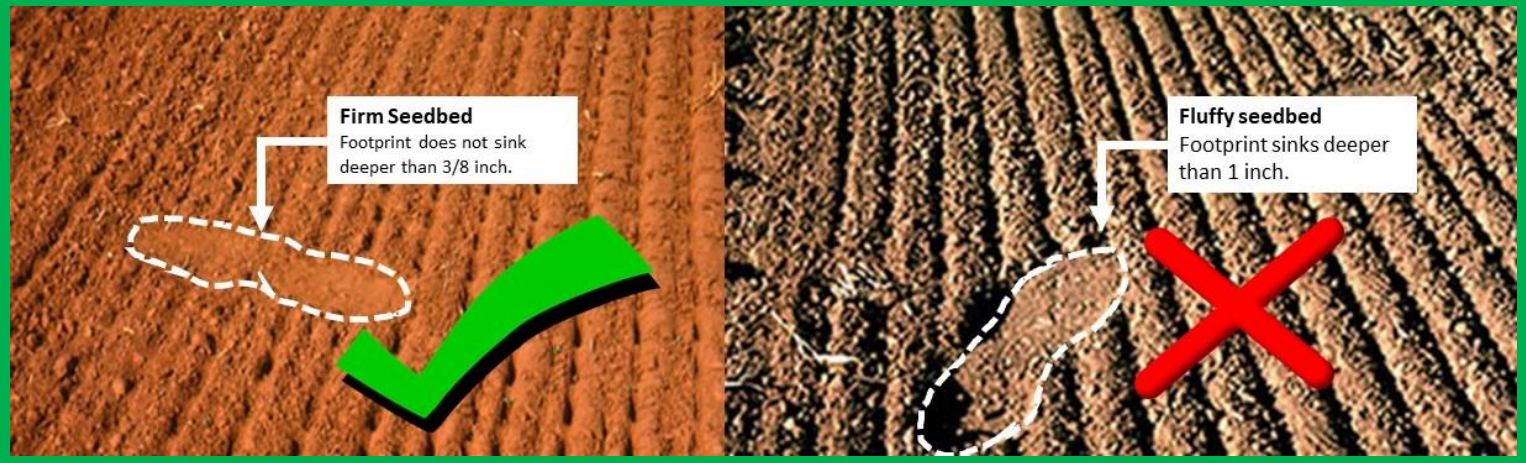
Firm seedbed is essential.

*If the soil is too “fluffy”, it will dry out quickly and any small seedling will dry out and die.

*Packing the soil with a roller is best, but repeated harrowing or dragging before seeding (with light harrowing afterwards) will also give acceptable results.

*A firm seedbed is found when you can walk over the prepared seedbed and leave footprints no deeper than ¼ inch.

*Firm seedbeds produce more even seedling emergence that covers the open soil more quickly.



ANY QUESTIONS ABOUT ANY OF THE SLIDES YOU JUST WATCHED??

Weed control after seeding

- It is critical after seeding, to be successful of this new seeding
- Control of problem perennial weeds, such as Canada thistle
- Applying herbicide before seeding
- Canada thistle can be controlled by persistent clipping prior to flowering

Weed Control Part 2

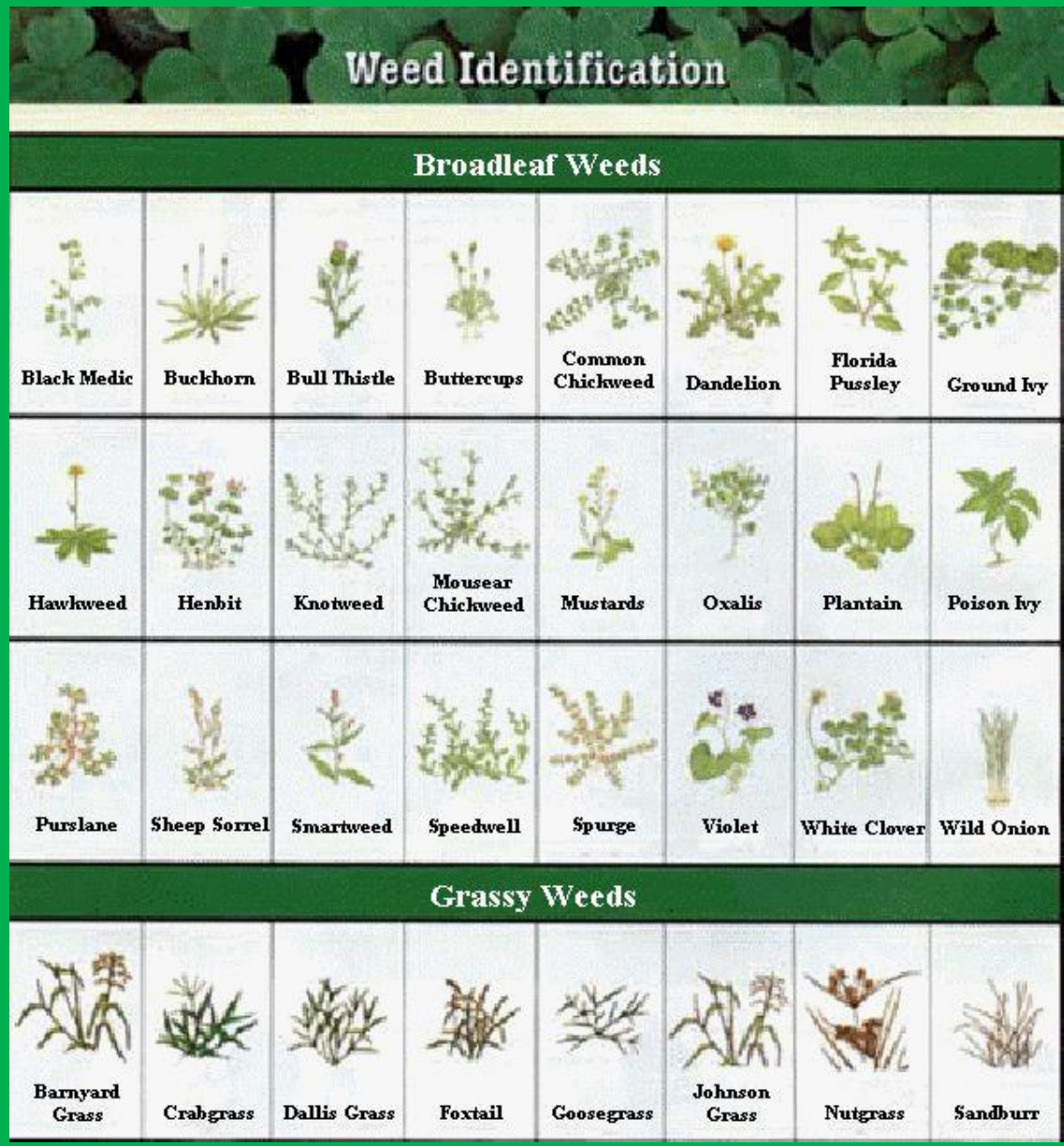
Best method of weed control after seedling emergence is by clipping.

Annual weeds generally grow faster than seedling grasses and legumes.

Clipping above the growing forage and removing the weed growing points, stunts or kills weedy plant.

- Young grasses and legumes may be susceptible to herbicide damage.

- In a new stand without legumes seeded, a wide range of herbicides can be used for broadleaf weeds.
- After these weeds are controlled, the legume can be overseeded.
- If grassy weeds are the problem, then these weeds should be controlled prior to seedbed preparation.



Spring Seeding Methods

1. Renovation using minimal herbicide— for fields with few weed problems

a. Control problem perennial weeds the year before reseeding.

b. The fall prior to seeding, apply lime as indicated by a soil test. If no test is available, apply 2 to 5 tons per acre, depending on the previous history of the field.

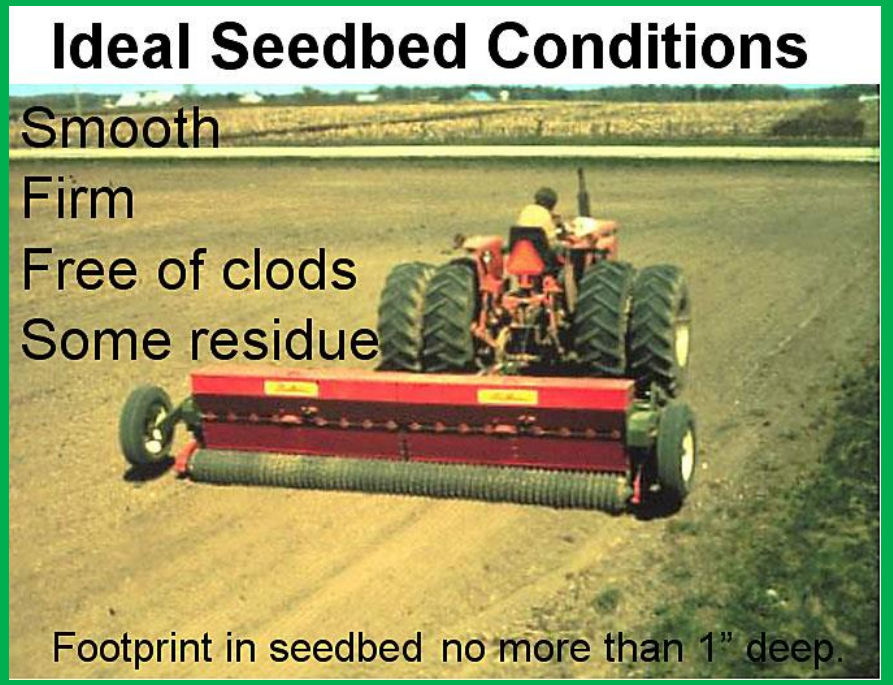
c. Graze the field in early spring to remove early growth vegetation.

d. Plow or disc old sod as early in the spring as possible.

e. Harrow to prepare a smooth, firm seedbed.

f. Fertilize as indicated by a soil test. If no test is available, fertilize with a N:P:K:S fertilizer with a ratio 3:1:2:1 and at a rate of no more than 75 units of nitrogen.

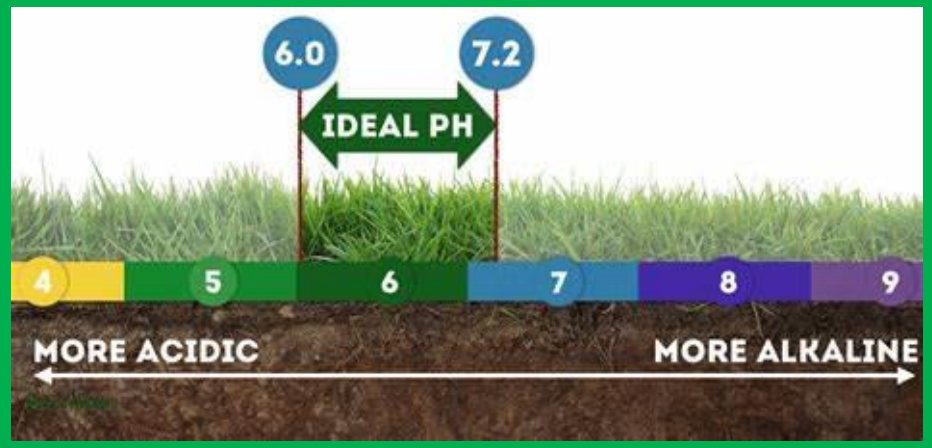
g. Plant to desired pasture species as early as possible, but usually no later than May 1.



2. Renovation using minimal herbicides— for fields with severe weed problems

a. The year before reseeding, control problem perennial weeds that will not be killed by tillage.

b. The fall season previous to seeding, apply lime as indicated by a soil test. If no test is available, apply up to 2 tons per acre, depending on the previous history of the field.



c. Graze the field in early spring to remove early growth vegetation.

d. Plow or disc old sod as early in the spring as possible.

e. Plant a cleanup crop such as wheat, oats or annual ryegrass.

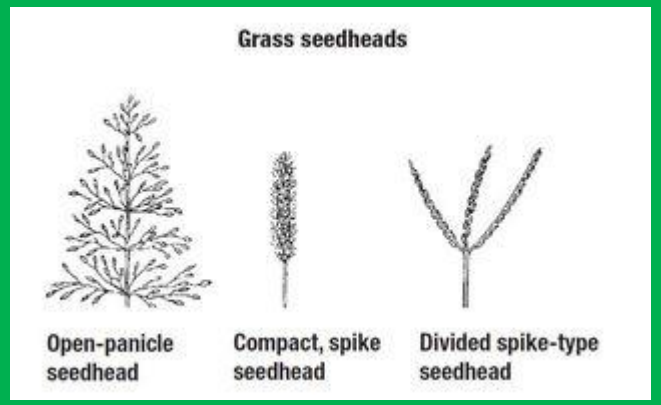
This crop can be harvested for hay or grazed.

If the plant has seed head awns, harvest or graze before they appear.

Fertilize as indicated by a soil test.

Fertilize with a N:P:K fertilizer.

Another option is to summer-fallow the field, working the soil repeatedly to kill the weeds.



A & L WESTERN AGRICULTURAL LABORATORIES

1311 WOODLAND AVE #1 • MODESTO, CALIFORNIA 95351 • (209) 529-4080 • FAX (209) 529-4736

REPORT NUMBER: 00-336-047 CLIENT NO: 9999-D

SEND TO: A & L WESTERN AGRICULTURAL LABS
1311 WOODLAND AVE.
MODESTO, CA 95351-

SUBMITTED BY:

GROWER: EXAMPLE REPORT

DATE OF REPORT: 04/30/04

SOIL ANALYSIS REPORT

PAGE 1

SAMPLE ID	LAB NUMBER	Organic Matter * % Rating	Organic Matter ** ENR lbs/A	Phosphorus P1 (Weak Bray) **** ppm	Phosphorus $NaHCO_3$-P (Olsen Method) **** ppm	Potassium K ***** ppm	Magnesium Mg *** ppm	Calcium Ca *** ppm	Sodium Na *** ppm	pH Soil pH	pH Buffer Index	Hydrogen H meq/100g	Cation Exchange Capacity C.E.C. meq/100g	PERCENT CATION SATURATION (COMPUTED) K %	Mg %	Ca %	H %	Na %
130-1	55931	4.0H	110	23M	14**	110L	460M	992VL	104L	4.7	6.2	9.7	19.1	1.5	19.8	25.9	50.5	2.4
130-2	55932	1.5L	60	27H	6**	41VL	569M	1154VL	185M	4.6	5.9	13.3	24.7	0.4	19.0	23.3	54.0	3.3
12-1	55933	3.5M	100	12L	11**	64L	471VH	841VL	87L	5.2	6.5	4.5	13.1	1.2	29.5	31.9	34.5	2.9
12-2	55934	2.8M	86	8VL	9**	29L	553VH	665VL	89M	5.3	6.6	3.7	12.1	0.6	37.7	27.5	31.0	3.2

** NaHCO3-P unreliable at this soil pH

SAMPLE NUMBER	Nitrogen NO_3-N ppm	Sulfur SO_4-S ppm	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Excess Lime Rating	Soluble Salts mmhos/cm	Chloride Cl ppm		PARTICLE SIZE ANALYSIS SAND %	SILT %	CLAY %	SOIL TEXTURE
130-1	5L	5L	0.3VL	3M	53VH	0.2VL	0.1VL	L	0.3L			44	25	31	CLAY LOAM
130-2	3VL	41VH	0.1VL	1VL	14M	0.2VL	0.1VL	L	0.6L			60	16	25	SANDY CLAY LOAM
12-1	2VL	5L	0.1VL	2L	50VH	0.1VL	0.3VL	L	0.2VL			42	36	23	LOAM
12-2	2VL	4L	0.1VL	1VL	53VH	0.1VL	0.2VL	L	0.1VL			40	35	25	LOAM

* CODE TO RATING: VERY LOW (VL), LOW (L), MEDIUM (M), HIGH (H), AND VERY HIGH (VH).
** ENR - ESTIMATED NITROGEN RELEASE
*** MULTIPLY THE RESULTS IN ppm BY 2 TO CONVERT TO LBS. PER ACRE OF THE ELEMENTAL FORM
**** MULTIPLY THE RESULTS IN ppm BY 4.6 TO CONVERT TO LBS. PER ACRE P_2O_5
***** MULTIPLY THE RESULTS IN ppm BY 2.4 TO CONVERT TO LBS. PER ACRE K_2O
MOST SOILS WEIGH TWO (2) MILLION POUNDS (DRY WEIGHT) FOR AN ACRE OF SOIL 6-2/3 INCHES DEEP

This report applies only to the sample(s) tested. Samples are retained a maximum of thirty days after testing.

Mike Buttress, CPAg
A & L WESTERN LABORATORIES. INC.

i. Fertilize as indicated by a soil test.

If no test is available, fertilize with NPK fertilizer.

j. Plant to desired pasture species as early as possible, but no later than May 1.

Seasonal Management Calendar

Spring

Do not turn livestock out until ground is firm and grass is 6-8” tall.

Rotate livestock between pastures, do not graze below 3”.

Apply compost 1/2-1”.

Mow and drag pastures once grass has been grazed to 3”.

Check for and control weeds.

Summer

Continue rotational grazing system, (maintain 3” grass height). You may need to remove livestock from pastures and feed hay if dry weather causes pastures to go dormant.

Mow and drag pastures at the end of each grazing cycle.

Check for and control weeds.

Seasonal Management Calendar

(Continued)

Autumn

Test soil.

Apply compost 1/2-1”. This is the time of year to apply lime.

Animals should be removed from the pasture when all grass is grazed down to 3”, when soils become wet, or by November 1 to allow plants to produce leaf growth for winter.

Winter

Use confinement area, do not allow livestock to have access to pastures during the winter.

Plan next year’s grazing strategy

It comes down to:

Frequency
Intensity
Season

The Bottom Line

For healthy pastures:

- Be a grass farmer
- Create multiple pastures for rotational grazing
- Wintertime management is crucial
- Manage manure resources
- Renovate if needed

Thank you

Questions?

Skagit Conservation District

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