



CLACKAMAS COUNTY

Soil and Water Conservation District

Natural Resources. Economics. Community



*Providing resource management and
conservation technical assistance to
Clackamas County landowners
since 1958*

HEALTHY PASTURES... HAPPY HORSES (and other livestock)

“If I don’t see you in the pasture...
I’ll see you in the future!”

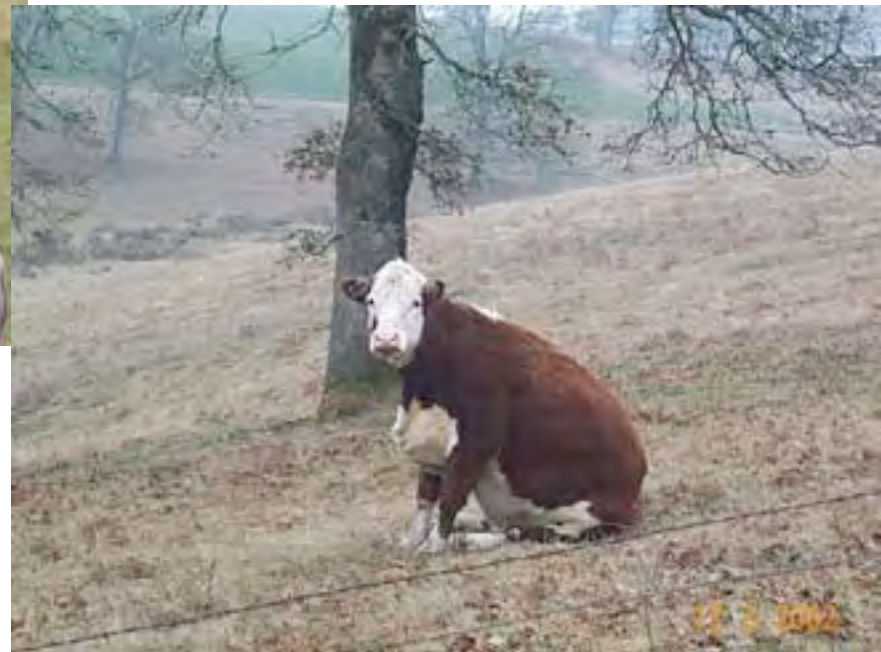
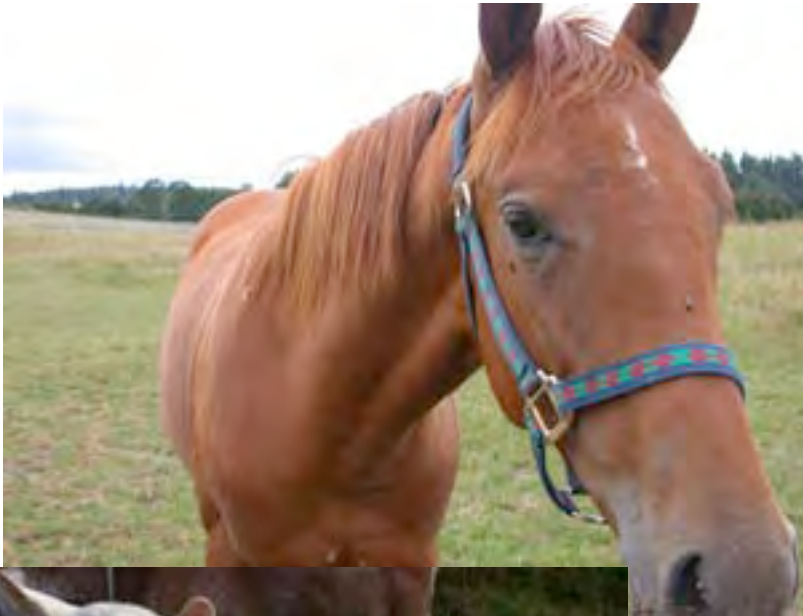


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**Traditional agriculture vs.
urban/rural lifestyle...**

One size does not fit all

Keep the animals happy



Pasture 101 – The Basics

- If you raise horses and livestock, you are in the grass business
- If you raise hay, you are in the grass business
- Understanding your pasture is the key to successful management, whether for fun or profit

The Basics

- Pasture C's (Character, Condition and Capacity)
- Know your grass species
- Know length of growing season
- Know your soil types

RESOURCES:

- [USDA Soil Survey](#)
- [OSU Extension publications](#)
- [SWCD / NRCS Technical Assistance](#)



“The Grass Is Always Greener on the Other Side of the Fence!”

- **You can have it all. With good pasture management, you can have clean water, healthy animals, and a thick, vigorous pasture - all at a reasonable cost.**



- **The first step is to recognize the differences between poor and proper management.**

“Pssst! Mom!, it’s a good thing our owners know what good pasture management is!!!”

“ THE UNDERSTANDING OF A PROBLEM IS DIRECTLY PROPORTIONAL TO YOUR DISTANCE FROM IT!”



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SIGNS YOUR PASTURE IS IN TROUBLE

- Bare ground fills in with weeds.
- Patchy pasture with desirable plants **OVERGRAZED** and undesirable plants **OVERTAKING** the pasture
- Hungry animals chewing fence posts or eating poisonous plants; high browse line
- Animals trampling streambank - add sediment to water and widen stream channel.
- Veterinary bills increasing



CAUTION

Nutrient and sediment overloading



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CAUTION

Riparian grazing and ponding



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CAUTION



Weeds and mud



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Water Gap



Fencing



Animal Crossing

6.29.2004

6.29.2004



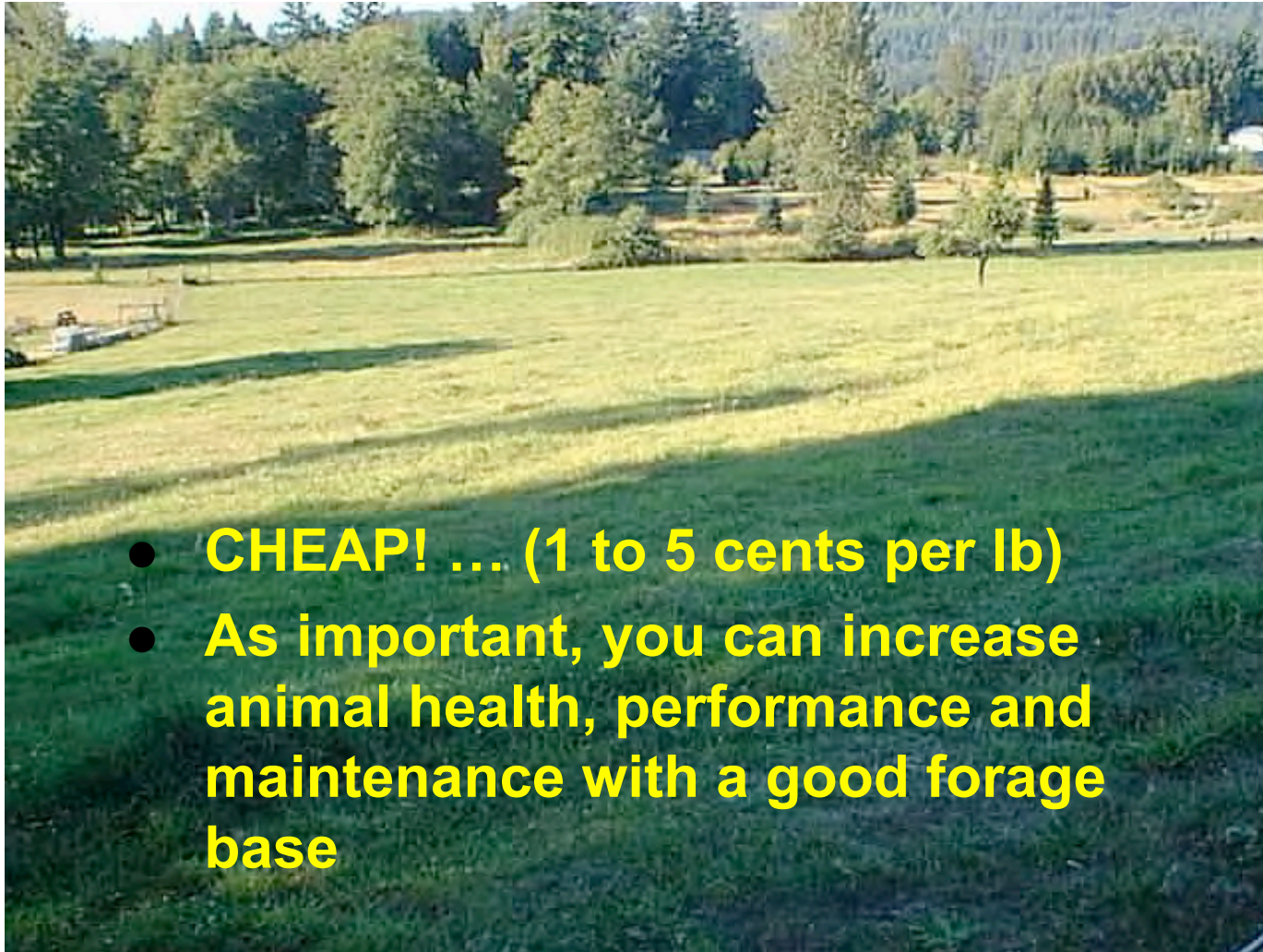


Getting Down to Busine\$\$

- **Soils** – Deposit principle (nutrients) into your bank. Manage your investment for long term objectives. **SOIL TESTING IS A MUST**
- **Forage Resource** – This is your interest earned or dividend payment (**for feed or animal health**)
- **Stocking rates** – the daily management of your account.
- **Bottom line** - “The checkbook must be balanced”



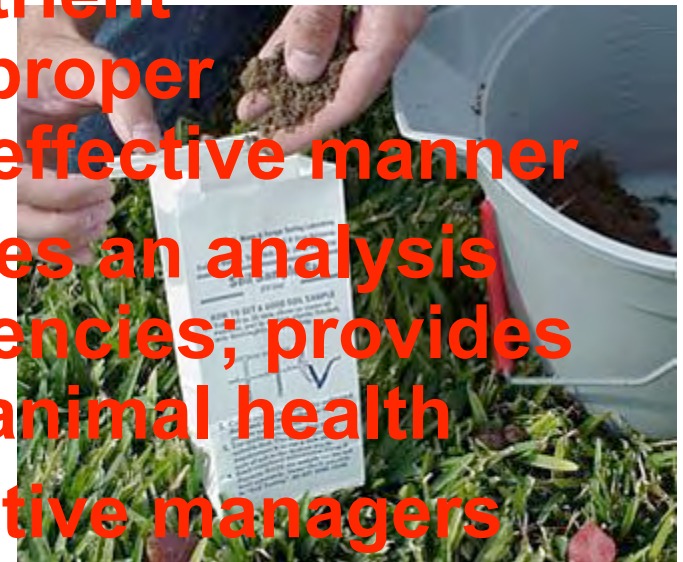
Pasture is the Most Economical Feed Source (to those that want it)



- **CHEAP! ... (1 to 5 cents per lb)**
- **As important, you can increase animal health, performance and maintenance with a good forage base**

GRASS IS YOUR BEST FRIEND

- **Soil samples** - identify nutrient deficiencies and provide proper fertilization rate in a cost effective manner
- **Forage sampling** – provides an analysis of N,P,K uptake and efficiencies; provides analysis of food stuff for animal health
- **Observation...** become active managers of your pasture and livestock ...
Management is an art (based on science)





"... and we can save 700 lira by not taking soil tests."

GRASS CALENDAR

Typical Willamette Basin soil type)

- **Mid September** – rest
- **October** – Fall Greenup (1mo) – 1000 lbs
- **November – March** Dormant Period (use sacrifice area; 3” stubble height)
- **April** – 2000 lbs (Peak Growth Period)
- **_ May** – rest (14 day regrowth)
- **_ May/June** – 3000 lbs (Peak Growth Period)
- **July** - Rest (30 day regrowth)
- **August -1/2 September** (2000 lbs)
- **TOTAL PRODUCTION** – 8000 pounds or 8 AUMS

EMPLOYING TECHNOLOGY...

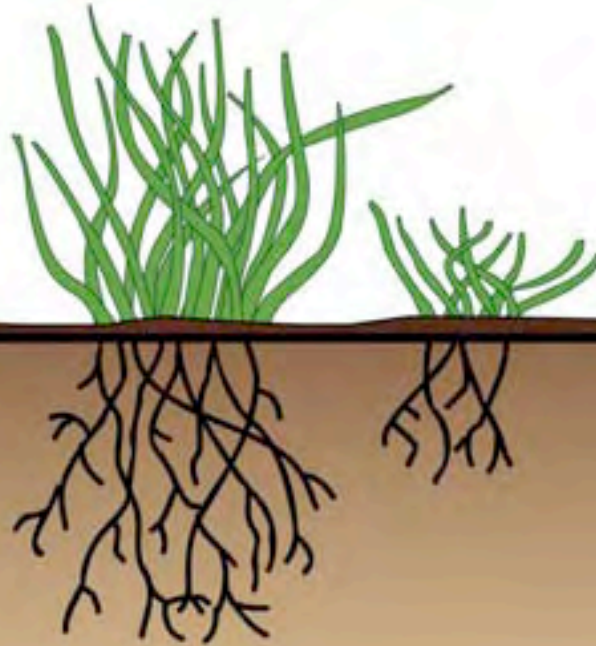
Reading the Pasture Stick

Keep 3" of stubble at all times

No Graze Zone < 3" - Promotes root development, provides crown protection and increases nutrient storage

3" to 8" Grass Height - Peak protein and energy levels, maximum plant vigor for regrowth, encourages increased forage cover, reduces weed infestations

No Graze Zone > 8" - diminished forage value, cut for hay or green manure



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%

Adapted from NRCS, Bozeman, MT

**BASIC PRINCIPAL:
Take half and leave half**

3" stubble allows Crown and roots to store sugar and starch even while dormant

West Side Pasture Fertilization

- Right Time, Right Place (T Sum 200)
- Proper Rates
- Chemical vs. Organic (tonics and elixirs)
- Use of Legumes (the N Fixers)
- Manure Management



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T-Sum 200

A method of calculating the appropriate time for the first N application

Objective: Start late winter/early spring application of N when cumulative Daily Heat Units (DHU) reaches 200 or more

- JAN.30 to Feb.14 AVERAGE WINDOW
- AVOID APPLICATION TO WET, SATURATED SOILS
- MINIMIZE ANIMAL HEALTH RISKS

Day	Max F Temp	Min F Temp	Average Temp (F) (Max F+ Min F/2)	Average Temp. (C) = Daily Heat Units	Cumulative DHU's
1/1/06	55	42	48.50	9.17	9.17
1/2/06	48	36	42.00	5.56	14.73
1/3/06	48	35	41.50	5.28	20.02
1/4/06	51	37	44.00	6.67	26.69
1/5/06	50	39	44.50	6.95	33.64
1/7/06	50	42	46.00	7.78	50.60



LIME (Your Pasture's Best Friend)

- Soil pH is a measure of soil acidity and affects the availability of nutrients for the grass. Recommended pH is approx 5.8/5.9
- Pasture soils in the Willamette Basin as a rule are slightly acidic (Low 5's).
- Moss and receding (enlarging) bare spots are indicators of low calcium and magnesium
- The most important element you can provide to the soil 'Bank' for improving long term pasture and forage sustainability.
- If your soil test shows that magnesium is deficient, apply dolomite lime. If magnesium levels are acceptable, apply the less expensive "ag lime."



N, P and K (and organics)

General nutrient requirement:

- N – Growth and production
- P - Root development
- K - Plant vigor / reproduction

Other considerations:

- Organic soil tonics (electrolytes and glucose sugars)
- Compost teas
- Benefits: increase beneficial bacteria, fungi and enzymatic activity in the soil; improve soil tilth; increase nutrient uptake; reduces disease and insect activity

N, P and K (practically speaking)

- Apply at rates according to soil test
- More is not better (concern for leaching, toxicity buildups)
- Place it where you need it (terms: soluble vs. insoluble; banding; incorporate).
- Calculate cost per unit per formulation type (i.e. urea, granular; % by weight/volume)

Poop problem or “Black Gold”?



9,300 Horses in Clackamas County

80,000 Tons of manure produced

**Feces, bedding and wasted feed can
yield +/- 50lbs/day or 9.0 T/yr**

Or

5000 lb dm; 75 lb N, 85 lb P, 25lb K



- Cover it
- Compost it
- Store it for six months



Spread manure:

- On green, growing crop
- In spring, early fall
- Agronomic Rates based on soil and manure testing
- 20 ft+ buffer away from open water



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Other methods to control manure problems have been tried, but with little success.



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STOCKING RATES IN BALANCE WITH FORAGE PRODUCTION

• Forage utilization – avg. of 1000 lbs of forage is consumed by a typical cow or horse per month (AUM) or 2-1/2 to 3% of body weight per day

- **1 AUM = 1 cow**
- **1 AUM = 5 sheep
or 5 goats**
- **1 AUM = .80 horse**
- **1 AUM = 4 llamas
or alpacas**



Determine Carrying Capacity

“COWBOY SCIENCE”

- 1” of forage of “good” condition pasture yields approximately 200-250 pounds of forage per acre
- 8” tall grass - 3” stubble height = 5” of available forage
- 250 pounds/inch x 5” = 1,000 to 1,250 pounds forage or 1.25 animal units/acre



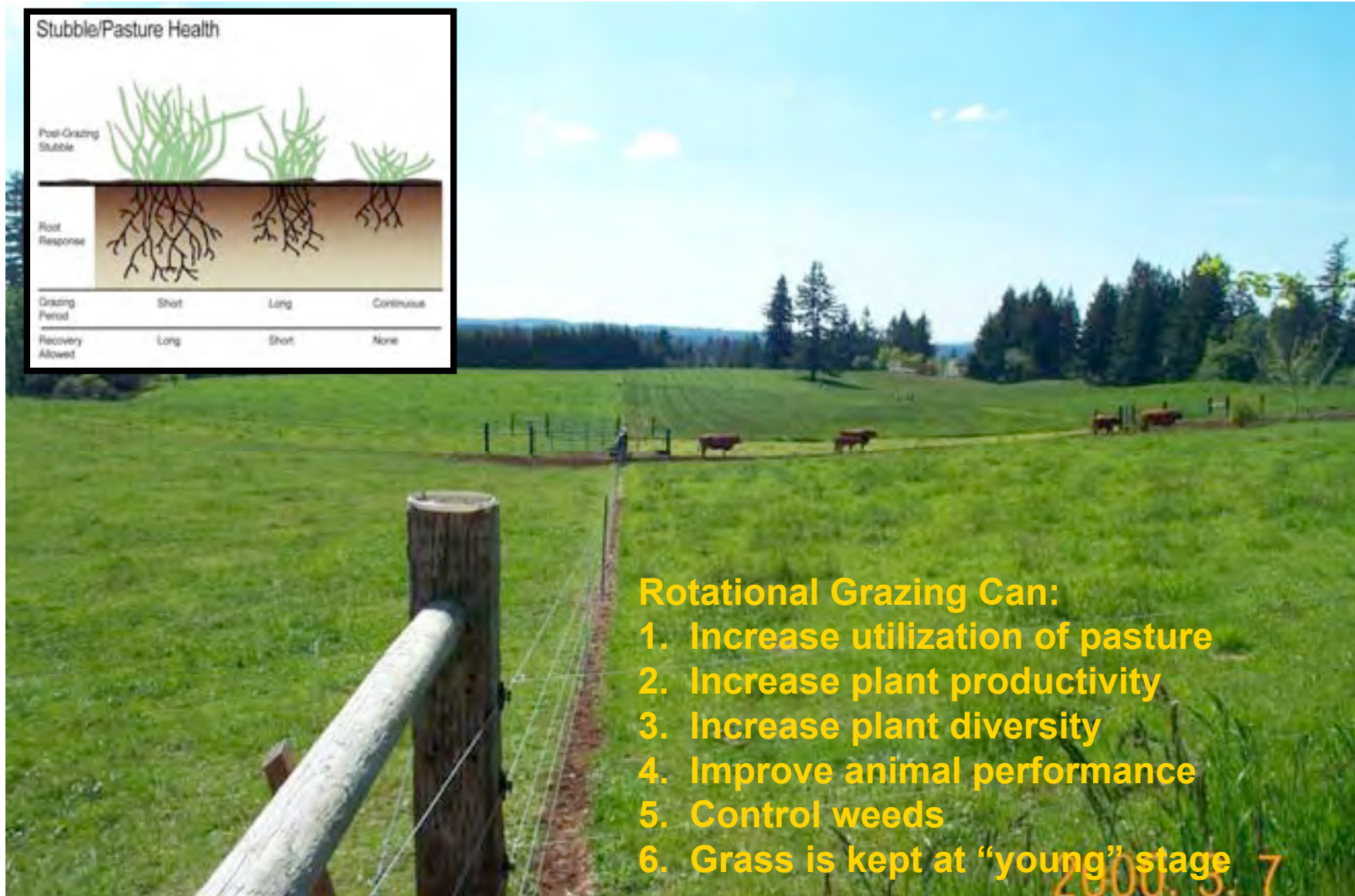
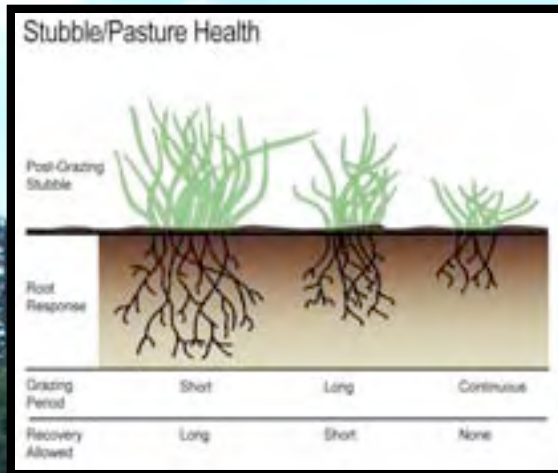
Table 2.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Sweet corn		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I
			Tons	Tons	AUM	AUM	Bu	Bu
40D: Highcamp-----	6s	---	---	---	---	---	---	---
Soosap-----	6e	---	---	---	---	---	---	---
41: Huberly-----	3oo	3oo	---	---	8.00	10.00	---	---
42: Humaquepts-----	3oo	---	---	---	---	---	---	---
43D: Humaquepts-----	7oo	---	---	---	---	---	---	---
44B: Jimbo-----	6c	---	---	---	8.00	12.00	---	---
45B: Jory-----	2e	2e	---	8.00	8.00	15.00	80.00	---
45C: Jory-----	2e	2e	---	8.00	8.00	15.00	80.00	---
45D: Jory-----	4e	4e	---	5.00	8.00	15.00	55.00	---
45E: Jory-----	6e	---	---	---	---	---	---	---
46B: Jory-----	4s	4s	---	---	8.00	---	---	---
46C: Jory-----	4s	4s	---	---	8.00	---	---	---
46D: Jory-----	4s	4s	---	---	8.00	---	---	---
47C: Kinney-----	6e	---	---	---	---	---	---	---
47E: Kinney-----	6e	---	---	---	---	---	---	---

ANNUAL
YIELDS
PER ACRE
(AUMS)

REF:
USDA SOIL
SURVEY FOR
CLACKAMAS
COUNTY

Pasture Rotation

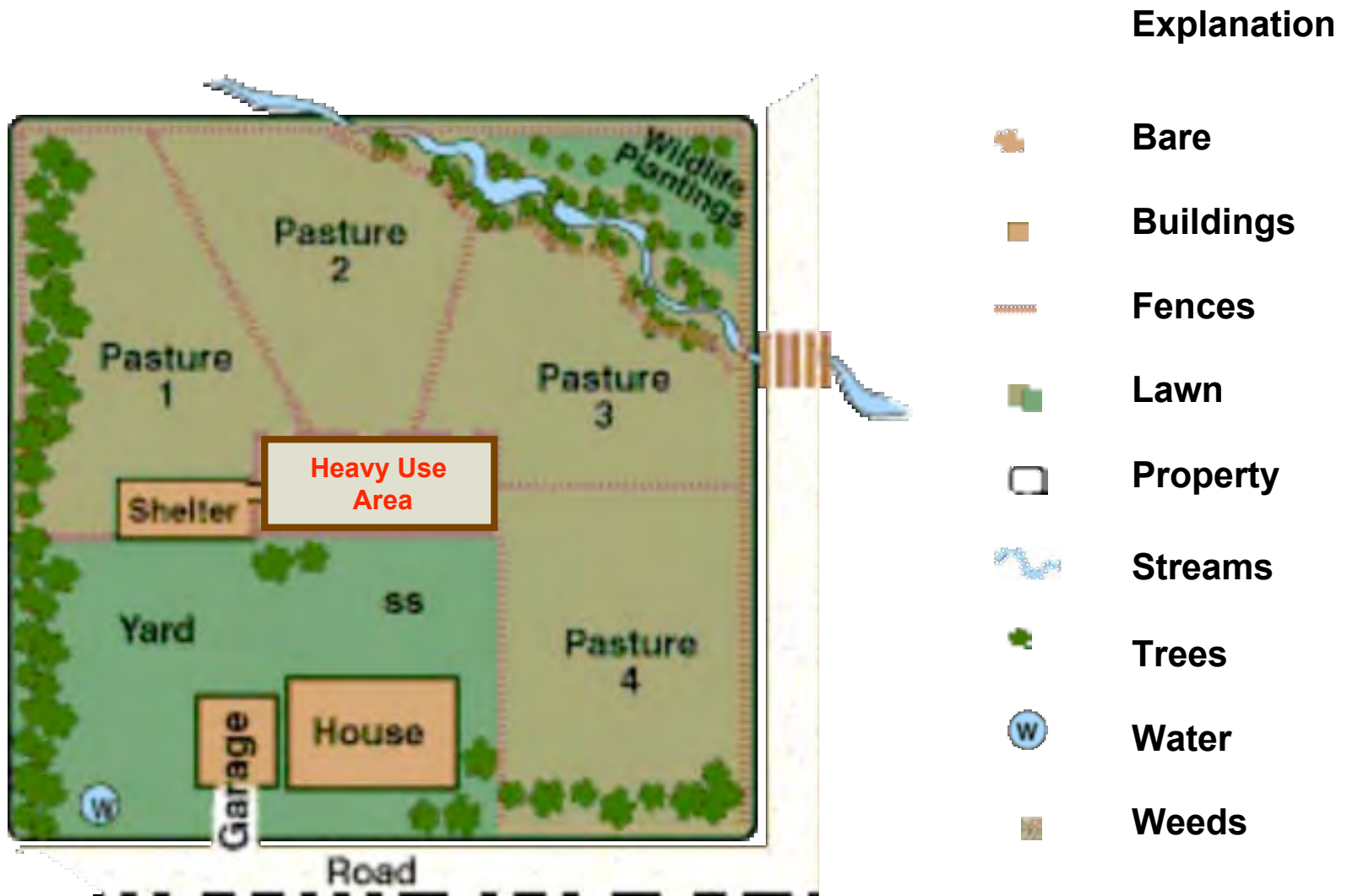


Rotational Grazing Can:

1. Increase utilization of pasture
2. Increase plant productivity
3. Increase plant diversity
4. Improve animal performance
5. Control weeds
6. Grass is kept at “young” stage

2000.3.7

Another pasture configuration - after



Small pastures require more attention!

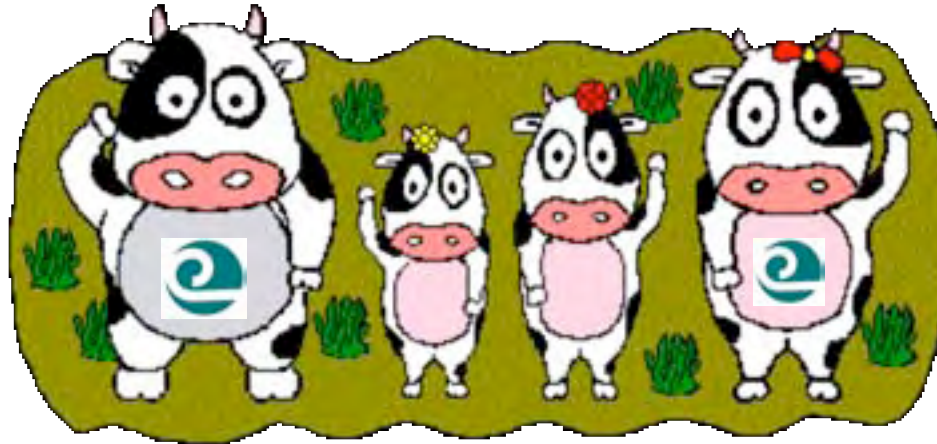


- Creating a winter turn out or paddock is needed to confine and feed animals to grow Healthy Pastures and Happy Horses.



When was the last time you smiled in your pasture?

Thank you for your interest Healthy Pastures...Happy Horses



We Look Good Because of Great Support!

Special Thanks To:

- Clackamas County Board of Commissioners**
- **USDA/Natural Resources Conservation Service**
- **Oregon Dept. of Agriculture**
- OSU Extension Service**



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