The Dollars and Cents of RDM

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Residual Dry Matter (RDM)

Dead plant materials above the soil surface in natural grasslands, also called natural mulch

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Residual Dry Matter (RDM)

- Improves soil surface conditions for plant growth
- Protects against erosion
- Reduced impact of raindrops and running water
- Infiltration increases
- Less evaporation loss from soil
- Less extreme temperatures in soil
- More organic matter
- Improves soil structure and fertility
- More activity by beneficial soil organisms
- Increased forage production and species diversity

RDM Standards

Table 1. Minimum RDM standards for dry annual grassland in pounds per acre (dry weight)

Woody cover	RDM standard for percent slope (lb/acre)			
(%)	0–10	10–20	20–40	>40
0–25	300	400	500	600
25–50	300	400	500	600
50–75	NA	NA	NA	NA
75–100	NA	NA	NA	NA

Note: Metric conversion: 1 lb/acre = 1.12 kg/ha.

Table 2. Minimum RDM standards for annual grassland/hardwood rangeland in pounds per acre (dry weight)

Woody cover	RDM standard for percent slope (lb/acre)			
(%)	0–10	10–20	20–40	>40
0–25	500	600	700	800
25–50	400	500	600	700
50–75	200	300	400	500
75–100	100	200	250	300

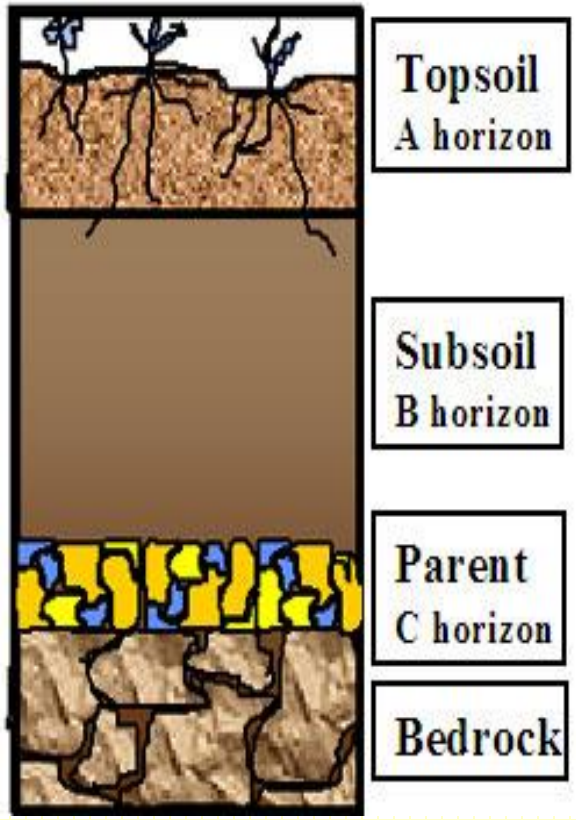
Note: Metric conversion: 1 lb/acre = 1.12 kg/ha.

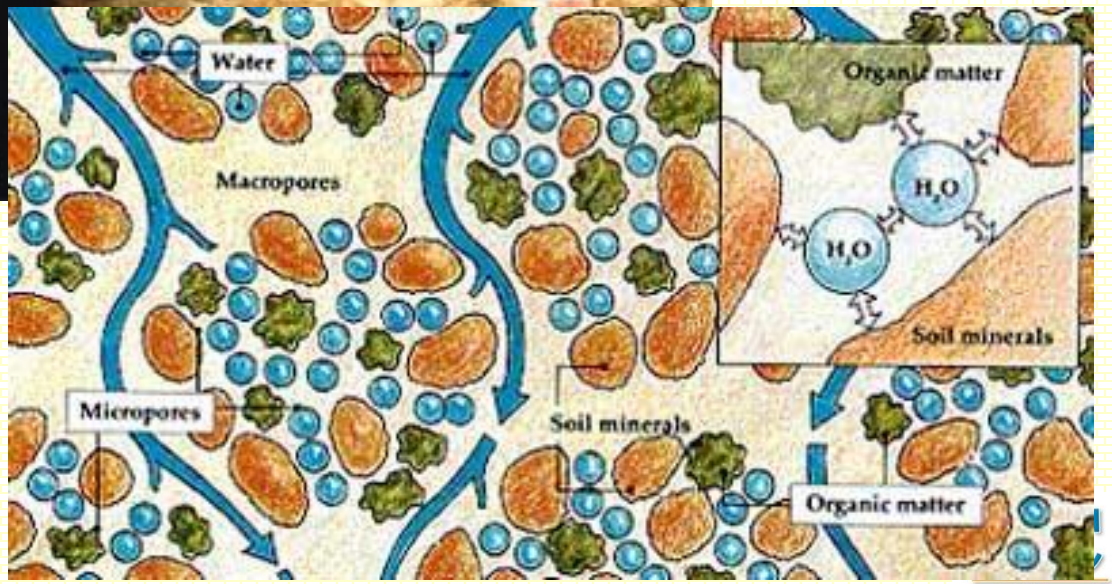
Table 3. Minimum RDM standards for coastal prairie in pounds per acre (dry weight)

Woody cover	RDM standard for percent slope (lb/acre)			
(%)	0–10	10–20	20–40	>40
0–25	1,200	1,500	1,800	2,100
25–50	800	1,000	1,200	1,400
50–75	400	500	600	700
75–100	200	250	300	350

Note: Metric conversion: 1 lb/acre = 1.12 kg/ha.

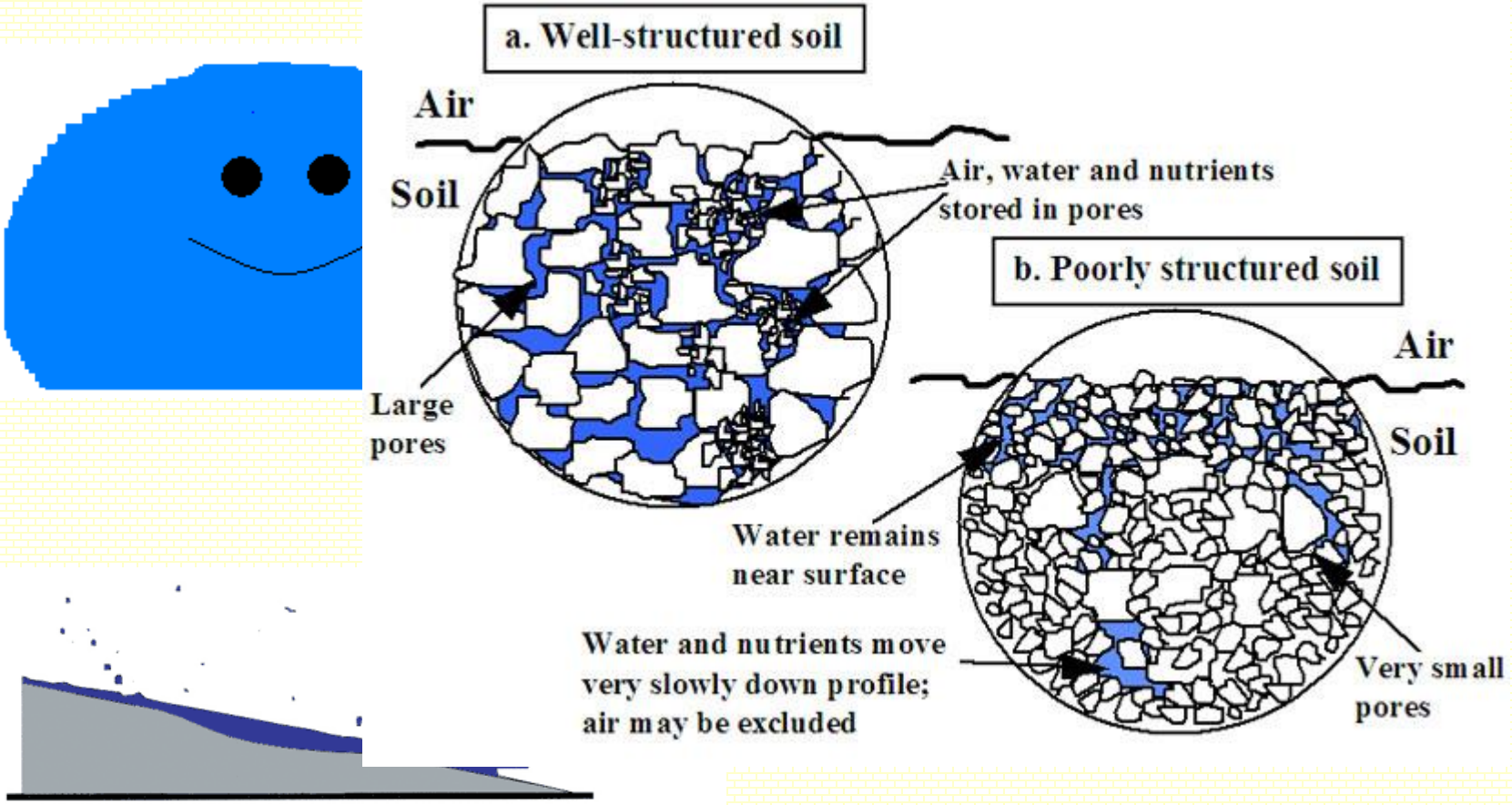
Soil Profile





http://www.fao.org/docrep/009/a0072e/a0072e07.htm

Raindrop and soil pore diagram



http://www.ipm.iastate.edu/ipm/icm/2005/5-2-2005/reducespringerosion.html and Hillel, Daniel. 1998. Environmental Soil Physics

http://agriculture.vic.gov.au/agriculture/dairy/pastures-management/fertilising-dairy-pastures/how-do-the-properties-of-soils-affect-plant-growth

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Species Composition and Grazing Intensity

- Filaree
- Clovers
- Turkey mullein

- Wild oats
- Soft chess
- Ripgut
- Medusahead

- Medusahead
- Taller grasses
- Less clover

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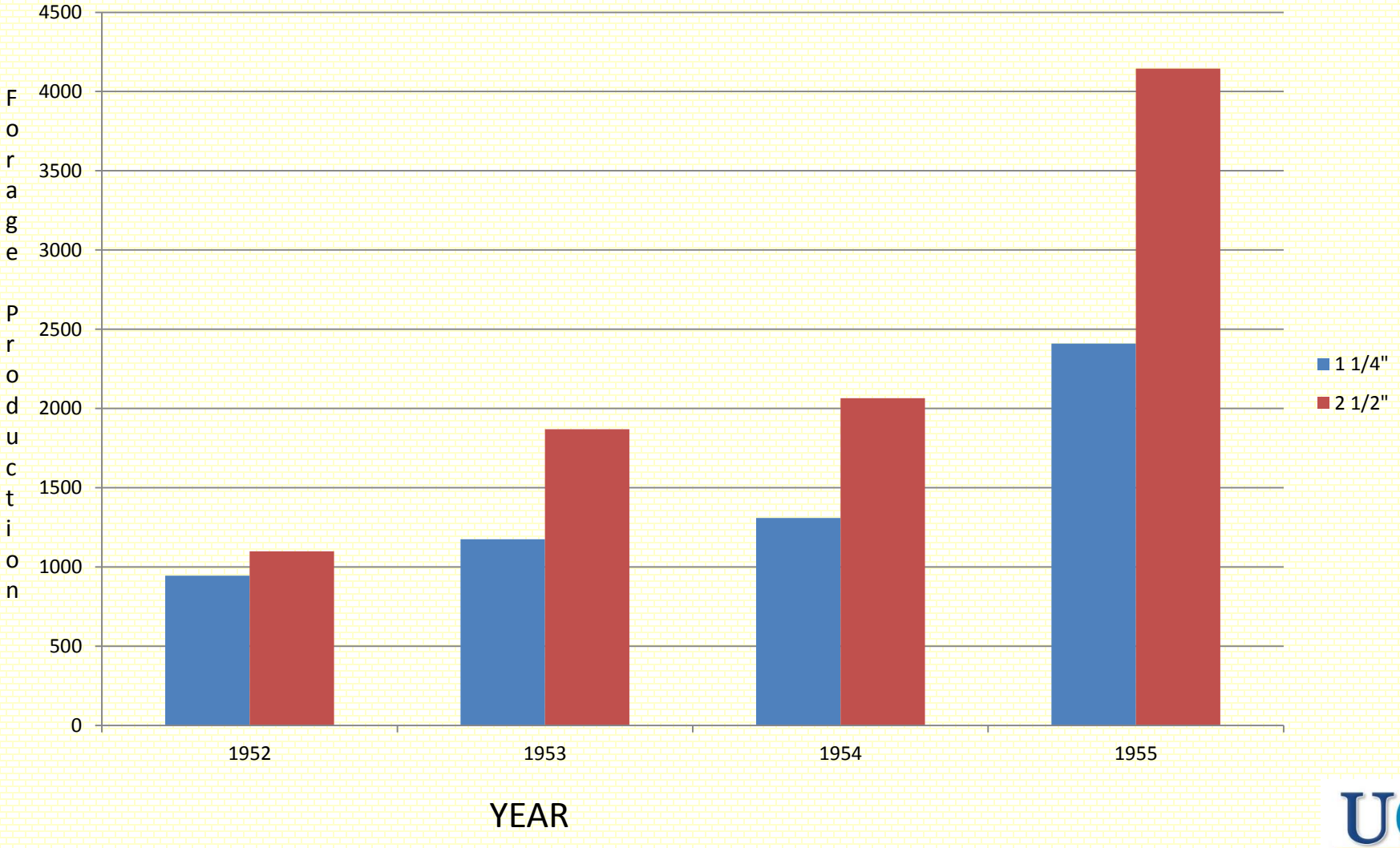
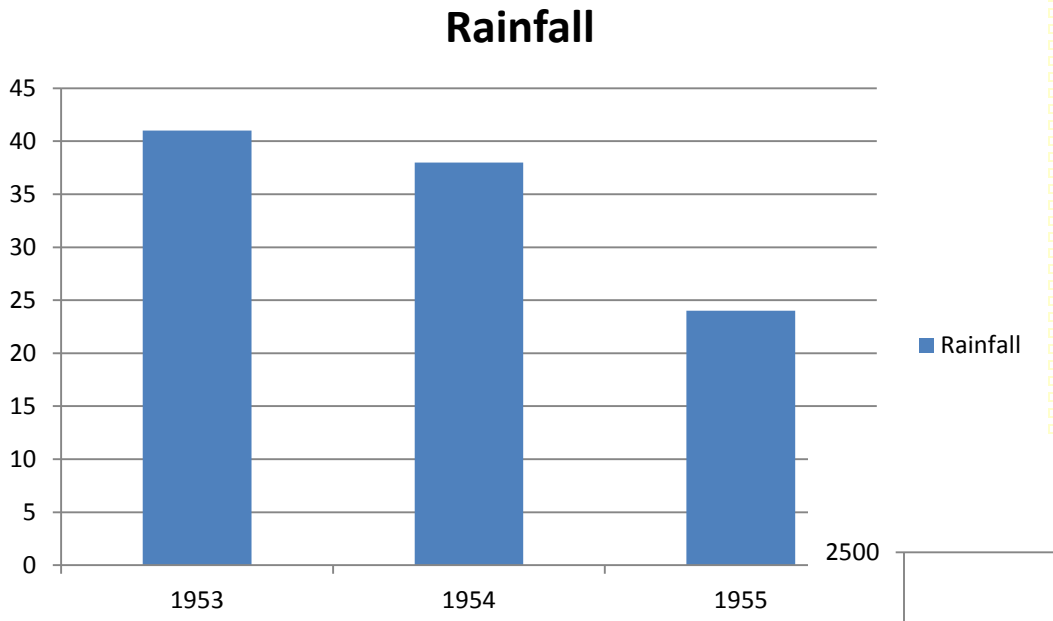
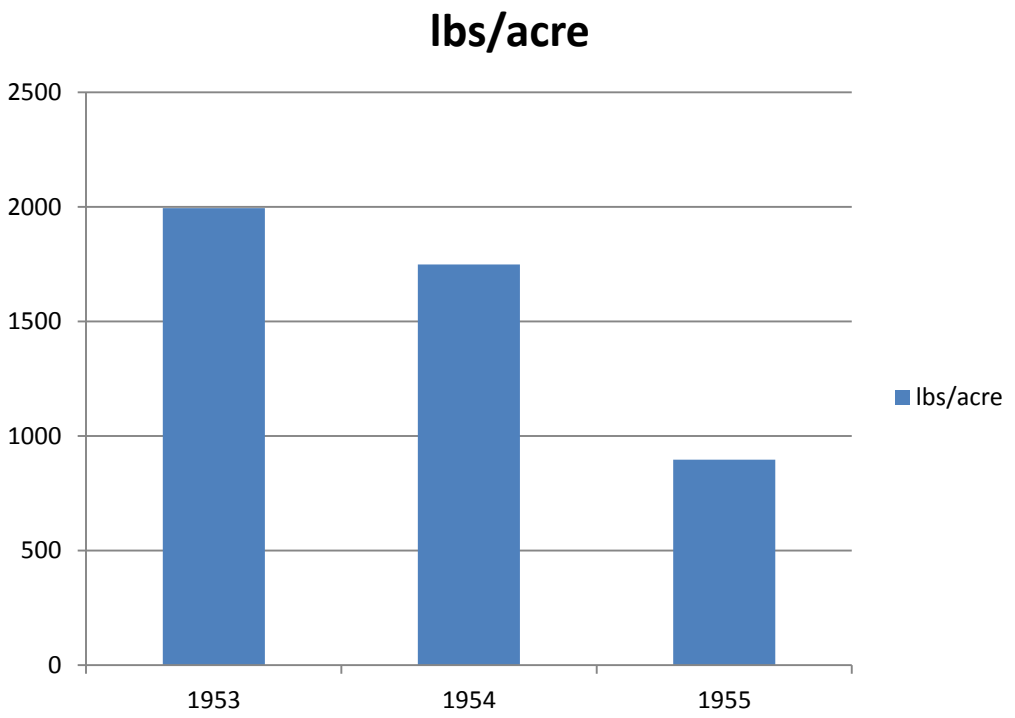
Nutrition

Hopland Study



Hopland Study





Economics

- My assumptions
  - 1,200 lb cows, eat 3% daily
  - 2,500 lbs of production per acre (1,000 lbs usable forage)
  - 1 acre ~ 1 AUM
  - $150/ton of hay
  - $5,000/acre to purchase land
  - $15/acre to rent land
  - Value of mulch is 1/3 to ½ less than forage
  - Cost of soil loss not considered

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Real-life example

- Mulch breaks down at an average of 7% every 30 days (40-70 lbs/month)
  - Assume first rain falls on October 1
  - Assume 500 lbs recommended RDM
  - Assume grazing ceases June 1
- How much mulch should be on the ground on June 1?

- 6/1 668lb; 7/1 622; 8/1 578; 9/1 530; 10/1 500

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Cost studies

Why cost studies?

- Increasing costs of production
- No corresponding increase in revenue.
- International competition and opportunities
- New regulations
- Changing feed costs
- Changing consumer demand
- Economies of scale
- Competing land uses

Cost studies cont..

Potential studies:

- Cow-calf operation
- Irrigated pasture production
- Stocker operations
- Grassfed beef production
- Other suggestions

Studies provide:

- Estimate of potential returns
- Budget preparation
- Costs for labor, materials, equipment

Questions?