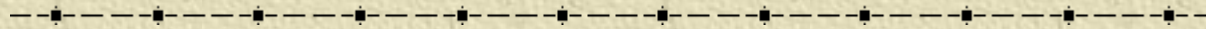




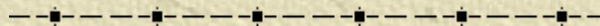
Critical Control Points of Livestock & Forage Production



Shelby Filley

Regional Livestock & Forage Specialist

OSU Extension Service





Production styles vary



Critical Control Points

1. Ranch Economics
2. Forage Management
3. General Nutrition
4. General Health
5. Beef Cattle Management
6. Sheep Management
7. Marketing

Profile of a Profitable Producer

✦ Dr. Harlan Hughes

North Dakota State University

- ✦ Reported profitability by certain management practices
- ✦ High-profit producers followed practices at a high rate
- ✦ Low-profit producers followed practices at a low rate



Self Assessment → Keep Score

☀ Grade yourself on attention you give each Critical Control Point

- ◆ 0 = no attention
- ◆ 1 = minimal attention
- ◆ 2 = moderate attention
- ◆ 3 = lots of attention

☀ Consider giving more attention to low scoring areas

CCP #1 - Ranch Economics

- a. Unit Cost of Production - One of the most important critical control points to manage

Production costs

Yield

- b. Enterprise Budget Sheets
- c. Benchmarks

Our work is to determine what impacts
your unit cost of production.

CCP #1 a. UCOP



✦ Production
costs



✦ Yield

OSU Enterprise budget sheets

<https://appliedecon.oregonstate.edu/oaeb>

CCP #1 b. Enterprise Budgets



COLLEGE OF AGRICULTURAL SCIENCES »
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Enterprise Budgets

ENTERPRISE BUDGETS



Enterprise budgets can be used by producers, lenders, and others to estimate costs and returns for many crop and livestock enterprises. Budgets are available here in PDF format, with some also in Excel. See below list for common crops and livestock. Advanced search, including by region and county, is also available [here](#).

Benchmarks – compared to others or potential, what is your...

CCP #1 c. Benchmarks

- ✦ Cost of production
- ✦ Yield and growth data
 - ◆ Breed/variety averages
 - ◆ Industry Standards (SPA)
- ✦ Market Price



CCP #1 – Ranch Economics

d. Risk Management

- ◆ Livestock Insurance
- ◆ Forward Contracting
- ◆ Chicago Mercantile Exchange
- ◆ other

CCP #1 - Ranch Economics

Score yourself (0, 1, 2, or 3)

- a. Unit cost of production
- b. Enterprise budget sheets
- c. Benchmarks
- d. Risk Management
 - Insurance
 - Contracts

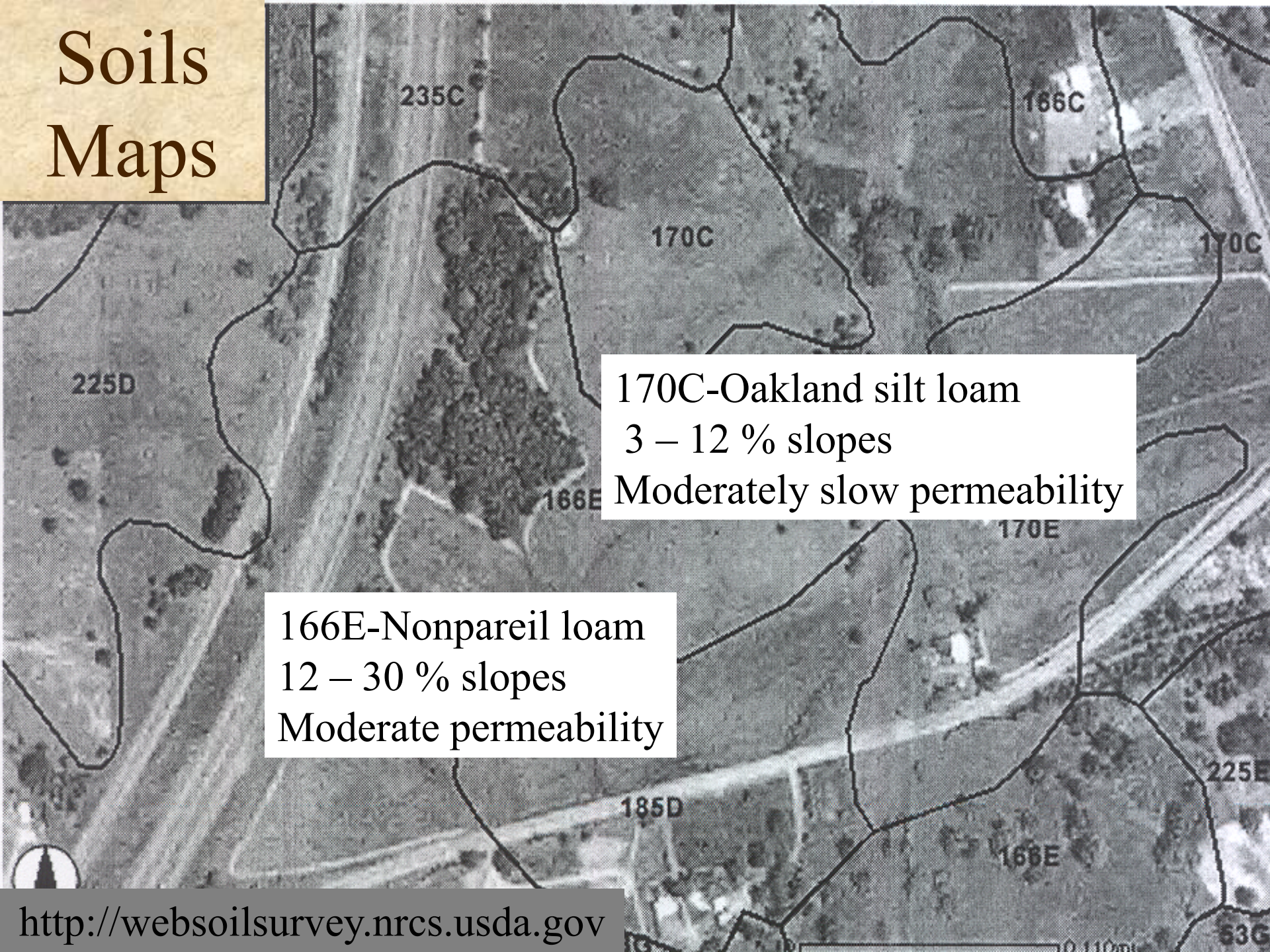
CCP #2 - Forage Production (hay and pasture)

- a. Yield Estimates (current and potential yield for cost-benefit analysis)
- b. Soil testing and prescription fertilizing
- c. Select proper forage for the site
- d. Proper field preparation (weed control, fertility, planting requirements)

CCP #2 - Forage Production (hay and pasture)

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Soils Maps



170C-Oakland silt loam
3 – 12 % slopes
Moderately slow permeability

166E-Nonpareil loam
12 – 30 % slopes
Moderate permeability

Hay Yield = No. bales x bale wt. / ac



= 800 bales x
60 lb/bale
/ 10 acres

= 4,800 lbs/ac

= 2.4 t/a

Animal Unit (AU)



Description	AU
1,000 lb cow	1.0
500 lb feeder steer	0.6
5 - 7 sheep	1.0
1,000 lb horse	1.5

CCP #2 - Forage Production (hay and pasture)

- a. Yield Estimates (current and potential yield for cost-benefit analysis)
- b. Soil testing and prescription fertilizing**
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Cost Benefit Analysis

10-acre field



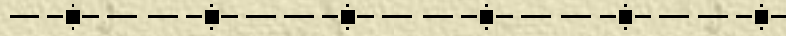
- ✦ \$35 soil test
- ✦ \$100/T lime
- ✦ Guess 2 T/acre
- ✦ Soil test indicates 1 T/acre needed
- ✦ Difference is 1 T/acre X 10-acre X \$100/T = \$1000 savings in materials
- ✦ If add too little, future production will suffer...

Acidifying Potential for Fertilizers

<u>Fertilizer</u>	<u>Grade</u>	<u>*Acidity</u>
Ammonium Sulfate	21-0-0-24	110
Urea	46-0-0	71
Ammonium Nitrate	34-0-0	62

*Pounds of 100 score lime needed to neutralize the acidity produced by fertilizer application of 100 lb/ac

CCP #2 Forage



c) Forage Selection

- ◆ Drainage
- ◆ Irrigation
- ◆ Animal type



d) Field Prep

- ◆ Weed Control
- ◆ Soil test and incorporate fertilizer and lime
- ◆ Well -prepared seed bed
- ◆ Seeding rate, depth, etc.

CCP #2 - Forage Production

Score yourself (0, 1, 2, or 3)

a. Yield estimates

b. Soil test for fertilizer

c. Forage Selection

d. Field prep

CCP #2 Forage Production (continued)

e. Harvest management

- forage quality
- stand longevity

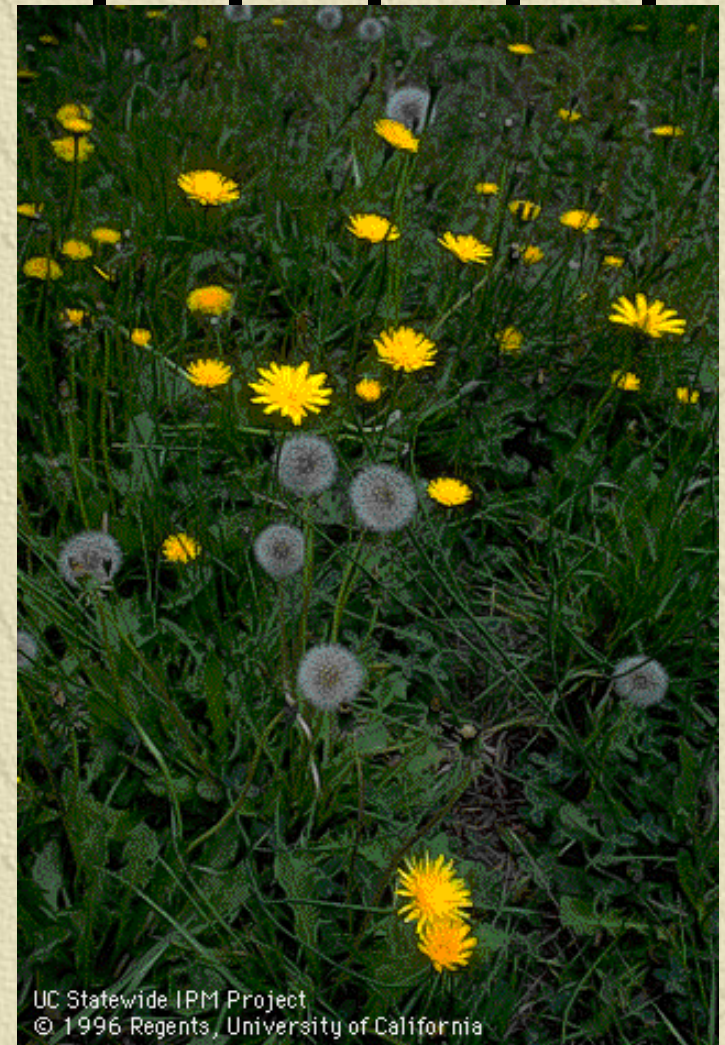
f. Weed ID and Control

- Positive ID
- Herbicide selection and cost analysis

Weed Control schemes

✦ Cost of Weed Control

✦ Cost of no Weed Control



Cost of Weeds

✦ Weed-free field

- ◆ 4 T/ac yield x \$100/T

- ◆ \$400/ac

✦ 10% weeds in field

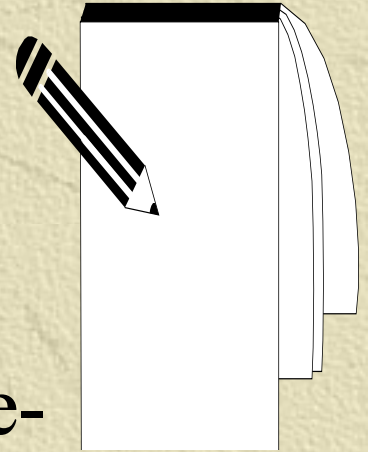
- ◆ 3.6 T/ac x \$90/T

- ◆ \$324/ac

✦ \$76/ac for weed control


Herbicide cost comparison

✦ List herbicides for your specific weeds



✦ Determine cost of treatment (& re-treatment) per acre

✦ Choose most cost-effective materials



LIKE MAURY SAID, A FIELD
WITHOUT WEEDS MAKES YOU
BIGGER FASTER.

WHATEVER HAPPENED
TO MAURY?

CIMARRON™ MAX
IS HERE.

CCP #2 - Forage Production

Score yourself (0, 1, 2, or 3)

e. Harvest Management

f. Weed ID & Control

CCP #3

- ❖ General Nutrition - Improve forage utilization, animal performance, and cost savings by
 - a. Testing hay
 - b. Balancing livestock rations
 - c. Mineral Assessment
 - d. Purchase supplements based on cost per pound of nutrient needed
 - e. Creep feeding cost-benefit analysis



Hay Probe

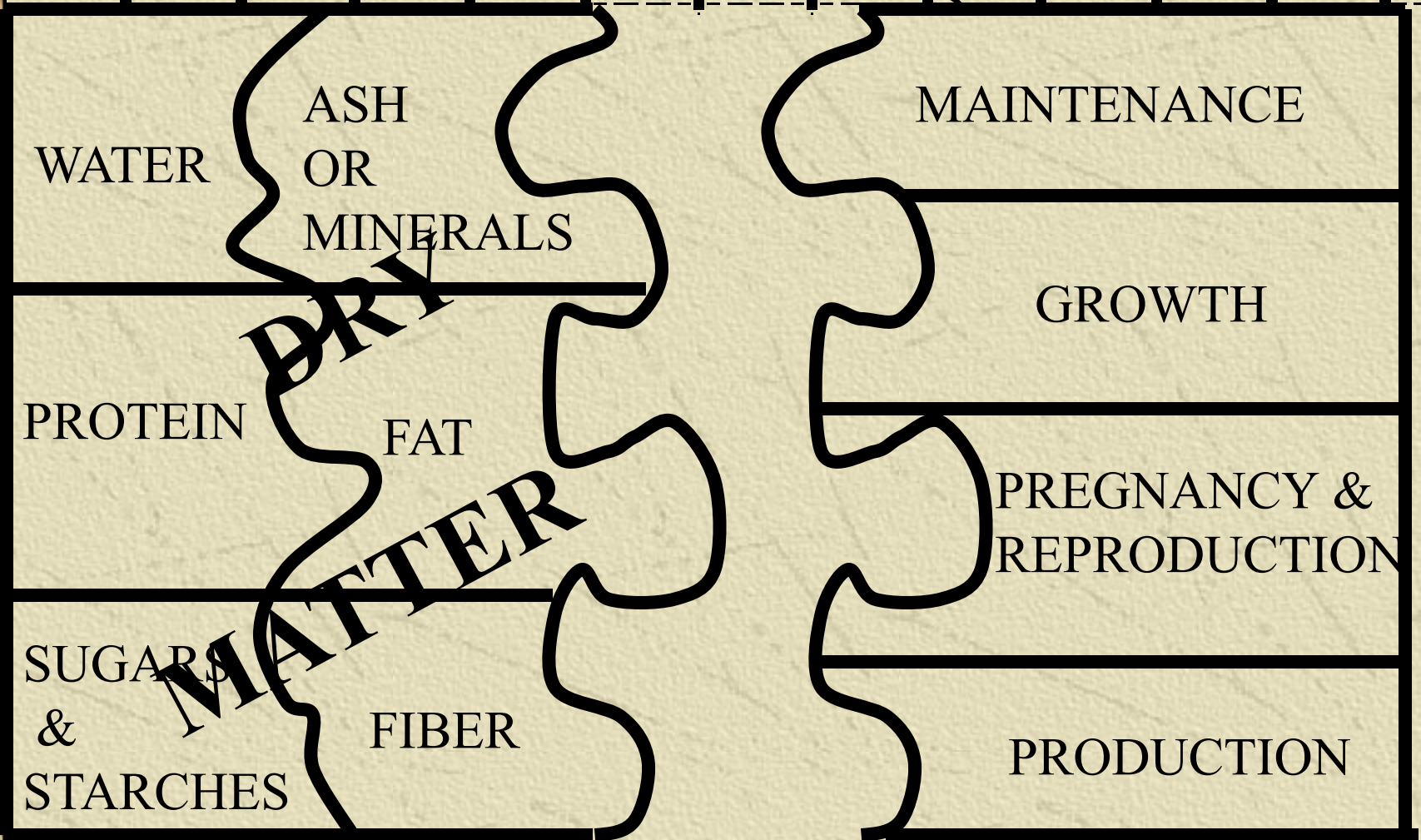
Core 15-20 sub-samples



The Nutrition Puzzle

COMPONENTS
OF FEED

ANIMAL
REQUIREMENTS



Testing Hay/Feeding Appropriately

- ✦ Savings average \$18/head
- ✦ One producer reduced feeding cost by \$38/cow by substituting a low-quality forage (grass seed straw) for 25% of his feed
- ✦ Another sold 90 tons of high quality hay determined to be in excess of his needs
- ✦ A third reduced the cost per pound gain on weaned calves by adding barley to a forage-based program
- ✦ A fourth purchased Orchard grass straw, sold alfalfa, and profited \$4,000

d. Mineral Assessment

-
- ✦ Mixes differ in salt and other mineral content
 - ✦ Inspect the label
 - ✦ Does the mix you are using match the animals you are feeding? Sheep vs. other livestock
 - ✦ Does the mix contain minerals your animals need?
 - ✦ Are animals consuming to needs?



CCP #3 - General Nutrition

e. Cost per lb of nutrient

- Protein content (%CP)
- $2000 \text{ lb} \times \%CP = \text{Lb CP}$
- \$/lb CP

f. Cost-Benefit of creep feeding

- Feed conversions 6:1 to 10:1

CCP #3 – General Nutrition

Score yourself (0, 1, 2, or 3)

a. Test Hay

b. Balance Rations

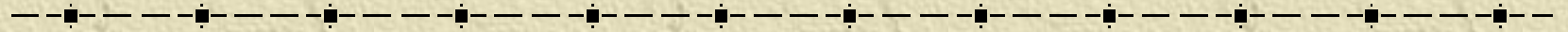
c. Mineral Assessment

d. Price supplements on cost per pound of nutrient

e. Creep feeding cost-benefit analysis

CCP #4

Score (0, 1, 2, or 3)



a. General Health

- ◆ Work with veterinarian
- ◆ Routine and Emergency Plans
- ◆ Cost analysis of options
- ◆ Internal and external parasites
- ◆ Bacterial and viral diseases
- ◆ Bio-security

b. Farm Safety

CCP #5 - Beef Cattle Production

I. Reproduction

- a. Well-defined breeding/calving season
- b. Calving Interval 365 d
- c. Pregnancy Testing
- d. Heifer Development
- e. Body Condition Score (energy reserves)

Beef Cow Efficiency

✦ Number of calves per cow/year

◆ Calving interval

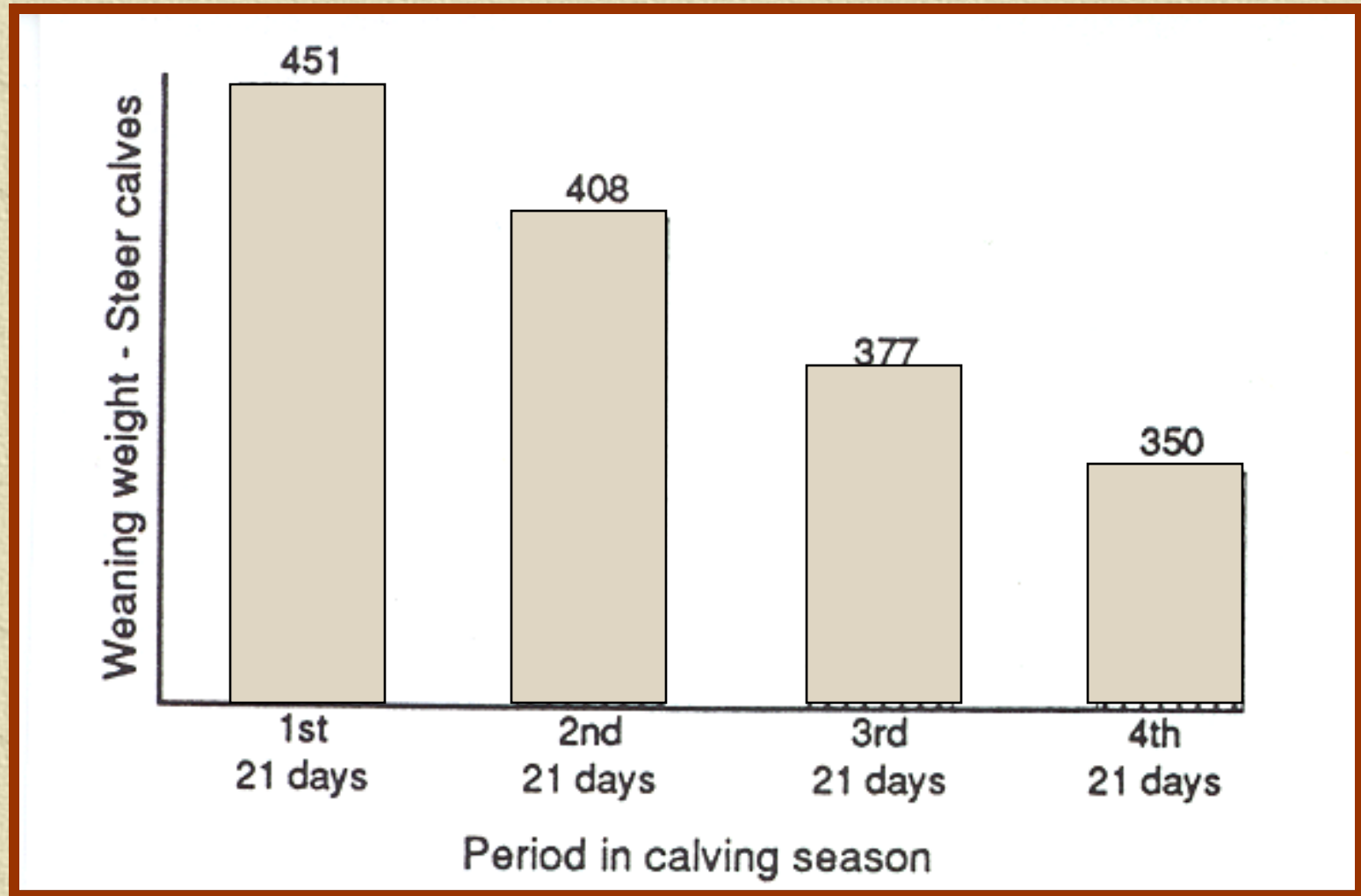


Holcomb Brothers Ranch

Cow Reproduction Timeline



STEER CALF WEANING WEIGHTS (WYOMING STUDY)



EFFICIENCY

RELATIONSHIP OF BCS TO BEEF COW PERFORMANCE AND INCOME

BCS	Pregnancy rate	Calving interval	Calf ADG	Calf WW	Calf price	\$/cow exposed ¹
	(%)	(days)	(lb)	(lb)	(\$100/lb)	
3	43	414	1.60	374	96	154
4	61	381	1.75	460	86	241
5	86	364	1.85	514	81	358
6	93	364	1.85	514	81	387

¹Income per calf x pregnancy rate.

Early Weaning ?

NEVADA STUDY

	Early Weaning(EW)	Late Weaning (LW)
Weaning date	150 d	205+ d
% at BCS 4+ or 5 at LW date (Sept 2)	77%	29%
Oct 2	77%	29%
Nov 23	77%	29%
Calves 205 d adjusted WW	401 lbs	421 lbs
20 lbs at \$1.00/lb	\$20	-
Additional calf feed costs	\$15/hd	-
Feed cost to increase BCS of LW heifers	-	\$100
Advantage	\$65	

CCP #5 - Beef Cattle Production

I. Reproduction

- a. Well-defined breeding/calving season
- b. Calving Interval 365 d
- c. Pregnancy Testing
- d. Heifer Development
- e. Body Condition Score (energy reserves)

CCP #5 - Beef Cattle Production

II. Genetics – EPD

a. Assess what you have

b. Sire selection based on what you need

c. Bull management

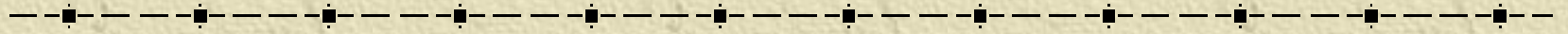
d. Breeding Soundness Exam (BSE)

CCP #5 - Beef Cattle Production

III. Management

- a. Low stress livestock handling
- b. Good working facilities
- c. Managed weaning
- d. Pre-conditioning
- e. Planned culling priorities

CCP #6



Sheep Production

- a. Reproduction
- b. Genetics
- c. Management

Two factors which have the greatest impact on the bottom line in sheep production:

- ✦ Number of lambs born
- ✦ Number of lambs weaned



Number of lambs born

✦ Prolificacy

- ✦ Genetics

- ✦ Ewe age

✦ Embryo survival

- ✦ Nutrition

- ✦ disease

✦ Ovulation rates

- ✦ breeding season

- ✦ Nutrition

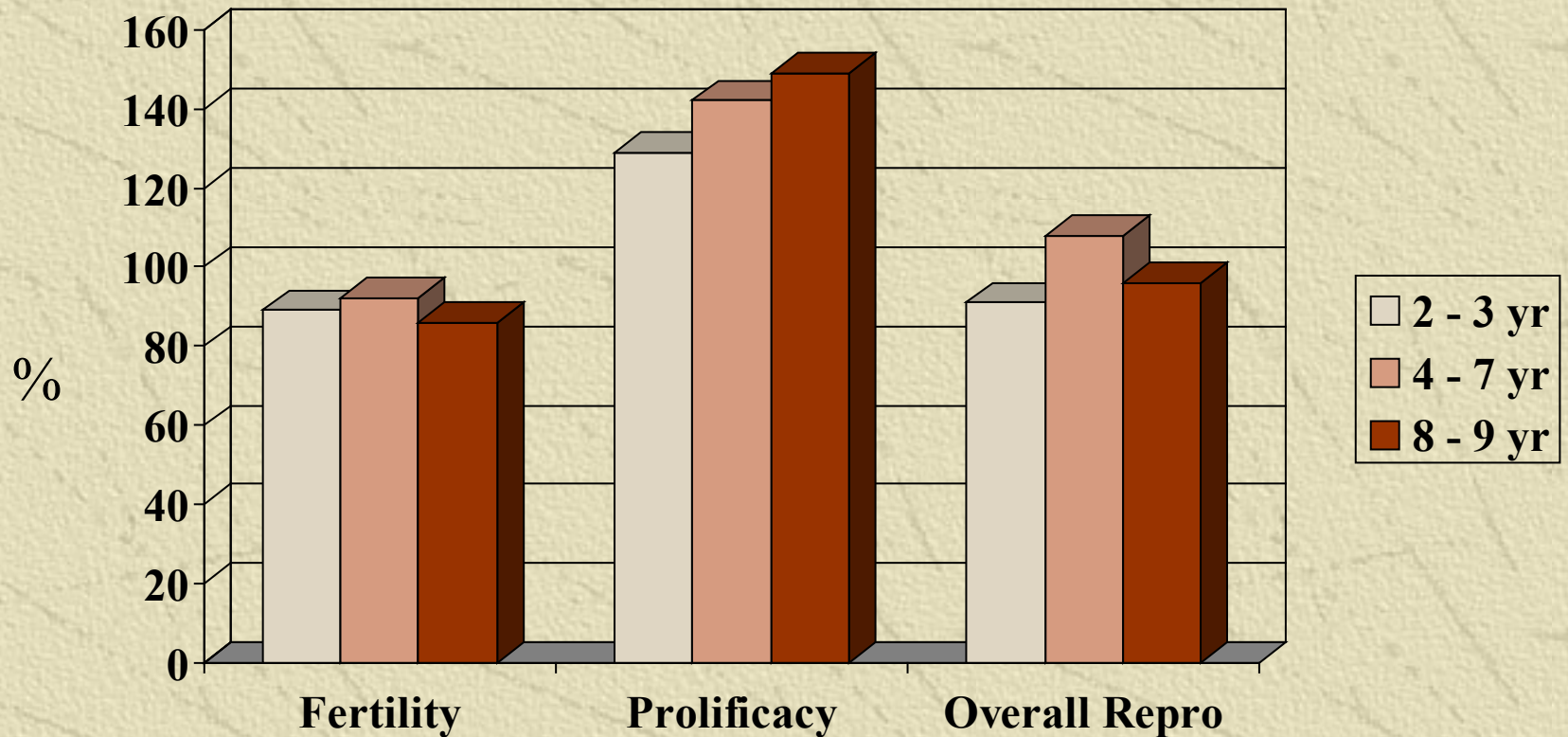
Breeding Season & Fertility

Rambouillet ewes in No. Idaho; Hulet et al. 1974

	Ewes in estrus (%)	Ewes ovulating (%)	Ovulation Rate
Jan	100	100	1.89
Feb	100	100	1.57
Mar	89	94	1.37
April	26	32	1.00
May	02	02	1.00
June	07	07	1.00
July	06	06	1.00
Jan. Aug	12	41	1.75
Jan. Sept	88	100	1.72
Oct	100	94	1.8
Nov	100	100	1.86
Dec	100	100	1.88

Jan.
Lambs

Ewe age and reproductive efficiency



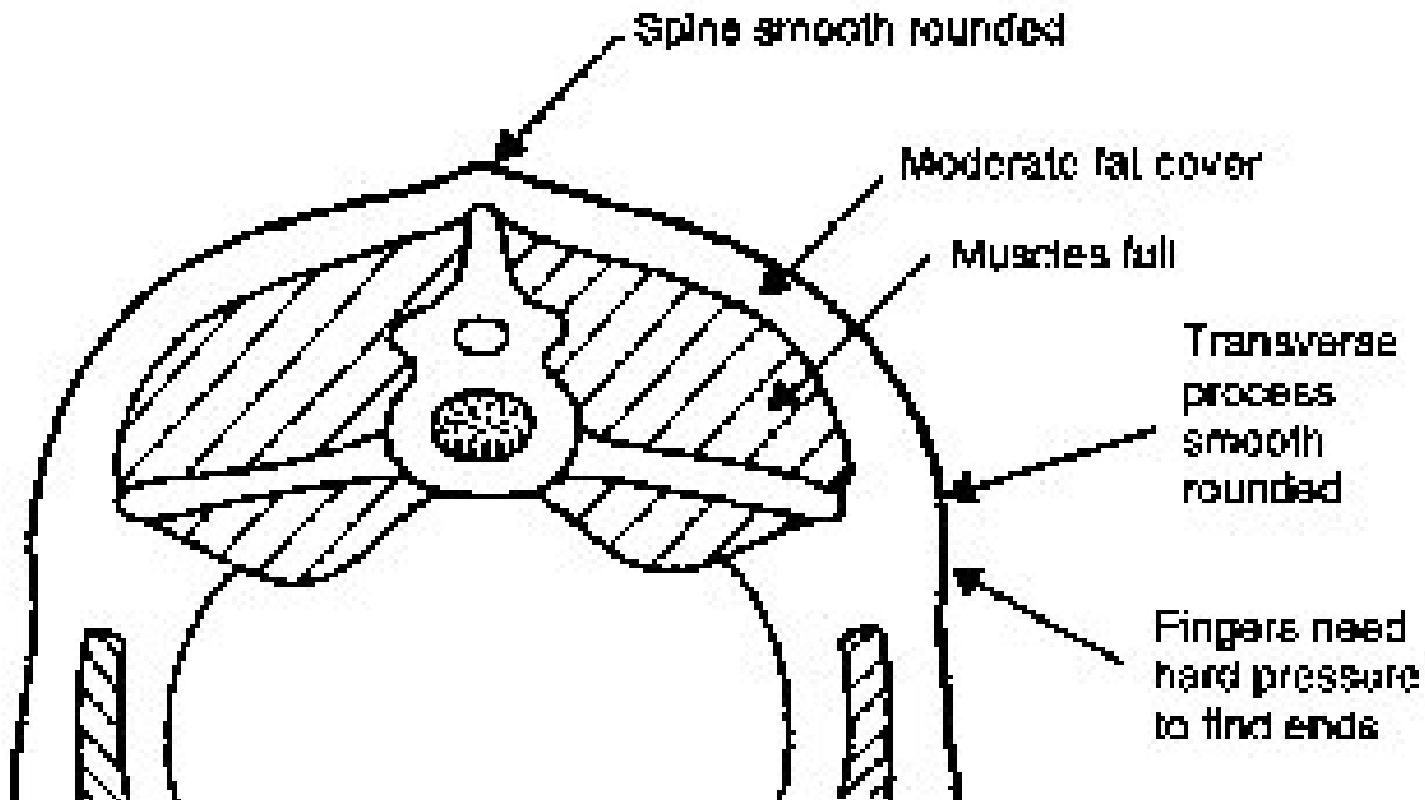
Oregon State University research



- ✦ Ewe body condition score at lambing has an effect on total pounds of lamb weaned per ewe.
- ✦ Ewes with a body condition score of 3 to 4 at lambing lost fewer offspring and weaned more pounds of lamb than those with a condition score of 2.5 or less.

Condition 3 (Average) Spinous processes are smooth and rounded and one can feel individual processes only with

pressure. Transverse processes are smooth and well covered, and firm pressure is needed to feel over the ends. Loin eye muscle is full with some fat cover.



Suggested Condition Scores

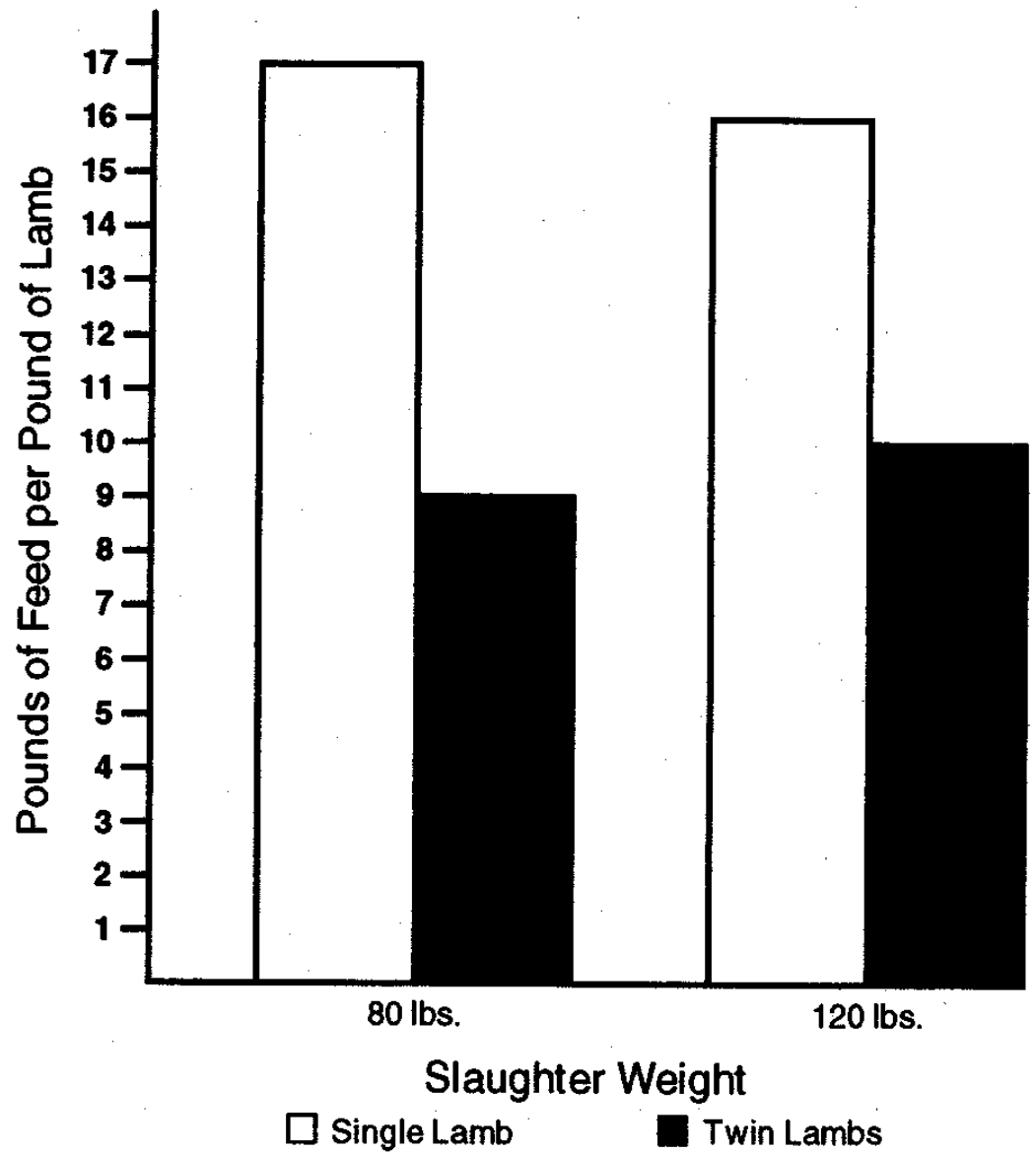


Production Cycle	Optimum Score
Breeding	3 - 4
Early - Mid Gestation	2.5 - 4
Lambing	
singles	3.0 - 3.5
twins	3.5 - 4
Weaning	2 or higher

Nutritional Efficiency

- ✦ Affected by percentage of lamb crop raised
- ✦ Ewes need to be maintained regardless of number/weight of lambs marketed
- ✦ Spread the “overhead” or maintenance cost of the ewe over more and heavier lambs

Nutritional Efficiency



(Adapted from Hogue - 1986.)

CCP #6 - Sheep Production

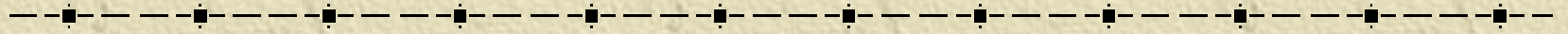
✦ Evaluation of Flock Production

- ✦ % of ewes exposed that lamb (96 – 100%?)
- ✦ % of ewes that settle on 1st cycle (100% ?)
- ✦ % of lamb crop born of ewes exposed (?)
- ✦ % of lamb crop born of ewes lambing
- ✦ % of lamb mortality from birth to weaning
- ✦ Average weaning weight

✦ Clues to management needs

CCP #6 – Sheep Production

More information...



✦ Evaluation of Flock Production

✦ ASIA Sheep Production Handbook

✦ Sheep Management Calendar

✦ OSU Sheep Management Guide

CCP #6 – Sheep Production

✦ Body Condition Score

- ✦ Adjust if necessary, flushing guide,

✦ Rams

- ✦ Breeding Soundness, marking harness,

✦ Ewe records

- ✦ lambing rate, lambs raised,

✦ Lamb records

- ✦ Numbers, weaning weights,
- ✦ Carcass & growth characteristics

CCP #7 - General Marketing

a. Choose a market

b. Produce a product to match it

Score (0, 1, 2, or 3)

Pricing Grid for Fed Cattle

Yield Grade					
Quality Grade	1	2	3	4	5
Prime	11.00	9.00	6.00	-14.00	-19.00
Choice	5.00	3.00	Base	-20.00	-25.00
Select	-1.00	-3.00	-6.00	-26.00	-31.00
Standard	-11.00	-13.00	-16.00	-36.00	-41.00
Dark Cutters	-20.00				
< 550 lbs	-10.00				
> 950 lbs	-20.00				

CCP #7 - General Marketing

c. Know your product

- Genetics (purebred seedstock)
- Animal type (Frame and Muscle Scores, Feeder Cattle grades)
- Meat science (yield and quality grade)
- Collect feedback on yours



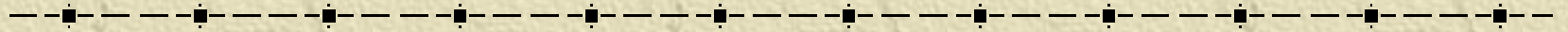
d. Tell your story



e. Join a cooperative or alliance



Marketing Strategies



- ✦ Jim Robb's Marketing Presentation
- ✦ Market fluctuations over time
- ✦ Patterns??
- ✦ Market reports

Sources of Market Information

✧ Livestock Market Information Center

<http://lmic.info>

✧ Agricultural Marketing Service

www.ams.usda.gov

✧ OSU Extension Service Website

<http://ans.oregonstate.edu/extension>

Critical Control Points



1. Ranch Economics
2. Forage Management
3. General Nutrition
4. General Health
5. Beef Cattle Management
6. Sheep Management
7. Marketing

It pays to stay informed!

✦ OSU Extension Service

- ✦ 541-672-4461

- ✦ <http://extension.oregonstate.edu/douglas/lf>

✦ Details

- ✦ Educational Programs

- ✦ Publications