

# ***Sheep and Goat Nutrition Understanding the Basics***



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# Overview of Presentation

- Intake
- Nutrient Requirements
  - Stage or Level of Production
  - Age
- Feeding and Assessing Nutrition



# Critical Control Point for Profitability

## – Feed Cost

- Feeding the herd is the largest cost area in any animal enterprise, approx 45-50% of annual maintenance cost.
- Stored or supplemental feeds constitute the largest, most variable portion.
- Designing nutritional program correctly is a must.



# Basic Nutrients

- Water
- Energy
- Protein
- Lipid
- Vitamins
- Minerals



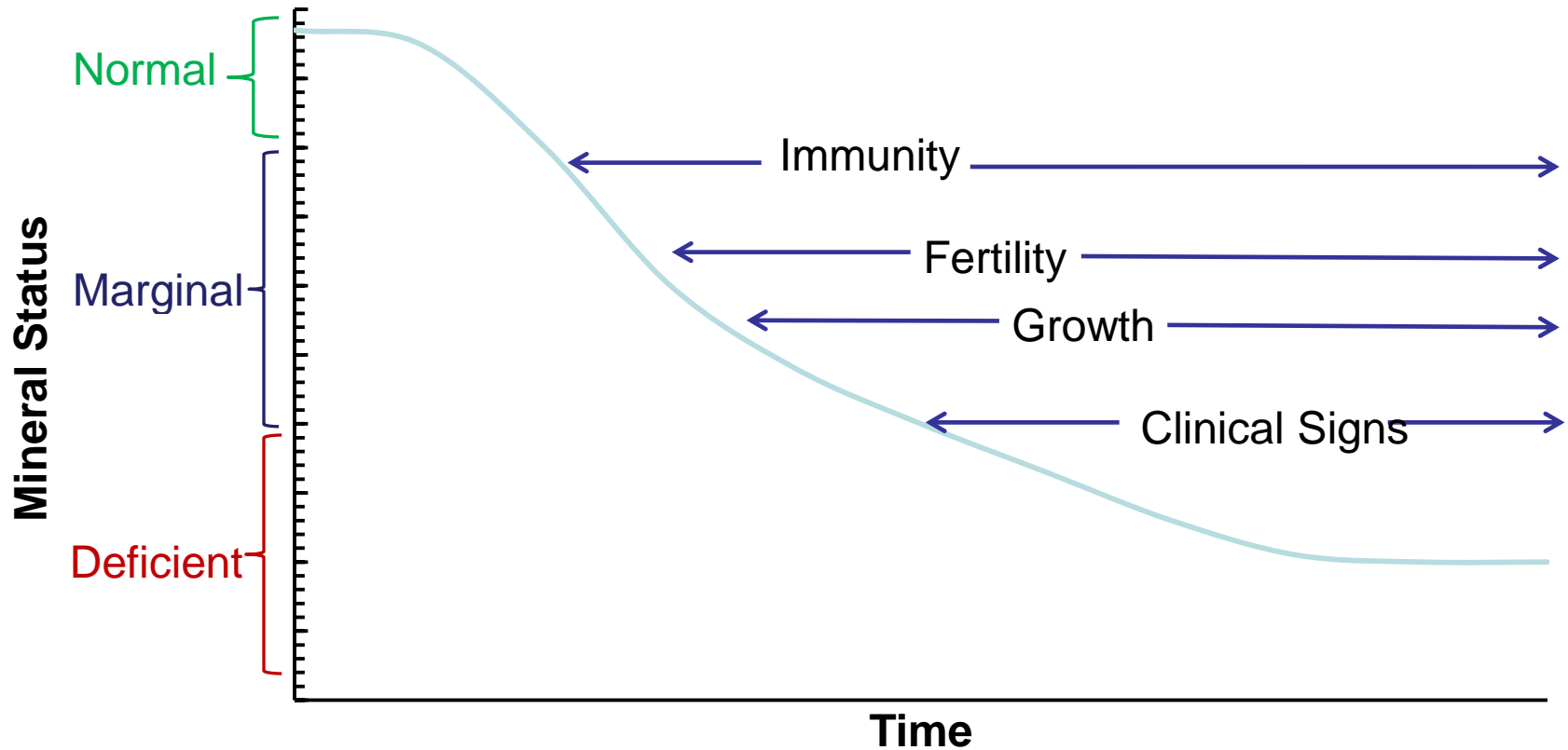
# Energy

- Carbohydrates and fats supply most of the diet's energy, or **calories**.
- For grazing cattle TDN (total digestible nutrients) is the unit of energy most commonly used.
- TDN is easily measured in forages and can be used to determine the cow's requirement met by forage and supplement needs
- Common sources of energy include:
  - forage (hay)                      citrus pulp
  - molasses                              grain byproducts
- Fat can also be used to increase the energy of the diet. Fat contains 2.25 times the amount of energy starch.

# Protein

- Protein is made from several repeating units called **amino acids** (approx. 20).
- Ruminants have 2 sources of protein
  - Diet sources
  - Microbial- protein: derived from microbes, which live in the rumen.
- Common protein sources include:
  - Soybean Meal, Cottonseed Meal

# Effect of Trace Mineral Deficiencies

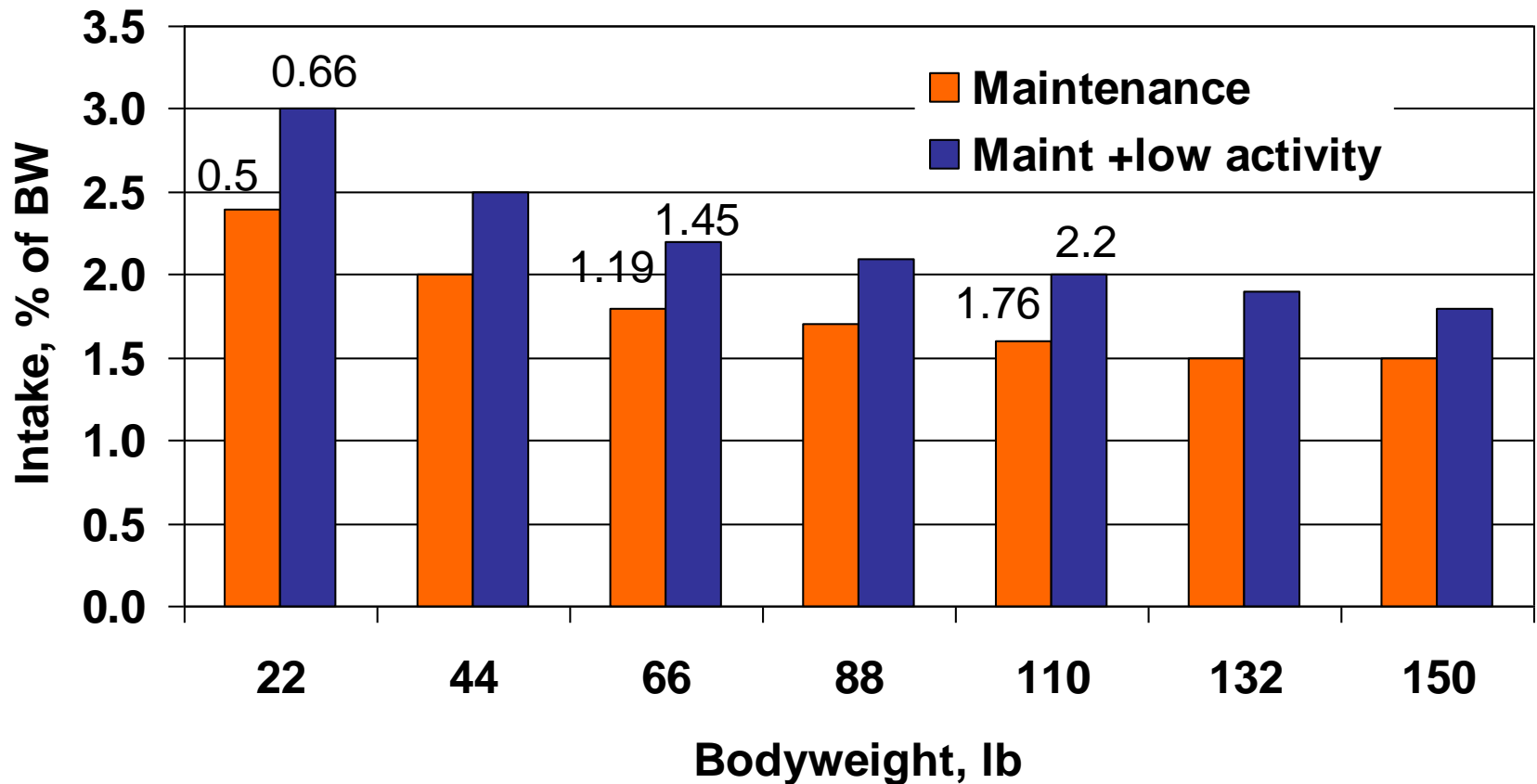


# Nutrient Priorities

1. Maintenance
2. Growth
3. Lactation
4. Reproduction

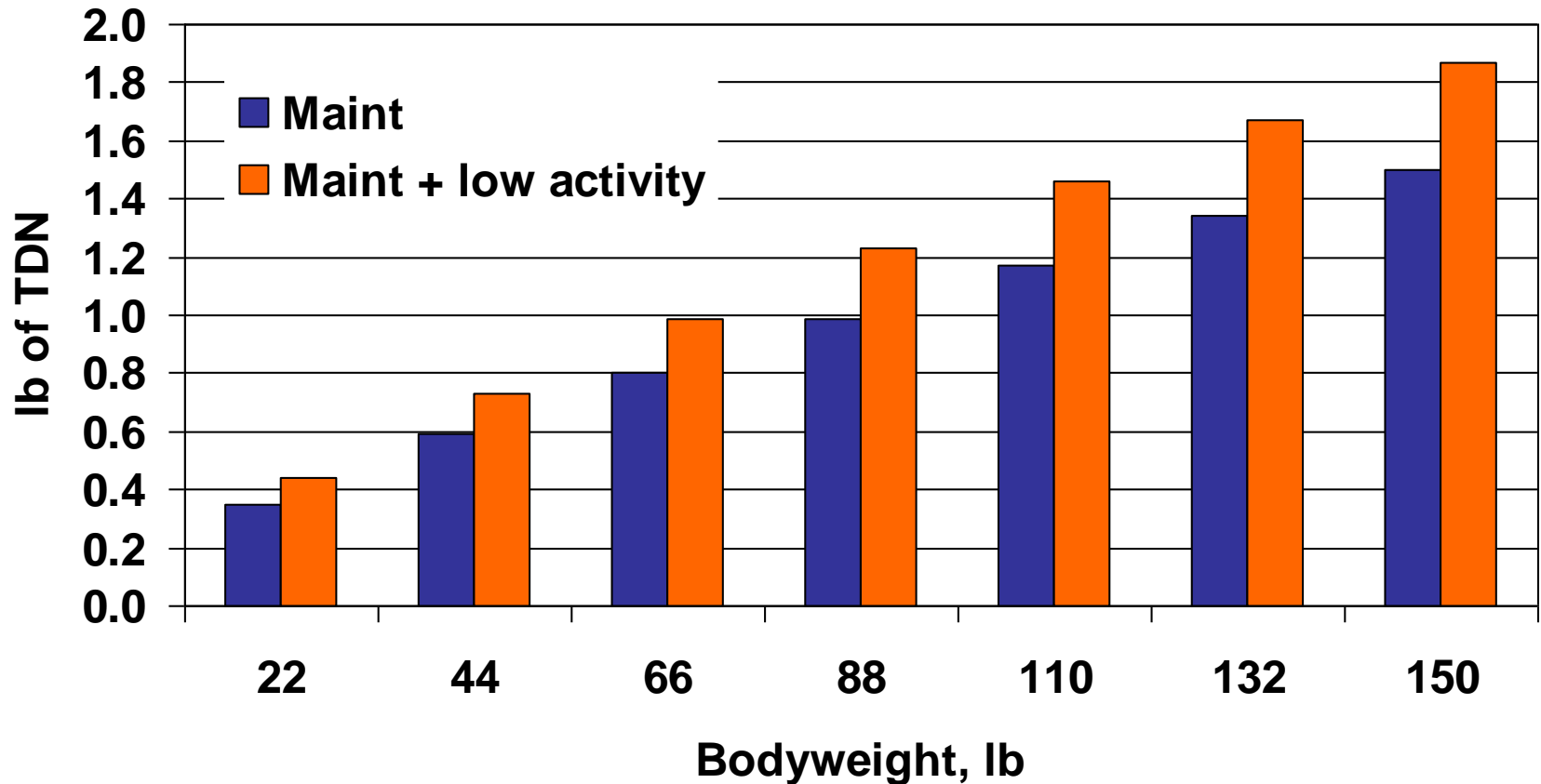


# Effect of Goat Bodyweight and Production on Intake



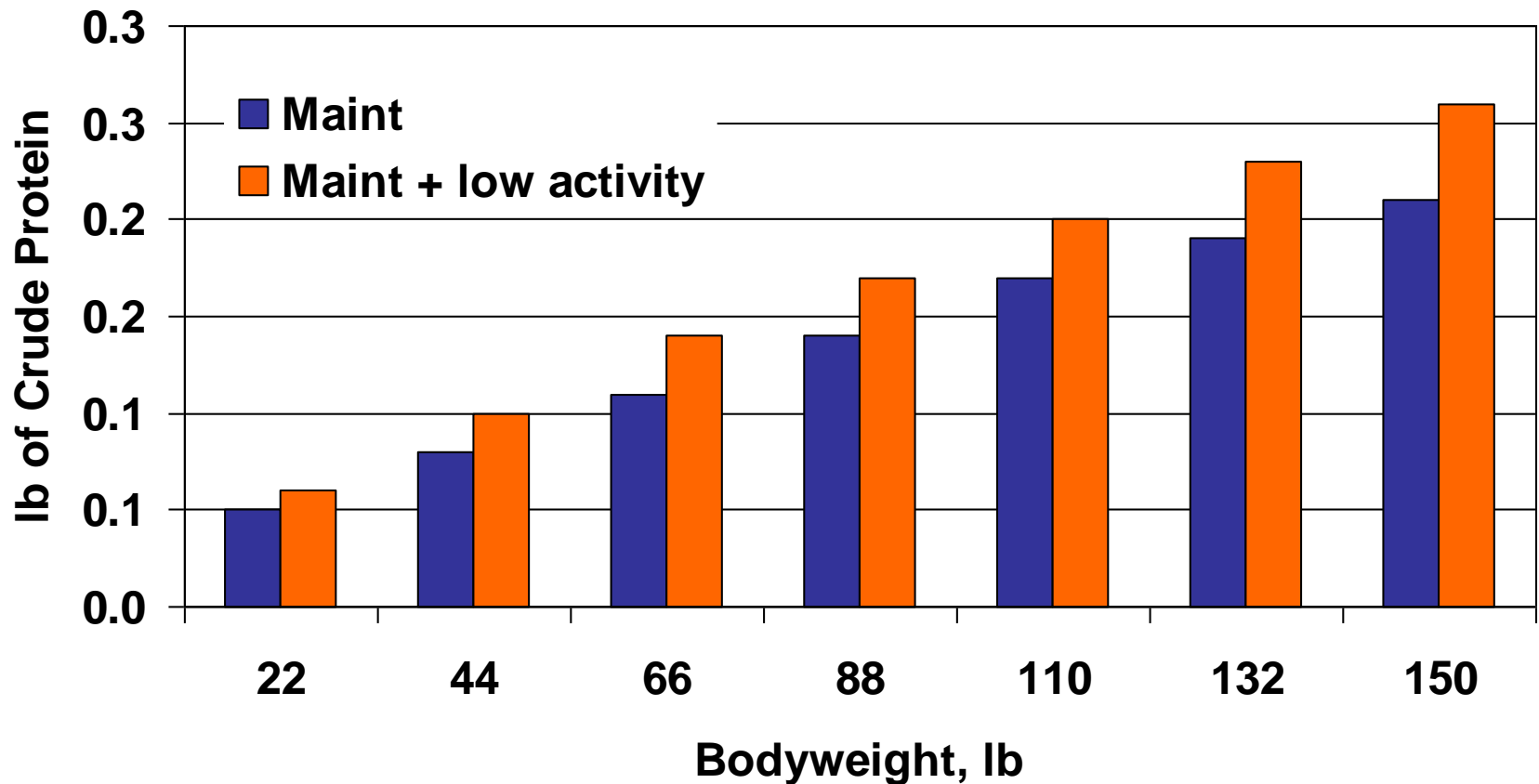
Late Pregnancy = +1.0 lb of Intake

# Effect of Goat Bodyweight on Energy Requirement



Late Pregnancy = +0.87 Ib TDN

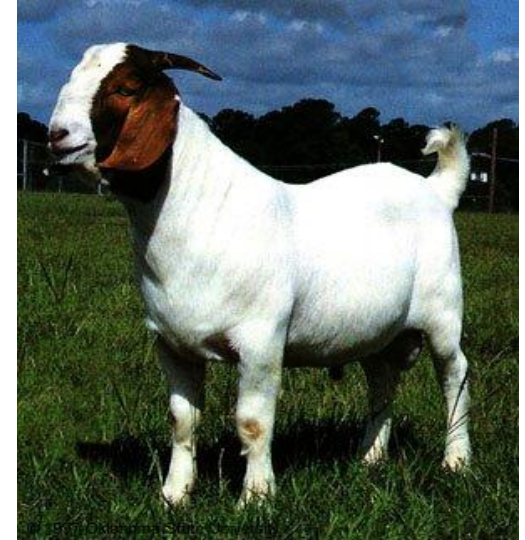
# Effect of Goat Bodyweight on Crude Protein Requirement



Late Pregnancy = +0.18 lb CP

# Growth Requirements

- In goats energy and protein are linked together



ADG, lb/d	Add. Intake, lb	TDN, lb	CP, lb
0.22	0.33	0.44	0.03
0.44	0.66	0.88	0.06
0.66	1.00	1.32	0.09

# How much nutrients do you get

	Lb of Feed	lb of TDN	lb of CP
Bermudagrass Hay	1.0	0.61	0.15
Bahiagrass Hay	1.0	0.51	0.08
Corn	1.0	0.88	0.09
Cottonseed Meal	1.0	0.75	0.47
Soybean Hulls	1.0	0.80	0.12



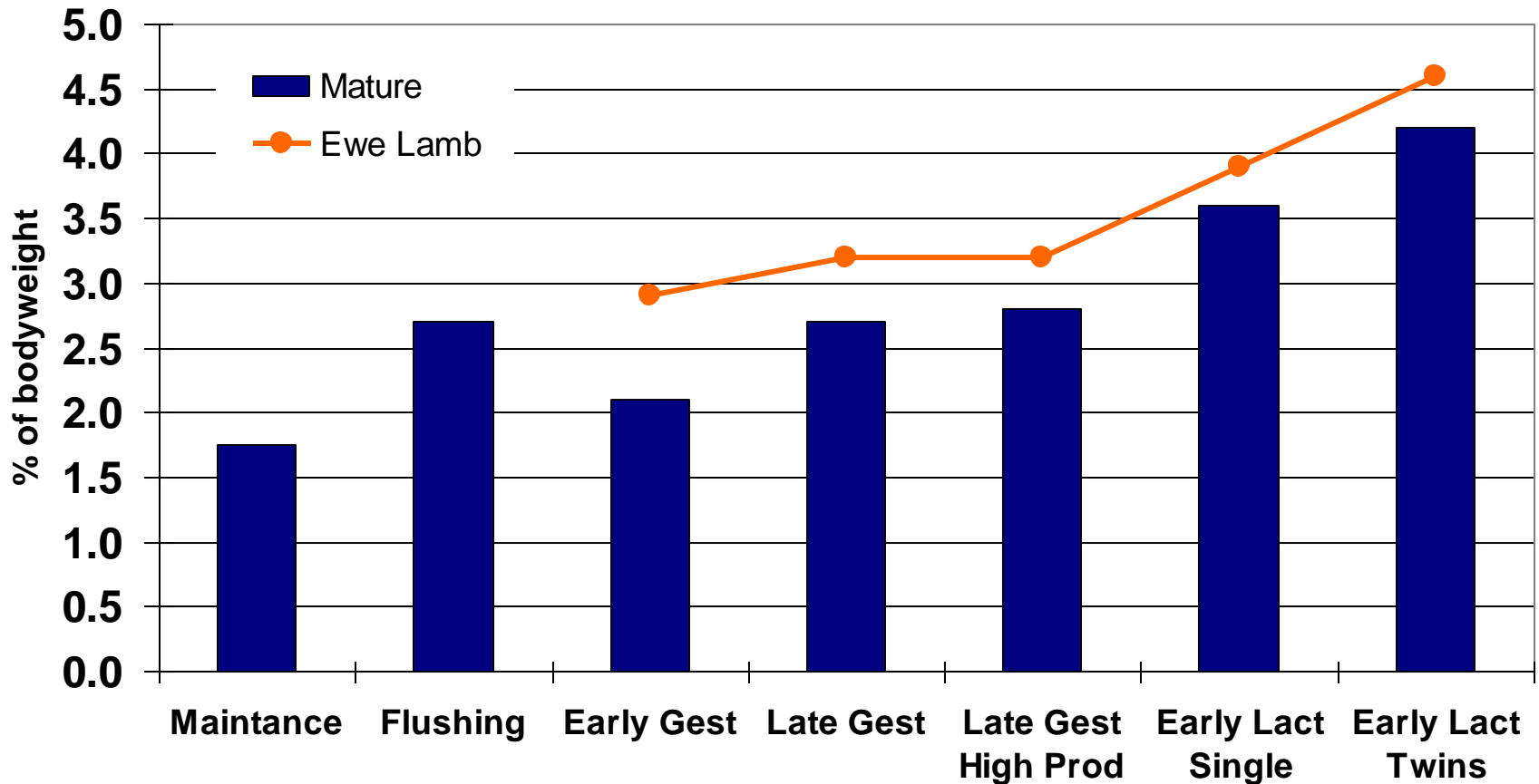
# Growing Lambs and Feed Intake

- The lower the body weight and younger age of the lamb the greater the intake
- Sex of the lamb influences intake

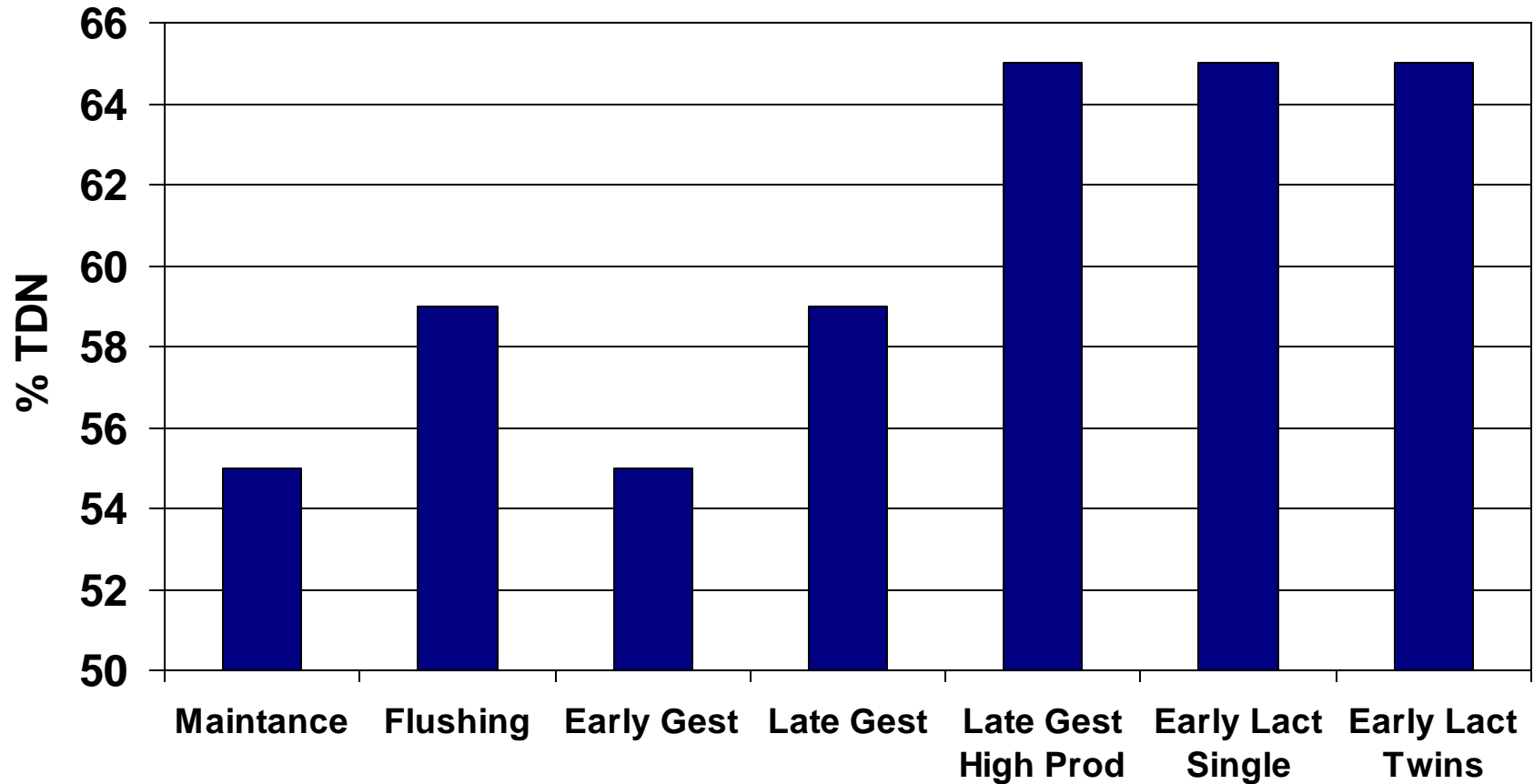


	BW	Intake, % of BW
Replacement Ewe / Ram	66	4.0 / 4.5
Lamb	88	3.5 / 4.0
	>110	2.5 / 3.5
Market Lamb, 4-7 month	66	4.3
	88	4.0
	>110	3.2

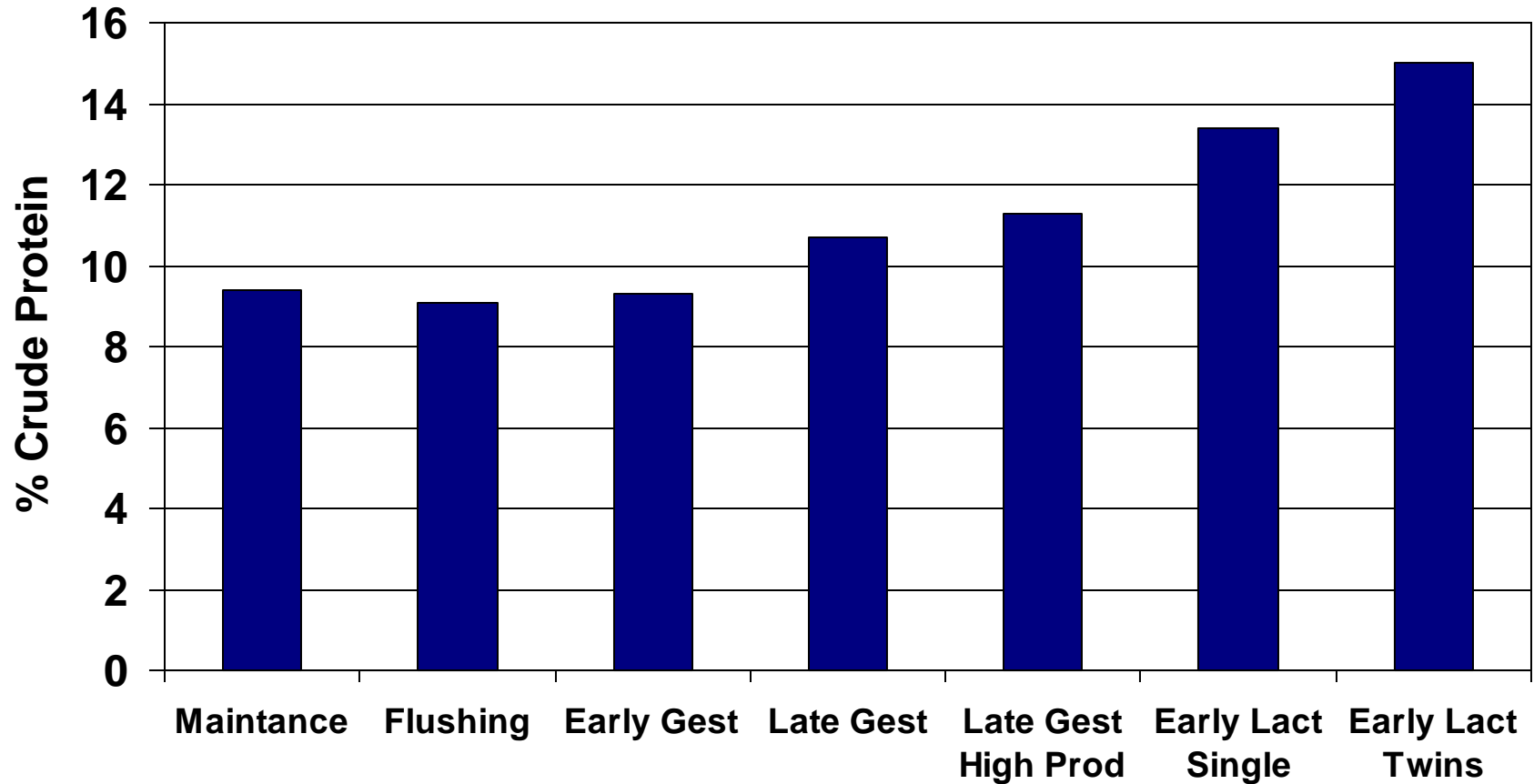
# Effect of Stage of Production and Ewe Age on Intake Capacity



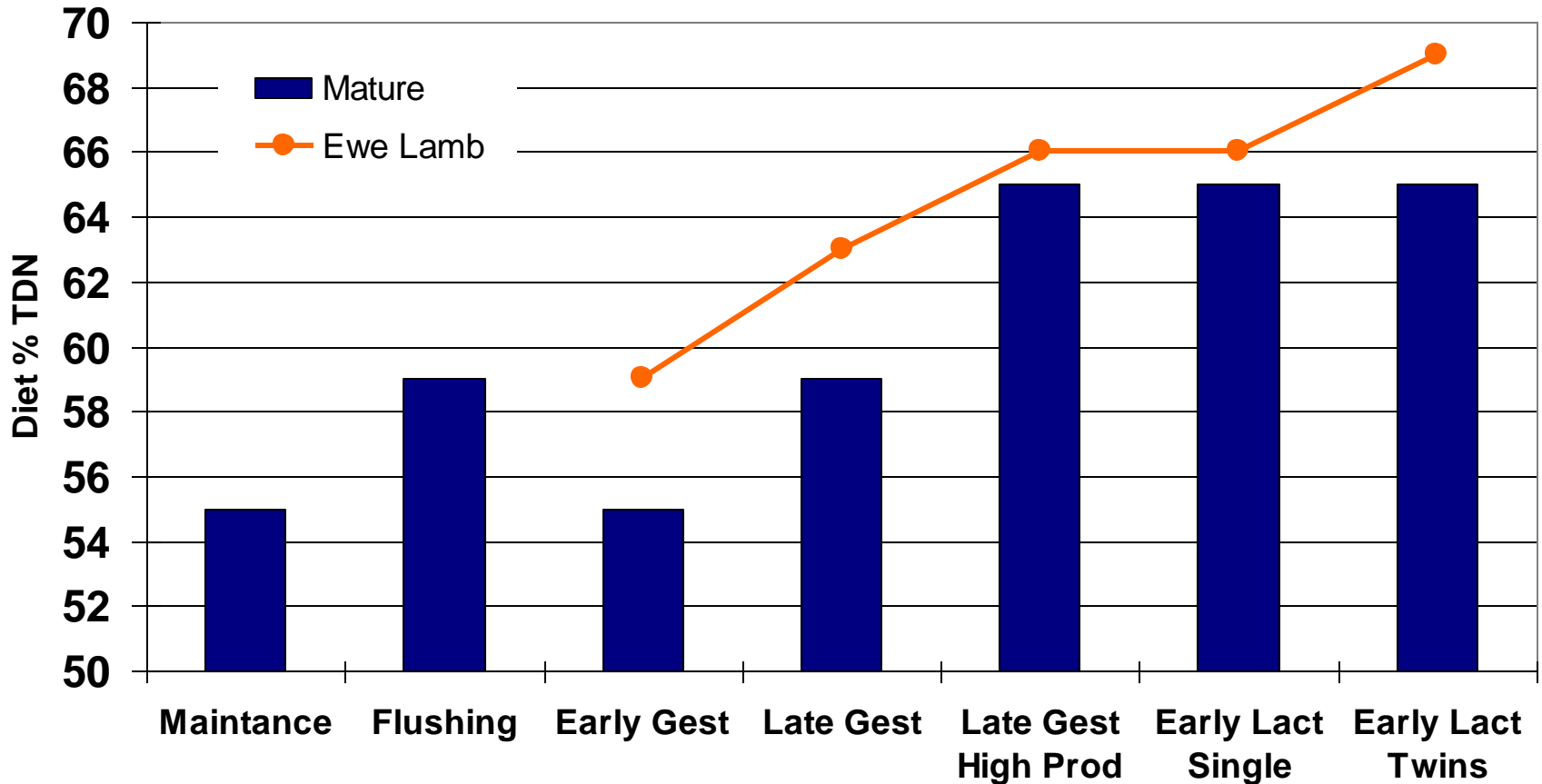
# Effect of Stage of Production on Sheep Energy Requirement



# Effect of Stage of Production on Sheep Protein Requirement

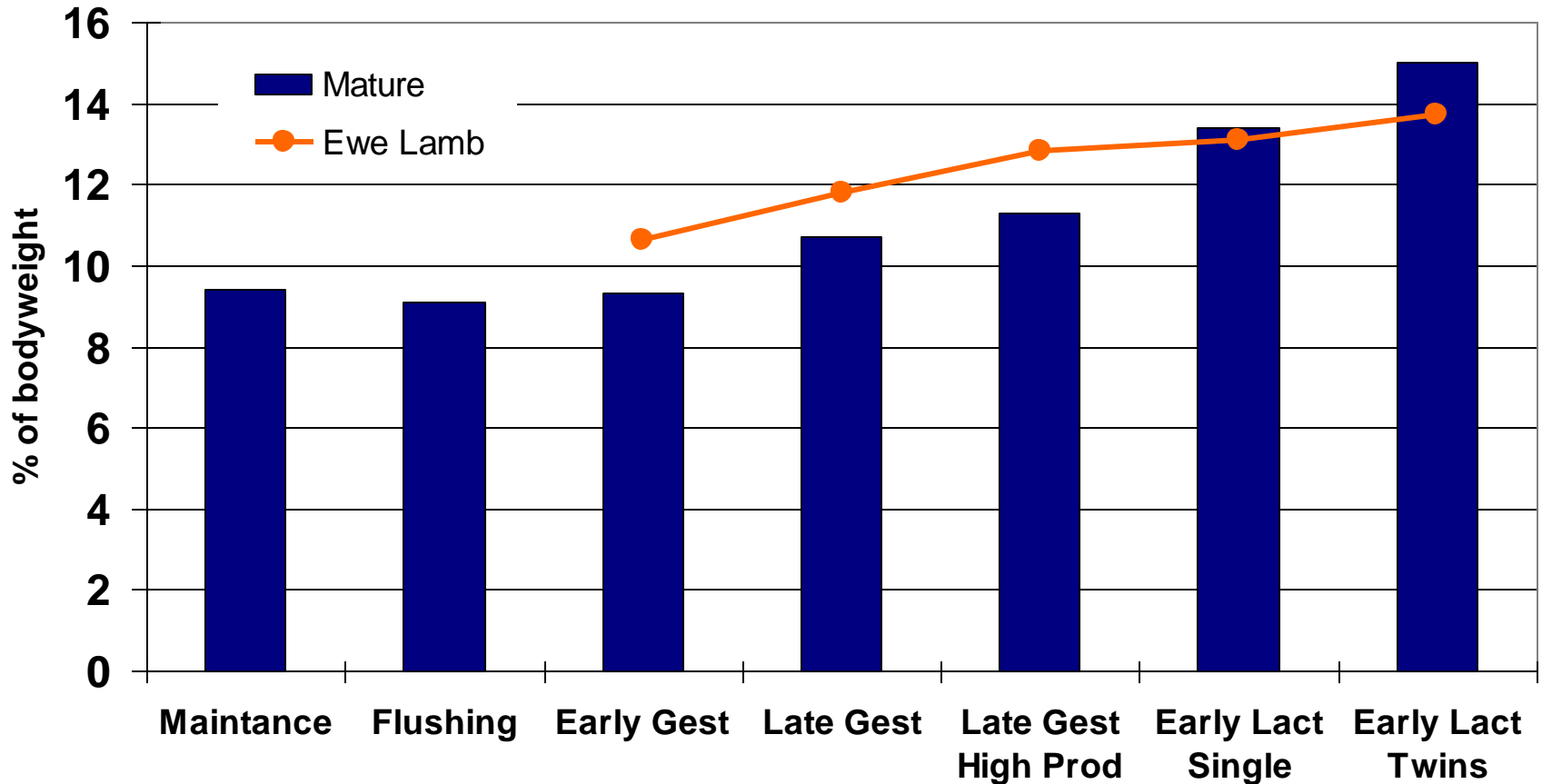


# Effect of Ewe Age on Energy Requirement





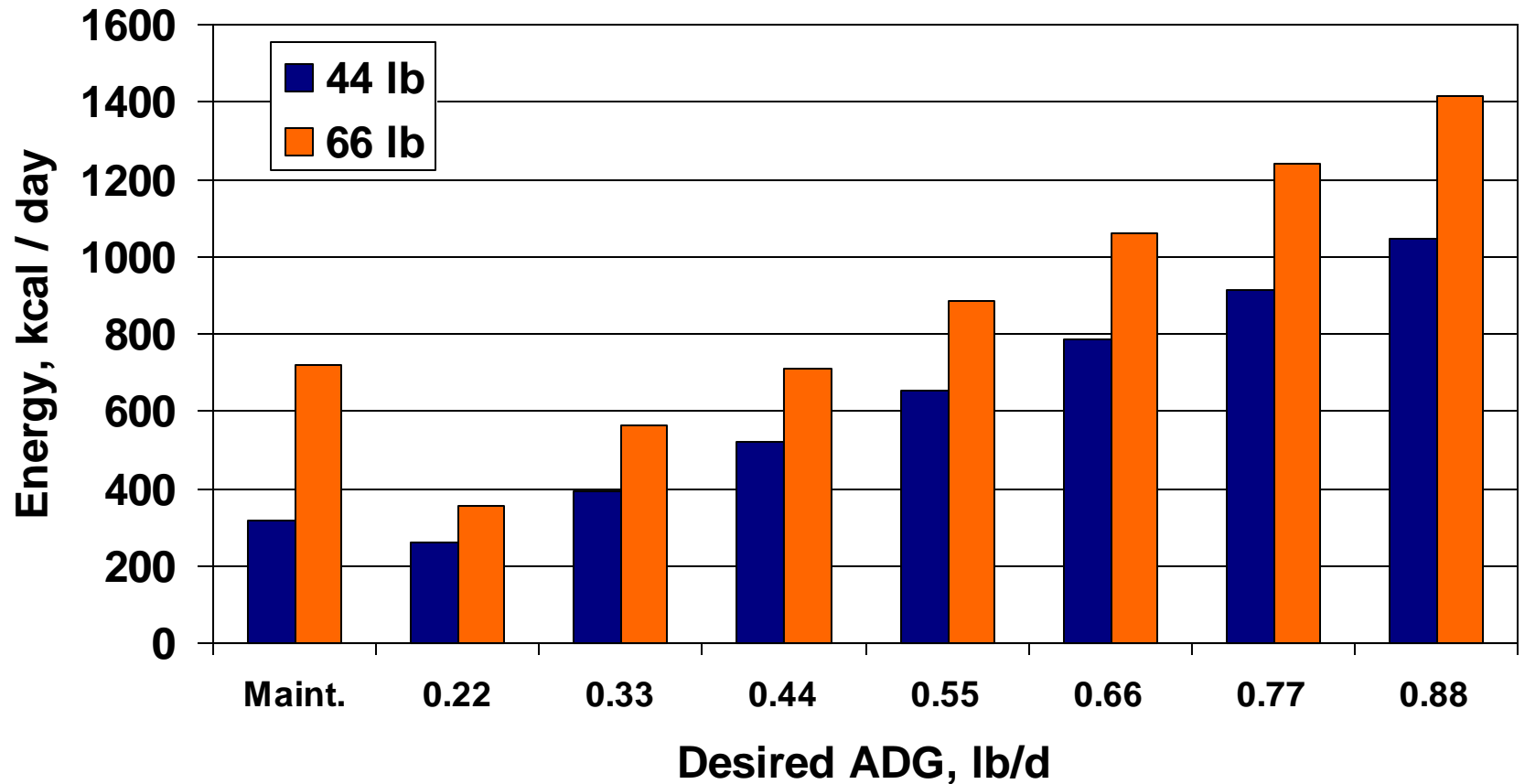
# Effect of Ewe Age on Protein Requirement



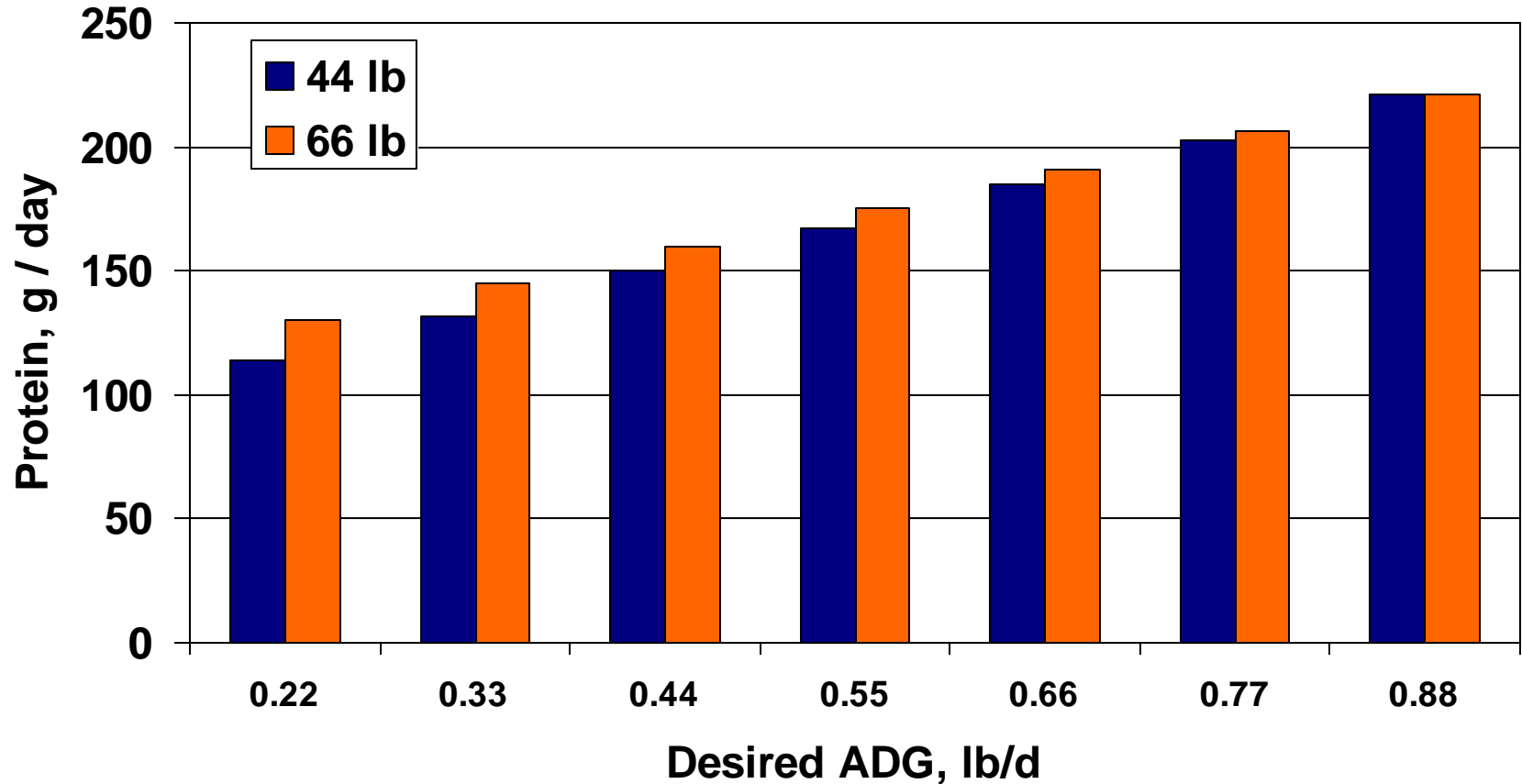
# Observations about Age

- Differences in ewe ages within the herd results in many different requirements.
- Potential for DMI is a key controller for management of ewes with different ages.
- Different nutritional requirements = different nutritional management
- Mature ewes generally have more consistent forage and supplement intakes
- Younger ewes are likely socially influenced by mature ewes
- Ewe lambs have maintenance, gestation, lactation and growth requirements.

# Effect of Growing Lamb BW on Energy Requirement



# Effect of Growing Lamb BW on Protein Requirement



# Feed Amounts for Different Stages

		<u>Hay Crude Protein %</u>			
		16.5	15.0	12.5	10.0
		<u>Lbs of feed</u>			
Maintenance	Hay	2.75	2.75	2.75	2.75
Early Preg.	Hay	3.25	3.25	3.25	3.25
Late pregnancy	Hay	4.00	4.00	4.00	4.00
	Corn	1.00	1.00	1.00	1.00
	SBM	--			0.10
Early lactation,	Hay	4.25	4.25	4.25	4.25
twins	Corn	1.90	1.80	1.50	1.15
	SBM	0.10	0.20	0.50	0.85

130 lb ewe

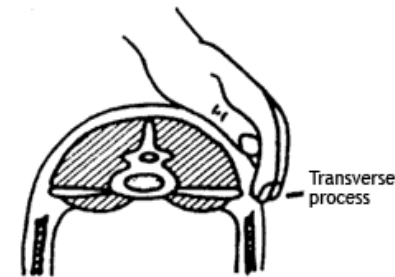
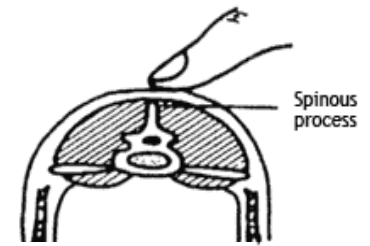
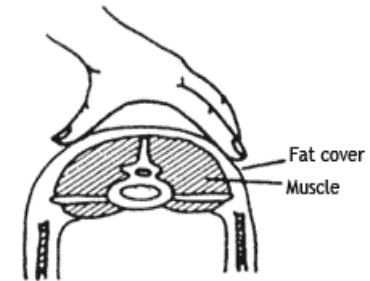


# Mineral Nutrition

- Copper levels in mineral are important to know.
  - High Cu levels are toxic
- Calcium:Phosphorus
  - 2:1 is optimum
  - Pasture can be low in Ca
  - Concentrates generally high in P
  - Urinary calculi
  - Limestone
- Magnesium special consideration for nursing ewes
  - grass tetany
- Selenium
  - White muscle disease
  - Inorganic vs organic
- Goats need greater S conc.
- Specific mineral mixes for Sheep and Goats

# Body Condition Score

- **BCS 1**(Emaciated) No fat between skin and bone. Ewes have no fat and very limited muscle energy reserves. Appear weak and unthrifty. Wool fleeces are often tender, frowsy and lack luster.
- **BCS 2**(Thin) Only a slight amount of fatty tissue detectable between skin and bone. Spinous processes are relatively prominent. These ewes appear thrifty but have only minimal fat reserves.
- **BCS 3**(Average) Average flesh but do not have excess fat reserves. This condition score includes ewes in average body condition.
- **BCS 4**(Fat) Moderately fat. Moderate fat deposits give sheep a smooth external appearance.
- **BCS 5**(Obese) Extremely fat. Excess fat deposits can easily be seen in the breast, flank, and tailhead regions. These ewes have excess fat reserves to the point that productivity may be impaired.



# Questions



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