Unit C: Animal Management

Essential Standard 6.00: Apply rations for livestock animals.

Objective 6.01

- Apply rations to agriculture animals.

Rations

1. Maintenance of vital body processes to keep animals alive
2. Growth by increasing size
    1. Bones, muscles, organs, tissue
3. Fattening
    1. Storing nutrients
    2. Not for maintenance or growth

Rations

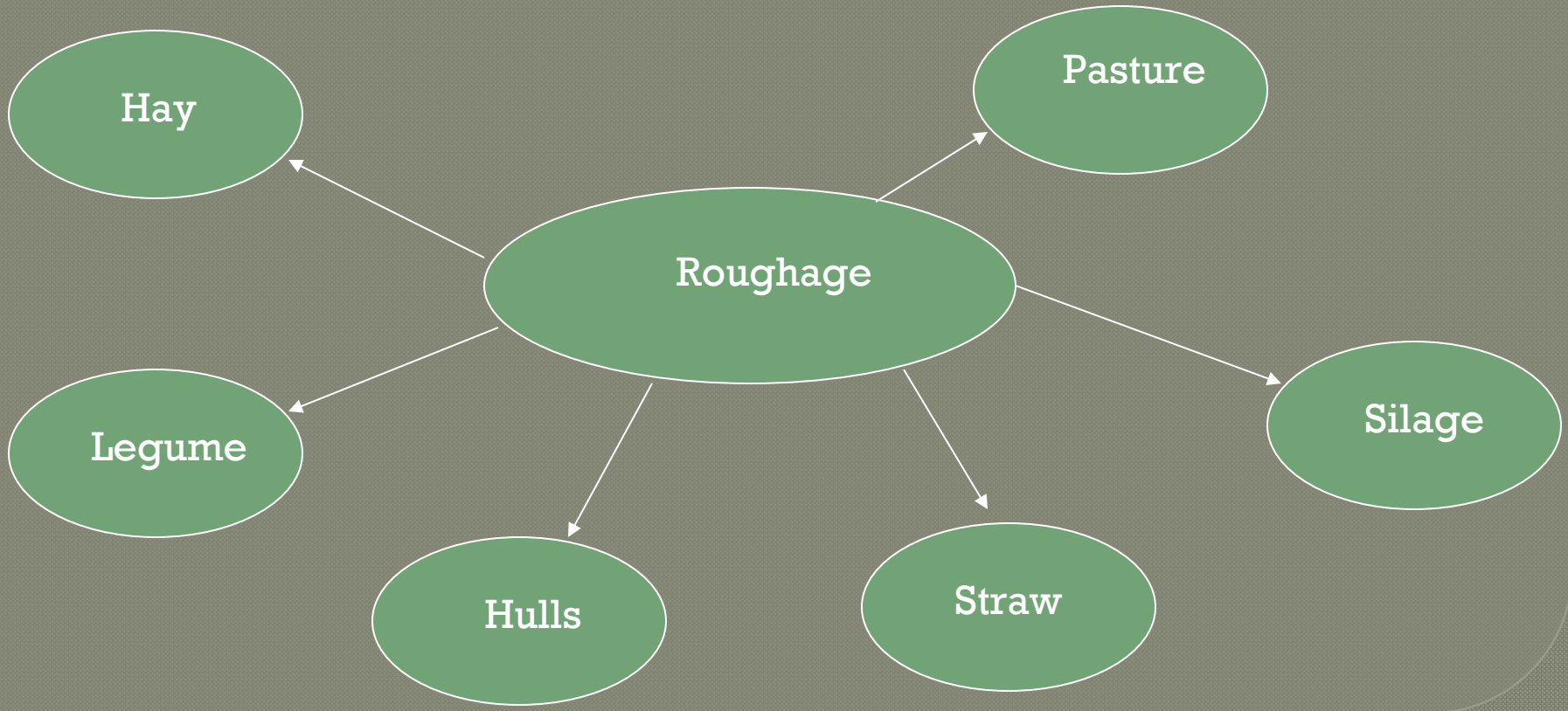
4. Production
   - Milk
   - Eggs
   - Wool or hair
5. Reproduction
6. Work
   - Other needs must be met first
   - Most U.S. livestock do no work (horses)

Rations

- 1/3 to ½ of the ration fed to livestock is used for body maintenance
- Maintenance must be met before nutrients are available for other functions

Roughages

- Contains more than 18% crude fiber when that are dry

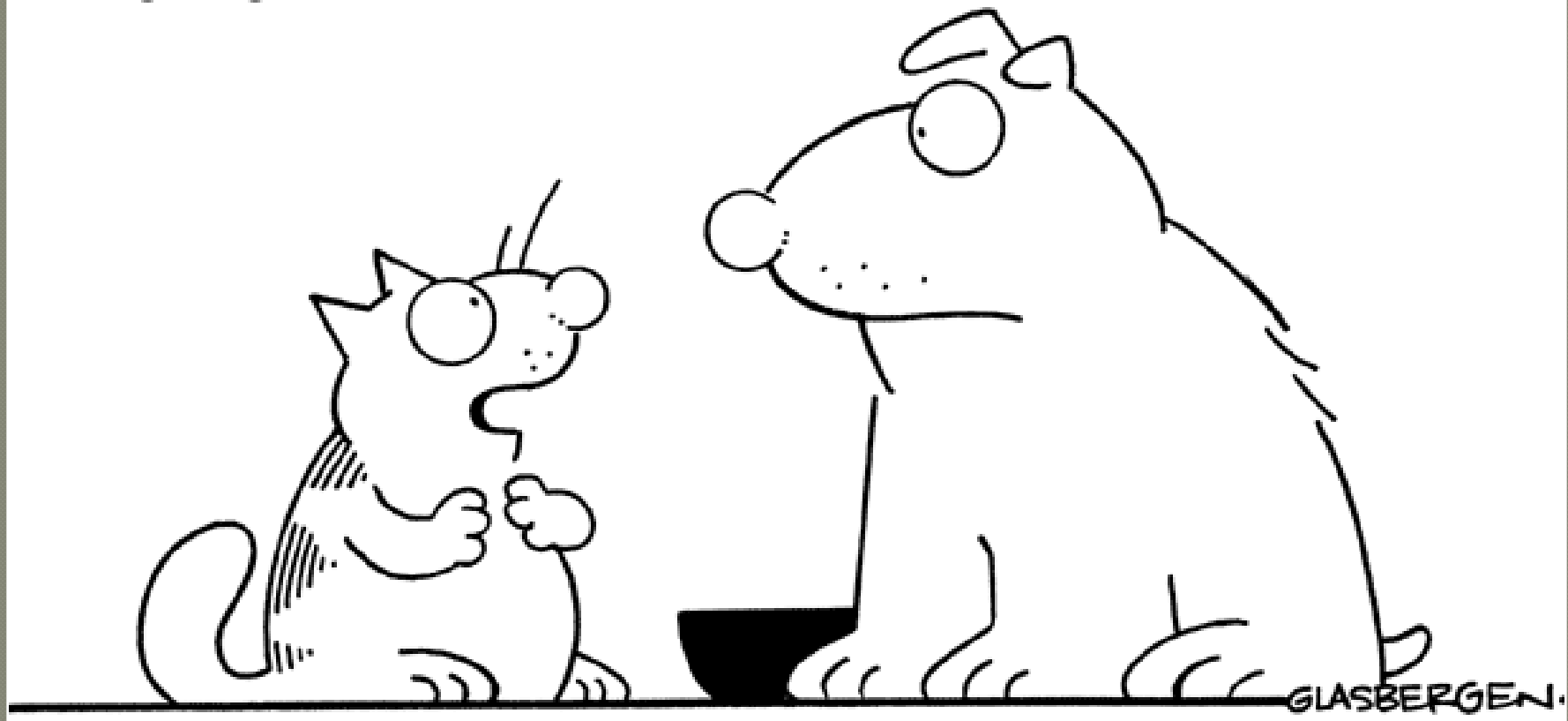


Concentrates

- Contains less than 18% crude fiber when they are dry
  - Grains-corn, oats, barley, wheat
  - By-products
    - Wheat bran
    - Cottonseed hulls

Concentrates

- Liquid supplements
  - Molasses
  - Urea
- Animal proteins
  - Meat scraps, fish, and blood meal
- Plant proteins
  - Cottonseed meal
  - Soybean meal
  - Peanut meal



"I LICK MY PAWS BECAUSE THEY'RE FAT-FREE, SUGAR-FREE AND CALORIE-FREE!"

Good Rations

1. Balanced
   - Has all the nutrients in the right amounts
2. Palatable
   - Taste good
3. Low Cost
   - Feed is about 75% of the cost of raising livestock

Good Rations

4. Not harmful to the health of animals
   - Too much cotton seed can cause reproductive problems
   - Bulky satisfy hunger
   - Laxative
     - improves feed efficiency and prevent constipation
5. Uniformly mixed
   - Micronutrients- vitamins and minerals
   - Feed additives

Balancing Rations

- Balanced to meet the animal's needs at the least expense
- Variety of fresh feeds
  - More palatable
  - Easier to balance
- Bulky
  - Filling
  - Helps in digestion

Balancing Rations

- Slightly laxative
  - Improve feed efficiency
  - Prevent constipation
- Economical
  - price per pound of energy and digestible protein
- Suitable
  - Roughage for cattle
  - Concentrates for swine and poultry
  - High protein for younger animals

Dry Matter

- All moister has been removed

Feed on 100% dry matter basis = Pounds of feed as-fed x Percent dry matter in feed

Dry Matter

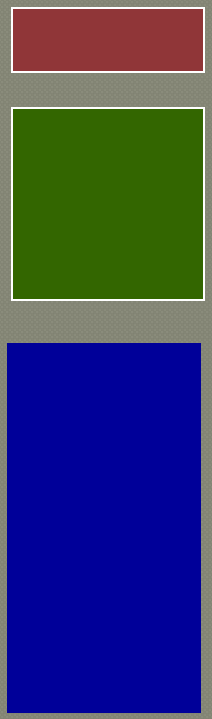
100g can of dog food

As- Fed

Protein
10%

Other
15%

Water
75%



Protein
10g

Other
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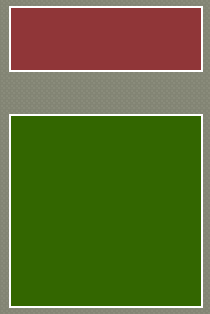
Dry Matter



Protein
40%

Other
60%

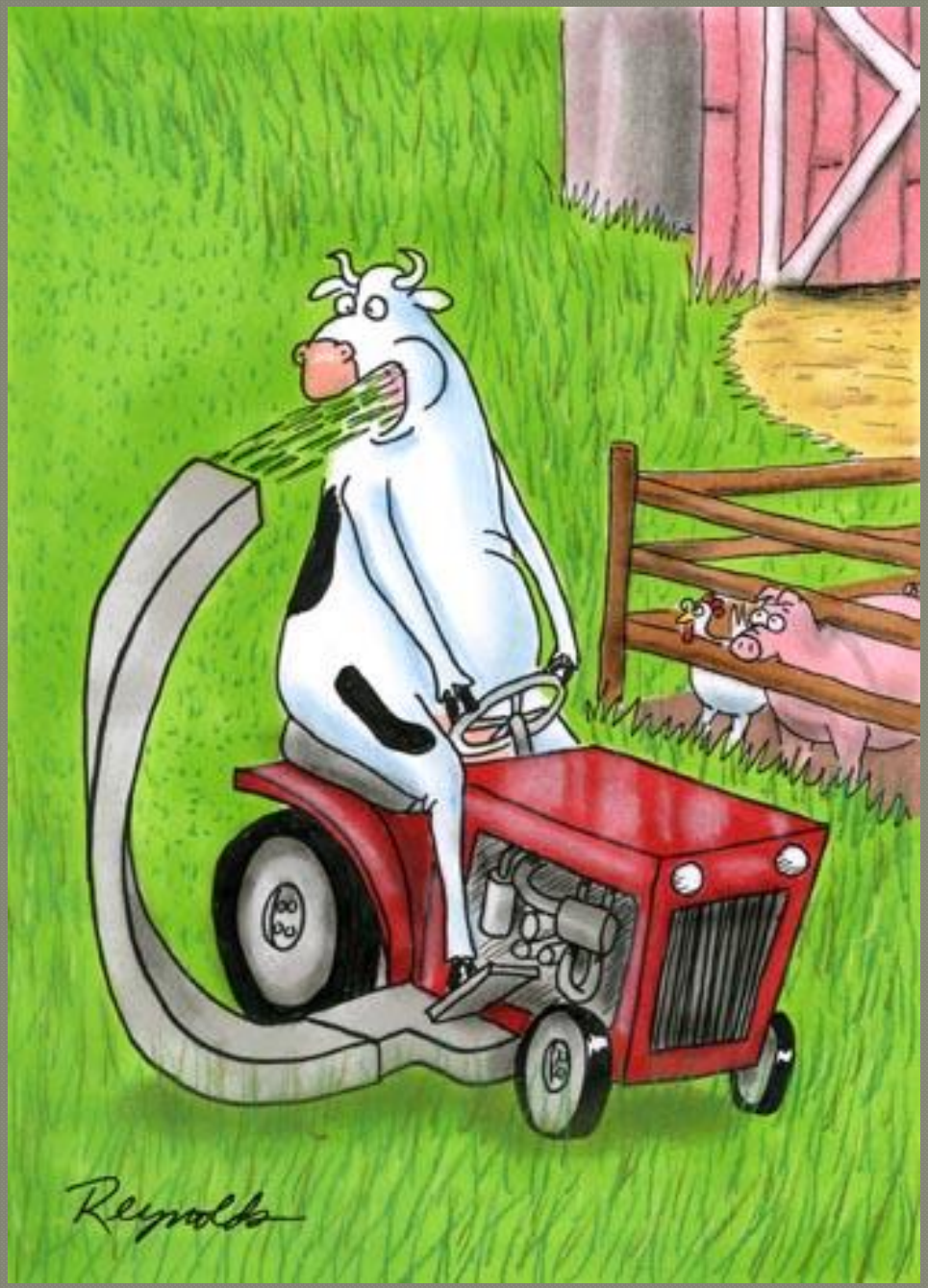
Air Dry

- Still has moisture

$$\text{Feed on an As-fed basis} = \frac{\text{Feed on a dry matter basis}}{\text{Percent dry matter in feed}}$$

Dry Matter vs. As-fed

- The weight of 100% dry matter is less
  - No water or moisture is contained
- Provides an accurate indication of feed content
  - Feeds can vary in moister content


Reynolds

Dry Matter Content

- 100% dry matter basis of sun cured hay is about 90% of as-fed basis
- 100% dry matter basis of most fresh pasture grasses is about 20-30% of as fed basis
- 100% dry matter basis of most corn (not silage) is about 90% of as-fed basis

Dry Matter Content

- Most feed will stabilize to about 90% dry matter in air drying
- Storing high moisture feed materials will cause them to mold or build up heat

Rules for Feeding Livestock

- Beef Cattle (fattening)
  - 1 1/2 to 2 lbs. Of air-dried roughage and 2 lbs. of concentrate per 100 lbs. of body weight

  Example: An 850 pound steer will need approximately:
  - 12.75 to 17 lbs. of roughage and
  - 17 lbs. concentrates
    - Total= 30 to 34 pounds of feed

Rules for Feeding Livestock

- Cattle (maintenance)
  - mainly roughage
  - air dried roughage should be ~2% body weight (1.8 dry matter)
  - Cows nursing calves should be fed 50% more than dry cows

Example:

A 1,213 pound cow should be fed about 24 pounds (1213 X .02= 24.26)

Rules for Feeding Livestock

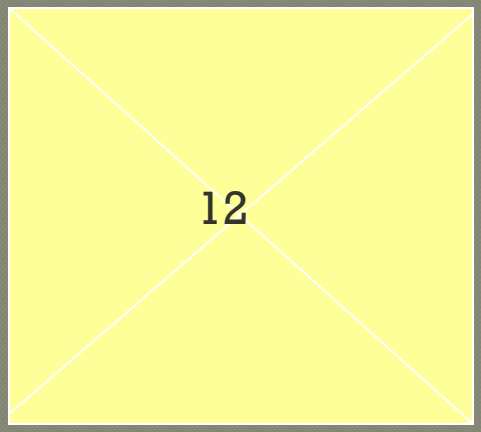
- Swine
  - depends on size and age of the animal
  - depends on nursing
  - Pigs under 50 pounds and nursing sows need more protein than market hogs
- Poultry
  - The ration is 10% of body weight

Finding Nutritional Information

- Called feeding standards
- Metric vs. English
  - to convert kg to lb
  - multiply kg by 2.2
  - a 40 kg steer will weigh 88 lbs.
- ME- metabolizable energy intake

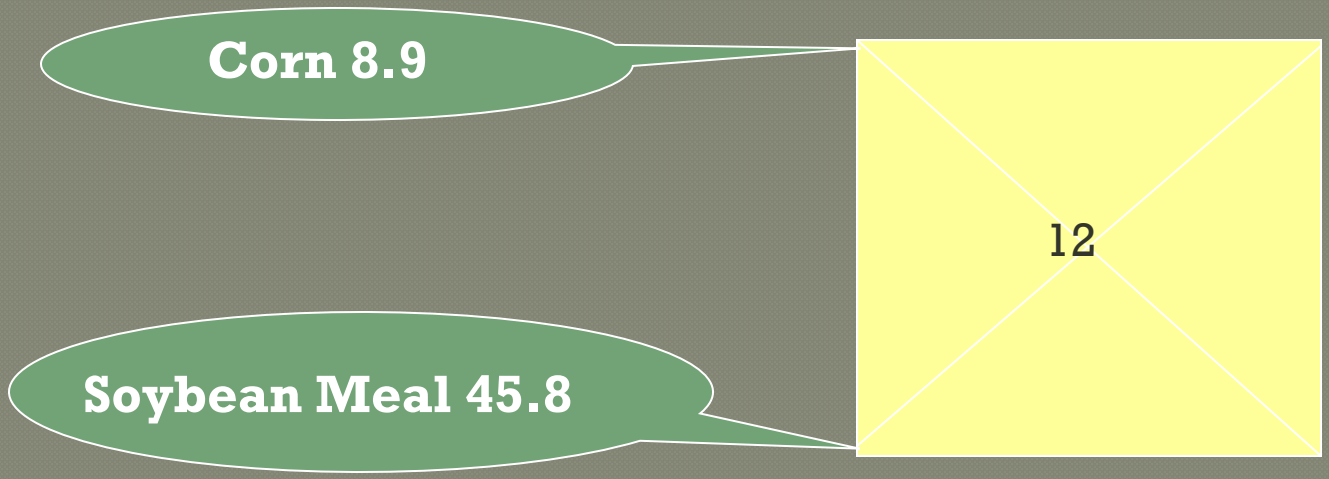
Pearson Square

1) Draw a square with lines connecting opposite corners and write the percent crude protein needed at the cross



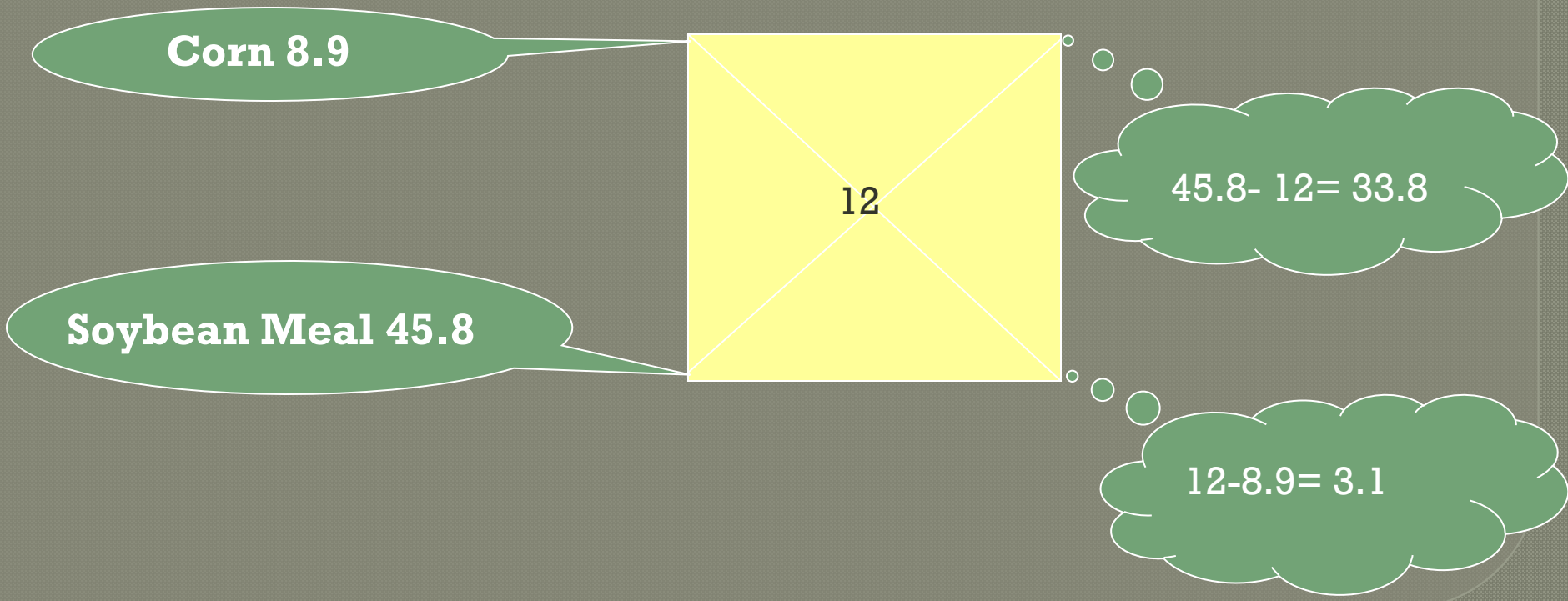
Pearson Square

- Write the feeds to be used and their crude protein content in the left-hand corners
  - lowest at the top highest at the bottom

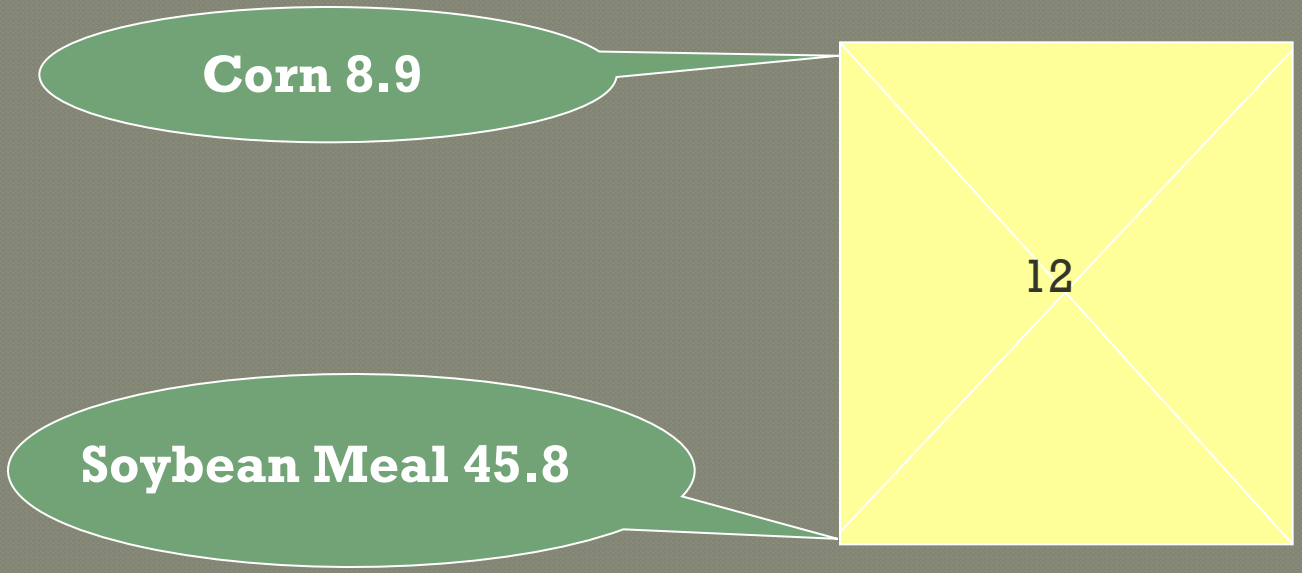


Pearson Square

- Subtract the smallest number from the larger along the diagonal lines



Pearson Square

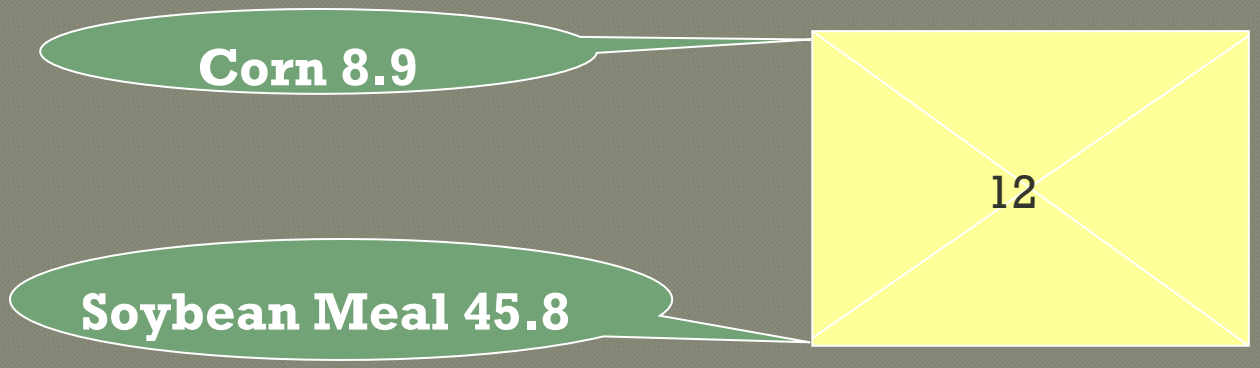


33.8 parts corn

3.1 parts soybean meal

36.9 total parts

Pearson Square



33.8 parts corn

3.1 parts soybean meal

Corn- 33.8 divided by 36.9 multiplied by 100= 92% corn

SBM 3.1 divided by 36.9 multiplied by 100= 8% SBM

Assignment

- Balance a ration for CP for the following using your choice of feeds:
  - 300 lbs medium farmed steer at a 3 pound daily gain (p. 917)
  - 1400 pound cow, nursing, superior milking ability first 3-4 months postpartum (p. 923)
  - Maintenance of a rabbit
  - An animal of your choice

Objective 6.02

- Exemplify feed additives and hormone implants.

Feed Additives and Implants

Feed additives

- Materials used in rations
- Small quantities
- Improve performance
  - Feed efficiency
  - Rate of gain
  - Health
  - Production

Feed Additives and Implants

- Hormones Implants
  - Most are pelleted
  - Synthetic or natural
  - Improves rate of gain and feed efficiency

Feed Additives and Implants

- Hormones can also be fed as feed additives

Feed Additives and Implants

- Performance stimulants
  - Increased profits by increased performance
- Low level antibiotic use is subtherapeutic
  - Some public concern regarding antibiotic resistance

Feed Additives and Implants

- Feed additives are widely used in the beef cattle, swine and poultry industry
- Many different antimicrobial drugs are used increase performance and prevent disease
- Regulated by the Food and Drug Administration (FDA)

Mixing Additives

- The main rule that includes all other rules is “read the label”
- Mixing is required to provide the correct amounts of additives
  - Clean equipment
- Keep accurate records on medicated feeds

Kinds of Feed Additives

1. Antimicrobial Drugs
   - Antibiotics and antibacterials
   - Used to control disease
   - Broad-spectrum when the specific disease is unknown
   - Aureomycin and Terramycin
2. Hormones
   1. Improve feed efficiency
   2. Rate of growth
   3. Mainly used for cattle

Kinds of Feed Additives

3. Anthelmintics
   - Used to control worms
   - Piperizine and Dichlovos
4. Others
   - Coccidiostats- coccidiosis in poultry
   - Poloxalene- prevent bloat in beef cattle
   - Melengestrol of MGA to supress estrus in heifers

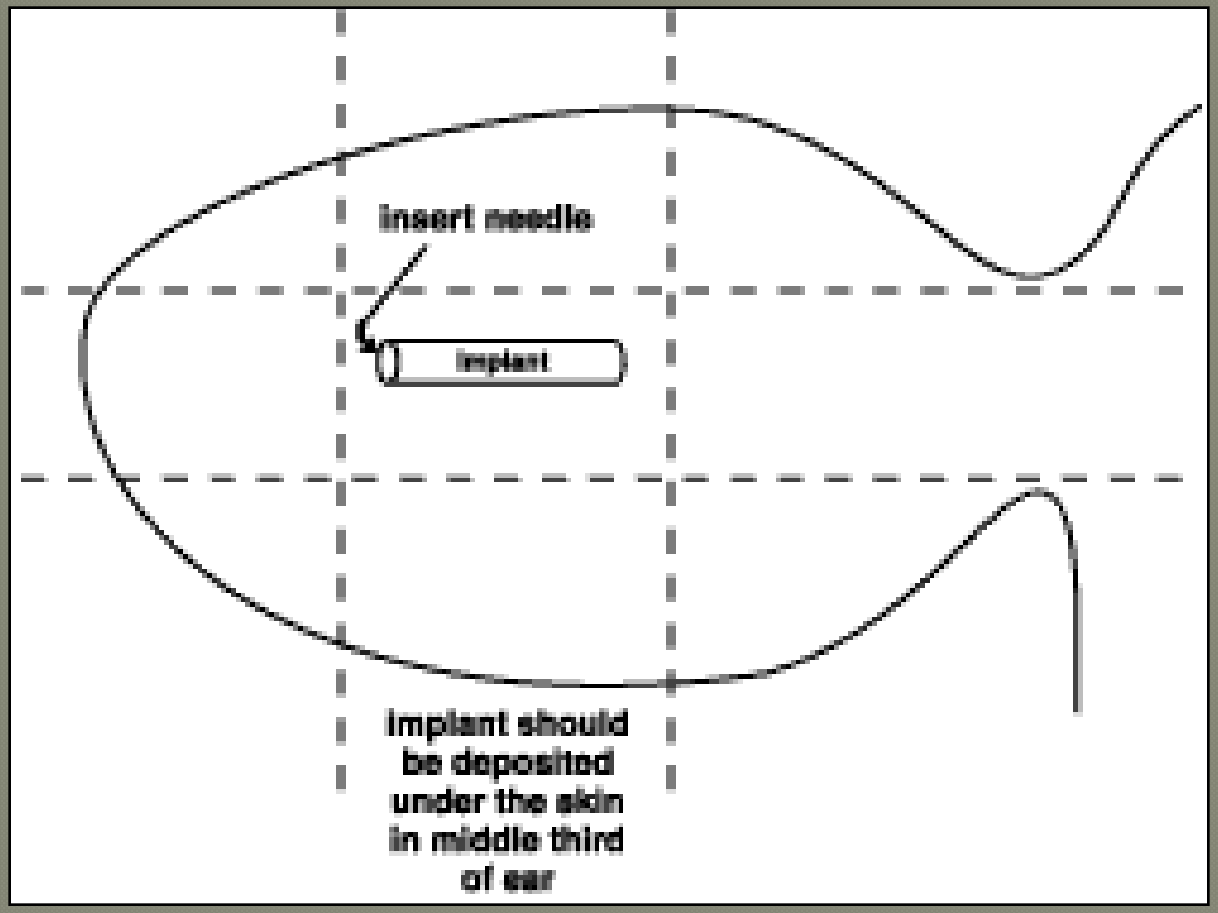
Hormone Implantation

1. Restrain the animal
2. Use a sharp needle
   - Prevents crushed pellets
3. Clean the site
4. Select the proper location
   - Back surface
   - Middle one third of the ear
   - 1 ½ to 2 inches from the base

Hormone Implantation

5. Point the instrument toward the head parallel to the ear
   - Insert being careful not to hit a vein or cartilage
6. Withdraw slightly, start the implant and remove
   - Removing too quickly can crush the pellet

Hormone Implantation



Quiz Answer Bank

- Subtherapeutic
- Anthelmintics
- Too slow in its absorbtion of the implant
- Less than 18% crude fiber
- Aureomycin
- MGA
- Coccidiostats
- Maintenance
- More than 18% crude fiber
- Too fast in its absorption of the implant
- Poloxalene

Quiz

1. Which feed additive is used to control parasites?
2. What type of ration is use to provide animals with enough nutrition to only maintain body functions?
3. What is used to control coccidiosis in poultry?

Quiz

4. Using sharp needles when implanting prevents what from happening?
5. Name an antimicrobial drug use for animals.

- Low level antibiotic use is called…
- Roughages are considered to have…

Answers

1. Which feed additive is used to control parasites? Anthelmintics
2. What type of ration is use to provide animals with enough nutrition to only maintain body functions? Maintenance
3. What is used to control coccidiosis in poultry? Coccidiostats

Answers

4. Using sharp needles when implanting prevents what from happening? Too fast in its absorption of the implant
5. Name an antimicrobial drug use for animals. Aureomycin

- Low level antibiotic use is called… Subtherapeutic
- Roughages are considered to have… More than 18% crude fiber