

A photograph of a group of pigs in a fenced pasture. The pigs are of various colors, including black, white, and grey. They are gathered in a dirt area, some standing and some lying down. In the background, there is a large, dark-colored barn or structure. The scene is set in a rural, outdoor environment with green grass and a fence line. The image is overlaid with a semi-transparent white rectangle containing text. The right side of the image features a decorative graphic of overlapping geometric shapes in shades of orange and brown.

# Pastured Pig Nutrition

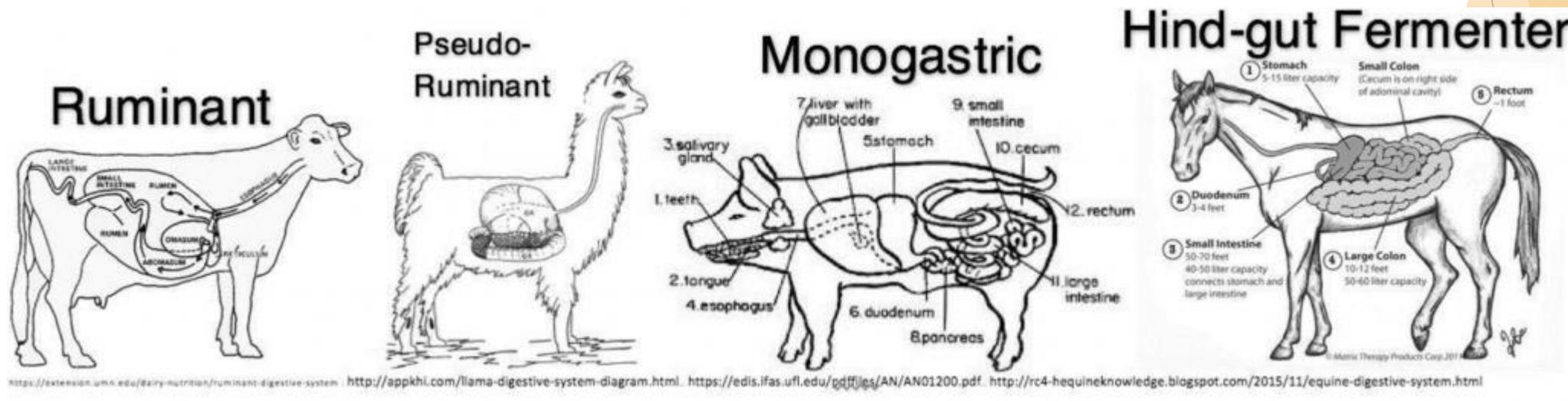
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# Outline

- ▶ **Nutrition Basics**
- ▶ **How to Feed**
- ▶ **Common Mistakes**
- ▶ **Nutritional Diseases**
- ▶ **Special Considerations**

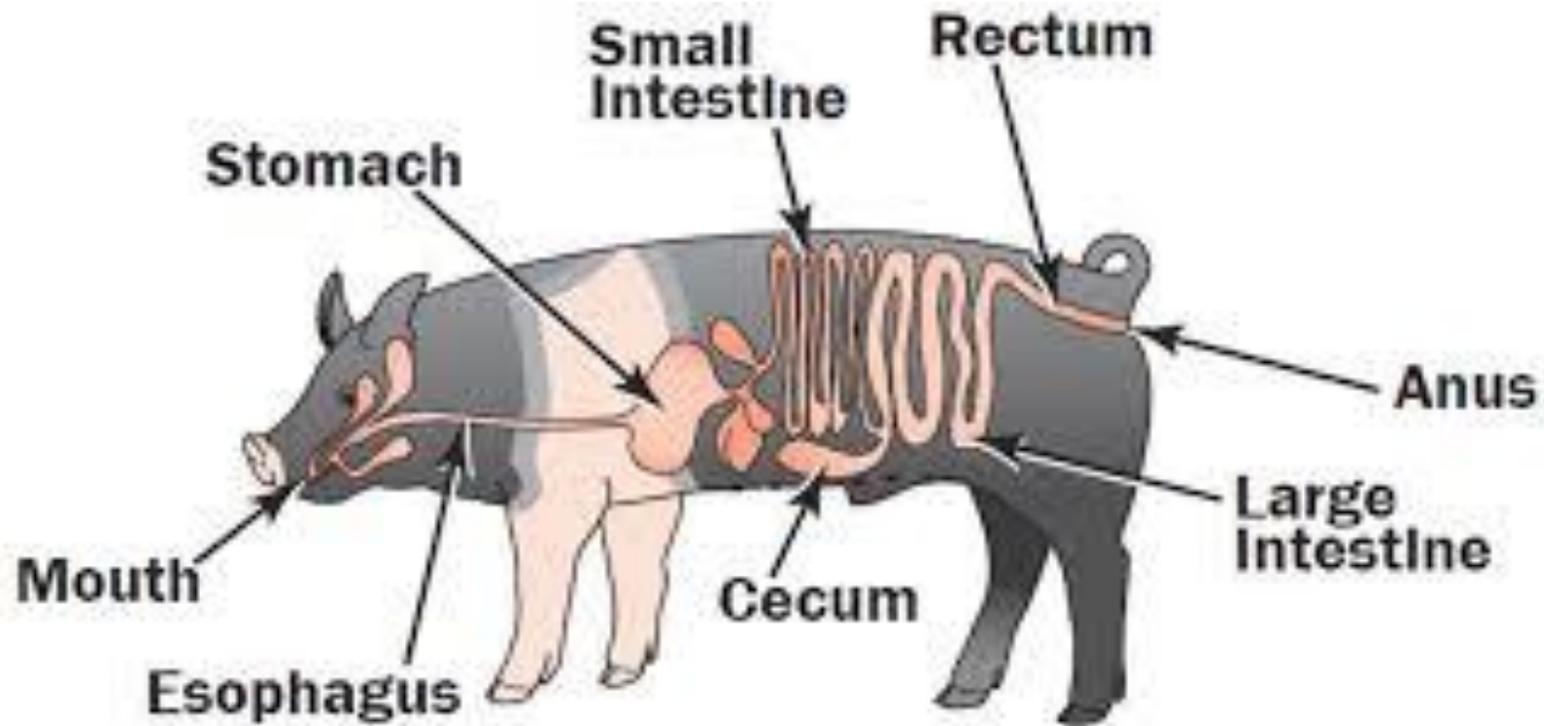
# Nutrition Basics

- ▶ Horses are hind gut fermenters - HUGE intestines to break down grass/hay
- ▶ Cows are ruminants - 4 stomachs - they can digest structural carbs easily



# Nutrition Basics

- ▶ Pigs are **MONOGASTRIC** - they digest grains best



# Nutrition Basics

- ▶ **Diet** = a cake recipe
- ▶ **Ingredient** = flour
- ▶ **Preparation** = baked, steamed, or fried
  
- ▶ “No cooking method fixes a bad recipe.”



# Nutrition Basics- Diet

## ▶ What do pigs need? **BALANCED DIET**

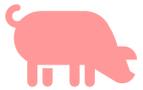
- ▶ Energy (calories)
- ▶ Amino acids (protein)
- ▶ Minerals
- ▶ Vitamins
- ▶ Fiber
- ▶ Water

## **Feed Analysis**

Crude Protein (min) 15.0%  
Zinc (act) 175 mg/kg  
Crude Fat (min) 3.0%  
Copper (act) 125 mg/kg  
Crude Fibre (max) 8.0%  
Vitamin A (min) 9,000 IU/kg  
Sodium (act) 0.2%  
Vitamin D (min) 1,500 IU/kg  
Calcium (act) 1.0%  
Vitamin E (min) 50 IU/kg  
Phosphorus (act) 0.7%

# Nutrition Basics - Diet

## How is a diet balanced?



Step 1: Assess the PIG'S requirement/goal



Step 2: Determine Net Energy (NE) CALORIES!



Step 3: Set Crude Protein and (LYSINE!!)



Step 4: Establish minerals (ratios)



Step 5: Set vitamin levels



Step 6: Water

# Nutrition Basics - Diet

- ▶ **Diet is the balanced recipe.**
  - ▶ Diets can be balanced and created from multiple different ingredients
- ▶ **Examples:**
  - ▶ You have peas, corn, and barley as your MAIN ingredients and want a 16% protein diet:

Corn protein: 9%  
Barley protein: 11%  
Peas protein: 23%



👉 27% corn inclusion  
👉 27% barley inclusion  
👉 46% peas inclusion

# Nutrition Basics - Energy

- ▶ Energy - #1 driver
- ▶ WHERE does it come from?



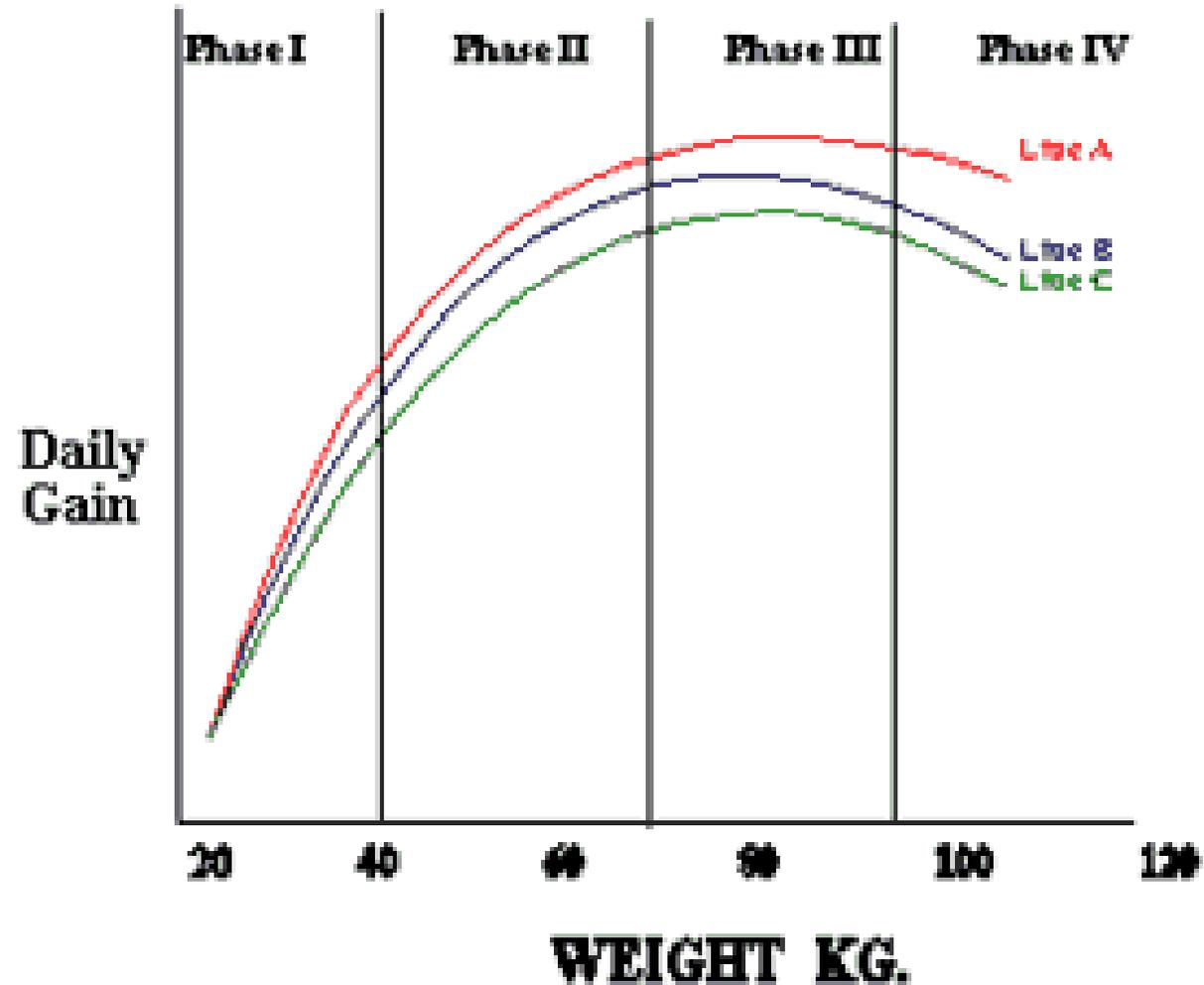
# Nutrition Basics - Energy

- ▶ **EXAMPLE: Grower pigs (25 to 60kg or 55 to 130lbs)**
- ▶ **Energy (calories):**
  - ▶ **Diet energy density:**  
3,200-3,400 kcal ME/kg
  - ▶ Intake increases rapidly
  - ▶ Approx daily intake:
    - ▶ ~1.5-2.5 kg feed/day
- ▶ → ~4,800-8,500 kcal/day



# Nutrition Basics - Energy

- ▶ Energy Needs
  - ▶ Nursery pigs (rapid growth) - less intake
- VS.
- ▶ Finisher pig (slow growth) - more intake



# Nutrition Basics - Energy



**4-6%** body weight  
per day.

EG. 20kg pig  
needs ~1kg feed  
per day



**3-4%** body weight  
per day.

EG. 50kg pig  
needs ~2kg feed  
per day



**2-3%** body weight  
per day.

EG. 90kg pig  
needs ~1.8kg  
feed per day

# Nutrition Basics - Energy

- ▶ **Energy Needs**
  - ▶ Gestating Sows/Boars-  
maintenance  
energy
  - ▶ Lactating Sows-  
**HIGHEST** energy  
needs



# Nutrition Basics - Energy

## Practical TIPS

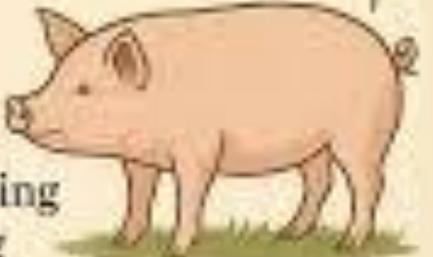
- ▶ 1. Pasture and Garden/veggies/food waste does NOT meet energy needs
- ▶ 2. Some breeds (kunekune) have LOWER intake overall - important when thinking about MINERALS
- ▶ 3. Energy like corn in finishing makes SOFT fat - not ideal

# Nutrition Basics - Protein

- ▶ **EXAMPLE:** Grower pigs (25 to 60kg or 55 to 130lbs)
- ▶ Amino Acids (protein):
  - ▶ Crude Protein (16% to 18%)
  - ▶ Lysine (~1%)
- ▶ Protein needs change with age/growth

**MOST IMPORTANT PROTEIN ELEMENT IN PIG FEED FOR ADEQUATE GROWTH**

**LYSINE**



Lysine is the first limiting amino acid in most pig diets, especially those based on corn and soybean meal.



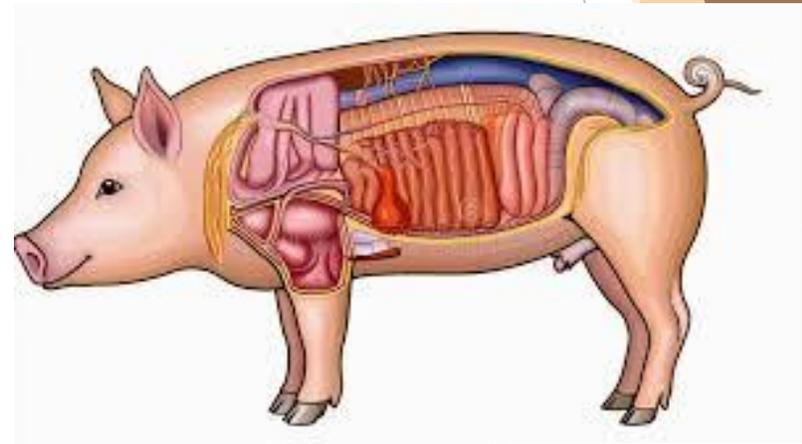
It is essential for muscle growth, feed efficiency, and overall performance.



Inadequate lysine leads to slower growth, poor feed conversion, and less lean meat deposition.

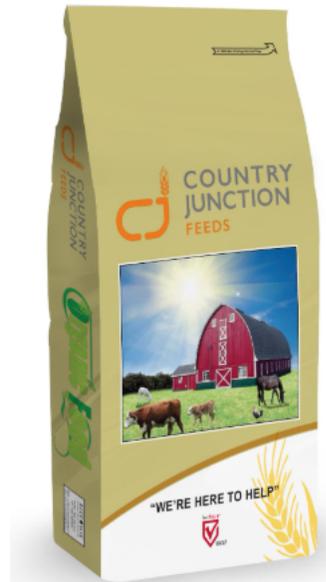
# Nutrition Basics - Protein

- ▶ **Protein**
- ▶ **WHAT** is it for?



# Nutrition Basics - Minerals

- ▶ **Macrominerals (% or g/kg)**
  - ▶ Ca, P, Na, Cl, K, Mg
  - ▶ RATIOS!!! CA:P, (1.2:1.0)
- ▶ **Microminerals (ppm or mg/kg)**
  - ▶ Zn, Cu, Mn, Se
  - ▶ More ≠ Better



## Swine Macro Premix OIS

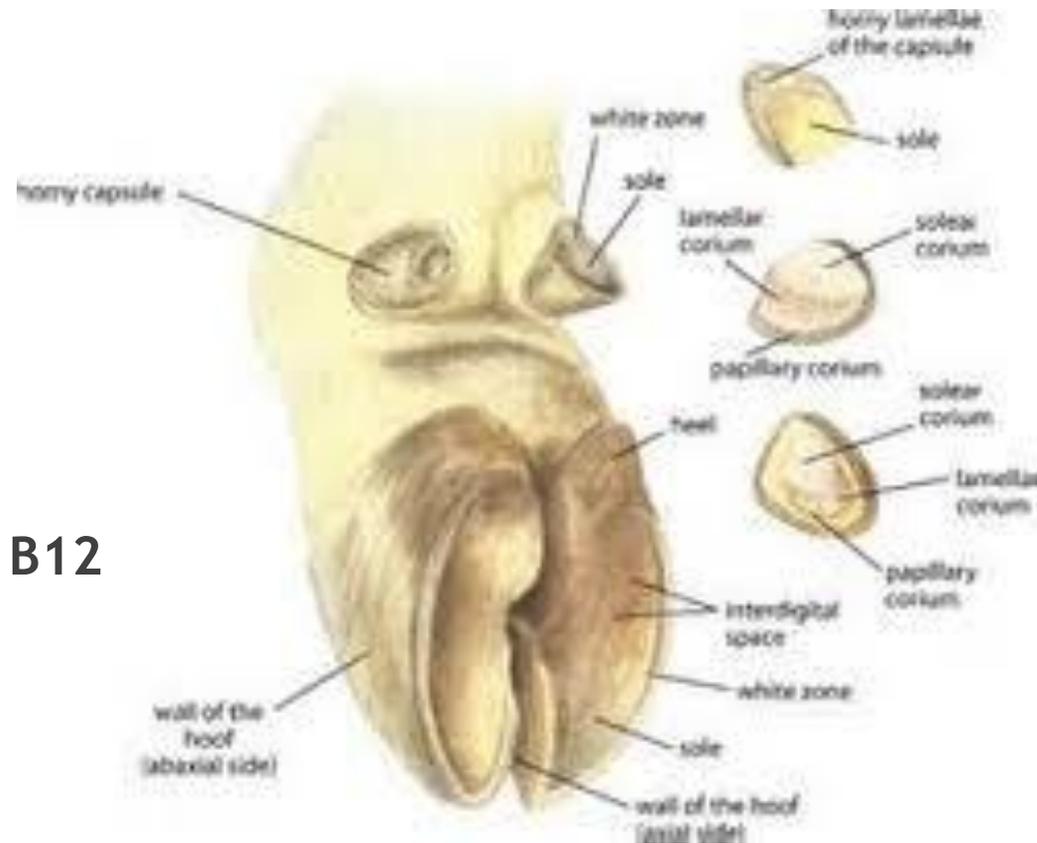
Feed Form: Mash Product #: OS60000B \*This feed contains added selenium at 6.0 mg/kg.

### Guaranteed Analysis

Calcium (Actual)	16%	Iron (Actual)	2,300mg/kg
Phosphorus (Actual)	4.5%	Manganese (Actual)	2,000 mg/kg
Potassium (Actual)	0.4%	Zinc (Actual)	4,000 mg/kg
Magnesium (Actual)	2.5%	Vitamin A (Min.)	260,000 mg/kg
Sodium (Actual)	2.0%	Vitamin D3 (Min.)	30,000 IU/kg
Copper (Actual)	500 mg/kg	Vitamin E (Min.)	1,500IU/kg

# Nutrition Basics - Vitamins

- ▶ Vitamins
- ▶ Fat Soluble
  - ▶ A, D, K, E
- ▶ Water Soluble
  - ▶ B1-6, biotin, folic acid, B12



# Nutrition Basics - Water



- ▶ 24/7 access
- ▶ CLEAN!
- ▶ Water testing:
  - ▶ COLOFORMS (contamination) <100 CFU/mL
  - ▶ Nitrates/Nitrites
  - ▶ Sulfates <500mg/L
  - ▶ Heavy Metals
  - ▶ TDS total dissolved solids <1000-2000mg/L
  - ▶ Hardness Ca and Mg
  - ▶ pH (6.5 to 8.5 ideal)

# Nutrition Basics - Water

## ▶ Water Red Flags:

- ▶ uneven growth
- ▶ Chronic scours
- ▶ Poor feed conversion
- ▶ Reduced water intake
- ▶ Biofilm/slime in pipes
- ▶ Bad smell



# How to Feed - Ingredients

- ▶ Diets need ingredients
- ▶ **Ingredients are raw materials.**  
They are defined by **what they contain**, not how they're fed.
- ▶ Examples:
  - ▶ Corn (8-10% CP)
  - ▶ Wheat (12-15% CP)
  - ▶ Soybean meal (44-49% CP)
  - ▶ Alfalfa Hay (15-22% CP)
  - ▶ Mineral premix
  - ▶ Fat or oil



# How to Feed - Ingredients

- ▶ High protein grains = higher protein demand in life
- ▶ Examples: weaner pigs
- ▶ Higher energy grains = used for higher energy needs
- ▶ Examples: winter ration



# How to Feed - Preparation

- ▶ Preparation is HOW you feed it.  
Preparation can CHANGE how pigs digest food



# How to Feed - Preparation

Method	Digestion	Spoilage Risk	Cost	Best Use	Risk
Whole Grain	Poor	+	\$	Ideally no use...	wasteful
Grinding/Cracking	Great	++	\$\$	Grow-Finish	Too fine = ulcers
Rolling	Good to Great	++	\$\$	Grow-Finish	Less ulcer risk
Soaking	Moderate	+++	\$\$ - labour intensive	Specific use (more commercial)	mould
Pelleting	Great	+	\$\$\$	Creep, weaner ration	Too fine = ulcers
Roughage (hay/pasture)	For fiber and bulk (low energy)	+	\$	For enrichment/gut health	NOT for energy/growth
Silage	Moderate	+++	\$\$ - needs management	Breeding stock maintenance?	Not the best form of energy

# How to Feed - Balanced Diet

1. Complete Feed
2. Base grain ration + Premix
3. Homemade (this is harder)



# How to Feed - Balanced Diet

What is a “Complete Feed”?

- ▶ **Definition (plain English):**  
*A complete feed* is designed so that if the pig eats nothing else, all nutrient requirements are met.
- ▶ **Key rule:**
- ▶ If it's truly complete, nothing else is required nutritionally.

# How to Feed - Balanced Diet



## What is a “Premix”?

- ▶ **A CONCENTRATED** mix of vitamins, minerals, sometimes amino acids/antibiotics/additives
- ▶ **Purpose:**
- ▶ To be added to grain at a very specific inclusion rate (e.g. 2-5%)
- ▶ **Key Rule:** “A premix is seasoning, not the meal.”
- ▶ If the base diet is wrong, a premix **cannot fix it.**

# How to Feed - Balanced Diet

## What is "Homemade"?

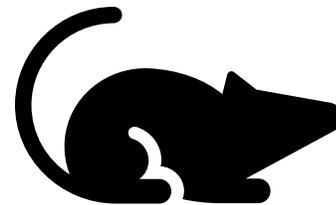
- ▶ More common with pet pigs
- ▶ Assuming or calculating out ALL macro/micro requirements
- ▶ **Why people screw this up:**
- ▶ **NOT BALANCED!**
- ▶ You will see deficiencies



# How to Feed - Delivery



- ▶ Clean feeders
- ▶ Free feeding vs meal feeding
- ▶ Watch for feed waste (Expensive way to attract rodents!!)



# How to Feed - Delivery



# How to Feed - Delivery



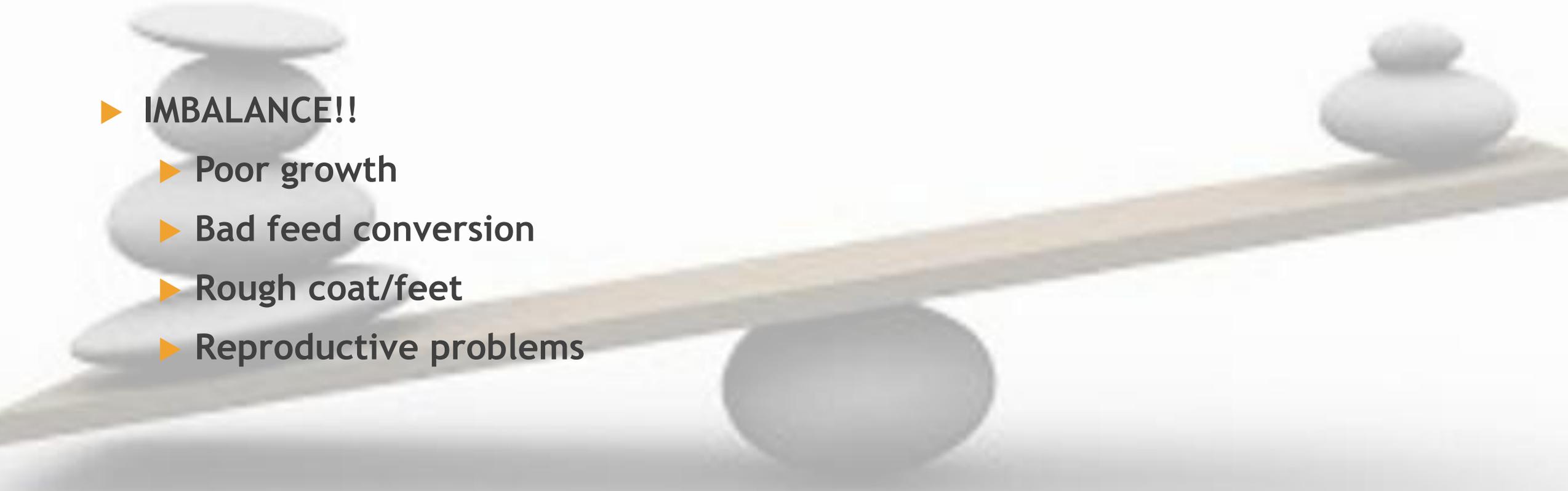
- ▶ **Roughage/Forage**
- ▶ **Any high-fiber, low-energy feedstuff.**
- ▶ **Examples: Straw, Mature hay, Corn stalks**
- ▶ **Nutritional value for pigs:**
- ▶ **Very low, more for satisfaction**

# Common Mistakes

**OOPS!**

# Common Mistakes

- ▶ **IMBALANCE!!**
  - ▶ Poor growth
  - ▶ Bad feed conversion
  - ▶ Rough coat/feet
  - ▶ Reproductive problems



# Common Mistakes

- ▶ Wrong premix addition
- ▶ “Free choice mineral”
  - ▶ Toxicity!!!  
Selenium/Salt toxicosis
  - ▶ Deficiencies!!!
  - ▶ Death, Diarrhea,  
Vomiting, Repro issues,  
skin/feet problems



# Common Mistakes

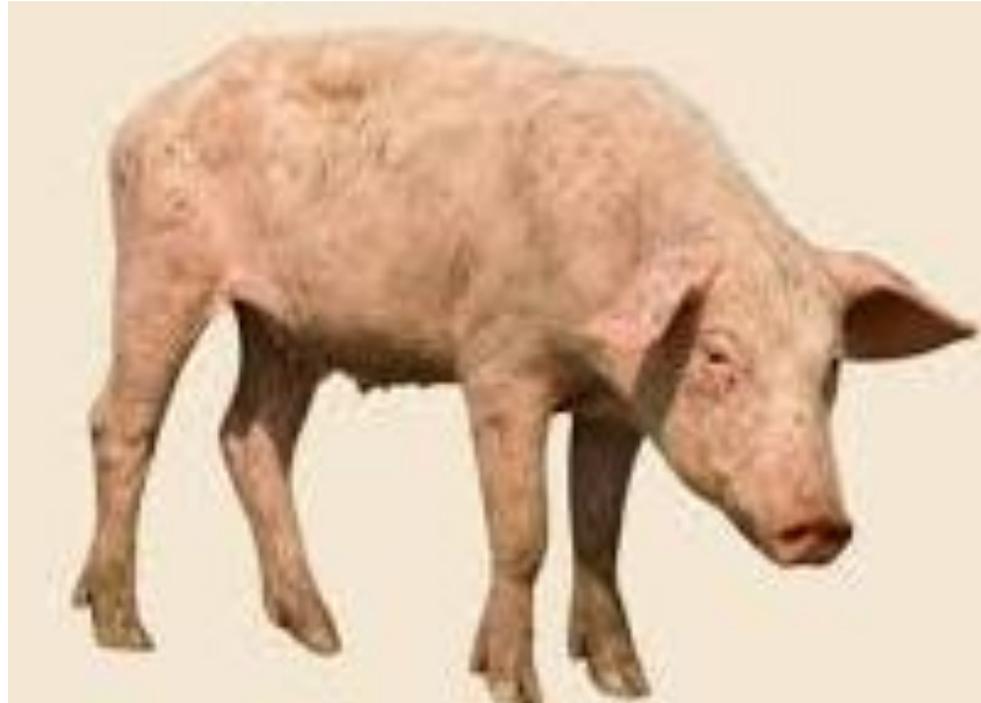


- ▶ **Overfeeding!**
- ▶ Too fat at slaughter
- ▶ Too much corn at finishing

# Nutritional Diseases

## 1. Protein/Lysine Deficiency

- ▶ Poor quality protein
- ▶ Pasture dilution
- ▶ **SIGNS:**
  - ▶ POOR growth!!
  - ▶ Thin



# Nutritional Diseases

## 2. Ca:P Imbalance

- ▶ Problems with Ca, P, or vit D amounts
- ▶ Homemade diets!!
- ▶ **SIGNS:**
  - ▶ Lameness
  - ▶ Leg problems
  - ▶ Repro issues
  - ▶ Kyphoses



# Nutritional Diseases

## 3. Zinc Deficiency

- ▶ Usually deficiency
- ▶ **SIGNS:**
  - ▶ Crusty/Scaly skin
  - ▶ Rough coat



# Nutritional Diseases

## 4. Sulphate induce Diarrhea

- ▶ >1000 ppm in water
- ▶ Common in Alberta wells!!!
- ▶ **SIGNS:**
  - ▶ Chronic diarrhea
- ▶ **Get your water tested!**



# Nutritional Diseases

## 5. Deficiencies (Vit E/Se), Iron, Biotin

- ▶ Imbalance
- ▶ Improper mineral supply
- ▶ **SIGNS:**
  - ▶ Sudden death
  - ▶ Cracked/bad hooves



# Nutritional Diseases

## 6. Salt Toxicity (Water Deprivation)

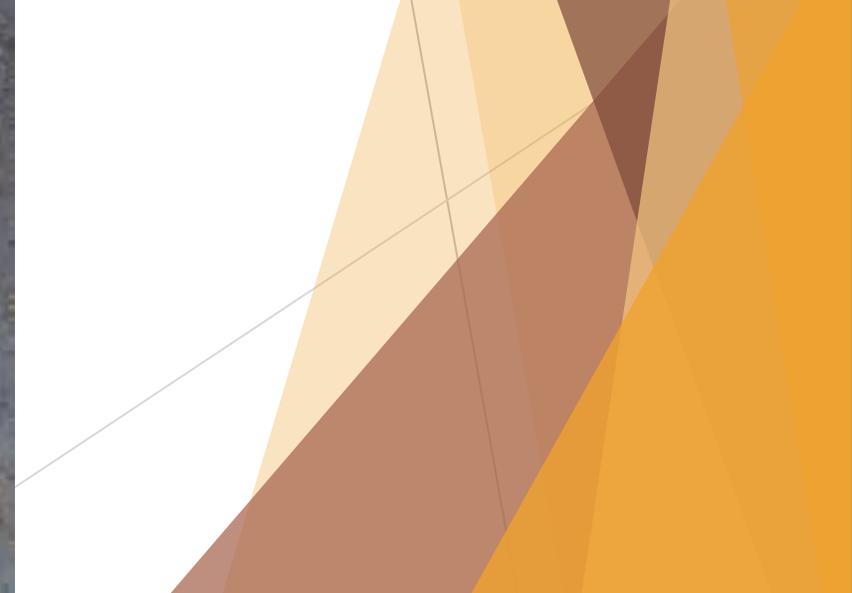
- ▶ Water freezing accidentally
- ▶ Free choice mineral
- ▶ **SIGNS:**
  - ▶ Neurological
  - ▶ PICA
  - ▶ Tail biting



# Nutritional Diseases

## 7. Mycotoxins

- ▶ Mouldy feed
- ▶ **SIGNS:**
  - ▶ Vomiting, diarrhea
  - ▶ Feed refusal
  - ▶ Hyperestrogenism



# Special Considerations

## NEVER feed MEAT!



## Special Considerations

# Risk of foreign animal diseases!



# Special Considerations

A pig is shown in a field, eating from a wooden trough. The pig is the central focus of the image, with its head and front legs visible. The background is a blurred field with some trees and a fence. The image is overlaid with a semi-transparent orange and brown geometric design on the right side.

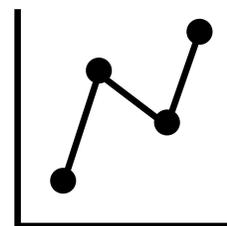
- ▶ **PRACTICE BIOSECURITY!!**
- ▶ Prevent disease spread from:
  - ▶ Wild pigs and other wildlife
  - ▶ Contaminated feed
  - ▶ Introducing new livestock
  - ▶ Foot/Vehicle traffic

# Special Considerations

- ▶ Iron supplementation to piglets under 1 week of age
- ▶ Routine deworming of pigs helps feed conversion



# Summary





**Thank You!**  
**QUESTIONS?**