Anatomy of livestock
Dr. Ashley M. Stokes

How are livestock animals different?
Why does anatomy matter?

**Cattle naturally eat:**
- Eat plants only
- More specific diet
  - Grasses
  - Minerals

**Pigs naturally eat:**
- Eat plant and animal matter
- Varied diet
  - Plants, roots
  - Insects, animal matter
What is needed to grow?

- Balance of nutrients from diet
- In people:
  - Proteins (esp. meats)
  - Carbohydrates (esp. plants)
  - Fats
- Animals have similar needs – they just get them in various ways
Why does anatomy matter?

Cattle:
- Cow eats grass,
  - “bugs” in gut digest grass
  - “bugs” give cow energy and nutrients it needs
- So eat good grass and minerals to grow well

Pig:
- Pigs eat plants, insects, animal products and roots
  - pig gets energy and nutrients directly from food
  - don’t rely on gut “bugs” like cattle do
- So need balanced food that has everything it needs to grow well
Anatomy differences – gut types

**Cattle, sheep and goats are ruminants**

- Have a *large more complex four-chambered stomach*
- Allows them to eat and utilize good quality grasses

**Pigs are nonruminants**

- Have a simple one-chambered stomach (like people)
- Require balanced diet
Anatomy of pigs
Anatomy of pigs

- Stomach helps break down food
Anatomy of pigs

- Small intestines absorb the nutrients from the food
- Small intestines are basically the same across all animals
Anatomy of pigs

- Large intestines absorb the rest of the nutrients and form the feces/manure
Anatomy of chickens and ducks
Anatomy of chickens, ducks
Anatomy of cattle, goats, sheep
Anatomy of cattle, goats, sheep

- **Tongue**
  - Used for grasping in ruminants (especially cattle)
  - Also used to keep nose clean (healthy cattle have a clean nose)

- **Teeth**
  - No upper teeth in the front
  - Have a pad instead
Anatomy of cattle, goats, sheep
Anatomy of cattle, goats, sheep
Anatomy of cattle, goats, sheep
Anatomy of cattle, goats, sheep

Gas: Out as burping
Anatomy of cattle, goats, sheep

Fluid/Grass: Re-chew & Swallow = Rumination
Ruminant diet:
Good grasses in = Good results

Good grasses = good ingredients for the “bugs”  Poor grasses = poor ingredients for the “bugs”
Anatomy of horses
Anatomy of horses

- esophagus
- stomach
- small intestine
- large intestine
- cecum
Anatomy of horses

- **Lips**
  - Used for grasping in horses

- **Teeth**
  - Grow throughout life
  - Different than in other food animals
  - Require care
Anatomy of horses
Anatomy differences – gut types

**Cattle, sheep and goats are ruminants**
- Have a large more complex four-chambered stomach
- Allows them to eat and utilize good quality grasses

**Pigs, chickens, and ducks are nonruminants**
- Require balanced diet
Diet differences

- Herbivores consume primarily plant tissue
- Carnivores consume primarily animal tissue
- Omnivores consume both plant and animal tissue
## Summary of gut types and diet types

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<thead>
<tr>
<th>Animal</th>
<th>Gut Type</th>
<th>Diet Type</th>
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<tbody>
<tr>
<td>Dogs</td>
<td>Nonruminant</td>
<td>Carnivores</td>
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<tr>
<td>Cats</td>
<td>Nonruminant</td>
<td>Carnivores</td>
</tr>
<tr>
<td>Cattle</td>
<td>Ruminant</td>
<td>Herbivores</td>
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<tr>
<td>Swine</td>
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<td>Omnivores</td>
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Thank you for having us!