

Anatomy of livestock

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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



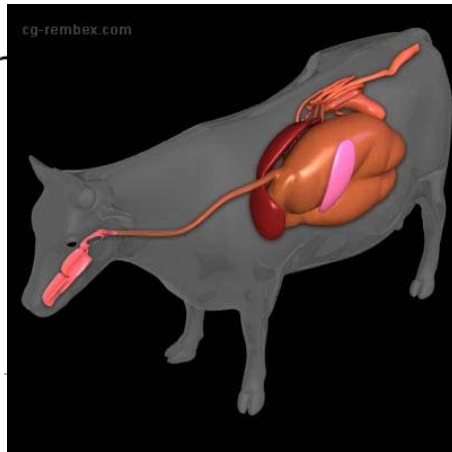
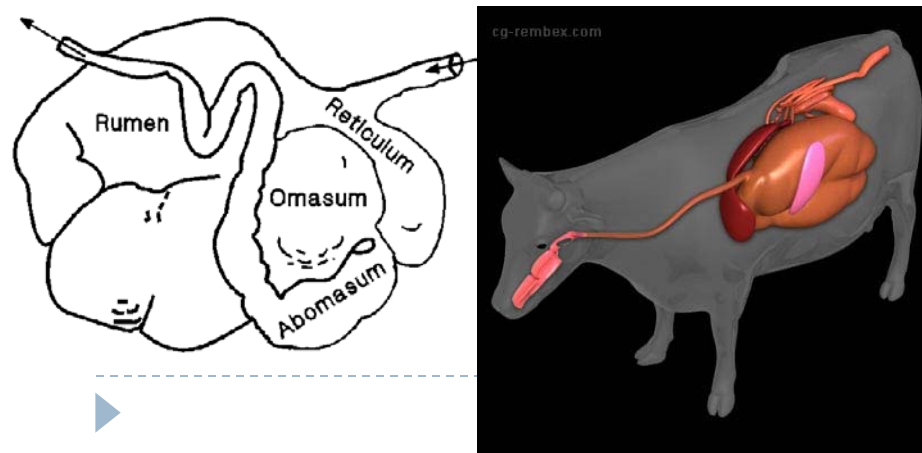
Pig:

- ▶ 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

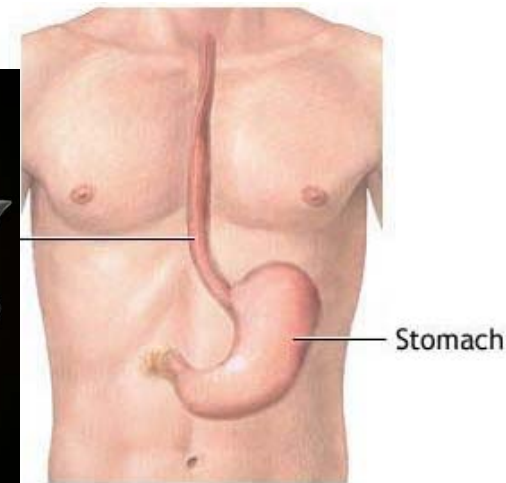
Cattle, sheep and goats are *ruminants*

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

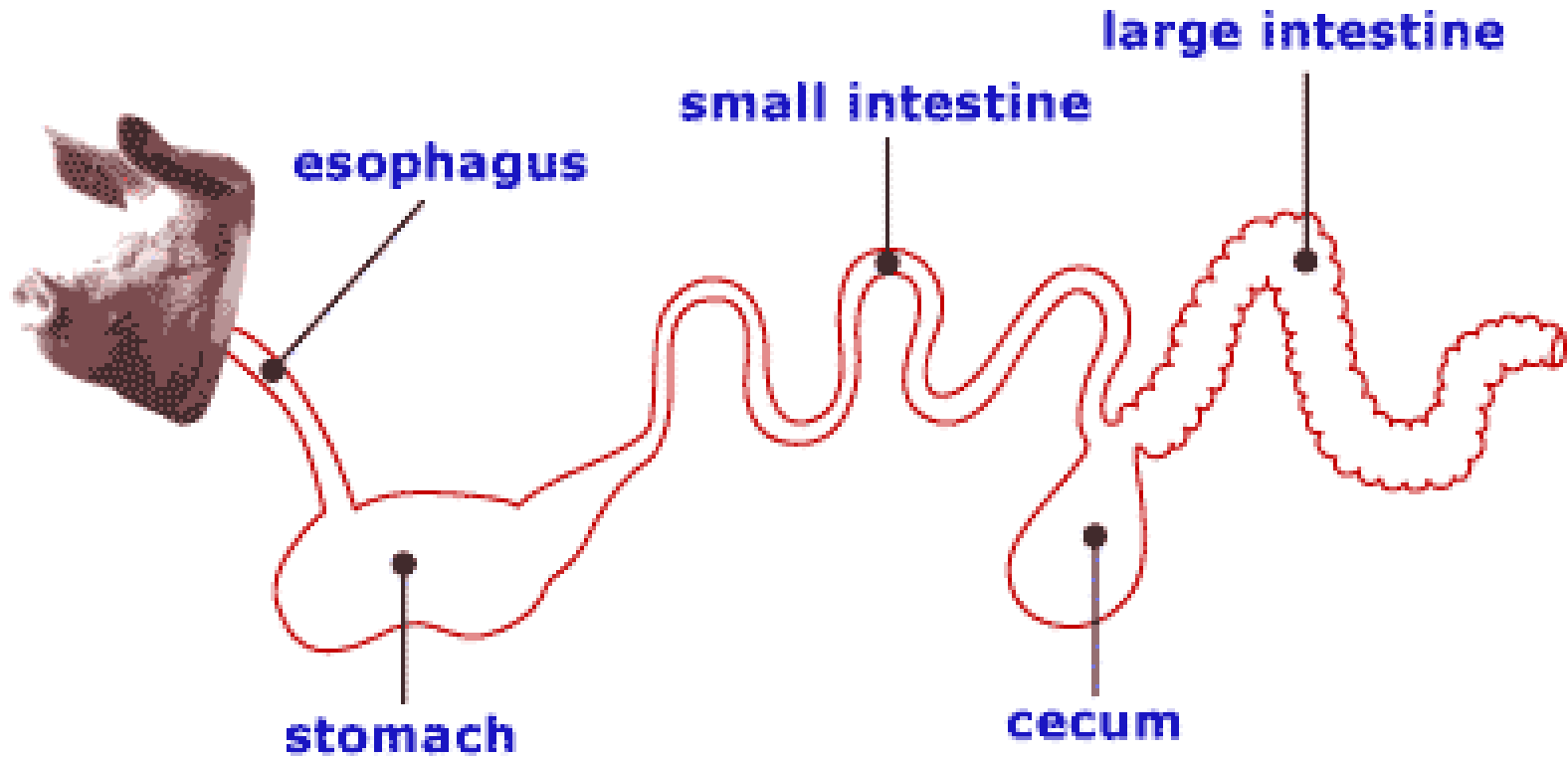


Pigs are *nonruminants*

- ▶ Have a simple one-chambered stomach (like people)
- ▶ Require balanced diet

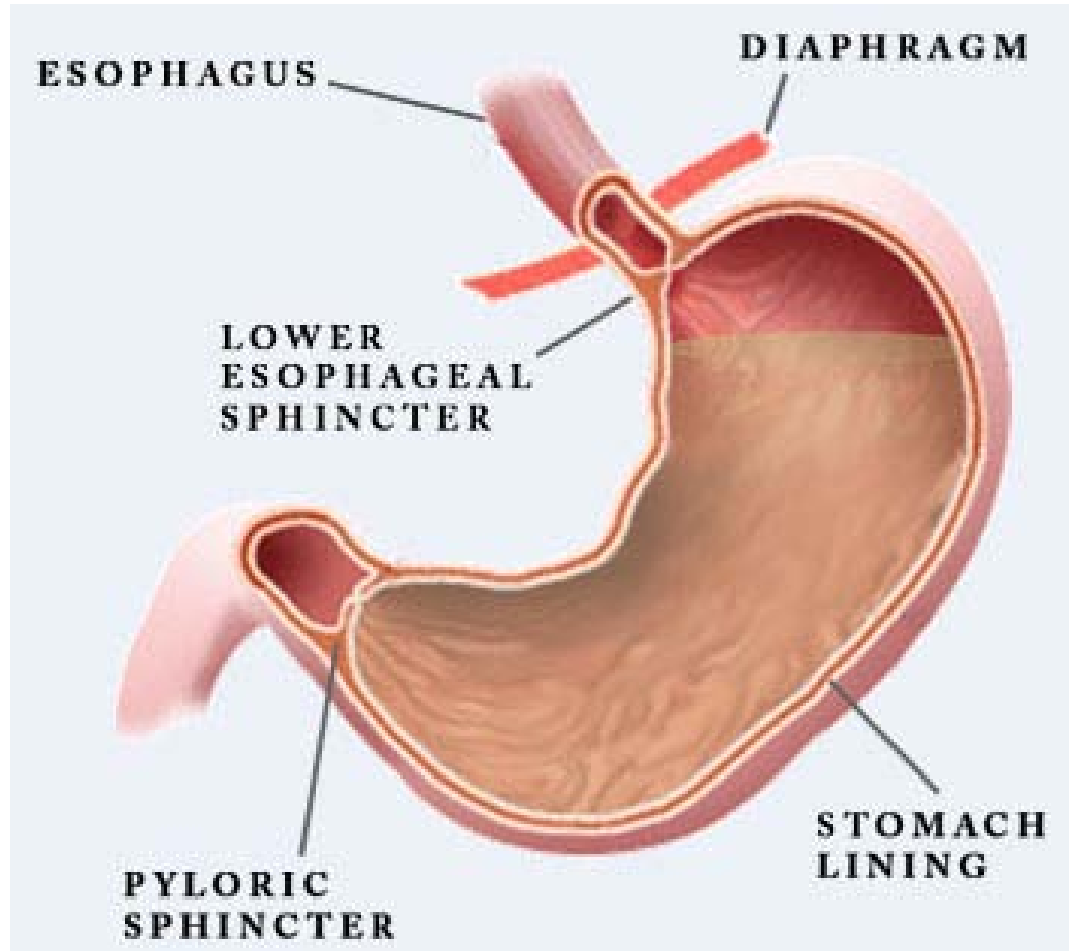


Anatomy of pigs



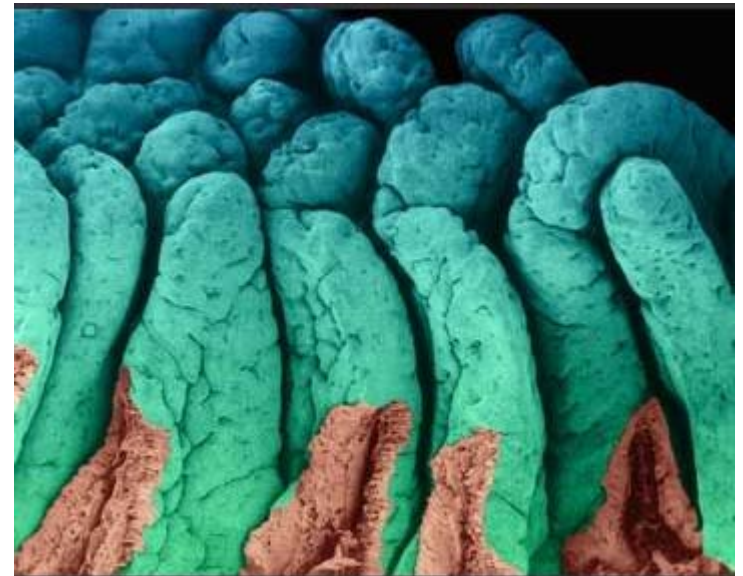
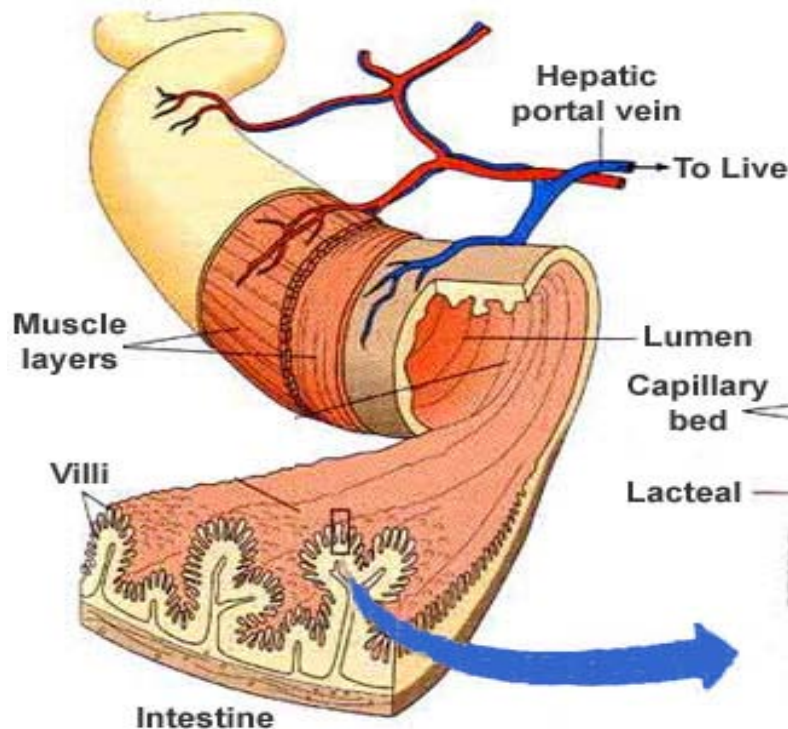
Anatomy of pigs

- ▶ Stomach helps break down food



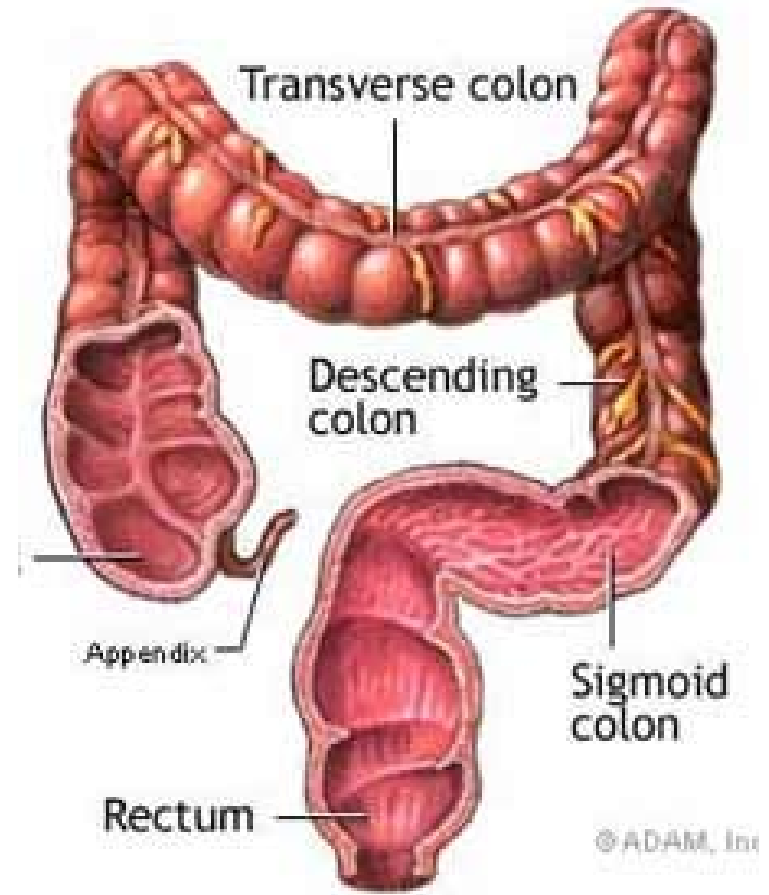
Anatomy of pigs

- ▶ Small intestines absorb the nutrients from the food
- ▶ Small intestines are basically the same across all animals



Anatomy of pigs

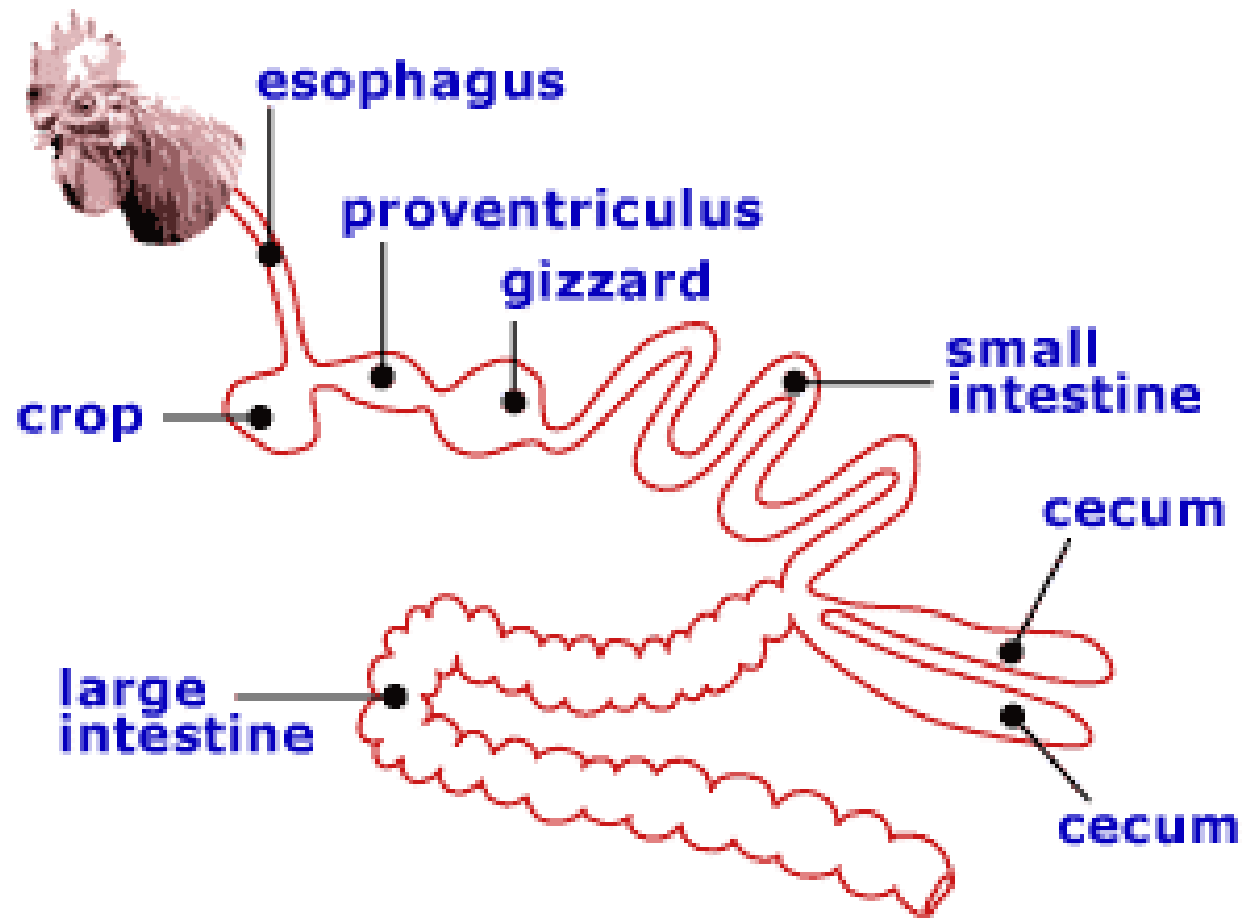
- ▶ Large intestines absorb the rest of the nutrients and form the feces/manure



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)

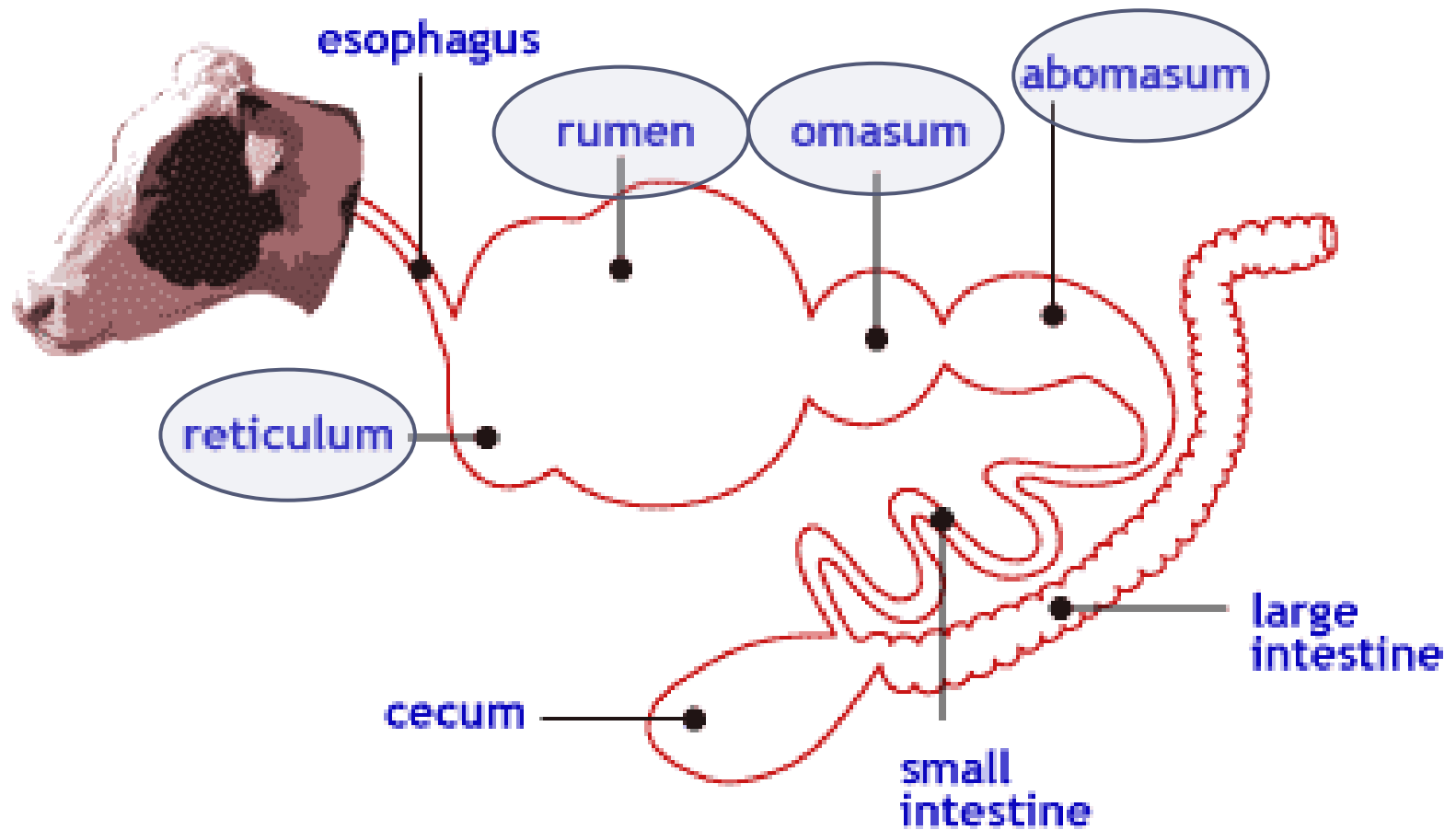


▶ Teeth

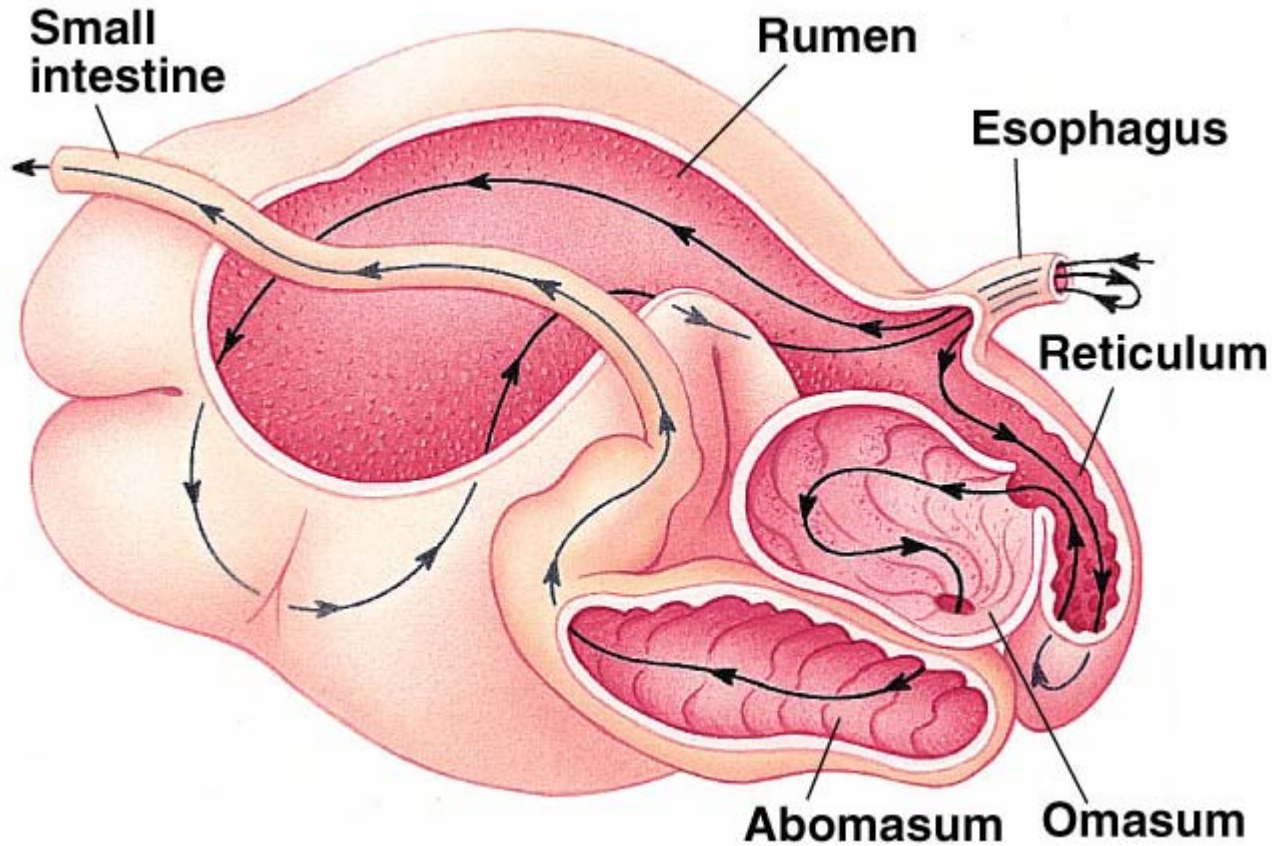
- ▶ No upper teeth in the front
- ▶ Have a pad instead

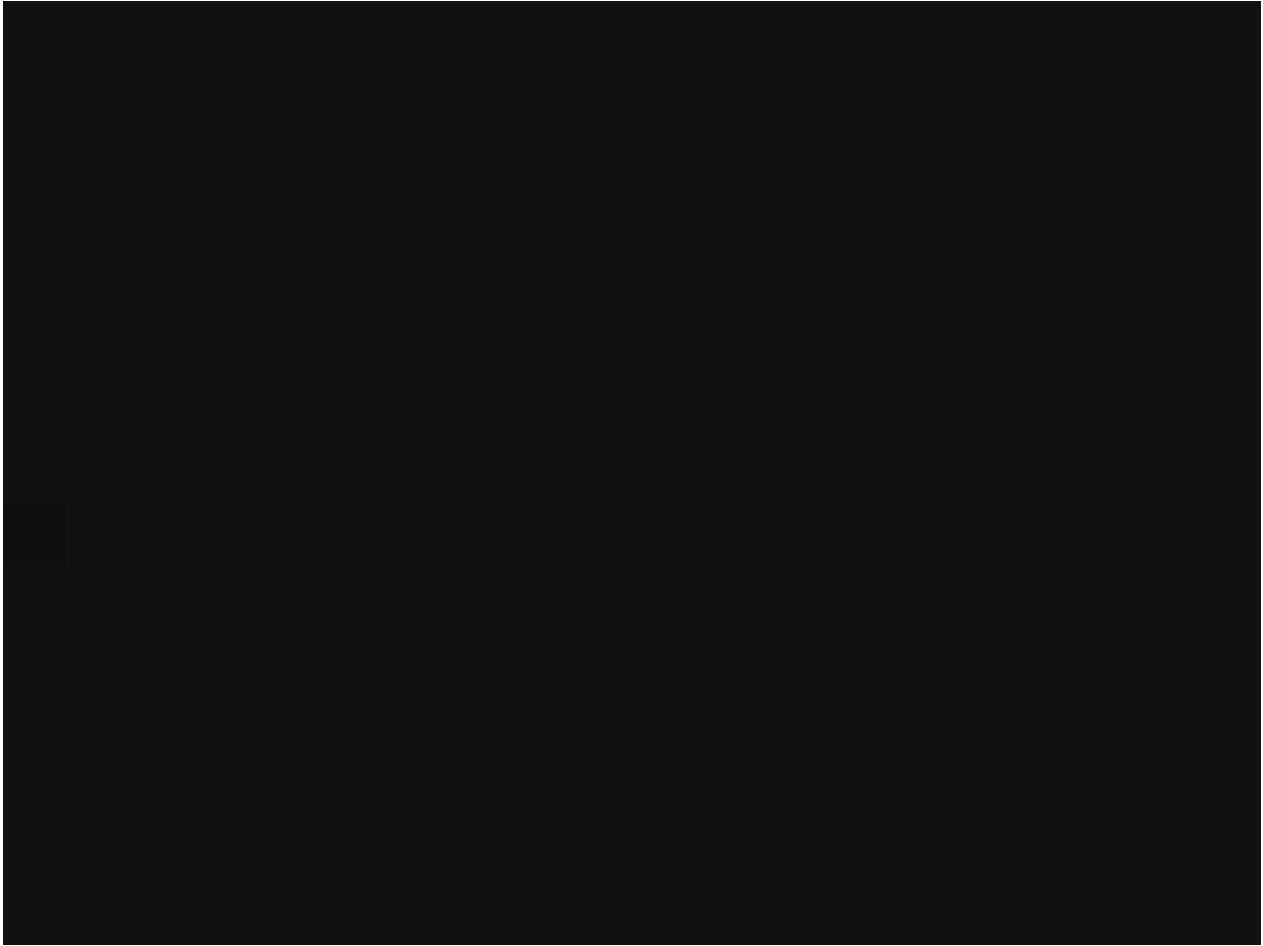


Anatomy of cattle, goats, sheep

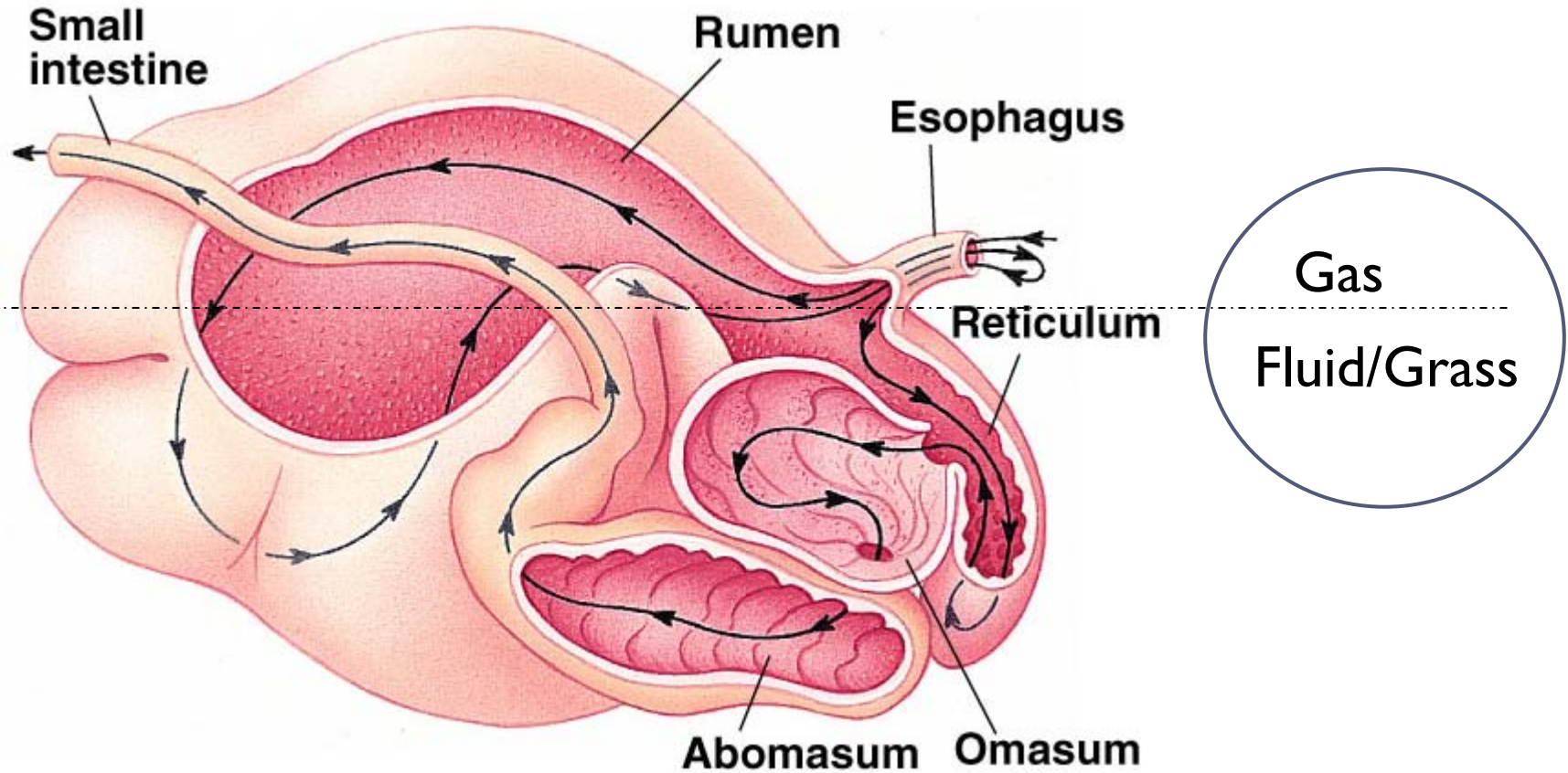


Anatomy of cattle, goats, sheep

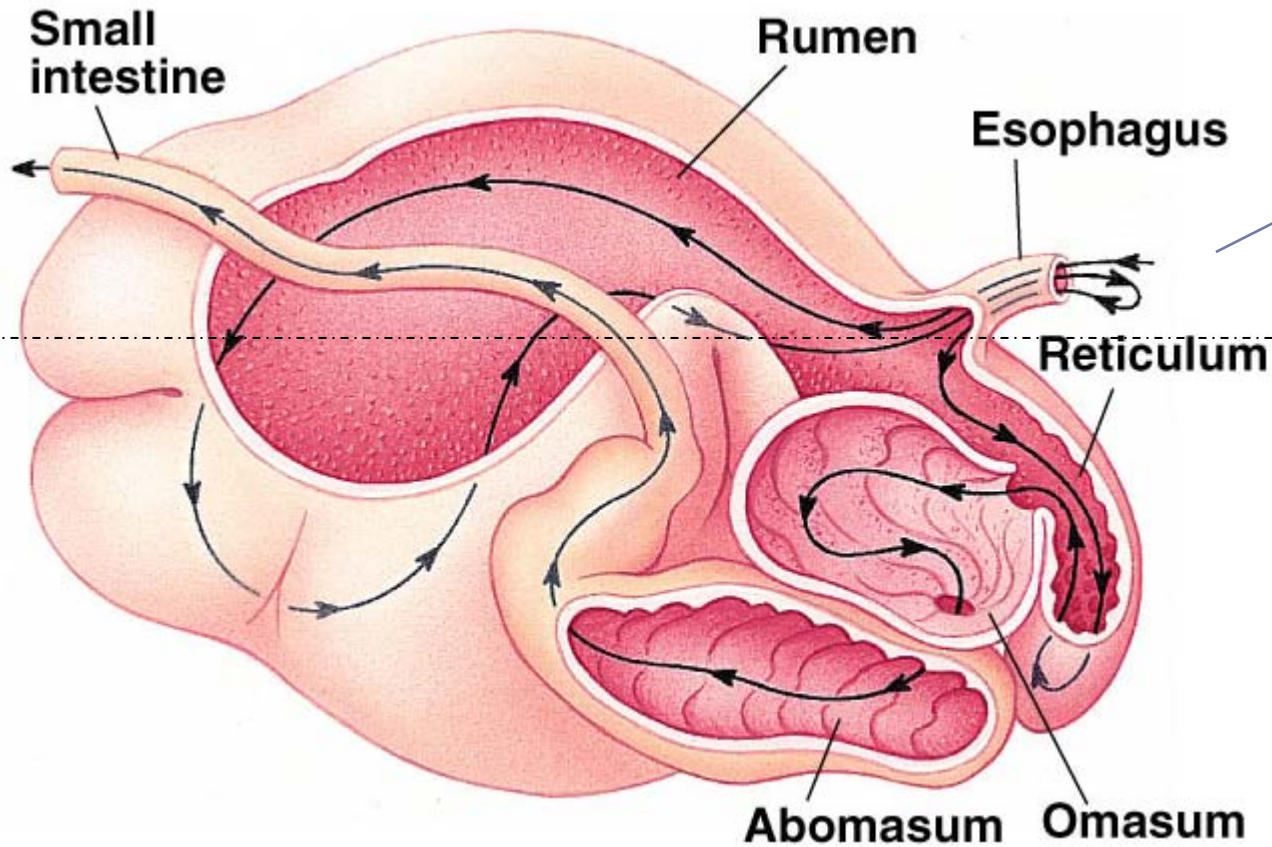




Anatomy of cattle, goats, sheep



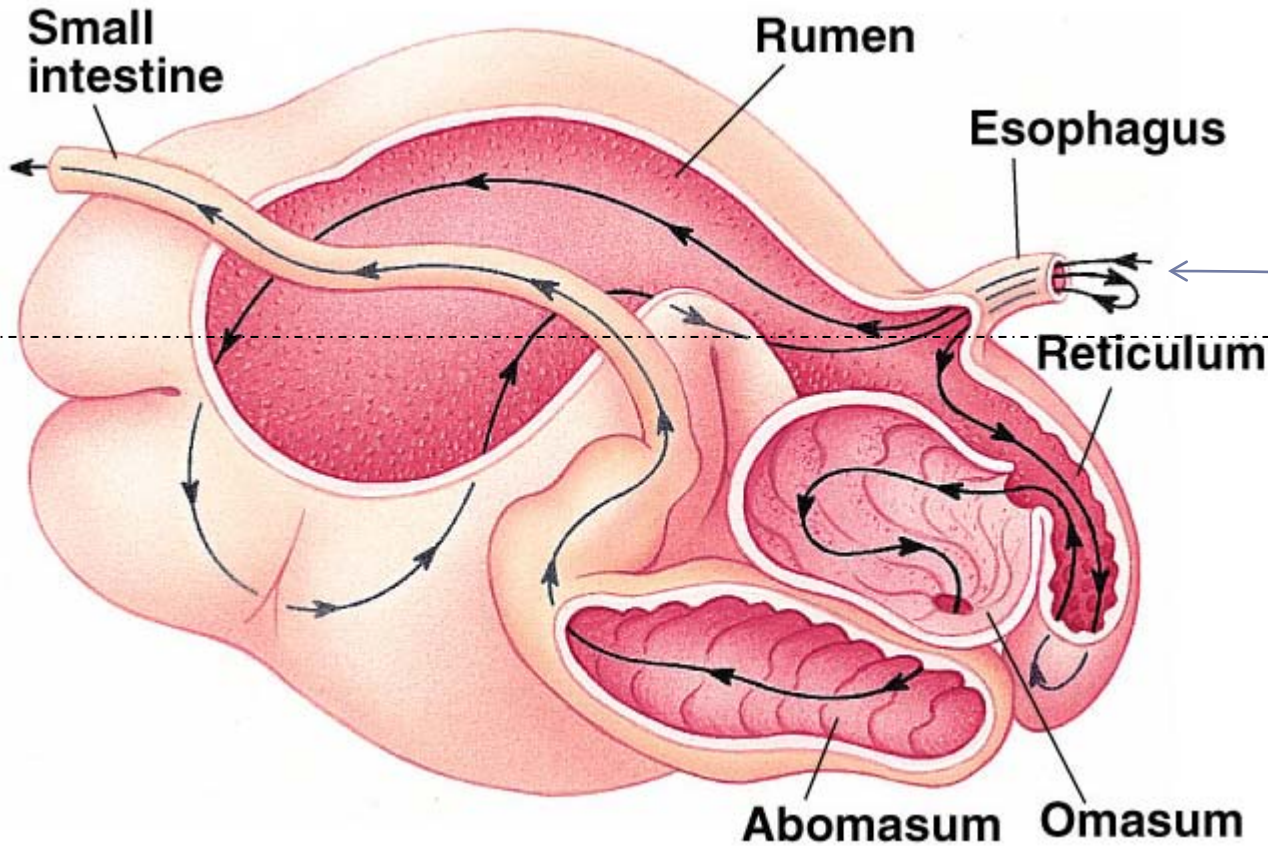
Anatomy of cattle, goats, sheep



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”

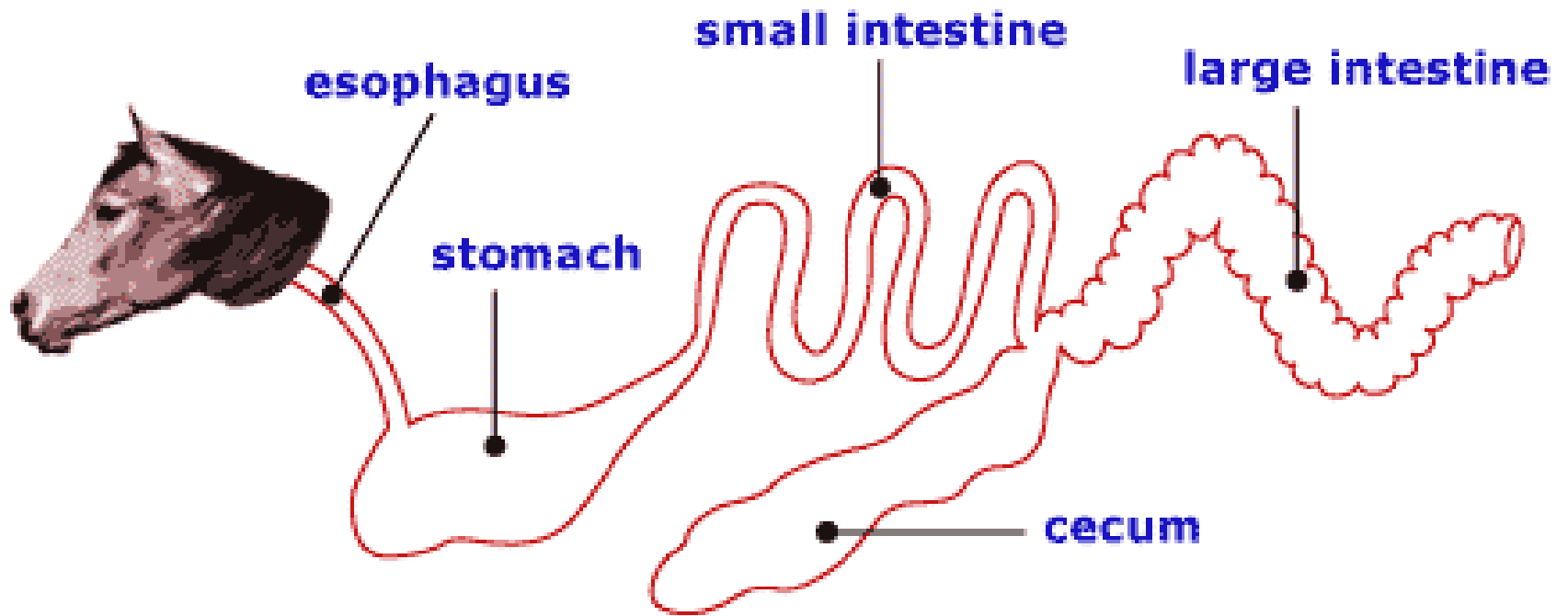
Poor grasses = poor ingredients for the “bugs”



Anatomy of horses



Anatomy of horses



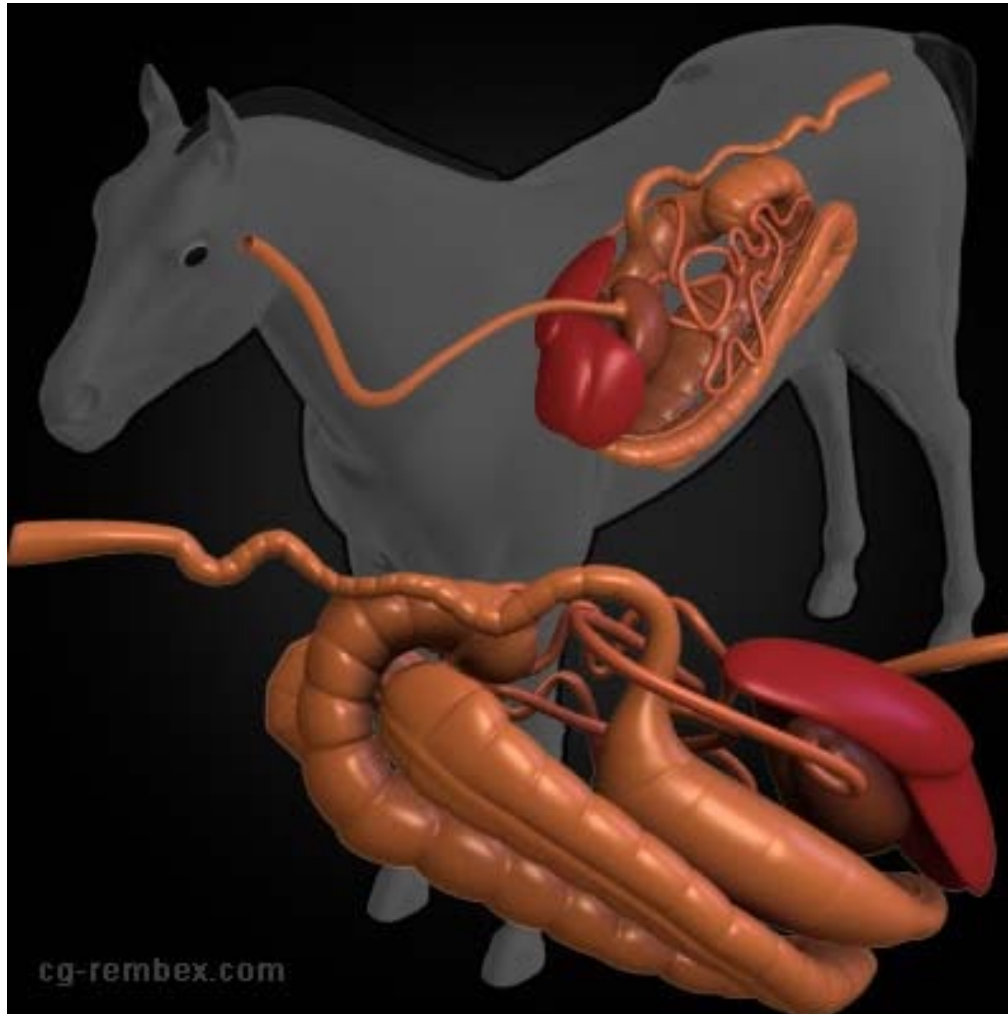
Anatomy of horses

- ▶ Lips
 - ▶ Used for grasping in horses

- ▶ Teeth
 - ▶ Grow throughout life
 - ▶ Different than in other food animals
 - ▶ Require care



Anatomy of horses



Nutrition Nuggets



ADM

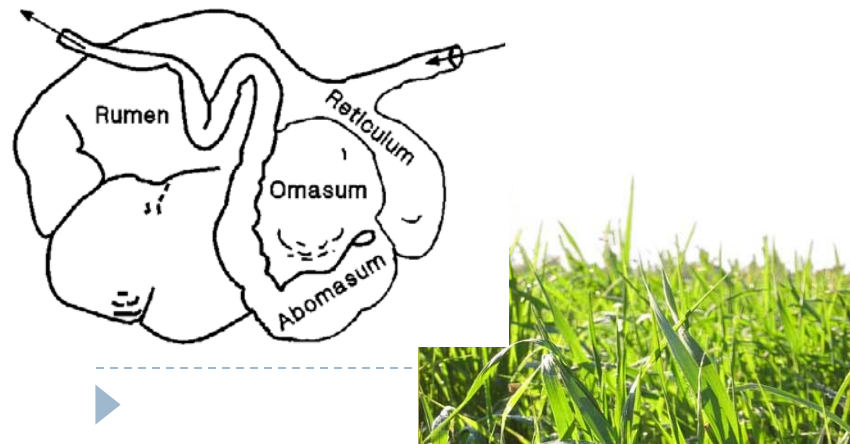
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Anatomy differences – gut types

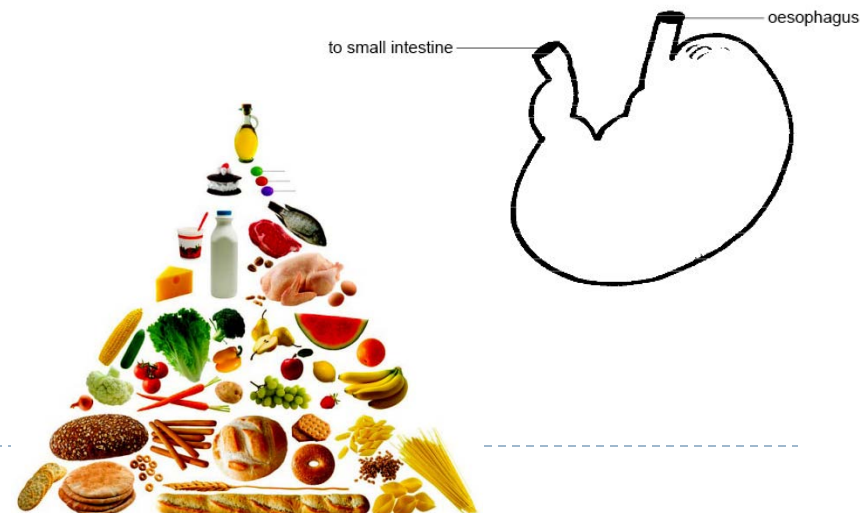
Cattle, sheep and goats are *ruminants*

- ▶ 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

- | | | |
|-----------|-------------|------------|
| ▶ Dogs | Nonruminant | Carnivores |
| ▶ Cats | Nonruminant | Carnivores |
| ▶ | | |
| ▶ Cattle | Ruminant | Herbivores |
| ▶ Sheep | Ruminant | Herbivores |
| ▶ Goats | Ruminant | Herbivores |
| ▶ Horses | Nonruminant | Herbivores |
| ▶ Poultry | Nonruminant | Omnivores |
| ▶ Swine | Nonruminant | Omnivores |



Thank you for having us!

