



# Research in ruminant from pasture

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## Ruminant research technique

2 processes to access the outputs from the ruminant experiments:

### 1. Indoor research

### 2. Outdoor research

#### Indoor research:

- feed (roughage) evaluation
- gas test (Fig. 1)
- performance under short term
- performance under long term
- physiological change under heat stress study
- blood metabolites

#### Parameters needed

- animals
- feed supply (kinds of roughage, soil, fertiliser, defoliation techniques)
- climatic indicators

#### Outdoor research:

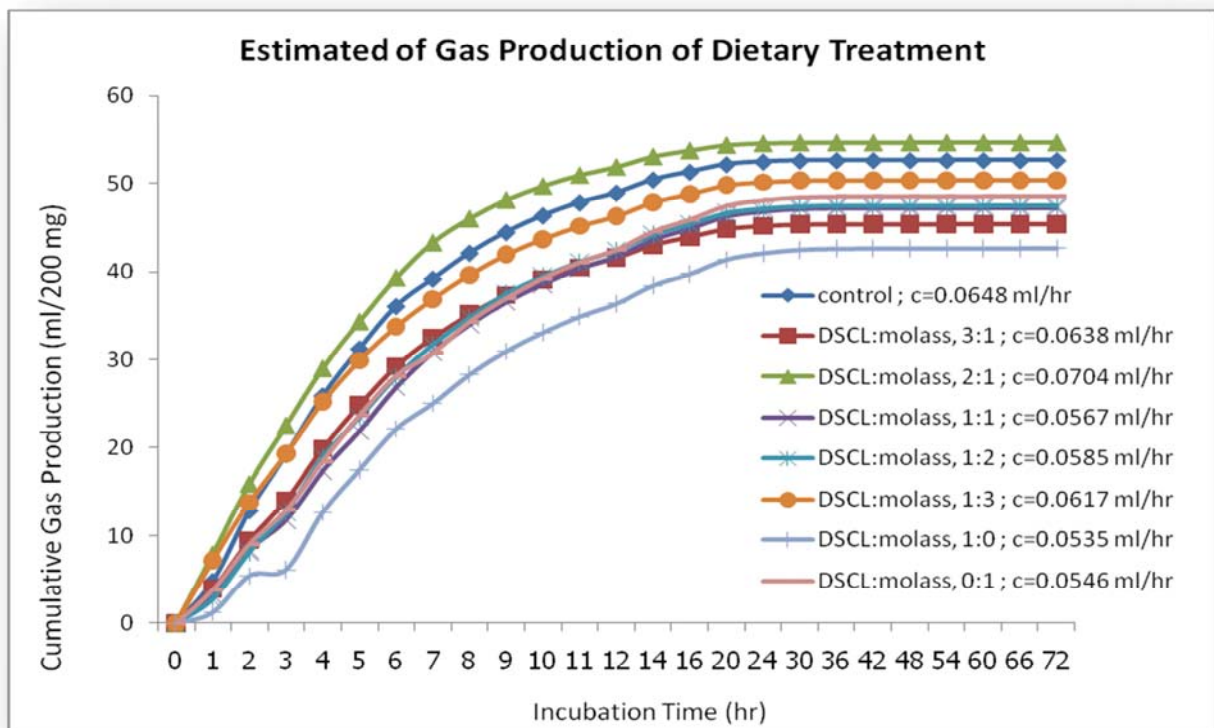
- grazing trial
  - : pasture preparation
  - : pasture management

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Figure 1: Estimated of gas production of dietary treatment.



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### Management and facilities for ruminant experiments

- Handling and management of animals
- Identical twins
- Animal health
- Identification (animal number)
- Yards, races and crushes
- Housing facilities
- Lab testing

### Organ and biopsy samples

- liver
- adipose tissues
- bone
- bone marrow
- skin and muscle

### Milk samples

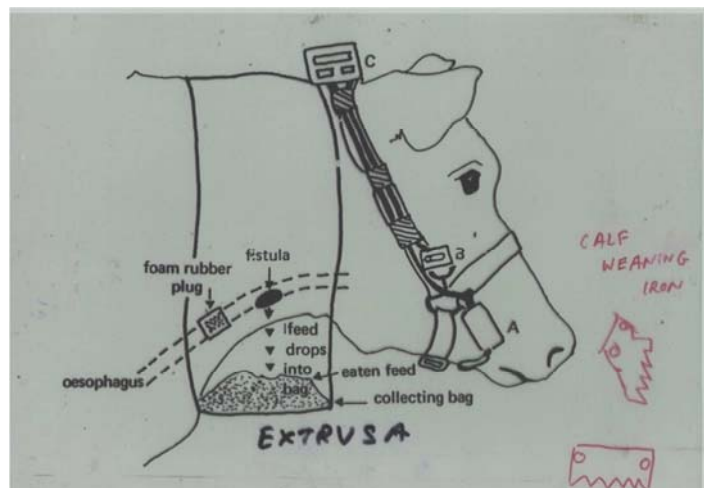
- For bacteriological examination
- For rapid mastitis test
- For chemical analysis

### Urine sampling



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Oesophageal fistula samples





OP Vzdelávání  
pro konkurenceschopnost

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### Rumen sampling from RF cattle and stomach tube



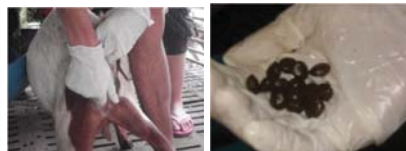
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### Rumen fluid sampling

- Volatile Fatty Acid
- Ammonia Nitrogen
- Rumen Micro-organisms



### Faecal sampling for worm egg counting and digestibility trial



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### Feed samples

- Grass sampling
- Concentrate sampling
- For nutritive analysis
- Digestibility

### Laboratory trial







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### Pasture intake and its measurement



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### Pasture intake under indoor feeding





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Indoor pasture intake relies on the quality and quantity of grass provided



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### Pasture yield measurement

Use quadrat (50x50 or 40x40 cm or 1 m.x1m.) and calculate cut grass under 4-5 quadrats depending on the paddock size. Make a mean yield from all quadrat yields and converse into your area scale.





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### Pasture intake under grazing trial



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Pasture intake using cage (1 x 1 x 1.5 m. or 2 x 1 x 1.5 m.) 2-6 cages/paddock to measure grass yield before and after rotational grazing (10-15 days). Using the equation from Chapas (1966)

$$\frac{(a-b) (\log ec - \log eb)}{\log ea - \log eb}$$

logea - logeb

where a = pasture yield before grazing

b = pasture yield after grazing

c = pasture yield in the cage on the last day of grazing

