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EXAMINATION OF RUMEN FLUID — HELPFUL OR ONLY HARD WORK?

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Hoflund, Holtenius, Björk and also later Dirksen had introduced the clinical examination of rumen fluid.

The examination of the ruminal fluid can have a great importance in the diagnosis of microbial and biochemical alterations of the rumen.

The fermentation of the feedstuffs in the rumen is responsible for energy, protein and vitamins for the animals.

Samples should be stored at room temperature and most of the analyze methods can be done immediately near the animals.

The following parameters of rumen fluid are examined:

Parameter	
Colour:	normally varies depending on the nature of feedstuffs
Consistency:	normally slightly viscous
Odour:	aromatic
Hydrogen ion concentration	
pH:	5.5–7.0
Sedimentation and flotation	
Sedimentation:	fine food particles and protozoa; normally 4–8 minutes
Flotation:	gas bubbles and fibrous particles
Protozoa	range 20–230 µm:
Small infusoria	
Medium infusoria	
Large infusoria	
density:	abundant = +++; moderate = -++; few= --+; none = ---
ration of live:	motility +++ — ---

Other tests in the laboratory:

Bacteria counting; Cellulose digestion; Glucose fermentation; Redox potential - Methylene blue reduction test; Chloride content; Nitrate reduction test

The main changes that occur in bovine rumen fluid:

Colour	
milky green	clinical rumen acidosis; grain overfeeding
dark brown/green	simple inactivity
Consistency	
watery	inactive bacteria and protozoa/simple inactivity of the flora and fauna
excess frothy	frothy bloat from primary tympany or vagus indigestion
Odor	
ammoniacal or faecal	urea poisoning; protein putrefaction
intensely sour odor	clinical rumen acidosis; grain overfeeding
pH	
alkalosis	simple indigestion/rumen decomposition; ammonia formation; urea poisoning
acidosis	subacute rumen acidosis (SARA); lactic rumen acidosis (pH<5,0)
Sedimentation	
Abnormal time: inactivity of the flora and fauna;	
	very rapid sedimentation rumen acidosis;
Protozoa	Motility reduced: inactivity
	First the large infusoria diet, second the medium infusoria and at least the small
infusoria; pocket microscope: how much starch is in the vacuole?	
Chloride content:	>25 µmol/l reflux, abomasal displacement, anatomical pyloric stenosis, abomasal
ulcer, sand in stomach and intestines.	

Veterinarians can use the methods on farms to establish accurate diagnosis of diseases of the rumen.