

Where Does Oilseed Meal Fit in Livestock Feeding Systems?

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Focus for discussion:

- Beef cows
- Stocker cattle (young and growing)
- Oilseed meal supplements for low-quality forage diets





Oilseed meals

- **Clockwise from top**
 - **Canola meal**
 - **Camelina meal**
 - **Canola meal**
 - **Soybean meal**



What is a low-quality forage?

- **Generally**
 - **Less than 7% crude protein**
 - **Protein is the first limiting nutrient with low-quality forages**
 - **Forages below this threshold will usually require supplementation**
 - **Will PNW oilseed meals work?**

Chemical composition of some oilseed meals in the PNW

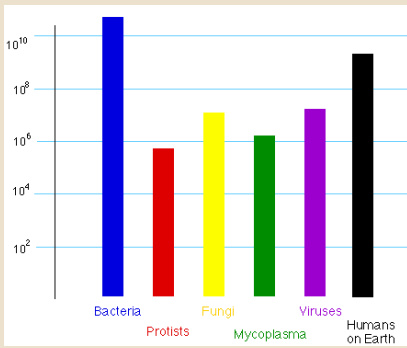
Component (% of DM)	Commercial Canola meal	On-farm Canola meal	On-farm Camelina meal	Commercial soybean meal
Crude protein	39.9	27.8	37.1	51.6
NDF	25.4	33.8	22.3	8.9
ADF	19.7	29.3	14.7	5.7
Ash	8.7	6.8	6.6	8.0
TDN	72.5	75.4	77.7	80.1
Crude fat	3.4	18.3	12.8	1.0

What stands out when comparing the composition of the meals?

Question

- What nutrients are available in oilseed meals that make them attractive for cattle supplementation?
- In the context of low-quality forages, which one is most important?
 - Protein





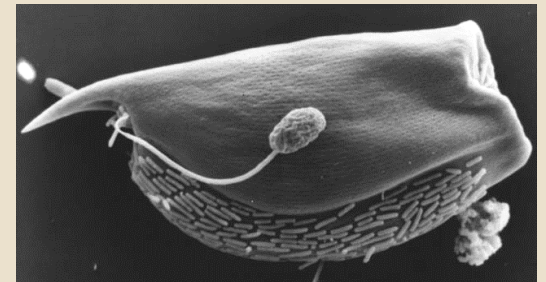
Supplementation

- When we feed beef cows, are we feeding the “cow” or the “bugs”?



Answer:

THE BUGS!



(the rumen microbes have nutrient requirements just like the cow)

Correcting for nutritional imbalances with oilseed meals

- **Supplementation:**
 - Provision of feed in addition to available forage or harvested feed to address nutritional deficiencies
 - Microbial deficiencies
 - Host deficiencies
 - Ruminally degradable protein vs. ruminally undegradable protein (RDP vs. RUP) in oilseed meals

How do oilseed protein supplements work?

- **Protein supplements stimulate the rumen microbes**
 - Increase in forage intake
 - Increase in forage digestion
- **In total, deliver more energy to the animal**
 - Very efficient

What about the fat content?

- **When is fat a good thing?**
 - Deliver more energy
 - Reproductive benefits
- **When is additional fat not so good?**
 - Long chain fatty acids are inhibitory to fiber digestion
 - physical barriers
 - chemical barriers
- **Some products protect fat to get it into the small intestine for digestion**

Efficiency of oilseed meal supplementation

Effect of protein and energy supplementation on weight gains of steers grazing native range (July 16 to October 20; SBM-based supplement)^a

Item	Control	0.8 lb/day of 39% CP	1.4 lb/day of 43% CP	3.1 lb/day 10% CP, corn-based
Weight gain lb/day ^b (96 days)	1.44	1.88	1.97	1.78
Lb of supplement/lb of added gain	0.0	1.8	2.8	8.8

^aSupplements fed 3 days/week;

^bControl vs. all supplementation treatments ($P<0.05$)

(Adapted from Lusby et al., 1982)

Our ongoing oilseed research

- Evaluation of Canola and Camelina meals as protein supplements for beef heifers
- Chemical composition and *in situ* degradability of on-farm processed Canola and Camelina meals

Other uses for oilseed meals

- **High performance diets**
 - **Beef feedlot**
 - **Dairy**
 - **Swine**
 - **Poultry**



Thank You!

Any Questions?