A Win-Win Scenario with Flaxseed (Linseed) Supplementation to Reduce Methane Output & Increase Weight Gains of Grazing Cattle

Scott Kronberg & Eric Scholljegerdes

USDA-Agricultural Research Service
Northern Great Plains Research Laboratory
Mandan, North Dakota

USA

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Win-Win Arrangements are Much More Effective For Encouraging Change!

- It is easy for us to forget that livestock producers raise livestock to make money, provide food for their families or for other personal reasons, and reducing greenhouse gas output of their livestock is a low priority for most of them.

Intake of Medium & Long-chain Fatty Acids Can Reduce Ruminant Methane Emissions Substantially

- Blaxter and Czerkawski 1966
- Van Nevel and Demeyer 1996
- Beauchemin and McGinn 2006
- Machmüller 2006
- Waghorn and Woodward 2006

Flaxseed (Linseed)

- 35% oil by weight
- About 57% of oil in flaxseed is the omega-3 fatty acid called alpha-linolenic acid

Intake of the Long-chain Omega-3 Fatty Acid Alpha-Linolenic Acid Can Increase Levels of Healthful Omega-3s in Ruminant Muscle

- Scollan et al. 2001
- Maddock et al. 2006 & Kronberg et al. 2006
- Kronberg et al. (new unpublished data)
  - Observed 207mg omega-3 FA per 100g muscle for
  - Steers fattened for slaughter grazing high quality grass plus ~1 kg flaxseed supplement per day

Some Beef Consumers Will Likely Pay More for Beef that has Elevated Levels of Omega-3 Fatty Acids Because these Consumers Prefer Eating Beef Rather than Eating Omega-3 Containing Fish.

However, how does feeding flaxseed to yearling cattle influence their rate of growth?

If feeding flaxseed to cattle doesn't increase their growth rate and/or value, then cattle producers have little incentive to feed it unless they are paid to feed it to reduce methane emissions.

Trial to Answer the Question

- 18 yearling Angus steers (399 kg at start)
- All steers grazed high quality forages together in Aug., Sept. and Oct. of 2007
- Randomly divided into 3 groups (6/group)
  - 1 group was not supplemented
  - 1 group was supplemented daily with ~ 1 kg/d of ground flaxseed (0.20% of body weight)
  - 1 group was supplemented daily with ~ 1 kg/d of a corn & soybean meal mixture balanced for digestible energy and crude protein content with the flaxseed (0.28% of body weight)

Results of Trial

- Average daily gains of yearling steers
  - 0.83 kg per day for non-supplemented
  - 1.04 kg per day for flaxseed supplemented
  - 1.09 kg per day for corn-sbm supplemented
- No difference ($P=0.45$) in growth rate between 2 supplemented groups.
- Growth rate of flaxseed supplemented group was 25% greater ($P<0.01$) than growth rate of non-supplemented group.

Conclusion

- A potential win-win situation may exist between:
  - beef producers,
  - beef consumers, and
  - people interested in reducing methane emissions by cattle.