

Methane Emissions from Wintering Cows Supplemented with DDGS

Research conducted at Agriculture and Agri-Food Canada - Brandon Research Centre (AAFC-BRC) in 2009 (January – March) and 2009 – 2010 (December – February) examined the effects of supplementing forage-based diets for late gestation wintering beef cows with dried distillers grain plus solubles (DDGS) or rolled barley grain (RBAR). This study was completed by Dr. Hushton Block, Dr. Shannon Scott and Research Technician, Clayton Robins (AAFC-BRC) along with Dr. Alan Iwaasa from AAFC - Semiarid Prairie Agriculture Research Center (SPARC) in Swift Current. Over two winters, a dry lot trial was carried out to evaluate the effects of supplementing forage-based diets for late gestation wintering beef cows as well as a metabolism trial was performed to evaluate digestibility and methane emissions. The metabolism trial used nine late gestation beef cows which were housed in individual outdoor pens for 3 - 21 day evaluation periods. For the drylot trial, the study was conducted over 56 days using nine pens of eight late gestation beef cows. It was hypothesized that dried distillers grains plus solubles is comparable to rolled barley grain as an energy supplement when forage quality or supply is limited.

Treatments for this study included an unsupplemented control diet (60% alfalfa brome hay, 40% barley silage for year one and 60% oat straw, 40% barley silage for year two), a dried distillers grains plus solubles supplemented diet (DDGS; 80% control diet and 20% dried distillers grains plus solubles) and a rolled barley grain supplemented diet (RBAR; 80% control diet and 20% rolled barley grain).

For the metabolism trial, diet dry matter intakes were estimated over five days in year one and five days in year two which occurred during the last week of each test period. Over three days during the last week of each period, methane and carbon dioxide emissions were estimated using the SF₆ marker and PVC yoke sampling method. Temperatures during these collection days were -19, -19 and -22° C in year one and in year two were -21, -21 and -13° C.

Over both years, results showed there were no effects on methane or carbon dioxide emissions detected. In year two, the study showed an increase in the dry matter intake (DMI) for the rolled barley and dried distillers grains plus soluble vs. the control diet treatment. Research results show similar methane emissions with greater DMI and improved feed efficiency suggest supplementing late-gestation wintering beef cows diet with RBAR or DDGS can reduce the methane emissions per unit of production.

This project was completed and funded in partnership with AAFC - Brandon Research Centre, AAFC - Semiarid Prairie Agriculture Research Center, the Manitoba Beef Producers and Manitoba Agriculture, Food and Rural Initiatives. For more information on this research project, please contact Dr. Hushton Block at the Brandon Research Centre at (204) 578-3602 or by e-mail at Hushton.block@AGR.GC.CA. Additional information on this project including presentations, summaries and posters can be found on the MAFRI website at <http://www.gov.mb.ca/agriculture/livestock/beef/baa19s00.html>