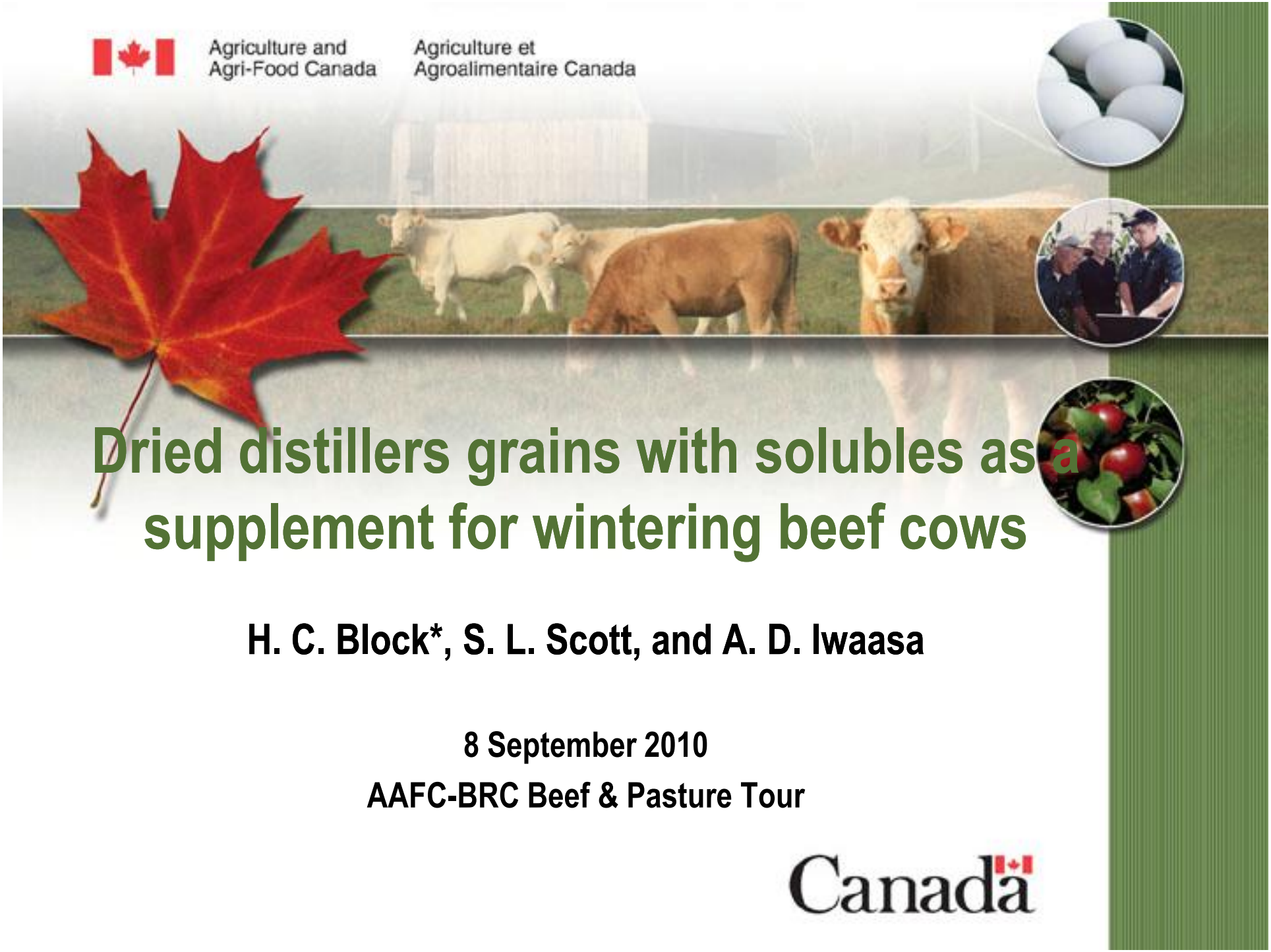


Agriculture and Agri-Food Canada | Agriculture et Agroalimentaire Canada

Dried distillers grains with solubles as a supplement for wintering beef cows

H. C. Block*, S. L. Scott, and A. D. Iwaasa

8 September 2010

AAFC-BRC Beef & Pasture Tour

Canada

Introduction

- **Expansion of bio-fuel industry creates a challenge and an opportunity for livestock producers.**

- **Increased demand for cereal grains for ethanol production increase competition for feed grains.**

- **Increased supply of by-products/co-products from ethanol production provides a novel feed source.**

Example

- Pound-Maker Agventures (SK)
- 12.5 million litre per year ethanol production
  - 33 600 tonnes Wheat
  - 10 000 tonnes DDGS (ca. 30%)
- 28,500 head capacity beef feedlot

- Husky Energy (MB)
- 130 million litre per year ethanol production

Previous Research

- **Existing research has focused on use of corn-based DDGS in beef feedlots.**
  - **Found DDGS to have energy content comparable to cereal grains**
  - **Optimal inclusion rates of ca. 20% of DMI**
  - **Limited research on wheat-based DDGS**
  - **Limited research on non-feedlot production systems**

- **Value of Manitoba produced DDGS in forage-based diets for beef cattle?**

Scenario

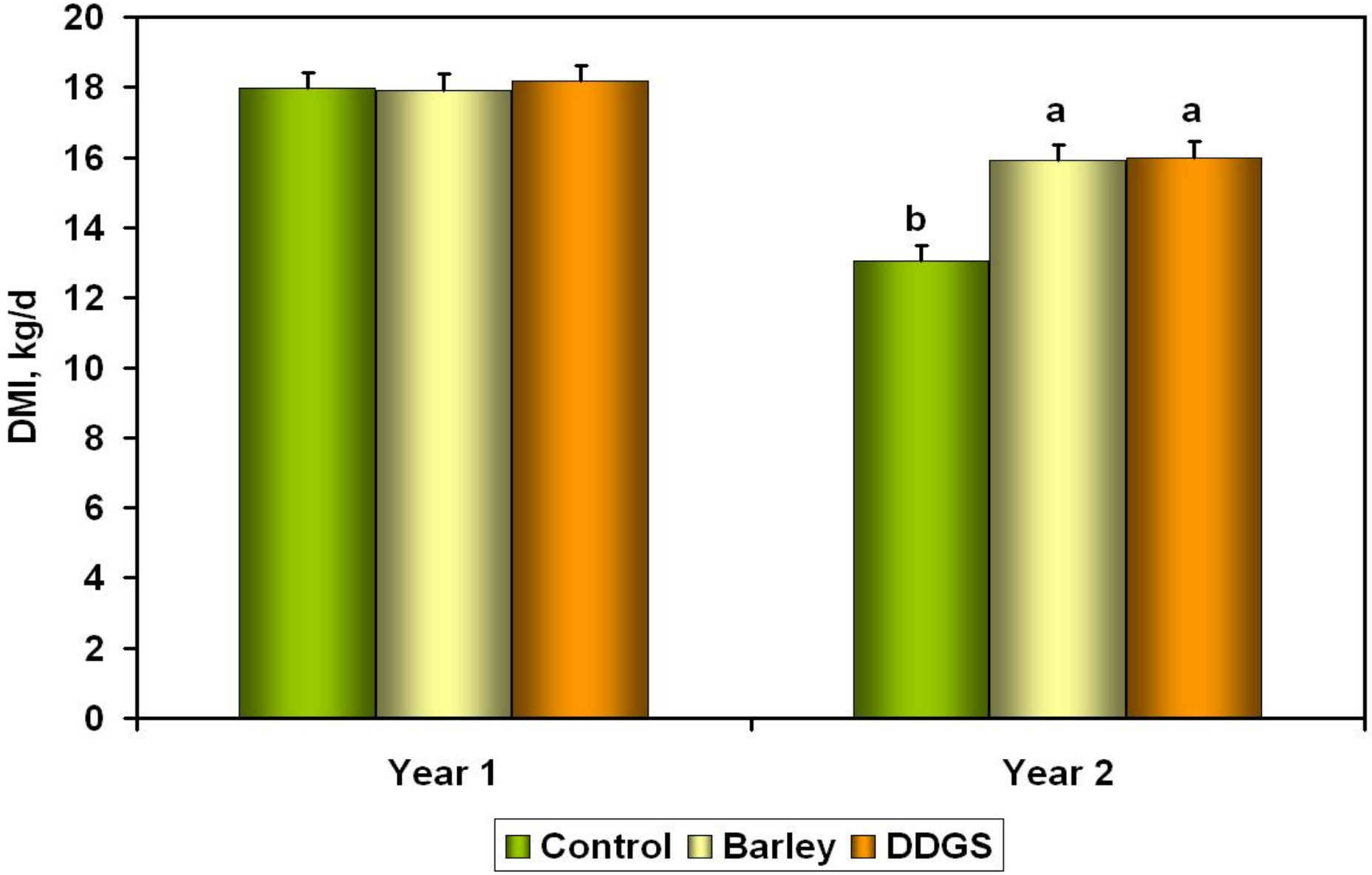
- **Supplementation of forage-based diets for wintering beef cows.**

- **Treatments**
  - **Control – Barley silage (40%) and hay or straw (60%) formulated to just meet requirements of wintering beef cows**
  - **Barley supplemented – Control diet supplemented with rolled barley grain at ca. 20% of DMI**
  - **DDGS - Control diet supplemented with DDGS at ca. 20% of DMI**

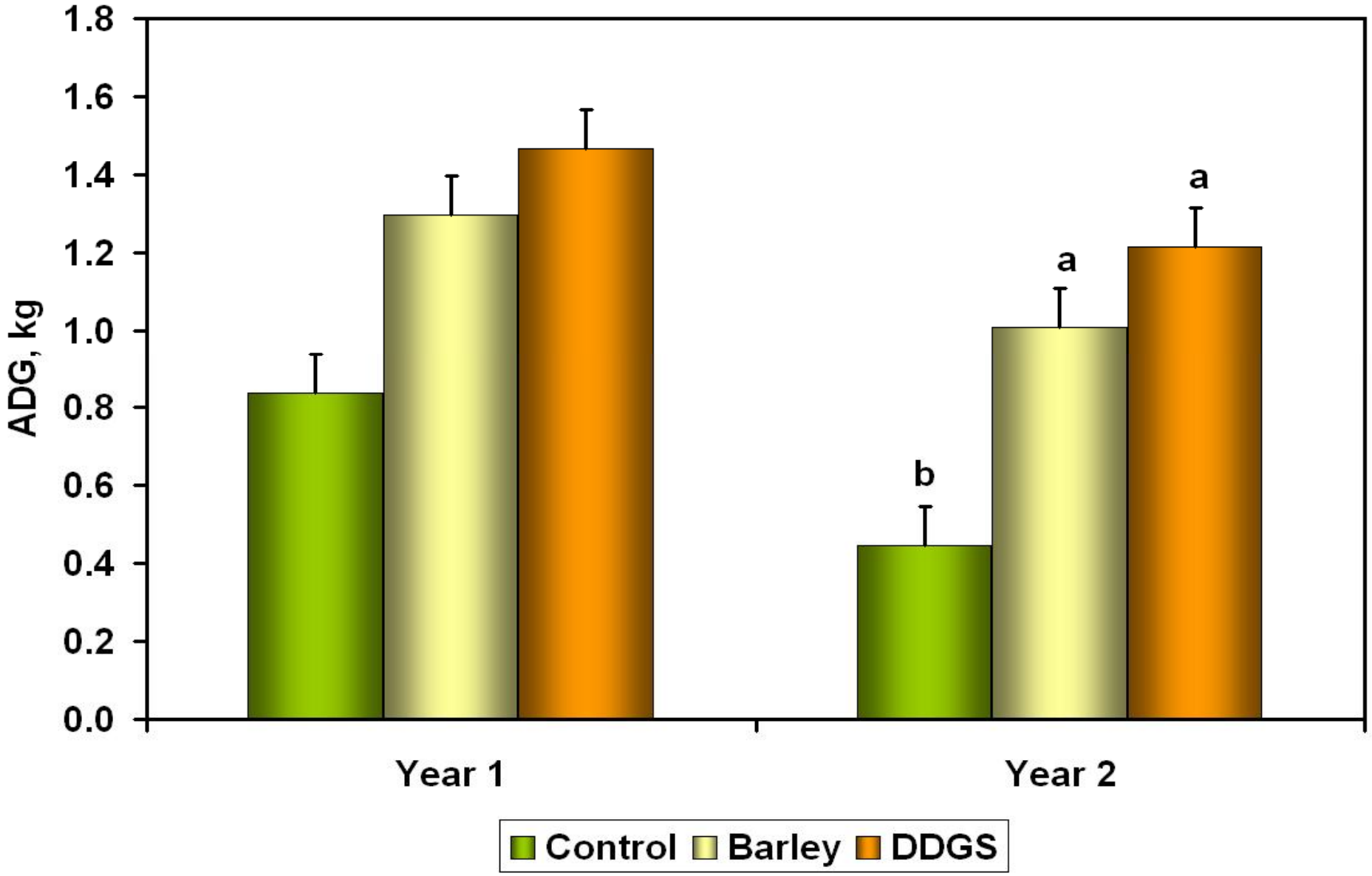
Trials

- **Production Trial**
  - 3 pens of 8 cows each per treatment (72 cows total)
  - 56 d trial
  - Measurement of voluntary intake, weight, and condition
  - Carried out over two winters
  - Manure composted for fertilizer
- **Metabolism Trial**
  - 9 individually fed cows
  - 3 periods of 21 d (63 d trial)
  - Measurement of digestibility and methane emissions
  - Carried out over two winters

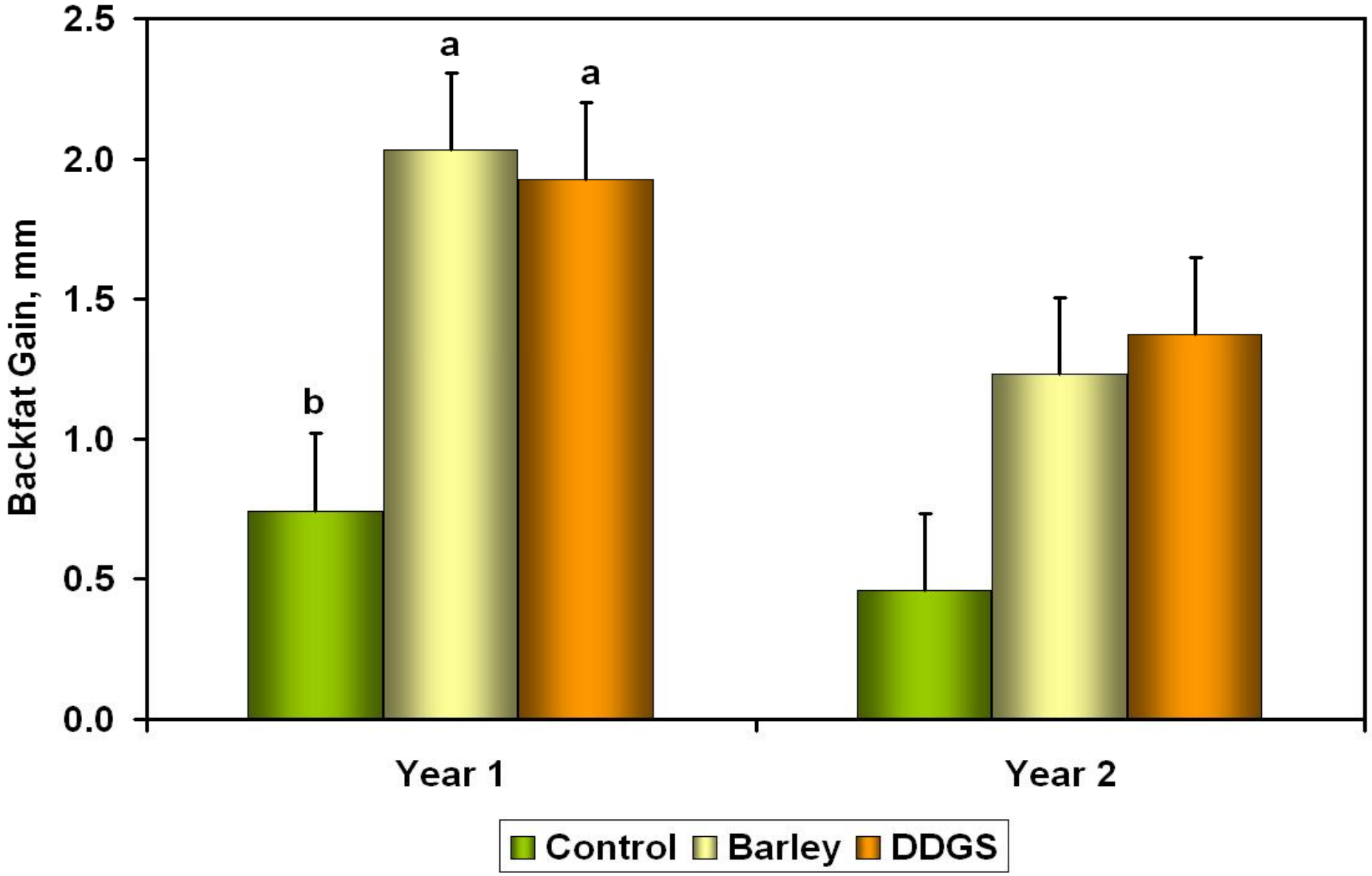
DDGS – Production Trial Results



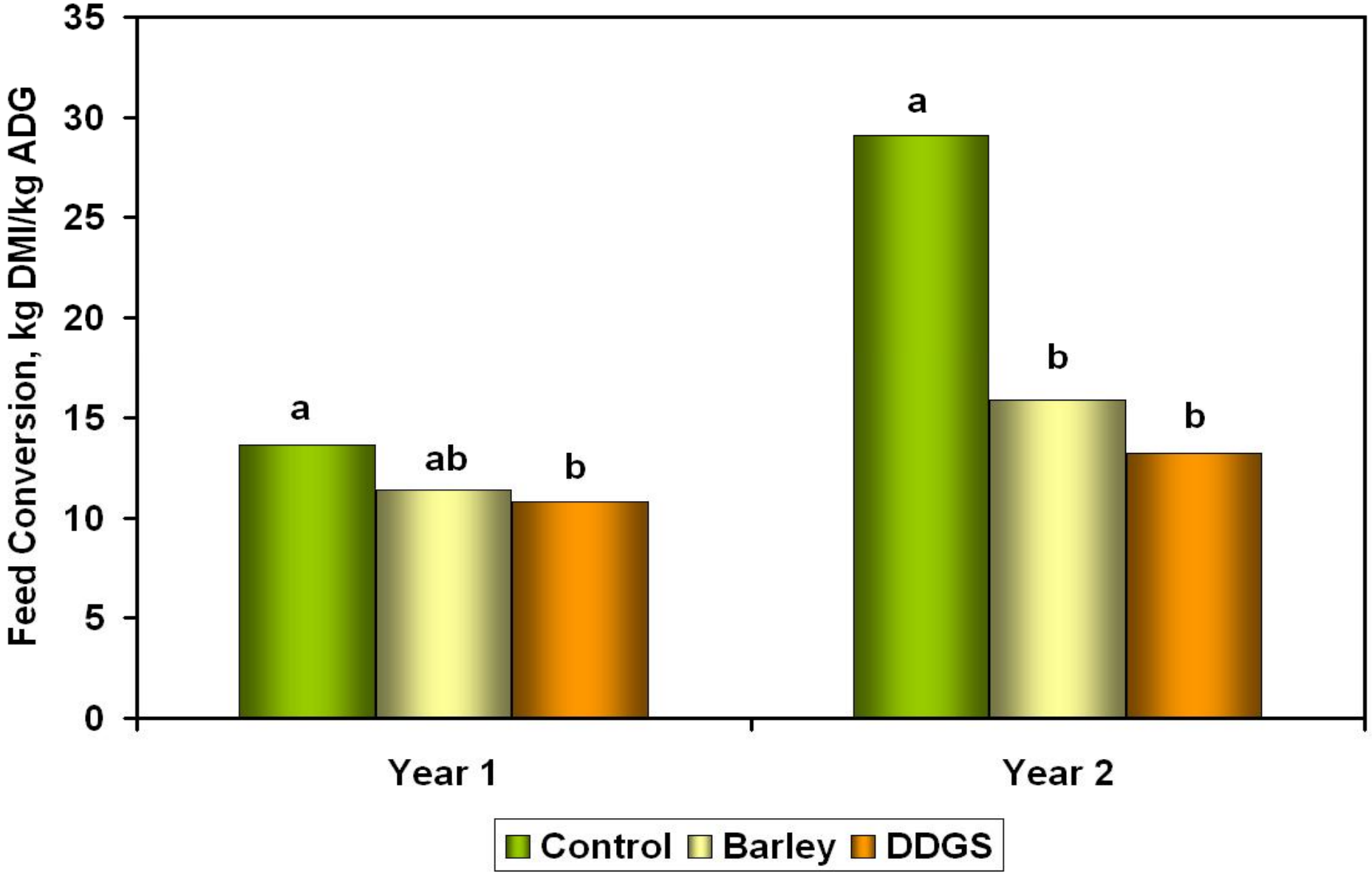
DDGS – Production Trial Results



DDGS – Production Trial Results



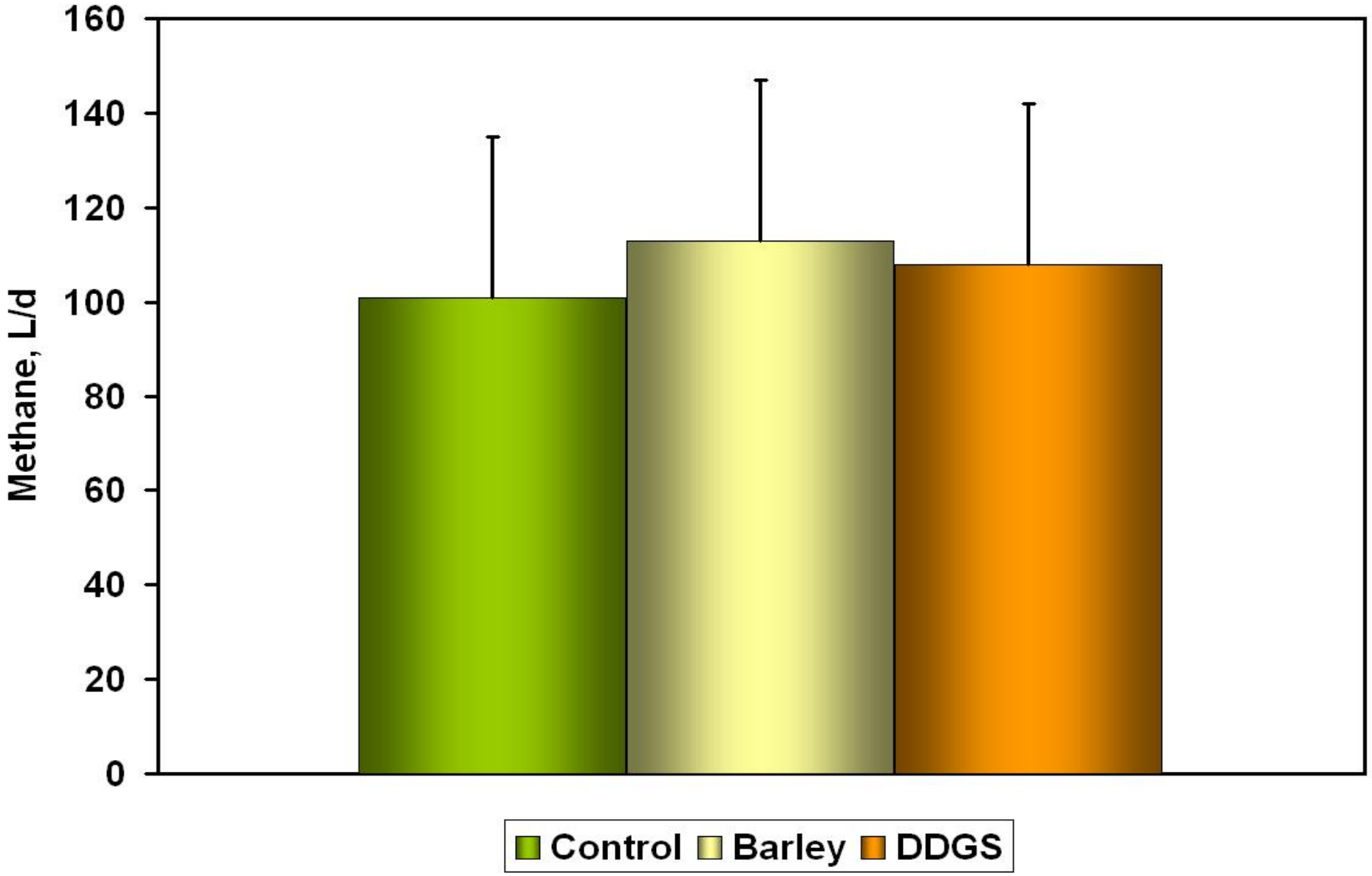
DDGS – Production Trial Results



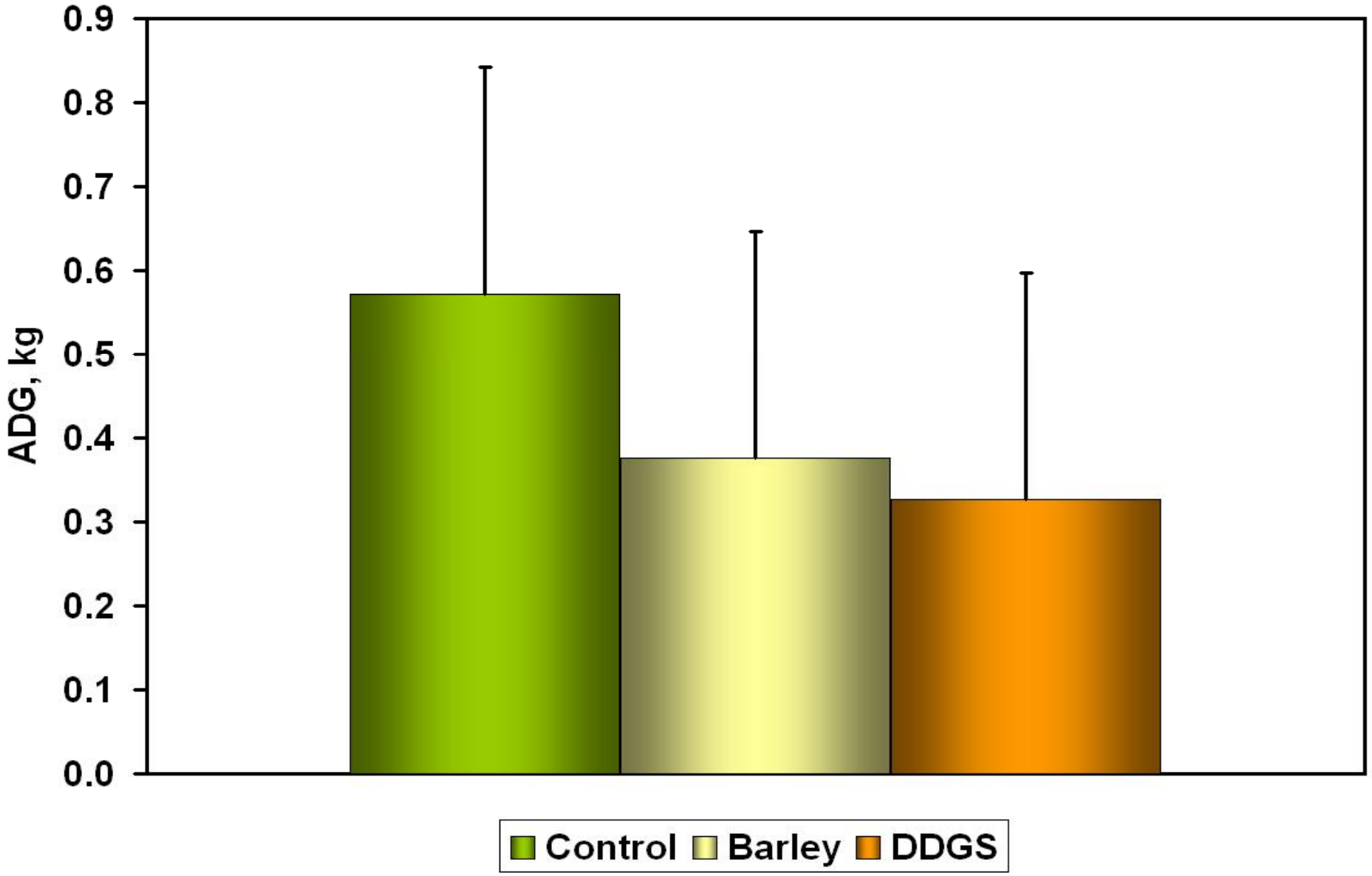
DDGS – Metabolism Trial

- Cold weather methane collections
- Digestibility determination awaiting completion of laboratory analyses

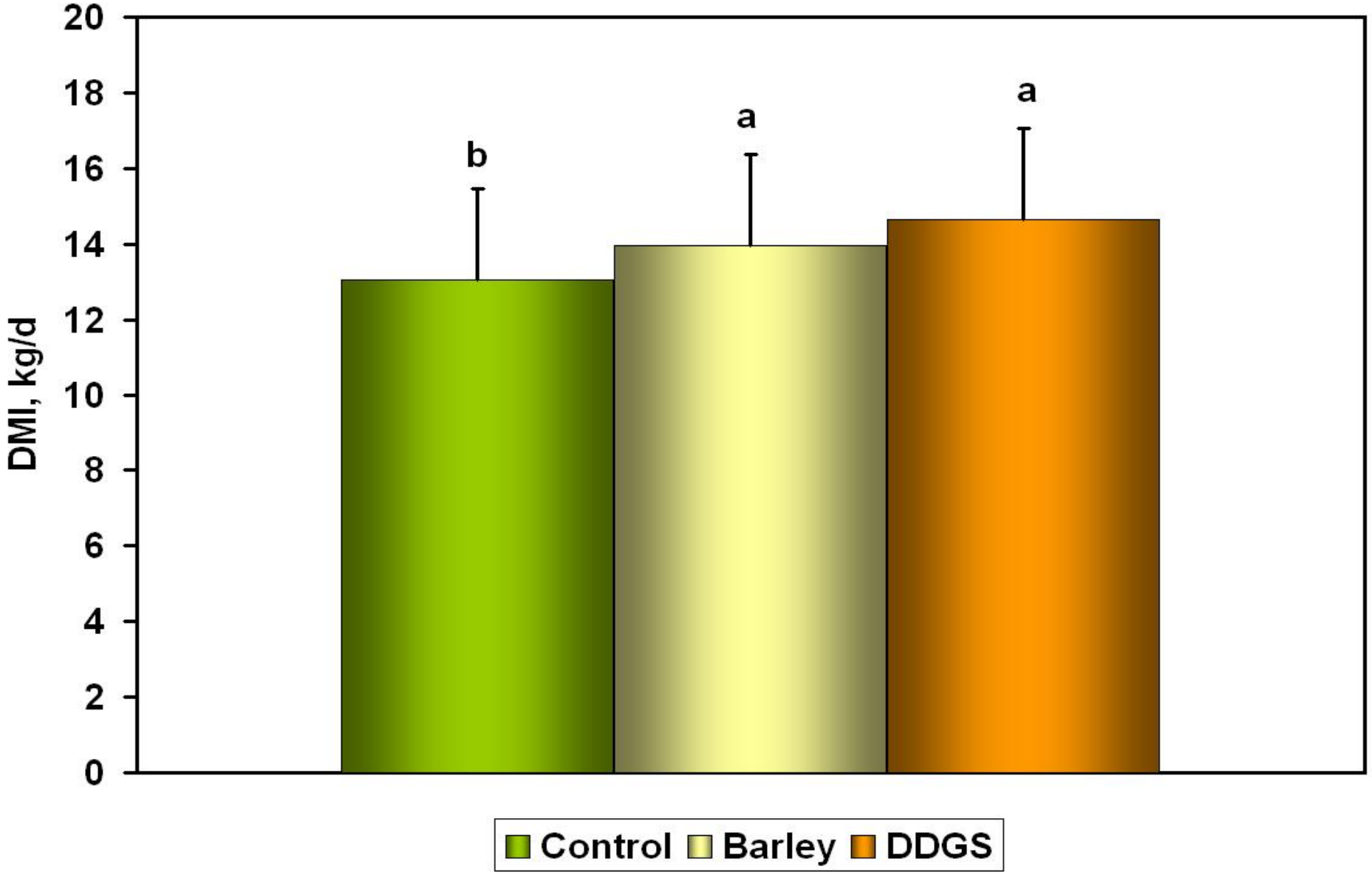
DDGS – Metabolism Trial Results



DDGS – Metabolism Trial Results



DDGS – Metabolism Trial Results



Still to Come

- **Production trial manure composting results.**
- **Metabolism trial digestibility results.**
- **Economic evaluation.**

Conclusions

- Supplementation wintering beef cows fed forage-based diets with DDGS results in performance comparable to supplementation with barley grain.
- Methane emissions are not increased despite greater DMI suggesting a reduced emissions rate.
- Supplementation choice can be based on relative cost of providing rolled barley grain or DDGS.

Canada