UNIVERSITY of GUELPH

ONTARIO AGRICULTURAL COLLEGE

DEPARTMENT OF ANIMAL BIOSCIENCES

MSc. Defence

The Performance and Environmental Benefits from Biochar Supplementation in Beef Cattle Grazing Systems

Emily Conlin

Date: September 13th, 2021 at 11:00am

The MSc Defence for Emily Conlin has been scheduled for Monday September 13th 2021 at 11:00am. The defence will be held online via Teams: https://teams.microsoft.com/l/meetup-join/19%3ameeting_YmI0NjY2MzgtNWRlNi00ZGRjLTk1YzYtY2VkZjQzOTQ0ZWVm%40thread.v2/0?context=%7b%22Tid%22%3a%22be62a12b-2cad-49a1-a5fa-85f4f3156a7d%22%2c%22Oid%22%3a%22fbd28915-dda5-478f-8ecb-a3682dcf0c3a%22%7d

The exam committee will consist of:

Examining Chair: Dr. Vern Osborne

Advisor: Dr. Katie Wood

Adv. Committee Member: Dr. Ira Mandell

Additional Member: Dr. John Cant

Abstract:

The objectives for this study included: (1) determining the optimum dose of biochar to reduce enteric methane (CH_4) emissions from beef cows (EXP1) and (2) determining whether biochar (Oregon Biochar Solution, White City, OR) supplementation can reduce CH_4 emissions from cows on pasture (EXP2). In EXP1, pregnant beef cows (n=8) were used in a replicated 4 × 4 Latin square study with biochar supplemented at 0, 1, 2, or 3% of dry matter intake (DMI). In EXP2, 64 cows were allocated to 8 fields (8 cow-calf pairs/field) and using a crossover design, each field was assigned to either control (no biochar) or biochar supplemented at 3% of estimated DMI. Enteric CH_4 emissions expressed in g/d, g/kg DMI, or g/kg BW were not affected ($P \geq 0.35$) by biochar supplementation in EXP1 or EXP2. Dry matter intake and cow body weight were also not affected ($P \geq 0.26$) by biochar supplementation in either experiment. Overall, results suggest that biochar supplementation was ineffective for reducing CH_4 emissions from beef cows fed a high forage diet or on pasture; however, animal performance was not affected.