T68 Effects of sow stocking rate and season on bermudagrass (*Cynodon dactylon*) ground cover. S. Pietrosemoli*[1], J. C. Guevara[2], and J. T. Green[3], [1]*Animal Science Department, North Carolina State University, Raleigh,* [2]*Alternative Swine Research and Extension Project, Raleigh, NC,* [3]*Crop Science Department, North Carolina State University, Raleigh.*

Sustainable outdoor swine production faces management challenges to minimize potential environmental impacts, including the deterioration of vegetative ground cover, soil disturbance, irregular nutrient dispersion and high nutrient loads that can cause soil and water pollution and risk of N-leaching and ammonia volatilization. Ground cover reduces erosion by increasing infiltration, trapping sediments, stabilizing the soil, and reducing the effects of intense rainfall. High stocking rates can accelerate degradation. At the Center for Environmental Farming Systems (CEFS) in Goldsboro, NC, the effects of 3 stocking rate (SR; 10, 15 and 25 sows/ha) on bermudagrass ground cover were evaluated during 3 seasons (S; Jan-March 09 [W09]; Sept-Oct 09 [F09] and Apr-May 10 [S10]). Paddocks of 2020m^2 were divided into 9 sections, with the central section being defined as a heavy use area where shelter and water were provided and with permanent access by the animals. The other sections were managed in a weekly rotational pattern. Yorkshire sows (avg BW: W09: 294; F09: 212; S10: 186 kg) were restrictedly fed concentrate daily in the morning (3 kg, 15% CP). Ground cover components (percent of live vegetation (LV), dead residue (DR), bare soil (BS), and vegetative ground cover (VGC) changes were recorded weekly following a step point technique on transect lines evenly distributed across all sections. The VGC was the sum of LV and DR. The experimental design was a randomized complete block, with 2 field replicates. The SR affected LV (P = 0.09; 41.71^a, 27.97^b and 28.0^b %, respectively, for 10, 15 and 25 sows/ha) whereas BS did not change (P = 0.31; 23.6, 32.7 and 34.4%, respectively, for 10, 15 and 25 sows/ha). Season had a pronounced effect on VGC components: LV W09: 7.2^a, F09: 38.2^b; S10: 52.3^c%; P = 0.0005) and DR (W09: 67.2^a, F09: 23.3^b; S10: 17.9%^{b}; P = 0.0002). Conversely, S had no effect on BS (W09: 22.5; F09:38.4; S10: 52.3%; P = 0.14). Under the conditions of these experiments, S had a more pronounced effect on vegetative ground cover than SR.

Key words: *Cynodon dactylon*, swine, stocking rate

T69 Cradle-to-farm gate analysis of milk carbon footprint. A critical review. G. Pirlo*, *Consiglio per la ricerca e sperimentazione in agricoltura, Centro di ricerca per le produzioni foraggere e lattiero-casearie (CRA-FLC), Cremona, Italy.*

Objectives, methods and results of life cycle assessment (LCA) studies about milk production have been examined. The studies considered refer to milk production only and do not include milk transportation to dairies, processing and distribution. Otherwise, the parts of the studies down the milk production have been excluded. Emissions of GHG (CO2, CH4 and N2O) only have been considered, ignoring other environmental impacts such as acidification, eutrophication, land use, energy use, water use, eco-toxicological and human-toxicological pollutants, desertification, biodiversity, PM10 etc. Studies have been classified according to the country, the farm data source (real farms, simulated representative farms, national statistics), functional unit, allocation criteria, LCA tools (databases, models, literature), kind of comparison (milk ability, year, conventional versus organic farming, grazing versus confined, system intensification grade, herd size). Comparisons show a large variability among the GHG emissions associated to the functional unit, caused also by the different methods used in the analyses. Study showed the important role played by production system, stocking rate, and milk ability. LCA seems to be a tool for several scopes: international benchmark, economic and social planning, eco-labeling, verification of technical innovations. Further studies on farm characteristics, consumptions and emissions associated with milk production are needed in order to make LCA a practical tool.

Key words: GHG, LCA, CFP