Session 48

Effect of farming practices and alternative land uses on greenhouse gas emissions of beef production Nguyen, T.T.H.^{1,2,3}, Doreau, M.³, Eugène, M.³, Corson, M.S.² and Van Der Werf, H.M.G.², ¹Valorex, La Messayais, 35210 Combourtillé, France, ²INRA/Agrocampus Ouest, UMR1069 Soil Agro and hydroSystem, 35000 Rennes, France, ³INRA/VetAgro Sup, UMR1213 Herbivores, 63122 Saint-Genès-Champanelle, France; Thi-Tuyet-Hanh.Nguyen@rennes.inra.fr

This study assessed the effects of a change in farming practices of a suckler-beef cattle production system on greenhouse gas (GHG) emissions by using (1) a classic life cvcle assessment (LCA) approach or (2) an LCA including alternative land uses, where any land becoming available due to more efficient farming practices was converted to forest (with an average 55-year cycle). The change in farming practices we examined was intensified fattening of female calves not used for replacement from 9 to 19 months with a diet based on maize silage instead of rearing them as heifers used for replacement and fattening them for 4 months until slaughter at 33 months (the reference scenario). With a classic LCA approach, this new practice resulted in a reduction relative to the reference scenario of GHG emissions and land occupation per kg of carcass weight by 3.5 and 9.3%, respectively. Land occupation per kg of carcass decreased for permanent grassland (by 4.7 m^2), temporary grassland (0.6 m²), cereals (0.2 m²), but increased for silage maize (1.1 m²). As a result of this change in farming practices land previously used for cereals (0.2 m²), temporary grassland (0.6 m²) and permanent grassland (0.5 m²) was used to produce silage maize. The net land area released per kg of carcass weight was 4.2 m² of permanent grassland. With an LCA considering forest as an alternative land use, the new practice resulted in a reduction relative to the reference scenario of GHG emissions per kg of carcass of 7.9%. Accounting for alternative land uses in the assessment of changes in farming-practices may affect estimated GHG emissions considerably, and identifying alternative landmanagement options may play an important role in mitigating environmental impacts of farming systems.

Session 48

Theatre 8

Controversial role of mobility faced to climatic changes in the rainfed coastal zone of Egypt

Alary, V.^{1,2}, Aboul-Naga, A.³, Abdelzaher, M.³, Hassan, F.³, Messad, S.², Bonnet, P.² and Tourrand, J.F.², ¹ICARDA, 15G Radwan Ibn El Tabib Street, GIZA, 2416, Egypt, ²CIRAD, ES, TA C-112/A, 34398 Montpellier cedex 5, France, ³APRI/ARC, Nadi Al Said, Dokki, 12619, Egypt; monaabdelzaher@yahoo.com

Mobility is well known as a factor of flexibility and adaptation of livestock farming system in harsh conditions. By enlarging the resource potential, the mobility is considered as a way to reduce climatic risk. The objective of the study is to understand the role of mobility facing 15 drought years that have affected the North West Coastal zone of Egypt (1995-2011). A field survey has been conducted in 2011 among a sample of 120 farmers located in the rainfed zone, from El-Alamein east to Libya boarder west. The analysis is based on multiple factorial methods based on synthetic indicators related to mobility (duration, distance), supplementary feeding (during and after the transhumance) and animal performance (reproduction and mortality rates) and profitability (income/head of animal). A first typology shows that, only the large breeders with more than 400 sheep and goats practiced long transhumance during the last 15 drought years. Rate of profitability remains low due to high mortality. The other groups adapt complementary feeding (mainly concentrates and grains) according to strategy of maintaining the animal stock and maximizing reproduction rate or survival strategy by maximizing the profitability per animal during the last drought. The lowest profitability is registered for breeders that maintain short mobility (less than 7 km). The natural range did not fulfill the energy requirements during the walk. So mobility appears as a successful adaptive mechanism to drought conditions to maintain their animal stock for large breeders, at the detrimental of profitability. But it has its limitations for small breeders, with the objective of economic survival due the high rate of mortality. Only in good climatic conditions, the mobility becomes a factor of profitability.