To estimate greenhouse gas (GHG) emissions from cow-calf and cotton production in Texas high and rolling plains

**Materials & Methods**

- The life cycle analysis (LCA) method employed to quantify the environmental impact of cow-calf and cotton production systems.

- A representative cow-calf farm with 400 cows, 60 heifers, 325 calves and 15 bulls. Breeding season from April to August. All of the calves except 60 heifers sold after weaning at 6 to 8 months.

- The cow-calf farm on a native pasture where supplemental protein is used in winter when the grass protein is low.

- The cotton production data taken from the project.

**Objectives**

- To estimate greenhouse gas (GHG) emissions from cow-calf and cotton production in Texas high and rolling plains.

**Introduction**

- The U.S. Environmental Protection Agency (EPA) has continued its effort in regulating GHG emission since 2011.

- According to 2010 EPA statistics, GHG emission from agriculture accounted for 7% of the total GHG emissions.

- GHG emission depends on the climate, soil type, rainfall, methods of fertilization, tillage and irrigation.

- To better inform the policy makers, an initial yet important step would be to gather economic and emissions data on a regional basis.

- The target area of our study is the Texas High Plains and Rolling Plains.

**Results**

- Compared to cotton production systems, cow-calf production has much lower carbon emission while similar carbon sequestration level.

- On both per yield and per profit basis, system 2-1 (drip irrigation) generates the lowest carbon emission while system 11-1 (furrow irrigation) generates the highest carbon emission.

- Potential carbon policy may give producers incentives to choose certain production practices.

**Conclusions**

- Compared to cotton production systems, cow-calf production has much lower carbon emission while similar carbon sequestration level.

- On both per yield and per profit basis, system 2-1 (drip irrigation) generates the lowest carbon emission while system 11-1 (furrow irrigation) generates the highest carbon emission.

- Potential carbon policy may give producers incentives to choose certain production practices.

**References**


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