Rainfed fodder production Northern and Upper East Regions of Ghana

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Challenges

- Ghana's livestock development policy: need to "improve access to quality feed and water" particularly in the dry season
- research efforts to improve the natural pastures under rainfed conditions have been project-driven with little engagement with local populations
- very limited prior experience of irrigated fodder production

Opportunities

- emerging fodder market in the Upper East Region
- recent growing demand for feed for the increasing number of livestock in peri-urban areas of Ghana
- demand for reduced cost of feed and fodder production for commercialization of livestock production in the peri-urban areas
- increase in demand for forage seeds among both existing and emerging commercial farmers
- *Cajanus cajan* (Pigeon pea), a dual-purpose crop is commonly grown in Northern Ghana.

Relevant research identified

- Establishment of irrigated forage grasses and legumes could be demonstrated to investigate its contribution to crop-livestock farming systems in Northern Ghana.

Method/research design

- Three (3) forage grasses: *Chloris gayana* (Rhode grass), *Brachiaria ruziziensis* (Congo grass) and *Sorghum almum* (forage sorghum) were cultivated with one forage legume (*Lablab purpureus)*.
- A total of 100 m^2 size plot was mapped out and divided into two (2). 50 m^2 each of the grasses and legumes.
- *Cajanus cajan* was planted as hedges on pilot farmers' plots

Fodder tested in sites

- *Chloris gayana* and *Lablab purpureus*
- *Brachiaria ruziziensis* and *Lablab purpureus*
- *Sorghum almum* and *Lablab purpureus*

Sorghum almum and Cajanus cajan

Brachiaria ruziziensis

Lablab purpureus

Farmers at each site

- Zanlerigu in the Nabdam District: 18 total
- Bihinayili in Savelugu: 12 total

Initiation of interventions in sites

- Planting of the rainfed fodder seeds began in the second week of July (at Bihinayili) and third week of July (at Zanlerigu) [late rains]
- Note: Fodder production seems to be of interest to farmers at Bihinayili because another project by World Vision (Community-Based Small Ruminant Cross- Breeding Centre) supplied some households with small ruminants
- Full emergence of all forages species was observed except Chloris. Generally Chloris did not survive in the Savelugu District. Chloris germinated and survived in the Nabdam District.

Initial field issues and observations: pests

- Lablab battled with two pests: - insect larvae destroyed its leaves and millipedes killed the plant by eating the roots and stem base. Farmers said these pests are a general problem to leguminous food crops such as soy, cowpea and peanuts.
- An indigenous pesticide formulated (Savelugu District) using Neem seed extract mixed with water was however available to control the insect larvae but not the millipede. The extract was sprayed on 30/07/2015 using knapsack (4 small milk tins of extract to 15litres water). this extract suggests that it kills the larvae at its early stage of development but not later. There wasn't any readily available insecticide.
- At both districts there didn't seem to be any insect pests on the grasses (sorghum, brachiaria and chloris) and *Cajanus cajan.*

Neem seeds and famers preparing the local insecticides

Feeding trials: Bihinayiili

- Village farmers developed their own criteria for selecting farmers who would be directly involved in the livestock trial.
- Ten young rams were pulled collectively from all twelve farmers for the livestock trial.

Observations

- Insect pests were a problem for forage legumes at Savelugu District. Need insecticide application at early life of forage legumes
- Fertilizer application is required for meaningful herbage yield to feed livestock in both districts
- Chloris gayana germinates but does not establish well enough in both districts. A substitute would be required for both rainfed and irrigated fodder in the two districts
- Plot sizes may be increased: One farmer at Bihinayili suggested fodder plot sizes can be doubled – some farmers can offer more land for the fodder production. Bihinayili farmers are of the opinion that plot sizes are too small to make any impact on livestock feeding trials. Where possible two or more farmers can offer larger plots at one location instead of scattered plots
- Maintenance and care of fodder on fields after general food crop harvests at the villages would be difficult since tethered livestock would be released and may destroy fodder. Fencing as an option using local materials.
- Some farmers are quite enthusiastic about fodder production- trying their hands on new things
- Cajanus cajan and lablab (the legumes) were most preferred
- Sorghum almum was preferred to Brachiaria as it took a day or two for the rams to get accustomed to Brachiaria