LEGUME CHOICE PROJECT INTERVENTIONS IN MUSHINGA

"Conception of HOusehold Innovations for Creating legume Expansion "

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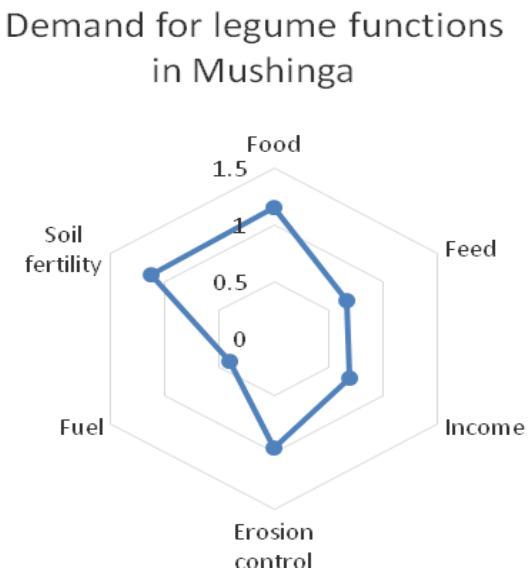
Background: Mushinga groupment was selected under legume CHOICE PROJECT to be one of the field sites for the project due to the Hummidtropics program the project is intervened in the system integration one of the objective of the Hummidtropics. Nether less mushinga has high population density > 200 /km^2 and have access to market that can allow farmers to sell their produces. However malnutrition is predominant, crop production is still very low due to poor soil fertility and diseases attack on the staples crops. The aim of our interventions in Mushinga is to increase productivity through the combined use of improved germoplasm, judicious fertilizers application and organic matter management adapted to local farming condition

Constraints: during introduction of the project; five major constraints were find to be more important;

- Land size :66% of the farmers have less than 0.5 ha
- Poor soil fertility and erosion; Acidic soils average with pH ≤ 4.6, with Aluminum toxicity
- Luck of inputs supply (Mineral fertilizers, organic resources and improved seed varieties)
- Luck of organizing market
- Low productivity



Niches: Erosion control, fodder, fuel and stake source: incorporation of legumes (calliandra) which has multipurpose uses, including other niches.

Objective of interventions

Demonstrate legume interventions trials that are focus on to overcome constraints identified during focus group discussions and accommodate identified niches.

- The lack of land: by demonstrating potential intercropping that legume-cassava
- The pest and diseases: using variety resistant to diseases
- Low yield: high yielding varieties of beans and soybean
- Lack of soil nutrient: the residual effect of legumes on other crop and BNF benefit
- Erosion, feed and fuel and soil fertility: by introducing multipurpose legume trees (Leucaena and Calliandra) this were planted as hedgerows at slop lands and at the boundaries of the farms.

Field selection

The fields for the trials are selected through farmer associations within each implementation sites, in places where farmers can see them easy by passing by.

Treatments (For each treatment, a plot of 6m x6m was adopted)

1. Farmer practice with bean monocrop: in this treatment, farmers use their own variety and management practices that they normally do. There is no intervention or guidance by the project, except for the size of the plot.
2. Bean monocrop: high yielding and disease resistant variety
3. Soybean monocrop: high yielding variety
4. Bean intercropped with cassava: recommendation: 4 rows of beans between 2 rows of cassava for the long rain season and 2 rows of beans in the second rain season
5. Soybean intercropped with cassava: recommendation: 4 rows of soybean between 2 rows of cassava for the long rain season and 2 rows of soybean in the second rain season due to the shade of cassava.

Cassava spacing *was* 2m x 0.5 m: (2m between rows and 0.5m between plant within rows) 4 rows of cassava in each plot . ***Bean spacing*** 0. 40m x 0.10 m: (0.40 m between rows and 0.10 m between plants within rows)15 rows in monocropping plots. ***Soybean spacing*** 0.40 m x 0.10 m: (0.40 m between rows and 0.10 cm between plants within rows)15 rows of soybean in monocropping .

Mineral fertilizers application

Bean : ***DAP and KCl*** **at** P application rate: 30 kgP/ha **and** K application rate: 45 kg/ha and **Soybean** ***TSP and KCl*** **at** P rate: 30 kg/ha **and** K rate: 45 kg K/ha

Rhizobium Inoculant USDA 110 was inoculated for soybean seeds

Success story

Sebastien Nyakura is a farmer in Mushinga and member of SECOMA farmers group association working with legume CHOICE project in the integration crop-livestock; he host experimental trials on cassava legumes intercropping and he also beneficiate calliandra intervention (multipurpose tree legume) using to feed his three cows and get quality manure and residues that he apply into his land during growing season to overcome low productivity." *Since September last year we received knowledge and inputs from legume CHOICE I was trained how to combined organic resource with mineral fertilizes that I applied on my common bean, soybean and cassava, I used the same knowledge to make a seed multiplication field that will be used by our member for next rain season*" this farmers received early maturing common bean variety HM21-7 and high yielding and promiscuous soybean SB24 and resistant cassava

Photo 1: Sebastien Farm in Mushinga Madaka

Photo 2: Stacking production and erosion control trials using Calliandra multipurpose trees