USE OF LEGUMES TO IMPROVE SOIL PRODUCTIVITY, SUPPRESS WEEDS AND TO PRODUCE HIGH QUALITY FODDER

A decision guide to the use of four legume species in central and eastern Uganda

If you want to	plant	do not plant .....
produce the legume in sole crop	mucuna or lablab	canavalia or crotalaria
intercrop with maize	canavalia as the first choice, but other species as well. Sow after first weeding of maize	
intercrop with beans	crotalaria, sown after the first weeding	canavalia, mucuna or lablab
intercrop with newly planted banana or coffee	Canavalia but at least one metre from your plant	mucuna or lablab
intercrop with established banana or coffee	canavalia, mucuna or lablab at very low plant density	crotalaria
intercrop between mounds of sweet potato	crotalaria or canavalia	mucuna or lablab
intercrop with newly planted cassava	canavalia or crotalaria between rows of cassava	mucuna or lablab
produce fodder	mucuna or lablab	canavalia or crotalaria
suppress weeds	mucuna or lablab	canavalia or crotalaria
reduce nematodes	crotalaria	canavalia
produce a durable mulch	crotalaria or canavalia if allowed to mature	mucuna or lablab

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Legumes have the ability to take nitrogen from the air and use it to feed the plant and then, add it to the soil when the plant dies; resulting improved soil fertility. Some legumes are of superior fodder value and are useful in supplementing rations of dairy animals. Some others are competitively growing and can be used to combat difficult to control weeds. Grain legumes, such as beans, are common and valuable components in the Ugandan farming systems. Researchers have worked in Iganga, Kamuli, Mpigi, Pallisa and Tororo Districts to evaluate alternative legumes and to find ways of integrating these into cropping systems. The most promising interventions are called 'best bet options'.

1. Canavalia produced by intercropping with maize for improvement of soil productivity in following seasons. Canavalia is sown between rows of maize after the first weeding, it continues to grow after maize harvest, until is time to prepare the land for the next crop. Then uproot and incorporate the plant material into the soil.

2. Canavalia produced by intercropping with sweet potato for improvement of soil productivity in subsequent seasons. Canavalia is sown between sweet potato mounds when planting the vines. It continues to grow until it is time to prepare the land for the next crop. Then uproot and incorporate the plant material into the soil.

3. Crotalaria ochroleuca produced by intercropping with bean for improvement of soil productivity in subsequent seasons. Sow crotalaria between the rows of beans after first weeding, it continues to grow after bran harvest, until it is time to prepare the land. Then uproot and incorporate the plant material into the soil.

4. Mucuna to revive depleted soils. Sow mucuna in sole crop with rows spaced at 75cm and 60cm between planting holes with two seeds per hole. Allow it to grow until it is time to prepare the land for the next crop. Uproot the plants and leave the plant material on the surface as a mulch.

5. Mucuna to control weeds. A well established sole crop of mucuna can control weeds and results in less weed problems in the following seasons.

6. Mucuna and lablab as fodder. These legumes can be used to improve dairy cow rations. Lablab is the better fodder legume but it often fails to produce much seed, therefore, farmers frequently lack seed for planting.

7. Mucuna to combat couch grass and to provide fodder. Mucuna can control couch grass in one season but a severe couch grass infestation will require two seasons of mucuna to control it. If mucuna is lightly pruned (to within 40cm of the base of the plant) to obtain fodder, it will quickly recover and continue to grow for two seasons. In the process the farmer can produce a good fodder, control couch grass and improve the soil productivity.

8. Crotalaria ochroleuca for combatting nematodes. Crotalaria is effective in reducing rootknot nematodes in the soil whilst improving soil productivity

9. Tephrosia vogelii for mole rat control. A border of tephrosia around a plot, with some plants planted within the plot can rid a field of mole rats.

10. Seed collection. A separate area should be sown on the farm where the legumes can be left to mature and produce seed. These seeds can then be sued for the next seasons planting.