

# Discover News-sheet for colleagues in Africa August 2019



## *Canavalia ensiformis* or Jack Bean

An example of jack bean as a green manure cover crop.

Just one year ago, the Mafie family learned about the value of using “Green Manure Cover Crops” (GMCCs) to improve the soil on their farm. Mr. and Mrs. Mafie’s farm consists primarily of coffee and bananas. They also have maize intercropped with beans, 60 vanilla vines, beds of spinaches, hot peppers, passion fruits and papaya trees.



The farm is located on the sloping foothills of Mt. Meru near their home in Arumeru District, Tanzania. This area has heavy rains and suffers a lot of soil erosion. By planting *Canavalia ensiformis*, known as "jack bean", the Mafies have stopped soil erosion and increased the amount of rain that soaks into the land.

*Canavalia* is a leguminous cover crop that also increases nitrogen levels in the soil and provides shade for the soil.

One year on, the soil is well covered by *Canavalia*, instead of it being open and bare. Thus, the moisture retention was much better and the maize was much healthier. The first half kilo of jack bean seeds they planted produced a harvest of just over ten kilos of seeds.

### Other benefits of jack beans in the garden

Jack beans play a vital role in repelling a recent invasive species, Fall Armyworm – a pest wreaking havoc on the maize harvest in several countries. Jack beans are a win-win when intercropped with maize, as they repel moths that lay the worm eggs while also enriching the soil.

Jack beans are also easy to store and extremely drought and pest resistant. They survive when other bean crops suffer with lack of rain or to weevil infestation, a common storage pest.

### How to use jack beans for nutrition

Compared to other leguminous cover crops, jack beans provide the best combination of protein content and increasing the nitrogen in the soil.

But, and this is important, jack bean seeds contain “antinutrients” which are potentially harmful and make them unsuitable for eating without treatment. The treatment involves allowing the seeds to germinate. Jack beans can be germinated as follows: Soak beans for one day, then drain and wash them. Continue to wash them morning and night until they have germinated and the sprouts are two and a half centimetres (one inch) long. This usually takes two to four days. Finally, remove the seed coats—germination makes beans much easier to dehull—and cook the seeds for 90 minutes.

### *Canavalia ensiformis* as livestock feed

The leaves can be used as fodder, especially for pregnant animals and to enhance milk production. Beans which have been treated as for human consumption and then ground can be used to supplement fish feed.



Fully sprouted seeds 48 hours after they were first drained and washed. The sprouts at this stage were approximately 2.5 cm (1 in) long.

Jack beans are good, but don't forget ...

1. On sloping land, it is important to plant hedges to stop soil erosion. Vetiver grass is one of the best plants for this purpose because of its deep roots.
2. Several other types of bean can be used as a cover crop which also improve the soil and provide good protein, e.g. cowpeas, pigeon peas, soya beans.

Also, maize is good when the weather is kind, but don't forget that many traditional vegetables such as sorghum and millet are more drought resistant than maize.

I wish you success with jack beans!

Keith

I thank Graham Knight in the UK from whom I learnt about jack beans. I also thank the American organisation ECHO for most of the information in this newsletter.

For more information, see the following links:

Jack Bean as an effective green manure cover crop in East Africa:

<https://www.echocommunity.org/en/resources/25b8a4c6-aef4-4bd4-a3bb-46628e276dc6>

What are green manures and cover crops? <https://www.echocommunity.org/resources/aa593147-43e3-42c1-aa81-3b764b4eaa4c>

How to use jack seeds for nutrition: <https://www.echocommunity.org/resources/fa9ad234-b4e8-4b96-89fe-20a08dcca81c>