Soil fertility, biodiversity, hygiene, good seeds, healthy transplants, right plant at the right place, resistant varieties, proper timing of sowing, breaking the cycle, adjusting the spacing.

Organic management

- *Mechanical control* – netting, collars, traps, handpicking
- *Biological control* – this includes using micro organisms that feed on the pests e.g. Frogs – feed on slugs
- *Chemical* – ash and pepper sprays are effective organic disease management techniques.

7. Harvesting and Post-Harvest Management

Crotalaria brevidens is mainly harvested by uprooting the whole plant. The uprooted thinning may be used as a first harvest and the remaining plants are ready just before flowering at about 8 weeks, when the stems are about 40 cm in height. Harvesting may continue for 4 months (Abukutsa-Onyango, 2004). Another method of harvesting is to cut the main shoot 10-15 cm above ground after 8 weeks and let new shoots grow over the next 2 weeks before picking. Up to 15 successive pickings can be done every 2 weeks until the dry season sets in and no further shoots develop. The plants are then uprooted (Abukutsa-Onyango, 2004). The leaf yield is about 10 t green matter/ha.

Fresh leaves and young shoots are very perishable and do not stay long. At 20–30°C they will last for 1 day; for longer storage they should be kept below 20°C. To reduce deterioration the shoots are tied in bundles, which are regularly sprinkled with water. The leaves are often dried to be sold during the dry season. The leaves may be dried and stored for up to one month though this practice greatly reduces the nutritive value and changes the texture. (See BvAT Guide on Vegetable drying). Drying in the sun takes 3–4 days during the dry season and 6–7 days during the rainy season.

8. Nutrition and Cooking

To consume them, we must pull them out of the field and separate the edible leaves and flower from the stems and pods. The leaves and flowers are then steamed, boiled, fried or stewed as appropriate. This vegetable marries well with the slimy mrenda and most of the time they are cooked together. Leaf and tender stems are rich in vitamins A, C, E, B2, folic acid, calcium, iron and protein.

This document has been produced with the financial contribution by the Swiss Agency for Development and Cooperation (SDC) and Swedish Society for Nature Conservation (SSNC). The views herein shall not necessarily be taken to reflect the official opinion of SSNC or SDC.

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EOA ECOLOGICAL ORGANIC AGRICULTURE

A Collaborative Work of BvAT and The Ecological Organic Agriculture Initiative

BvAT Practical Guide

Slender leaf Growing Guide

Botanical name: *Crotalaria brevidens*

Common names: Slender leaf, *Mitoo* (Luo), *Emiro* (Luhya), rattlepod, rattle pea, Ethiopian rattlebox (English); crotalaire, sonnette (French); *marejea* (Swahili)

Module produced with support from:

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development and Cooperation SDC

Swedish Society for Nature Conservation

Ecological Organic Agriculture Initiative in Africa

1. Description

Slender leaf is a traditional species commonly found in western part of Kenya. It is a slender leafy vegetable that grows to a height of about one foot before it flowers. The flowers come in different colours with white and yellow being the most common. The pods are green and slender too, about the size of the index finger Once mature they dry to a dark black colour. It is common to hear rattles from a mature slender leaf field, this is because the mature pods once dry, burst in the sun to release small beautiful seeds that germinate later to bring forth a new crop, hence the name rattle pod.

2. Uses and benefits

- The leaves are cooked alone or combined with other local vegetables such as cowpea, nightshade, jute mallow and pumpkin leaves.
- The leaves are rich in calcium, iron and vitamins A, B and C, but are low in carbohydrates.
- The plant is sold in markets in major towns of western Kenya, where it is widely cultivated. It is therefore a source of income for the farmer.
- The Luo call it mito or mitoo and believe that it treats boils, improves appetite, and helps stomach pain and swelling. It therefore has medicinal properties.
- Slender leaf seeds can be used to produce a hydrophilic polysaccharide with thickening and sizing properties.

3. Climatic, Soil and Water Requirements

Crotalaria grows rapidly under hot-wet and full sunlight conditions, with few pest and disease problems. The optimum temperature is 20- 30°C for germination and 25-35°C for growth. It adapts to different kinds of soil conditions and tolerates heat and drought, but not cool temperatures.

4. Propagation and Planting

Crotalaria requires thorough land preparation and a well-prepared bed for good growth. Prepare 20 cm high beds during the dry season and 30 cm during the wet season using a plough. The distance between centres of adjacent furrows should be about 150 cm with a 90-cm bed top. *Mitoo* is planted either by direct seeding or transplanting. The choice of planting method depends on availability of seed and labour and may also vary with the growing season. Direct seeding is appropriate when plenty of seed is available, labour is limited, and during the dry season when frequency of flooding is less. Transplanting is preferred when there is limited amount of seed, plenty of labour, and during the wet season when heavy rains and flooding are most likely to wash out seeds. Raising seedlings in a nursery and transplanting them to the field shorten the crop duration in the field, and secure a better and more uniform stand especially during the wet season.

Planting via direct seeding

When direct seeding is used, seeds are either broadcasted or sown in rows. Broadcast seeds uniformly at the rate of 0.5 to 1.0 g/m2 of bed. Since Crotalaria seeds are very small, mixing seeds with sand at a ratio of 1 g seed to 100 g sand makes it easier to sow the seed and to obtain a uniform stand. Cover seed lightly with a layer of compost or rice hulls immediately after broadcasting. When plants are to be grown in rows make furrows 0.5 to1.0 cm deep and space rows 10 cm apart on the bed. Drill the seeds 5 cm apart within the row and cover with a layer of compost or rice hulls. (AVRDC 2003).

5. Husbandry

Crotalaria is a low management crop and can grow in poor soils, but it will benefit from application of organic fertilizer resulting in higher yield. Though it is relatively drought tolerant, yet insufficient water will reduce yield. Water should be applied especially just after sowing or transplanting to ensure a good stand. As a rule, the plants should be irrigated if wilting occurs. Another way to estimate soil moisture content is to take a handful of soil from the bottom of a 15-cm hole. Squeeze the soil. If it holds together when you release your grip, there is sufficient soil moisture; if the soil crumbles, it is time to irrigate. Irrigate thoroughly to maintain vigorous plant growth. Avoid over-irrigation, which may enhance disease development and nutrient leaching. Drip irrigation or micro-sprinkler irrigation is recommended in areas with limited water supply (AVRDC 2003)

6. Common Pests & Diseases and their control

Crotalaria does not suffer much from diseases and even less from pests. Under wet conditions the whole crop may however be destroyed by a blight just before it starts flowering. Aphids and thrips can be observed, but are rarely a serious menace. During fruit development, pod borers may enter and interfere with seed development. The holes in the pods will allow rain to enter and destroy the seeds further through rot. Just in case, the following are common pest and disease control and management tricks;

Organic Control

The following are key in organic control of pests and diseases;