Fresh leaf fertilizer

- Pick a handful (about 100 gm) of *Vernonia* leaves
- Chop them into small pieces
- Take a handful of animal manure (cow, goat, chicken, etc.) and mix with chopped leaves
- Introduce the mixture into the planting holes for beans or vegetables
- Cover the mixture with a thin layer of soil (about 2-3 cm)
- Sow bean seed or other grain a day later or vegetable seedlings after 3-4 days.

NOTE:
- Other plants including *Tithonia* sp., *Pycnostachys* spp., *Tetradenia* spp. and other *Vernonia* spp. can be used as source of insecticides and fertilizers a similar manner
- These botanicals are relatively safe to human, the environment and various natural enemies to common crop pests
- They are also easily available at little or no cost and can be established by farmers.

For more information contact:
International Centre for Tropical Agriculture (CIAT)
P O Box 2704
Arusha, Tanzania
Tel: (+255-27) 2502268/2508557
Fax: (+255-27) 2508557
E-mail: ciattz@habari.co.tz
Introduction

Vernonia spp. are common shrubs in most valleys, fallows and uncultivated bushland. Collaborative research results generated by Lushoto district farmers, researchers and extensionists in north eastern Tanzania showed that Vernonia spp. leaves can be used as a source of insecticide for bean and other crop pests as well as green manure for soil fertility.

Field insect pest control

- Pick 3 kg of mature Vernonia spp. leaves
- Chop the leaves into small pieces
- Mix the chopped leaves with 3 litres of water
- Leave the mixture to stand for 10-12 hours
- Filter the mixture using muslin cloth
- Mix the filtrate with 10 gm of powder soap
- Spray the final mixture on the crop in the field.

Storage pest control

- Pick 1 kg of mature Vernonia spp. leaves
- Dry them under cool, dry and shaded conditions
- Pound or grind to obtain a fine powder
- Carefully mix 1 kg of the fine powder with 100 kg of dry beans or other crop grains
- Secure the grain in appropriate containers for storage.

- Farmers also experimented with two methods for using Vernonia leaves in soil fertility – a liquid mixture and chopped leaves.

Use of Vernonia leaves as a liquid fertilizer

- Pick 3 kg of fresh mature leaves and chop them into small pieces
- Mix with 10 litres of clean water and soak for 7-10 days
- Add 10 litres of clean water
- Take one cupful (100-150 ml) of the mixture and sprinkle on the soil around the plant’s stem
- A thin layer of soil cover will help to preserve the fertilizer
- Use plastic vessels.

Improvement in soil nutrient

- Collaborative research by Lushoto farmers and scientist at ARI Mlingano have shown that Vernonia leaves can enrich the soil to levels comparable with the commercial inorganic fertilizer NPK (i.e., At % levels of 3.6, 0.25, 4.7)