

Organic production of French beans

Introduction

The North Eastern Region (NER), comprising of eight states (Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Sikkim) enjoys favourable and diverse agro-climatic conditions suitable for a large number of agri-horticultural crops. The overall geographical land to man ratio for NER at 0.81 ha /person is much higher than national average (0.39 ha /person). The fragile ecosystem and inaccessibility are the other important considerations for commercialization of agriculture. The region's agriculture system is predominantly traditional and organic by default. Considering the hilly terrains, horticultural crops occupy prime position with the agricultural spectrum. Although large mid altitude uplands (14.20 lakh ha) have been identified as suitable sites for organic agriculture and some of the NE States have been declared as Organic State, no uniform standard package of practices are followed for production of different crops. The entire shifting cultivation area (about 16.72 lakh ha) is also free from chemical use. Till recently (2008) various certifying agencies have formally categorized about 78 thousand ha area under organic certification. Some of organic spices, namely, ginger, turmeric, chilli are already receiving good international markets response and APEDA, Spices Board and others are promoting exports a good number of horticultural crops and their products. Development of value chain on

organic crops and their product is, therefore desirable for sustainability.

French bean which is also called Snap beans, bush beans is one of the most popular and widely grown vegetables in India. The green immature pods are cooked and eaten as a vegetable. Immature pods are marketed fresh, frozen or canned, whole, cut or French cut.

Conversion plan

At present most of the French bean is produced by conventional method of cultivation where chemical fertilizers and pesticides are being used. In order to minimize the pesticide residues and other harmful chemicals in the produce and minimizing pollution of soil, water and environment, organic farming practices are assuming importance. To get the land/ field certified by the authority the conversion period is required. For organic cultivation the plot or land should be free from any fertilizer/ pesticide application at least for last three (3) years. It takes nearly one year to get the product certified after applying to the concern agency.

Selection of varieties

Selecting the varieties is critical for success of organic cultivation. The varieties which are resistant to pests and diseases prevalent in the growing area and bush type are preferred. Improved varieties like Arka Anoop, Contender, Pusa Parvati, Arka Komal, Arka Sunidhi are preferred for organic farming.

Sowing time

The best season for cultivating beans organically is during Rabi season (November sowing) as pest and disease problem is comparatively low.

Spacing

Wider spacing of 45 cm X 15 cm is recommended for organic cultivation for better aeration and to minimize rapid spread of foliar disease.

Land preparation and planting

The soil in the field is brought to fine tilth and the entire quantity of FYM (30 ton/ ha) mixed with *Trichoderma harzianum* and Phosphate Solubilizing Bacteria (PSB) is incorporated into the soil before planting.

Pre sowing treatment of seeds

A day before sowing treats the seeds with *Rhizobium*. Suspend 200 g *Rhizobium* in 300-400 ml water and mix thoroughly. Pour this slurry on 10 to 12 kg seeds and mix by hands; till all the seeds are uniformly coated. Dry the treated seeds in shade about 5-6 hours and sow immediately.

Enrichment of FYM with *Trichoderma* and Biofertilizers

Well decomposed FYM thoroughly mixed with *Trichoderma harzianum* and Phosphate Solubilizing Bacteria (PSB), (all @ 1 kg/ tonne of FYM), moistened by sprinkling water and covered with plastic sheet and kept to incubate for 15 days. This enriched FYM should be mixed with 10 tonnes of FYM

before applying to the field. Apply vermicompost @ 2.5 tonne/ ha have been reported to give high yield in beans.

Water management

The crop is most sensitive to water deficit during flowering and fruit development. For the good crop growth well timed furrow irrigation is effective. Wilting in the late morning indicates that the crop should be irrigated. As a general rule during the dry season, irrigate at an interval of 3-4 days for the first month after sowing, and then every 5-7 days interval until crop completion.

Weeding and earthing up

The field should be kept weed free up to 40 days after sowing. Generally hand weeding is followed to control the weeds, which also helps in loosening the soil. First weeding can be done at 15 days after sowing and second weeding at 30 days after sowing with earthing up operation.

Plant protection

Insect pest management

Neem cake is applied @ 250 kg/ ha after 4-5 weeks of sowing as a general insect management schedule. For management of stem fly, which causes substantial losses, spray neem oil @ 5ml/ lit at 10, 17 and 23 days after sowing.

Disease management

For the control of foliar disease (rust and leaf spots) and fruit rot apply *Trichoderma harzianum* @ 10 g/ lit at an interval of 10 days.

Harvesting of crop

- Crop will be normally ready for picking by 40 to 50 days after sowing depending on the variety and season of cultivation.
- Harvest during cool periods, such as late afternoon or early morning.
- Immediately after harvesting shift the harvested produce to shade.
- Further there will be 2 to 3 pickings to be done at 4-5 days interval.

Yield

- About 12 to 15 tonne/ ha of marketable bean yields can be obtained by adopting good organic production technology.

Compiled by:

Dr. Anamika Sharma
Programme Coordinator,
KVK Dimapur

For more information, please contact:

Joint Director, ICAR Research Complex for
NEH Region, Nagaland Centre, Jharnapani



KVK Dimapur
ICAR Research Complex for NEH Region
Nagaland Centre, Jharnapani
Medziphema, Nagaland 797 106