

# Farm Management



Nutrient Management is the second most limiting factor of crop production after Land preparation and Sowing. Since most of the cotton grown in Maharashtra is under rain-fed condition, the soil is not only thirsty but also hungry. Starting November every year, the focus is hence on Nutrients, Soil and Pest Management.

In our initial soil sampling studies with newly inducted farmers, it was established that while the soil in Maharashtra is suitable for cotton growing, it remains poor in nutrients. Of the 16 essential elements required in cotton, three are provided by the atmosphere (Carbon, Hydrogen and Oxygen) and three are supplied through fertilisers (Nitrogen, Phosphorous and Potassium). It is taken for granted that the soil provides a continuous supply of the remaining ten elements. In the long run these nutrient deficiencies lead to yield losses and contributes to increased costs.



Besides the imbalanced and insufficient nutrients, insect pests also play an equally damaging role contributing to yield losses. In Maharashtra, the cotton crop is heavily damaged by 21 varieties of insect pests. Out of these Jassids, Thrips and Whitefly are the dangerous sucking pests causing damage at vegetative stage i.e. before square formation. After the square formation, bollworms such as Spotted Bollworm, American Bollworm and Pink Bollworm have been found to be causing heavy losses in the cotton crop. Pink Bollworm has been a menace, causing losses of upto 35% due to quality and yield deterioration in the past years.

## Training - Nutrients & Pest Management

Spectrum International along with its local partners equip the farmers through a combination of class room trainings and demonstration plots to meet these challenges. Field Facilitators trained by Spectrum International and a group of field experts conduct training in villages in groups known either as Learning Groups (LGs) within the BCI

system or ICS within the Organic system. To ensure that the trainings do not hamper the daily farmer routine, they are conducted either during early morning or late night.

The field facilitators employ various methods such as pictorial depictions of best practices and methods on charts, pamphlets, slide shows and wall paintings. Written content is also provided to the farmers in local languages for easy reference during the process of farming. The following training areas are focused upon for Nutrients & Pest Management:



**Nutrient Management:** Of the 16 essential elements required for soil enrichment, nitrogen, phosphorous and potassium are provided for by the farmers with the help of fertilisers. The farmers traditionally feed the soil just once or twice which is insufficient and does not last throughout the crop season as it gets leached into the soil with each round of irrigation, thereby increasing cost of production as well as a poor yield.

The other 3 elements viz. Carbon, Hydrogen and Oxygen are amply provided by the atmosphere. However the remaining 10 elements are the ones that are the most neglected. The farmer either completely ignores them or applies them in lesser than required quantities. In general, the farmer uses broadcasting method of fertiliser application instead of applying near root zone which leads to excess use of fertiliser hence contributing to increased cost of production and resistance build-up in insect pests. The soil therefore needs to be enriched with nutrients through approved fertilisers (by BCI and Organic) in balanced quantities and at appropriate time as per the stage and growth of the crop.

**Water Management:** Increasing the cotton yield in Maharashtra is a major concern with 96% of the cotton farming land being rain-fed, coupled with lack of required irrigation facilities. Presence of the black soil with a better water retaining quality does help the farmers to some extent. However since the farmers do not use mulching practise or sow inter-crops, they are unable to conserve soil moisture for longer periods.



**Insect - Pest Management:** Lack of knowledge and misguidance by commissioned agents is one of the biggest hindrances in adequate insect-pest management by the farmers. Usage of non BT seeds, not following the Economic Threshold Levels (ETL) for insecticides and usage of incorrect and low quality pesticides all lead to resurgence and resistance build-up in pests. The cotton yield has been reduced by approx. 35% over the past years on account of a major outbreak of pests like Whitefly and Pink Bollworm in Maharashtra alone.

**Soil Management:**

Farmers do not invest in activities like crop rotation, soil rotation, inter-cropping, nutrient recycling and inter-culturing options to remove weed, all leading to lower nutrient levels in soil on

account of continuous usage along with soil erosion, all eventually leading to a lower cotton crop yield.

