

A Mini Lab: For Soil Testing

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Introduction

We all know that health of soil is equally important as health of any person. It is more applicable when it comes to 'farming'. But, it is observed that now a day, 'health of soil' doesn't get enough attention. People care more about only 'cash crops and increasing quantity of the crop'. As a result of this, soil becomes unproductive. Awareness about 'soil health' should be increased to avoid this.



Why do we need 'Soil Testing'?

Soil is an important matter for cultivation of any type of crop. Soil supplies many necessary nutrients required for healthy growth of a crop. The yield is largely dependent on the soil in which the crop grows. So, before cultivation, it is very important to check the soil

for its nutrients. By checking the soil you will know whether the soil is having enough amounts of nutrients or not. If any nutrient is less or more than the required amount, necessary measures can be taken. In short following are the benefits of ‘soil testing’:

- Soil testing encourages plant growth by providing the best fertilizer recommendations.
- It diagnoses whether there is too little or too much of a nutrient.
- ‘Soil testing’ promotes environmental quality.
- It also saves money that might otherwise be spent on unneeded fertilizer.

What is Mini lab?

A lab Mini Lab for Estimation of Soil Health and Fertilizer Recommendation and Preparation of Soil Health Card. It is a digital mobile quantitative minilab/soil test kit to provide soil testing service at farmers’ doorsteps. It is an innovative product that Government departments, farmers, NGOs, development projects, private organisations are using to start their own soil testing lab.



Important features:

Mini lab that can estimate 14-15 important soil parameters viz., pH, EC, organic carbon, available nitrogen, phosphorus, potassium, sulphur, zinc, iron, manganese, boron, copper, gypsum requirement, lime requirement, and calcareousness.

1. Mini lab is highly compatible with soil health card.
2. It has mobile connectivity via Bluetooth
3. It has Computer connectivity via USB
4. In-built thermal printer.

5. Solar charging facility.
6. In-built battery back-up of 6 hours.
7. It determines all the important soil parameters i.e. soil pH, EC, organic carbon, available nitrogen, phosphorus, potassium, sulphur and micronutrients like zinc, iron, boron, copper, gypsum requirement, lime requirement and calcareousness.
8. It also provides soil and crop *specific fertilizer recommendations* directly to farmer's mobile through SMS.
9. It comes with soil sampling tools, GPS, balance, shaker, hot plate, and a Smart Soil Pro, an instrument for determining the soil parameters and displaying of fertilizer nutrient recommendations.
10. It can be operated by young educated farmers/rural youths (11-12 Pass) with short training.
11. It comes with smart soil-pro, an instrument for determining soil parameters and displaying of fertilizer nutrient recommendations.
12. In addition, minilab is supplied with sieves, electronic weighing balance, shaker (with two plates), hot plate, etc.
13. Further, the results of 'Mini Lab' can be disseminated quickly to farmers via SMS. The soil test reports can also be saved in the minilab.

Why "Mini Lab"?

- More than 14 crore soil health cards (SHCs) to be prepared and sent to farmers.
- Existing Soil Test Kits (STKs) are subject to human error.
- Quantitative estimation of micronutrients is also missing.
- Hence, this Mini Lab was specifically designed to generate SHC.

Benefits :

- Easy to use.
- Gives soil testing report in the shortest time.
- Most affordable way of testing soil scientifically.
- Can be operated by anyone after a short training.

- Tests 14- 15 parameters of soil.
- Recommends crop-specific fertiliser dose for over 100 crops.
- Testing reports optimise fertiliser use.
- Testing reports increase crop-yield of farmers.
- Increases farmers profit and decreases spending.

Who all can use it?

- Government departments and labs to give soil testing facility to farmers.
- Rural youth to start their soil testing lab business.
- Farmers to start their soil testing lab business.
- NGOs to give free soil testing facility to farmers.
- Agri-Input companies to give soil testing facility and to promote optimum fertiliser usage amongst farmers.
- Agri-Input Dealers to give soil testing facility to farmers along with selling agri-inputs.

Results

The results as given by Mini lab correspond to the results obtained by soil test laboratories.

