

Bitter Gourd



Healthier Plant, Higher Production

Green Earth advisory works towards creating a Healthy Plant and a Good Soil structure. This acts as the basis for higher production, better survival under biotic & abiotic stress and lesser attack of plant and disease. We focus on improving the 3 core dimension:

- Soil Eco System.
- Plant Root System.
- Plant's structure & defence System.

We acknowledge the role of natural forces, but we firmly believe that this strategy easily handles over 80 % challenges.

Conducive Soil Eco System

The recommended ready mix consortia of compatible biological agents specially blended with bio-enzymes and essential nutrients improves the soil eco-system in multiple modes.

- a) **Maximizes Nutrition Utilization** by solubilisation & mobilization of nutrients like Phosphorus, Potash, Zinc, Calcium, Magnesium, Sulphur, Iron, Manganese, Boron etc. Also improves Nitrogen availability through fixation from the atmosphere. Overall impact is on improvement of nutrient use efficiency.
- b) **Control of soil based pathogens** for better control of *Wilt*, *Root rot*, *Nematodes* & other soil born diseases. They cause maximum damage to the plant leading to lower production. Over 80% reductions in infestation are observed.
- c) **Improving the Soil Structure & Health** for better aeration and soil aggregation aiding the growth of beneficial microorganisms in soil.

Recommendation:

Product	Dose /ac	Product	Dose /ac
Reap NPK1	1000 ml	Sumona	250 – 500 ml
Reap ZFeMn	500 ml	Vima	250 – 500 ml

Application: - With FYM: Mix the products in 500-600 kg of FYM/Compost and apply on the field at the time bed preparation. **Drench:** Mix the products in 200 lit of water and drench on the field 15 days after planting.

Nature of Soil Best Suited:

The well drained, Light to medium black soil is ideal

[NPK level in soil recommended: N 240-300 kg/ha, P 15-20 Kg/ha, K 180- 280 Kg/ha]

For specific deviation in soil we recommend the following for improvement:

Nature Of Soil	Special Recommendation
Very Alkaline	Team Work (Alkaline soil) 1 Lit /Ac
Very Acidic	Lime application

Powerful Root Zone

Proper absorption of nutrition from soil is possible only through a vigorous micro root network, robust and well spread root system with high surface area of the root.

R-Jaal which is recommendation develops up to 30 to 50% higher micro root structure. It creates a network (Jaal) of fine filaments that associate with plant roots and extend the roots far into the soil resources; much beyond the area of nutrient depletion. Thus it enables the plant to draw nutrients and water from the soil that a plant would not be able to access otherwise. Naturally, this helps plant survive in multiple stresses and make it strongly rooted in the soil.

Recommendation: R-Jaal- (3-4 Kg/ac)

Application: Mix R-Jaal in 400-500 kg FYM/Compost and apply on the field at the time of bed preparation.

Robust Plant Structure

Goal of commercial farming is highest production at optimum cost. Total photosynthesis capacity of the plant determines its production capacity. A well erected plant combined with good quality leaves only will have excellent photosynthesis capacity.

With this in mind we focus on delivering a robust plant structure and leaves quality,

- A. We recommend Bio-available Silica to create strong Cell Wall which leads to **stronger & bigger branches and stem**. It also increases the leaf size and makes it more erect.
- B. It also increases the uptake and transports more water, nutrients and plant secretions throughout the plant body. This availability of nutrition is critical for higher production.
- C. Plant Growth Regulator to increase the no of leaves, improvement in chlorophyll level for higher photosynthesis and other metabolic actions.

The above approach also builds a strong defence wall to block the pests from attacking the plant. This works as a powerful **defence against fungus, mites & sucking pest**. This is drastically reduces the cost & efforts incurred in pest management.

Stronger Plant structure also enables the plant to bear more fruits.

Recommendations: SilPot + Green Flush [4 -5 sprays]

Silpot + Green Bloom [As per requirement]

Application:

Mix **SilPot** (2 ml / lit) + **Green Flush** (1- 1.5 ml / lit) and take spray. First spray 15 days after plantation. Repeat after every 15 - 20 days interval as per requirement.

Mix **SilPot** (2 ml / lit) + **Green Bloom** (1- 1.5 ml / lit) and take spray. Spray at bud initiation stage, repeat after every 15-20 days interval as per requirement.

Spray **SilPot** (2 ml/lit) 1 to 2 days before using any Weedicide.

Nutrition Management

Nutrients (Fertilizers) are the food for the plant. It needs food for production. Even if all the factors are favourable, it still will require sufficient nutrition to support the final production.

A Green Earth practice optimizes and maximizes the utilization of available nutrition leading to higher production. In numbers it can be said to **improve nutrition utilization by 25-30%**

The table below explains the Recommended Doses of Fertilizer and Yield as per general farmer feedback. If all the above practices are implemented without changing the fertilizer doses, we have seen remarkable increase in yield. **Yield (Normal)** is with general practices as followed in the market, while **Yield (Green Earth)** is with above practice on Soil, Root and Plant Structure followed.

Component	Doses/ Acre	Yield (Normal)	Yield (Green Earth)
Nitrogen	80 Kgs	8 – 9 MT	9 – 10 MT
Phosphorous	40 Kgs		
Potash	40 Kgs		

The production can also changes due to the variety used, crop distance or farming under control environment (poly house / shed net etc). It is common sense that higher production will require higher amount of nutrition. We recommend you to follow nutrition chart provided by agronomy advisor.

Stress Management – Biotic & Abiotic

Biotic & Abiotic stress creates huge losses, sometime even wiping out the full crop.

The climate change has increased the Abiotic Stress to very high level. Early/Late Rain, intermittent dry spell, Heat Shock, Cold Shock, hail storm etc. With the above treatment, the plants can respond much better under such stress:

Nature of Shock	Impact improvement
Dry Spell Shock	Plants survive around 15 days more, than controlled plot.
Heat Shock	Sustains up to 3°Celsius & 10 days more than controlled.
Cold Shock	Up to 10 days more than controlled.
Very Heavy Rain	Will sustain longer and recover faster.
High Velocity Wind	70% lesser uprooting.
Hail Storm	25% lesser impact. Difficult to measure.
Weedicide Shock	50% lesser impact on Plant Health.

Abiotic stress also makes the plants weak and susceptible to pathogen attacks.

Biotic stress (commonly termed as Pest & Disease Attack) leads to losses from multiple angles, direct losses from the pest on health deterioration of the plant and Shock to the plant from the Pesticide use. Also the cost & labour incurred in spray of pesticides.

Green Earth recommended practices drastically reduce the chances of infection & infestation. The table illustrates the various impacts,

Disease / Pest	% Risk Reduction in Infestation
Wilt, Root Rot, Nematode,	80% less chance of infection
Downey Mildew, Leaf Spot, Powdery Mildew, Thrips & Mites	50% less chance of infection
Fruit Fly	25% less chance of infection

In spite of all precautions, still if there is an attack we recommend taking advice from specialist and control accordingly.