

# Gardening. Growing Green Beans

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A growing percentage of the population nowadays are health conscious and are so particular about what they eat given the role of nutrition in a number of disorders and its importance in ameliorating some disease conditions. This trend has in part sent the demand for such highly nutritious crops as green beans skyrocketing. For the benefit of the uninitiated, green beans are rich in vitamins A, C and K. It also has significant quantities of manganese and provides very good quality dietary fibre. Vitamins A and C are famed for being antioxidants, a role which is important in the protection of the integrity of DNA, thus reducing the incidences of mutations which result in cancers. Not only that these vitamins are also functional in reduction of blood cholesterol, a feature which is important in the fight against heart diseases. These qualities coupled by the ever-soaring demand present an advantage to the farmer who is guaranteed of a ready market and a good price. Nevertheless it must be borne in mind that the market and good prices normally follow those with quality produce. This article serves to highly some of the key things to consider if you endeavour to produce good quality green beans.

## **Climatic Requirements**

The green bean is a frost sensitive crop little wonder why it is not recommended as a winter crop except for those areas that experience fair daily temperatures and do not experience ground frost. The optimum daily temperatures required for good growth and productivity range between 16-21°C. Persistent low night temperatures can cause misshapen pods or hollow pods. The fact that green beans are sensitive to frost might hoodwink others to think that they require high ambient temperatures. Unfortunately that is not the case as temperature slightly above 35°C can result in poor yields after instigating flowers and pods to drop. Hence whenever they are grown as a summer crop average yield is compromised if the daytime temperatures frequently go beyond 30°C.

## **Soil conditions**

Green bean plants are very sensitive plants and care should taken in what type of soil you put them into should one anticipate a good yield. Ensure that you use deep well drained soils with moderate water retention capacity. Be wary as not to use too much organic matter as this normally produces luxuriant growth but pod development and bean filling are compromised. Beans require soils that are not acidic which falls in pH range of 6-6.5. If the soils have been tested and found to be acidic, a generous application of lime before planting aids in toning down the acidity often giving very good results.

## **Husbandry Practices**

Green bean is planted 5cm apart in-row and 45cm spacing inter-row. Fertiliser application should be moderate because they are able to fix their own nitrogen by forming a symbiotic relationship with Rhizobium. It is recommended that the actual requirements be calculated using results from a soil

testing. Irrigation should provide enough water at all times such that the plants are never at any stage subjected to moisture stress. Deep watering is encouraged as opposed to light sprinkling of water at the surface. The former has an advantage of encouraging a deep root system. Moisture stress should be avoided at all costs during flowering and pod development as it can cause heavy losses. Weeding should be done periodically as and when there is a formidable weed challenge. Care should be exercised when weeding so that the cultivation or be it hoeing does not go too deep into the soil because the roots feeding the bean plant are quite close to the surface. A deep cultivation might damage quite a number of these roots which disturbs productivity of the plants.

### **Pests**

**Root knot nematodes** – this is a pest that causes yellowing of the leaves and stunted growth. Often a farmer is left wondering where the chlorosis and stunting will be emanating from given that one would have fertilized their field adequately. In hot weather the loss of leaf colour is followed by wilting. When uprooted, an affected plant has visible evidence of swellings and knots on the roots. In some cases the affected roots begin to decay thus disabling them from carrying out their function of abstracting water and nutrients from the soil. The best way of dealing with root knot nematodes is to practice 2-3 year crop rotation whereby pulses are rotated with cereals or grasses. Keeping weeds under control as well as uprooting and destroying the entire plant after harvest also help in controlling nematodes

**Aphids**- these are plant sap-sucking insects whose sizes vary between 1.5 - 3mm. Aphids have high reproductive capabilities and can infest the entire crop in a very short space of time if no control measures are instituted. A heavy infestation of aphids results in wrinkled leaves, stunted growth and pod deformities. Young plants wrinkle, wither and can ultimately die of an aphid attack. Flower and pod production and development can be curtailed by a heavy attack of aphids and this could also impact on seed viability. These pests can be controlled by spot spraying using registered insecticides of the requisite strength.

**Bollworm**- this is a caterpillar that is 3-4cm long which feeds on leaves, pods and seed of the bean plant. The presence of circular holes on bean pods is indicative of the presence of bollworm as these are left as it carves its way to forage on the developing seeds inside the pod. Often the bollworm attacks the pods at their point of contact with other pods, leaves or stems. To control these worms, scouting should be done time and again and spraying should be undertaken as soon as you notice the signs of their presence.

### **Diseases**

**Bacterial blights**- this is a disease that is caused by one or more bacteria species. The bacteria can amply spread across the field when presented with favourable conditions causing foliar and leaf damage. The bacteria can survive on seed and remnants of plant material from an affected crop and it is through those material that the disease spreads from one crop to the next.



Effective control of the disease can be achieved by implementation of 2-3 year crop rotations with other crops. Secondly one can avoid introduction of the bacteria by using certified seed which is bacteria free. In case one spots the disease in its infancy they can contain it by spraying with a copper based chemical and also avoid working in the bean field when it is wet.

**Bean Rust**- this is a fungal disease that spreads from one plant to the next and from crop to crop by way of releasing infective spores. This bean rust causing fungi proliferates well under cloudy humid conditions and daytime temperatures ranging from 15 -23<sup>0</sup>C.



This fungal infection results in considerable financial losses to the farmer owing to its impact on production and quality. Effecting crop rotations and ensuring that one plants rust resistant varieties can aid in controlling this disease. In the event that the disease has occurred, one can use registered fungicides to contain the spreading of bean rust.

**Anthracnose**- this is yet another problematic fungal disease that affects all the parts of the bean above the surface of the ground. It however is very pronounced on the pods where it leaves characteristic dark sunken cankers. It is transmitted from one crop cycle to the other via affected seeds and tends to strike and spread well in weed infested fields. Hence control of this disease can



be achieved by planting disease free seed and exercising 3 year crop rotations. Judicious weeding of the fields should be undertaken timeously and in the event of the disease occurrence one can attempt to curtail the spread of it by using fungicides. After harvests, remove and destroy all remaining plant material in order to break the disease cycle.

From the brief rundown of the green beans pest and diseases four things stand out. Firstly, one can notice that for effective control of diseases and pests, a 2-3 year crop rotation should be a permanent feature for any green bean producer if they are to avoid disease problems. Secondly the use of certified seed is encouraged as a way of avoiding seed-borne infections. The third item is that a successful bean farmer should always keep a keen eye on his/her crop such that they can detect the encroachment of a pest or disease early enough to effect chemical control strategies. Lastly all remnants of plant materials should be removed and destroyed at the end of each cropping cycle.

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