BROCCOLI *(Brassica oleracea var. italica)*

Broccoli (*Brassica oleracea* var. *italica*) is an important cole crop. Broccoli is usually boiled or steamed. It contains high amount of vitamins A, C and minerals like K, P, Ca, Fe and also thiamine, riboflavin, niacin. It is the richest source of protein among cole crops. A high intake of broccoli has been found to reduce the risk of cancer and also prevents heart disease.

Climate
It is a cool season crop but sensitive to very low and high temperature. The head becomes loose in high temperature. Temperature range of 10°C - 25°C is optimum for its proper growth, while 15°C - 20°C for heading stage.

Soil
Broccoli grows best on a well-drained, medium to heavy soil with high organic matter content. Broccoli requires moist soil for fast and proper growth. The shoots become more fibrous under dry soil. It does well in pH range of 5.0 to 6.5.

Varieties
Solan Green Head, KTS, Lucky, Fiesta, Pushpa, Aiswarya.

Nursery raising

- Plough the nursery beds thoroughly and mix with well rotten FYM.
- Treat the seeds with Thiram or Captan @ 2.5g/kg of seed before sowing.
- Sow the seeds in the beds during the month of September at a spacing of 8 - 10 cm between lines, 2 - 3 cm between seeds and 1 - 1.5 cm deep.
- After sowing irrigate lightly and protect from heavy rains.
- Keep the beds free from weeds. About 400 - 500g seed is sufficient to raise seedlings for one hectare.

Transplanting
The seedlings become ready for transplanting after 4 - 6 weeks of sowing. The planting of over mature seedlings should be avoided. Seedlings are transplanted 45cm apart within and between the rows. In very rich soils, spacing can be reduced to 45cm x30cm to avoid stem hollowness due to rapid plant growth.

Manures and Fertilizers
Apply 15 - 20 tonnes FYM, 80 - 100kg N, 80kg P and 60kg K. Full dose of P, K and half of N are applied at the time of land preparation. The remaining half dose of N should be top dressed in 2 equal split doses. The first is applied 4 – 5 weeks after transplanting, whereas the second dose before head formation.

Mulching
Mulching experiment conducted at SARS using paddy straw, gunny bags, thatch, white polythene, blue polythene and black polythene showed that there was significant increase in yield in all the treatments over the plot without mulching. The highest yield was obtained from the plot mulched with black polythene. However, farmers may use locally available mulching materials like paddy straw and thatch which is more economical.

Irrigation
Broccoli needs sufficient moisture in the soil for uniform and continuous growth of plants. Therefore, frequent irrigation at 10 - 15 days is given depending upon weather conditions. The dry conditions adversely affect the quality and yield of shoots by being more fibrous. On the other hand, water logging condition depresses plant growth.

Intercultural operations
The crop should be kept free of weed. Shallow hoeing should be done to remove weeds and also for breaking the surface crust to facilitate better aeration and water absorption. Since it is a shallow-rooted crop, hoeing should not be done beyond the depth of 5 - 6cm to avoid injuries to the roots. A light earthingup at final hoeing is beneficial.

Harvesting
The heads having 10 - 15cm stems should be harvested with a sharp knife when its bud cluster is green and compact. If harvesting is delayed the bud cluster becomes loose. Pick regularly to ensure the heads are at their tastiest and to encourage the formation of side-shoots.

Yield
The yield of broccoli ranges from 100 to 150 qtl/ha depending on the variety, time of planting, and length of harvesting period. Broccoli is more perishable than cauliflower. Just after harvesting, heads and shoots should be disposed immediately, otherwise the buds and leaves become yellowish and give an unattractive appearance. Therefore, transplanting and harvesting should be adjusted in a staggered manner.