

Raising capsicum in low tunnel is a profitable method

Increased health awareness, high population growth rate and changing dietary patterns lead to a huge demand of fresh vegetables all round the year in domestic as well as in export market. But as we know, vegetable production is highly influenced by the season and climatic conditions, which results in glut of vegetables during the main season and less profit to the farmers. The time of produce arrival in the market leads to considerable variation in the prices. By adopting low tunnel technology, vegetable growers can advance the crop by about one month than the normal season and get better returns.

VEGETABLES can be cultivated in low tunnel technology, in which temperature and moisture are controlled for specific growth of vegetables. Low tunnels are miniature structures producing greenhouse effect and provide near optimum conditions for plant growth. They are flexible, transparent covering that are installed over the individual beds of transplanted vegetables to enhance plant growth by warming the soil and air around the plant in the open field during winter season. These structures also protect the plants from the hails, cold wind injury, rain, frost and snow. Low tunnels are cost effective, easy to construct and dismantle to utilize in the subsequent years. This low cost technology is used for growing high quality nurseries and early cultivation of summer vegetables.

Among summer vegetables, capsicum is highly valuable vegetable crop and rich source of minerals and vitamin A and C. It is more sensitive to unfavourable environmental conditions and gets damaged by frost. Under low tunnel technology plants are protected from frost during December to February. The crop requires

optimum night temperature of 16-18°C for quality fruit production. If the temperature falls below 16°C for extended periods, this may lead to reduction in growth and yield. It can tolerate day temperature over 30°C and night temperature of 21-24°C. High temperature results in flower and fruit drop. Capsicum can be grown on all types of soils as long as it is well drained, but grows better in loam and sandy loam soil with good water-holding capacity. With the aim to get early capsicum crop and fetch more returns, the low tunnel technology can be practised. In capsicum, nursery is sown in first fortnight of October with the seed rate of 200 g per acre. Nursery should be protected from the attack of white fly to check the spread of viruses by covering the nursery area with 40 mesh nylon net. After 4-5 weeks i.e. in end of November, seedlings are transplanted on both sides of the raised beds at a distance of 130 cm and 30 cm between rows and plants, respectively. In the beginning of December the iron arches are fixed manually at a distance of 2 m and height of 45-60 cm above the bed level so as to cover



Capsicum crop in low tunnels



Visit to farmer's field



Interaction with farmers regarding low tunnel technology

the paired rows and support the plastic tunnels. In order to prepare these arches flexible iron rods of 2 m length are shaped into hoops. Transparent plastic sheet of 100 gauge thickness should be used to cover the plants. The sides of the sheet should be buried in soil on both sides. This tunnel helps to keep the temperature higher than outside area. In this technique, less irrigation is required since water collects due to condensation on the inside of the cover and returns to the soil. When the temperature starts warming up in second fortnight of February the plastic sheet is removed. Low tunnels provide optimum conditions to the plant, therefore seedlings inside the tunnels are tender and may face a stress, if the tunnels are removed at once. Thus, it is preferred to keep partial cover for few days before removing completely.

Variety

PSM-1: Plants are vigorous, spreading, tall and prolific bearer. The fruits are uniform, blocky, non-pungent, sweet flavoured, dark green in colour when immature and turn deep red on maturity. It is early maturing variety and first picking is possible 109 days after transplanting under polynet house and 120 days after transplanting under low tunnel cultivation. The variety is tolerant to high temperature and it gives average yield of 246 q/acre under polynet house and 82 q/acre under low tunnel cultivation.

Weed management

The plastic cover not only enhances crop development but also weed growth. In low tunnel technology, use of black plastic mulch helps to increase plant growth and check weed growth. If black plastic mulch is not used then on a sunny day, weeding can be done by removing

polythene partially.

Manure and fertilizers

At the time of soil preparation, 20-25 tonnes of farmyard manure is added per acre to the soil. The inorganic fertilizers at the rate 50 kg N (110 kg Urea), 25 kg P_2O_5 (175 kg Superphosphate) and 12 kg K_2O (20 kg Muriate of Potash) should be applied per acre. Add whole quantity of P_2O_5 , K_2O and 1/3 of N at the time of transplanting and rest of N should be applied in two equal doses one and two months after transplanting.

Harvesting and marketing

Harvest the crop when the fruits are fully developed, green and shining. For marketing purpose, wrap the capsicum in heat shrinkable or cling film and pack in paper moulded trays. This improves the shelf life and retains the quality for 7 days in ordinary market (28-30°C) and 10 days in super market (18-20°C) conditions.

Punjab Agricultural University, Ludhiana recommends this technology for growing capsicum, cucumber, brinjal and tomato. Growing vegetables in low tunnel has many advantages with regards to increase in yield, early availability of vegetables, conserving soil warmth and protecting plant from cold wind and frost. Therefore, by adopting this technology, farmers can capture the market in the early season which ultimately increases their net profit.

For further interaction please write to:

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CAPSICUM

KTC-1: Identified and recommended for cultivation in Zone-I. It is an open pollinated variety of capsicum with non-pungent, bell shape with attractive green fruits having 5-6 lobes at marketable stage and turn orange at maturity. It has potential fruit yield of 21.3 t/ha under open field conditions.

Source: ICAR Annual Report (2020)