



HARVESTING AND YIELD

Dalle chilli starts flowering after 70-80 days of planting and first picking is done at ripening stage. It continues to bear fruits for 2-3 years.

Generally 8-10 pickings are done every year. The yield varies 2-2.5 kg fruit/plant, while picking, the fruits are lifted gently off the plant without causing injury or breakage of stem. The average net return of Rs. 13, 62,650/- per ha per year resulting in very high benefit: cost ratio of 9.45. Data revealed that the benefit:cost ratio of Dalle chilli cultivation has increased every year. Hence, the cultivation of this crop has been adjudged as the most productive and profitable option in Sikkim.

Published by:

Dr. R. K. Avasthe, Joint Director
ICAR Research Complex for NEH Region
Sikkim Centre, Tadong, Gangtok-737102, Sikkim

For further details please contact to:

Dr. S. V. Ngachan, Director
ICAR Research Complex for NEH Region
Umiam - 793 103, Meghalaya

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Red Cherry Pepper (Dalle Khorsani): A Remunerative Organic Crop



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National Initiative on Climate Resilient Agriculture



Authors

Boniface Lepcha, Ashish Yadav, R. K. Avasthe
Raghavendra Singh, N. J. Singh, T. Khawas and L. Rai



Krishi Vigyan Kendra
ICAR Research Complex, Sikkim Centre
Ranipool-737 135, East Sikkim, Gangtok



E-mail: kvk.eastsikkim@gmail.com

Dalle Khorsani (*Capsicum annum* var. *cerasiforme*) is one of the valuable cash crops of Sikkim. The crop is grown all over Sikkim since it is valued for its diverse commercial uses. The crop belongs to the family Solanaceae and genus *Capsicum*. Dalle khorsani of Sikkim is a pungent chilli but has more medicinal properties and it is used for making pickle, paste, powder and dry chilli (for pickling, chilli can be picked either at green or ripe stage). Dalle chilli contains capsaicin which produces different pungency levels as well as carotenoids and phenolic compounds and is being used as natural pigment and antioxidant agents. However, the Scoville scale indicates that its pungency is very high and rated in the range of 100,000 to 350 000 SHU (Scoville Heat units) quite similar to the SHU of Habanero chillies.

CLIMATE AND SOIL

Dalle khorsani prefers warm and humid climate. The crop can tolerate high temperature but cannot withstand heavy rains during growth, flowering or fruit set, cold weather (< 12°C) during night also hampers growth and fruit set; ideal temperatures for flowering are 20-25°C. It can be cultivated in wide range of altitudes and soils. Sandy loam soil with pH of 5.5-7.5 is ideal. Water stagnation is detrimental to the crop. Highly acidic soils need to be reclaimed using limestone or dolomite @ 1-2 tonnes/ha.

LAND PREPARATION

The main field should be ploughed 3-4 times for fine tilth. Farmyard manure is incorporated during the last ploughing. Ridges and furrows are made for irrigated crop during summer season. In summer, planting should be done on furrows, while in the rainy season it is better on ridges. Shade with chilaune (*Schima wallichii*) should be given during summer season for one week period immediately after transplanting.

SEED TREATMENT

Dry seeds are immersed in hot water (49 to 57°C (120 to 135°F) for 15 to 30 minutes for better germination.

NURSERY MANAGEMENT

A low cost poly structure of size 12 m x 6 m is ideal for raising seedlings. Beds should be prepared by mixing FYM @ 7 kg/m² + neem cake @ 2 kg/m² + vermicompost @ 1 kg/m² + sand @ 3-4 kg/m². About 400-500 g of seed is enough for planting a hectare of land. The seeds should be sown 3-5 cm apart for producing healthy seedlings.



Treatment of soil with *Trichoderma harzianum* culture @ 10 g/m² one week before sowing, manages the soil-borne disease. Damping off is the most common disease which can be managed by applying *Trichoderma viride* and *Pseudomonas fluorescens* culture @ 10 g/l.

TRANSPLANTING

Generally, 30-35 days old seedling is ready for transplanting. It is wise to keep seedlings in open condition a day before transplanting, as this gives the seedling chance to acclimatize. Transplanting should be done in late afternoon for better establishment.

PLANTING

The optimum spacing for Dalle is 1 m x 1 m and planting should preferably be done on raised bed. Before planting the root treatment of seedling should be undertaken with the culture of *Trichoderma viride* + *Pseudomonas fluorescens* @ 10% for 15 minutes to manage wilt problem. Water stagnation in the field causes serious damage to the crop.



NUTRIENT MANAGEMENT

Chilli is sensitive to N, P and Mo, nutrients should be properly managed through organic source with the use of different nutrient rich manures and growth promoters.

Table 1: Different organic sources and their doses for Dalle khorsani

SOURCE	DOSE	APPLICATION	TIME
FYM	20 t/ha (2 kg/plant)	Soil	15 days before planting
Neem Cake	2.0 t/ha (200 g/plant)	Soil	7 days before planting
<i>Azospirillum</i> + PSB	20 % (200 g/l) root dip for 15 minutes	Seedling treatment	At planting
Vermicompost	2.5 t/ha (250 g/plant)	Soil treatment	20 DAP
Bio NPK	0.3 % (3ml/l)	Foliar spray	30 DAP
Boron	0.2 % (2g/l)	Foliar spray	30 DAP
Other micro nutrients	0.05 % (0.5 ml/l)	Foliar spray	20 & 40 DAP
Cow urine	20 % (urine : water, 1:4)	Soil drench	At 20 days interval

INTERCULTURAL OPERATIONS

Gap filling is done during second irrigation 10 days after transplanting. Light hoeing is required to remove weeds and loosen the soil for better aeration and root growth. In order to boost vegetative growth, fruit set and yield, buds from the first and second nodes are pinched off. Black polythene sheet is the most preferable mulch material for this crop.



IRRIGATION

Continuous supply of optimum water is essential for proper growth and fruit yield. The first irrigation should be given immediately after transplanting and water should be provided at weekly interval in greenhouse planting.

MAJOR PROBLEMS

- Aphids (*Aphis gossypii* and *Myzus persicae*) are locally known as Lye Kira. They suck the sap and reduce the vigor of the plant and secrete honey dew which attract ants and develop sooty mould in the lower part of the leaf. They also act as a vector for viral diseases. Application of systemic bio-pesticide *i.e.*, *Verticillium lecanii* / petroleum-based oil spray @ 6 ml/l.
- Fruit fly lay their eggs in the fruits and after hatching, maggot starts feeding on fruits resulting fruits drop. Placing of 8-12 pheromone traps per hectare at the time of fruit set and collection and destruction of dropped fruits manages the problem.