



**ACHARYA N.G RANGA AGRICULTURAL UNIVERSITY**

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**HORT 281 3(2 +1)**

**PRODUCTION TECHNOLOGY OF VEGETABLES AND FLOWERS**

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Aswaraopet

## Chilli

Chilli - importance –varieties-climate and soil-seeds and sowing-manuring-irrigation-intercultural operations-harvesting - yield

Botanical name: *Capsicum fruitiscens* – Bell pepper

*Capsicum annum* - Chilli

Family : Solanaceae

Chromosome no  $2n = 24$

Origin: Bell pepper from South America

Chilli from Peru
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Chilli is also called as pepper.

### Importance and nutritive value:

Green chillies are rich in proteins 2.9 g per 100 g. Ca, Mg, P, K, Cu and S. vitamins like Thiamine, Riboflavin and Vitamin C. Chillies are the major ingredients in curry powder.

In powdered form it is mixed in red or cayenne pepper. Chilli pulp is pickled in strong vinegar or brine. Extracts of chillies are used in the production of Ginger beer and other beverages. Cayenne pepper is incorporated in poultry feeds, green chillies are rich in **Rutin** which has pharmaceutical use. Pungency of chillies is due to **capsaicin**. The pigment (colour) in chillies is due to **capsanthin** also contains many other oleoresins.

**Botany and floral biology:** Genus capsicum 20 wild species have been reported at only few are cultivated.

1. ***Capsicum annum*** (sweet pepper and chilli): it has blue anthers, milky white corolla.
2. ***C. baccatum***: it has yellow or brown spots on corolla. Its cultivation is restricted to South America.
3. ***C. fruitescens***: tobacco pepper. It has blue anthers. Milky yellowish white corolla.

### Chilli Varieties and hybrids:

**Andhra Jyothi or G5 (G2 x Bihar variety):** released from Lam Guntur. Fruits are short and called as Gundu types.

**Bhagya laxmi (G4):** selection from thohian chillies grown largely for green chillies.

**Sindhuri:** Tall growing and less pungent variety suit for green chillies

**Baskar/ CA -235:** released from Lam, Guntur. It is a cross between G4 x yellow anther mutant.

**Prakash (LCA 206):** developed from RARS, Lam Guntur.

**Hissar sakthi:** multiple resistant variety developed at hissar.

**N.P46 A:** Medium, early prolific and pungent variety of IARI (**N.P means New Pusa**)

**Arka lohit:** highly pungent variety released from IIHR, Bangalore.

**Hybrids:**

S.No	Hybrid	Parentage
1	Pusa Jwala	Pusa Red X N.P 46 A
2	Pusa sadabahar	Pusa jwala X IC 31339
3	Punjab lal	Perennial X long red
4	Kiran (x235)	G4 X anther mutant

**Bell pepper Varieties:**

**Arka basant:** released from IIHR, Bangalore. It was improved from the variety Soroksari, suitable for both kharif and rabi.

**Arka gourav:** pureline selection from golden caliwonder released from IIHR, Bangalore. Fruits are 3 to 4 lobed. Good for kharif and rabi.

**Arka mohini:** selection from variety known as Taitan. Fruits are 3 to 4 lobed becomes red on ripening. Suitable for both kharif and rabi season.

**California wonder:** an introduction from US. Fruits are 3 to 4 lobed.

**Yolo wonder:** plant is dwarf and as medium flesh thickness.

**Pusa deepthi:** released from Katrain. Suitable for both **kharif and rabi**.

**Climate:**

Chilli is grown in both tropical and sub-tropical areas. It can grow up to 2000 msl altitude. For vegetative growth it requires warm humid climate. For fruit maturity it requires warm dry weather. It requires a well distributed annual rainfall of about 800 – 1200 mm. Heavy rainfall leads to poor fruit set and high humidity leads to fruit rot. The crops continue to develop at high temperature but root development is retarded at a temperature of 30<sup>0</sup> C. Fruit development is adversely retarded at 38<sup>0</sup> C. Average night temperature favours high capsaicin content. Day length of 9 to 10 hours light stimulate plant growth. In general capsicum is grown at low temperature conditions than chillies.

**Soil:**

Chilli can be grown on a wide variety of soils provided. They are well drained, well aerated and rich in organic manure. In ill drained soils plants shed their leaves and turn sick. Cannot tolerate water logging conditions. Sandy loam soil with adequate irrigation and manuring can support better crop of chilli.

Black soils also preferable to grow chillies as rainfed crop. Strongly acid soils and alkaline soils are not suitable. Chilli can be grown in saline soils. Seed germination and plant vigour affected by salinity. Ideal pH 6 to 7.

**Time of sowing:**

Chilli seeds are sown in nursery beds during May-july. Sowing is little early in the north east India. In south states where rainfed cultivation is in vogue chillies can be in may-june and September to October. In hills it is sown during march to april.

**Seed rate:**

**1 to 2 kg** seed is required to raise seedlings for hectare. Chilli seed bed are some times made in the dimensions of 3 x 3 m, it can accommodate 6000 seedlings and requires about 50 g of seed. However, generally nursery of chilli is prepared by following method. Selected area is ploughed to a fine tilth. Nursery bed should be prepared to a size of 6 m length 1 m width with a 15 cm raised. Raised beds are preferred than flat beds because on flat beds root development is poor and incidence of damping off is more.

Well decomposed FYM @ 20 to 25 kg per bed is mixed thoroughly in seed beds in one month advance. Seeds are treated with fungicides like Capton 2 to 3 g per litre used to prevent. Seed borne diseases. Seeds are sown preferably 5 cm lines. Paddy straw used for mulching. Mulching is removed as soon as seeds start germination. Phytolon 0.25 g per litre solution is used to drench the nursery beds at fortnightly intervals against damping off.

### **Transplanting:**

Seedlings ready for transplanting 35 to 45 days. Short thick stem seedlings are preferred for better establishment. In older seedling topping has to be done one week prior to transplant. Early seedlings are transplanted singly different spacing 30 x 30 cm 45 x 30 cm, 45 x 45 and even 30 x 20 were tried in chillies. Spacing varies with variety, rainfall, seasonal conditions etc. Immediately after transplanting field should be irrigated.

### **Manuring:**

It needs good fertile soils supplied humus. Excess nitrogen lead to increase the vegetative growth and delays maturity. 10 to 15 tones of well decomposed FYM need to be applied in the last ploughing. Besides that 75 kg N, 75 kg P, 55 kg K per ha is to be applied. Entire quantity of FYM, Phosphorus, potassium and half of nitrogen is to be applied at the time of field preparation. Remaining half nitrogen is to be given as top dressing in two equal splits at one month interval of transplanting.

### **Irrigation:**

first irrigation is given just after transplanting for better establishment in the soil. Second irrigation is given 10 days after transplanting. During this time gap filling can be taken up. After wards irrigation is given as per the requirement. Generally 8 to 9 irrigations have given depending on rainfall, soil type, humidity and temperature.

Method of irrigation adopted is ridges and furrows.

### **Interculture:**

Chilli is a slow growing crop cannot compete with aggressive weeds hand weeding or hoeing or application of herbicides need to be done in order to ensure weed free conditions. Frequent shallow conditions are under taken to facilitate soil aeration and proper root development. However deep cultivation should be avoided because, it damages roots. Herbicides like Alachlor 2.5 kg per ha can be used on chillies.

**Harvesting:**

Flowering begins 40 to 60 days after transplanting depending upon variety climate, nutritional status of plant. Roots starts ripening about 3 months after transplanting and picking may go on for 2 to 3 months. Commercial chilli variety yield 10 – 15 Q per ha. dry pods in rainfed conditions and 15 to 20 Q per ha in irrigated conditions. Hybrids can give up to 400 to 500 Q per ha. Green chillies can be stored for about 40 days at 0° C and 95 to 98 % RH. Dried chillies can be kept for a month in dry places well protected from insect pests.