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Pusa Sona – A new variety of onion

Onion bulbs are valued for their everyday use in Indian culinary. Besides it has export value and medicinal properties. Adoption of newly developed varieties for commercial cultivation will help in improving productivity. Onion variety Pusa Sona, developed at Division of Vegetable Science has been notified recently for commercial cultivation. Pusa Sona is suitable for commercial cultivation during *rabi* season in zone II, comprising Delhi, Rajasthan, Haryana, Jammu region of J&K and Punjab.

Pusa Sona

The bulbs of this variety are compact and creamish yellow in colour. Average equatorial diameter of bulbs ranges from 5.0 – 6.2 cm, polar diameter ranges from 5.2 - 6.5 cm and single bulb weight ranges from 70.0 – 135.0 g, yield potential 33.0-35.0 t/ha. The variety is suitable for fresh consumption with low TSS, average around 10.0 ±2° Brix. The plant height ranges from 55-60 cm. It has less than 10 leaves per plant. Leaves are erect, dark green and waxy. The bulbs become ready for harvest in 125 - 135 days after transplanting. The bulbs are big size and yellow in colour, less pungent and suitable for export to Europe and USA. The important features are presented in Table 1.

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Cultivation practices for Pusa Sona

Nursery Preparation

Sowing time: Last fortnight of October - first fortnight of November for *rabi* crop and June - July for green onion production.

Seed treatment: Seeds should be treated with thiram @ 2g/kg seed.

Seed rate and method of sowing: 6-8 kg for raising seedlings for 1 ha. Seeds are continuously sown in line at a depth of 1-1.25 cm, spaced at 5-7 cm in raised bed. Nurseries in area of 350-500 m^2 are required to produce seedlings for 1 ha.

Main field operations

Land preparation: By repeated ploughing. The bulb growth is restricted to top 10 cm of the soil. Sandy loam soil with pH around 6.5- 7.0 is preferred. Flat beds of 3.0-3.5 m width and 5-7.5 m are preferred for cultivation in *rabi* season. During *kharif*, it should be transplanted in raised bed for green onion production.

Transplanting time: Seedlings at 3-4 leaf stage should be transplanted last week of December or first fortnight of January, after the chances of frosts are over. Frosts after transplanting adversely affect bulb quality with more number of flowering stalks (bolters) in the bulb crop. Seedlings should be dipped in carbendazim solution @0.1% for two hours before transplanting. For green onion production, transplanting is done in last fortnight of August or early September.

Spacing: For *rabi,* spacing of 10 cm between plants and 15 cm between rows need to be maintained. For green onion production during *kharif*, spacing of 8-10 cm between plants and 10-12 cm between rows need to be kept.

Nutrition: 20 t well decomposed FYM, 75 kg N, 50 kg P, 80 kg K and 50 kg S should be applied during final land preparation. Nitrogen is again applied in two split doses of 37.5 kg each at 30 and 45-60 days after transplanting. Before fertilizer application, adequate moisture in the field should be ensured, so that fertilizer dissolves readily and plants can uptake the nutrients.

Irrigation: Immediately after transplanting and pre-emergence weedicide application, flood irrigation should be given. Drip irrigation helps in getting higher yield of better quality bulbs and saving of water and labour cost. The discharge rate of drip irrigation is 4 l/hour. In traditional method of irrigation, frequent and light irrigation is recommended at an interval of 5-7 days based on soil moisture and weather condition. There should not be prolonged dry spell as irrigation after long dry spell results more double and multiple bulbs. Irrigation should

Table 1. Important features of Pusa Sona based on three years multi location data

Trait	Value
Days to harvest	129.43
Thrips Incidence (%)	12.93
Purple blotch incidence (%)	13.3
Stemphyllium blight incidence (%)	15.83
TSS (°Brix)	10.7
Pungency (Pyruvic Acid μmol/g)	5.0

be stopped 10-15 days before harvest of the bulbs.

Weed management: Application of Oxyflurofen @ 23.5% EC (1.5-2.0 mL/L) or Pendimethalin @ 30% EC (3.5-4.0 mL/L) after transplanting followed by flood irrigation and need based hand weeding at 30 and 45-60 days after transplanting is recommended for effective weed management.

Plant protection: For control of damping off disease in the nursery, raised bed planting, seed treatment with thiram or captan @ 0.3% and drencing the nursery with captan @ 0.2% or carbendazim @0.1% is recommended. Purple blotch, Stemphyllium blight is controlled by spraying mancozeb @ 0.25%, hexaconazole @ 0.1%, propioconazole @ 0.1% or tricyclazole @ 0.1%. The chemicals should be alternately sprayed 30 days after transplanting or as soon as disease appears in the field. The thrips infestation in the field is confirmed through silver specks on the leaves and it is controlled by alternate application of profenofos @ 0.1%, carbosulfan @ 0.2% or fipronil @ 0.1%. During application of fungicides or pesticides, stickers should be included.

Harvesting: The crop is ready for harvesting 125-135 days after transplanting and 75% neckfall is the indication of the maturity. For green onion production in *kharif*, it becomes ready 75-90 days after transplanting.

Curing: Curing is important to improve quality of bulbs. After harvesting, the leaves are cut leaving 2-2.5 cm from below. Curing is done by leaving the bulbs under shade or in the fields in a properly ventilated space. Following curing, the neck region becomes thin and there is proper development of external skin of the bulbs.

Storage: The bulbs are stored in a properly ventilated space protected from direct sunlight under ambient atmospheric condition. This variety is not good for long term storage.

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– Editor