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Pusa Raunak – A high yielding round melon variety for spring summer season

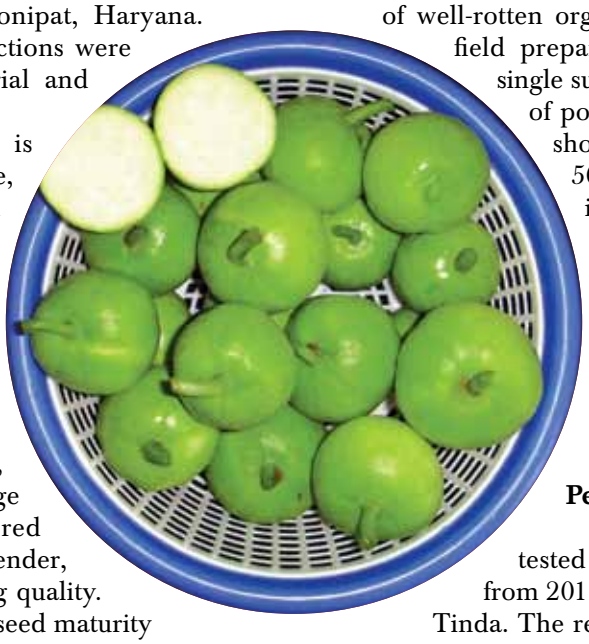
Round melon [*Praecitrullus fistulosus* (Stocks) Pangalo] is also known squash melon/ Indian squash/ Tinda. The tender, green, non-fibrous immature fruits are cooked as vegetable. India is believed to be its centre of origin. In round melon improvement programme, attention should be focussed on development of early, green, shiny, uniform, flattish round high yielding genotypes having white, tender, less-seeded flesh. Keeping these facts in view, a round melon variety Pusa Raunak was developed by Division of Vegetable Science, ICAR-Indian Agricultural Research Institute, New Delhi.

IN north Indian plains, generally two crops of round melon are taken in a year, viz. spring-summer and *kharif* crops. The consumer preference in India is early maturing variety having medium sized flattish round fruits with tender flesh and high yielding ability. The National check variety Punjab Tinda is an old variety and shy bearer, and significantly lower in yield as compared to the new variety Pusa Raunak which has been released and recommended by Delhi State Seed Sub-committee for commercial cultivation in National Capital Territory of Delhi during spring summer season. It was subsequently notified by Central Sub-committee on Crop Standards, Notification and Release of Varieties of Horticultural Crops during 2019.

Pusa Raunak (DRM-26)

Pusa Raunak is developed from highly heterozygous local material collected from Sonipat, Haryana. Selfing and individual plant selections were carried out to purify the material and develop the variety.

Vine length of this variety is 1.0-1.5 m. Leaves are alternate, dark green, deeply lobed, and hirsute. Plants are monoecious. The staminate and pistillate flowers are solitary, axillary and yellow in colour. The ovary of female flower is hairy. Young fruits at marketable stage are green, shiny, uniform, flattish round in shape, 5 cm in diameter, medium in size with an average weight of 60 g each and covered with soft hair. Flesh is white, tender, less-seeded and has good cooking quality. Fruits turn flattish round towards seed maturity and the fruit colour fades and becomes pale green. The seeds are flattish round in shape, medium in size and black in colour with ridged border. Fruits become ready for first harvesting in 55-60 days after sowing during spring-summer season. Average yield under normal conditions is 7.5 t/ha.



Cultivation

It can be grown successfully on all type of soils but prefers well-drained loam and sandy loam soils rich in organic matter. The seed rate is 4-5 kg per hectare. As a spring-summer crop, it is sown from mid-February to first week of March. The seeds are sown in the hills 45 cm apart on the slope of channels prepared at a distance of 1.5 m. The spacing between channels is increased to 2.5 m when sowing is done on both the sides. Two to three seeds are sown 2 cm deep in each hill. About 15-20 tonnes of well-rotten organic manure per hectare before field preparation and 50 kg urea, 120 kg single super phosphate and 60 kg muriate of potash at the time of last ploughing should be applied. Another dose of 50 kg urea should be top-dressed in two equal split doses, 30 and 45 days after sowing. Foliar application of urea (1%) may be done during early growth and at the time of fruit development. When seedlings become 8-10 cm tall, thinning should be done to keep 1 or 2 seedlings per hill.

Performance of Pusa Raunak

Pusa Raunak (DRM-26) has been tested in yield trial at several locations from 2011 to 2015 along with check Punjab Tinda. The results indicated that Pusa Raunak

Table 1. Mean performance of DRM-26 and Punjab Tinda at IARI, New Delhi during spring summer season from 2011 to 2015

Genotype	Yield (t/ha)					Average yield (t/ha)	% increase over check	No. of days to first harvest
	2011	2012	2013	2014	2015			
DRM-26	7.38	6.73	6.91	8.36	8.55	7.59	64.29	55-60
DRM-44	7.02	6.59	6.67	6.72	6.98	6.80	47.19	55-60
DRM-3	5.77	5.49	5.39	5.73	5.96	5.67	22.73	55-60
DRM-12	5.59	5.29	5.32	5.55	5.64	5.48	18.61	55-60
Punjab Tinda (C)	4.94	4.57	4.40	4.65	4.55	4.62		60-65

Table 2. Performance of DRM-26 round melon during spring-summer season 2015 at IARI Regional Station, Karnal

Genotype	Average yield (t/ha)	% increase over check
DRM-27	6.71	40.97
Punjab Tinda (C)	4.76	
CD 5%	0.33	
CV (%)	10.63	

Table 3. Performance of DRM-26 round melon during spring-summer season 2015 at KVK, Shikohpur, Gurgaon

Genotype	Days to first fruit harvest	No. of fruits/ plant	Average fruit weight (g)	Average yield (t/ha)	% increase over check
DRM-26	54-60	10.30	58.80	8.48	75.21
Punjab Tinda (C)	60-67	6.0	51.70	4.84	

Table 4. Performance of DRM-26 round melon during spring-summer season 2015 at KVK, Ujwa, New Delhi

Genotype	Days to first fruit harvest	No. of fruits per plant	Average fruit weight (g)	Average yield (t/ha)
DRM-26	53-58	6.9	47.1	5.85
Punjab Tinda (C)	55-60	5.7	38.2	3.62

yielded 7.59 t/ha which was 64.3% higher than check Punjab Tinda (Table 1). In multi-location testing, Pusa Raunak has average yield of 6.71, 8.48 and 5.85 t/ha at IARI Regional Station, Karnal; KVK, Shikohpur; and KVK, Ujwa, respectively (Tables 2, 3, 4).

Disease and pest management

Red pumpkin beetle attacks the plant and feeds away the leaves. It can be controlled by spraying of Carbosulfan 20 EC @ 2 g/litre of water. The adult of fruit fly insect punctures the skin of young fruit and lay eggs. The maggot starts feeding the flesh of the fruit and infected fruit become deformed. The affected fruit should be picked and destroyed. Fruit fly can be effectively controlled by spraying of Malathion @ 2 ml/litre of water and use of poison bait and pheromone trap to trap and kill the adult flies. A need based spray of Imidachlorpid @ 0.3 ml/l or acetamiprid @ 0.3 g/litre of water followed by Dimecron @ 2ml/litre of water at two weeks interval should be applied judiciously to prevent the crop from important sucking pests like aphid and whitefly.

High summer rainfall and high humidity is conducive for the spread of downy mildew disease. Symptoms appear as reddish brown spot on the upper surface and greyish black spot on the lower surface of leaves. It can be controlled by spraying of Dithane M-45 @ 2 g/litre of water twice at 10 days interval. Fusarium wilt is a soil borne disease in which the young seedlings, cotyledons droop and wither. In older plant, leaves wilt suddenly and collar region become yellow or brown. The disease can be checked by drenching the soil and root zone of the crop by Captaf @ 2 g/litre of water. This should be repeated at 10 days interval.

SUMMARY

Pusa Raunak is an early improved variety of round melon for spring-summer season cultivation developed by IARI for National Capital Territory of Delhi. Apart from superior quality characters, it showed 64% higher yield over the National check variety Punjab Tinda.

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