

## Pusa Pickling Cucumber-8: An early high yielding gynoecious parthenocarpic variety for protected cultivation and export

**Pusa Pickling Cucumber-8 is an extra-early, high-yielding gynoecious parthenocarpic variety developed by ICAR-IARI, New Delhi for protected cultivation in North Indian plains. It is specifically suited for off-season (winter) production under low-cost polyhouse conditions, overcoming temperature limitations of open-field cultivation. The variety produces market-preferred fruits without pollination, ensuring consistent yield and quality. Fruits are uniform, dark green, glossy, cylindrical, and possess tender skin with crispy flesh, ideal for pickling and export. It records an average yield of 84.81 t/ha, which is 19.60% higher than the commercial hybrid Annaxo. With early maturity (40–45 days), high productivity, and superior fruit quality, this variety offers a cost-effective alternative to expensive hybrids for farmers and export-oriented production systems.**

**Keywords:** Extra-early fruit, High yield, ICAR-IARI, North Indian plains, Off-season production, Polyhouse cultivation, Protected cultivation

**P**ICKLING cucumber is an important cucurbitaceous crop grown extensively throughout the world mainly for pickling purpose. It is gaining importance in cities now because of its uniqueness as pickles, use in fast food chains and five star hotels. It also have high export value. According to APEDA, India exported 2,44,243 metric tonnes of cucumber and gherkins worth USD 256 million in the year 2024. Pickling cucumber is highly thermo-sensitive in nature and its cultivation in north Indian plains during winter season under open condition is hampered because of extremely low temperature prevailing in this part. Parthenocarpic gynoecious pickling cucumber varieties are suitable for polyhouse cultivation as these varieties develop fruits automatically without any pollination and can be successfully cultivated under polyhouse during winter season. At present many of the private seed companies are selling F<sub>1</sub> hybrid of parthenocarpic pickling cucumber at a very high price as their seeds are being sold on per seed basis. Keeping in view these facts, a gynoecious parthenocarpic pickling cucumber variety Pusa Pickling Cucumber-8 was



Tender Fruits of Pusa Pickling Cucumber-8

developed by Division of Vegetable Science, ICAR-IARI, New Delhi. The variety was notified by central sub-committee on crop standards, notification and release of varieties of horticultural crops.

### **Pusa Pickling Cucumber-8 (DG-8)**

It is the first extra-early (40-45 days for first fruit harvest) improved variety of parthenocarpic gynoecious pickling cucumber suitable for cultivation in protected condition developed by ICAR-IARI for North Indian plains. It has distinct advantage in yield and quality characters over commercial private sector hybrid Annaxo. The average fruit yield is 84.8 t/ha (848 kg/100 m<sup>2</sup>) during winter season (off-season, November-March) under low cost polyhouse which is 19.60% superior over Annaxo. Its fruits become ready for first harvesting in 40-45 days after sowing during winter season (off-season, November-March) under low cost polyhouse. The fruits have desirable marketable attributes and are attractive, uniform, dark green, glossy, cylindrical, straight, ribbed, warty with prickles, and has tender skin and crispy flesh. The fruits have dark green skin with light green faint stripes originating from the blossom end and dark green

Mean performance of Pusa Pickling Cucumber-8 (DG-8) at ICAR-IARI, New Delhi during winter season (off-season, November-March) under low cost polyhouse from 2021-22 to 2023-24

Variety	Yield (t/ha)			Average yield (t/ha)	Percentage increase over Annaxo
	2021-22	2022-23	2023-24		
Pusa Pickling Cucumber-8 (DG-8)	85.18	81.06	88.19	84.81	19.60
Annaxo (F <sub>1</sub> ) (Check)	70.61	69.67	72.46	70.91	

blotches near stem end. The shape of peduncle end and blossom end of fruit is obtuse. Average fruit length is 8 cm and width 2 cm. Average fruit weight is 18-20 g.

### Performance of Pusa Pickling Cucumber-8

Pusa Pickling Cucumber-8 (DG-8) has been tested in yield trial at ICAR-IARI, New Delhi during winter season (off-season, November-March) under low cost polyhouse from 2021-22 to 2023-24 along with check Annaxo. The results indicated that Pusa Pickling Cucumber-8 yielded 84.81 t/ha which was 19.60% higher than check Annaxo.

### Cultivation

It can be grown successfully on well-drained loam and sandy loam soils. Soil should be thoroughly ploughed, well prepared and basal dose of 200-250 kg FYM; 70-80 g N, 80-90 g P<sub>2</sub>O<sub>5</sub> and 70-80 g K<sub>2</sub>O per 100 m<sup>2</sup> should be applied the time of bed preparation under polyhouse. A spacing of 60 × 45 cm is recommended. Recommended seed rate is 15 to 20 g per 100 m<sup>2</sup> of polyhouse.

For a successful crop of pickling cucumber in a polyhouse during the off-season (winter season), direct sowing is done in the third week of October to the first week of November when temperatures are mild and conducive to crop growth. The seeds are treated with Captaf @ 2 g/kg of seed. Generally, 1-2 seeds are sown per pit, and after germination, when seedlings are established, thinning is done to retain one plant per pit.

To save time, seeds are also sown in polythene bags filled with a mixture of soil (2 parts), FYM (1 part), and sand (1 part) during the first week of October, and 3-4-week-old seedlings are transplanted in the last week of October or the first week of November. Nowadays, plug trays (pro-trays) are recommended for raising seedlings. Generally, medium-sized cells (5-6 cm in diameter) are required for optimum seedling growth. These trays facilitate proper germination, provide an independent area for each seed, reduce mortality, and ensure uniform and healthy seedling growth, while also being easy to handle, store, and transport.

Soilless media is commonly used for raising healthy and vigorous seedlings in plastic pro-trays. The medium typically consists of coco peat, vermiculite, and perlite in a 3:1:1 ratio, which is thoroughly mixed before filling the plug trays.

Hand weeding and hoeing should be carried out at regular intervals to keep the cultivated area clean. A fertigation schedule using soluble fertilizers N:P:K (19:19:19) @ 8-10 g/litre should be followed when seedlings are 3 weeks old. Supplementary doses of liquid fertilizers should be applied after transplanting in three



Plants of Pusa Pickling Cucumber-8 in low cost polyhouse

split doses @ 12-15 g/litre at 10-day intervals until flower initiation. The plants are trained vertically using nylon thread, and lateral branches, if any, are pinched off at regular intervals. Fruits are allowed to set only on the main stem.

Harvesting of fruits can begin from the last week of December to the first week of January and continue up to the first week of April. Fruits are ready for harvest 40-45 days after sowing when they attain an average length of 8.5 cm, width of 2 cm, and average fruit weight of 18-20 g. Deformed fruits and old leaves should be removed at regular intervals to improve aeration.

Drenching with ridomil @ 2 g/litre and Blitox @ 3 g/litre of water is necessary to prevent damping-off and other root-borne diseases. Need-based sprays of Imidacloprid @ 0.3 ml/l or Acetamiprid @ 0.3 g/l, followed by Dimecron @ 2 ml/l at intervals of 2-3 weeks, should be applied judiciously to manage sucking pests such as aphids and whiteflies.

## SUMMARY

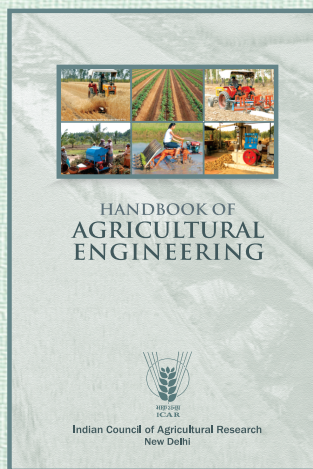
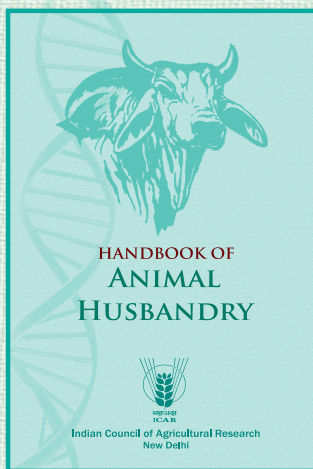
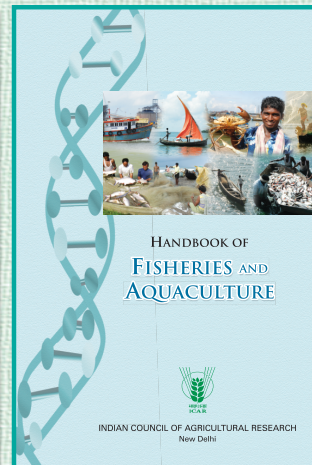
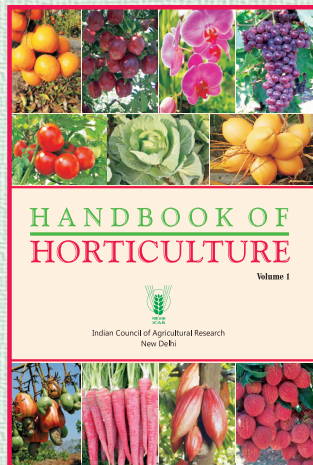
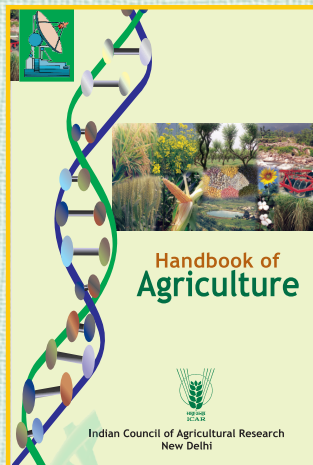
Pusa Pickling Cucumber-8 is the first extra-early (40–45 days to first fruit harvest) improved parthenocarpic gynoecious pickling cucumber variety developed by ICAR-IARI for protected cultivation in the North Indian plains. The fruits possess desirable marketable traits, being uniform, attractive, dark green, glossy, cylindrical, straight, ribbed, warty with prickles, and having tender skin with crispy flesh. The variety has demonstrated superior performance under low-cost polyhouse conditions during

the winter (off-season, November–March), recording 19.60% higher yield compared to the check variety Annaxo.

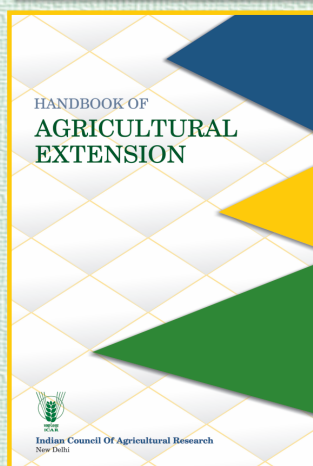
*For further interaction, please write to:*

<sup>1</sup>Principal Scientist, Division of Vegetable Science, ICAR-Indian Agricultural Research Institute, New Delhi 110 012. <sup>2</sup>Director, ICAR-Indian Institute of Horticultural Research, Hessaraghatta, Lake Post, Bengaluru 560 089. \*Corresponding author email: aksureja@gmail.com

## HANDBOOKS OF ICAR



**DIRECTORATE OF  
KNOWLEDGE MANAGEMENT  
IN AGRICULTURE**



*For obtaining copies,  
please contact:*

**Business Unit**

Directorate of Knowledge  
Management in Agriculture  
Krishi Anusandhan Bhavan-I,  
Pusa, New Delhi 110 012

Tel : 011-25843657

Fax 91-11-25841282

e-mail : bmicar@gmail.com

[www.icar.org.in](http://www.icar.org.in)