



Punjab Horticultural Postharvest Technology Centre  
Punjab Agricultural University, Ludhiana

# PHPTC Newsletter

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## Postharvest Handling and Processing of Pear

In Punjab, pear occupies an area of about 3440 ha with a production of 79.5 thousand MT. It is largely grown in districts of Amritsar, Jalandhar, Gurdaspur, Hoshiarpur and Ropar. Patharnakh, Punjab Nectar, Punjab Gold, Baggugosha, Punjab Beauty and LeConte are the important cultivars under commercial cultivation. Out of total the area under pear cultivation, Patharnakh alone occupies more than 90% area. Pear fruits are a good source of protein (0.69 g), vitamins such as vitamin A (0.06 mg), vitamin B (0.03 mg) and minerals like phosphorus (15mg), calcium (8mg) and iron (0.5mg) per 100g of pulp. The flesh of fruit is gritty, crisp and juicy.

Pear has been identified as an important crop in Punjab and recently Punjab Government has established Pear Estate in Amritsar district to boost the production of pear fruits and its marketing in domestic and distant markets of India and abroad.

**The tips to maintain good quality of pear fruits after harvesting are discussed as under:**

**Harvesting:** Pear fruits are harvested when still green and are hard in texture. The pressure test is the best index to determine the harvest maturity. It should be harvested when it attained 18 lbs force pressure. However, the fruits are considered to be ready for harvesting when fruits attain full size and lenticels turn brown and corky and peel colour changes to light green. In general, the fruits of Patharnakh require 145 days, while *Punjab Beauty*, *Punjab Nectar* and *Punjab Gold* need 135 to 140 days from full bloom to harvest maturity.

The pears are harvested alongwith pedicels, which can be separated from the spurs easily, when the fruit is ready to harvest. The precaution must be taken that while harvesting the spurs on which fruits are born should not be damaged. The pear fruits should be carefully picked by giving upward twist so that the spurs are not broken or damaged. By carefully picking the fruits, the farmers can easily enhance the productive life of pear trees.



**Right Method**

**Wrong Method**

**Grading:** Although no specific standards for grading of pear fruits are available, but before packing and marketing, the fruits should be graded according to their size such as large, medium and small. This practice will help the farmers or traders to earn better profit in the market.

**Precooling:** The pear fruit should be precooled immediately after harvest to remove the field heat. The precooling can be done with different methods such as hydrocooling, forced air cooling and evaporative cooling etc. The precooling helps in improving the quality and shelf life of pear fruit.

**Packing:** Packing plays an important role in maintaining freshness of fruits. The fruits should be packed in corrugated fibre board cartons or plastic crates for transportation to distant markets, as these packages help in reducing the postharvest losses. The

packing of these fruits in gunny bags or wooden baskets tied with jute cloth should be avoided as these lead to bruising of fruits and results in huge postharvest losses. When fruits are packed in layers, the padding or fibre board divider may be used, which would result in roller brushing to prevent the movement of fruits during transportation. The Punjab Agricultural University has recommended corrugated fibre board boxes of 2Kg, 4Kg and 10 Kg for local and distant marketing of pear fruits. The dimensions of these boxes are as under:

| Capacity | Dimensions            | Thickness of corrugation |
|----------|-----------------------|--------------------------|
| 2 Kg     | 340 mm×220 mm× 100 mm | 3 ply                    |
| 4 Kg     | 340 mm×220 mm× 190 mm | 3 ply                    |
| 10 Kg    | 450 mm×240 mm×180 mm  | 5 ply                    |



2 kg

4 kg

10 kg

### Packaging for Wholesale Marketing



### Packaging for Retail Marketing

**Ripening:** The pear fruit can be ripened by exposing to ethylene gas (100ppm concentration) inside the ripening chamber for 24 hours at 20-22°C and 90-95% RH. The postharvest application of ethephon (1000 ppm) also helps in enhancing ripening and development of uniform colour in Patharnakh pear fruits.



**Storage:** The fruits of both the cultivars of pear namely *Patharnakh* and *Punjab Beauty* are harvested in July-August, respectively, when temperature and humidity are very high. These conditions are not favourable for ambient storage of pear fruits. Being perishable in nature like other fruits, pears are also subject to heavy losses both quantitatively and qualitatively during transportation and storage. Most pear cultivars require careful storage before marketing. In order to give impetus to pear production in state, the storage of fruit during glut is must. The pear fruits can be stored at 0-1°C temperature with relative humidity 90-95% for 60 days.



**Processing:** Pear is one of the potential crops of Punjab which is underutilized for processing purpose. Nutritionally, pear fruit is characterized as a dietary or healthy fruit rich in phosphorus, iron, potassium, calcium, magnesium, and other mineral nutrients alongwith various bioactive compounds such as beta-carotene, lutein, and zeaxanthin. However, pear fruit has low acidity and insipid flavour, which is a constraint for its large scale processing. This limitation can be overcome by blending it with other fruits or by adding various food flavours to its processed products. Some of the low cost value added products such as pear bar, pear candy, pear wine, jam and pear juice can open new avenues for



commercialization of this crop in the processed food market.



**Pear Fruit Bar**



**Pear Fruit Candy**

## PHPTC Activities

### 1. NABL accreditation of Quality Control Laboratory:

The Centre has recently been granted NABL Accreditation in accordance with ISO17025:2017 for analysis of trace metals (including heavy metals) in drinking water wide accreditation certificate number TC- 10329, one of the first NABL accredited government Laboratory in Ludhiana providing testing services. NABL accredited report from a laboratory signifies authentication of quality and its technical competence. The reports issued by NABL accredited laboratories are acceptable internationally, catering to the export requirements of industries and exporters. Quality control laboratory of PHPTC is equipped with sophisticated equipments such as inductive coupled plasma mass spectrophotometer (ICP-MS) and microwave digestion system (MDS) for heavy metal analysis.

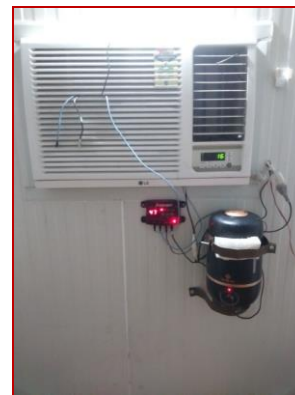
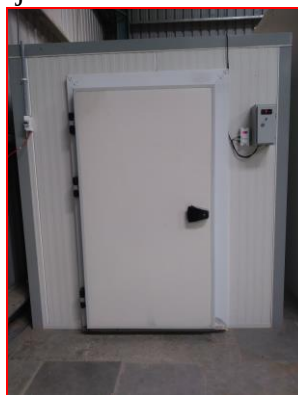


**2. TV Talk:** Dr BVC Mahajan delivered a TV talk on “Postharvest handling and marketing of Kinnow fruits” in DD Kisan National Channel on 29-12-2021.

### 3. Participation in India Potato Conference:

PHPTC Scientists participated in virtual India Potato Conference – 2022 on 25-2-2022 organized by Event Fall Global Advisory Private Limited, Karnataka. Dr. B.V.C. Mahajan delivered a talk on Postharvest Management and Export of Potato.

**4. Establishment of farm level cold room:** The farm level cold room (3MT capacity) designed and developed jointly by PHPTC, Centre of Excellence for Vegetables (Kartarpur) and AGNEXT, Mohali have got approval from Punjab Government for providing financial subsidy (50%) under RKVY Scheme through State Department of Horticulture Punjab.





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