





RED, WHITE AND BLACK CURRANT – harvest maturity

- Harvested in full consumption maturity (overripe black currant fruits fall down)

GOOSEBERRY – harvest maturity

- Only in salads production ripeness, fruit diameter: 15 mm
 - Ripe fruits: Attractive table fruits as well as frozen creams and pastes
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Red Lake



RASPBERRY, BLACKBERRY – harvest maturity

- Ripe fruits, 6-8 harvests
- Harvested in dry, cold weather in a full maturity stage

STRAWBERRY – harvest maturity

- Firm, developed fruits (pre-maturely harvested fruits do not mature), with peduncles
- Harvests: Every 2-5 days



Thornless

MATURITY STAGES

- Physiological maturity: Fruit cells division terminates, cells grow further, protective coloration Seeds are developed, capable of germinating
- Processing maturity: Stage of fruit development suitable for a particular processing
 - Unripe (crystallization: nuts, almonds)
 - Ripening (jelly and salads production)
 - Ripe (jam and marmalade production)
 - Overripe (magiun, wine and spirits production)

- Commercial maturity: A stage of harvesting of fruits for sale; fruits mature during transport, distribution, and storage
- Consumer maturity: Fruits contain maximum amounts of individual nutritional and biological components. Pay close attention to coloration, flesh tenderness, and flavour – characteristics of ripe and unripe fruits
- Harvest maturity: Optimum timing for a harvest, fruits may be easily separated from the cluster base

TECHNOLOGY AND ORGANIZATION OF THE HARVEST

Most of the fruits are harvested:

- - Manually – table fruits
- - Mechanically - followed by processing

Harvest organization

- Proper picking technique (depends on particular species and varieties)
- Harvest thinning (repeatedly, peaches, pears, summer apples)
- One-off harvest, picking of standard fruits (damaged, deformed and wormy fruits are picked after the harvest for production of musts)
- Bottom branches are harvested first, and then proceed upwards, from the edges of the crown to the centre

- Fruits are picked in dry weather
- Picked fruits are transported to the storage as soon as possible
- Mechanization of subsequent works (post-harvest treatment and transport of picked fruits)

Harvest includes:

- Harvest of fruits from the trees
- Loading, transport and storage of the fruits
- Postharvest treatment

Modern harvest methods are based on palletisation using

- Standard containers
- Large-scale containers

Tools and devices

- Harvest bags (10 kg) with unloading bottom
 - Plastic buckets
 - Ladders, platforms with stable and adjustable heights
 - Harvesters
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Daily performance relies on

- Fruit species
- Size of the crop
- Mechanization
- Workers qualification

HARVEST:

- Apples, pears, standing on the ground (per shift): 0.7-2.0 tons

Using ladders (per shift): 0.5-1.5 tons

- Plums (per shift): 150-200 kg

- Early cherries (per shift): 30-50 kg

- Late cherries (per shift): 50-70 kg

- Sour cherries (per shift): 50-60 kg

- Apricots (per shift): 150-300 kg

- Peaches (per shift): 200-300 kg

- Strawberries (per shift): 30-50 kg

Stone fruits picking

- Work procedures classification:
- Conventional picking methods (PVC containers – 13 kg, picked directly into the boxes)
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- Containers move along with the workers during the harvest, containers are filled directly during the picking
- Mechanized picking using Plukotrak harvesters
- Picking using pre-prepared large-volume containers (containers are located in inter-rows, workers fill them with fruits from their bags)

Stone fruits picking

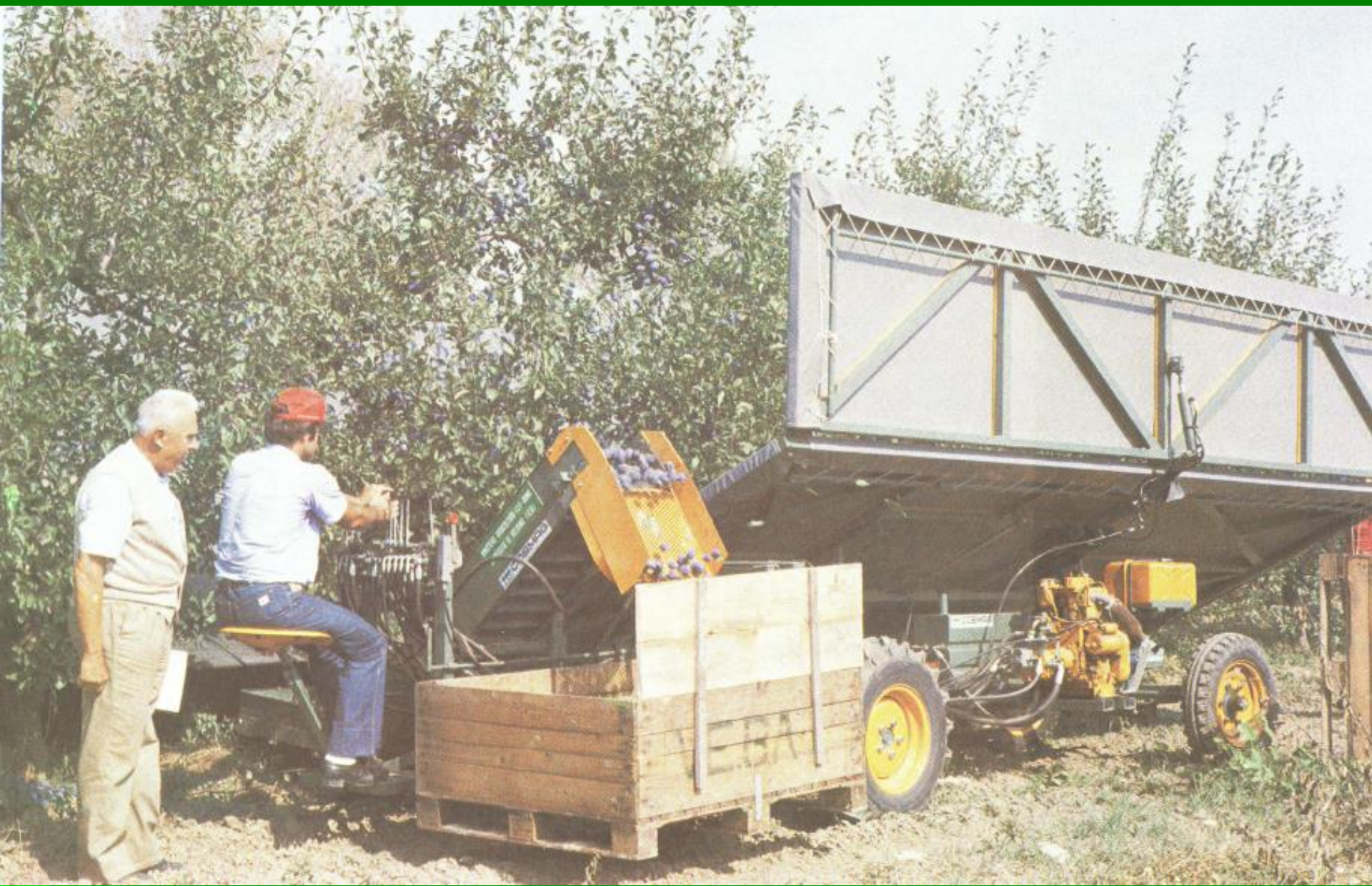
- Manual picking for direct consumption (PVC containers, chipwood baskets)
- Harvesters for commercial processing
- (Types of harvesters: Balkán, Schaumann, HROT – 25-80 trees per hour, 5-10 % loss)











Berry picking

- Manual harvest, table berries for direct consumption (currant, gooseberry, raspberry)
- Harvesters for commercial processing
 - Types of harvesters: Hydrapick Twin, Smallford (England), Danpluk (Denmark), KPS LOS (Poland), Jonas (Finland), Teros (Czech Rep.) – 1.5-2.0 ha per hour
 - One machine covers 40 ha, 10-35 % loss
- Strawberries: Manual and mechanized harvest, picking, cutting, varieties suitable for mechanized harvest, yield: 0.4-1.0 kg.m², yield: 6-12 t.ha⁻¹, fruits weight: 10-20 g, plant height: below 0.35 m





Sorting and commercial treatment of fruits

- Fruits are sorted according to their size, this help packaging, and eliminates damage during transport and handling
- Only fruits for direct consumption are sorted, fruits for commercial processing are not
- Summer and part of autumn pomaceous fruit varieties are sorted right after the picking
- Autumn and winter varieties of pomaceous fruits are sorted only after removal from storage
- National standards provide guidelines for sorting (Extra class, Class I, Class II, and non-standard fruits)
- Basic rules for particular quality classes, quality, appearance, and fruits size
- Fruits are sorted according to the size or weight (sorting lines)