

# FRUIT AND BERRY GROWING IN LATVIA

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LATVIA

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Fruit growing has old traditions in Latvia, and the climatic conditions and soil are favorable for it, especially in the eastern regions of Latvia. Our fruits and berries may contain somewhat less sugar than the varieties grown in the south, yet they have more aroma and organic acids, and significantly less pesticide sprayings are needed for their growing.

## CLIMATE OF LATVIA

- The climate of the western part of Latvia is **maritime**, but **continental** climate prevails in the eastern part.
- The **cyclone activity** is high (120 – 140 cyclones per year), and so the weather is very changeable.
- Precipitation (rainfall and snow) is **560 – 850 mm**
- **The yearly average temperature** is 6.6 (maritime) to 4.2 °C (continental)
- **Monthly average temperature** is about -2.6 to -7.5 °C in January and +16.8 to +17.6 °C in July
- **The lowest temperature** recorded is -43.2 °C, **the maximum** is +36.4 °C
- One of the biggest problems for resultative fruit growing are frequent **temperature fluctuations** during the winter period from January to March;
- **The growth season** (t° over + 5 °C ) is 180 – 200 days
- **Active growth season** (t° over + 10 °C ) is 135 – 140 days
- **Average temperature sum** in active growth season: **1700 – 2150 °C**, depending on region

## RELIEF AND SOIL OF LATVIA



Lowlands are prevailing mostly in central part, in other regions they are separated by hilly uplands.

Soil is very variable. The most **productive soddy calcerous soils**, predominantly loams and drained soddy clay are found in southern Latvia.

The other parts of Latvia are mostly covered by more **humid acid soils, podzolic, podzol and gley**.



## HISTORY OF FRUIT AND BERRY GROWING IN LATVIA

**Before the 2nd World War**, successful development began in fruit growing: fruit and berry export was started.

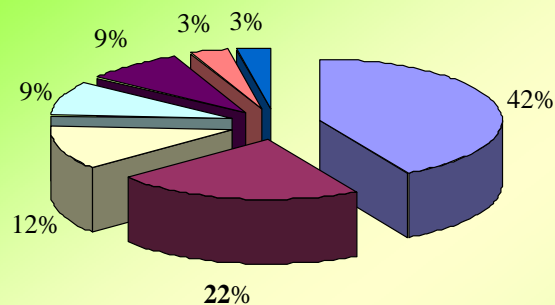
**Collectivization and nationalization** of farms interrupted this process. **Large extensive orchards** were planted for the needs of the processing industry, so the areas of orchards and brutto yield increased rapidly at first. This process was sped up by the fast growth in the numbers of home garden owners. Yet the **quality of production was lacking**.

**After the renewal of independence of Latvia in 1991**, when the agricultural reform was started, many large-sized orchards were split up and returned to the previous landowners.

**A large number of rather small (10 to 20 hectares) farms** were formed as a result of the **agricultural reform**.

Many have already recognized **horticulture** as one of the ways of successful development.

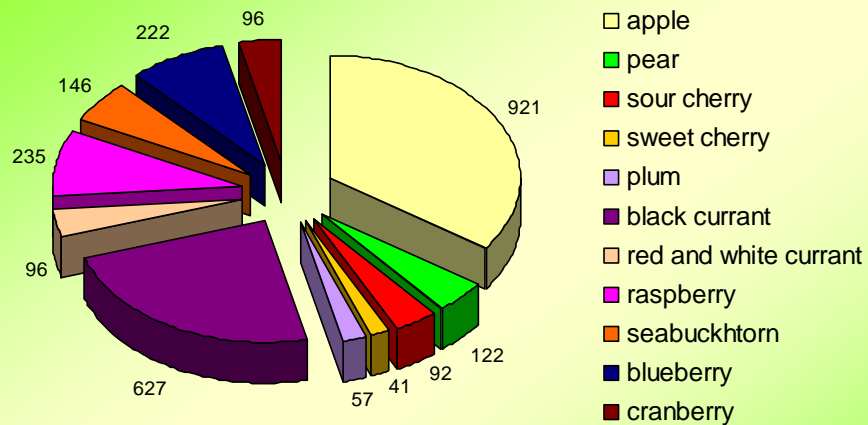
The importance of home gardening is decreasing. In fresh berry market, commercial production is already dominating, while commercial production of pome and stone fruits still cannot meet the demand



1 to 3 ha   3 to 5 ha   5 to 7 ha   7 to 10 ha  
10 to 15 ha   15 to 20 ha   >20 ha

### Breakdown of farms by orchard area

**At present, small orchards (1 to 3 ha) are dominating.** Only 6 % are larger than 15 ha, and almost all of these are relatively old orchards of former collective farms.



**Area of new orchards based on subsidies  
in 1998 – 2007, ha**

Since 1998, when subsidy payment started for orchard establishment, the areas increased by 2650 ha. Apples and black currants were the most planted crops.

## APPLES

Apples are by far the most widely grown fruit crop in all types of orchards, about 9000 ha. Yet only 1300 ha of these are commercial orchards (larger than 1 ha and planted with the aim to produce fruits for market). **The largest part of commercial orchards: 76.8% (920 ha) were planted in the last 9 years.** Fruit storage still uses mostly traditional cool storage; research has only started to promote implementation of modern storage technologies.

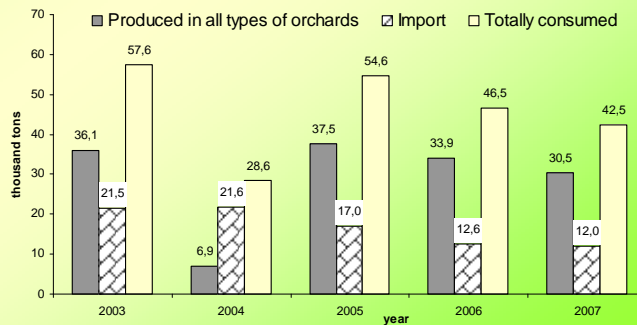


According to statistics, about 30-40 thousand tons of apples are produced annually in Latvia, of which so far only a part are harvested in commercial orchards.

The amount of apple import during the last 10 years has decreased about 2 times.

As the diversity of fruits in the market, especially imported, is increasing, the share of apples has reduced from about 60 thousand tons to 45 thousand tons. Apple consumption per head in Latvia is 15 kg. Data show that the consumers prefer locally grown apples. If the yield in Latvia is low, import still does not increase.

**Amount of produced, imported and consumed apples, thousand tons**



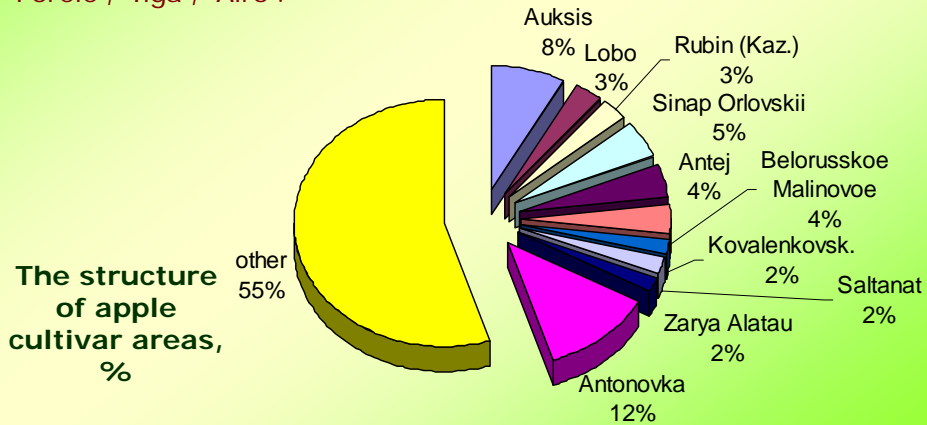
Latvians prefer to have a wide range of varieties. In fruit growing the 10 most popular varieties make only 45.7% of plantation area.

The most widely grown old variety is '**Antonovka**', which is used mostly for processing. It is recommended for growing only in the eastern regions of Latvia, where it has good quality of fruits.

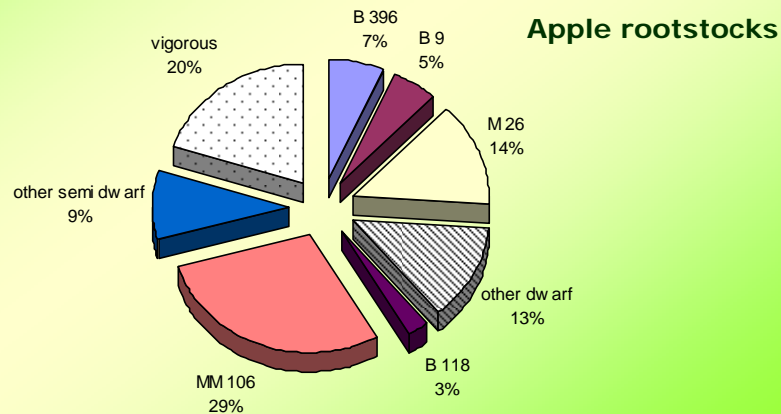




The assortment in commercial growing has not yet fully established. In the new **commercial orchards** varieties suitable for dessert and/or long storage are dominating - **'Auksis'** (the most popular), **'Sinap Orlovskii'**, **'Antei'**, **'Belorusskoe Malinovoe'**, **'Lobo'**, **'Rubin' (Kazakhstan cv.)**, **'Kovalenkovskoe'**, **'Saltanat'**, **'Zarja Alatau'**. Varieties of Latvian breeding are also planted in new orchards – **'Iedzenu'**, **'Forele'**, **'Ilga'**, **'Alro'**.



To avoid fungal infection and lack of available sunshine, high density and double-row plantings are not recommended in Latvia. The **recommended rootstocks** for apple are: **MM 106, B 118** (semidwarf), **B 9, B 396** (dwarf). Trials have been established for clonal rootstocks from Poland , USA and Canada. A new rootstock **Pure-1** has been selected in Latvia.



### **MAIN PROBLEMS IN APPLE PRODUCTION**

As a large part of the plantations are still young, the average yield per hectare is not high, yet the average yields obtained at research institutions and the best farms – 30-40 t/ha – demonstrate that with improved orchard management such yields can be obtained in most orchards.

The high share of home gardens makes the market unstable and unpredictable.

This hinders the development of processing Latvian-grown fruits, too, as apples for processing are mostly supplied by old orchards and home plots.

No system of fruit storage and marketing has been developed yet.

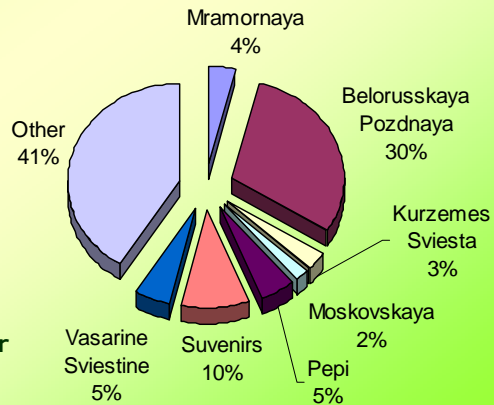
## PEARS



The commercial pear plantations in Latvia are small, only 200 ha, of these 122 ha were planted during last 9 years using subsidies for orchard establishment..

The most popular cultivars are '**Belorusskaya Pozdnaya**' (leading cv.), '**Suvenirs**', '**Vasarine Sviestine**', '**Pepi**', '**Mramornaya**', '**Moskovskaya**' and '**Kurzemes Sviesta**'.

About 34 pear cultivars are grown in commercial orchards and, similar to apple orchards, the 7 more popular make up 59 % of the area.



The structure of pear cultivar areas, %





## MAIN PROBLEMS IN PEAR PRODUCTION

Lack of hardy cultivars with high fruit quality and storage potential.

Choice of suitable rootstocks and hardy framebuilders which is very important for this crop.

Winterhardy framebuilders which are a way of growing more tender high quality varieties.



## CHERRIES

The total area of cherry plantations is about 890 ha, of these 90 ha of sour and 41 ha of sweet cherries have been planted for market production, using subsidies for orchard establishment.

At present, only one **sour cherry** variety is being widely grown in Latvia - the local cultivar '**Latvijas Zemais**'.

Cherry plantations are established with micropropagated plants, as well as trees budded on *Prunus mahaleb* seedlings and plants from self-rooted layers.

Better sour cherry varieties with firm fruit flesh and small stone are lacking.



The growers have some interest also in the planting of **sweet cherry**.

The assortment is formed by Russian varieties - '**Iputj**', '**Bryanskaya Rozovaya**' and the Estonian '**Meelika**' .

The local cherries can not compete with the imported fruits in size, yet the consumers value them for their good flavour.

Sweet cherries at present are grown on *P.mahaleb* and *P. avium* seedling rootstocks.

As there is a lack of winter-hardy cultivars with high quality fruits, some work was done by sweet cherry breeding.

Serious damage during the last years is caused by cherry fly.



## PLUMS

The total area of plum plantations is 980 ha, of these 57 ha have been planted for commercial production using subsidies for orchard establishment.

So far, *Prunus cerasifera* seedlings are being used as **rootstocks** for plums.

Plums are grown mostly for the fresh market, and for this reason the plantations are established with a number of varieties ripening along an extended period of time, to supply the market as long as possible.



The area of 6 most popular plum varieties is 69 % of the total area. An extremely early maturing diploid variety is '**Kometa**'. For commercial orchards, recommended varieties are also '**Victoria**', '**Julius**', '**Experimentalfältets**', '**Perdrigon**', '**Stanley**' and '**Lase**'.

Recently, the **Eurasia group** of plums has acquired interest. This group is represented by cultivars '**Aleynaya**', '**Zarechnaya Rannaya**' etc.

Still, there is a lack of winter-hardy cultivars with high fruit quality.



## STRAWBERRIES

**The area of strawberry plantations is about 550 ha.**

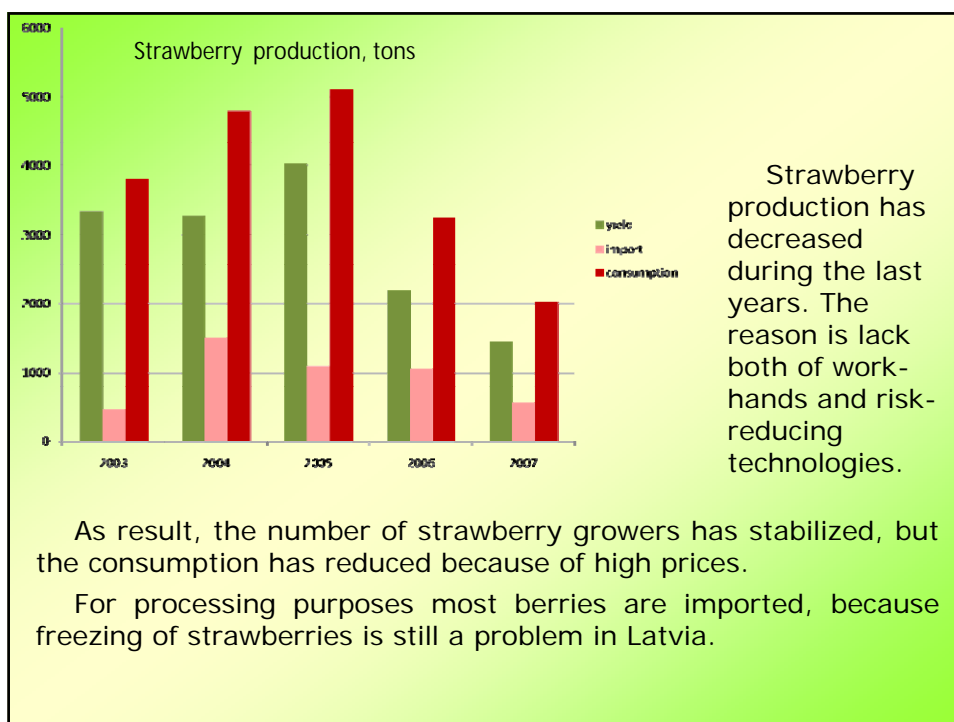
Strawberries are grown mostly for the fresh market. The most important cultivars for commercial growing are '**Zefyr**', '**Induka**', '**Korona**', '**Dukat**', '**Siurprise Olimpiade**', '**Jonsok**', '**Bounty**', '**Senga Sengana**', '**Polka**' .

Most of strawberry plantations are grown without moisture regulation systems.

The reasons for low yields are:

- low quality of planting material;
- too old plantations (3-4 years);
- limited choice of suitable cultivars;
- low level of growing technologies.





## BLACK CURRANTS

The area of commercial plantations of black currants has reached 700 ha, the average yield is 4.4 t/ha. The most important **cultivars** for commercial growing are : **'Zagadka'**, **'Pamyati Vavilova'**, **'Katyusha'**, **'Mara'**, **'Ben Lomond'**, **'Titania'**, **'Triton'**, **'Ojebyn'**.



For mechanical harvest the best cultivars are **'Katyusha'**, **'Mara'**, **'Ojebyn'**.

The reasons which prevented more rapid development of black currant production:

- lack of cvs. with high level of winter hardiness and spring frost resistance
- disease resistance (reversion virus) and gall mite resistance;
- small area of several plantations and low level of cooperation between growers;
- low level of growing technologies



## RASPBERRIES

The area of raspberry plantations in 2007 reached 235 ha. Average yield is 3 t/ha. Most grown cultivars are: **'Lazarevskaya'**, **'Norna'**, **'Ottawa'**, **'Skromnitsa'**, **'Meteor'**, **'Tomo'**, **'Kirzach'**, **'Sputnitsa'** and **'Polana'**.

The most important **problems**: winterhardiness of cultivars, disease resistance, yield, fruit quality, storage and quality of plant material, growing management, also - risk reducing technologies.

For the improvement of the assortment the cvs. **'Lina'**, **'Arta'**, **'Dita'** were bred at LSIFG.



## RED AND WHITE CURRANTS

The area of plantations is 93 ha.

Average yield is 4 t/ha.

Red and white currants are mostly grown only for processing. Growing for fresh market is not popular in Latvia.

Most grown cultivars are **'Red Dutch'**, **'Jonkheer van Tets'**, **'Zitavia'**, **'Werdavia'**, **'Random'**, **'Viksnes Sarkanās'**.





## GOOSEBERRIES

Gooseberries are less important for commercial growing. Only a few hectares were planted during 1998-2006.

Gooseberries are mostly grown for fresh market.

**The most important cultivars are: 'Lepaan Valio', 'Lepaan Punainen', 'Kuršu Dzintars', 'Koknese', 'Perse', 'Veldze', 'Masheka', 'Tukuma Konfekšu'.**

The problems in gooseberry growing are: fruit harvesting and lack of cultivars with big fruits (6 and more grams).



## HIGHBUSH BLUEBERRIES

Plantations of highbush blueberries at present are 222 ha, of which only about 10 ha have started production. The fruits are sold mostly for fresh consumption.

**The most important cultivars are: 'Blue Ray', 'Patriot', 'Duke', 'Bluecrop'.**

As this crop is very new in Latvia, there is a lack of experience in variety choice and soil management.

Because of high costs, risk-reducing technologies have not yet been introduced in the plantations.



## CRANBERRIES

Several larger, modern commercial cranberry plantations have been established. Latvia has enough bogs and acid soils which are necessary for this crop.

The area of plantations is 96 ha, of which only 45 ha have started production. The number of cranberry growing farms is 30, of these only 6 have plantations above 4 ha, but 11 farms have below 1 ha.

The local market may be filled with fresh berries and cranberry products during the next 10 years. Export both of fresh cranberries and processed products has already started.



Latvian climate is favourable not only for the European wild cranberry, but also for large-fruited American cranberry. All new plantations are established with large-fruited cultivars.

**The most important cultivars are:**  
**'Ben Lear',**  
**'Bergman',**  
**'Early Black',**  
**'Franklin',**  
**'Stevens'.**



## SEABUCKTHORN

Recently **sea buckthorns** are planted widely, mostly Russian varieties. Their area has reached 146 ha.

**Cultivars for commercial growing:**  
**'Botanicheskaya Lubitelskaya',**  
**'Prozrachnaya', 'Avgustinka'.**

The diversifying of berry processing is successful. Most of the production until now was exported, but at present seabuckthorns are processed in Latvia.

**The most important problem is harvesting,** which is being successfully solved at present.



## JAPANESE QUINCE

In the 1980<sup>ies</sup>-1990<sup>ies</sup> the plantations of *Chaenomeles* (**Japanese quince**) increased rapidly. Yet, as good methods of commercial processing of this valuable crop were not found then, the area of plantations drastically decreased.

Today, when several interesting processing products have been worked out for *Chaenomeles*, interest in this crop is reborn.

First Latvian-bred cultivars for fruit production are prepared for registration at the moment.



## FRUIT AND BERRY PROCESSING

- The largest processing enterprises which use also Latvian-grown raw material make juices or juice concentrates , as well as additives to ice-cream and yoghurt.
- The amount apples sold for processing at present is decreasing, because in the modern intensive orchards it is more profitable to produce dessert fruits for which the market demand is still not met.
- Joining the EU stimulat the establishing of small and home processing enterprises which process not only the traditional fruits and berries, but also new crops with high nutritive value – seabuckthorn, Japanese quince, cranberry.
- At the moment there are about 30 such enterprises in Latvia, whose activities help to diversify the processed products in the market.

## THE MAIN PROBLEMS IN THE DEVELOPMENT OF FRUIT GROWING:

- Insufficient ties between the growers and the food processors, as well as between the growers and the market.
- The Latvian Fruit Growers' Association now works only as a public organization. Cooperatives are starting to develop, but slowly. Some food processing plants have agreements with local growers, but others are importing raw material.
- The quality of the product, especially of the pome and stone fruits, is not always high enough. To improve quality, horticultural knowledge in the field of high quality fruits must be widely spread. The varietals structure must be changed also.
- Lack of modern fruit storage and processing facilities.
- Risk-reducing growing technologies are not yet used.
- The diversity of available means for plant protection is limited because of the small market.



## Fruit growing has high potential in Latvia

- Fruit growing has already taken a stable place in the agricultural production of Latvia.
- In total 11 fruit crops are grown commercially, and their area has increased for 2650 ha during the last 10 years.
- The production is diverse** – fresh fruits and berries, various processed products. So in comparison with other spheres of agriculture fruit growing is less dependent on the large processing enterprises.
- The income per ha is high** (intensive orchards).
- Original processed products** have a wide perspective, developing processing at farms and small enterprises.
- Market demand** for local fruit production still is not satisfied.
- Increasing consumer preference for locally grown** fruits and their products.
- All these factors work for the development of fruit growing in Latvia.**

