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Knowledge-driven Baltic Cider Production and
Branding for Growth and Competitiveness of SMEs.

BALTIC CIDER

Project ID: EE-LV00145

Apple cultivars for cider

Institute of Horticulture (LatHort), Latvia

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COMMERCIAL CULTIVARS:

'Auksis'

Origin: Lithuania, 1974.

Cross: 'McIntosh' × 'Gravensteiner'.

- ❑ A highly popular commercial cultivar.
Dessert, processing.
- ❑ **Harvest:** end VIII – beginning IX, storage till III.
- ❑ Brix°12-14,
acids 0.5%,
polyphenols 100 mg 100g⁻¹,
juice outcome 60%.



‘Lietuvos Pepinš’

(Lietuvos Pepinas, Glogierowka)

Origin: Lithuania, or possibly Belarus or Western Ukraine; described 1868, but thought to be much older, from 18th century. Widely grown in Eastern Europe. In Latvia often called just ‘Pippin’. Lost popularity in 20th century, because of tendency to overbear and soft fruits. At present again returns to favour as a juice and cider apple.

- ❑ **Harvest** time medium, 2nd half of September, stores till February.
- ❑ **Fruits** medium, without thinning small, skin whitish yellow with blush. Flesh soft, very juicy, aromatic, subacid, with good vinous taste. Fruits susceptible to bruises.
- ❑ **Tree** is rather small, drooping, production early, high, biennial. Winterhardiness medium.
- ❑ Tree is short-lived. Needs proper orchard management, especially when trees become older.
- ❑ **Resistance** to scab, mildew, *Neonectria* canker medium.
- ❑ Juice outcome is high, 70%. Juice has pleasant harmonic taste, Brix°12, acids 0.7%.





Vidzemes Zelta Renete
(Liivi Kuldrenett)



Põltsamaa



Talvenauding



Tellissaare

CRABAPPLES:

'Kerr'

Origin: Canada, Morden Experimental Farm, W.L.Kerr, 1938.

Cross: 'Dolgo' × 'Haralson' (or 'Haralson Red'). A popular crabapple, grown worldwide. Very good for jam, juice, cider and winemaking.

- ❑ **Harvest** time medium to late, mid-October.
- ❑ **Fruits** small (35-50 mm), dark red. Flesh very juicy, aromatic, sour-sweet, slightly astringent. Fruit skin thick.
- ❑ **Tree** is medium size, upright spreading, rather dense, production high, biennial. Very good winter-hardiness.
- ❑ Leaves green, glossy. Flowers white, flowering time medium.
- ❑ **Resistance** to scab is medium to good, to mildew, fruit rots and *Neonectria* canker good.
- ❑ Juice from 'Kerr' is dark pink, with balanced sugars and acids and strong almond aroma; it is clear and keeps colour very well.
- ❑ Juice outcome is 54.3%. Juice contains: Brix 13.5%, pH 3.3.
- ❑ By observations of Latvian winemakers, the wine matures slowly and can be stored till 8-10 years. Cider made in Latvia from 'Kerr' apples contained 3300 mg L⁻¹ phenols, Alc.vol. 5.1 % (Riekstiņa-Dolge, Krūma, 2017).
- ❑ Can be planted also as an ornamental variety, but the fruits should be harvested, as they are rather large.



'Kuku'

Origin: Estonia, new cultivar (Polli).

- ❑ **Harvest** time - end of September to early October.
- ❑ **Fruits** small (35-50 mm), bright red. Flesh juicy, aromatic, sweet, only in unfavourable conditions slightly astringent.
- ❑ **Tree** is small, weeping, production high, regular, good winter-hardiness. Resistance to scab and other diseases is good.
- ❑ Flowers white, flowering time early.
- ❑ Juice is very tasty and with good colour, with balanced sugars and acids.
- ❑ Juice outcome is 58%.
Juice contains sugars 144.2 g L^{-1} (of them 102 g L^{-1} is sucrose!), acids 0,93%.
Polyphenols are low, tannins $5\text{-}13 \text{ mg } 100\text{g}^{-1}$.



Origin: Latvia. Collected c.2002 by Andris Dišlers at Ragana. (The collection site name translates as “Witch village”.) Evaluated at Pūre HRC, maintained in Latvian genetic resources collection at Institute of Horticulture. Good redflesh crabapple for processing, especially winemaking and jam.

- ☐ Redleaf crab, suitable for processing. Medium value as red-leaf ornamental crab.
- ☐ **Harvest** time late, in October.
- ☐ **Fruits** small to very small (25-40 mm), dark red. Flesh dark red, very juicy, aromatic, with dominance of acid, slightly bitter. Not susceptible to bruises.
- ☐ **Tree** of medium vigour, with sparse crown, later drooping, production early, very high, biennial. Winter-hardiness is good.
- ☐ Flowering late, flowers purplish red, fade to pink.
- ☐ **Resistance** to scab medium to good, to mildew good, highly tolerant to fruit rots.
- ☐ Products have pleasant apple and almond aroma. The wine is dark ruby red, can be stored for a longer time.
- ☐ Can be used also for cider, but only blending with sweet apples, as the acid content is high.

‘Raganas Sarkanais’



'Auce'



Origin: Latvia, Institute of Horticulture, cross: 'Top Millionaire' × D-1-94-2, 2005. Released in 2020. Ornamental crab with fruits suitable for processing.

- ❑ Redleaf crab. Leaves glossy, in summer dark greenish red, in autumn greenish yellow.
- ❑ **Tree** small, compact, branching sparse. High biennial production.
- ❑ **Ripening:** late autumn, harvested in mid-October. Fruits small (30-36 mm, 40.5 g), dark purple red with red flesh, medium firm, juicy, sour-sweet, rather low tannins.
- ❑ Good for processing. Sensory evaluation of juice is high.
- ❑ Balanced biochemical content, Brix°15.2, acids 1%, polyphenols 90.5 mg 100g⁻¹. Sugar: acid ratio 15.2.
- ❑ Tolerant to fungal diseases.
- ❑ Flowers purple red, fading to pink. Flowering medium to late.

H-17-05-22 (Sliņķis)

Origin: Latvia, Institute of Horticulture.

Cross: 'Top Millionaire' × D-1-94-2, 2005.

- ❑ Redleaf columnar crab, good disease resistance.
- ❑ **Harvest time:** IX, easy to pick. Bitter sweet, distinct aroma.
- ❑ Brix°17-18,
acids 0.3-0.4%,
polyphenols 94.5-142 mg 100g⁻¹.
- ❑ Tree rather difficult to propagate.



PROMISING LATVIAN CULTIVARS AND HYBRIDS:

'Pūres Sidrābols' (P 53-1)

Origin: Latvia, Pūre, selected by I. Drudze, seedling of 'Redcroft', 1994.

- ❑ **Harvest time:** beginning of IX.
- ❑ **Fruits** medium to large, sweet.
- ❑ **Tree** highly productive, resistant to scab, mildew possible.
- ❑ Late flowering, tolerant to spring frosts.
- ❑ Brix° 14-16, acids 0.23%, polyphenols 53 mg 100g⁻¹.
- ❑ Good juice outcome, makes good cider.



'Cidross' (Nr.19-97-154)



Origin: Latvia, Institute of Horticulture, seedling of 'Remo', 1997. Selected as a promising juice and cider apple.

- ❑ **Harvest time** late, mid-October, keep well. 1 to 3 weeks storage recommended before processing.
- ❑ **Fruits** medium to large, over colour bright pink with white dots. Flesh firm (7.7 kg cm^{-2}), subacid, aromatic, very fine-grained, crisp and very juicy, slightly astringent. Fruit skin thick.
- ❑ **Tree** is medium size, easy for training, highly productive, without thinning may become biennial. Good winter-hardiness.
- ❑ Juice outcome is 55%. Juice contains: Brix°13, acids 0.7%, polyphenols $112.5 \text{ mg } 100 \text{ g}^{-1}$. Sugar : acid ratio 17.4.
- ❑ Sensory evaluation of juice is high, it has good colour and very good sugar-acid balance, aromatic, pleasantly astringent.
- ❑ Resistant to 5 scab races (*Vf/Rvi6*), field resistant to mildew.

‘Dobeles Sidrābols’ (DI-94-4-14)

Origin: Latvia, Institute of Horticulture, Latvia.

Selected from cross obtained by Rūdolfs Dumbravs:

‘Liberty’ × ‘Latkrimson’, 1994. Selected as a promising juice and cider apple.

- ❑ **Harvest time** late, mid-October, keep well till spring. Needs to mature in storage before processing, to reduce acidity.
- ❑ **Fruits** medium to large, dark purple with prominent stripes. Flesh very juicy, firm, aromatic, at beginning rather acid, later sour-sweet, slightly astringent. Fruit skin thick.
- ❑ **Tree** is medium size, easy for training, production good and regular. Good winter-hardiness.
- ❑ Juice outcome is 57.8%. Juice contains: Brix°12.5, acids 1.4-1.7% (depending on maturity), polyphenols 50.5 mg 100 g⁻¹. Sugar : acid ratio 7-9.
- ❑ Tested for juice and wine production with good results.
- ❑ **Resistance** to scab medium, to mildew medium to good, to fruit rots high.



H-1-03-1



Origin: Latvia, Institute of Horticulture.

Cross: 'Enterprise' × 'Celmiņu Dzeltēnais', 2003.

A promising apple for cider making.

- ☐ **Harvest time:** late, beginning of October. Storage is good.
- ☐ **Fruits** over medium to large, oblong conical or bell-shaped. Skin over-colour dark pink to red. Fruit flesh firm (7.5-8.7 kg cm⁻²), sweet, medium juicy. Fruit skin slightly astringent.
- ☐ **Tree** rather vigorous, spreading, easy to train, production good and usually regular. Winter-hardiness is good.
- ☐ Good tolerance to scab, to mildew and fruit rots - medium (in unsprayed orchard).
- ☐ Brix°14.5-15,
low acids: 0.2-0.3%,
polyphenols 100-150 mg 100g⁻¹.
- ☐ Flowering is late.

Origin: Latvia, Institute of Horticulture, seedling of 'Priscilla', 1997. A good dessert and cider apple, but with tree difficult in training.

- ❑ **Harvest time:** first half of October, when fruits have developed good colour. Storage till March or longer.
- ❑ **Fruits** medium to large, flattened round, smooth, over-colour light red or red, with light stripes and bloom. Flesh yellowish, medium firm, juicy, aromatic, sweet, flavour very good.
- ❑ **Tree** vigorous, tends to develop bare wood. Production in first years rather low, afterwards good, biennial. Winter-hardiness medium or good.
- ❑ Good **tolerance** to scab, to mildew and fruit rots – good or medium.
- ❑ Brix°15-16,
acids 0.6-0.7%,
polyphenols 154-157 mg 100g⁻¹.
Sugar : acid ratio 22.8-25.
Juice sweet, aromatic.
- ❑ Has been tested for cider making with good results.

Nr.16-97-86



Origin: Latvia, Institute of Horticulture,
cross 'Kurnakovskoje' × 'Rewena', 2009 . A good dessert and cider apple, easy in growing.

- ❑ **Harvest time:** end of September,
- ❑ **Fruits** medium to large, oblong, bright yellow. Flesh medium firm, very juicy, aromatic, subacid, flavour good.
- ❑ **Tree** medium vigorous, easy to train. Production very good, medium biennial.
- ❑ **Resistant** to 5 scab races (homo Zygous gene *Vf/Rvi6*), tolerant to mildew
- ❑ Brix°13.5, acids 0.97%, polyphenols 72 mg 100g⁻¹.
- ❑ Evaluated as good by some cider makers.



VF-4-42

Gr-1-45



Origin: Latvia, Institute of Horticulture.
Cross: 'Shamrock' × D-18-89-4, 2011.

- ❑ **Harvest time:** IX, storage 2-3 months.
- ❑ **Fruits** below medium size. Bitter sweet, worth testing for cider.
- ❑ **Resistant** to scab, mildew and fruit rot, tree hardy and productive.
- ❑ Brix°13, acids 0.26%, polyphenols 122 mg 100g⁻¹.

SUSTANABLE CIDER

- Apple trees absorb CO₂
- No or low tilling
- High in biodiversity
- Low erosion
- Low water consumption
- Local produce, low transportation
- Low or no need for cooling
- Low or no need for additives
- Local consumption
- Potential for high percentage of organic
- Making use of dicarded fruit

