

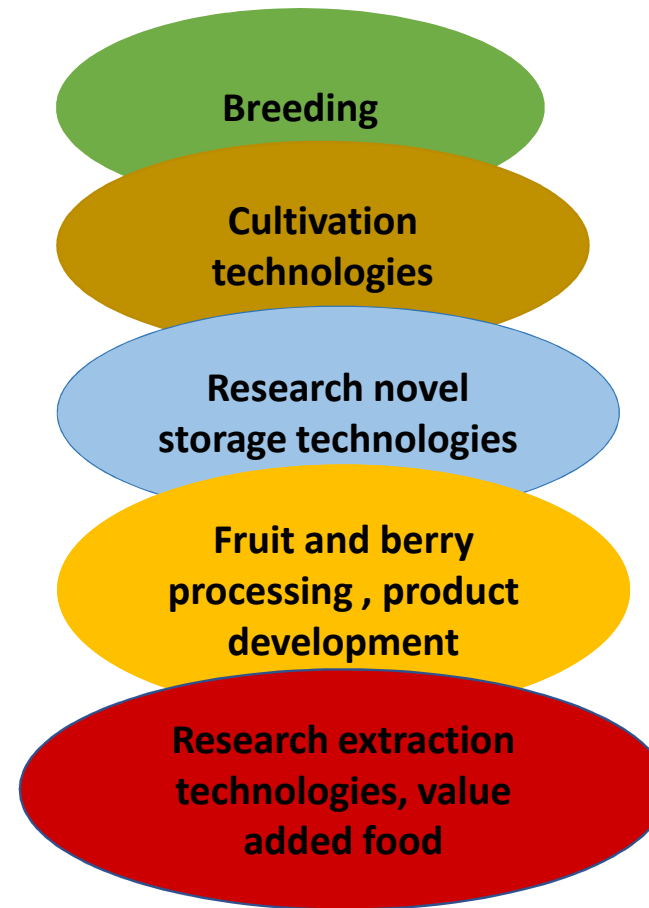
The role of Polli Horticultural Research Centre in horticulture and food production

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The role of Polli Horticultural Research Centre in horticulture and food production

- 1945 breeding fruits and berries, reseach cultivation technologies
- 2008 research novel storage technologies
- 2009 fruit and berry processing, product development
- 2014 research extraction technologies, value added food

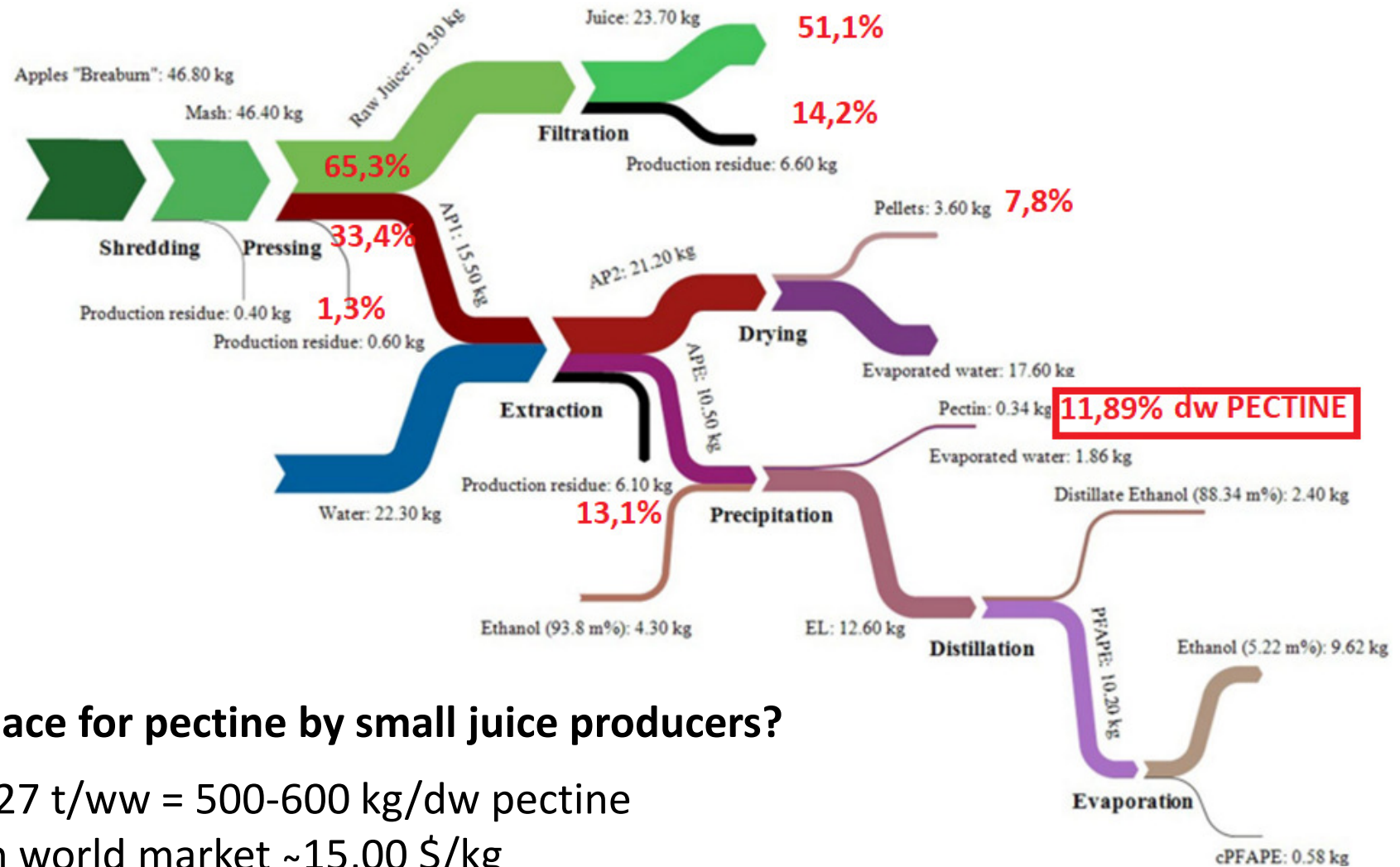


The role of fruit and berry processing, product development



- Fruit and berry storage (+2°C) up to 180 t
- Deep freeze storage (-21 °C) 60-80 t
- Unclarified juice processing up to 1000 l/ per day
- Dehydration processes up to 140 kg/batch
- Puree and jam production up to 150 kg/d
- Seedoil cold pressing 2-10 kg/h
- Disintegrator milling process up to 150 kg/ hour
- Test production of carbonated juice drinks up to 80 l/hour
- Consultation , workshops

Apple juice production into a zero discharge biorefnery process



Utilization apple pomace for pectine by small juice producers?

Apple pomace 27 t/ww = 500-600 kg/dw pectine

Apple pectine in world market ~15,00 \$/kg

Apple pomace fractionation after juice pressing



Apple pomace

Peels, seeds 38%

Pulp 62%



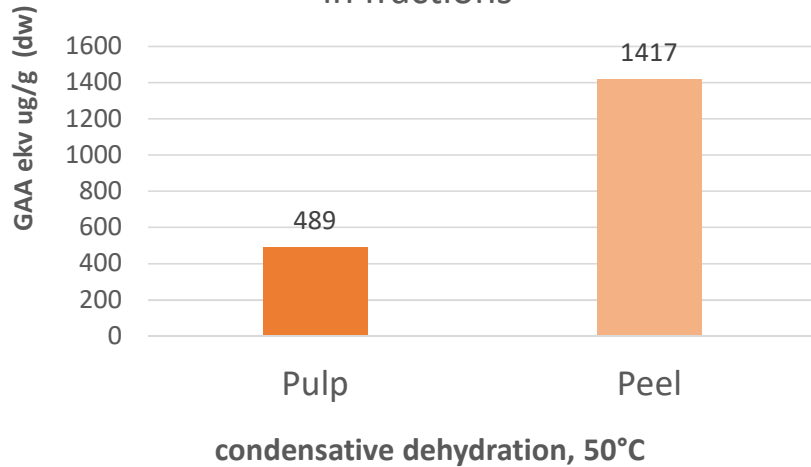
Apple peel powder

Apple seeds

Apple sauce



Total polyphenols, GAA ekv ug/g/dw in fractions



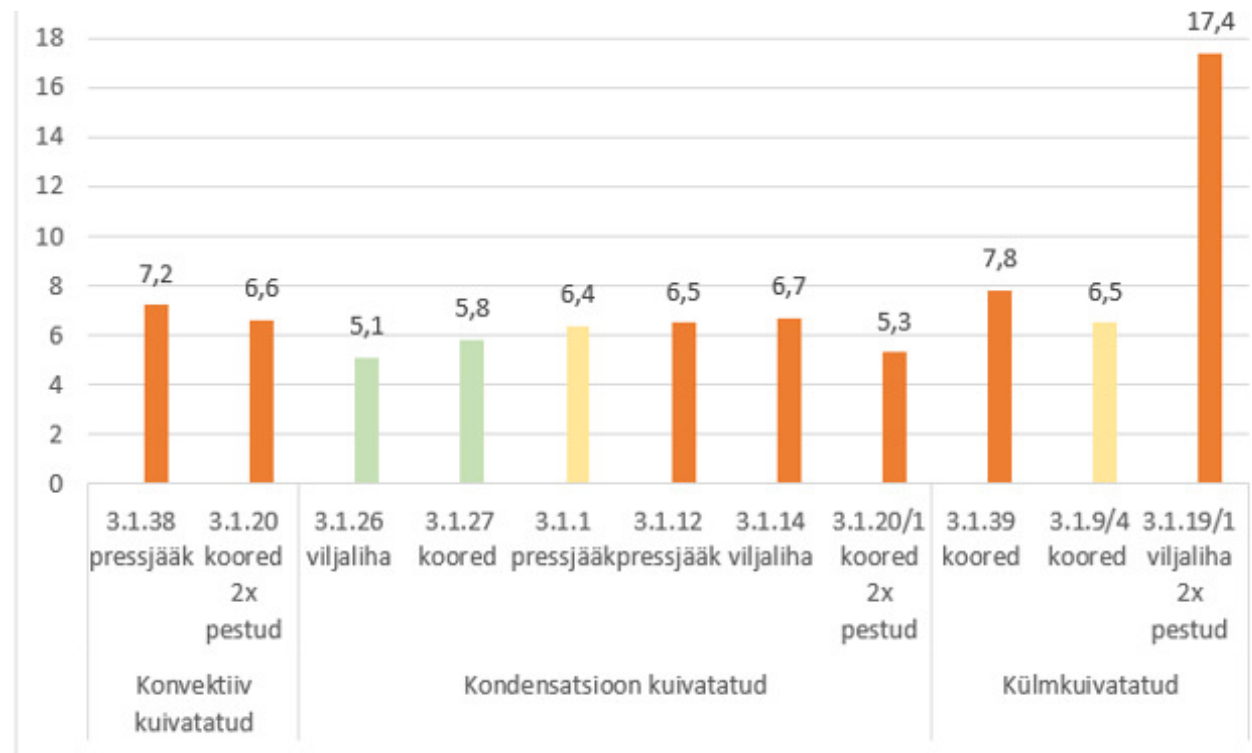
Apple powder with black currant extract



Apple peel powder with black currant extract



Water-binding capacity (WBC) of apple powders (g/g ,dw)



■ 'Belorusskoje malinovoje'
■ 'Karki renett'
 ■ segu õunad

Extraction and processing technologies for product development

- Solid-liquid extraction, distillation
- Microwave and ultrasound assisted extraction
- Supercritical carbon dioxide extraction

- Freeze and spray drying, encapsulation
- Milling, mixing, homogenization, filtration
- Pilot scale processing
- Analyses



Valuable SC-CO₂ seedoils



Product development project with entrepreneurs

- Development of fireweed (*Epilobium angustifolium*) powder extract and flavored oils
- Optimization chaga (*Inonotus obliquus*) extraction process
- Evaluation raspberry seedoil extraction technology
- Development of extraction technology the red pigment from *Furcellaria lumbricalis*



- Development of Jerusalem artichoke (*Helianthus tuberosus*) juice and food powder



- Development ice-tea product from meadowsweet (*Filipendula ulmaria*)



- Development of fish hydrolysate and compost from low value fish



- Development of food powders from carrot and pumpkin juice pressing residues



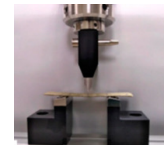
- Utilization of spent grain from beer industry for food and snacks



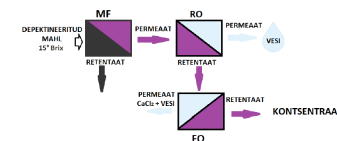
- Development of vegan ice cream powder



- Assessment of red algae compression moulding



- Effect of membrane technologies for black currant juice concentrate



Thank you!

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