

Scanning report

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Country:

NUTS 3 region(s)¹: Switzerland

WP no. and title: WP4 Fruit quality; improvement of fruit handling/storage

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Source materials and methodology

Experimental orchards: orchards for pome and stone fruit cultivation, and for vegetable growing. Sorting machine for grading of pome fruit.

Storage facility Agroscope: 16 independent small CA-containers, which allow serial trials. Two CA-rooms with 3 and 5 tons capacity respectively, more than 12 regular atmosphere storage rooms.

Storage methods: Storage of pome, stone fruits and vegetables. Storage under regular atmosphere, CA-storage, ULO-storage and DCA-storage. Storage under modified atmosphere for stone fruit and berries.

Assessment of fruit quality: Measurement of fruit firmness, total soluble solids and titratable acidity with the automatic laboratory Pimprenelle. Analytical lab with HP GC, GC-MS and other analytical instruments.

Microbiology and molecular biology lab: Establishing the apple fruit microbiome for different cultivars and orchard management conditions using classical microbiology methods and amplicon metagenomic sequencing.

Best practice findings

- Recommendations for best practice in CA-storage of pome fruit including optimal, cultivar-specific harvest windows.
- Individual expertise for storage facilities concerning best practice and problem solving in storage, including pre-harvest factors.
- Development of the DCA-storage method in collaboration with international partners, based on the measurement of chlorophyll-fluorescence.
- Optimization of the post-harvest chain based on problems and needs in the practice: optimal harvest date, treatment with 1-MCP, prevention of physiological disorders, etc.
- Energy saving in storage (technical optimization, management of storage rooms, use of alternative methods such as 1-MCP-treatment or DCA in combination with elevated storage temperatures in order to save energy).
- Storage of apples and pears, which have been grown under low-input IP or organic conditions (low pesticide residues vs. spoilage of fruit during storage).
- Establishing the apple fruit microbiome for different cultivars and orchard management conditions using classical microbiology methods and amplicon metagenomic sequencing.

¹ Please see ec.europa.eu/eurostat/ramon/nomenclatures/ for details on NUTS regions, level 3