

Scanning report Martin Jensen, AU]

Author: Senior scientist Martin Jensen, Aarhus University, Department of Food Science, martin.jensen@food.au.dk , +45 8715 8331

Country: Denmark

NUTS 3 region(s)¹: DK011 (Copenhagen), DK012 (Copenhagen and its environs), DK013 (North Zealand), DK014 (Bornholm), DK021 (East Zealand), DK022 (West- and South Zealand), DK031 (Funen), DK032 (South Jutland), DK041 (West Jutland), DK042 (East Jutland), DK050 (North Jutland).

WP no. and title: WP5 Secure sustainable fruit production

Date: [25-05-2016]
[Y1 report due May 2016 for the period 03-16 to 05-16]

Source materials and methodology

Methods and selected sources

Initial consultation with colleagues at Aarhus University, Dept. Food Science to identify staff involved in research on relevant topics. Then collection of publications and disseminations from the last approximately two years to provide a start for the state of art. The personal database over publications/disseminations (PURE database) for each scientist was used as basis. Similar was done for Copenhagen University (KU PLEN) for the few scientists involved in fruit and berry research. Very little activities on the applied topics are occurring on other Danish universities. Information was also gathered from the Danish consultancy organization HortiAdvice that is responsible for almost all applied publication/dissemination of knowledge in fruit and berry area. HortiAdvice Scandinavia A/S annually publishes a best practice handbook for fruit and berry production. Best practice here is based to a large degree on information in this handbook and with added knowledge from scientific and popular papers in grower magazines.

Anon. (2016) Håndbog for frugt og bæravlere 2016. HortiAdvice Scandinavia, Hvidkærvej 29, 5250 Odense, DK.

Theme: Organics

Relevant recent projects at Aarhus University:

Theme: Organics

DAFRUS Danish fruit without pesticide residues. Project period: 01.01.2014 – 31.12.2017

PROTECFRUIT Protected production of organic grown apple and pear. Project period: 01.01.2014-31.12.2017

Less waste and better shelf life of fruit. Project period: 01.01.2012-31.03.2015

EU COST action Cherry FA1104, Project period: 01.07.2012-30.06.2016

New Danish bred cultivars for organic and conventional sour cherry production. Project period: 01.01.2012-31.12.2014

New food products from wild Danish plants: Case tree fruit. Project period: 01.01.2013 - 31.12.2015

Disease resistant cultivars for organic sour cherry production via NMR metabolomics analyses, Project period: 01.01.2014 - 31.12.2016

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

FaVor-DeNonDe: Drying, Juice and jams of organic fruit and vegetables: What happens with wanted and not wanted components? Project period: 30.03.2015- 29.03.2018

Best practice findings

Theme: Organics

Organic production is increasing in Denmark following the large and increasing demand by Danish consumers. For apple 21 % of total area was organic in 2014 but only 4.9 % in pear. Sweet cherry and plum was 19 %, black currant 1.1 %, blueberries 35 % of total area. Main cultivars recommended for organic production is: Apple: Discovery, Red Aroma, Holsteiner Cox, Red Ingrid Marie, Rubinstep, Red Elstar and Topaz. Pear: Herrepear, Conference, Concorde. Black currants: Ben Hope, Narve Viking. Red currants: Red Poll and Roodneus. Strawberry: Honeoye, Symphony and Florence. The cultivation can make use of a limited number of chemicals to control pest and diseases: Amicarb 85 SP, AQ 10, Capex, Dipel ES, Fibro, Isomate CLR, Kumulus S, Madex, Met52 granular, Naturalis, Prestop Mix, Sluxx HP Smart Bayt, Turex WG/WP. Each compound is allowed only in specified crop species, which is listed. Organic treatment strategies for a full season are available for apple, pear, sweet and sour cherry, black and red currant and strawberries outside. Scientific testing of covering of apple and pear with plastic roofs to avoid direct precipitation on fruit and leaves is ongoing to avoid apple scab attack and several years results seems very promising, almost an on off effect of infection. Dry fruit do not get scab at all or very limited. Challenge is cost and stability of roofs. Both solid and liquid organic fertilizers are in great demand to satisfy general demand, for better nutrient profiles and for optimizing nutrient status by fertigation methods. Several projects study how green manure can be produced by growing and harvesting different leguminous plants with high N content during a season and using this as a mobile resource for crop fertilization in for example black currant and other crops. Liquid fertilizers developed by dissolving different organic fertilizers/plant based resources are tested to identify fertigation solutions in organic productions, for example in strawberry. Hot water treatment of apples to avoid storage rots has been demonstrated to be efficient and is now slowly moving into industry following development of treatment equipment. Cultivar trials in apple, black currant and blackberry have identified most promising cultivars for organic production, and in sour cherry testing and selection of genotypes more resistant/tolerant to leaf spot and Monilia is ongoing using metabolomics approach.