

## Scanning report (EIP format for practice abstracts)

\*Project title (native language): [EUFRAIN: Európai Gyümölcs Hálózat]

\*Project title (English): EUFRUIT: European Fruit Network

\*Author/native language editor: [Geza Bujdoso, NARIC Fruitculture Reserach Institute, Budapest, Park u. 2, 1223, Hungary, bujdoso.geza@fruitresearch.naik.hu, ++ 36 1 362 1596]

### Section A. Summary for EIP dissemination

\*Keywords: [pome fruit species, fruit thinning, Hungary, hand thinning, chemical thinning]

\*Main geographical location: [HU101, HU102, HU211, HU212, HU213, HU231, HU232, HU233, HU311, HU312, HU313, HU321, HU322, HU323, HU331, HU332, HU333]

Other geographical locations: [HU221, HU222, HU223]

\*Summary (native language) Hungarian / magyar :

A gyümölcsritkítás fontos része a gyümölcsstermesztésnek, azonban ez a lépés jelenleg Magyarországon egy kicsit misztikus része a technológiának. A kézi gyümölcsritkítást gyakrabban használják kis illetve közepes ültetvényfelületeken, amikor a gyümölcskezdemények még nem érték el a 20 mm-es átmérőt. A kézi gyümölcsritkítás során egy gyümölcskezdeményt hagynak termőrészenként az alma illetve körtefákon.

A kémiai gyümölcsritkítást nagyobb ültetvényfelületeken használják, de nem egyszerű jól kivitelezni. Ideális a kémiai gyümölcsritkítás számára, amikor a gyümölcskezdemények 10 és 14 mm közötti átmérőt érnek el. Számos vállalkozás különböző, kémiai gyümölcsritkítás számára alkalmas készítményeket kínál. Számos esetben az a probléma merül fel, hogy csak átveszik az eredményeket (koncentráció, alkalmazás időszaka stb.), anélkül, hogy magyar ökológiai körülmények között és Magyarországon termesztett fajtákon tesztelnék.

**Summary (english):**

The fruit thinning is an important issue in the fruit production, however it is a bit mysterious part of the growing technology in Hungary at the moment. The hand thinning is often used on the small and medium orchard surface, when the fruits are not larger than 20 mm in diameter. During the hand thinning one fruits per spur can be left on apple and pear trees.

The chemical thinning is often used on larger orchard surfaces, but it is not easy to do it well. It is optimal to do chemical thinning, when the fruits are between 10 and 14 mm in diameter. There are a lot of companies providing different chemicals suitable for chemical thinning. Sometimes the trouble is that they take over the results (concentration, period of application etc.) without testing them among the Hungarian climate conditions and on cultivars grown in Hungary.

### Section B. Project information

\*Project coordinator: Michelle H. Williams; Aarhus University, Department of Food, Kirstinebjergvej 10, 5792 Aarslev, Denmark; mw@food.au.dk; +45 25170049

\*Project period: 2016 - 2019

\*Project status: Ongoing

\*Funded by: Horizon 2020

**\*Total budget:** €1.8m

**\*Geographical regions:** 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, BE211 (Arrondissement. Antwerpen), BE212 (Mechelen), BE213 (Turnhout), BE221 (Hasselt), BE222 (Arr. Maaseik), BE223 (Tongeren), BE231 (Aalst), BE232 (Dendermonde), BE233 (Eeklo), BE234 (Gent), BE235 (Oudenaarde), BE236 (Sint-Niklaas), BE241 (Halle-Vilvoorde), BE242 (Leuven), BE251 (Brugge), BE253 (Ieper), BE254 (Kortrijk), BE255 (Arr. Oostende), BE256 (Arr. Roeselare), BE257 (Tielt), BE258 (Veurne), BE310 (Nivelles-Nijvel), BE331 (Huy-Hoei), BE332 (Liège- Luik), BE334 (Waremmе-Borgworm), BE335 (Verviers), FR8 Méditerranée; FR81 Languedoc-Roussillon, FR6 SUD-OUEST, FR512 Maine et Loire, FR611 Dordogne, FR812 Gard, DE6 (Hamburg), DE8 (Mecklenburg-Vorpommern), DE9 (Niedersachsen), DEF0 (Schleswig-Holstein), DEE0 (Sachsen-Anhalt), DEA (Nordrhein-Westfalen), DE111, DE112, DE113, DE114, DE115, DE116, DE117, DE118, DE119, E11A, DE11B, DE11C, DE11D, DE121, DE122, DE123, DE124, DE125, DE126, DE127, DE 128, DE129, DE12A, DE12B, DE12C, DE131, DE132, DE133, DE134, DE135, DE136, DE137, DE138, DE139, DE13A, DE141, DE142, DE143, DE144, DE145, DE146, DE147, DE148, DE149, DE600 Hamburg, DE932 Cuxhaven, DE933 Harburg, DE939 Stade, DEF09 Pinneberg, NL1-NL4 + NLZ Holland; NL 224 zuidwest Gelderland, NL 226 Arnhem/Nijmegen, NL230 Flevoland, NL310 Utrecht, NL321 Kop van Noord-Holland, NI322 Alkmaar en omgeving, NL338 oost Zuid-Holland, NL33A zuidoost Zuid-Holland, NL341 Zeeuws-Vlaanderen, NL342 overig Zeeland, NI411 west Noord-Brabant, NL413 noordoost Noord-Brabant, NL414 zuidoost Noord-Brabant, NL421 noord Limburg, NL422 Midden-Limburg, NL423 zuid Limburg, ES620 Murcia, UKG11 Herefordshire, UKG12, Worcestershire, UKH12 Cambridgeshire, UKH16 North and West Norfolk, UKH17 Breckland and South Norfolk, UKJ22 East Sussex, UKJ35 South Hampshire, UKJ36 Central Hampshire, UKJ37 North Hampshire, UKJ41 Medway, UKJ42 Kent, UKJ43 Kent Thames Gateway, UKJ44 East Kent, UKJ45 Mid Kent, UKJ46 West Kent, ES618 Sevilla, ES511 Barcelona, ES512 Gerona, ES513 Lérida, ES514 Tarragona, CH0 Schweiz/Suisse/Svizzera, ITH51-59 Emilia Romagna region, ITH10 Bolzano-Bozen, HU101 Budapest, HU102 Pest, RO111, RO112, RO113, RO114, RO115, RO121, RO122, RO123, RO124, RO125, RO126, RO211, RO212, RO213, RO214, RO215, RO216, RO221, RO222, RO223, RO224, RO225, RO226, RO311, RO312, RO313, RO314, RO315, RO316, RO317, RO321, RO322 RO411, RO412, RO413, RO414, RO415, RO421, RO422, RO423, RO424. HU101, HU102, LT001 Alytaus apskritis, LT002 Kauno apskritis, LT003 Klaipėdos apskritis, LT004 Marijampolės apskritis, LT005 Panevėžio apskritis, LT006 Šiaulių apskritis, LT007 Tauragės apskritis, LT008 Telšių apskritis, LT009 Utenos apskritis, LT00A Vilniaus apskritis.

**Project web page:** <http://www.eufrin.org/index.php?id=55>

**\*Project Objectives (native language):**

1. A gyümölcsszektorral fókuszáló európai hálózat alapítása
2. Szisztematikus megközelítés létrehozása és fejlesztése a létező tudományos és gyakorlati ismertanyag összefoglalása és szintetizálása érdeklben
3. Dialógus kezdeményezése az EU, nemzeti és regionális szervekkel
4. Új kutatási területek meghatározása és támogatása folyamatos monitorozással és analízissel, létező és küszöbön álló kutatási és innovációs aktivitással

**Project Objectives (English):**

1. Establish a European network focused on the fruit sector.
2. Develop and implement a systematic approach for scanning and synthesizing existing scientific and practical knowledge.
3. Establish an ongoing dialogue with relevant EU, national and regional policy bodies.
4. Identify and support new priority areas of research by continually monitoring and analysing existing and upcoming research and innovation activities.

**\*Project partners:**

1. Aarhus University, Department of Food Science (Denmark) • AU
2. Research Station for Fruit npo (Belgium) • Pcfuit
3. Centre Technique Interprofessionnel des Fruits et Légumes (France) • CTIFL
4. Obstbauversuchsanstalt Jork (Germany) • OVA
5. Stichting Wageningen Research (Netherlands) • WR

6. ~~East Malling Research (United Kingdom) • EMR (terminated 08-02-2016)~~
7. Institut de Recerca i Tecnologia Agroalimentàries (Spain) • IRTA
8. Federal Department of Economic Affairs, Education and Research (EAER), acting through Agroscope Institute of Plant Sciences (Switzerland) • Agroscope
9. Laimburg Research Centre for Agriculture and Forestry (Italy) • Laimburg
10. University of Agronomic Sciences and Veterinary Medicine of Bucharest (Romania) • USAMV
11. National Agricultural Research and Innovation Centre Fruitculture Research Institute (Hungary) • NARIC
12. Lithuanian Research Centre for Agriculture and Forestry (Lithuania) • LRCAF
13. Assemblée des Régions Européennes Fruitières, Légumières et Horticoles (France) • AREFHL
14. Variety Innovation Consortium South Tyrol (Italy) • SKST
15. Freshfel Europe (Belgium) • FRESHFEL
16. Elbe-Obst Erzeugerorganisation r.V. (Germany) • EO
17. Fruitconsult BV (Netherlands) • FC
18. University of Greenwich (United Kingdom) • UoG
19. University of Hohenheim (Germany) • UHOH
20. Università di Bologna (Italy) • UNIBO
21. Institut National de la Recherche Agronomique (France) • INRA
22. NIAB EMR (new 09-02-2016)

## Section C. Annex: Scanning report<sup>1</sup>

### Scanning report [Bujdosó, Géza, NARIC]

<b>Author:</b>	[Geza Bujdosó, NARIC Fruitculture Research Institute, Budapest, Park u. 2, 1223, Hungary, bujdoso.geza@fruitresearch.naik.hu, ++ 36 1 362 1596]
<b>Country:</b>	[Hungary]
<b>NUTS 3 region(s)<sup>2</sup>:</b>	[HU101, HU102, HU211, HU212, HU213, HU231, HU232, HU233, HU311, HU312, HU313, HU321, HU322, HU323, HU331, HU332, HU333]
<b>WP no. and title:</b>	[WP5 – Secure sustainable fruit production]
<b>Date:</b>	[Y2 report due May 2017 for the period 06-16 to 05-17]

#### Source materials and methodology

field advisory activities made by NARIC Fruitculture Research Institute Research station Újfehértó and summarizing to sector's need

#### Best practice findings

Fruit thinning on pome fruit species in Hungary

The fruit thinning is made by hand traditionally in Hungary especially by those growers having their growing activities on large orchard surfaces. The chemical fruit thinning is spreading year by year. The chemical fruit thinning is made after the petal fall, when the fruits are 10 – 14 mm in diameter (pea size). The hand thinning is made a bit later than the chemical thinning, until the fruits don't reach 20 mm in diameter. During the hand thinning one fruit per spurs on every 10 cm of branch can be left.

Actual situation

There were late spring frosts during the last couple of years, so frost-safety production is an important issue in the Hungarian fruit industry today. This is based on fruit site cataster system, where the safety fruit sites were collected by fruit species. In the orchard with smaller surface (up to 2 to 3 hectares) the growers use frosts candles to avoid decrease the air temperature under 0 °C. In the larger orchard special machines (e.g. frost buster, wind machine) are used, however the traditional smoke making is the most popular and not too effective method.

Another important issue is to decrease the ethylene concentration after the pollination on Persian walnut and hazelnut. If the ethylene concentration is high the female flowers can be aborted, so the yield can be decreased. Unfortunately, the ethylene concentration in the female flowers' tissue has a strong correlation with the amount of pollen, which can't be regulated by the growers. To avoid this problem caused by too much pollen same new active compounds will be tested this year. Authorizes taking their responsibility for the regulation of usage of chemical are partners in this trials. Such chemicals are used, which are in the ecological production in some countries outside of the European Union.

The bacteria species especially *Xantomonas arboricola* pv. *jugladis* cause a huge problem on walnut. In a rainy year the growers must spray their walnut orchards around 8 to 12 times against the pathogens mostly against *Xantomonas arboricola*. To decrease the costs of production a Hungarian university and a Hungarian Ltd. dealing with R+D+I activities created a mixture of bacteria consuming *Xantomonas arboricola* pv. *juglandis*. The labor research is determinated, so testing in the open-air field began at NARIC Fruitculture Research Institute. If this mixture works, huge problem in the plant protection of the shell fruit species growing will be solved.

<sup>1</sup> Equivalent to 'final report' in EIP-AGRI format.

<sup>2</sup> Please see [ec.europa.eu/eurostat/ramon/nomenclatures/](http://ec.europa.eu/eurostat/ramon/nomenclatures/) for details on NUTS regions, level 3