Scanning report (EIP format for practice abstracts)

***Project title (native language):** **EUFRUIT: Reteaua europeana de pomicultura**

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

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Section A. Summary for EIP dissemination

***Keywords:** Variety testing, strawberry, raspberry, blackberry, blueberry, currants, chokeberry, goji, baby kiwi, rose

***Main geographical location:** RO321 București

Other geographical locations: RO311 Argeș, RO222 Buzău, RO313 Dâmbovița, RO113 Cluj, RO125 Mureș, RO126 Sibiu, RO213 Iași, RO314 Giurgiu, RO316 Prahova, RO422 Caraș-Severin

***Summary (native language):**

Cercetările sunt centrate pe testarea soiurilor de arbuşti fructiferi şi pe sistemele de conducere pentru acestea. Multe testări vizează calitatea fructelor, extinderea perioadei de recoltare şi consum, sistemele de cultură ecologice, cultura în seră şi câmp, scheme de fertilizare şi irigare, ameliorare şi altoire.

În cadrul USAMV Bucureşti, multe specii şi soiuri dearbuşti fructiferi sunt testate pentru a alege şi recomanda pe cele mai bune dintre acestea pentru regiunea în cauză, destinaţia productiei şi direcţia de valorificare. Un management integrat al livezii este aplicat. Se efectuează lucrari de ameliorare la goji. Două noi selecţii hibride au fost propuse spre omologare ca soiuri noi de goji. Câteva experimente au fost realizate în cadrul proiectului Innoberry privind posibilitatea de altoire la goji şi afin.

O serie de soiuri noi de căpşun sunt testate periodic în sistem de paturi înălţate cu rânduri multiple şi mulcire cu agrotextil precum şi în seră pe substraturi inerte de cocos. Sunt observate şi analizate soiurile care dau cele mai mari producţii, fructe de calitate şi sunt rezistente la factorii biotici si abiotici de cultură.

Afinul este cultivat atât în câmp deschis cât şi în solarii acoperite cu folie de polietilenă în sistem containerizat tip ghiveci-in-ghiveci. În seră se cultivă cu scopul de a lărgi perioada de consum prin timpurietate şi tardivitate a soiurilor recoltate. O colecţie de peste 40 de soiuri de afin deserveşte scopul testării comparative, fiind pus accent atât pe calitatea fructelor cât şi pe capacitatea de păstrare a lor. Mai multe sesiuni de degustare a soiurilor de afin se realizează anual la Facultatea de Horticultură din Bucuresti.

Coacăzul, aronia, goji şi afinul sunt în testare de mai bine de 3 ani pentru forme de conducere verticale.

Noi soiuri de zmeur remontant şi clasic (cu fructe galbene şi negre) sunt introduse spre testare şi rezistenţă în partea de sud a României. O atenţie deosebită se acordă murului fără spini întrucât se cere tot mai mult din partea cultivatorilor.

Summary (English):

The main focus on berries is variety and training systems testing. A lot of research is made in respect to fruit quality, enlarging consumption period, greenhouse culture, organic crops, fertigation regime, breeding and grafting.
Many varieties and species are tested within the UASVM Bucharest trial fields in order to select the most suitable ones for the region, production destination and valorization type. Integrated management of factors in the orchard is applied and breeding for goji is ongoing. Two new goji hybrid selections are waiting the patent validation. Few trials of grafting in blueberry and goji have been developed within the Innoberry project.
Different strawberry varieties are tested and cultivated in open field (plastic film) and greenhouse (soilless culture), searching for best cultivars in terms of productivity, fruit quality, shelf life and resistance to biotic and abiotic stress factors.
Blueberries are cultivated in pot-in-pot system in open field and containerized crop management into plastic tunnel in order to obtain early and late fruit production. A comparative testing field of more than 40 blueberry varieties in the containerized crop is

dedicated to a later fruit analyses in the lab for fruit quality and shelf life. Testing sessions are periodically organized for gathering the consumer preferences.
Currants, goji, chokeberry and blueberry are tested for vertical training system from more than 3 years.
New cultivars of raspberry (primocane, floricane, yellow and black fruits) are introduced for testing the resilience and productivity in the South region of Romania. A special attention to thornless blackberry varieties is given since this requirement is asked by most of the growers in the country,

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 (Waremme-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, Nl322 Alkmaar en omgeving, NL338 oost Zuid-Holland, NL33A zuidoost Zuid-Holland, NL341 Zeeuws-Vlaanderen, NL342 overig Zeeland, Nl411 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 Hamphshire, 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. Realizarea unei reţele europene pentru sectorul pomicol
2. Dezvoltarea şi implementarea în concept sistemic a cartografierii şi sintezei cunoştinţelor actuale din domeniu atât ştiintifice cât şi practice
3. Stabilirea unui dialog continuu cu instituţiile relevante europene şi naţionale.

4. Identificarea şi susţinerea noilor priorităţi în aria de cercetare prin continuarea monitorizării şi analizei activităţilor inovatoare existente şi viitoare.

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) • Pcfruit
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[1]

Scanning report
[Adrian ASĂNICĂ, Florin STĂNICĂ, USAMV Bucuresti]

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Country: Romania

NUTS 3 region(s)[2]: RO321 București

WP no. and title: WP2 – Performance of new fruit varieties

Date: 26.04.2018

Source materials and methodology

USAMV Bucharest is the oldest university of higher education in the agriculture field in Romania and own a large number of experimental fields in Bucharest, Buzău, Ilfov and other places in the country. Many bachelor, master and PhD students work in the experimental field and labs, greenhouses etc. applying the best practices and innovations in the field.

A new demonstration field for extension is established in Istriţa, Buzău county and in Bucharest in order to promote the best and latest achievement in terms of varieties and technologies for berry crops.

In our trials fields, a lot of varieties from abroad and autochthonous are tested targeting promotion of the best ones in terms of productivity, fruit quality and post-harvest life. Novel technologies and inputs are analyzed against the sector needs and to the consumer preferences.

Innoberry project enhance the knowledge for currants, goji, chokeberry and blueberry in terms of vertical training systems, cultivation in protected spaces, containerized culture, grafting and breeding.

Literature:

Asanica A., Stanica F., Iacob A., 2017. New Vertical Training Systems for *Aronia melanocarpa* L., Fruit Growing Research, vol. XXXIII, 41-46, ISSN 1584-2231

Catana L., Catana M., Iorga E., Asanica A., Lazar A.G., Lazar M.A., Belc N. 2017, Vitamin C and total polyphenol content and antioxidant capacity of fresh and processed fruits of Aronia melanocarpa. Scientific Papers. Series B, Horticulture, Volume LXI, Print ISSN 2285-5653, 433-440.

Asanica A., Tudor V., Sumedrea D., Teodorescu R.I., Peticila A., Iacob A., 2017. The propagation of two red and black currant varieties by hardwood cuttings combining substrate and rooting stimulators. Scientific Papers. Series B, Horticulture, Volume LXI, Print ISSN 2285-5653, 175-184.

Asanica A., Delian E., Tudor V., Teodorescu R.I. 2017, Physiological activity of some blueberry varieties in protected and outside conditions. AgroLife Scientific Journal, Volume 6, Number 1, ISSN 2285-5718, 31-39.

Tudor V., Asanica A., Teodorescu I.R., Gidea M., Tanasescu C., Tudor A.D., Tiu V.J., 2017. Germination capacity of some Lycium barbarum L., and Lycium chinense Mill. biotypes seed, Romanian Biotechnological Letters, Vol. 22, No. 1, 12191-12196, IF=0.483

Asanica A., Badescu A., Badescu C., 2017. Blueberries in Romania: past, present and future perspective, XI International Vaccinium Symposium, Orlando Florida USA, 10-14 April 2016, Acta Hortic. 1180, 293-298 DOI: 10.17660/ActaHortic.2017.1180.39

Badescu A., Asanica A., Stanica F., Badescu C., Ungurenus M., 2017. Climate change affects blueberry production in Romania, XI International Vaccinium Symposium, Orlando Florida USA, 10-14 April 2016, Acta Hortic. 1180, 299-304 DOI: 10.17660/ActaHortic.2017.1180.40

Asanica A., Tudor V., Teodorescu R.I., Iacob A., Zolotoi V, Tudor A.D., 2016. Results on Hardwood Cuttings Propagation of Some Lycium sp. Genotypes, Fruit Growing Research, vol. XXXII, 63-70

[1] Equivalent to 'final report' in EIP-AGRI format.
[2] Please see ec.europa.eu/eurostat/ramon/nomenclatures/ for details on NUTS regions, level 3

Asanica A., Manole C., Tudor V., Dobre A., Teodorescu R.I., 2016, Lycium barbarum L. Juice - Natural Source of Biologically Active Compounds. AgroLife Scientific Journal, Volume 5, Number 1, ISSN 2285-5718, 15-20

Manole C., Paraschiv M., Asanica A., Badulescu L., 2016. Bioactive compounds in Ribes nigrum L., varieties cultivated in Bucharest area. International Scientific Research Journal, PONTE Florence, Italy, vol 72, no. 7, July 2016, ISSN: 0032-423X, 385-392

Hoza D., Asănică A., Ion L. 2015, Research and studies regarding the behavior of certain raspberry varieties within Bucharest region. Scientific Papers. Series B, Horticulture, Volume LIX, Print ISSN 2285-5653, 55-58

Tudor Valerica, Manole Carmen Gabriela, Teodorescu R.I., Asanica A., Barbulescu Iuliana Diana, 2015. Analysis of Some Phenolic Compounds and Free Radical Scavenging Activity of Strawberry Fruits during Storage Period, Agriculture and Agricultural Science Procedia (ST26733 International Conference "Agriculture for Life, Life for Agriculture"), Vol. 6, doi: 10.1016/j.aaspro-2015.08.053, ISSN: 2210-7843, 157-164

Tudor V., Asănică A., Neagu T. 2014 - First Results of Some Day-Neutral Strawberry Cultivars Behavior in the Bucharest Area Conditions. Scientific Papers. Series B, Horticulture, Volume LVIII, Print ISSN 2285-5653, 101-106.

Sturzeanu M., Ancu I., Stănică F., 2015, Study regarding the quality of fruits to some strawberry cultivars after storage period, Romanian Biotechnological Letters, Vol. 20, No. 1, 10176-10182.

Butcaru A.C., Stănică F., Matei G.M., Matei S., Influences of Soil Ameliorative Plant Species on the Organic Edible Rose Culture, III International Symposium on Horticulture in Europe (SHE2016), Acta Horticulturae (in press)

Butcaru A.C., Stănică F., Velcea M.N., 2017. Preliminary studies regarding the production of jam from organic rose petal, Bulletin of the University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca. Food Science and Technology, (in press)

Butcaru A.C., Stănică F., Madjar R., 2017, Influence of ameliorative plants and mulch on some soil agrochemical characteristics in an organic edible rose crop (in press)

Best practice findings

In the USAMV Bucuresti, variety testing is done in terms of cultivation density system, production, resilience, training, pruning type, fertilization and irrigation regime, shelf life, fruit quality etc.

We found that blueberry are very much suitable for poting crop and perform well in open field but also in protected area. Vertical training system are suitable and improve fruit quality at chokeberry, goji, currants and blueberry.

In controled gas chambers, berries can be preserved very well and is an alternative solution for fresh market in the out of seasson fruit.

Most required strawberries from growers are day-neutral ones and 'Albion' seems to match better their needs. For the blackberry, 'Chester' and 'Thronfree' are the favored and for raspberry, 'Polka' due to its large, firm and good shelf life in the market. For blueberry, 'Duke' is very appreciated for early yield and flavor. 'Simultan' is the most known Romanian blueberry variety with large and sweet fruits.

An emergence crop is goji which find good crop condition in Romania. Several genetic selection are cultivated and the most spread are the ones within Lycium barbarum specie. These are more productive and are suitable for fresh and dried consumption.

Future needs:

- Selection of berry varieties suitable for organic production
- Resilience to climate changes (dried summer long periods, hight temperature amplitudes, inconsistent winters)
- Fruit appearance and taste together with firmess and better shelf life
- Pruning and mechanical harvest technologies for bigger orchards