

Activities of the EUFRIN Working Group

« Sustainable fruit production to minimize residues »

Franziska ZAVAGLI, Ctifl, zavagli@ctifl.fr
coordinator of the EUFRIN WG
“Sustainable fruit production to minimize residues”

Working group members : no changes

Austria – Versuchstation für Obst und Weinbau (Haidegg)

Belgium – Pcfruit Kerkom

Denmark – Aarhus University

France - Ctifl

Germany – ESTEBURG – Obstbauzentrum Jork

Italy – Univ. de Bologna ; Obstbau Versuchszent. Laimburg ; I.Agr. San Michele all'Adige

Netherlands – Applied Plant Research (Randwijk, Wageningen UR)

Norway – Institut pour la recherche agronomique et envir. (Bioforsk)

Poland – Research institute of horticulture (Skierniewice)

Romania – Univ. of Agronomic sciences and veterinary medicine (Bucarest)

Slovenia – Faculty of Agriculture and Life Sciences (Maribor)

Spain – IRTA (Catalonia)

Sweden – Swedish Board of Agriculture Plant Protection Division *

Switzerland – Research station Agroscope (Wädenswil)

UK – East Malling Research station

ANNUAL MEETING (1,5 day)



Year	Place	Nb. of partakers	Nb. of presentations or topics
2009	Paris (Ctifl)	8	5
2009	Bologna (University)	15	12
2010	Maribor (Faculty of Agriculture and Life Sciences)	12	9
2011	Wädenswil (Research station Agroscope)	12	21
2012	Wageningen (Applied Plant Research –Randwijk)	12	15
2013	Graz (Versuchstation für Obst und Weinbau Haidegg)	11	17
2014	Girona (IRTA)	11	12 + 7 in “open” session



2014 : OVERVIEW on regional & national initiatives



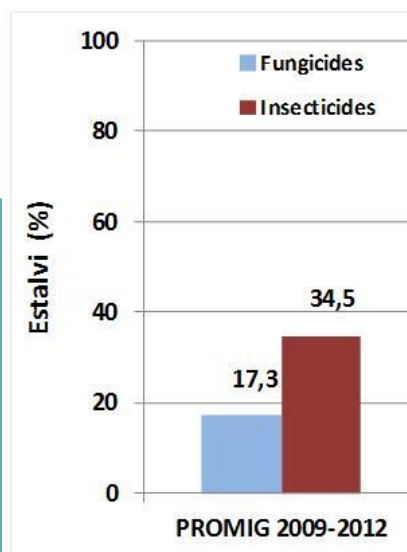
A regional program on apples, pears, peaches and citrus

Aim : Implement strategies on standard orchards, according to the catalonian integrated production rules to reach :

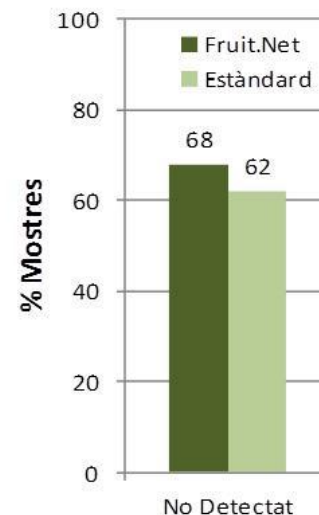
- a chemical sprayings reduction
- to minimize residues on fruits

COMPARED DATA OF Fruit.Net *versus* Standard orchards FROM 2009 TO 2012

Saved sprayings



Residues



Apple exemple : 2009 - 2012

Traffic light table – a key tool to prevent pesticides residues

fungicide/ insecticide (active substance)	data sets	period between last application and harvest [days]														
		70	65	60	55	50	45	40	35	30	25	20	15	10	5	0
Phosphonate	4															
Signum (Boscalid)	199															
Signum (Pyraclostrobin)	170															
Apollo (Clofentezin)	25															
Teldor (Fenhexamid)	120															
Scala (Pyrimethanil)	11															
Malvin WG (Captan)	21															
Switch (Cyprodinil)	235															
Switch (Fludioxonil)	236															
Ortiva (Azoxystrobin)	109															
Flint (Trifloxystrobin)	76															
Calypso (Thiencloprid)	97															
Frupica SC (Mepanipyrim)	25															
Kiron (Fenpyroximat)	36															
Fortress 250 (Quinoxifen)	29															
Discus (Kresoxim-methyl)	11															
Pirimor Gr. (Pirimicarb)	21															
Envidor (Spirodiclofen)	6															
Masai (Tebufenpyrad)	86															
Topas (Penconazol)	14															
Talius/ Talendo (Proquinazid)	24															
Karate Zeon (λ-Cyhalothrin)	66															
Floramite 240 SC (Bifenazate)	3															
Vertimec (Abamectin)	36															
Systhane 20 EW (Myclobutanil)	19															
Score (Difenoconazol)	24															
Milbeknock (Milbemectin)	3															

 no residues expectable
 residues not excluded
 residues most likely
 insufficient data sets

no responsibility is taken for the correctness of this data
 version: May 2013
 H. Holthusen & Dr. G. Palm,
 ESTEBURG - Obstbauzentrum Jork;
 AK-Rückstände im Bundesausschuß Obst- u. Gemüse

National initiative : Database from 2005 – 2013 with more than 7700 samples for apples & pears.



The Swiss Agreement

SwissGAP defined requirements on multiple pesticide residues
Since 2007, a consensus between producers, traders and retailers.

Product	Number of Residues, active substances ≥ 0.01 mg/kg		
	up to here ok	alert level	product no more ok
Pome fruits	4	5	≥ 6
Stone fruits	4	5	≥ 6
Cherries	5	6	≥ 7
Strawberries, raspberries, black berries	5	6 - 7	≥ 8
Grapes	5	6	≥ 7
Other berries	4	5	≥ 6

National plan : reduce 50 % use of pesticides in ten years, if possible

Six years project (2012 – 2018) : National Apple Network
“Evaluation of innovative multi-site apple production systems, with the aim to reduce the use of pesticides”

- **Six partners** coordinated by Ctifi



- **28 systems studied**

Type of the system	number	Varieties
Base = reference	9	Gala, Fuji, Golden, Granny, Ariane
ECOPHYTO 1 = reduced use	7	Gala, Fuji, Golden, Granny
ECOPHYTO 2 = reduced use	5	Ariane, Crimson Crisp
AB = organic production	7	Ariane, Akane, Crimson Crisp, Opal

Examples of trials done by the EUFRIN WG members (2014)

Country	Members	Topics
Italy	Fundazione Edmund Mach (San Michel all'Adige)	- Codling moth mating disruption - Pesticides screening to determine residues level - Citric acid solution to wash apples in post-harvest - Incidence of nozzle types and residues on fruits - Adapting dose rate to limit residues
Germany	ESTEBURG – Obstbauzentrum Jork	Long term strategy trial. 8 options. 1 variety. 5 years. Indicators : Efficacy, costs, number of residues.
Switzerland	Agroscope (Wädenswil)	- Low-Input trial. 3 programs. 4 varieties. 5 years. Indicators : Efficacy, costs, number of residues. - Exclusion nets against cherry fruit fly and <i>Drosophila suzukii</i>

Examples of trials done by the EUFRIN WG members (2014)



Country	Members	Topics
Austria	Versuchsstation Obst- und Weinbau Haidegg	- Incidence of exclusion nets on fire blight - Exclusion nets to regulate fruit production
France	Ctifl (Centre Lanxade)	Plastic rain cover to protect trees against apple scab. 5 years experiences.
Spain	IRTA (Girona)	- Field trials related to the pre-harvest interval requirements - Epidemiologic model for <i>Monilinia</i> - Physical technics against <i>Monilinia</i> (radio frequency heat system ; microwaves)

Facts & Trends

- **Reduce chemical treatments**
- **Minimize residues**



- **Fruit quality**
- **Competitiveness**



Increase consumption

- ✓ Chemicals use has decrease, but it is more and more difficult to continue lowering the sprayings.
- ✓ The main problem is to manage storage diseases and avoid residues on fruits.
- ✓ To reduce treatments can develop other pests and diseases.
- ✓ Are resistant varieties the solution ? Will they find their place on the market ?
- ✓ Be aware of the costs to reduce chemicals and residues and the final fruit sale price.

**Still more research has to be done :
proposal for EU call.**