

# Activities of the EUFRIN Working Group

## « Sustainable fruit production to minimize residues »

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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



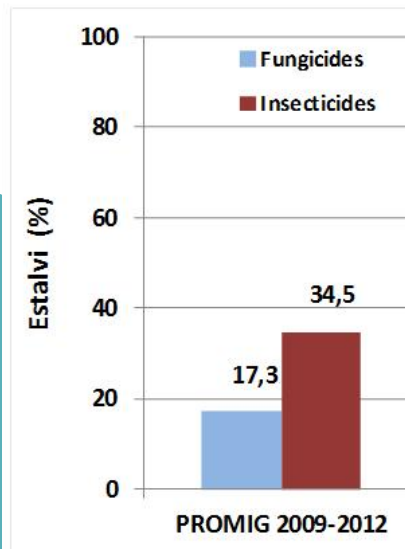
A regional program on apples, pears, peaches and citrus

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

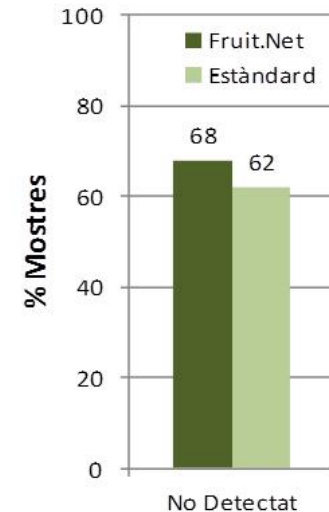
- a chemical sprayings reduction
- to minimize residues on fruits

## 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
<b>Phosphonate</b>	4															
Signum (Boscalid)	199															
Signum (Pyraclostrobin)	170															
Apollo (Clofentezin)	25															
Teldor (Fenhexamid)	120															
Scala (Pyrimethanil)	11															
<b>Malvin WG (Captan)</b>	21															
Switch (Cyprodinil)	235															
Switch (Fludioxonil)	236															
Ortiva (Azoxystrobin)	109															
Flint (Trifloxystrobin)	76															
<b>Calypso (Thiacloprid)</b>	97															
Frupica SC (Mepanipyrim)	25															
Kiron (Fenpyroximat)	36															
Fortress 250 (Quioxyfen)	29															
Discus (Kresoxim-methyl)	11															
<b>Pirimor Gr. (Pirimicarb)</b>	21															
Envidor (Spirodiclofen)	6															
Masai (Tebufenpyrad)	86															
Topas (Penconazol)	14															
Talius/ Talendo (Proquinazid)	24															
<b>Karate Zeon (λ-Cyhalothrin)</b>	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 $\geq 0.01$ mg/kg		
	up to here ok	alert level	product no more ok
Pome fruits	4	5	$\geq 6$
Stone fruits	4	5	$\geq 6$
Cherries	5	6	$\geq 7$
Strawberries, raspberries, black berries	5	6 - 7	$\geq 8$
Grapes	5	6	$\geq 7$
Other berries	4	5	$\geq 6$

# 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 Ctifl



- 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)	<ul style="list-style-type: none"> <li>- Codling moth mating disruption</li> <li>- Pesticides screening to determine residues level</li> <li>- Citric acid solution to wash apples in post-harvest</li> <li>- Incidence of nozzle types and residues on fruits</li> <li>- Adapting dose rate to limit residues</li> </ul>
Germany	ESTEBURG – Obstbauzentrum Jork	<p>Long term strategy trial. 8 options. 1 variety. 5 years. Indicators : Efficacy, costs, number of residues.</p>
Switzerland	Agroscope (Wädenswil)	<ul style="list-style-type: none"> <li>- Low-Input trial. 3 programs. 4 varieties. 5 years. Indicators : Efficacy, costs, number of residues.</li> <li>- Exclusion nets against cherry fruit fly and <i>Drosophila suzukii</i></li> </ul>



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

Country	Members	Topics
Austria	Versuchsstation Obst- und Weinbau Haidegg	<ul style="list-style-type: none"> <li>- Incidence of exclusion nets on fire blight</li> <li>- Exclusion nets to regulate fruit production</li> </ul>
France	Ctifl (Centre Lanxade)	Plastic rain cover to protect trees against apple scab. 5 years experiences.
Spain	IRTA (Girona)	<ul style="list-style-type: none"> <li>- Field trials related to the pre-harvest interval requirements</li> <li>- Epidemiologic model for <i>Monilinia</i></li> <li>- Physical technics against <i>Monilinia</i> (radio frequency heat system ; microwaves)</li> </ul>

# 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.**