Scanning report
[Andreas Naef, WBF]

Author: [Dr. Andreas Naef, Agroscope, Andreas.naef@agroscope.admin.ch,+41 58 460 62 57]

Country:

NUTS 3 region(s)[1]: [code(s) and name(s)]

WP no. and title: **3 – Reduction in pesticides residues - pomefruits**

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Source materials and methodology

Quality guidelines for farmers

After the publication of the first Greenpeace pesticide report in 2005, the SwissGAP organization established a guideline defining the number of accepted pesticide residues (>0.01 mg/kg) for fruits and vegetables produced in Switzerland.

Produkt	Anzahl Rückstände, Wirkstoffe ≥ 0.01 mg/kg		
	Bis hier i.O.	Sensibilisierungs -bereich	Produkt nicht mehr i.O.
Kernobst	4	5	≥ 6
Steinobst	4	5	≥ 6
Kirschen	4	5 – 6	≥ 7
Erdbeeren, Himbeeren, Brombeeren und andere Strauchbeeren	5	6	≥ 7
Trauben	5	6	≥ 7

This agreement between producers, traders and retailers is still valid but some retailers aim to tighten the limits.

Source: http://www.swissgap.ch/pdf/Mehrfachrueckstaende_de.pdf

Decision support systems

Every second year, Agroscope, the Swiss centre for agricultural research, publishes recommendations for plant protection in commercial fruit production. Yearly, this booklet is supplemented by an updated list of plant protection products. These documents contain information about damage tresholds and effect of chemicals on beneficials and are widely used in practice and education. In addition, Agroscope and regional advisory services distribute up-to-date recommendations for plant protection by e-Mail, fax and mailing.

Agroscope provides several webpages with disease and pest modelling and monitoring information. Monitoring is mainly done by research farms and advisory services but rarely by producers.

www.agrometeo.ch (apple scab infection forcasting, wheater data, pest monitoring data, crop stage data)
www.sopra.ch (pest forecasting)
www.feuerbrand.ch (fireblight forcasting)

Sources:

Kuske S., Naef A., Holliger E., Kuster T., Perren S., Werthmüller J., Linder C., Dubuis P.-H., Kehrli P., Bohren C. 2016: Flugschrift Nr. 122 - Pflanzenschutzempfehlungen für den Erwerbsobstbau 2016/2017. Ed. Agroscope,. 68 p.

Kuske S., Naef A., Holliger E., Kuster T., Perren S., Werthmüller J., Linder C., Dubuis P.-H., Kehrli P., Bohren C. 2016: Flugschrift Nr. 122 (Aktualisierte Beilage): Empfohlene Pflanzenschutzmittel für den Erwerbsobstbau 2016. Ed. Agroscope, 23 p.

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

Werthmüller J., Kuske S., Holliger E., Häseli A. 2016: Pflanzenschutzmitteilungen für den Obst- und Rebbau, weekly bulletin, eds. Agroscope and FibL.

Chemical low-residue strategies

In 2008, Agroscope started a low-input trial with scab sensitive and scab resistant apple varieties. Main pests and diseases could be controlled with a combination of integrated and organic measures. The use of chemical-synthetic pesticides only until end of bloom allowed a complete elimination of residues. An unsolved problem remained the increased incidence of storage rots, resulting in lower profitability of the production. Agroscope and partners tested different pre harvest fungicide strategies with non-synthetic fungicides such as bicarbonate, acid clay or laminarin to improve control of storage rots, but the success of storage rot control mainly depended on the regional climate. In regions with more than 1000mm precipitation per year, the low-residue strategy resulted in increased losses during storage rot compared to standard IP strategies. Thus, low-residue strategies are not implemented by fruit farmers yet due to economic reasons.

Source:

Gölles M., Bravin E., Kuske S., Naef A. 2015: Herausforderungen der rückstandsfreien Apfelproduktion. Agrarforschung Schweiz. 6, (1), 2015, 12-19

Physical Barriers

In 2005, Agroscope started trials with exclusion netting first on apples to control moths. The exclusion netting is used only by pioneers farmers and orchards next to meadow trees to prevent bees contaminated with fireblight bacteria to enter the orchards.

Sources:

Samietz J. , Höhn H., Kuske S., Gölles M. 2013: Experiences with exclusion netting in fruit production in Switzerland. In: LVZ Haidegg, Graz.

Bio-control

Mating disruption against codling moth is used by about 50% of the apple growers of the Lake of Constance area. The use is lower in regions where fruit production is of minor importance and orchards are smaller and more spread. The combination of mating disruption and granulosis virus is mainly used by organic producers (about 10%).

Since streptomycin has been banned in Switzerland, many farmers are using a combination of biocontrol with yeasts (Blossom Protect), acid clay (Myco-Sin) and potassium aluminium sulphate (LMA) to control fireblight.

Sources:

Endure 2007: Deliverable DR1.8 and DR1.9 - Survey and analysis of the state of art of control strategies in orchardsCrop adapted dosage

Personal communications with fruit advisors.

Best practice findings

Codling moth: Mating disruption is widely used in practice.

Fire blight: increasing use of Blossom Protect.

DSS: webtools on www.agrometeo, www.sopra.ch and www.feuerbrand.ch are widely used

Various pests: forecasting on www.sopra

In general: The recent invasion of new pests such as the spotted wing drosophila, the withdrawal of pesticides like dimethoate and streptomycin and the first Swiss national action plan to reduce risk of pesticide use, becoming operative this year, have changed the mind of many producers and cooperatives. Cooperatives and regional advisory services and intend to establish a net of demonstration farms with low-residue crop protection strategies and are involving Agroscope as expert in these initiatives.