

First Meeting of the FRAC OSBPI Working Group

April 4, 2017 – 9:00 to 12:00

DuPont European R&D Center

24, rue du Moulin F-68740 Namsheim

Participants

DuPont	Jean-Luc Genet (proposed Chair)
	Mamadou Mboup
	Grazyna Jaworska
	Olivier Couery
Syngenta	Helge Sierotzki
	Stefano Torriani
	Jennifer Foster

Agenda

1. Welcome
2. Antitrust Guidelines
3. FRAC OSBPI Chair
4. Review of sensitivity monitoring data
 - a. *Plasmopara viticola*
 - b. *Phytophthora infestans*
 - c. *Pseudoperonospora cubensis*
 - d. Other pathogens
5. Review of use recommendations
6. Changes to description of mode of action
7. Target site mutations identified so far

Coffee break 10:30

Membership

The working group is comprised of the following members:

Jean-Luc Genet (chair)	DuPont
Grazyna Jaworska	DuPont
Mamadou Mboup	DuPont
Olivier Couery	DuPont
Helge Sierotzki	Syngenta
Stefano Torriani	Syngenta
Jennifer Foster	Syngenta

Introduction

A FRAC OSBPI Working Group was formed in 2015 to generate common resistance management recommendations for the fungicide oxathiapiprolin and other OSBP-inhibitors.

Oxathiapiprolin is a fungicide active against oomycete fungi and used for the control of Phytophthora and downy mildews of numerous crops.

Oxathiapiprolin inhibits an oxysterol binding protein (OSBP) homologue. Oxysterol binding proteins are implicated in the movement of lipids between membranes, among other processes. Inhibiting OSBP may disrupt other processes in the fungal cell, such as signaling, maintaining cell membranes, and the formation of more complex lipids that are essential for the cell to survive.

Oxathiapiprolin has been classified under the FRAC Code 49. The resistance risk is medium to high.

FRAC Code	Target site and code	Group name	Chemical group	Common name	Comments
49	F9 lipid homeostasis and transfer/storage	OSBPI oxysterol binding protein homologue inhibition	piperidinyl-thiazole-isoxazolines	oxathiapiprolin	Resistance risk assumed to be medium to high (single site inhibitor). Resistance management required. (Previously U15).

Minutes of discussions

Review of sensitivity monitoring

Grape downy mildew (*Plasmopara viticola*)

Data presented by DuPont and Syngenta

Between 2012 and 2016, sensitivity data have been generated for samples originating from Austria, Bulgaria, Czech Republic, Croatia, France, Germany, Greece, Hungary, Italy, Japan, Portugal, Romania, Slovenia, Slovakia, Spain and Switzerland.

The vast majority of the samples analyzed were sensitive. A few isolates with reduced sensitivity have been found in a small number of trial sites located in Austria, Italy, Germany, Portugal and Spain where OSBPI fungicides have been used intensively during several years. The frequency of these isolates was however low. In some of these isolates, target site mutations have been identified at positions 770, 837 and 863. More work is needed to understand the relevance of these mutations on OSBPI sensitivity.

Potato/tomato late blight (*Phytophthora infestans*)

Data presented by DuPont and Syngenta

Between 2011 and 2016, sensitivity data have been generated for samples originating from Austria, Belgium, Brazil, Canada, China, Columbia, Czech Republic, Denmark, Ecuador, France, Germany, Hungary, Japan, Mexico, Netherlands, Poland, Portugal, Romania, Slovakia, South Africa, South Korea, Spain, Sweden, Switzerland, UK, Uruguay and USA. All the samples analyzed were sensitive.

Cucurbit downy mildew (*Pseudoperonospora cubensis*)

Data presented by DuPont and Syngenta

Between 2011 and 2015, sensitivity data have been generated for samples originating from cucumber, zucchini and squash crops in China, Greece, Poland and USA. All the samples analyzed were sensitive.

***Phytophthora capsici* blight**

Data presented by Syngenta

In 2015, sensitivity data have been generated for samples originating from pepper, tomato, zucchini, pumpkin and gourd and watermelon crops in the USA. All the samples analyzed were sensitive.

Lettuce downy mildew (*Bremia lactucae*)

Data presented by Syngenta

In 2014 and 2015, sensitivity data have been generated for samples originating from the USA. All the samples analyzed were sensitive.

Sunflower downy mildew (*Plasmopara halstedii*)

Data presented by DuPont

Sensitivity data has been generated for samples collected in 2015 and 2016 in France and Hungary as well as for samples from a French isolate collection (1966-2004). All the samples analyzed were sensitive.

General Use Recommendations

Fungicide programs must deliver effective disease management. Apply OSBPIs at effective rates and intervals according to manufacturers' recommendations. Effective disease management is a critical component to delay the build-up of resistant pathogen populations.

Apply OSBPIs only preventatively and in mixtures with

effective fungicides from different cross-resistance groups.

The mixture partner should give effective control of the target disease(s) at the rate and interval selected.

Foliar exposure to OSBPI products should not exceed thirty-three percent (33%) of the total period of protection needed per crop.

The number of foliar applications of OSBPI products within a total disease management program must be limited as follows:

Grapes:

Make no more than two (2) applications per season.

All other crops:

Make no more than four (4) applications or 33% of the total period of protection needed per crop, whichever is more restrictive.

Where the total number of fungicide applications targeting oomycetes is less than three (3), apply no more than one (1) application of an OSBPI product.

There should be no more than two (2) foliar applications of any OSBPI product for the control of soil-borne pathogens.

Applications of OSBPI products are to be made no more than three (3) times in sequence before applying a fungicide with a different mode of action.

Applications of OSBPI products can be made in alternation with a fungicide with a different mode of action.

Seed/soil treatments

No foliar fungicide application of an OSBPI fungicide should be made following a seed/soil treatment* with OSBPI fungicides targeting the same pathogen.

* Directed stem sprays are interpreted as foliar not soil application.

Multiple crops

In case of multiple crops, do not make more than six (6) foliar applications of OSBPI product per year on the same acreage, targeting the same pathogen.

Do not make more than one seed/soil treatment application of OSBPI per year on the same acreage, targeting the same pathogen.

Nursery crops

OSBPI products must not be used in nursery production of transplanted agricultural crops.