

## ***Myzus persicae* neonicotinoid resistance management guideline for Stone Fruits in Southern Europe, IRAC SPWG, 2017**

This is an update of the resistance alert and management recommendations issued in January 2013 by the IRAC Sucking Pest Working Group. The resistance is based on a target-site mutation which strongly affects neonicotinoid efficacy<sup>1,2</sup>. The results of surveys from 2010 to 2017 confirmed the spread and presence of neonicotinoid-resistant aphids in many of the stone fruit orchards of Southern France, Spain and Italy<sup>3,4</sup>. Recent findings proved the resistance also in Andalusia, Spain where the R81T mutation was found also in several vegetable crops. Most recently the R81T mutation appeared also in Greece and Morocco in stone fruit orchards and in Belgium in greenhouse vegetables.

Map of the region showing areas where target site resistance to neonicotinoids was detected in *Myzus persicae* collected from stone fruit orchards or vegetable crops from 2010 to 2017.



IRAC have worked with local agricultural ministry officials, and entomological experts from Spain, France, Italy and the UK, to provide the following advice for the impacted stone fruits producers:

Where no loss of performance to neonicotinoids has been experienced, it is recommended to use a maximum of one neonicotinoid application per crop cycle against *Myzus persicae* to minimise the further spread and intensification of the resistance and maintain effectiveness of the neonicotinoids. Depending on crop and country and local guidelines, this single spray may be pre-flowering or post-flowering, but not during flowering, to fit with local IPM recommendations. (Note: Following restrictions to the neonicotinoids imidacloprid, thiamethoxam and clothianidin announced in 2013 by the European Commission, the recommended rotation programme has been modified accordingly to comply with these restrictions. See attached rotation scheme)

If a decline in neonicotinoid efficacy against *Myzus persicae* was observed during the previous seasons, it is recommended not to use this group of insecticides to prevent escalation or development of resistance. It is recommended to use insecticides with other modes of action, according to local registrations, such as products from groups 1A, 3A, 9, 23 and 29<sup>5</sup> as well as mineral oil to control *Myzus persicae*<sup>6</sup>. IRAC supports the use of any other IPM measures locally recommended and may assist with the characterisation of resistance mechanisms in local *Myzus* populations<sup>7</sup>.

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<sup>1</sup> Bass et al. BMC Neuroscience 2011, 12:51 Mutation of a nicotinic acetylcholine receptor beta subunit is associated with resistance to neonicotinoid insecticides in the aphid *Myzus persicae*

<sup>2</sup> Puinean et al Pest Manag Sci (2012), Society of Chemical Industry, Development of a high-throughput real-time PCR assay for the detection of the R81T mutation in the nicotinic acetylcholine receptor of neonicotinoid-resistant *Myzus persicae*.

<sup>3</sup> Slater et al, Pest Manag Sci 2012; 68: 634–638, Society of Chemical Industry, Identifying the presence of neonicotinoid resistant peach-potato aphid (*Myzus persicae*) in the peach-growing regions of southern France and northern Spain

<sup>4</sup> Panini et al, Pest Manag Sci (2013), Society of Chemical Industry, Detecting the presence of target-site resistance to neonicotinoids and pyrethroids in Italian populations of *Myzus persicae*

<sup>5</sup> See IRAC guidelines on *Myzus persicae* resistance management on the IRAC website

<sup>6</sup> Consult local advisors for advice on which aphicides are affected by resistance in your locality.

<sup>7</sup> Contact IRAC Sucking Pest Working Group or IRAC Spain on [www.irac-online.org](http://www.irac-online.org)

Example of an IRM-based program in Stone Fruits in Southern Europe to limit spread of target site neonicotinoid resistance in *Myzus persicae*:

**IRAC resistance management recommendations for the control of *Myzus persicae*:  
Example 2018: Peaches and Nectarines in Southern Europe**

