

CONTENTS & MODULES

IPM PRINCIPLE

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Apply anti-resistance strategies

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WHAT IS...	Resistance to a pesticide is the capacity of a population of one pest species to survive the exposure to doses of a pesticide lethal to normal populations of the species. It develops because some individuals have mechanisms of resistance (they are able, for example, to metabolize the pesticide). These individuals are selected by a repeated use of the pesticide, and their percentage in the population increases. At one moment, this percentage is high enough to provoke field control failures. This principle states that anti-resistance strategies should be applied.
WHY	Resistance to a pesticide may lead to an increased use of pesticides (dose and frequency), if no anti-resistance strategy is applied. This increase may also have detrimental effects on the environment, human health, the commercial life of an otherwise effective pesticide and even the ability to cultivate a specific crop in an area.
HOW	Grower access to information and guidance not provided by manufactures or distributors of pesticides is essential. The information could e.g. be provided via a network of independent and qualified advisers. Such information should cover known risk of resistance development for specific products and pests and recommendations for anti-resistance strategies.
EXAMPLE	<p>Strategy for preventing Codling Moth (<i>Cydia pomonella</i>) Resistance to Insecticides in apple and pear orchards:</p> <ol style="list-style-type: none"> 1. Apply adequate cultural methods and mating disruption. 2. Monitor the population. 3. Choose specifically acting (selective) products as far as practicable. 4. Direct the application to the most susceptible stage of development. 5. Respect manufacturer's recommendations. 6. Use products from any one group for only one generation per year. 7. Ensure that the application technique is appropriate to obtain complete coverage of the target area of the tree. 8. Do not re-use products from the same Mode Of Action group until resistance has been proven to be absent.

SOURCES	<p>► EPPO, 2002. Standard for the efficacy evaluation of plant protection products. Resistance Risk Analysis. (http://www.eppo.org/Standards/GI213.html)</p> <p>► European Commission. Directorate General Environment. Implementation of IPM principles Guidance to Member States. (http://www.endure-network.eu/about_crop_protection/european_documents : BIPRO 2009 reports)</p> <p>► Resistance Action Committees:</p> <ul style="list-style-type: none"> - Insecticide (IRAC) : http://www.irac-online.org/ - Herbicides (HRAC): http://www.hracglobal.com/ - Fongicides (FRAC): http://www.frac.info/frac/index.htm
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