The IRAC International Diamide Working Group

Stewardship of the Ryanodine Receptor Modulators

Diamide insecticides are IRAC mode of action Group 28 ryanodine receptor modulators, currently including products containing chlorantraniliprole, cyrantraniliprole, and flubendiamide.

WHO ARE WE?
The IRAC International Diamide Working Group was created in 2007 to prevent or delay the development of insect resistance to the diamides, a new mode of action chemical class, by founding member companies Nihon Nohyaku/Nichino, DuPont Crop Protection, Bayer Crop Science, and Syngenta and supported by IRAC International and Crop Life membership companies.

WHAT DO WE AND WHY?
The IRAC Diamide Working Group promotes sustainable use of all insecticides through industry education and implementation of IRM disciplines and strategies. The main objective of the Diamide team is to maintain the longevity of all crop protection products available to growers by preventing or delaying the development of resistance to insect pests.

Activities of the IRAC Diamide Working Group

- Identify and prioritize high resistance risk and cropping systems.
- Create country Diamide IRM WGs & provide guidance & tools to effectively implement local IRM programs.
- Educate the industry through grower, company, professional, and trade meetings.
- Develop global IRM guidelines for adaptation & implementation in local market countries.
- Develop testing assays, create baseline susceptibility data, assess field tolerant populations, and help coordinate response plan to resistance.

Resistant Management Guidelines

1) Incorporate IPM practices into insect control program.
2) Follow the label. Do not reduce rates. Follow recommended timing of applications and spray volume.
3) Know the MoA of insecticides for rotation programs.
4) Rotate insecticide MoA groups.
   - Avoid exclusive use of Group 28 insecticides throughout a crop cycle for a pest species with more than one generation.
   - Apply insecticides using a “window” approach to avoid exposure of consecutive insect pest generations to the same mode of action.
   - A “Treatment Window” is defined as the period of residual activity provided by a single or sequence of product applications with the same mode of action within an approximate 30 day period (15 - 45 days depending on local generation time from egg to adult). Generally, this “Window” should approximate the length of a generation of the target pest.
   - Following a “Treatment Window”, rotate to a “window” of applications of effective insecticides with a different mode of action.
   - For short cycle crops (< 50 days), consider the duration of the crop cycle as a “Group 28 insecticide treatment window”, thus alternate to different modes of action during subsequent plantings at the same farm location.
   - The total exposure period of all “Group 28-active windows” applied throughout the crop cycle (from seedling to harvest) should not exceed approximately 50% of the crop cycle.

Example of DBM IRM Strategy - China

GROWER ROTATION PRACTICE:
• Avoid exposure of consecutive insect generations to Group 28 insecticides.
• Rotate Group 28 Insecticides with other MoA products using a ‘window’ approach.
• Apply Group 28 products within a “Treatment Window” of no more than 30 days followed by a window with different MoA products for another approx 30 days.
• Multiple successive applications are acceptable if they are used to treat a single insect generation or are used within a window.

This poster is for educational purposes only. Details are accurate to the best of our knowledge but IRAC and its member companies cannot accept responsibility for how this information is used or interpreted. Advice should always be sought from local experts or advisors and health and safety recommendations followed.

Design & Produced by IRAC Group 28 [Diamide] WG, May 2012, Poster Ver. 4
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