



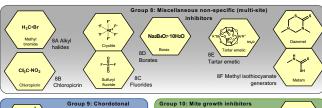


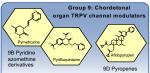
Use of Groups and Sub-Groups:

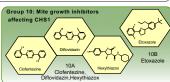
- Alternations, sequences or rotations of compounds between MoA groups reduce selection for target site resistance.
 Applications are arranged into MoA spray windows defined by crop growth stage and pest biology.
- · Several sprays of a compound may be possible within each spray window, but successive generations of a pest should not be treated with compounds from the same MoA group.
- Local expert advice should always be followed with regard to spray windows and timing.
- Groups in the classification whose members do not act at a common target site are exempt from the proscription against rotation within the group. These are, Group 8, Group 13 and all the UN groups: UN, UNB, UNE, UNF, UNM, UNP & UNV.
- · Sub-groups represent distinct structural classes which are believed to have the same mode of action.
- · Sub-groups provide differentiation between compounds that may bind at the same target site but are structurally different enough that risk of metabolic cross-resistance is lower than for close chemical analogs.
- Cross-resistance potential between sub-groups is higher than between groups, so rotation between sub-groups should be considered only when there are no alternatives, and only if cross-resistance does not exist, following consultation with local expert
- advice. These exceptions are not sustainable, and alternative options should be sought. Sub-group 3B: DDT is no longer used in agriculture and therefore this is only applicable for the control of insect vectors of human disease, such as mosquitoes, because of a lack of alternatives.
- Sub-group10A: Hexythiazox is grouped with clofentezine because they exhibit cross-resistance even though they are structurally
 distinct. Diflovidazin has been added to this group because it is a close analogue of clofentezine and is expected to have the same mode of action



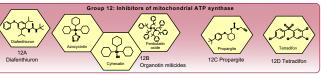
Mode of Action Classification

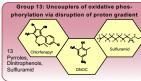


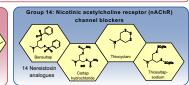




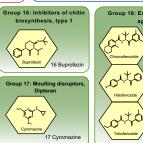


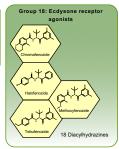




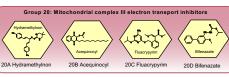


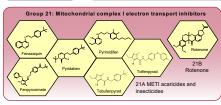


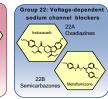


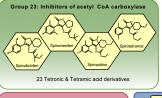


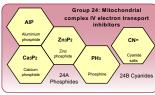


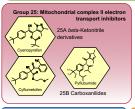


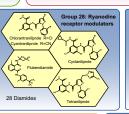


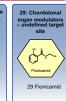




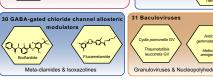




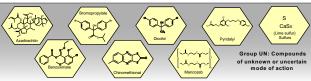


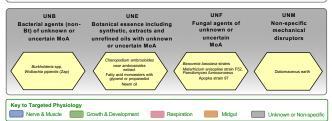


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- In some cases only representative compounds in Groups are shown where indicated.
 Please visit www.irac-online.org for the complete IRAC classification.