HRAC GLOBAL HERBICIDE MOA CLASSIFICATION WORKING GROUP REPORT

Version: Dec 15th, 2023

Executive Summary

The Herbicide Resistance Action Committee Global (HRAC Global), supported by regional HRACs around the world, completed its update to the mode of action (MoA) classification system of 2022 to come up with the revised version 2024.

Changes since the last update in 2022 include:

- a new visual design, larger size of molecule structures
- the addition of the new active ingredient epyrifenacil
- propaquizafop indicated as important ester variant of quizalofop in the EU
- removal of four actives from the poster (group 0: diphenamid, difenzoquat, dymron, flamprop) due to a review of literature, registration data and publicly available sales data
- removal of one active from group 14 (azafenidin) due to non registration of the active
- rationalization of chemical family names
- the box around group 5 and group 6 actives has been removed
- correction of the chemical structure of propisochlor
- abbreviations of modes of action have been introduced
- actives in the registration process have been indicated by a number and in a respective foot note
- three actives (cumyluron, oxaciclomefone, bromobutide) have been moved from group 0 to group 30 due to recent literature on the site of action
- amitrole has been moved from group 34 to group 0 due to inconclusive MoA data
- group 34 mode of action lycopene cyclase has been taken off the poster due to inconclusive MoA
- group 0 actives have been regrouped according to a literature review
- group 0 and place below the table

With this update, HRAC Global will foster the review of actives as based on new knowledge on the site of action, registration, and public sales data to assess the importance for resistance management as a core mission of the HRAC mode of action classification.

HRAC Global will keep the numerical code system introduced in 2020 as we are convinced that it is more globally relevant and sustainable compared to English/Latin letters. In geographies where the Latin alphabet is not used and/or where literacy rates are low, most everyone understands Hindu-Arabic numerals (including China).

HRAC Global consulted and aligned all changes with WSSA representatives.

Background

HRAC Global followed earlier decisions since 2017 to focus on

1) Review and update the list of active ingredients (a.i.s) – including adding new ones, taking off non relevant ones
2) Update/revise MoA designations
3) Update/revise chemical classes
4) Recommend changes to the MoA classification code
5) Devise process for annual review and updates

Working Group Members

jens.lerchl@basf.com
matthias.witschel@basf.com
hubert.menne@bayer.com
bernd.laber@bayer.com
jens.frackenpohl@bayer.com
caio.rossi@corteva.com
hudson.takano@corteva.com
jeffrey.epp@corteva.com
james.morris@syngenta.com
gael.le_goupil@syngenta.com
roland.beffa@t-online.de

The starting point for the list of herbicide a.i.s was changed previously with the poster release 2022. It was originally provided by Ian Heap (Administrator of the herbicide resistance website weedscience.org) which was cross-referenced with the Pesticide Manual (BCPC), WSSA Herbicide Handbook and third-party reports such as Phillips McDougall/AgbioInvestor for gaps and new market introductions. Evidence of commercialization was required for inclusion on the list. The final Master List includes all referenced herbicide a.i.s. The updated 2024 HRAC Global Herbicide MoA Classification Poster is a subset of the Master List. The working group continuously reviews actives according to available public information.