

Appendix 7.

Classification of Herbicides According to Mode of Action

Farmers, advisors and researchers should know which herbicides are best suited to combat specific resistant weeds. To support the use of herbicides suitable for resistance management the enclosed classification of herbicides is proposed.

The herbicides are classified alphabetically according to their target sites, modes of action, similarity of induced symptoms or chemical classes.

If different herbicide groups share the same mode or site of action only one letter is used. In the case of photosynthesis inhibitors subclasses C₁, C₂ and C₃ indicate different binding behaviour at the binding protein D₁ or different classes. Bleaching can be caused by different ways. Accordingly subgroups F₁, F₂ and F₃ are introduced. Growth inhibition can be induced by herbicides from subgroups K₁, K₂ and K₃. Herbicides with unknown modes or sites of action are classified in group Z as "unknown" until they can be grouped exactly.

Classification of Herbicides

In order to avoid confusion with I and O categories J and Q are omitted. New herbicides will be classified in the respective groups or in new groups (R, S, T...).

Since the system was in part developed in co-operation with the "Weed Science Society of America (WSSA)" new herbicides should be categorized jointly by HRAC and WSSA.

For reference the numerical system of the WSSA is listed, too.

The aim of HRAC is to create a uniform classification of herbicide modes of action in as many countries as possible.

Such a classification system can be useful for many instances but there are cases where weeds exhibit multiple resistance across many of the groups listed and in these cases the key may be of limited value.

The system itself is *not* based on resistance risk assessment but can be used by the farmer or advisor as a tool to choose herbicides in different mode of action groups, so that mixtures or rotations of active ingredients can be planned.

The WSSA and HRAC systems differ in minor ways. Herbicides in *italics* are listed on the HRAC classification system but are not listed on the WSSA classification.

