



PRE HERBICIDES REFERENCE MANUAL

The Grains Research and Development Corporation of Australia has published “[Soil Behavior of Pre-Emergent Herbicides in Australian Farming Systems: A Reference Manual for Agronomic Advisers](#)” authored by Mark Congreve and John Cameron. A summary of the contents of the manual follow.

Introduction.

- Importance of controlling weeds
- Value of pre-emergent (PRE) herbicides
- Common objections to using PRE herbicides.

Factors Influencing Activity of PRE Herbicides.

- Interactions prior to incorporation: stubble and crop interception, photodegradation, and volatilization of herbicides.
- Incorporation: required by some herbicides to prevent loss from photodegradation and volatilization.
- Behavior in the soil: position of the herbicide in the soil in relation to targeted weed seed, binding ability as influenced by soil texture, CEC, and soil organic matter content.
- Properties affecting soil binding and availability: herbicide solubility (examples given), herbicide strength of binding to soil particles and organic matter (absorption coefficient—examples given), soil moisture which affects herbicide availability, rate of breakdown once in the soil, and persistence or how long a herbicide remains in the soil.
- Soil pH.

Rotational Crop Constraints or Plantback Restrictions on Herbicide Label

Crop Safety or Crop Tolerance; e.g., Metribuzin Sensitivity of Some Soybean Varieties

Key Residual Herbicides Listed by [WSSA](#) MOA/SOA Group are:

- Group 2: ALS inhibitors; e.g. Imazethapyr (Pursuit), cloransulam (FirstRate), imazaquin (Scepter).
- Group 5,7: PSII inhibitors; e.g. metribuzin (Sencor), linuron (Lorox).
- Group 14: PPO inhibitors; e.g. flumioxazin (Valor), saflufenacil (Sharpen).
- Group 13: PDS or carotene inhibitors; e.g. clomazone (Command).
- Group 3: Mitosis inhibitors; e.g. trifluralin (Treflan), pendimethalin (Prowl).
- Group 15: VLCFA synthesis inhibition; e.g. s-metolachlor (Dual), pyroxasulfone (Zidua).

The authors provide narrative details and descriptions of all the above subjects, plus tables and figures that show examples of the herbicide characteristics that are discussed. Be aware that the trade names of some of the described herbicides are different from trade names of herbicides with the same active ingredients sold in the US. Use [this link](#) to ensure access to an up-to-date version of the manual.

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