



# Powles Plain English

*Making crops and weeds research interesting, understandable, and accessible to all.*

## **Colleagues,**

For your information, please find attached just published AHRI research paper entitled "Glyphosate resistance in *S. halepense* and *L. rigidum* is reduced at suboptimal growing temperatures. By: M Vila-Aiub et al, Pest Management Science, 2013, 69, 228-232.

This research was conducted with glyphosate resistant biotypes of tropical *S. halepense* and temperate *L. rigidum* in which we had established that the reduced glyphosate translocation resistance mechanism is present. These biotypes do not appear to have any target site EPSPS gene mutations.

Good work from the Sammons laboratory at Monsanto has demonstrated with glyphosate resistant *Conyza* biotypes with the reduced glyphosate translocation resistance mechanism (increased vacuolar sequestration) that the level of glyphosate resistance is considerably lower at low temperatures.

Here we examined the temperature dependence of glyphosate resistance in tropical warm season *S. halepense* versus temperate cool season *L. rigidum* biotypes with the reduced glyphosate translocation resistance mechanism. With these contrasting warm season versus cool season species the results are very clear that glyphosate resistance level is temperature dependent in that the reduced glyphosate translocation resistance mechanism is inefficient at low temperatures. This is good confirmation of the results of Sammons et al and extends the observations to the warm season *S. halepense*. Indeed, in some cases, it may be possible to achieve control of glyphosate resistant biotypes with this reduced translocation resistance mechanism if plants can be treated at times of low temperature.

Of course, this result is only relevant to plants with the reduced glyphosate translocation resistance mechanism. Other glyphosate resistance mechanisms, such as target site changes, are likely independent of temperature.

Thank you,

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