

Technical Bulletin



Leading University Weed Scientist Demonstrates TOUGH® 5EC Synergizes Mesotrione As Good As Atrazine

OBJECTIVE

Commercial feedback this spring questioned TOUGH® 5EC field trial results as we did not have analytical, scientific greenhouse data to show TOUGH's synergy of HPPD's on HPPD resistant weeds. In response, a greenhouse research trial commenced at the University of Illinois with Dr. Pat Tranel, one of the leading Weed Scientists on herbicide-resistance mechanisms.

As shown in the chart below, several treatments were applied to HPPD and atrazine resistant Palmer Amaranth. Dr. Tranel reported; ***"The research demonstrated, in a controlled environment, that TOUGH 5EC synergizes mesotrione as good as atrazine on palmer amaranth."***

Why is this significant?

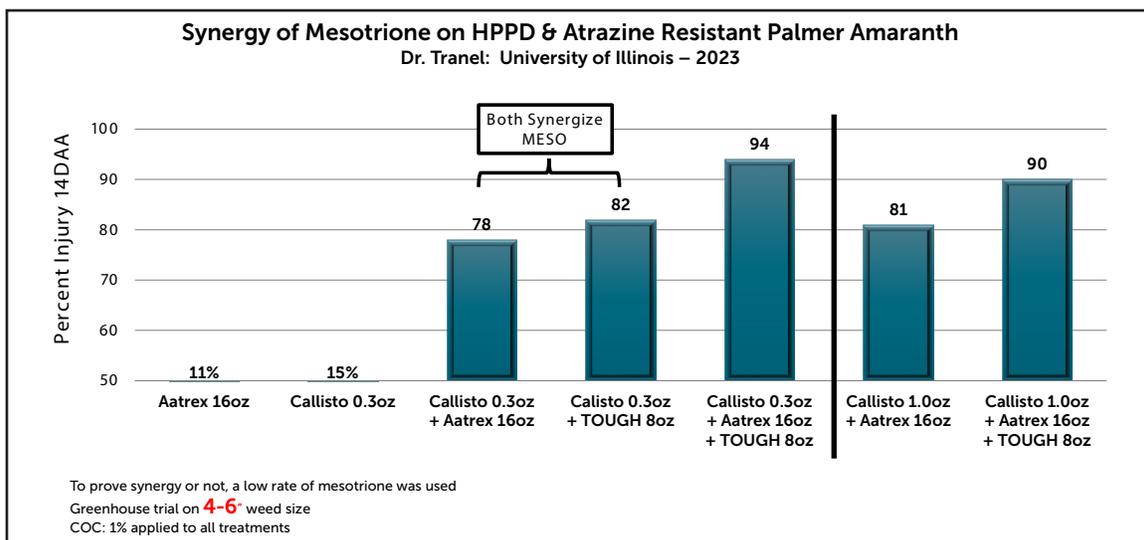
Atrazine has in season use restrictions such as can't be used past the V5 stage. TOUGH can be used up to the V8 stage to synergize the HPPD class of chemistry on those later emerging weeds. In addition, atrazine has been under regulatory scrutiny for ground water leaching. More recently, there is news of regulatory pressure coming regarding it's endocrine disruption

classification. TOUGH is the safe, long-term solution to preserve the valuable HPPD class of chemistry.

While we have not conducted this type of controlled greenhouse study on each of the HPPD's (such as tolypyralate, topramezone, tembotrione, etc.), our robust field trial programs and commercial use has proven that TOUGH also synergizes other HPPD's.

The research also clearly shows adding atrazine to the tank with TOUGH has an additive effect on weed control. Atrazine also has soil residual to control those very late emerging weeds like morningglories. Remember though, you can't use atrazine past 12" or V5 corn, so TOUGH is the synergist of choice at that point.

In addition, our robust university field trial program and commercial use has demonstrated, over 6 years now, that the synergy effect is on many weeds that the HPPD's have activity on. Currently additional controlled greenhouse studies are in progress on multiple herbicide resistant weed species at different universities. Results of these studies will be provided in the near future.



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