

Technical Bulletin



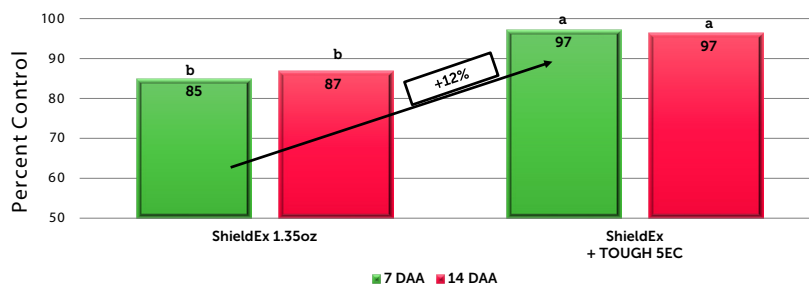
Synergizes HPPDs - Including Tolpyralate

OBJECTIVE

After observing the synergistic effect that TOUGH[®] 5EC had with mesotrione (Callisto) in 2018 and 2019 research trials, Belchim USA initiated trials with other HPPD chemistries in 2020. Tolpyralate (SHIELDEX[®]) was incorporated into several of these trials.

One trial was conducted at Purdue University, where Glyphosate Resistant Palmer Amaranth was treated with 1.35 oz of SHIELDEX on one plot and a second plot was treated with a combination of 8 oz of TOUGH 5EC and SHIELDEX.

Glyphosate Resistant Palmer Amaranth
Purdue University – 2020



Dual II Magnum PRE; Roundup PowerMax to all treatments
Bare ground trial with no corn planted
3-12" weed size, 3/ft²

The chart above and the photos below confirm the combination of 8 ounces of TOUGH 5EC and 1.35 ounces of SHIELDEX, increased the speed of kill (from 85 to 97% 7DAA) and improved control (from 87 % to 97% 14 DAA) over Glyphosate Resistant Palmer Amaranth.



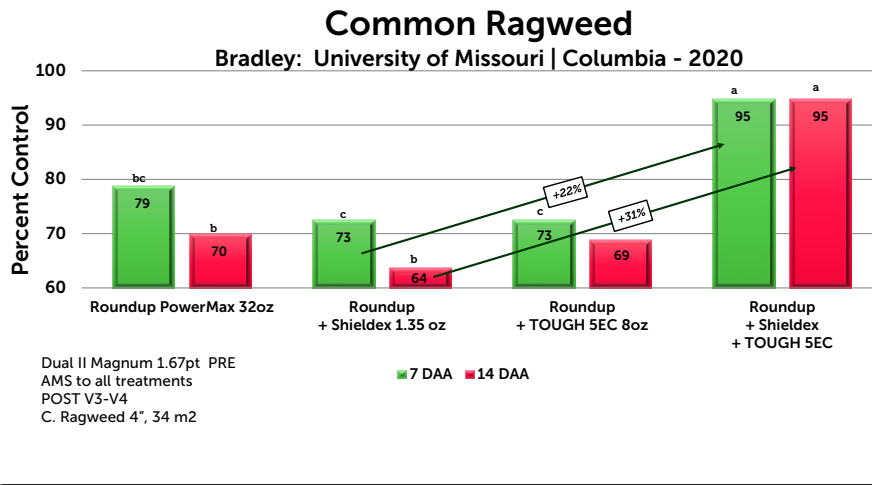
S-metolachlor PRE; Roundup PowerMAX[®] 32 oz to all treatments. Bare ground trial with no corn planted. 3-12" weed size, 3/ft²

See Reverse



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Fig 1



Additional trials were conducted on Common Ragweed at the University of Missouri (Fig 1), Palmer Amaranth and Pitted Morningglory (Fig 2 & 3) at the University of Tennessee.

In all trials, corn plots were treated with 1.35 oz of *SHIELDEX* alone or a combination of 8 oz of *TOUGH 5EC* and *SHIELDEX*. Results confirm the combination of 8 ounces of *TOUGH 5EC* and 1.35 ounces of *SHIELDEX*, increased the speed of kill and improved control of a variety of weeds.

Fig 2

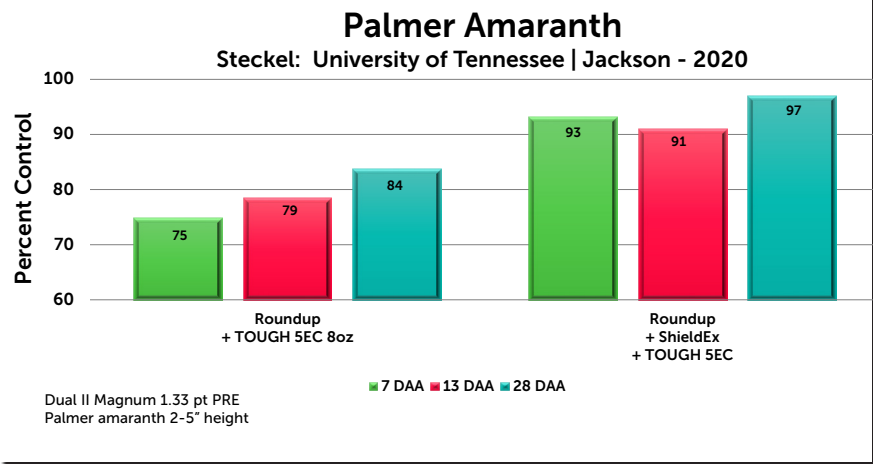
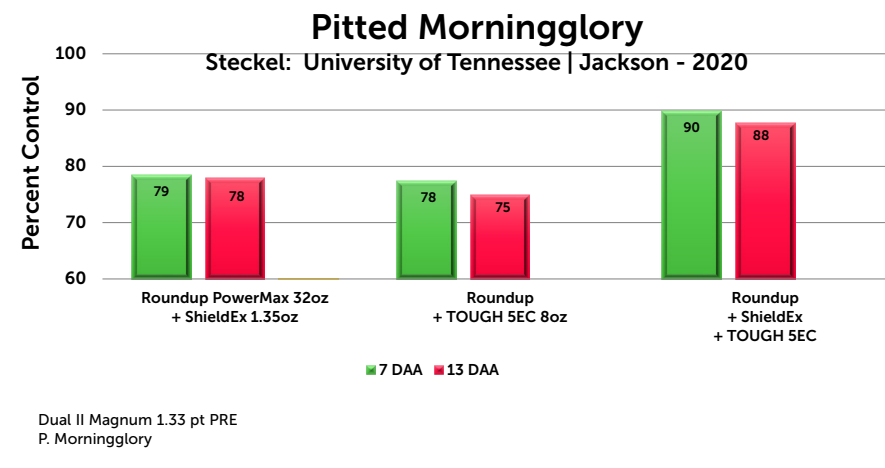


Fig 3



RESULT SUMMARY

Adding *TOUGH*® 5EC to the tank mix at the 8 ounce rate dramatically improved control of a variety of weeds at multiple locations when compared to *SHIELDEX* used alone.

With improved control today, growers are reducing the amount of seeds "deposited" into the seed bank for the future!

For additional trial results, contact your local *TOUGH 5EC* retailer or Belchim representative.

Together, we can get *TOUGH* on Weeds!

TOUGH is a registered trademark of Belchim Crop Protection, *SHIELDEX*® is a registered trademark of Summit Agro - USA, Roundup PowerMAX is a trademark of Bayer.
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