

SUMMARY OF COMPREHENSIVE WATERHEMP CONTROL FROM MICRO-RATE COMBINATIONS OF SOIL RESIDUAL HERBICIDES

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Rainfall of greater than 0.40 inches within 30 days of pre-emergent (PRE) application is required for effective (>85% waterhemp control) activation of most soil residual herbicides. A single rainfall event of 1.0 inches is likely to achieve that goal. A single, effective rainfall event increased residual herbicide activity on small emerged or emerging waterhemp by 19.6%. Micro-rate treatments receiving Flexstar early post emergent (EPOST) at V2 soybean verses PRE provided a 14.1% increase in waterhemp control in addition to the 19.6% provided by PRE residual herbicide activation following a single, effective rainfall event for a total increase of 33.7% waterhemp control. The 1.00 micro-rate ratio includes Blanket (8) + Valor SX (*2) + Warrant (40) + Flexstar (10) applied PRE only achieved 93% or greater end of season waterhemp control. However, there are data in other 2021 supporting studies that suggest the 0.75 micro-rate ratio may also provide acceptable waterhemp control.

PRE only micro-rate treatments provided greater waterhemp control compared to PRE fb EPOST treatments at all evaluation timings. Waterhemp control averages of PRE vs. PRE fb EPOST were 3.4% greater at A+14 (14 days after PRE application), 15.8% greater at A+27, 0.7% greater at A+40, 3.5% greater at A+53, and 0.4% greater at A+68 or soybean crop canopy. Despite a “worst case” drought impacted environment for residual herbicide activation and intense waterhemp pressure, all micro-rate treatments averaged 93.1% waterhemp control at soybean canopy. A one-pass PRE only micro-rate application was just as effective as a two-pass PRE fb EPOST application. The micro-rate treatments were evaluated against conventional industry standard entries.

Seven different industry partners submitted three treatments each to be compared to nine different Next Gen Ag LLC developed residual micro-rate treatments in a large industry trial. Only three treatments appeared in both the top 15 waterhemp control and top 15 treatment cost lists, one being a micro-rate treatment. Growers should consider these three treatments to be the best “bang for their buck” in relation to the entries within the study. These treatments include: Warrant (64) + Metribuzin (5.33) fb Warrant Ultra (64) which provided 89% waterhemp control (#9/40) at an estimated cost of \$31.40 (#8/40); Valor SX (1.5) + Warrant (30) fb Zidua (2) + Flexstar (7.5) which provided 85% waterhemp control (#15/40) at an estimated cost of \$32.85 (#12/40); and, Warrant (48) fb Warrant Ultra (64) provided 85% waterhemp control (#15/40) at an estimated cost of \$25.41 (#4/40). Crop safety was not an issue.

Crop safety of micro-rate PRE combinations will continue to be evaluated, however, at the reduced product rates the program should logically be considered safe in soybean. Crop safety of the most affordable 0.75 ratio micro-rate treatment (\$21.43) has the products being applied at 50% (Blanket at 6), 50% (Valor SX at *1.5), 47% (Warrant at 30), and 47% (Flexstar at 7.5) of max single application rates for a fine textured soil (clay loam) with greater than 3% organic matter (4.5%). However, the grower should be aware that the micro-rates combination product rates may fall below the recommended label threshold in a similar environment. One label restrictions related to micro-rate treatments is that Valor SX can only be applied with Warrant at 2 ounces per acre according to label, however be aware “splash up” rain events that may result in some crop injury, a synergistic phenomenon which may also be the reason for increased waterhemp control from the tank mix at reduced rates. Growers on more coarse soils with reduced organic matter, although rates of the four tank mix products are on label for that respective environment, should experiment on reduced acres in year one in the event of synergistic crop injury.

Growers should consider applying the residual micro-rates approach PRE as a potential cost and time saving one-time application in years with average early rainfall. A PRE only micro-rate application of Blanket (6) + Valors SX (1.5) + Warrant (30) + Flexstar (7.5) provided 94% waterhemp control under intense environment and waterhemp pressure. The PRE only residual micro-rates program is affordable and may provide the necessary season long waterhemp control for \$21.43/A in ideal environmental conditions compared to the cost of a multiple post-emergent application, herbicides, and adjuvants. However, in years with below average early rainfall the grower must be prepared to utilize a glufosinate or 2, 4-D EPOST as a rescue on glyphosate-resistant waterhemp populations. Volunteer corn control or fungicide applications may also require a second trip over the field, however, these applications, although optional, should be more affordable without the need to tank mix additional residual herbicides. The PRE only residual micro-rates program allows the grower an opportunity to “wait-and-see” what other necessary inputs will be required rather than trying to predict the unknown. This program is also universal across all soybean genetics minimizing tank cleanout events for operations that grow multiple herbicide tolerant soybean genetics. Next Gen Ag LLC is responsible for conducting and summarizing information, but is not liable for any decisions made on the basis of this study or publication.