

Title

Provisia vs. Maxace Systems: Crop safety and grass control

Principle Investigator

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Objective

Determine which quizalofop based grass control technology provides the best crop safety and control of common grasses

Justification

Control of grassy weeds can be one of the most difficult tasks in rice production. Barnyardgrass and Amazon sprangletop are among the most problematic weeds in delayed flood production systems in Missouri. Additionally, red rice can present a unique weed control situation as it is genetically identical to cultivated rice. In the couple of decades non-gmo rice tolerant to two classes of herbicides has allowed for control of red rice with the added benefit of controlling most grassy weed species as well. The latest technology utilizing the herbicide active ingredient quizalofop-p-ethyl has been promoted by two entities for red rice, barnyardgrass, and sprangletop species as well as weedy or volunteer rice.

Seed from the two competitors both have tolerance to quizalofop, but the genes conferring tolerance are unique to each company, with Ricetec's Maxace hybrids claiming enhanced tolerance than Horizon Ag's Provisia seed. Additionally, the herbicide formulations labeled and marketed with each of these systems are unique. Provisia herbicide from BASF is very similar to older formulations of quizalofop such as Assure II and Targa. The formulation from Adama for use with Maxace rice, is a unique formulation and includes a safener to limit crop response in addition to the claimed enhanced genetic tolerance.

While Maxace rice claims to display enhanced tolerance, little head to head studies have been performed to determine if differences in crop tolerance and/or crop safety exist. This study would include a Provisia and Maxace variety, with treatments of the labeled formulation of quizalofop applied at labeled rates and timings, suggested rates from other institutions as well as double rates to determine crop tolerance in areas/situations in which inadvertent overlap may occur.

Procedures

This study would be performed on dry seeded, delayed flood rice. A preemergence application of Command + Sharpen would be made over the entire study area. The Command rate would be a reduced rate for the soil type to reduce the chances of the study from having too high of an infestation of grass early in the season before the quizalofop treatments are applied. Most of the quizalofop treatments would include two application timings at 2-3 and 4-5 leaf rice growth stages, the suggested application timings on the label. A few treatments would investigate the three timing suggestions made by Dr. Eric Webster during his time at LSU. Also included will be 2X of the aforementioned application rates to determine crop safety where overlap may occur. Broadleaf weed control following the preemergence application of Sharpen will include Grandstand and Gambit at two days after the 4-5 leaf quizalofop applications (to lessen chances of antagonism). Another broadleaf herbicide may be applied if needed. Study area will be overseeded with barnyardgrass seed just before rice planting to ensure there is enough grass pressure to evaluate.

Data collection will include grass control compared to the no quizalofop check plots (one check of each variety), as well as crop tolerance ratings. These evaluations will begin at 7 days after the initial quizalofop application and continue weekly up to 5 weeks after the final quizalofop application. Plots will be harvested for yield and subsamples of harvested grain milled and assessed for milling quality. It is requested that this study be placed at both the MU Lee farm as well as the MRRMC farm. Budget below is for both locations

Budget

Salary	\$7,200.00
Supplies	\$1,050.00
Travel	\$750.00
Total	\$9,000.00