Furrow Rice Programs and Herbicide Issues in Rice

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Missouri Rice Producers Conference
2-21-2019
Issues to be addressed

• Weed Control in Row Rice
  – 2017 and 2018 results
  – Different treatment lists

• Dicamba effects on rice growth and grain quality applied at various growth stages

• Auxins in Soybean, Cotton, and Rice in 2019
Weed Control in Row Rice

• Two distinct treatment lists
  – Availability of Loyant

• Challenges in 2017
  – Salvaged crown-end treatments
  – 2018-only planned on crown-end treatments

• Evaluations
  – Weed control ratings - palmer, pitted morningglory, horsenettle, yellow nutsedge, broadleaf signalgrass, purple ammannia
  – Crop response – stunting, chlorosis, general injury
Weed Control in Row Rice - 2017

• Command + Sharpen PRE all treatments

• Rep 1, Treatment 2 had poor control of Palmer all season
  - Very good control of other species
  - Rep 2 had very good Palmer control
Weed Control in Row Rice - 2017

- Yields not great
  - Similar for both reps
  - PRE fb Ricebeaux + Facet MPOST best treatment
  - PRE fb EPOST and PRE fb EPOST fb MPOST similar to untreated
    - Too early?
    - Too much?
Weed Control in Row Rice - 2017

• What's next…
  – More diverse treatment list
    • Inclusion of new products
      – Loyant
    • Removal of poor performance treatments
      – Less than 90% control not acceptable
# Weed Control in Row Rice - 2018

- New treatment list

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Weed Control in Row Rice-2018

• Variability in Palmer control 7 days after EPOST treatments
  – 84 to 96% control
  – Similar just prior to MPOST timing (23 DAT)
• >80% control in all plots with treatment averages greater than 89% for all treatments (10 DAT)
• Control improved for the remainder of evaluations
  – 18, 30, 44 DAT MPOST
  – >95% control
  – Some treatments included a LPOST application
Weed Control in Row Rice - 2018

Herbicide programs for non-flooded rice

June 29

Herbicide programs for non-Flooded rice

August 14
Weed Control in Row Rice - 2018

6-29-18
Treatment 12
Command PRE

6-29-18
Treatment 7
Stam + Facet + Prowl
EPOST

6-29-18
Treatment 10
Loyant + Grasp
EPOST
Loyant LPOST

7-9-18
Weed Control in Row Rice - 2018

- Control of Signalgrass, morningglory, nutsedge and ammannia good to great
  - Until August
  - Bare spots
  - Between plots
  - Invading into plots
Weed Control in Row Rice - 2018

Herbicide programs for non-flooded rice

June 29

Herbicide programs for non-flooded rice

August 14
Weed Control in Row Rice - 2018

- Treatment average yields ranged from 128.3 bu/ac to 157.0 bu/ac
- Individual plot yield range: 100.3 – 184.6 bu/ac
- Treatment 8 – lowest variability (132.7, 142.1, 130.9)
- Treatment 1 – highest variability (132.7, 128.4, 184.6)
Dicamba effects on rice

- Application of Engenia at 12.8, 6.4 and 1.28 fl.oz./ac
- Applied with 15 gpa carrier
- Applied at planting, 3-4 leaf rice, Post-flood, PI, PI+14 days, Boot, flowering
- Hybrid and Conventional rice
Dicamba effects on rice

• Evaluated visual injury 14 DAT
  – Nothing noted up to boot stage
  – Drooping flag leaf and upright panicles
  – Hybrid vs. Conventional
Dicamba effects on rice

• Later applications resulted in generally lower yields
  – Boot and Flowering both show trend clearly
• Poor yields overall – including checks
• Empty hulls attached to panicles following threshing
Dicamba effects on rice – Yield

Conventional

Evaluating Dicamba (Engenia) Drift in Rice

Trial ID: D17RC08L
Dicamba effects on rice – Yield

Hybrid

Evaluating Dicamba (Engenia) Drift in Rice

PRE  3-4 LF PosFld  PI  PI+14  Boot  FLWR
Dicamba effects on rice - Milled

- Milled only samples from plots with visual injury
Dicamba effects on rice - Milled
What is Loyant supposed to do…

- **Broad Spectrum control or suppression**
  - Grasses
    - Signalgrass, barnyard, panicum
    - Suppression of sprangletops
    - No crabgrass activity
  - Sedges
    - Yes (even ALS resistant biotypes)
  - Aquatics
    - Great on what we commonly have
  - Broadleaves
    - Fair on smartweed, excellent on others
How do we utilize it?

- While very broad spectrum…
  - Utilize Clincher or Ricestar for resistance management
  - Better sprangletop control
- EPOST needs a residual
  - Resistance management
  - Delays in flood establishment
Loyant issues - 2018

- Poor performance on grasses
- Drift to cotton and soybeans
- Rice injury

Photo: Texas Agrilife
Loyant issues - 2018

- Poor performance on grasses
  - Very dry at application
  - Little to no growth occurring
  - No control

Application Instructions
Environmental Conditions and Herbicidal Activity of Loyant
Factors for effective weed control with Loyant include proper application rate, weed size, daytime and nighttime temperatures, soil moisture prior to and following application, and use of adjuvants. Best weed control results are obtained when Loyant is applied to actively growing weeds, when daytime and nighttime temperatures are warm (60°F or more), and soil moisture is adequate to support active weed growth prior to and following application. If weeds are under drought stress, it is recommended to delay application until more favorable conditions resume. Application when weeds are larger than the recommended size (see recommended weed size in Weed Control Table) for control may result in only partial control.

- Loyant is rainfast in 2 hours.
- Applications made immediately prior to, during, or immediately following periods of large day/night temperature fluctuations or where daytime and nighttime temperatures do not exceed 60°F may decrease weed control and increase crop injury.
- Poor weed control and crop injury may result from application of Loyant made to plants under stress from abnormally hot or cold weather; environmental conditions such as drought, or hail damage, prior herbicide applications or soils with high salt content.
- Establishing permanent flood within 5 days after application of Loyant can benefit weed control.
Loyant issues - 2018

Simulated Loyant drift onto Cotton and Soybeans
Herbicide and MSO at 1/X rate. Carrier volume 15 gpa
Four hours after application

1/10x  1/100x  1/1000x
Loyant issues - 2018

Simulated Loyant drift onto Cotton and Soybeans
Herbicide and MSO at 1/X rate. Carrier volume 15 gpa

3 days after application

1/10x  1/100x  1/1000x
Loyant issues - 2018

Simulated Loyant drift onto Cotton and Soybeans
Herbicide and MSO at 1/X rate. Carrier volume 15 gpa

14 days after application

1/10x  1/100x  1/1000x
Loyant issues - 2018

• Injury to rice

- Appear ~ 3 wks after application
- Thin stand – soil or environmental stress
- Facet tank mixes
- Doubled up areas
- Hybrids>medium grain>long grain
- Remove/reduce flood if severe

Stunting

Bunched Leaves in stem

Buggy whipping and onion leafing