▸ Update On Rice IPM Research

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Introduction

One of the benefits of a conservation tillage system is early planting which allows for early harvest of the main crop and a better chance of producing an excellent ratoon crop. However, early planting obviously can coincide with cool soil and air temperatures which are not conducive to rapid rice seedling growth and development. This delay in growth can increase the likelihood of disease and insect problems associated with producing poor stands of rice. In addition, decrease in seeding rate is a recent trend for southern rice farmers (e.g. hybrid and Clearfield varieties); thus, protecting seed from diseases and insects can be critically important to producing a profitable rice crop in a conservation tillage system.

Insecticidal rice seed treatments are becoming increasingly popular in southern rice-producing states. We estimate over 50% of Texas rice acreage is planted with 1 of 3 insecticidal seed treatments. We continue to investigate the efficacy of old and new rice insecticidal seed treatments compared to foliar insecticidal treatments which provide another good pest management option for rice producers.

Materials and Methods

Experiments were conducted at the Texas A&M AgriLife Research and Extension Center at Beaumont (Beaumont Center) in 2013 and were designed as randomized complete blocks with 4 replications. Plot size was 18 ft by 7 rows with 7 inches between rows. All plots were surrounded by metal barriers to minimize movement of fertilizer and pesticides among plots. Presidio was drill-planted at 80 lb/A. Fertility and weed management practices were followed according to recommendations in the latest Texas Rice Production Guidelines. Rice stand counts were taken in all plots during early tillering. The flood was applied about 3 weeks after emergence of rice through soil. Plots were sampled for rice water weevil (RWW) beginning about 3 weeks after flood. Sampling was performed using standardized methods developed by the Entomology Project at the Beaumont Center. During the milk stage of grain maturation, whiteheads were counted in the middle 4 rows of each plot. Whiteheads are a measure of stalk borer damage. At maturity, plots were harvested with a small plot combine. Yields were adjusted to 12% moisture and count data transformed using square root of (X + 0.5). All data were analyzed by ANOVA and means separated by LSD.

Seed Treatment Experiment

Seed treatments were provided by Bayer CropScience. EverGol Energy contains 3 fungicides aimed at controlling seedling diseases. The active ingredient in Poncho 600 and NipsIt INSIDE is clothianidin. The active ingredient in Cruiser 600FS is thiamethoxam. CruiserMaxx contains 2 fungicides aimed at controlling seedling diseases plus thiamethoxam.

Foliar Treatment Experiment

The active ingredient in Karate Z is lambda-cyhalothrin. The active ingredient in Belay 2.13SC is clothianidin. NipsIt INSIDE is a seed treatment containing clothianidin. Foliar treatments were applied with a 3 nozzle (800067 tips) boom (spray swath 4 ft) CO2 pressurized spray rig. All foliar treatments included a non-ionic surfactant.

Results

Seed Treatment Experiment

Rice plant stands were not affected by the seed treatments (Table 1). All treatments provided good control of RWW on all sample dates. None of the treatments provided control of stalk borers as evidenced by whitehead counts. All treatments significantly increased yield compared to the untreated. EverGol Energy did not appear to negatively or positively affect insect control or yields.

Foliar Treatment Experiment

Rice plant stands were unaffected by the treatments (Table 2). In general, foliar treatments applied closer to flood provided better control of RWW. Thus, treatments applied immediately before and 7 days after flood provided the best control of RWW and the highest yields. Number of whiteheads was not significantly different among treatments.

Table 1. Mean data for seed treatment experiment. Beaumont, TX. 2013.

Treatment	Rate (fl oz/cwt)	Stand (plants/ft of row)	RWW[a]/5 cores		WHs[a]/4 rows	Yield (lb/A)
			Jun 21	Jun 28		
EverGol Energy	2	14.0	57.0 a	23.3 a	11.0	7347 b
EverGol Energy + Poncho 600	2 + 1.917	14.9	2.0 b	4.5 bc	9.5	8922 a
EverGol Energy + Poncho/Votivo	2 + 2.173	14.4	7.5 b	4.3 bc	10.3	8476 a
EverGol Energy + NipsIt INSIDE	2 + 1.92	14.3	7.5 b	11.0 b	7.5	8608 a
EverGol Energy + Cruiser 600FS	2 + 3.3	15.0	5.3 b	5.5 bc	13.0	8427 a
CruiserMaxx	3.3	14.4	1.8 b	3.3 c	5.0	8708 a
		NS			NS	

Means in a column followed by the same or no letter are not significantly (NS) different ($P = 0.05$, ANOVA and LSD).

Table 2. Mean data for foliar treatment experiment. Beaumont, TX. 2013.

Treatment	Rate (fl oz/A)	Timing[a]	Stand (plants/ft of row)	No. RWW[b]/5 cores			WHs[b]/4 rows	Yield (lb/A)
				Jun 19	Jun 26	Jul 3		
Untreated	---	---	10.0	32.0 a	66.0 a	25.0 a	5.0	7703 ab
Karate Z[c]	2.0	BF	11.2	1.8 c	13.3 c	9.3 b	2.8	8064 a
Karate Z[c]	2.0	7 DAF	10.5	19.5 b	13.8 c	9.3 b	4.5	8027 a
Karate Z[c]	2.0	14 DAF	11.1	32.3 a	66.8 a	15.8 ab	5.5	6638 c
Belay 2.13SC[c]	4.5	BF	9.8	1.5 c	6.5 d	8.3 b	8.8	7949 a
Belay 2.13SC[c]	4.5	7 DAF	10.3	3.5 c	2.3 de	9.3 bc	2.0	8189 a
Belay 2.13SC[c]	4.5	14 DAF	10.9	38.5 a	41.3 b	8.8 b	4.0	6985 bc
NipsIt INSIDE	1.9 fl oz/cwt	ST	11.9	0.8 c	0.3 c	1.0 c	5.5	7633 ab
			NS				NS	

[a] BF = before flood; DAF = days after flood; ST = seed treatment
[b] RWW = rice water weevil; WH = whitehead
[c] Also included non-ionic surfactant (NIS) @ 0.25% v/v
Means in a column followed by the same or no letter are not significantly (NS) different ($P = 0.05$, ANOVA and LSD)

Notes: