Efficacy of Selected Compounds for the Control of Rice Stink Bugs in Arkansas Rice, 2012


ABSTRACT

The rice stink bug (Oebalus pugnax F.) is one of the important pests commonly found in Arkansas rice fields. A study was conducted in Lonoke County to determine the efficacy of selected compounds for control of the rice stink bug. This study indicated control could be established with the use of selected compounds in Arkansas rice.

INTRODUCTION

The rice stink bug (RSB) is a common pest of rice in Arkansas. The ability of the rice stink bug to feed and reproduce on a wide range of wild grasses plays a significant role in its status as an economic pest. Feeding on early grasses in the spring enables the rice stink bug to reproduce and increase in numbers before cultivated host plants are available. Rice stink bugs normally do not occur in rice fields until heading has begun, but may occur earlier if heading wild grasses are present in or around field edges. Stink bug feeding on developing seeds causes several different types of damage to rice. Adults and nymphs have piercing-sucking mouthparts. When the RSB pierces the grain of rice it forms a sheath that is visible from the outside of the grain which is called a feeding sheath. Early feeding from pre-fertilization through early milk stages causes the heads to blank or abort resulting in yield reduction. Feeding during the milk to soft dough stages results in kernel shrinkage or slight discoloration commonly referred to as “pecky rice” (Johnson et al., 2002).
PROCEDURES

The trial was located in Lonoke County (Moery Farms). Plot size was 15 ft by 30 ft in a randomized complete block design with four replications. Foliar treatments included: Endigo ZC at 5 oz/acre; Endigo ZCX at 5 oz/acre; Karate Z at 2.56 oz/acre; Centric at 3.5 oz/acre; and Tenchu 20 SG at 9 oz/acre. All treatments were compared to an untreated check (UTC). Insecticide treatments were applied with a hand boom on 17 August and 4 September, 2012. Insect ratings were taken 4 and 7 days following treatment one and 3 and 7 days following treatment two. The boom was fitted with TX6 hollow cone nozzles at 19-inch nozzle spacing, spray volume was 10 gal/acre, at 40 psi. Insect density was determined by taking 10 sweeps per plot with a standard sweep net (15-inch diameter) and compared to the economic threshold of 5 rice stink bugs per 10 sweeps. Data was processed using Agriculture Research Manager Version 8, AOV, and Duncan’s New Multiple Range Test (\( P = 0.10 \)) to separate means.

RESULTS AND DISCUSSION

Results indicated at four and seven days after the first (4&7DAT1) application all treatments reduced rice stink bug numbers compared to the UTC (Fig. 1). Although no treatments separated from each other, they did reduce populations below threshold (Fig. 2). All treatments three days after the second application (3DAT2) remained below threshold but no differences were observed from the other treatments (Fig 1).

SIGNIFICANCE OF FINDINGS

The rice stink bug is a common pest that can cause poor milling and yield loss for Arkansas producers. The use of insecticides gives producers the ability to significantly lower rice stink bug numbers. When populations are at moderate levels, like in 2012, many compounds are able to reduce RSB below the economic threshold with just one or two applications. Alternate insecticides such as Tenchu and Centric may help lessen the potential for increasing resistance to pyrethroids. The continued research of selected compounds is necessary for the control of the rice stink bug.

ACKNOWLEDGMENTS

We would like to acknowledge Moery farms, Lonoke County, for their cooperation in this study. Funding for this project was provided by: Rice Check-Off funds, Rice Research and Promotion Board, Syngenta, and Mitsui.

LITERATURE CITED

Fig 1. Efficacy of selected compounds for the control of rice stink bugs (RSB) in Arkansas rice, 2012. RSB sweeps. Means followed by same letter do not significantly differ \( (P = 0.10, \text{Duncan’s New Multiple Range Test}) \). Mean comparisons performed only when analysis of variance treatment \( P(F) \) is significant at the mean comparison observed significance level. *Products not currently labeled for use in rice.

Fig. 2 Efficacy of selected compounds for the control of rice stink bugs in Arkansas rice, 2012. Season total. Means followed by same letter do not significantly differ \( (P = 0.10, \text{Duncan’s New Multiple Range Test}) \). Mean comparisons performed only when analysis of variance treatment \( P(F) \) is significant at the mean comparison observed significance level. *Products not currently labeled for use in rice.