

► Rice Insect Management In The Upper Mid-South

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Insect pests can significantly impact rice yields in Mississippi. To help minimize or eliminate the possibility of economic losses associated with these pests, the development of a sustainable management strategy is needed.

Rice water weevil is a key insect pest of rice throughout the mid-South. Research in Mississippi and other Mid-South states has shown that insecticide seed treatments (including Cruiser Maxx, Dermacor X-100, and Nipsit INSIDE) are effective for rice water weevil control. More research is needed to further identify the strengths and weaknesses of these new insecticide seed treatments. Potential factors that may influence the effectiveness of seed treatments on rice water weevil control include the time from planting to permanent flood and the number of times a field needs to be flushed between planting and permanent flood. These factors were investigated as part of a recent graduate student project. Results suggested that time from planting to permanent flood did not impact the efficacy of insecticide treatments. However, Cruiser and Nipsit INSIDE were negatively impacted in rice that required at least two flushes between planting and permanent flood. Another factor that may influence the efficacy of insecticide seed treatments in rice is seeding rate. In some situations, seed treatments did not perform as well on hybrid rice planted at low seeding rates. Additional research has been conducted to determine if supplemental foliar applications of currently labeled insecticides can provide additional benefits in situations where the efficacy of seed treatments may have been compromised. In that trial, the number of rice water weevil larvae per core was reduced on CruiserMaxx treated hybrid rice sprayed with a pyrethroid at the time of flood compared to unsprayed rice that had been treated with CruiserMaxx. Additionally, the application of a foliar pyrethroid improved yields of CruiserMaxx treated hybrid rice.

Rice stink bug is another important pest of rice in Mississippi. Rice stink bugs have piercing-sucking mouth parts and feed on developing grain after panicle emergence. Rice stink bug infestations can result in yield losses as well as reductions in grain quality depending on stage of panicle development at the time of infestation. Peck in rice can severely limit the marketability and profitability of rice in

Mississippi. Rice stink bug is an important contributor to grain quality and is often blamed for peck in rice. Results from previous research suggest that thresholds for rice stink may need to be refined. The current threshold for rice stink bug in rice is 5 per 10 sweeps during the first two weeks after panicle emergence and 10 per 10 sweeps from the third week of panicle emergence until cutout. Current research showed that yield losses and injury (peck) from rice stink bug was similar from panicle emergence through the soft dough stage. This would suggest that the threshold for rice stink bug should not change from flowering through the soft dough stage. Additionally, the current threshold for the first two weeks of heading is based on panicle and grain development on a conventional variety. Because of low seeding rate used, hybrid rice flowers over a longer period of time due to the increased number of tillers. As a result, a large percentage of grain remains susceptible to rice stink bug injury and yield loss longer than two weeks when rice is planted at a low seeding rate.

In conclusion, foliar applications may be needed in some situations to supplement insecticide seed treatments for rice water weevil control. This is especially true in hybrid rice with a low seeding rate and where multiple flushes are needed before the permanent flood is established. Also, current research suggests that changes are needed with the current rice stink bug threshold. In Mississippi, the threshold will be changed to read, "Treatments should be made when you find an average of 5 stink bugs in 10 sweeps from panicle emergence until 50% of panicles are at soft dough. After that point, treatments should be made when you find an average of 10 stink bugs in 10 sweeps".