Penoxsulam a New Herbicide for Weed Management in Rice

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Programs for controlling weeds in drill- and water-seeded rice with penoxsulam were evaluated in several studies in 2004 and 2005. The trials were conducted at the Northeast Research Station near St. Joseph, LA on a Sharkey Clay soil and at the Macon Ridge Research near Winnsboro, LA on a Gigger Silt Loam soil. Rice was seeded at 100 kg/ha in drill-seeded experiments or 170 kg/ha in water-seeded experiments. Permanent floods were established 4 to 5 weeks after planting in drill-seeded rice and the pin-point flooding method was used for water seeded rice. Nitrogen, in the form of prilled Urea, was applied at 126 kg/ha just before permanent flood. At panicle initiation an additional 42 kg/ha of nitrogen was applied. Herbicide treatments were applied in 140 L/ha of water using a CO_2 pressurized backpack sprayer, to plots measuring 2 by 4.5 m. The experimental designs were randomized complete blocks and factorial treatment arrangements were used when appropriate.

Penoxsulam demonstrated excellent activity on barnyardgrass, hemp sesbania, rice flatsedge, ducksalad, dayflower and purple ammannia in both drill- and water-seeded rice. In drill-seeded rice 0.15 L/ha (2.0 oz/A) penoxsulam controlled small weeds when applied to 2-3 leaf rice, but at least 0.168 L/ha (2.3 oz/A) was needed at the 4-5 leaf stage for consistent control of larger weeds. Penoxsulam at 0.190 L/ha (2.6 oz/A) controlled both barnyardgrass and hemp sesbania post flood. In water-seeded rice, penoxsulam controlled barnyardgrass best when applied from pegging through 2-3 lf rice. Hemp sesbania control was best when penoxsulam (2.3 oz/A) was applied at the 2-3 lf stage. The best control of purple ammannia and ducksalad from penoxsulam was observed from pegging treatments.

Penoxsulam at 0.15 L/ha (2 oz/A) plus 1.5 L/ha (1.3 pts/A) clomazone applied to 1-3 leaf rice resulted in excellent control of barnyardgrass, Amazon sprangletop, hemp sesbania, and rice flatsedge. In some studies, additional applications were needed to control hemp sesbania coming up after the application. Cyhalofop plus penoxsulam combinations controlled barnyardgrass, sprangletop, flatsedge, and hemp sesbania at the 2-3 lf stage. Tank mixing cyhalofop with penoxsulam reduced post flood sprangletop control compared to cyhalofop alone.

Imazethapyr plus penoxsulam combinations in Clearfield rice were also promising. Texasweed control was improved and hemp sesbania was controlled when imazethapyr was tank mixed with penoxsulam. In 2004, but not 2005, a reduction in red rice control was observed when penoxsulam was tank mixed with imazethapyr.

Overall, these trials indicate that penoxsulam can be used to control weeds in rice production systems common to Louisiana. However, additional research is needed with post flood applications of penoxsulam and penoxsulam combinations with imazethapyr or cyhalofop.