

Water- And Energy-Saving Rice Irrigation: Comparison Of Intermittent Flooding And Row-Rice Systems



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During the 2010-2012 growing seasons, six Clearfield varieties were planted at the top and bottom of a paddy in producer's fields and managed using intermittent flooding within a straight-levee, multiple-inlet system. The number of wet-

ting and drying cycles to which the upper rice plots were subjected ranged from five (2010) to eight (2011). The corresponding irrigation water use values ranged from 18 A-in/A (2011, 2012) to 23 A-in/A (2010) while in-season rainfall at the study locations was 10.6 inches (2010), 7.6 inches (2011) and 3.1 inches (2012). Statistical analyses comparing top of paddy vs. bottom of paddy rough rice yields for the combined 2010-2012 data indicate that of the six varieties/hybrid, four showed no differences ($p > 0.05$) in yield (CL111, CL142, CL181, CLX745) and two (CL131 and CL151) showed significant yield increases ($p < 0.05$) when the upper plots were subjected to intermittent flooding as compared to the continuously-flooded lower plots. Results from up to nine other varieties that were tested for only one or two years, but were not included in these analyses, always followed this same trend:

Either rice yields were unaffected or were improved by intermittent flood management when compared to continuous flooding. These tests always included a 1-x rate fungicide treatment at full boot stage. Seeding rate, fertility program and weed management were as standard practice for the cooperating growers. Although the 2012 milling data were not available at the time

of this writing, there have been no statistical differences between intermittent and flooded rice in terms of milling quality measured in on-farm trials to date. These test confirm these rice varieties can be successfully grown under less-than-full flood conditions while benefiting from reduce water and energy use. Certain producers find that using rice flood depth gauge can assist them in managing their flood so as to improve rainfall capture and reduce over-pumping.



One non-replicated, on-farm study conducted in 2012 investigating row rice production where rice is grown on beds and irrigated down the furrows used 39 A-in/A water as compared to the 18 A-in/A water use by the 2012 intermittent flood management trail described above. Δ

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