

**Table 5.** Soil partial N balance as affected by a soil test-based OPT recommendation and its variations after four seasons of rice and three seasons of wheat.

Treatment	-- N input, kg/ha --			- N removal, kg/ha -			Balance, kg/ha
	Rice	Wheat	Total	Rice	Wheat	Total	
OPT	600	450	1,050	793	355	1,148	-98
-N	0	0	0	562	185	747	-747
-P	600	450	1,050	800	316	1,116	-66
-K	600	450	1,050	759	300	1,059	-9
75% N	480	360	840	795	321	1,116	-276
50% K	600	450	1,050	771	325	1,096	-46
+Zn or +Mn	600	450	1,050	840	372	1,212	-162

The amounts of N input shown do not account for N derived from atmospheric deposition, irrigation water, and microbial fixation. Similarly, N removal lost through runoff or leaching, volatilization, or denitrification is not accounted for.

the -N treatment). Paddy rice generally removed at least twice as much N as was removed by winter wheat. The -N treatment generated the highest N deficit followed by the reduced N treatment, while the -K treatment had the lowest N deficit.

### Summary

This study showed the degree to which no-till rice and wheat yields, and fertilizer use efficiency, are affected by fertilizer treatment. Rice produced much higher grain yields and N use efficiency than wheat no matter if the treatment was balanced or imbalanced. These results offer science-based information for improving nutrient management in the rice-wheat system under no-till. **DC**

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