

## Biologicals

**John and Rosie Wurpts**, Ogden, are PFI members who have used Sustainable Project out a long term comparison of fertility management systems. Biological amendments from Agrienergy, Inc. and recommended by a consultant have been compared to fertilization based on soil tests and ISU Extension recommendations. Input costs have been lower in the ISU because, based on soil testing, usually only nitrogen has been recommended. Based on costs, the ISU recommendations were favored by \$8.15 in soybeans and \$22.85 in corn years that these replicated trials have been continued, the only significant yield difference was a 1991 weed problem in corn in the biological system. The average economic benefit of the recommendations compared to the biological ones has been \$26.63 in corn and \$20.69

**The Neely-Kinyon Farm**, in Greenfield, evaluated ACA, a zinc ammonium acetate additive that in very small amounts has sometimes increased corn N uptake ([Table 2](#)). The three treatments were: starter fertilizer, starter-plus-ACA, and a check treatment with neither ACA nor starter. Mid-season leaf tissue samples showed no difference among the three practices in nitrogen, phosphorus or potassium, although leaves in the ACA treatment were lower in sulfur. The three yields were not significantly different, so the economic advantage went to the no-fertilizer control treatment.



Table 2. MULTIPLE-TREATMENT FERTILITY TRIALS

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## MULTIPLE-TREATMENT TRIALS

COOPERATOR	CROP	PREVIOUS CROP	YIELD SIGNIFICANCE	TREATMENT "A"					TREATMENT "B"					TREATMENT "C"					OVERALL COMMENTS	
				DESCRIPTION	YIELD (bu. or T)	STAT.	TRT COSTS	\$ BENEFIT	DESCRIPTION	YIELD (bu. or T)	STAT.	TRT COSTS	\$ BENEFIT	DESCRIPTION	YIELD (bu. or T)	STAT.	TRT COSTS	\$ BENEFIT		
BAUER	SOYBEANS	CORN	*	DEEP BAND 0+55+50	50.2	a	\$23.24	(\$23.24)		BROADCAST 0+55+50	48.3	b	\$21.30	(\$21.30)	ZERO CHECK	49.1	ab	\$0.00	\$0.00	
DAVIDSON	CORN	SOYBEANS	*	FALL DEEP DRY BAND 8+20+40	127.8	a	\$18.49	\$1.85		SPRING STARTER	126.0	ab	\$14.37	(\$14.37)						STARTER FERTILIZER: 4+13+26
										KNIFE ONLY	121.1	b	\$7.16	(\$7.16)	ZERO CHECK	120.2	b	\$0.00	\$0.00	
EKSTRAND	CORN	SOYBEANS	*	FALL DEEP BAND 32+80+70	125.4	a	\$40.75	\$27.17		FALL BROADCAST 32+80+70	114.4	b	\$38.83	(\$2.26)	ZERO CHECK	101.6	c	\$0.00	\$0.00	P AND K SOIL TEST: VERY HIGH. MANURED IN SPRING 1994. LEAF N 2.6-2.7%
FRANTZEN	CORN	SOYBEANS	N.S.	225 LBS "SUSTANE"/ACRE	147.2	a	\$29.25	(\$29.25)		375 LBS SUSTANE	143.7	a	\$48.75	(\$48.75)						SOIL TEST P: VERY HIGH, K: HIGH. LEAF TISSUE K SIGNIF. HIGHER WITH 3+8+50, LEAF N SIGNIF. HIGHER WITH 375 LBS SUSTANE.
										CHEMICAL 3+8+50	149.5	a	\$8.77	(\$8.77)	ZERO CHECK	143.0	a	\$0.00	\$0.00	
NEELY - KINYON	CORN	CORN	N.S.	ACA+STARTER	84.1	a	\$22.42	(\$22.42)		STARTER	86.9	a	\$18.30	(\$18.30)	ZERO CHECK	88.1	a	\$0.00	\$0.00	