

TABLE 4.1. Cropping Systems Management at the USDA Agricultural Research Center Farming Systems Project

SYSTEM	CROP ROTATION (COVER CROPS IN BOLD)	YEARS IN ROTATION	TILLAGE	FERTILITY	WEED CONTROL
No-till (NT)	Corn- rye -soybean-wheat-soybean	3	None	Mineral fertilizers	Herbicide
Chisel Till (CT)	Corn- rye -soybean-wheat-soybean	3	Chisel, disk	Mineral fertilizers	Herbicide
Organic, 2-yr (Org2)	Corn- rye -soybean- vetch	2	Moldboard plow, chisel, disk, rotary hoe, cultivator	Legume and animal manure	Cultural
Organic, 3-yr (Org3)	Corn- rye -soybean-wheat- vetch	3	Moldboard plow, chisel, disk, rotary hoe, cultivator	Legume and animal manure	Cultural
Organic, 6-yr (Org6)	Corn- rye -soybean-wheat-alfalfa- alfalfa-alfalfa	6	Moldboard plow, chisel, disk, rotary hoe, cultivator	Legume and animal manure	Cultural

TABLE 4.2. Coefficients for the First Two Principal Components (PCs) for 10 Soil Variables

VARIABLE	PC1	PC2
Properties determined by parent soil type		
Percent clay	0.034	0.460*
Ephemeral properties mainly determined by management		
N-mineralization potential	0.482*	-0.082
Inorganic N ($\text{NH}_4^+ + \text{NO}_3^-$)	-0.482*	0.177
Electrical conductivity	-0.312*	0.169
Properties influenced by both management and soil type		
Cation exchange capacity	0.090	0.576*
pH	0.349*	-0.044
Exchangeable K	0.462*	0.046
Phosphorus	0.081	0.443*
Total Kjeldahl N	0.364*	0.244
Wet aggregate stability	-0.085	0.360*