Does Soil Quality Show an Economic Benefit For Long-Term Crop Rotation? (S06-karlen084924-Oral)

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Abstract:

Several soil quality indicators at three long-term crop rotation sites were measured, used to compute indices, and evaluated against net US Dollar (USD) returns. Without government payments, returns ranged from 41 USD/ha for a corn-oat/alfalfa-alfalfa-alfalfa rotation to -285 USD/ha for continuous corn. At all locations, continuous corn had a negative return ranging from -232 to -285 USD/ha. Soil quality index values (6.0 max.) were also lowest for continuous corn (5.5, 4.6, and 4.5). The indices were slightly higher for a corn-soybean rotation (5.5, 5.0, and 4.6), and although still negative without government program payments, the net return was higher (-23 to -27 USD/ha/yr). Soil quality index values were the highest (5.8, 5.1, and 4.7) for rotations including two or more years of oat and alfalfa, but because of relatively low yields (2.3 and 8.5 Mg/ha) and prices (0.11 and 0.08 USD/kg for oat and alfalfa, respectively), net returns for those rotations ranged from 41 to -164 USD/ha. We conclude that to obtain economic benefits of improved soil quality generally associated with extended crop rotations, yields and prices for the oat and forage components must be increased.

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