

Subsurface Drainage: A Midwest Farm Case Study

This case study explores how subsurface drainage improved yields and water management for a Midwest farm. We highlight the project details, results, and environmental benefits.

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The Challenge: Waterlogged Fields & Inconsistent Yields

Crop Yield Loss

15-20% loss across 2,000 acres due to poor drainage.

Soil Composition

Predominantly clay, limiting water infiltration and causing waterlogging.

Environmental Impact

Increased fertilizer runoff reducing profitability and harming nearby waterways.

The Solution: Implementing a Subsurface Drainage System

Pipe Installation

Perforated pipes placed 3-4 feet below surface to drain water effectively.

Lateral Spacing

Laterals spaced 40-60 feet apart based on precise soil analysis.

Scale

Over 250,000 feet of drainage pipe installed across 2,000 acres.

Design Optimization

Slopes and outlets designed for optimal water flow management.





Immediate Impact: Enhanced Water Management



Better Soil Aeration

Roots get more oxygen, improving crop health and growth.



Reduced Waterlogging

Standing water minimized, lowering crop stress during heavy rains.



Water Table Control

Water table lowered by 1.5 feet on average for ideal moisture.

Yield Boost: Significant Increase in Crop Production

Corn Yield

Increased by 30 bushels per acre, an 18% gain.

Soybean Yield

Increased by 10 bushels per acre, a 20% improvement.

Varieties

Used [Variety A] corn and [Variety B] soybeans for optimal results.



Cost Analysis & ROI

Total Project Cost	\$800,000 (\$400 per acre)
Increased Revenue	\$360,000 annually from yield gains
Payback Period	Approximately 2.2 years
Long-Term Benefits	Improved soil health and land value increase

Environmental Benefits



Reduced Fertilizer Runoff

Lower nutrient levels protect local water bodies by 25% nitrogen reduction.



Improved Water Quality

Less sedimentation and pollution due to better drainage control.



Enhanced Soil Structure

Organic matter content increased, promoting long-term soil health.





Conclusion: A Sustainable Solution



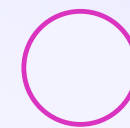
Investment Worth Making

Subsurface drainage delivers strong yield and water management benefits.



Broader Benefits

Environmental sustainability and improved soil health contribute long-term.



Next Steps

Ongoing monitoring, system maintenance, and future expansion planned.