LOCAL FARMS
HEALTHY SOIL
CLEAN WATER
Great Lakes
IN PARTNERSHIP WITH AMERICAN FARMLAND TRUST

No-till planted corn into winter-killed "bio-strip" cover crop rows. The wheel rows are sprayed to terminate right after corn planting in a practice called "planting green."

Branton Farms, LLC

THE "MESSY FARMER"

Introduction

First-generation farmer Donn Branton owns an 1,800-acre grain crop operation with his son Chad in Western New York. An early adopter of zone-till practices, Donn started farming in 1979. In the mid-1980s, he read articles in the Farm Journal, Successful Farming, and other publications about Midwest corn farmers experimenting with zone-till practices using the same planter he owned at the time.

Tillage Methods

In 1988, Donn first no-tilled corn on a 3-acre piece of land. He was encouraged that yield was comparable to his conventional tilled plot, and that labor and machinery costs declined.

In 1996, he made his first equipment investment, upgrading to a 12-row zone-till planter, and experimented further with zone tilling by splitting fields with sweet corn and soybeans. In 1999, he dropped tillage all together and bought a no-till drill. In 2004, he bought a strip-till rig and began deep-placing Nitrogen.

Over time, Donn noticed increased earthworm activity and improved water infiltration. "After heavy rain my fields didn't pond, while a farm across the road had standing water," said Donn. A neighbor once commented that he didn't know what Donn was doing differently, but that his front lawn no longer flooded.

Cover Cropping and Planting Green

Donn and Chad use a combination of conservation practices, including nutrient management, crop rotation, no-till, strip-till, bio-strip till, and cover crops. Planting cereal rye after corn is a common crop rotation in New York.

Donn Branton

Branton typically plants about 300 acres of rye each year.

Challenges associated with cover cropping include potentially lower cash crop yields, field access between cover crop termination and cash crop planting, difficulty planting through cover crop residue, and delays caused by heavy spring rain events. Planting green postpones cover crop termination to allow for planting grain crops into a growing cover. Delaying termination can help address potential challenges associated with successfully implementing cover crops, for example, mitigating difficulties of wet spring soils and late emergent weeds.

Planting green challenges include the potential for poor cash crop stand establishment, pest pressure and the cost to purchase or modify planting equipment. Planting green requires knowledge of many interacting factors, including: climate, cover and cash crop species, planting rates and timings, nutrient management and termination timing.

To learn more about planting green, Donn participated in a two-year study (2021, 2022) along with 8 other farms in the Genesee River Demonstration Farm Network. Donn's trial included two termination timings, and three cover crop planting rates—no cover planted (control), a "farmer-rate" (1X; treatment) and a double "farmer rate" (2X; treatment). Control and treatment plots were divided in two. Half was sprayed to terminate the cover crop several days prior to cash crop planting (pre-plant) while the other half was left to be planted green and then terminated (planting green).

Economics of Planting Green

Agricultural economists used a marginal approach to compare cover crop treatment plots to control plots. Changes in value of production, costs, and resulting net income (profit) were calculated using values of crops produced and selected costs. Analyses consider only items that differed between the control and treatment plots, and the values of any differences. Calculated changes in profit by treatment versus control comparison for 2021 and 2022 are shown in Table 1, respectively.

Increases or decreases in the value of production for each year's corn grain harvest were determined by multiplying the yield difference between the control and treatment plots by the price of corn grain ($6.00 (2021) and $6.70 (2022) per bushel). Overall, due to greater yields, all treatment plots generated values of corn grain production greater than corresponding control plots.

Many input costs were unchanged among the plots. When comparing treatment to control plots, analysts noted only cost increases for two expense items: "Cover Crop Planting" (machinery, including fuel and

Table 1. Changes in Total Value of Production, Costs and Farm Income above Costs (Profit) by Treatment minus Control Comparison

AFT Planting Green Study, Branton Farms, Genesee River Demonstration Farm Network.
Genesee County, NY. Analysis for the trials harvested in 2021 and 2022.

	2021 TREATMENT				2022 TREATMENT			
	1X Treatment vs No Cover Control Counterpart		2X Treatment vs No Cover Control Counterpart		1X Treatment vs No Cover Control Counterpart		2X Treatment vs No Cover Control Counterpart	
ITEM	Pre-Plant Termination $/Acre	Planting Green $/Acre	Pre-Plant Termination $/Acre	Planting Green $/Acre	Pre-Plant Termination $/Acre	Planting Green $/Acre	Pre-Plant Termination $/Acre	Planting Green $/Acre
Net Income (Profit) Postitive Effects								
Increases in Total Value of Production								
Value of additional corn grain harvested	$24.00	$42.00	$18.00	$36.00	$87.10	$80.40	$13.40	$174.20
Total Value of Production Increases	**$24.00**	**$42.00**	**$18.00**	**$36.00**	**$87.10**	**$80.40**	**$13.40**	**$174.20**
Cost Decreases								
None	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Decreased Cost	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
Total Increase Net Income (Profit)	**$24.00**	**$42.00**	**$18.00**	**$36.00**	**$87.10**	**$80.40**	**$13.40**	**$174.20**
Net Income (Profit) Negative Effects								
Decreases in Total Value of Production (TVP)								
None	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Value of Production Decreases	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
Cost Increases								
Cover Crop Planting	$27.20	$27.20	$27.20	$27.20	$31.81	$31.81	$31.81	$31.81
Cover Crop Seed	$32.38	$32.38	$64.77	$64.77	$37.87	$37.87	$75.75	$75.75
Total Increased Cost	**$59.58**	**$59.58**	**$91.97**	**$91.97**	**$69.68**	**$69.68**	**$107.56**	**$107.56**
Total Decrease Net Income (Profit)	**$59.58**	**$59.58**	**$91.97**	**$91.97**	**$69.68**	**$69.68**	**$107.56**	**$107.56**
Annual Change in Net Income (Profit)	**-$35.58**	**-$17.58**	**-$73.97**	**$55.97**	**$17.42**	**$10.72**	**-$94.16**	**$66.64**

Values reflect 2022 output and input price levels.
Value of production increases and decreases, and cost increases and decreases calculated by subtracting the control value from the treatment value.

repairs; and operator labor); and "Cover Crop Seed."

When comparing cost differences from the 1X treatment rates to the corresponding control plots, cost increases totaled $59.58 (2021) and $69.68 (2022) per acre. When comparing the 2X rate to control, cost increases totaled $91.97 and $107.56 per acre. Machinery and labor cost increases associated with the "Cover Crop Planting" items were the same by treatment plot, while the "Cover Crop Seed" item differed due to seeding rate.

In 2021, differences in profit ranged from a low of -$73.97/acre for the 2X pre-plant treatment versus the no cover pre-plant control to a high of -$17.58/acre for the 1X planting green treatment versus no cover planting green control, and averaged -$45.78/acre. Results suggest that soil health benefits related to the practices implemented were associated with a decline in profit. Considering variability of the results, only the 1X planting green plot yielded a non-negative profit difference.

In 2022, the difference in profit ranged from a low of -$94.16/acre for the 2X pre-plant treatment versus no cover pre-plant control to a high of $66.64/acre for the 2X planting green treatment versus control, and averaged -$13.76/acre. The 2X pre-plant versus no cover pre-plant plot comparison yielded a negative change in net farm income, suggesting that the soil health benefits related to the practices implemented were associated with a decline in profit while all other plot comparisons yielded changes greater than zero. Considering variability of the results, all 2022 treatment plots implemented soil health practices while maintaining or improving economic performance.

Closing Thoughts

When reduced till and cover crop practices were in their infancy, Donn Branton was often called the "messy farmer," planting into the previous year's crops and leaving residue on the field. However, improved water infiltration, enhanced soil health, and increased on-farm efficiency kept him sticking with the practices.

Donn is particularly proud that snow piles surrounding his fields each winter are nice and white, an indicator that soil remains on his fields rather than blowing around. Improved water infiltration rates allow him to access his fields longer than ever before. He sees implementing conservation practices as an investment in the farm to improve the soil, crop yields, the environment, and the farm's bottom line.

Great Lakes RESTORATION

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