Project Summary

EMILI Elmer's MANUFACTURING

Updated: October 2026

Elmer's Manufacturing Super 7 Harrow

About the technology

Elmer's Manufacturing Super 7 Harrow is a versatile tillage tool designed for spring seedbed preparation, fall fertilizer incorporation and straw management. It's seven-bar design features seven rows of tines, compared to traditional five-bar configurations, providing increased soil and residue action with each pass. The Super 7 Harrow is commercially available in various models, with operating widths of 70, 90, 110 and 130-feet.



The Elmer's Manufacturing Super 7 Harrow at EMILI's Innovation Farms (Photo credit: EMILI).

EMILI objectives

During 2026, Elmer's Manufacturing Super 7 Harrow has been utilized at EMILI's Innovation Farms in order to:

- Assess key performance parameters and trends between 70 and 90-foot harrow operating widths.
- Evaluate the economics, operational efficiencies, and ROI of increasing tillage equipment size.

What we learned

70 versus 90-foot analysis

The analysis of key performance parameters such as productivity, labour requirements, and fuel consumption found that the 90-foot harrows increased productivity (acres per hour) while reducing labour requirements and tractor rental costs compared to the 70-foot width. The larger operating width also resulted in reduced fuel rates (litres per acre).

Automatic features and remote adjustments

With the optional PRO system, harrows settings such as tine angles, down pressure, and pitch can be adjusted remotely using a tablet from the tractor cab. Operators can make real-time adjustments without leaving the cab or manually changing settings, reducing downtime and improving operational efficiency.

Save and recall harrow settings

Setup efficiency could be further improved by taking advantage of the optional PRO system's ability to save and recall Super 7 Harrow settings directly from the tablet. This feature allows producers to store preferred tine angles, down pressure, and pitch for specific fields or operations, making it easier to restore settings and reduce setup time.



What this technology could unlock

Larger harrows could unlock greater field capacity by covering more acres per pass, improving overall field efficiency and reducing the resources required for harrowing operations. Adopting larger tillage equipment configurations may contribute to reduced labour requirements and fewer tractor hours, while enabling producers to complete the same acreage in less time.

Summary of analyses

Materials and methods

Elmer's Manufacturing Super 7 Harrow was utilized in a summerfallow field near Gypsumville, Manitoba. During this field activity, both the 70 and 90-foot harrow configurations were evaluated. The operator harrowed the majority of a field with the 70-foot configuration before using lockout valves to change the configuration to 90-feet. An additional 35-acre section of the field was harrowed with the 90-foot operating width (Figure 1). Using both the 70 and 90-foot Super 7 Harrow configurations provided a direct field comparison of the two operating widths under similar conditions. Data from this field operation, including productivity (acres/hour) and fuel rates (L/acre, L/hour) were extracted from John Deere Operations Centre for analysis using a comparable 35-acre area.

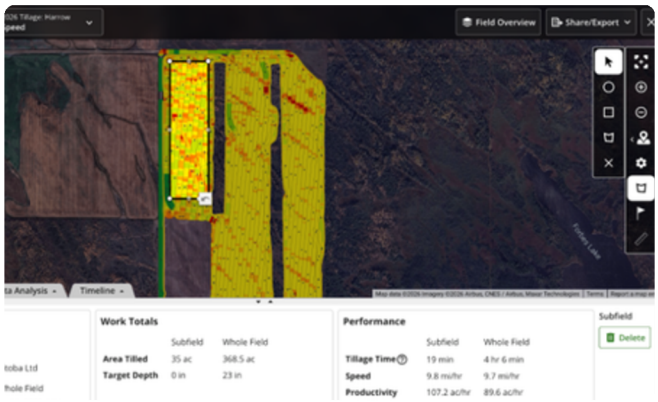

Figure 1. John Deere Operations Centre highlighting the productivity of the 35-acre area harrowed with the 90-foot operating width.

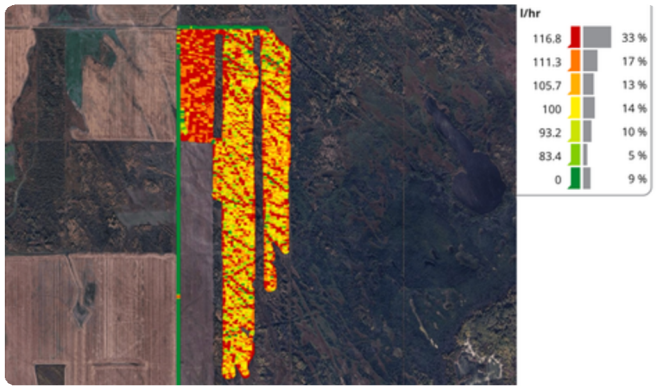

Figure 2. John Deere Operations Centre displaying the fuel rate (L/hour) for the harrowing activity with 70 and 90-foot operating widths.

Results

Productivity and time saved

Productivity was measured at 107 acres per hour with the 90-foot harrow, compared with 89 acres per hour with the 70-foot configuration (Figure 1). At the same operating speed, the 90-foot harrow covered approximately 19 additional acres per hour, reducing the time spent in the cab. At 107 acres per hour, harrowing a 160-acre quarter section would take approximately 1.5 hours with the 90-foot configuration. Across a 10,000-acre farm, using the 90-foot harrow could reduce total harrowing time by approximately 19 hours compared with the 70-foot configuration. This time saved could allow for two to three days of tractor availability for other tillage operations.

Tractor hour reductions and labour cost savings

Based on the Manitoba Cost of Production estimate of $28.00 per hour for labour and approximately 19 hours of harrowing time saved, this represents $532.00 in labour cost savings, or $0.05 per acre, when using the 90-foot harrows across a 10,000-acre farm. Machine rental costs for a 590/640 HP tractor range from $285.00 to $470.00 per hour, based on Innovation Farms Grosse Isle figures. At the average rental rate of $378.00 per hour, $6,984.00 could be saved in rental costs using the 90-foot configuration across a 10,000-acre farm.

Fuel rate and total consumption

Across 35 acres, the fuel rate for the 90-foot harrows was 116 litres per hour or 1.1 litres per acre, and the 70-foot harrows was 102 litres per hour or 1.3 litres per acre (Figure 2). Across a 10,000-acre farm, the 90-foot harrows would have a total fuel consumption of 11,000 litres compared to the 70-foot harrows at 13,000 litres. Based on the Manitoba Cost of Production estimate of $1.20 per litre for fuel costs, this equates to $2,400.00 saved in fuel if using the 90-foot harrows.

Next steps

EMILI will continue to evaluate the economics and efficiencies of Super 7 Harrow configurations to quantify the potential cost savings and productivity gains associated with larger operating widths.