

# RESILIENT ROTATIONS: NET REVENUE RED RIVER VALLEY



Research has shown the benefits of diversifying crop rotations, and yet most Prairie farmers keep their rotations short and simple with cereals and oilseeds being intensively grown. For the past four years, researchers across Western Canada have compared different crop rotations to measure the drawbacks and benefits. This work is designed to help farmers make crop rotation decisions that are the best fit for their operation, based on local research.

Six different crop rotations were studied in Alberta, Saskatchewan and Manitoba to represent growing conditions in the Canadian Prairies. This factsheet looks at the differences between rotations for **net revenue**.

## NET REVENUE

Net revenue was calculated by determining the total value of the yield (based on average crop prices from 2012-2021) from each crop and subtracting total costs. Total costs include seed cost, fertilizer costs, pesticide costs, other variable costs (oil and fuel, machinery repair, transportation, labor, and interest), and fixed costs (land, machinery, and storage). Machinery costs were based on the average Saskatchewan farm size in 2021 of 1,766 acres.



**Integrated Crop  
Agronomy Cluster**

## TEN-YEAR (2012-2021) AVERAGE INPUT PRICES FOR CROP ROTATION TREATMENTS USED TO CALCULATE NET REVENUE

Rotation Treatment	Seed Costs \$/acre	Fertilizer Costs \$/acre	Pesticide Costs \$/acre	Other Variable Costs \$/acre	Fixed Costs \$/acre	Total Cost \$/acre
<b>Control</b>	\$ 41	\$ 58	\$ 70	\$ 49	\$ 86	\$ 304
<b>Intensified</b>	\$ 53	\$ 50	\$ 73	\$ 53	\$ 91	\$ 320
<b>Diversified</b>	\$ 56	\$ 41	\$ 64	\$ 51	\$ 89	\$ 301
<b>Market Driven</b>	\$ 55	\$ 77	\$ 57	\$ 56	\$ 93	\$ 338
<b>High Risk</b>	\$ 63	\$ 48	\$ 59	\$ 49	\$ 88	\$ 307
<b>Soil Health</b>	\$ 54	\$ 39	\$ 51	\$ 42	\$ 78	\$ 264

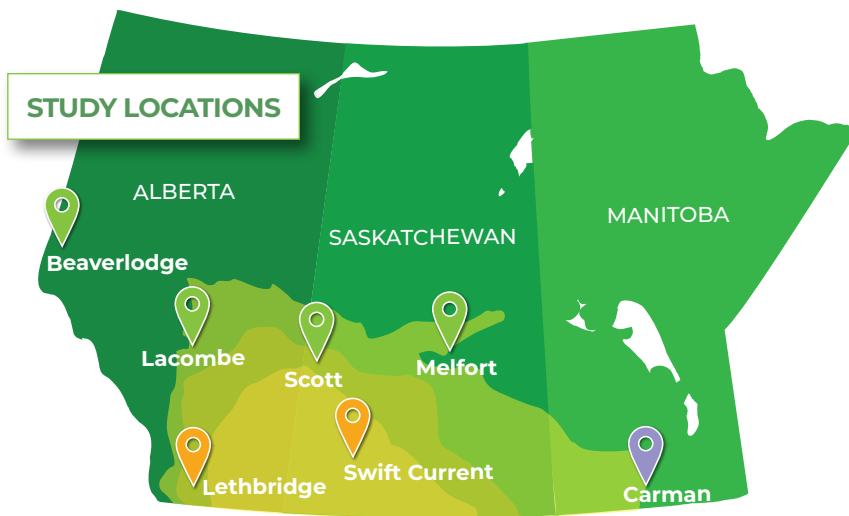
Input costs were highest for the **market driven** rotation and significantly lowest for the **soil health** rotation.

**NET RETURNS BY CROP ROTATION  
IN MANITOBA, 2019-2022**

Rotation Treatment	Crop Species Used Based on Local Growing Conditions				Net Return Ranking of Various Crop Rotations*
	Year 1	Year 2	Year 3	Year 4	
					Carman
The average net return of all rotations at Carman was \$4 ac <sup>-1</sup> (the highest net returns were for the market driven rotation at \$88 ac <sup>-1</sup> ).					
Control	Wheat	Soybean	Wheat	Canola	●
Intensified	Soybean	Wheat	Soybean	Canola	●
Diversified	Canola	Winter Wheat	Soybean	Canola	●
Market Driven	Corn	Corn	Oat	Canola	●
High Risk	Corn	Dry Bean	Canola	Sunflower	●
Soil Health	Green Manure	Fall Rye	Corn-Soybean	Canola Pea	●

**Net Return Ranking\***

● = good net returns   ● = statistically lower net returns   ● = statistically lowest net returns



■ Northern Prairies   ■ Southern Prairies   ■ Red River Valley

**THE BOTTOM LINE**

- The **market driven** and **high risk** rotations have the most profitable net returns. However, the **market driven** rotation also has the highest input costs.
- The net returns associated with the **market driven** and **high risk** rotations are attributed to high corn yields in these rotations.
- The study was conducted under drier than average conditions. In growing conditions which are more typical for the region, the other rotations may have had better net returns.

**FOR MORE INFORMATION**

More information on how these crop rotations stack up in terms of yield and yield stability, precipitation use and nutrient use will be covered in separate factsheets as part of this series.

These results are based on the first four years of the study. More robust results are expected if a second four-year cycle of the study is completed.

This factsheet is part of a series by Resilient Rotations – a project of the Integrated Crop Agronomy Cluster – led by Kui Liu, AAFC Swift Current – the project examines the benefits and drawbacks of different crop rotation options for farmers across Western Canada.

**To find out more visit**  
[wgrf.ca/resilient-rotations-factsheet/](http://wgrf.ca/resilient-rotations-factsheet/)