

# RESILIENT ROTATIONS: NET REVENUE SOUTHERN PRAIRIES



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.

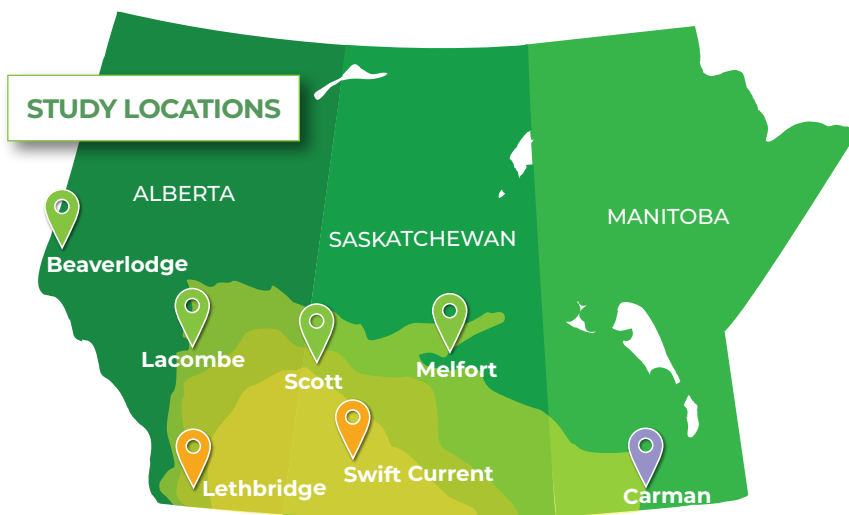
**NET RETURNS BY CROP ROTATION  
IN SOUTHERN PRAIRIES, 2018-2021**

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	Lethbridge	Swift Current
The average net return of all rotations at Lethbridge was \$-208 ac <sup>-1</sup> (there were no rotations with a positive net return). The average net return of all rotations at Swift Current was \$-5 ac <sup>-1</sup> (the highest net returns were for the intensified rotation at \$70 ac <sup>-1</sup> )						
Control	Fallow	Durum	Malt Barley	Durum	●	●
Intensified	Lentil	Durum	Chickpea	Durum	●	●
Diversified	Lentil	Canola	Pea	Durum	●	●
Market Driven	Flax (Swift Current) Canola (Lethbridge)	Wheat	Lentil (Swift Current) Wheat (Lethbridge)	Feed Barley (Swift Current) Malt Barley (Lethbridge)	●	●
High Risk	Soybean	Canary Seed (Swift Current) Corn (Lethbridge)	Faba Bean	Durum	●	●
Soil Health	Forage Pea Green Manure	Barley Pea Intercrop	Faba Bean Barley Intercrop	Durum	●	●

**Net Return Ranking\***

● = higher net returns   ● = statistically similar, lower net returns   ● = statistically similar, lowest net returns

\*Net Return ranking is calculated by location



■ Northern Prairies   ■ Southern Prairies   ■ Red River Valley

**THE BOTTOM LINE**

- On average, the 2018-2021 growing seasons in the southern prairies were drier than normal and growth was unusually poor. All rotations at Lethbridge had negative net returns. At Swift Current the soil health, control and high risk rotations all had negative net returns.
- These negative net returns suggest that producers should focus on minimizing risk by selecting rotations with lower total costs.
- The **intensified** rotation seemed to perform better compared with other rotations and reflects common crop types grown in these areas.

**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/)