

Spring Canola and Chickpea Value in a Cereal Grain Rotation

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Canola (*Brassica napus* L.) has been a rotation option with wheat (*Triticum aestivum*) for farmers in the dryland cropping region of the Pacific Northwest for over 25 years, yet adoption has been limited because of market access, profitability and overall unfamiliarity with the crop. In 2014 a large-scale multi-year rotation study was initiated comparing spring wheat, canola and chickpea (*Cicer arietinum* L.) (1st year) in rotation with winter wheat (WW) (2nd year) and spring wheat (3rd year). The study was located at the WSU Wilke Research and Extension Farm which receives an average of 14 inches of precipitation. The experimental design was a randomized complete block with four replications and plot size 25x200 feet. Each crop rotation is examined over two cycles (i.e. 6 years) and was repeated in 2015 and 2016. Data presented here focuses on the three treatment crops and includes seed yield, production costs, and economic returns. Over the 6 years, spring wheat had the highest yield, averaging 2,134 lbs./ac (35.6 bu/ac), and there was no significant difference in yield between canola and chickpea 1,014 and 963 lbs./ac, respectively. Gross economic returns were calculated using local F.O.B. prices on September 15 each year, and canola and chickpea yearly contract prices. Chickpea and wheat had the greatest gross economic return at \$214 and \$199/ac, respectively, compared to canola at \$166/ac. Production costs considered included only seed, fertilizer, and herbicide costs. Over the six years wheat had the lowest production costs at \$100/ac, and canola and chickpea both averaged \$116/ac. Overall wheat and chickpea produce the greatest economic return to growers over costs at \$99 and \$97/ac, respectively, and canola produced \$48/ac over costs. In conclusion market price is a major component of potential profitability of wheat, chickpea and canola.

Treatment	Yield (lbs./ac)	Market Price (\$/lb)	Gross Economic Return (\$/ac)	Cost (\$/ac)	Economic Return over Costs (\$/ac)
Wheat	2134 a	0.093	199 a	100	99 a
Canola	1014 b	0.162	165 b	116	48 b
Chickpea	963 b	0.222	214 a	116	97 a
LSD (P<0.05)	134		21		21

Means within columns with different lowercase letters are significant (P<0.05).