

ECONOMICS OF ALTERNATIVE NO-TILL SPRING CROPS AT JIRAVA FARM, RITZVILLE, WA

Louis Juergens, Douglas Young, Ron Jirava, and William Schillinger

Department of Agricultural Economics, WSU, Ritzville farmer,
and Department of Crop and Soil Sciences, WSU

During 1997-1999, Ron Jirava grew several no-till continuous spring crops at his farm near Ritzville, for which the cost of production was estimated. Table 1 displays the farmer's sale prices and crop yields for safflower, mustard, spring barley (SB), and soft white spring wheat (SWSW). Prices for the grains are marketing year averages for Washington, but those for oilseeds are the farmer's actual prices. The years 1997-1999 were higher moisture than 2000 and 2001. Consequently, the crop yields are probably somewhat higher than could have been expected recently. Jirava did not grow oilseeds in 2000 and 2001.

Table 2 shows that continuous no-till SWSW topped all systems during this three-year period with net returns over total costs of \$12.86/acre. Total costs include a return for the operator's labor and land and machinery investment. The other three continuous no-till spring crops incurred small losses of -\$3.71 to -\$17.87 per acre. The performance of continuous no-till SWSW is impressive, but more data is needed over a broader spectrum of weather to reach conclusions on its long run economic viability. Analysis of an experiment by Bill Schillinger at the same site including three no-till SWSW rotations is reported separately in this bulletin.

Tables 3, 4 and 5 report the effect of yield and price changes on returns over total costs for continuous no-till SWSW, safflower and spring barley. The lightly shaded area in each table shows the combinations of price and yield which generate a positive return over total costs. The darkly shaded area shows net returns for the price and yield combination which is closest to the Ritzville grower's 1997-1999 average. For example, a safflower yield of 822 pounds/acre sold for \$0.12/pound generates a net return of -\$9.88/ac given the grower's production costs of \$108.53/ac (Table 4). Table 3 shows that for a SWSW price of \$3.17/bu, the break-even yield will be between 30 and 40 bu/ac for production costs of \$116.03/ac. Dividing \$116.03 by \$3.17 gives the exact break-even yield of 36.6 bu/ac.

Table 1. Annual Prices and Yields by Crop for a Ritzville Grower, 1997-99.

	Safflower		Mustard		Spring Barley		SWSW	
	\$/lb	Yield	\$/lb	Yield	\$/ton	Yield	\$/bu	Yield
1997	0.12	711	0.12	964	94.6	0.75	3.61	61
1998	0.12	770	0.12	648	65.84	1	2.90	36
1999	0.12	985	0.12	342	73.3	2.3	3.00	23
Avg.	0.12	822.0	0.12	651.3	77.91	1.350	3.17	40.66

Table 2. Average Revenue, Costs, and Net Returns (\$/ac) by Cropping System for a Ritzville Grower, 1997-99.

Rotation	Rev/Ac	Cost/Ac		Net Returns Over Cost	
		Variable	Total	Variable	Total
SWSW	128.89	55.07	116.03	73.82	12.86
Spring Barley	105.17	55.75	108.88	49.42	-3.71
Safflower	98.64	56.92	108.53	41.72	-9.88
Yellow Mustard	78.16	51.24	96.03	29.63	-17.87

Note: Government payments are excluded.

Table 3. Effect of Yield and Price Changes on (\$/rot. Ac) for No-Till SWSW, Ritzville Grower.

bu/ac	\$/bu.				
	2.37	2.77	3.17	3.57	3.97
20	-68.63	-60.63	-52.63	-44.63	-36.63
30	-44.93	-32.93	-20.93	-8.93	3.07
41	-19.67	-3.40	12.86	29.13	45.39
50	2.47	22.47	42.47	62.47	82.47
60	26.17	50.17	74.17	98.17	122.17

Note: Assuming total costs/ac = \$116.03. Grower's average 1997-99 yield and price were 40.66 bu/ac and \$3.17/bu. Government payments are excluded.

Table 4. Effect of Yield and Price Changes on (\$/rot. Ac) for No-Till Safflower, Ritzville Grower.

lb/ac	\$/lb.				
	0.08	0.1	0.12	0.14	0.16
422	-74.76	-66.32	-57.88	-49.44	-41.00
622	-58.76	-46.32	-33.88	-21.44	-9.00
822	-42.76	-26.32	-9.88	6.56	23.00
1022	-26.76	-6.32	14.12	34.56	55.00
1222	-10.76	13.68	38.12	62.56	87.00

Note: Assuming total costs/ac = \$108.53. Grower's average 1997-99 yield and price were 822 lbs/ac and \$.12/lb. Government payments are excluded.

Table 5. Effect of Yield and Price Changes on (\$/rot. Ac) for No-Till S.Barley, Ritzville Grower.

ton/ac	\$/ton.				
	48	63	78	93	108
0.65	-77.72	-67.97	-58.28	-48.47	-38.72
1.00	-60.92	-45.92	-31.01	-15.92	-0.92
1.35	-44.12	-23.87	-3.74	16.63	36.88
1.70	-27.32	-1.82	23.53	49.18	74.68
2.05	-10.52	20.23	50.80	81.73	112.48

Note: Assuming total costs/ac = \$108.88. Grower's average 1997-99 yield and price were 1.35 t/ac and \$77.91/ton. Government payments are excluded.