

WSU Wilke Research and Extension Farm

**Operations, Production & Economic
Performance
2009**

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WSU WILKE RESEARCH AND EXTENSION FARM

Operation, Production and Economic Performance for 2009

CURRENT SITUATION:

The WSU Wilke Research and Extension Farm remains in a direct seeded cropping system that utilizes no-till fallow, winter wheat, and spring cereals. Broadleaf crops remain a viable option and may be substituted with spring cereal when weed pressures and market price create opportunities for profitable production. Winter canola or pea may also be substituted for winter wheat if a profitable opportunity is available.

In spring of 2004 the decision was made to combine the twenty-one, 10 acre plots from our previous no-till, alternative crop project into seven plots with a 3 and 4-year flex crop rotation. This was done to make “the farm” easier to farm, reduce production risk, and gather meaningful data focused on direct seeded flexible cropping systems. This transition was also done to create more ground suitable for small plot research focused on improving the profitability of conservation based farming systems in the intermediate rainfall zone. The north side of the farm remains in continuous cereal grain production.

OPERATION:

Winter wheat (3-year plot 2; 4-year plot 1; north side)

Cereal rye continues to limit winter wheat production as heavy rye infestations were ‘wicked’ to help limit seed production. Winter wheat was seeded and fertilized into no-till fallow with Dale Dietrich’s JD 750 direct seed drill on 12 inch spacing. Sixty percent ‘Eltan’ and forty percent ‘Madsen’ soft white winter wheat was seeded at 75 lb/ac on September 17, 2008. Aqua ammonia fertilizer and ammonium sulfate was applied below the seed at a rate of 70 lb N/ac and 5 lb S/ac.

Broadleaf and grassy weed control was applied on May 26, 2009. The application consisted of 3.5 oz/ac *PowerFlex*®, 0.5 oz/ac *Ally*® *Extra SG*, and 8.0 oz/ac *E-99*. The crop was harvested with a conventional John Deere combine at the end of August 28-29, 2009.

Spring Wheat (3-year plot 5; 4-year plots 3 & 6)

‘Jedd’ Dark Northern Spring wheat was seeded into winter wheat residue in plots 3 and 5, and DNS wheat residue in plot 6. All spring wheat was seeded and fertilized in one pass on April 29, 2009 with Sheffels Co Flexi-Coil 5000 direct seed hoe drill with Anderson openers on 12 inch spacing. The crop was seeded at 60 lb/ac, and aqua ammonium was applied below the seed and 50 lb/ac 16-20-0-14 was applied with the seed. Plots 3 and 5 received 70 lb N/ac and plot 6 received only 50 lb N/ac.

Good weed control was achieved during the year. Prior to seeding, 16.0 oz/ac *RT 3*™ herbicide, 1 qt/100 gal *R-11*, and 1.5 qt/100 gal *Bronc Max* was applied on April 18, 2009. Post emergence grassy and broadleaf weed control was applied on June 19, 2009. This application included 13.5 oz/ac *Huskie*™, 12.8 oz/ac *Discover*® *NG* and 1 qt/ac

solution 32. The crop was harvested with a conventional John Deere combine on August 27, 2009.

No-Till Fallow (3-year plot 7; 4-year plot 4)

No-till fallow plots were maintained relatively weed free with 3 herbicide applications. The first application on April 18, 2009 was RT 3™ herbicide applied at 16.0 oz/ac, 1 qt/100 gal R-11 and 1.5 qt/100 gal Bronc Max. The second application on May 28, 2009 was 16.0 oz/ac RT 3™ herbicide, 1 qt/100 gal R-11 and 1.5 qt/100 gal Bronc Max. The third and final application on July 27, 2009 was 32 oz/ac RT 3™ herbicide, 1.5 qt/100 gal R-11 and 1 qt/100 gal Bronc Max.

SOIL SAMPLES: All soil samples were collected prior to seeding.

Winter wheat (3-year plot 2; 4-year plot 1; north side)

No soil samples were collected on winter wheat plots prior to seeding.

Spring Wheat (3-year plot 5; 4-year plots 3 & 6)

Plot 5 had 147 lbs N/ac total residual in 4 feet with 17 lbs N/ac in the 1st foot and 11, 36, and 14 lbs N/ac respectively in the remaining 3 feet. Organic matter was 2.3% and will release an estimated 69 lbs N/ac. Total soil moisture levels to a depth of 4 feet averaged 10.5 inches with incremental levels of 3.2, 3.0, 2.3, and 2.0 inches/ft respectively.

Plot 3 had 142 lbs N/ac total residual in 4 feet with 28 lbs N/ac in the 1st foot and 6, 9, and 12 lbs N/ac respectively in the remaining 3 feet. Organic matter was 2.9% and will release an estimated 87 lbs N/ac. Total soil moisture levels to a depth of 4 feet averaged 111.8 inches with incremental levels of 3.3, 3.0, 2.6, and 2.9 inches/ft respectively.

Plot 6 had 193 lbs N/ac total residual in 4 feet with 21 lbs N/ac in the 1st foot and 18, 32, and 32 lbs N/ac respectively in the remaining 3 feet. Organic matter was 3.0% and will release an estimated 90 lbs N/ac. Total soil moisture levels to a depth of 4 feet averaged 12.0 inches with incremental levels of 3.1, 3.3, 2.9, and 2.7 inches/ft respectively.

PRODUCTION AND ECONOMIC PERFORMANCE:

The following tables summarize the rotation, production and economic performance of the 3-year rotation, 4-year rotation and the continuous cropping system at the Wilke farm in 2009. The 3-year crop rotation returns above input costs averaged \$80/ac, the 4-year crop rotation returns above input costs averaged \$55/ac, and the continuous cropping system returns above input costs averaged \$21/ac.

In summary, over the last three years (2006-09), the 4-year rotation, 3-year rotation, and continuous cropping have averaged returns above input costs of \$81, \$77, and \$65/ac respectfully. Over the last 5 years the 4-year rotation, 3-year rotation, and continuous cropping have averaged returns above input costs of \$95, \$92, and \$84/ac respectfully.

3-Year Crop Rotation:

3-year cropping rotation sequence at the Wilke Farm from 2005-10.

Year	Plot 2	Plot 5	Plot 7
2005	No-till Fallow	Winter Wheat (78.5 bu/ac)	<i>Spring Cereal</i> <i>Chem Fallow</i>
2006	Winter Wheat (93.2 bu/ac)	<i>Spring Wheat</i> (35.3 bu/ac)	<i>No-till Fallow</i> <i>Winter Wheat</i> (61.7 bu/ac)
2007	<i>Spring Barley</i> (1.29 ton/ac)	No-till Fallow	<i>Winter Wheat</i> <i>Spring Barley</i> (1.01 ton/ac)
2008	No-till Fallow	Winter Wheat (53.1 bu/ac)	Spring Wheat (24.6 bu/ac)
2009	Winter Wheat (71.7 bu/ac)	DNS Wheat (47.2 bu/ac)	No-till Fallow
2011	Spring Cereal	No-till Fallow	<i>Spring Cereal</i>

Italicized crops are the flexible piece of the rotation.

Blue Italicized crops are those that have been altered because of soil moisture conditions.

Red Italicized crops are those that have been altered because of cereal rye management.

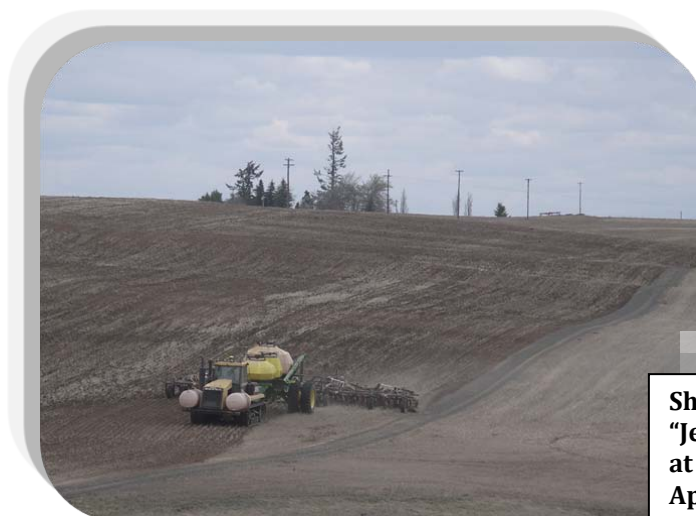
AGWEATHERNET STATION
located at the Wilke Research and
Extension Farm.

You can access this weather data at
<http://weather.wsu.edu>. The main
page map has current data for each
station. Free registration allows
you to generate and access a wide
variety of reports.



3-year crop rotation production at the Wilke Farm, 2009.

	Plot 2	Plot 5	Plot 7
Cropping Specifics			
Acreage	16.3	24.3	32.4
Crop	'Eltan' - 'Madsen' SWWW	'Jedd' DNS	No-till Fallow
Crop Production			
Yield	71.7	47.2 bu/ac	-
Mkt Grade	#2 SWH 61.4 .4%	#1 DNS 62.0 .4% 13.0% Pro	-
Gross Economic Return			
Mkt Price	4.20/bu	\$4.88/bu	-
Gross Return	\$300.85/ac	\$230.34/ac	-
Input Costs			
Seed	9.90	\$13.50/ac	-
Fertilizer	61.10/ac	\$40.33/ac	-
Herbicides	\$19.70/ac	37.44\$/ac	\$28.45/ac
Total	\$91.69/ac	\$91.27/ac	\$28.45/ac
Summary			
Return over Costs	\$209.16/ac	\$139.07/ac	-\$28.45/ac
3-Year Rotation Return over Costs		\$80/ac	



Sheffels Co. seeding
"Jedd" DNS in Plot 6
at Wilke Farm on
April 29, 2009.

4-Year Crop Rotation:

4-year cropping rotation sequence at the Wilke Farm from 2005-10.

Year	Plot 1	Plot 3	Plot 4	Plot 6
2005	Winter Wheat (85.8 bu/ac)	<i>Spring Cereal</i> No-till Fallow	No-till Fallow	Spring Wheat (35.5 bu/ac)
2006	<i>Spring Wheat</i> (37.5 bu/ac)	<i>Spring Cereal</i> Winter Wheat (62.8 bu/ac)	Winter Wheat (75.7 bu/ac)	No-till Fallow
2007	Spring Barley (1.30 ton/ac)	No-till Fallow	<i>Spring Barley</i> (1.12 ton/ac)	Winter Wheat (60.4 ton/ac)
2008	No-till Fallow	Winter Wheat (35.6 bu/ac)	DNS Wheat (16.5 bu/ac)	<i>DNS Wheat</i> (14.9 bu/ac)
2009	Winter Wheat (61.9 bu/ac)	DNS Wheat (36.0 bu/ac)	No-till Fallow	DNS Wheat (24.4 bu/ac)
2010	<i>Spring Cereal</i>	Spring Cereal	<i>Spring Cereal</i>	No-till Fallow

Italicized crops are the flexible piece of the rotation.

Blue Italicized crops are those that have been altered because of soil moisture conditions.

Red Italicized crops are those that have been altered because of cereal rye management.

4-year crop rotation production at the Wilke Farm, 2009.

	Plot 1	Plot 3	Plot 4	Plot 6
Cropping Specifics				
Acreage	17.3	25.2	26.5	28.1
Crop	'Eltan' - 'Madsen' SWWW	'Jedd' DNS Wheat	No-till Fallow	'Jedd' DNS Wheat
Crop Production				
Yield	61.9 bu/ac	36.0 bu/ac	-	24.4 bu/ac
Mkt Grade	-	#1 DNS 62.6 1.0% 13.0% PRO	-	#1 DNS 62.0 0.5% 13.0% PRO
Gross Economic Return				
Mkt Price	4.10/bu	\$4.88/bu	-	\$4.88/bu
Gross Return	\$259.73/ac	\$175.68/ac	-	\$119.07/ac
Input Costs				
Seed	\$9.90/ac	\$13.50/ac	-	\$13.50/ac
Fertilizer	\$61.10/ac	\$40.33/ac	-	\$31.38/ac
Herbicides	\$19.70/ac	\$37.44/ac	\$28.45/ac	\$37.44/ac
Total	\$91.69/ac	\$91.27/ac	\$28.45/ac	\$82.32/ac
Summary				
Return over Costs	\$168.04/ac	\$84.41/ac	-\$28.45/ac	\$36.75/ac
4-Year Rotation Return over Costs	\$55/ac			

Continuous Crop Rotation:

Continuous crop rotation sequence at the Wilke Farm from 2005-10.

Year	North Side
2005	Spring Wheat (31.6 bu/ac)
2006	Winter Wheat (54.4 bu/ac)
2007	Spring Barley (1.02 ton/ac)
2008	Spring Wheat (34.1 bu/ac)
2009	Winter Wheat (28.9 bu/ac)
2010	Spring Barley

Continuous crop rotation production at the Wilke Farm, 2009.

North Side	
Cropping Specifics	
Acreage	72.5
Crop	'Eltan' - 'Madsen' SWWW
Crop Production	
Yield	28.9 bu/ac
Mkt Grade	#2 SWH 59.7 1.4%
Gross Economic Return	
Mkt Price	3.90/bu
Gross Return	\$112.71
Input Costs	
Seed	\$9.90/ac
Fertilizer	\$61.10/ac
Herbicides	\$19.70/ac
Total	\$91.69/ac
Summary	
Continuous Rotation Return over Costs	\$21/ac

2005-09 Summary:

Year	3-Year	4-Year	Continuous	Mean
	----- \$/ac -----			
2005-07	94	102	87	95
2006-08	110	96	99	102
2007-09	81	77	65	74
Mean	95	92	84	90

For additional information, please contact:

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**Howard Nelson,
Central Washington
Grain Growers, Winter
Pea Research Plots at
Wilke Farm.**