WSU WILKE RESEARCH AND EXTENSION FARM

OPERATION, PRODUCTION, AND ECONOMIC PERFORMANCE FOR 2019

Current Situation

The WSU Wilke Research and Extension Farm is a 320-acre facility located on the eastern edge of Davenport, WA, and is split (north and south) by State Highway 2. Washington State University maintains and operates this facility. This annual technical bulletin is written primarily for farmers and crop consultants in the intermediate cropping zone (12 to 17 inches of annual precipitation). It also provides documentation of the operations and production on the Wilke Farm to assist University faculty with small plot research experiments. Previous technical bulletins can be found on the WSU Wheat & Small Grains website.

The Wilke Farm remains in a direct-seed cropping system using no-till fallow, winter wheat, spring cereals, and broadleaf crops. Broadleaf crops are used in place of spring and winter cereals when weed pressures and market prices create opportunities for profitable production. The predominant cropping system practiced by farmers in this region is a three-year rotation, which includes summer fallow, winter wheat, and spring cereals. Farmers are interested in intensifying rotations to reduce fallow years and increase crop diversity to improve long-term agronomic and economic stability.

The south side of the farm is divided into seven plots; three plots are in a more traditional three-year crop rotation, and four plots are in an intensified four-year crop rotation. The north side of the farm remains in an intensified rotation that forgoes summer fallow and is now in diversified, continuous crop production after many years in continuous cereal grain only production.

Soil compaction and wireworm population data are collected each spring from GPS-recorded locations within each plot. Soil samples are also collected from these GPS locations prior to seeding and fertilizer is applied according to soil sample results and WSU recommendations.

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Operations

All crops in 2018–2019 were seeded with the farm's John Deere 750 direct-seed, low disturbance disk drill on 7.5-inch spacing. Deep-banded fertilizer applications were applied in between the rows on 15-inch spacing. The farm was harvested with the farm's John Deere 6622 combine from August 16 through September 3.

Winter Wheat (3-year Field 7; 4-year Field 6)

Field 6 and Field 7 were seeded to 50% 'Jasper' and 50% 'Norwest Duet" soft white winter wheat blend on September 20–21, 2018, at 93 lb/acre (900,000 seeds per acre) into no-till fallow. Seed was treated with 5 fl oz/cwt CruiserMaxx Vibrance Cereals plus 0.5 fl oz imidacloprid/cwt. Dry 15-19-0.6-13 with 0.05 B and 0.25 Zn was applied at a rate of 53 lb/acre with the seed.

In Field 6, Solution 32 and Thiosul (10:1 ratio) was variably applied across three application zones to account for field variability and yield potential, and averaged 58-0-0-5. Overall, 39% received a target rate of 67-0-0-6, 38% received a target rate of 59-0-0-5, and 23% received a target rate of 43-0-0-4. In Field 7, Solution 32 and Thiosul (10:1 ratio) was also variably applied across three application zones to account for field variability and yield potential, and averaged 68-0-0-6. Overall, 22% received a target rate of 83-0-0-3, 70% received a target rate of 67-0-0-6, and 8% received a target rate of 43-0-0-4.

Both fields received an additional 7 lb N/acre applied with herbicides. Postemergence weed control was applied using 10 gallons per acre (GPA) of carrier that included Affinity Broadspec applied at 0.6 oz/acre, Salvo 2, 4-D at 12 oz/acre, Solution 32 at 2 gal/acre, and 1.0 qt/100 gallons Liberate on May 9, 2019.

Spring Wheat (3-year Field 2; 4-year Field 1; Continuous North)

Field 1 was seeded to 'Ryan' soft white spring wheat on April 29 at 80 lb/acre (900,000 seeds per acre). It was treated with 5 fl oz/cwt CruiserMaxx Cereals with additional Cruiser 5FS added (for a total of 1.33 oz thiamethoxam/cwt) and 2.0 oz/cwt Zn, and was seeded into spring canola residue. Dry 15-19-0.6-13 with 0.05 B and 0.25 Zn was applied at a rate of 53 lb/acre with the seed. Solution 32 and Thiosul (10:1 ratio) was variably applied across three application zones to account for field variability and yield potential, and averaged 51-0-0-4. Overall, 19% received a target rate of 67-0-0-6, 74% received a target rate of 50-0-0-4, and 7% received a target rate of 27-0-0-2.

Field 2 was seeded to 'Ryan' soft white spring wheat on May 5 at 80 lb/acre (900,000 seeds per acre). It was treated with 5 fl oz/cwt CruiserMaxx Cereals with additional Cruiser 5FS added (for a total of 1.33 oz thiamethoxam/cwt) and 2.0 oz/cwt Zn, and was seeded into winter wheat residue. Dry 15-19-0.6-13 with 0.05 B and 0.25 Zn was applied at a rate of 53 lb/acre with the seed. Solution 32 and Thiosul (10:1 ratio) was variably applied across three application zones to account for field variability and yield potential, and averaged 62-0-0-5. Overall, 22% received a target rate of 76-0-0-7, 45% received a target rate of 67-0-0-6, and 33% received a target rate of 47-0-0-4.

North was also seeded to 'Ryan' soft white spring wheat on May 3 at 80 lb/acre (900,000 seeds per acre). It was treated with 5 fl oz/cwt CruiserMaxx Cereals with additional Cruiser 5FS added (for a total of 1.33 oz thiamethoxam/cwt) and 2.0 oz/cwt Zn, and was seeded into winter wheat residue. Dry 15-19-0.6-13 with 0.05 B and 0.25 Zn was applied at a rate of 53 lb/acre with the seed. Solution 32 and Thiosul (10:1 ratio) was variably applied across three application zones to account for field variability and

yield potential, and averaged 59-0-0-5. Overall, 22% received a target rate of 100-0-0-9, 65% received a target rate of 50-0-0-4, and 13% received a target rate of 36-0-0-3.

Field 1, 2, and North were sprayed using a carrier volume of 10 GPA prior to seeding on April 16–20 with 32 oz/acre RT3 and 1.0 qt/100 gallons Full Load Complete. Postemergence weed control was applied on May 31 in a carrier volume of 10 GPA. This application included Huskie at 15 oz/acre, Solution 32 at 1.0 gal/acre, Ag-Xcelerate at 1.0 gal/acre and Activate Plus at 1.0 qt/100 gallons. This application contained an additional 5 lb of nitrogen.

Spring Canola (4-year Field 4)

'L233P' spring canola was seeded on May 8 at 5.0 lb/acre (518,250 seeds per acre) into winter wheat residue. Dry 15-19-0.6-13 with 0.05 B and 0.25 Zn was applied at a rate of 53 lb/acre with the seed. Solution 32 and Thiosul (10:1 ratio) was variably applied across three application zones to account for field variability and yield potential, and averaged 59-0-0-5. Overall, 41% received a target rate of 73-0-0-6, 47% received a target rate of 53-0-0-5, and 11% received a target rate of 36-0-0-3. Field 4 was sprayed at 10 GPA prior to seeding on April 20 with 32.0 oz/acre RT3 and 1.0 qt/100 gallons Full Load Complete. Postemergence weed control was applied on May 31 using a carrier volume of 15 GPA. This application included 22 oz/acre Liberty 2SL, 7 oz/acre Assure II, 3 lb/acre AMS, 12 oz/acre Max-In Boron, and 2 qt/100 gallons methylated seed oil.

No-till Fallow (3-year Field 5; 4-year Field 3)

Both fields of no-till fallow were treated the same and were maintained relatively weed free with four herbicide applications. The first herbicide application was at a carrier volume of 8.4 GPA and was applied on May 10. It included 32 oz/acre RT3 and 1.0 qt/100 gallons Full Load Complete. The second application was on June 18 using a carrier volume of 10 GPA and included 32 oz/acre RT3, 12.8 oz/acre Salvo 2, 4-D, 12 lb/100 gallons AMS Premium Blend Max and 3.2 oz/acre Wetcit. The third application was on August 9 at a carrier volume of 8.4 GPA and included 32 oz/acre RT3 and 12 lb/100 gallons AMS Premium Blend Max. The fourth and final application was applied on September 4 at a carrier volume of 10 GPA and included 32 oz/acre RT3 and 1.5 qt/100 gallons Full Load Complete.

Soil Compaction

Soil compaction data were collected with a Spectrum Soil Compaction meter. Data were collected within each plot in the spring of the year prior to seeding. Compaction levels are monitored over time within a given crop rotation, which assists in potential management decisions. Field 4 and 5 were deep-ripped in the fall of 2014 with a low disturbance Case IH Ecolo-til 2500. Field 5 had the least amount of compaction with an average of 171 psi/18 inches, and Field 1 had the greatest average soil compaction with 227 psi/18 inches (Figure 1). For Fields 2, 3, 4, and North, compaction averaged 173, 176, 177, and 198 psi/18 inches, respectively. Maximum compaction levels were typically observed at the six-inch depth.

Wireworm Populations

Wireworm population data were collected within each plot in the spring of the year, prior to seeding, using the modified solar bait trap method. This is done to monitor populations over time and better match seed-applied insecticide with wireworm populations. Field 3 had the least number of wireworms, averaging 0.8/trap. Field North and Field 4 had the greatest population, averaging 2.0 and 3.8/trap, respectively. Fields 1, 2, and 5 averaged 1.2, 1.6, and 1.8/trap, respectively.

Soil Samples

Winter wheat soil samples were collected prior to seeding in the fall from three production zones and are used to help determine yield potential and nutrient requirements for the crops within these zones. Fall soil samples in Tables 1 and 2 are an average of the three production zones. Fields seeded to spring crop are sampled according to three production zones and are used to help determine yield potential and nutrient requirements for the crops within these zones. Spring soil samples in Tables 3–6 are an average of the three production zones. No-till fallow fields are soil sampled from the same five GPS-marked locations at the same time as those fields are being spring cropped (Table 7 and Table 8). Soil samples are also used as a historical reference for changing soil conditions over time. Soil pH, organic matter, phosphorus, and ammonium nitrogen are collected only from the top 12 inches of soil.

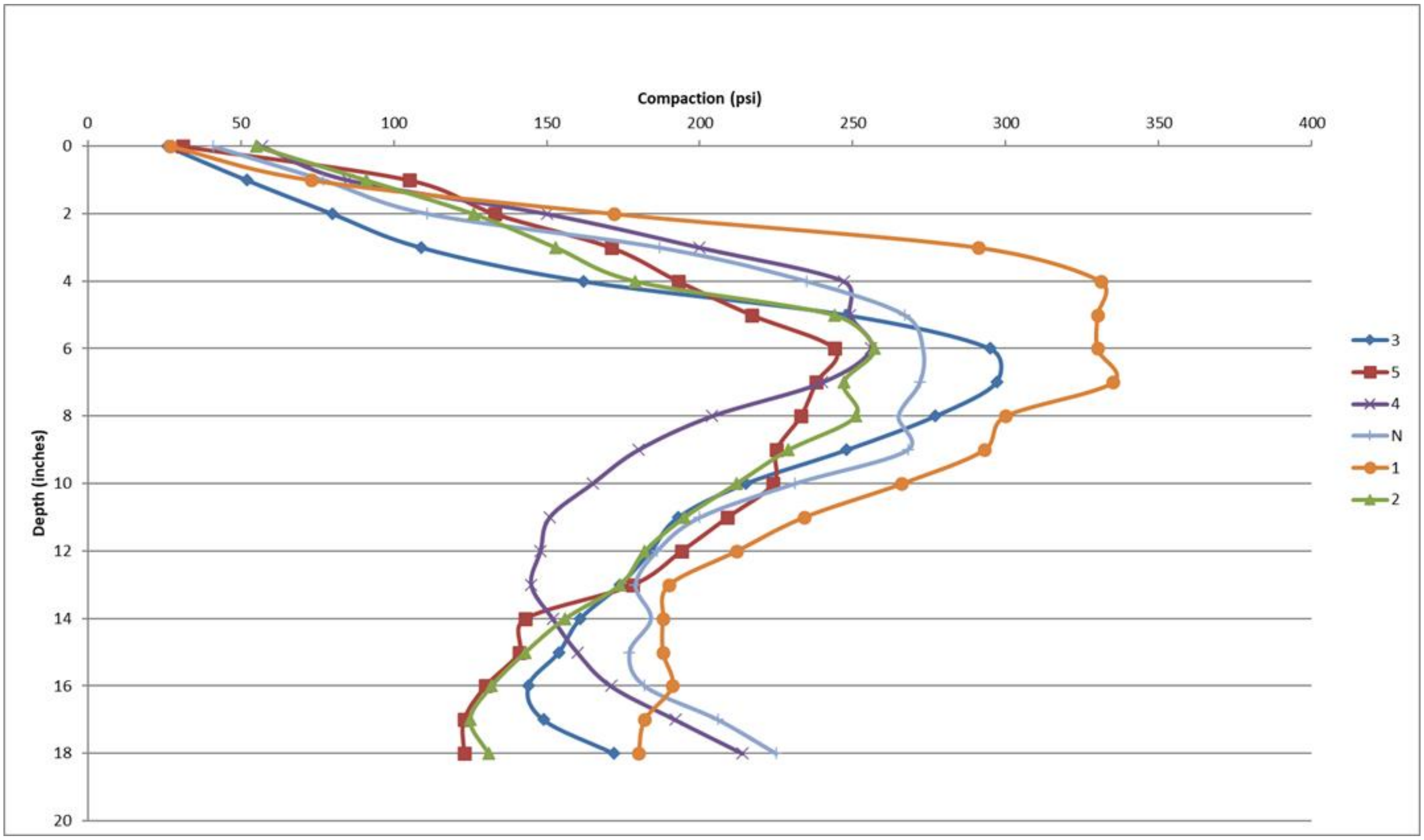

Figure 1. Soil compaction data collected in the spring of the year from plots at the WSU Wilke Research and Extension Farm in 2019.

Table 1. Winter wheat, 3-year, Field 7.

Soil pH	5.8			Phosphorus	15 mg/kg
Organic Matter	1.9% (41 lb/acre N)			Ammonium N	5 lb/acre
	Soil Depth (in)				
	0–12	12–24	24–36	36–48	Total
Nitrate-N (lb/acre)	37	27	14	28	107
Sulfate-S (mg/kg)	10	9	7	--	25
Soil Moisture (in)	1.6	1.9	1.4	1.5	6.5

Sum of Tested N: 152 lb/acre N

Table 2. Winter wheat, 4-year, Field 6.

Soil pH	5.5			Phosphorus	50 mg/kg
Organic Matter	2.0% (41 lb/acre N)			Ammonium N	12 lb/acre
	Soil Depth (in)				
	0–12	12–24	24–36	36–48	Total
Nitrate-N (lb/acre)	71	51	37	53	212
Sulfate-S (mg/kg)	9	10	39	--	57
Soil Moisture (in)	1.6	1.6	1.2	1.4	5.8

Sum of Tested N: 267 lb/acre N

Table 3. Spring wheat, 3-year, Field 2.

Soil pH	6.3			Phosphorus	12 mg/kg
Organic Matter	2.4% (48 lb/acre N)			Ammonium N	12 lb/acre
	Soil Depth (in)				
	0–12	12–24	24–36	36–48	Total
Nitrate-N (lb/acre)	9	10	14	11	45
Sulfate-S (mg/kg)	4	4	6	--	14
Soil Moisture (in)	3.2	2.9	2.2	1.8	10

Sum of Tested N: 99 lb/acre N

Table 4. Spring wheat, 4-year, Field 1.

Soil pH	5.8			Phosphorus	16 mg/kg
Organic Matter	2.3% (45 lb/acre N)			Ammonium N	4 lb/acre
	Soil Depth (in)				
	0–12	12–24	24–36	36–48	Total
Nitrate-N (lb/acre)	14	16	14	11	54
Sulfate-S (mg/kg)	9	2	8	--	13
Soil Moisture (in)	2.8	2.6	1.8	1.5	8.7

Sum of Tested N: 104 lb/acre N

Table 5. Spring wheat, Continuous North.

Soil pH	6.2			Phosphorus	8 mg/kg
Organic Matter	2.0% (40 lb/acre N)			Ammonium N	4 lb/acre
	Soil Depth (in)				
	0–12	12–24	24–36	36–48	Total
Nitrate-N (lb/acre)	10	7	15	7	40
Sulfate-S (mg/kg)	8	8	9	--	25
Soil Moisture (in)	3.0	2.5	2.0	1.4	9.0

Sum of Tested N: 85 lb/acre N

Table 6. Spring canola, 4-year, Field 4.

Soil pH	6.5			Phosphorus	15 mg/kg
Organic Matter	2.0% (41 lb/acre N)			Ammonium N	7 lb/acre
	Soil Depth (in)				
	0–12	12–24	24–36	36–48	Total
Nitrate-N (lb/acre)	5	4	5	9	23
Sulfate-S (mg/kg)	4	3	2	--	9
Soil Moisture (in)	2.9	2.6	2.3	1.9	9.7

Sum of Tested N: 70 lb/acre N

Table 7. No-till fallow, 3-year, Field 5.

Soil pH	6.3			Phosphorus	15 mg/kg
Organic Matter	1.6% (32 lb/acre N)			Ammonium N	6 lb/acre
	Soil Depth (in)				
	0–12	13–24	25–36	37–48	Total
Nitrate-N (lb/acre)	15	9	9	8	41
Sulfate-S (mg/kg)	7	1	10	--	18
Soil Moisture (in)	2.9	2.4	2.2	1.6	10.4

Sum of Tested N: 79 lb/acre N

Table 8. No-till fallow, 4-year, Field 3.

Soil pH	6.6			Phosphorus	22 mg/kg
Organic Matter	1.8% (36 lb/acre N)			Ammonium N	8 lb/acre
	Soil Depth (in)				
	0–12	12–24	24–36	36–48	Total
Nitrate-N (lb/acre)	18	19	10	4	51
Sulfate-S (mg/kg)	5	7	6	--	17
Soil Moisture (in)	2.9	2.6	2.1	1.8	9.3

Sum of Tested N: 95 lb/acre N

Production and Economic Performance

Nitrogen uptake efficiency was at or above 50 percent for SWSW in Field 1 and 2 and SWWW in Field 7 (Table 9). It was below 50 percent for SWSW in Field North and for SWWW in Field 6. For fields at or above 50 percent efficiency, this implies the nitrogen fertilizer program was adequate and an average amount of nitrogen should be available in the soil for next year's production. Fields below 50 percent efficiency imply the crop was overfertilized or fertilizer timing could be adjusted, and above-average fertilizer should be available for next year's production.

The WSU Wilke Farm grain marketing plan, which begins once the crop has emerged, uses forward contracts and postharvest selling. All grain is marketed by November 15. The average marketing window for winter wheat is about 13 months—7 months for spring crops. Forward contract values do not exceed the crop revenue insurance coverage value. The potential for a forward contract is evaluated monthly and is based on a targeted rate of return on investment based on estimated expenses. Market grades for each crop are provided as these also impact final market price.

Average input costs per year at the WSU Wilke Farm were down 2.4% over the 3-year average. This is mostly because no fungicide was applied in 2019 and because of lower seed and fertilizer costs associated with soft white wheat production versus 'Dark Northern Spring' (DNS) wheat in previous years. Economic returns over input costs were up 8.3% over the previous 3-year average and were only $8/acre less than 2018. This is mostly reflective of greater spring crop yields in 2019. Tables 10–15 summarize the rotation, production, and economic performance of the 3-year rotation, 4-year rotation, and continuous cropping system at the Wilke Farm in 2019.

The 3-year crop rotation returns above input costs averaged $141/acre, 22% greater than the 3-year average. Spring wheat yield was compromised by reduced stand because of hair pinning that resulted from using a low disturbance disk drill in heavy winter wheat residue. The 4-year crop rotation returns above input costs averaged $127/acre, 6% less than the previous 3-year average. The continuous cropping system returns above input costs averaged $121/acre, 21% greater than the previous 3-year average. The WSU Wilke Farm is enrolled in the farm program and purchases crop insurance each year. Revenue or costs associated with both the farm program and crop insurance are not included in the plot summaries to maintain consistency over years, and results are based on crop production only.

Table 9. Nitrogen use efficiency, 2019.

	Field 1 (SWSW)	**Field 2** (SWSW)	**Field 6** (SWWW)	**Field 7** (SWWW)	**North** (SWSW)
Soil Test Nitrogen†	92	72	247	132	63
Applied Nitrogen	64	75	73	83	72
Total Nitrogen	156	147	320	215	135
Grain Yield	57	49.6	72	68.1	44.1
Grain Protein	9.8%	10.3%	10.6%	10.6%	9.6%
lb N/bu	2.7	3.0	4.5	3.2	3.1
Nitrogen Use Efficiency	**54%**	**52%**	**36%**	**50%**	**47%**

†Soil test nitrogen is calculated using soil test results in combination with the WSU Dryland Wheat Nitrogen Fertilizer Calculator.

Table 10. Three-year cropping rotation sequence at the Wilke Farm from 2015 to 2020.

Year	**Field 2**	**Field 5**	**Field 7**
2015	Winter Wheat (51.5 bu/acre)	DNS Wheat (24.5 bu/acre)	No-till Fallow
2016	DNS Wheat (49.0 bu/ac)	No-till Fallow	Winter Wheat (84.2 bu/acre)
2017	No-till Fallow	Winter Wheat (93.6 bu/acre)	DNS Wheat (32.8 bu/acre)
2018	Winter Wheat (66.7 bu/acre)	DNS Wheat (34.3 bu/acre)	No-till Fallow
2019	**Spring Wheat (49.6 bu/acre)**	**No-till Fallow**	**Winter Wheat (68.1 bu/acre)**
2020	No-till Fallow	Winter Wheat/Canola	Spring Cereal

Table 11. Three-year crop rotation production at the Wilke Farm, 2019.

	Field 2	**Field 5**	**Field 7**
Cropping Specifics			
Acreage	27.5	25.0	32.4
Crop	‘Ryan’ SWSW	No-till Fallow	‘Jasper-Duet’ SWWW
Crop Production			
Yield	49.6 bu/acre	-	68.1 bu/acre
Mkt Grade	#1 SWH 62.0 0.8% 326 FN	-	#2 SWH 58.7 0.3% 332 FN
Gross Economic Return†			
Mkt Price	$5.18/bu	-	$5.24/bu
Gross Return	$256.92/acre	-	$356.84/acre
Input Costs			
Seed	$24.66/acre	-	$24.65/acre
Fertilizer	$57.99/acre	-	$55.48/acre

	Field 2	Field 5	Field 7
Herbicides	$28.62/acre	$26.09/acre	$10.91/acre
Fungicide	--	--	--
Total	$111.29/acre	$26.09/acre	$91.04/acre
Summary			
Return over Costs	$145.63/acre	-$26.09/acre	$265.80/acre
Three-Year Rotation Return over Input Costs‡		**$141/acre**	

†Revenue does not include crop insurance revenue
‡Costs do not include fixed costs associated with the farm.

Table 12. Four-year cropping rotation sequence at the Wilke Farm from 2015 to 2020.

Year	Field 1	Field 3	Field 4	Field 6
2015	DNS Wheat (23.0 bu/acre)	No-till Fallow	Spring Canola (479 lb/acre)	Winter Wheat (50.1 bu/acre)
2016	No-till Fallow	Winter Wheat (94.5 bu/acre)	DNS Wheat (48.9 lb/acre)	Oriental Mustard (1,325 lb/acre)
2017	Winter Wheat (90.8 bu/acre)	Chickpea (1,066 lb/acre)	No-till Fallow	DNS Wheat (32.1 bu/acre)
2018	Spring Canola (1,020 lb/acre)	DNS Wheat (50.3 bu/acre)	Winter Wheat (77.5 bu/acre)	No-till Fallow
2019	**Spring Wheat (57.1 bu/acre)**	**No-till Fallow**	**Spring Canola (1,278 lb/acre)**	**Winter Wheat (71.9 bu/acre)**
2020	No-till Fallow	Winter Wheat	Spring Cereal	Broadleaf

Table 13. Four-year crop rotation production at the Wilke Farm, 2019.

	Field 1	Field 3	Field 4	Field 6
Cropping Specifics				
Acreage	22.4	26.0	26.2	26.6
Crop	‘Ryan’ SWSW	No-till Fallow	‘L233P’ Spring Canola	‘Jasper-Duet’ SWWW
Crop Production				
Yield	57.1 bu/acre	--	1,278 lb/acre	71.9 bu/acre
Mkt Grade	#1 SWH 62.4 0.6% 312 FN	--	#1 Canola GMO 1.10%	#2 SWH 58.1 0.4% 319 FN
Gross Economic Return†				
Mkt Price	$5.21/lb	--	$0.15/lb	$5.32/bu
Gross Return	$297.71/acre	--	$191.72/acre	$382.65/acre
Input Costs				
Seed	$24.66/acre	--	$62.00/acre	$24.65/acre
Fertilizer	$50.39/acre	--	$47.28/acre	$49.83/acre
Herbicides	$28.62/acre	$27.91/acre	$32.47/acre	$10.91/acre
Fungicide	--	--	--	--
Total	$103.68/acre	$27.91/acre	$141.76/acre	$85.39/acre
Summary				
Return over Costs	$194.03/acre	-$27.91/acre	$49.96/acre	$297.26/acre
Four-Year Rotation Return over Input Costs‡			**$127/acre**	

†Revenue does not include crop insurance revenue.
‡Costs do not include fixed costs associated with the farm.

Table 14. Continuous crop rotation sequence at the Wilke Farm from 2015 to 2020.

Year	Field North
2015	HR Winter Wheat (24.4 bu/acre)
2016	Spring Barley (1.68 ton/acre)
2017	Spring Canola (1,055 lb/acre)
2018	Winter Wheat (52 bu/acre)
2019	**Spring Wheat (44.1 bu/acre)**
2020	Spring Cereal

Table 15. Continuous crop rotation production at the Wilke Farm, 2019.

	Field North
Cropping Specifics	
Acreage	73.4
Crop	'Ryan' SWSW
Crop Production	
Yield	44.1 bu/acre
Mkt Grade	#1 SWH 60.8 0.5% 326 FN
Gross Economic Return†	
Mkt Price	$5.21/bu
Gross Return	$229.61/acre
Input Costs	
Seed	$24.66/acre
Fertilizer	$55.51/acre
Herbicides	$28.62/acre
Fungicide	--
Total	$108.80/acre
Summary	
Continuous Rotation Return over Input Costs‡	**$121/acre**

†Revenue does include any crop insurance revenue.
‡Costs do not include fixed costs associated with the farm.

Summary

Weather played a major role in the overall agronomic and economic production in 2019. Overall, 2019 (Table 16) and 2018 (Table 17) growing seasons were similar. Precipitation in the fall (Sept.–Nov.) of 2019 was similar to 2018 with 3.07 inches compared to 3.82 inches, respectively. However, no precipitation was recorded in September 2019, which limited early winter wheat stand establishment, growth, and development. The winter (Dec.–Feb.) of 2019 was colder than 2018 with only 65 cumulative growing degree days (GDD) compared to 117 GDD in 2018, and precipitation was 13% less in 2019 compared to 2018. The spring (March–May) of 2019 was a little cooler and much drier with 1,359 GDD and only 3.05 inches of precipitation, compared to 1,428 GDD and 4.68 inches in 2018. The summer (June–Aug.) of 2019 was cooler and wetter than the summer of 2018 with 3,086 GDD and 1.22 inches of precipitation, compared to 3,139 GDD and only 0.18 inches of precipitation in 2018.

A summary of WSU Wilke Research and Extension Farm economic returns over input costs using 3-year averages is shown in Figure 2. Over the last three years (2017 to 2019), the 3-year rotation, 4-year rotation, and continuous cropping rotation have averaged returns above input costs of $112, $120, and $113/acre, respectively. Over the last six years, the 3-year rotation and 4-year rotation have averaged returns above input costs of $104 and $110/acre, respectively, and are not significantly different. The continuous cropping system has averaged $73/acre return above cost during this period and is not significantly different than the 3-year rotation and is less than the 4-year rotation.

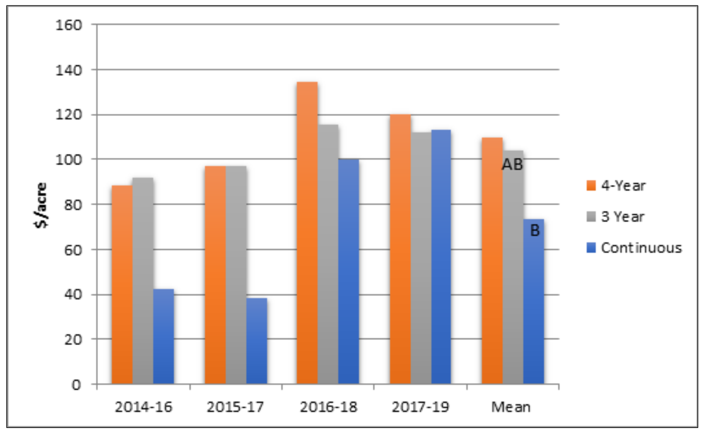

Figure 2. Three-year average economic return over input costs of 3-year, 4-year, and continuous cropping systems at the WSU Wilke Research and Extension Farm. Costs do not include fixed costs associated with the farm. Means within columns assigned different case letters are significantly different (p < 0.10).

Weather Data

The following tables provide weather data for Davenport, WA in 2019 (Table 16) and 2018 (Table 17):

Table 16. Weather data for Davenport, WA in 2019 (crop year summary: Sept. 1, 2018, to Aug. 31, 2019).

	Temperature			Degree	Rain	Rain
Month	High	Low	Mean	Days*	Fall	Days
9	86.7	34.2	56.9	736	0	0
10	66.7	26.7	45.6	440	1.56	9
11	58.9	18.8	24.4	131	1.51	15
12	45.4	11.3	30.0	40	2.16	9
1	42.4	10.7	29.4	24	1.05	9
2	35.8	3.1	20.2	1	0.49	8
3	57.4	2.1	31.7	153	0.53	12
4	65.5	27.2	46.3	425	1.17	8
5	81.3	31.5	57.7	781	1.35	8
6	88.5	32.1	62.0	863	0.25	3
7	94	42.1	67.5	1,069	0.17	2
8	97.3	45.2	69.7	1,154	0.8	2
Total				**5,817**	**11.04**	**85**

*Degree days calculated using 32°F as the base temperature.

Table 17. Weather data for Davenport, WA in 2018 (crop year summary: Sept. 1, 2017, to Aug. 31, 2018).

	Temperature			Degree		Rain
Month	High	Low	Mean	Days*	Rain Fall	Days
9	73.0	46.4	59.8	830	0.44	3
10	55.5	33.3	43.8	385	1.17	7
11	41.7	29.6	35.4	143	2.21	19
12	28.9	20.3	24.6	8	1.34	8
1	35.6	27.6	31.3	41	2.14	17
2	36.9	20.0	28.3	68	0.78	7
3	46.5	28.4	37.0	186	1.70	9
4	55.1	34.5	44.9	384	2.20	12
5	72.5	46.9	60.2	858	0.78	7
6	73.4	45.9	60.8	830	0.14	4
7	86.5	54.6	72.0	1,195	0.00	0
8	82.9	52.9	68.7	1,114	0.04	2
Total				**6,042**	**12.94**	**95**

*Degree days calculated using 32°F as the base temperature.

Special Thanks

Canola
Seed Donation

AGWEATHERNET STATION located at the Wilke Research and Extension Farm.

You can access Wilke weather data at the AgWeatherNet link on the widget that takes you to a map of weather stations throughout the state.

Wilke Farm website

Lincoln-Adams Extension website

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