



UNIVERSITY OF WISCONSIN AGRONOMY, SOYBEAN RESEARCH, UNIVERSITY OF WISCONSIN-EXTENSION

## Intensive Winter Wheat Management - 2019

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The fourth year of a research trial was conducted at the Arlington Agricultural Research Station to assess the impact of various management levels (Table 1) on the yield, grain quality, and disease incidence on 14 soft red winter wheat varieties. Management levels were stair-stepped with increasing intensity of inputs. Each management step increased yield, however growers should verify individual farm gate input prices to see if yield increases had a positive ROI.

Table 1. Management treatments at three levels.

	Management Treatments		
	Current	MidLevel	HighLevel
Base seed treatment	Same variety/treatment at all levels. See Table 2.		
Base herbicide (14-May)	Huskie 15 fl oz/a	Huskie 15 fl oz/a	Huskie 15 fl oz/a
Seeding rate (million seeds/a)	1.50	1.75	2.00
Nitrogen (lbs N/a) (5-Apr + 3-May)	55	55+30 split	110+30 split
Growth regulator @ F6 (16-May)			Palisade 12 fl oz/a
Micronutrients @ F9 (28-May)			Brandt Smart Quatro Plus (N,S,B,Mn,Mo,Zn) 32 fl oz/a EB Mix (N,S,B,Mn,Fe,Zn) 64 fl oz/a
Fungicide @ F9 (28-May)			Trivapro 13.7 fl oz/a
Micronutrients @ F10.5.1 (13-June)			TakeOff Phite MZ 32 fl oz/a
Fungicide @ F10.5.1 (13-June)		Miravis Ace 13.7 fl oz/a	Miravis Ace 13.7 fl oz/a

Table 2. Fungicidal, insecticidal, and biological seed treatments used in this study.

Brand	Variety	Seed treatment
Croplan	CP9606	Resonate, Warden Cereals II
FS Seed	FS624	CruiserMaxx, Vibrance
Kratz Farms	KF 15241	CruiserMaxx
Kratz Farms	KF 15639	CruiserMaxx
PIP	735	Charter, imidacloprid
PIP	776	Charter, imidacloprid
Pioneer	P25R40	LumiGEN
ProSeed Genetics	PRO 260	Charter, imidacloprid
ProSeed Genetics	PRO 410	CeresUS
Syngenta	SY 547	CruiserMaxx, Vibrance
Public	Harpoon	Warden Cereals II
Public	Red Devil	Warden Cereals II
Public	Sunburst	Ipconazole, metalaxyl
Public	Whale	Warden Cereals II

Table 3. Materials and methods.

Year:	2018-2019	
Expt. No.	19084	
Title:	Intensive Wheat Management	
Personnel:	Shawn Conley, John Gaska, Adam Roth, Spyridon Mourtzinis, Brian Mueller, and Damon Smith	
Organization:	University of Wisconsin-Madison, Depts. of Agronomy and Plant Pathology	
Supported by:	Wisconsin Crop Improvement Association	
Location:	Arlington Agricultural Research Station, Arlington, WI	
<b>FIELD INFORMATION</b>		
Field:	248E	
Previous Crop:	Soybean	
Tillage:	No-tillage	
<b>EXPERIMENTAL PROCEDURE</b>		
Exp. Design:	RCB Split plot	
Replicates:	4	
Variables:	3 management levels 14 varieties	
Plot Size:	Planted: 8' x 25'	Harvested: 5' x 21'
Row Spacing:	7.5"	
Cultivars:	14 varieties	
Planting:	Date: 24-Sep-18	Equipment: No till plot planter
	Rate: variable with treatment	Depth: 1"
Harvesting:	Date: 24-Jul-19	Equipment: 2010 Almaco SPC-40 plot combine

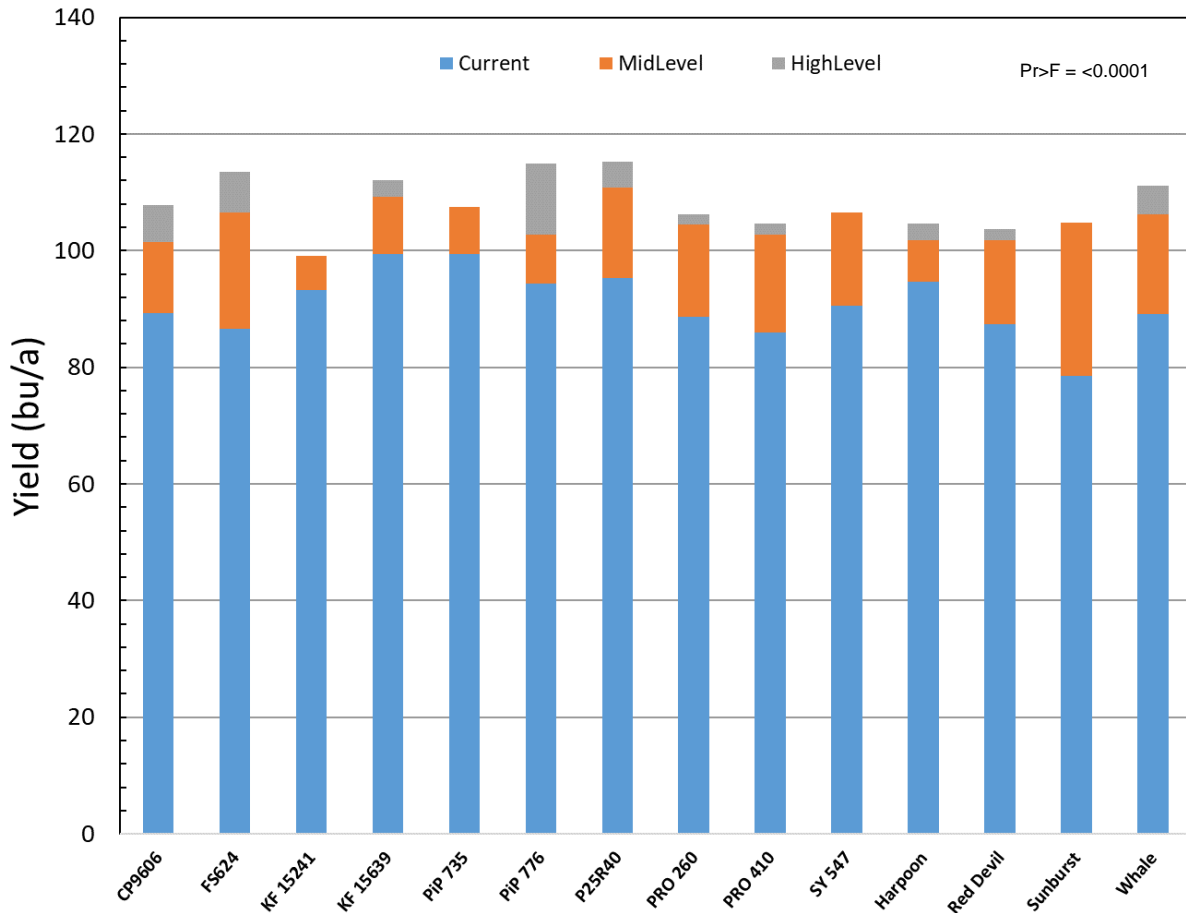


Figure 1. Winter wheat yield among 14 varieties and three management levels.

Table 4. Selected main effects and interactions of management level and variety on yield, plant characteristics, and disease.

Management	Brand	Variety	Grain yield bu/ac	Test weight lbs/bu	Straw yield tons/ac	Fusarium head scab	
						Incidence %	Severity %
	Croplan	CP9606	99.5	53.7		1.3	8.1
	FS Seed	FS624	102.2	54.7		1.5	5.9
	Kratz Farms	KF 15241	96.3	55.9		0.5	2.2
	Kratz Farms	KF 15639	106.9	57.8		1.3	5.6
	PiP	PiP 735	104.6	54.1		0.8	3.0
	PiP	PiP 776	104.0	54.2		0.8	4.4
	Pioneer	P25R40	107.1	55.1		2.0	7.1
	PSG	PRO 260	99.8	54.2		1.5	6.3
	PSG	PRO 410	97.7	53.9		1.5	9.6
	Syngenta	SY 547	101.2	55.8		1.4	3.2
	Public	Harpoon	100.4	54.8		0.4	1.8
	Public	Red Devil	97.6	55.6		1.9	6.3
	Public	Sunburst	94.6	57.0		1.6	4.6
	Public	Whale	102.2	54.5		0.8	5.5
Current			90.9	53.2	1.08	2.8	12.3
MidLevel			104.7	55.8	1.81	0.5	2.3
HighLevel			107.4	56.2	1.71	0.3	1.2
Current	Croplan	CP9606	89.2	51.3		2.5	18.8
Current	FS Seed	FS624	86.6	52.5		3.8	13.8
Current	Kratz Farms	KF 15241	93.2	55.0		1.4	6.5
Current	Kratz Farms	KF 15639	99.4	55.7		2.8	12.5
Current	PiP	PiP 735	99.5	52.5		1.8	7.5
Current	PiP	PiP 776	94.3	52.3		1.4	10.0
Current	Pioneer	P25R40	95.3	53.2		4.3	12.5
Current	PSG	PRO 260	88.6	52.7		4.4	18.8
Current	PSG	PRO 410	85.9	51.5		3.1	23.8
Current	Syngenta	SY 547	90.5	54.2		3.1	7.5
Current	Public	Harpoon	94.7	52.8		0.5	3.8
Current	Public	Red Devil	87.4	54.4		5.0	16.3
Current	Public	Sunburst	78.5	54.9		4.4	10.0
Current	Public	Whale	89.1	52.6		1.4	10.0

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Table 4 continued.

Management	Brand	Variety	Grain yield bu/ac	Test weight lbs/bu	Straw yield tons/ac	Fusarium head scab	
						Incidence %	Severity %
MidLevel	Croplan	CP9606	101.5	54.1		0.8	5.0
MidLevel	FS Seed	FS624	106.6	55.3		0.8	4.0
MidLevel	Kratz Farms	KF 15241	99.1	56.3		0.0	0.0
MidLevel	Kratz Farms	KF 15639	109.3	58.9		0.5	1.5
MidLevel	PiP	PiP 735	107.6	54.5		0.3	1.3
MidLevel	PiP	PiP 776	102.8	54.6		0.5	2.8
MidLevel	Pioneer	P25R40	110.8	55.8		0.5	2.5
MidLevel	PSG	PRO 260	104.5	54.8		0.3	0.3
MidLevel	PSG	PRO 410	102.7	55.2		0.9	2.5
MidLevel	Syngenta	SY 547	106.5	56.3		1.0	2.0
MidLevel	Public	Harpoon	101.7	55.6		0.5	1.5
MidLevel	Public	Red Devil	101.8	56.7		0.5	2.5
MidLevel	Public	Sunburst	104.9	58.1		0.5	3.8
MidLevel	Public	Whale	106.3	55.5		0.5	2.8
HighLevel	Croplan	CP9606	107.9	55.8		0.5	0.5
HighLevel	FS Seed	FS624	113.5	56.4		0.0	0.0
HighLevel	Kratz Farms	KF 15241	96.6	56.5		0.0	0.0
HighLevel	Kratz Farms	KF 15639	112.1	58.9		0.8	2.8
HighLevel	PiP	PiP 735	106.7	55.2		0.3	0.3
HighLevel	PiP	PiP 776	114.9	55.6		0.5	0.5
HighLevel	Pioneer	P25R40	115.3	56.5		1.4	6.3
HighLevel	PSG	PRO 260	106.3	55.1		0.0	0.0
HighLevel	PSG	PRO 410	104.7	55.1		0.5	2.5
HighLevel	Syngenta	SY 547	106.4	57.0		0.0	0.0
HighLevel	Public	Harpoon	104.7	55.9		0.3	0.3
HighLevel	Public	Red Devil	103.6	55.9		0.3	0.3
HighLevel	Public	Sunburst	100.3	58.2		0.0	0.0
HighLevel	Public	Whale	111.1	55.5		0.5	3.8
Means			101.0	55.1	1.53	1.2	5.3
<b>Probability (Pr&gt;F)</b>							
Management			0.0012	<.0001		<.0001	<.0001
Variety			<.0001	<.0001		0.0081	0.0038
Mgt x Variety			<.0001	0.0298		0.006	0.0486

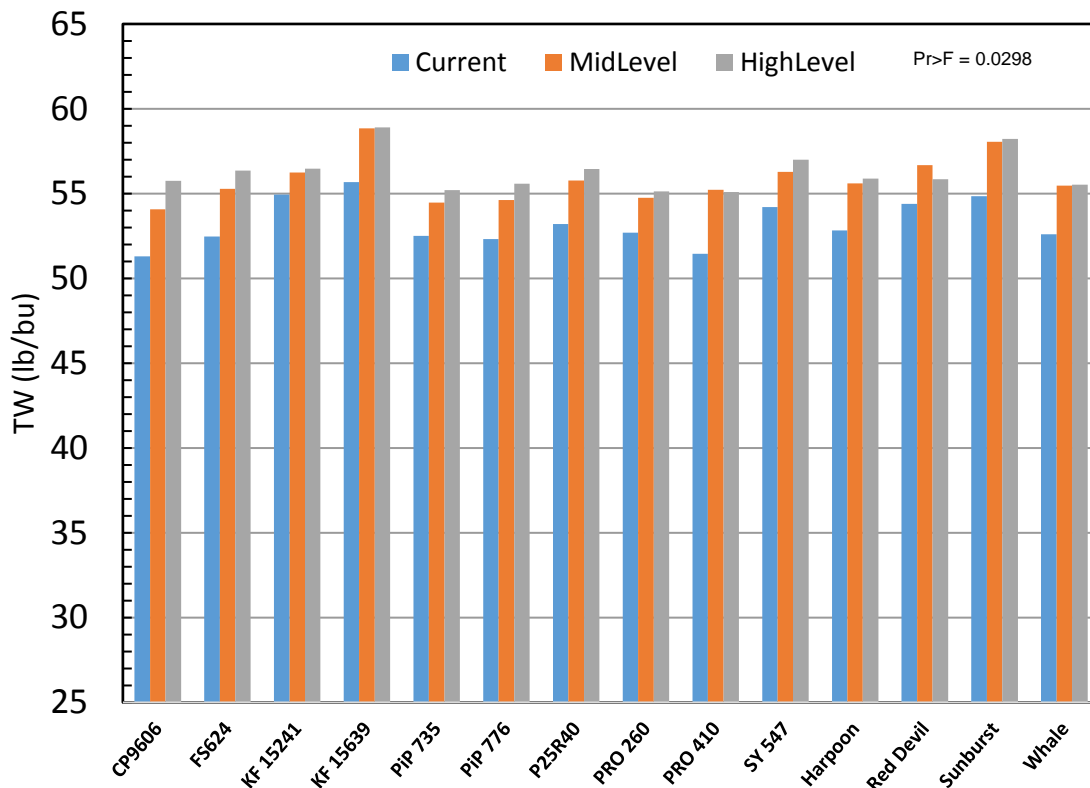


Figure 2. Winter wheat grain test weight among 14 varieties and three management levels.

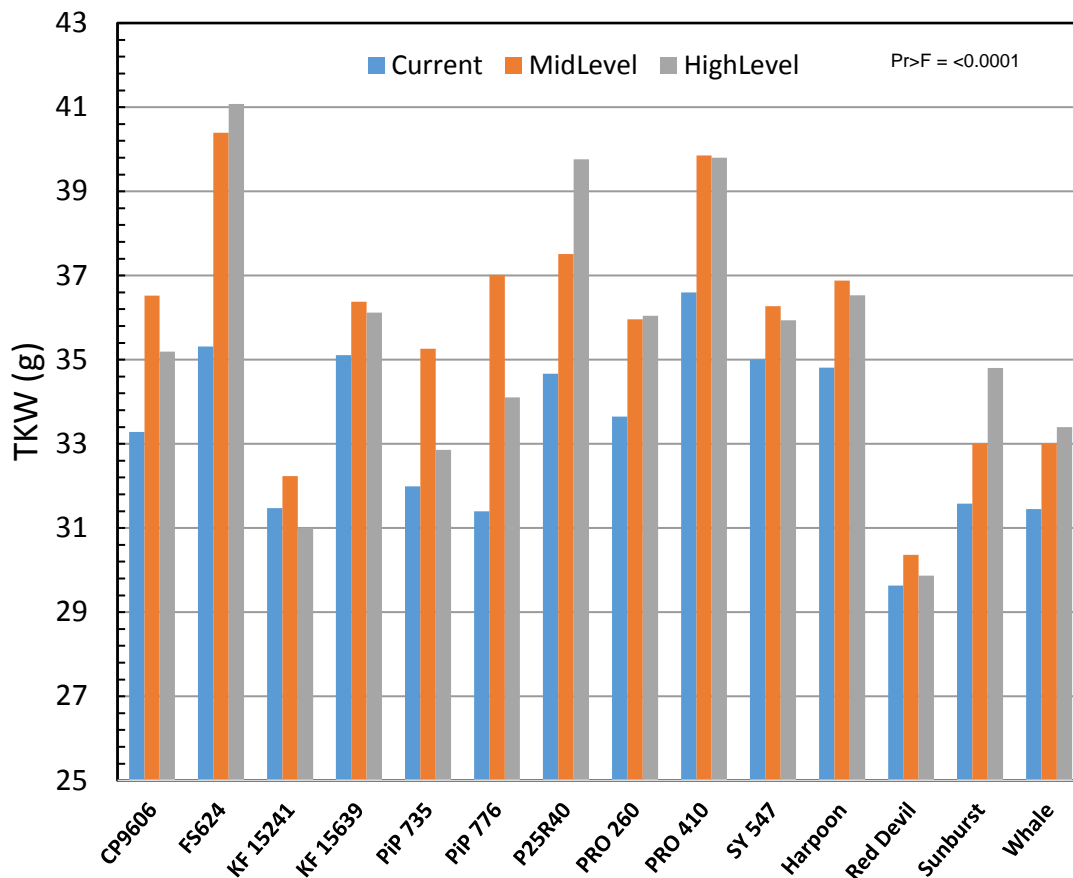


Figure 3. Winter wheat thousand kernel weight (TKW) among 14 varieties and three management levels.