



November 2000



Small Grain News



Small Grain Seasonal Overview

Lee Jackson, Extension Agronomist

The small grain crop for the 2000 season in California included 503,823 planted acres of wheat other than durum, 98,016 acres of durum wheat, 130,000 acres of barley, and 265,000 acres of oat. Of the wheat acreage, 24.5% was in the Sacramento Valley, 55.7% was in the San Joaquin Valley, 2.7% was in the coast region, 13.8% was in southern California (primarily the Imperial Valley), and 3.2% was in Sierra and northern California. A substantial portion of the San Joaquin Valley wheat crop was harvested as forage (green-chop) for dairies. Leading wheat cultivars (nondurum) by acreage were Yecora Rojo (121,000 acres) RSI 5 (84,000 acres), Brooks (76,000 acres), and Express (77,000 acres). Those four cultivars accounted for over 71% of nondurum acreage. Yecora Rojo, Brooks, and RSI 5 predominated in the San Joaquin Valley while Express and RSI 5 predominated in the Sacramento Valley. Kronos was the leading

durum wheat cultivar and accounted for 74% of the durum wheat acreage. Cool spring temperatures were favorable for grain fill, but the cool temperatures along with moisture from spring rains also promoted disease development, particularly of stripe rust. The wheat crop in the Sacramento Valley, the northern San Joaquin Valley, and particularly in the Sacramento/San Joaquin Delta, suffered the most damage from stripe rust. The disease also occurred in commercial fields in the central and southern portions of the San Joaquin Valley, although in lower severity than in the more northern regions. In contrast to stripe rust, leaf rust occurred in low severities in commercial fields until late in the season. It eventually reached severities of up to 100%, however, on very susceptible cultivars at many test sites. Severe Septoria tritici blotch occurred on wheat in one area of the Sacramento Valley. In that region (near the Sacramento River in Sutter and Colusa counties) the disease was moderately severe even on previously resistant cultivars. Many of the formerly effective cultivars have resistance based to *Stb 4*, which has been overcome in several areas of the world. Barley stripe rust was severe on susceptible lines and cultivars in both the Sacramento Valley and the San Joaquin Valley. Resistance of UC 937, the new cultivar for fall sowing in the Central Valley, held up well. Barley yellow dwarf virus (BYDV) occurred in high incidence in the 2000 season. One barley test site in the San Joaquin Valley (Madera) showed excellent contrasting symptoms between highly susceptible and resistant lines.

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New Wheat Variety Descriptions

Lee Jackson

Kern - The newest wheat variety approved for certification and release by the University of California is Kern. Kern is a hard red spring wheat. It is shorter in height than Express or RSI-5. Kern matures earlier than Express. Its straw strength is similar to Express and better than RSI-5. Bushel weights (Table 1) are higher than Express, RSI-5 or Anza. It has intermediate protein content but excellent protein quality and overall good bread making quality. It also has adequate levels of disease resistance to leaf rust, stripe rust and septoria tritici blotch. The major disadvantage of Kern for the Sacramento Valley is the danger of spring frosts at heading time when planted early (October, early November).

Bonus - A new hard red wheat variety from RSI (Resource Seeds, Inc.) Cereal breeding program in Zamora, California. Bonus is an early flowering, early maturing variety that achieves its highest yield potential if planted after November 15. Earlier planting increases the risk of frost damage. Bonus is a good choice for double cropping. Bonus is four to six inches shorter than the predominant wheat varieties now grown in the Sacramento Valley, and has shown good resistance to stripe rust and grain shatter. Its grain has been well received by the California milling industry.

Stander - A new hard red wheat variety from RSI. Stander has good yield potential for the Sacramento Valley and Delta and has bread flour characteristics that are superior to those of the Anza and Yolo type wheats. It averages six inches (6") shorter than RSI-5 and is unique among currently available varieties for its excellent tolerance to lodging. It also has shown good resistance to stripe rust and grain shatter.

2000 Regional Barley and Common and Durum Wheat Performance Tests

L. F. Jackson, R. L. Wenning, S. Wright

Entries in the tests included standard cultivars, new and soon-to-be released cultivars, and advanced

breeding lines from both public and private breeding programs.

Tests were sown at seeding rates of 1.2 million seeds per acre for common and durum wheat tests if irrigation was planned (requiring from 94 to 149 lb/acre for common wheat and from 88 to 176 lb/acre for durum wheat, depending on the entry) and at 1.0 million seeds per acre for rain-fed wheat and all barley tests (requiring from 78 to 124 lb/acre for common wheat and 86 to 113 lb/acre for barley). Randomized complete block designs with four replications were used. Each plot was six drill rows wide (6-inch row spacing) and 25 feet long. Grain was harvested with a Wintersteiger Seedmaster Universal 150 plot combine.

The Kings County site was conducted south of Stratford at Boswell's. The site was planted Dec. 7 on a heavy clay. Fertilizer was applied a 100 lb. 11-52-0 and 100 lbs N as NH₃ preplant, 45# N as urea (water-run) and 35# N as UN 32 (10 gal water-run) topdress. It was irrigated 3 times with 18" total. There was an additional 4.2 inches rain.

The Tulare dry land site was with Si Changala and planted on 11/23/99 on a Ducor loam. It was followed the previous year. It was fertilized with 40# N as UN 32 preplant and 34# N as UN 32 topdress. The site received 9.25 inches of rain.

The following is a summary of the test results conducted in Kings and Tulare County and the overall averages for tests conducted throughout the San Joaquin Valley since 1998 (Tables 1-9). Winter Forage Variety trials from Kings and Stanislaus Counties are presented in Tables 10 and 11. Only commercially available cultivars are reported. If you would like results of the advanced lines call me at (559) 733-6482 or check the following Web site: cetulare.ucdavis.edu or agronomy.ucdavis.edu.

Cultivar	Type ¹	Maturity	Straw Strength	Diseases Susceptibilities ²				
				Septoria Tritici Blotch	Barley Yellow Dwarf	Stripe Rust	Leaf Rust	Powdery Mildew
Anza	HRS	Med Late	Good	MS	MR	R	MS	R
Bonus	HRS	Med Early	Good	MS	MS	R	R	MR
Cavalier	HRS	Med Early	Fair	S	MS	R	S	R
Dirkwin	SWS (forage)	Med Late	Poor	S	MS	R	S	MR
Express	HRS	Medium	Good	MR	S	MR	R	R
Kern	HRS	Med Early	Good	--	--	R	MR	R
Klasic	HRS	Med Early	Fair	S	MS	R	S	R
Longhorn	HRW (forage)	Late	Good	MS	MS	--	MR	MR
RSI 5	HRS	Medium	Good	MR	MS	S	R	MR
Serra	HRS	Medium	Poor	MS	R	R	S	R
Stander	HRS	Medium	Excellent	MR	MS	R	R	MR
Yecora Rojo	HRS	Med Early	Fair	D	MS	R	S	R
Yolo	HRS	Medium	Fair	MS	MS	R	MS	R

¹HRS = hard red spring; HRW = hard red winter; HWS = hard white spring; and SWS = soft white spring
²R = resistant, MR = moderately resistant, MS = moderately susceptible, S = susceptible, and -- = no information
 By Mick Canevari, UCCE San Joaquin County, and Lee Jackson, CE Agronomist, UC Davis

Name	Yield (lbs/acre)	Test Wt (lbs/acre)	Plant Ht (in)	Lodging (Har vest)	Leaf Rust	Stripe Rust
						5/8
ANZA	6920	63.5	40	1.0	1.0	1.0
YECORA ROJO	6380	64.6	34	1.3	3.8	2.8
YOLO	6860	61.0	39	1.0	2.3	2.3
KLASIC	6740	64.2	35	1.0	4.0	1.0
SERRA	6890	63.3	39	2.0	2.8	1.0
EXPRESS	6640	63.3	38	1.0	1.0	1.8
CAVALIER	6740	62.8	34	1.0	4.3	2.0
BROOKS	6550	64.4	36	1.0	1.5	3.5
CUYAMA	7080	61.7	39	1.0	1.8	4.8
RSI 5	6930	63.0	41	1.0	1.0	6.0
BONUS	7060	62.9	34	1.0	1.0	1.3
KERN	6800	65.0	34	1.0	1.0	1.5
STANDER	6760	63.5	34	1.0	1.0	1.0

Table 3. 2000 and 1998-2000 Common Wheat Yield and Protein Summary (Lbs/Acre)

San Joaquin Valley (Madera, Kings, Kern)				
Name	2000 Grain Yield 3 Loc	2000 Protein %	1999 - 2000 6 Loc Yr	1998 - 2000 9 Loc Yr
Anza	5870	12.3	6310	5830
Yecora Rojo	5830	13.8	6000	5520
Yolo	5620	11.3	6330	5810
Klasic	6050	12.5	6410	5710
Serra	6200	12.4	6530	5920
Express	5820	13.7	6040	5830
Cavalier	5880	13.3	6240	5770
Brooks	5750	13.9	6210	5990
Cuyama	6390	12.5	-	-
RS15	6850	11.4	6610	6350
Bonus	6100	13.5	6460	5990
Kern	6560	13.5	6450	5850
Stander	5930	12.9	6290	5820

Table 4. 2000 Tulare Rainfed Common Wheat Test

Name	Yield (lbs/acre)	Test Wt. (lbs/bu)	Plant Ht (in)	BYDV
ANZA	3950	61.4	32	1.3
YECORA ROJO	4580	61.2	28	3.3
YOLO	3980	60.3	32	1.0
KLASIC	4210	61.2	25	2.3
SERRA	4010	61.3	32	1.0
EXPRESS	4140	61.3	32	1.0
CAVALIER	4530	61.4	25	1.5
BROOKS	4380	61.8	26	1.8
RSI5	4050	60.4	34	1.0
BONUS	4230	60.3	25	1.5
KERN	4430	61.4	25	1.0
STANDER	4030	59.4	26	1.3

Table 5. 2000 Kings Durum Wheat Test							
Name	Yield (lbs/acre)	Test Wt (lbs/bu)	Black Point	Plant Ht (in)	Lodging (Harvest)	Stripe Rust	Powdery Mildew
Yecora Rojo (hrs)	6280	64.3	1.0	36	1.3	2.8	1.0
Westbred 881	5630	62.1	1.0	38	2.3	3.8	1.0
Duraking	6630	63.5	1.0	35	1.0	2.0	1.0
Cortez	6680	61.5	1.0	39	2.3	1.0	1.0
Kofa	5400	62.0	1.5	36	4.0	1.8	1.0
Kronos	6400	61.3	1.0	36	6.3	1.5	1.3
Ocotillo	5760	63.3	1.0	39	3.3	4.5	1.3
Ria	6480	61.5	1.0	38	3.0	1.0	1.0
Mohowk	6570	61.5	1.0	37	5.3	1.0	1.5
Tacna	6190	63.4	1.5	37	4.0	1.3	1.0
Deluxe	6830	62.9	1.0	38	2.0	2.0	1.3
Crown	6350	59.9	1.0	38	2.8	1.0	1.3
Matt	6130	62.4	1.0	35	7.0	1.0	1.0
Platinum	7220	62.0	1.0	34	3.3	1.0	2.3
Topper	6110	62.7	1.0	41	2.3	1.8	1.3
Trump	5870	61.7	1.0	40	5.3	2.0	1.0
Sky	5970	61.2	1.0	34	4.8	1.0	1.3
Rating for diseases (area of flag - 1% affected at soft dough lodging) 1 = 0.3%, 2 = 4 - 14%, 3 = 15 - 29%, 4 = 30 - 49%, 5 = 50 - 69%, 6 = 70 - 84%, 7 = 85 - 95%, 8 = 96 - 100%							

Table 6. 2000 and 1998-2000 Durum Wheat Yield Summary (Lb/Acre)			
Name	San Joaquin Valley (Kern, Kings, Madera)		
	2000 3 Loc	1999-2000 6 Loc-Yr	1998-2000 9 Loc-Yr
Yecora Rojo (hrs)	5780	5940	5400
Westbred 881	5560	5350	4660
Duraking	6690	6640	5720
Cortez	6260	6410	5860
Kofa	5640	5630	5000
Kronos	6440	6510	5750
Ocotillo	5660	-	-
Ria	6050	6540	5790
Mohawk	6350	6490	5830
Tacna	6100	5950	5370
Deluxe	6750	6660	5710
Crown	6300	6460	5920
Matt	6190	6090	5570
Platinum	7090	6880	-
Topper	6040	6540	-
Trump	5840	6240	-
Sky	6020	-	-

Table 7. 2000 Kings Barley Test									
Name	Yield (lbs/acre)	Test Wt (lbs/bu)	Plant Ht (in)	Lodging (Harvest)	BYDV	Net Blotch	Leaf Rust	Stripe Rust	Powdery Mildew
Arivat	3180	44.9	39	7.8	1.3	1.8	1.0	3.8	1.0
UC 476	4200	47.3	37	2.0	1.0	1.0	1.0	2.8	1.0
UC 603	4690	49.0	38	1.3	1.0	1.8	1.0	1.0	1.0
Patti	3870	44.6	37	1.0	1.0	1.0	4.8	2.0	1.5
UCD 92-10585	4820	47.9	37	3.5	1.0	1.0	1.0	1.0	1.0
UC 937	5150	48.5	36	4.8	1.0	1.0	1.0	1.0	1.0
Nebula	4210	48.8	38	2.8	1.0	1.0	1.0	5.3	1.0
Meltan	4270	47.8	37	2.8	2.0	1.0	1.0	1.5	1.0

Name	Yield (lbs/acre)	Test Wt (lbs/bu)	Plant Ht (in)	BYDV
Arivat	4780	48.0	35	2.5
UC 476	4360	49.6	26	1.3
UC 603	4970	49.9	28	1.5
Patti	4550	48.1	22	2.0
UC 933	5290	49.4	30	1.0
UC 937	4630	49.1	29	1.0
Nebula	4340	50.4	27	1.0
Meltan	4820	54.1	28	1.5

Name	San Joaquin Valley (Kern, Kings, Madera)			Rainfed Sites (Tulare, San Luis Obispo)		
	2000 2 Loc	1999-2000 4 Loc Yr	1998 - 2000 6 Loc Yr	2000 2 Loc	1999-2000 4 Loc Yr	1998-2000 7 Loc Yr
Arivat	3250	4320	3700	4290	3870	3330
UC 476	4890	5730	4930	4110	3740	2950
UC 603	4810	5160	4570	4440	3620	2860
Patti	3840	5270	4750	4110	3620	2780
UC 933	4680	5710	5340	4930	4360	3670
UC 937	5130	6330	5490	4600	3890	3350
Nebula	3610	5300	4850	4040	3690	3080
Meltan	3480	-	-	4600	-	-

Cultivar	Cereal Type	Tons/acre as harvested	% DM at harvest	Tons/acre at 30% DM	Plant ht (in)	% CP	% ADF	% NDF
Trical 105	triticale	21.5	34.7	24.9	49	10.1	35.0	52.6
Cuyama	wheat	19.2	36.9	23.5	40	9.5	37.2	54.1
Brooks	wheat	18.9	36.7	23.0	38	10.8	34.2	49.8
Yecora Rojo	wheat	18.7	36.5	22.7	37	10.4	32.4	47.6
RSI 5	wheat	20.2	33.2	22.5	43	10.0	35.0	51.2

**Table 11. 1999 Stanislaus Cereal Forage Test. Yield: Tons/acre at 70% moisture.
Marsha Campbell-Mathews, UCCE Stanislaus County**

Entry	Type	Harvest Date	Growth Stage @ Harvest	Lodging %	Plant Ht (in)	Yield (Tons/Ac)
Cultivars						
Palenup	Oat	21 Apr	1/4 - 1/2 in kernels	5	49	18.84
Bates 89	Oat	28 Apr	Early heading	61	44	18.24
Swan	Oat	21 Apr	Just past flower, 1/4 in kernels	-	52	18.15
Dirwin	Wheat	23 Apr	Just breaking boot	0	38	17.90
Kanota	Oat	21 Apr	Flower	53	46	17.77
Trical 2700	Triticale	23 Apr	Late boot	80	48	17.71
Sierra	Oat	21Apr	Flower to 1/4 in kernels	33	50	17.56
Ensiler	Oat	26 Apr	Very early head - a few florets	61	44	17.54
Mortlock	Oat	21 Apr	1/4 to 1/2 in kernels	37	44	17.48
Montezuma	Oat	21 Apr	Past flower	37	45	17.42
Ogle	Oat	26 Apr	1/2 headed	32	49	17.20
Pert	Oat	28 Apr	Early head to flower	30	42	16.25
Cayuse	Oat	28 Apr	Late boot	55	42	14.74
Jud	Oat	28 Apr	Boot 1/2 flag to very early head	50	47	14.25
Longhorn	Wheat	23 Apr	Very early head	38	41	13.46
Gene	Wheat	26 Apr	Very early head to headed	9	32	12.50