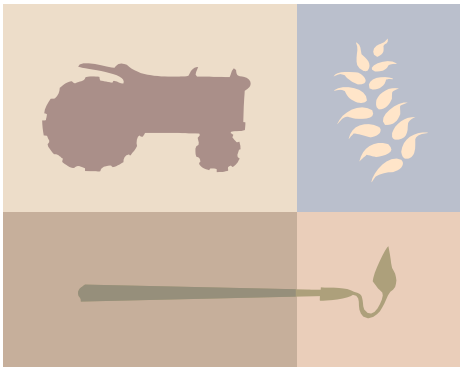
2001
Yolo / Solano / Sacramento Wheat & Barley Production

TRIAL RESULTS FOR WHEAT AND BARLEY



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ACKNOWLEDGMENT

We wish to thank all of the grower-cooperators for their excellent assistance in conducting the trials.

We also wish to thank the industry people who furnished supplies and equipment.

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INTRODUCTION

Kent L. Brittan and Lee Jackson[1]

This year's wheat crop yield was more varied than usual. The 2000 fall season started out with good planting conditions and timely, if light, rains. However, on April 3rd and again April 5th the morning temperature dropped below 32°F. These two frosts occurred just when the earlier plantings were starting to bloom causing pollen sterility in the unprotected anthers. "Blank" unpollenated heads that look good at first until you feel them can fill the field. Fortunately for most of the area's wheat growers, the frost occurred on two nights that were separated by 5 warmer nights, which tended to spread out the damage (see Spring Frost Dates for Yolo County table below). Those areas that missed being frosted tended to have slightly higher than average yields. Fungal diseases were generally light with some strip rust showing up lightly on Express in northern Yolo County. Therefore, the disease results shown in this year's publication should not be considered the best indications of potential resistance.

Below are lists describing the historical acreages of wheat and barley production for the region's three counties.

Yolo County Acreage's[2]

YEAR	WHEAT	BARLEY
2000	49,552	--
1999	37,657	--
1998	41,677	--
1997	54,836	--
1996	54,172	--
1995	42,857	739
1994	59,031	1,280
1993	53,676	1,931
1992	69,277	5,948
1991	59,681	4,540
1990	70,247	4,100
1989	80,800	4,100
1988	51,254	6,000
1987	55,294	7,000
1986	69,600	7,500
1985	74,300	12,350
1984	68,000	9,500
1983	59,000	4,700
1982	82,000	17,768
1981	114,000	14,000
1980	104,600	28,500

Solano County Acreage's

YEAR	WHEAT	BARLEY
2000	37,184	3,354
1999	37,005	5,778
1998	41,660	8,969
1997	48,765	15,356
1996	69,107	19,524
1995	46,790	16,500
1994	56,321	17,800
1993	55,760	20,000
1992	50,623	18,785
1991	38,394	15,272

Sacramento County Acreage's

YEAR	WHEAT	BARLEY
2000	15,018	303
1999	7,500	700
1998	3,519	623
1997	13,710	3,030
1996	22,200	1,250
1995	15,000	1,000
1994	22,000	1,300
1993	18,000	1,500
1992	23,000	1,000
1991	17,500	1,700
1990	26,000	900

1 Farm Advisor, Yolo, Solano & Sacramento Counties; and Extension Agronomist, UCD.

2 Acreage data from respective County Agricultural Commissioner's Crop & Livestock Report

Yolo County's average rainfall is 17.3 inches.

2000-2001 Rainfall Distribution[1]

July	0.00
August	0.00
September	0.12
October	2.09
November	0.69
December	0.36
January	2.70
February	4.82
March	2.27
April	1.04
May	0.01
June	0.35

Total	14.45

Spring Frost Dates for Yolo County

Date 2001	Minimum Air Temperature[1]
March 1	32°F
April 3	31°F
April 8	31°F

1. Weather data from CIMIS weather station on the UC Davis campus.

Weather data can be viewed at the UC IPM's web site: http://ucipm.ucdavis.edu/

As in year's past when Tom Kearney put together this publication, I have decided to continue this in a similar manner. As you read through this year you will notice that it is not as thick usual. I did not include the UC IPM Pest Management Guidelines for Small Grains this year. I will only include them in this publication when there has been an update. I have provided information on where to obtain a copy if you need it. This year I have provided more of Lee Jackson's statewide results, thinking you would like to see into the future a bit more.

On the following page is an overall summary of the five wheat variety trials conducted in Yolo, Solano and Sacramento Counties (Table 1). Usually only one site is rainfed (non-irrigated) and that was to be Squires/Rominger's, but this year there was enough soil moisture that Gill only started to irrigate the block that his trial was in and then stopped. As you can see by the good yields at Gill's it did not need additional water.

Table 1. Summary of 2000 – 2001 Wheat Variety Trials Located in Yolo, Solano and Sacramento Counties. Trials conducted by Kent L. Brittan and Tom Kearney, UCCE Cooperative Extension.

SUMMARY 2000 -2001 WHEAT VARIETY TRIALS

Yields Lbs/Acre

Variety	Best	Gill*	Squires* Rominger	Hunn & Merwin & Merwin	Mello	Average
Bonus	6797	7277	5674	4785	6102	6127
Summit	6661	6732	5870	4389	6336	5998
Brim	6761	6782	5739	3828	5778	5777
TriTicale 105	6625	6653	5489	3927	5652	5669
Dariel	6298	6633	5205	3828	6084	5610
Kama	6833	6128	5009	3993	6066	5606
UC1113	6824	6485	5227	4290	5202	5606
UC1037	6271	6277	5848	4125	5400	5584
Kern	5853	5900	5772	4356	6030	5582
Yolo	6570	6584	4683	3861	5994	5538
Stander	6008	5653	5532	4620	5724	5507
Anza	6035	6445	4955	3630	6138	5441
Winanza	5899	6415	5107	3498	5580	5300
Express	5835	6168	4988	3729	5130	5170
Serra				3630	5076	4353
Average	6376	6438	5364	4033	5753	
C.V.%	4.5	7.3	5.8	11.9	6.6	
L.S.D @5%	414.2	668.1	443.9	687.0	542.5	

*Squires/Rominger test was a non-irrigated as was most of Gill's.

These trials are located around three counties to give an indication as to how new and standard varieties will perform under varied conditions. The Gill and Best locations are on the best inorganic soils and are usually a good indication of a variety's high yield potential. Hunn and Merwin and Merwin provide a location that is a true test of the varieties in difficult soil conditions. Usually there is one non-irrigated site for those growers in dryland areas. And Mellow provides information about the varieties grown on organic soils in the Delta.

Barley was a major cereal grain produced throughout the Central Valley of California until barley stripe rust became a major disease in the region. There are now resistant varieties to the disease, but barley has not returned as a major crop. Economics is the major reason barley is not being planted. However, in the hope that there is some interest, yields of the newest barley varieties are summarized in Table 2.

Table 2. 1999-2001 UC REGIONAL BARLEY YIELD SUMMARY (LB/ACRE) – Lee Jackson, UCD Agronomist

Over years yields (lb/acre) of commercial varieties at sites of the fall-sown 1999-2001 UC regional barley test. Yield rank compared with other varieties at each site is given in parentheses. The test also included advanced breeding lines (yields not shown).

		Sacramento Valley						San Joaquin Valley						Rainfed Sites					
Entry	Name	2001 2-loc		2000-01 4-loc/yr		1999-01 6-loc/yr		2001 2-loc		2000-01 4-loc/yr		1999-01 6-loc/yr		2001 2-loc		2000-01 4-loc/yr		1999-01 6-loc/yr	
CULTIVARS																			
1	ARIVAT	3630	(22)	4110	(16)	4020	(10)	3560	(23)	3410	(16)	4070	(10)	1250	(18)	2770	(13)	3000	(6)
476	UC 476	4650	(13)	4730	(14)	5110	(8)	5650	(12)	5270	(09)	5700	(5)	1320	(17)	2710	(14)	2930	(8)
603	UC 603	4300	(18)	4350	(15)	5060	(9)	4730	(18)	4770	(12)	5020	(9)	1200	(19)	2820	(11)	2810	(9)
816	MAX	3190	(23)	-		-		3790	(22)	-		-		840	(22)			-	
885	PATTI	4720	(11)	4980	(12)	5660	(7)	6300	(05)	5070	(10)	5620	(7)	1130	(20)	2620	(15)	2790	(10)
933	UC 933	5450	(04)	5790	(04)	6800	(1)	6470	(04)	5580	(06)	5970	(3)	1970	(05)	3450	(02)	3560	(2)
937	UC 937	5410	(06)	5740	(06)	6550	(2)	6010	(09)	5570	(07)	6220	(2)	1420	(15)	3010	(09)	3070	(5)
941	NEBULA	5410	(05)	5690	(07)	6020	(4)	6490	(03)	5050	(11)	5700	(6)	1510	(14)	2780	(12)	2960	(7)
951	MELTAN	4690	(12)	4750	(13)	-		4670	(19)	4070	(15)	-		1960	(06)	3280	(04)	-	
969	UC 969	4510	(15)	5110	(09)	5740	(6)	5670	(11)	5290	(08)	5900	(4)	1580	(12)	3190	(05)	3210	(4)
ADVANCED LINES																			
1023	APB A-5	3770	(21)	5010	(11)	5960	(5)	4090	(21)	4520	(13)	5220	(8)	1770	(08)	3300	(03)	3370	(3)
1032	UCD 97-4286	5170	(08)	5670	(08)	6460	(3)	6120	(07)	5660	(02)	6380	(1)	2060	(03)	3640	(01)	3770	(1)
1046	UCD PYT99 A-19	5200	(07)	5750	(05)	-		6030	(08)	5650	(03)	-		1580	(13)	3060	(08)	-	
1047	UCD PYT99 A-13	5940	(01)	6240	(01)	-		6800	(01)	5980	(01)	-		1680	(11)	3150	(06)	-	
1048	UCD PYT99 A-25	5450	(03)	5790	(03)	-		6180	(06)	5630	(05)	-		1740	(09)	2880	(10)	-	
1050	UCD PYT99 C-3	5450	(02)	6040	(02)	-		6710	(02)	5630	(04)	-		1830	(07)	3070	(07)	-	
1052	WWW BA8017	4450	(16)	5020	(10)	-		5110	(16)	4070	(14)	-		960	(21)	2340	(16)	-	
1063	UC 1032R	5160	(09)	-		-		5900	(10)	-		-		-				-	
1064	YU 597-390	4330	(17)	-		-		5060	(17)	-		-		2090	(02)			-	
1065	YU 597-399	4820	(10)	-		-		5420	(14)	-		-		2040	(04)			-	
1066	APB A-5 EARLY	4030	(20)	-		-		4590	(20)	-		-		1710	(10)			-	
1067	APB C-26	4220	(19)	-		-		5340	(15)	-		-		2290	(01)			-	
1068	APB C-15	4540	(14)	-		-		5650	(13)	-		-		1410	(16)			-	
	MEAN	4720		5300		5740		5490		5080		5580		1610		3000		3150	
	CV	10.1		10.5		10.1		10.5		12.3		12.2		29.1		14		16.3	
	LSD (.05)	470		390		330		570		430		390		460		290		290	

Numbers in parentheses indicate relative rank in column.

VARIETIES

The following public varieties are recommended for Yolo County. Other varieties may be as well suited for a given situation, but are not included due to lack of information or poor performance. Privately developed varieties of both wheat and barley are also available. Contact specific companies for information and recommendations. It is recommended that growers plant several varieties in order to reduce the risks of failer due to one varieties problems that might occur in a specific year.

WHEAT

KERN

The newest wheat variety approved for certification and release by the University of California has been named Kern. Kern is a hard red spring wheat.

Height – Shorter than Express or RSI-5.
Maturity – Earlier than Express.
Straw Strength – Similar to Express, better than RSI-5
Shattering – More resistant than Express or RSI-5.
Bushel Weight – Higher than Express, RSI-5 or Anza.
Quality – Has intermediate grain protein content but excellent grain protein quality and overall good bread making quality.
Diseases – Adequate levels of 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 with early plantings such as occurred in 1999 and 2001.

YOLO

Yolo has mostly been replaced by the private varieties Express and Bonus. Our trial data shows that Yolo will either equal Anza or out-yield it in a majority of situations. This variety was released in 1981 and we have had it in strip trials for the past 20 years. Yolo is an Anza cross with about the same quality and protein as Anza. It is similar in height and maturity to Anza being about one inch taller and one day earlier in maturity. The seed is very similar to Anza in appearance. When grown next to Anza it is easily distinguished from Anza. We have found that Yolo does have three disadvantages from Anza. 1) It tends to lodge more; 2) it tends to shatter slightly more and 3) it is less tolerant of wet soil conditions. The high consistent yields of Yolo are due to the following characteristics.

1) Its medium-late heading habit tends to help it escape frost injury at heading time in the spring. This was very evident in 1999.

2) Its overall disease resistance is good. It has good resistance to stripe rust and shows some tolerance to yellow dwarf, leaf rust and septoria leaf blotch.

3) Yolo shows the tight glume characteristic of Anza which is important for shatter resistance. Yolo did shatter more than Anza in one of the four strip tests in 1984 and all of the 1998 strip tests where significant shattering occurred.

4) Yolo has good resistance to lodging, but slightly less than Anza.

ANZA

This variety is mostly grown in areas subject to wet soil conditions and shattering winds. A considerable acreage of this variety will continue to be grown because of its long history of very dependable production. Its characteristics are very similar to Yolo. Anza has a poorer bread quality than Yolo.

SERRA

This is a high quality variety for the Sacramento Valley. Its main problem is lodging. It has consistently performed very well in dryland situations where lodging is not a problem. We made a considerable improvement in Serra's performance by treating it with Cerone, which is an anti-lodging chemical. Another method to help reduce lodging in Serra would be to plant after December 15, since plant height and planting date are correlated, the later a variety is planted the shorter in height it develops. Combination plantings with the variety Yolo lodge less than pure stands of Serra.

Serra is a hard red spring wheat developed by the California Agricultural Experiment Station. Serra is a pureline selection from the cross Yecora Rojo "S"/Mexifen.

Serra has a spring growth habit and is medium short-statured with fair to poor lodging resistance (several inches taller than Anza, with more lodging) and medium-late maturity (heading date is about 1 day earlier than for Anza). Kernels are red, hard, midlong and ovate. The crease is shallow and midwide. Cheeks are rounded. Brushes are medium. Collars are lacking.

Serra is resistant to Barley yellow dwarf virus, stripe rust, and powdery mildew, and susceptible to leaf rust and Septoria tritici leaf blotch. It has excellent bread wheat quality characteristics and very good yield potential, particularly in the Sacramento and northern San Joaquin Valley areas. It is adapted for fall planting in those areas and in other areas of California where Anza and Yolo are now grown. Serra is mostly grown dryland. Livestock eat the straw of Serra better than other wheat varieties.

PRIVATE WHEAT VARIETIES

EXPRESS

Express replaced Yolo as the leading variety planted in the Sacramento Valley in 1994 and was the leading variety in 2001. Express is a hard red spring wheat developed by Western Plant Breeders breeding program headed by Kim Shantz, tested as DA 984-034, and named in 1991. Express is a midseason maturing (heads about 4 days later than Yecora Rojo, 3-4 days earlier than Yolo) cultivar, a semidwarf with medium height (2-4 inches taller than Yecora Rojo, similar in height to Yolo), with good lodging resistance. Express shatters more than Yolo, Anza or Serra. Express showed some susceptibility to stripe rust in 1999, 2000 and 2001. Express showed variable infections from Septoria Tritici blotch in 1998. It has good resistance to leaf rust and is moderately susceptible to barley yellow dwarf virus. Express has good milling and baking quality, and grain protein content similar to Yecora Rojo. Among entries present in the UC regional wheat evaluation tests in the 3-year period 1989-91, Express ranked 6th of 15 entries in yield in the Sacramento Valley (98% of Yolo, 102% of Yecora Rojo), 7th of 15 in the San Joaquin Valley (97% of Yolo, 100% of Yecora Rojo), 6th of 15 in rainfed tests (120% of Yolo, 93% of Yecora Rojo), and 15th of 15 in the Imperial Valley (78% of Yolo, 73% of Yecora Rojo).

SUMMIT

RSI (Resource Seeds, Inc.) recently released Summit, a high yielding, hard red wheat variety that is targeted for the Sacramento Valley. This is the first year Summit is available for commercial production.

In U.C. regional tests (entry # 1155) in the Sacramento Valley from 1998-2001 (18 locations/year) Summit has been one of the highest yielding varieties, averaging over 900#/acre, greater grain yield than the wheat variety Express. The good agronomics of this variety such as lodging and disease tolerance plus good test weight are instrumental in making this a variety with good yield stability, over years.

Maturity: Heads 1-2 days earlier than Express and 4-5 days earlier than Yolo and Anza.

Disease reaction: Resistant to leaf rust. For the period of 1998-2001 has showed only a slight amount of susceptibility to stripe rust. Low susceptibility to Septoria Tritici blotch. Lightly susceptible to Barley Yellow Dwarf Virus.

Lodging and Shattering: Low susceptibility.

Quality: Better than Anza, RSI5 and Yolo.

The following Table 3 was generated to better compare Summit to some of the more popular varieties grown in Sacramento Valley. Extracted from: 1998-2001 Regional Barley and Common and Durum Wheat Performance Tests In California by Lee Jackson, UC Davis Extension Agronomist.

Table 3. Over Years Comparison of Three Standard Hard Red Winter Wheat Varieties to the New RSI Summit Variety

Year	Variety	Sacramento Valley Yield (lb/acre)	Stripe Rust	Leaf Rust	Septoria	Statewide Barley Yellow Dwarf Virus	Averages Lodging (Harvest)	Shatter	Grain Protein (12% Moisture)	Bread Texture	Bread Score
1998	Summit	4920	1.2	1.0	1.9		2.7	1.6	12.6	S	3
	Anza	3620	1.0	1.0	3.2		4.1	1.9	11.6	S	2
	Express	4270	2.8	1.0	2.2		4.2	2.1	13.1	S	4
	RSI 5	4630	1.8	1.0	1.8		4.3	2.2	11.1	U	1
1999	Summit	8150	1.6	1.1	1.3	1.2	1.0	1.3	12.0	S	4
	Anza	7460	1.1	1.3	1.9	1.2	1.0	1.9	11.2	U	1
	Express	6960	1.4	1.1	1.2	1.3	1.6	1.6	13.2	S	4
	RSI 5	7450	3.0	1.1	1.5	1.1	1.5	1.8	11.1	U	1
2000	Summit	6170	1.4	1.1	1.4	1.3	2.2		12.3	S	4
	Anza	5340	1.1	1.3	1.4	1.5	4.3		11.5	U	1
	Express	5240	1.8	1.0	1.3	1.8	4.7		13.1	S	5
	RSI 5	5590	5.6	1.1	1.8	1.3	3.6		10.9	S-Q	2
2001	Summit	6100	1.4	1.1	1.0	1.0	2.0	1.0			
	Anza	5490	1.0	1.6	1.0	2.0	5.8	1.0			
	Express	5210	1.7	1.3	1.0	1.8	3.0	1.0			
	RSI 5	4570	6.8	1.0	1.0	1.0	2.8	1.5			

Rating scale for diseases (area of flag-1 leaf affected at soft dough stage) and 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%.
BYDV ratings (see scale above) were based on percentage of plants showing foliar symptoms.

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 (4" to 6") 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 (Resource Seeds, Inc.) cereal breeding program in Zamora, California. Stander has good yield potential for the Sacramento Valley and Delta, and has bread flour characteristics that are superior to those of the Anza/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. Expect significant increase in acreage this year.

BARLEY

UC 937

For fall-sown spring barley (Central Valley, south central intercoastal valleys, and southern California): UC 937 is a semidwarf, 6-row spring feed type mid-season barley with resistance to current races of stripe rust existing in the Central Valley. It has been yield tested for three years in regional tests. A 3-location "mini-strip test" also was conducted in '97. In the mini strip tests at UC Davis and at Corcoran (Kings County), where stripe rust pressure was high, UC 937 yielded 8000 and 7880 lb/acre compared to 2470 and 4880 lb/acre for the susceptible UC 337 at those two locations respectively.

UC 933

A newly released variety, it is similar to UC 937. It is an earlier maturing variety with stripe rust resistance.

UC 476

Released from the barley breeding program at the University of California. UC 476 is a selection from the cross Sutter/Briggs/Prato sib. made by Charlie Schaller in 1971. The cross was designed to develop a later maturing Prato type with increased disease resistance and improve straw quality. The new cultivar is slightly taller than Prato, has stronger straw (less lodging) and matures about three days later. UC 476 is a 6- rowed spring feed barley with a semi-erect spike and semi-smooth awns. Test weight and kernel size are superior to Prato. It is tolerant to scald and net blotch and contains the Yd2 gene for tolerance to Barley yellow dwarf. In Regional and barley screening nurseries grown from 1980 to 1984, UC 476 averaged 172, 132, 100, 112, 111, 122, 91 and 105% of Prato's yields in Butte, Sutter, UC Davis, Yolo, Fresno, Kings, Kern and San Luis Obispo County tests, respectively.

UC 476 is adapted to all areas where barley is grown in California. It has better tolerance to wet conditions than Prato. The relatively high level of tolerance to the major foliar diseases should be sufficient to provide adequate protection under most conditions. UC 476 has fair tolerance to stripe rust.

UC 603

Released from the University of California, UC 603 is a pure line selection from the cross [[(Marie*Luther) * Trail] * Briggs] * Prato sib. The cross was designed to develop an early maturing, lodging resistant barley with a high level of tolerance to the major barley diseases in California.

UC 603 has shown good resistance to scald, net blotch, barley yellow dwarf, powdery mildew, leaf rust, and stripe rust..

Following preliminary yield tests on the University of California, Davis Agronomy Farm, in 1981-83, it was tested in statewide regional yield trials from 1984-88 involving 5-9 locations per year. In 31 station-yr of testing under medium rainfall and/or irrigated, grain yields of UC 603 95% of UC 337, 101% of UC 476 and 105% of Prato. In 11 station-yr tests in low rainfall, grain yields of UC 603 averaged 84, 91 and 94% of UC 337, Prato and UC 476, respectively.

Consequently, UC 603 is not recommended for low rainfall environments. It is approximately 2 days earlier in maturity than UC 337 and Prato, and 7 days earlier than UC 476.

UC 603 is adapted to all major barley producing areas in California where similar type cultivars are grown. It is not adaptable to the northern areas (Intermountain area, Tulelake basin) due to the stature being too short. There are other varieties out there that are better adapted. A new cultivar to replace UC 603 is UC 969.

NEBULA

A medium to late maturing variety. It is moderately resistant to scald, moderately susceptible to Net blotch, Barley dwarf yellow and Leaf rust and susceptible to Stripe Rust.

SOILS

Some acreage of small grains in Yolo County are grown in the dryland areas under a fallow-crop rotation. The main soil series in these areas are Sehorn, Balcom, Corning, Hillgate, Rincon, Tehama and Arbuckle. Sehorn, Balcom and Corning soils occur on gently rolling to steep hills while Rincon, Tehama, Arbuckle and Hillgate soils occur on level to 9% slopes. Small grains are widely grown as a rotation crop in the irrigated areas of the county.

Although small grains are better suited than most crops to shallow soils, yields are usually correlated with soil depth. The highest yields being obtained on the deep Class I soils and lowest on shallow Class IV soils.

Barley, wheat and oats differ in their ability to tolerate wet soil conditions. Wheat is considered by many to be the most tolerant to wet soils; oats second; and barley the least tolerant. Certain varieties are more tolerant to poor soil conditions than others.

Barley is most tolerant to alkali and boron relative to other small grains.

CROP ROTATION

Normally we prefer wheat and barley not be grown two or more years in succession, mainly due to the build up of diseases. The main disease problem with continuous wheat and barley are root and foot rots. Leaf diseases can also be serious, but are easier to prevent. Oats can be used as a rotation crop for wheat and barley. However, if a summer irrigated crop is grown as a double crop such as sorghum, corn or beans, wheat and barley can be grown continuously with good results.

If it is necessary or desirable to grow wheat or barley for two years, destroy the crop residue as much as possible by bailing the straw, burning, deep tillage and summer irrigation.

MINIMUM AND NO-TILLAGE PLANTING

For the past fourteen seasons, several hundred acres of dryland wheat and barley in Yolo County were planted with a no- till system. The results were generally successful and show that we can grow dryland wheat and barley no-till in Yolo County using the proper equipment. A major problem with no-till is the increased weed problems particularly the weed Ripgut brome. As with any new practice, there is still much to be learned. We have found that late plantings in wet soils was not desirable with the early conventional no-till drills; however, for the past four years a no-till air drill performed well with a late wet planting. This could be a significant improvement for no-till production. Minimum no-till and conservation tillage methods is the single most beneficial practice in controlling soil erosion on steep dryland grain fields.

SEEDBED PREPARATION

Dryland grain seedbed preparation usually consists of spring plowing followed by disking. The following fall, seedbeds are disked, springtoothed or harrowed prior to planting. Moldboard plowing is preferred for weed control and decomposition of plant residues. In irrigated areas, a seedbed is usually prepared by disking several times and harrowing. If considerable residue is present, plowing or other practices may be desirable. Plowing is recommended if long lasting herbicides were used on the previous crop.

It is more important to prepare smoother and finer seedbeds with presently grown wheat varieties in order to obtain an even planting depth for maximum production.

PLANTING DEPTH

Research has shown that planting depth is more critical with the new short-statured wheat varieties which we are now growing. The length of the emerging shoot (coleoptile) is correlated with final plant height. This means that these shorter plants will not emerge from as deep a depth as the old California varieties. Therefore, shallow planting is a necessity for our presently grown wheat varieties. This might also be true of barley varieties if we grew short types. Planting depth is not as important for oats because they have somewhat different method of emergence.

Trials have also shown that deep planted wheat and barley will have a reduced yield even if no stand reduction occurs. The best planting depth is about 1 inch and not more than 2 inches deep.

Crusting and moisture conditions after planting cause the optimum planting depth to vary. With crusting conditions, shallow planting is best for emergence. With dry conditions, often a little deeper planting produces the best stands because the shallow seeds dry out and die.

Growers need to pay particular attention to planting depth when planting on beds, sandy soils and dry beds are often planted too deep. Some drills can be equipped with depth control bands that are bolted onto the disk blades.

IRRIGATION AND DRAINAGE

With the introduction of short-statured, lodging-resistant wheat varieties, the interest in and benefits of irrigation have developed rapidly. A significant portion of the acreage is currently being irrigated. The water use for wheat is approximately 17-20 inches for a mid-November to December planting. Later plantings will normally have a higher consumptive use.

The yield increases from irrigating will vary with planting date, varieties and rainfall. The proper time to irrigate will vary from year to year. However, our observations for normal years indicate that the main moisture stresses occurred after the heading period on fall planted grain and before heading on spring plantings. A deep irrigation just prior to heading may carry through to maturity on deep soils. Irrigation in the dough stage may be too late for a significant benefit and late irrigations greatly increase the risk of lodging.

Many methods of irrigating are used on grain including sprinklers, furrow and flooding. In areas and on soils subject to excessive winter moisture or poor drainage, the benefits of bed planting and providing drainage have been dramatic in many cases. Many growers use bedding to provide winter drainage and to facilitate irrigation. Beds from 30 to 60 inches are used. Fields with crooked, narrow beds are hard on harvesters. The 60- inch beds are working quite well and are preferred by most growers over narrower beds. Furrow irrigated grain on beds tends to lodge less than flood irrigated using strip checks.

FERTILIZER

Dryland Class III and IV Soils

"Sehorn, Balcom, Corning and Hillgate Soil Series"

The most important fertilizer elements needed for these soils in Yolo County are nitrogen and phosphorus. Most of these soils are phosphorus deficient and when nitrogen is used without phosphorus, it usually produces a marginal yield response. Extensive trials conducted for several years have shown that broadcast applications of phosphorus are often marginal or uneconomical. However, excellent responses and economical returns have been demonstrated by drilling a nitrogen-phosphorus fertilizer with the seed at planting time, using a grain drill. Drilled phosphorus is more efficient than broadcast applications because it supplies the seedling demands and helps maintain the phosphorus in an available form. Phosphorus can be fixed in alkaline and acid soils such as these Class III and IV soils.

Nitrogen Rates

With normal summer fallowed land, use 10 to 50 pounds per acre of nitrogen at planting time. Topdress as plants show deficiency symptoms. For topdress applications, use 15 to 40 pounds of nitrogen per acre. The preferred material for topdressing is NH_4NO_3 (ammonium nitrate) because of its fast action and efficiency. Other materials used are NH_4SO_4 (ammonium sulfate) and Urea.

Phosphorus

Phosphorus needs should be determined by soil tests and field experience. When phosphorus is needed, use 15 to 50 pounds P_2O_5 drilled with or near seed at planting time. It is very important that phosphorus is close to plants in seedling stage. Small grains are poor foragers for phosphorus. Any placement from seed level to one inch below the seed is satisfactory. Do not place above the seed level.

High rates of fertilizer placed directly with the seeds can cause seed burn which can reduce stands. Phosphorus is relatively safe, whereas nitrogen and potassium are hazardous materials in regard to seed burn. Urea nitrogen is the most hazardous form of nitrogen to drill with the seed. In our trials, we have not seen a serious problem with rates of 100 pounds of material per acre, using a 8-inch row spacing. Application rates that exceed 150 pounds of total chemical per acre are considered hazardous. If soil moisture is low, rates of application as low as 100 pounds per acre may injure the seed or seedling plants. We have had fairly serious stand losses and stunting with 200 pounds of 16-20-0 per acre drilled with the seed using an 8-inch row spacing in some trials.

Broadcast phosphorus is not generally recommended due to poor efficiency and often a poor return for the investment. Trial data shows that from 2 to 5 times more phosphorus is usually required when broadcasting as compared to drilling. Drilling a nitrogen-phosphorus fertilizer with the seed improves the ability of small grains to compete with weeds over broadcast methods.

Sulfur

Most of the dryland area is low in sulfur. We recommend using fertilizers that contain sulfur.

Zinc

The Balcom soil series is low in zinc. Yield increases have been obtained in wheat and barley. As little as 1 pound of zinc chelate per acre did give a response in one barley trial. However, we would suggest using from 2 to 8 pounds of actual zinc per acre. Zinc sulfate needs to be thoroughly incorporated in the seedbed prior to planting.

Class I And II Soils

"Irrigated Row Crops Areas"

In most cases, only nitrogen is required on Class I and Class II soils. Phosphorus needs should be determined by soil tests and field experience. Soil analysis: less than 6 ppm -- highly responsive; 6 - 15 ppm -- probably responsive; and above 15 ppm -- mostly not responsive with $NaHCO_3$ test. In 60 trials conducted with wheat over a 20 year period we only obtained a significant yield increase in one trial where soil analysis was above 15.2 ppm phosphorus. Where phosphorus is needed, use 15-50 pounds P_2O_5 drilled with or near seed at planting time.

Table 4. **SUMMARY OF 60 WHEAT PHOSPHORUS TRIALS**

Soil Analysis ppm P	Total Number of Trials	Number of Trials with a Significant Yield Increase @ 5% Level	% of Trials With Significant Yield Increase
< 6.5	6	4	67%
<10.5	20	15	75%
<12.0	20	20	69%
<15.0	40	23	58%
>15.2	16	1	7%

The amount of nitrogen required varies greatly depending on previous crop, fertilizer history, rainfall, de-nitrification, leaching and irrigation practices. On soils subject to de- nitrification and leaching, split applications are more efficient and therefore, recommended.

Recommended Nitrogen Rates:

Use 0 to 150 pounds of nitrogen at planting time, and if necessary, up to 60 pounds of nitrogen as topdress application. With irrigation, higher nitrogen rates will not adversely affect the stiff-strawed wheat varieties. The preferred materials for topdressing is NH_4NO_3 because of fast action and efficiency. Other materials used are NH_4SO_4 and Urea.

PLANTING DATES

Planting dates are generally made rather specific for each variety in order to minimize diseases and frost injury at heading time. Fall plantings under dry-farmed conditions make the best use of natural rainfall and cool temperatures for maximum yields.

Late spring planted grain may complete the growth cycle so rapidly that plants do not have time to obtain optimum size for maximum production. Small grains are generally planted from late October to February 15th.

Delaying planting until December will reduce net blotch and scald on barley and septoria on the wheat varieties.

PLANTING RATES AND METHODS

The two methods of planting are broadcasting and drilling. When drilling, seed rates of 100 to 125 pounds per acre are usually recommended. Use 20% more seed when broadcasting. 100 pounds of seed per acre is equivalent to about 25 seeds per square foot or four pounds per acre is equivalent to one seed per square foot. Drilling usually results in more uniform stands than broadcasting. Late planted grain has a short tillering period, so slightly higher seeding rates, 10 to 20%, are suggested. While trials have shown that seeding rates of 100 to 125 pounds per acre are usually not needed for maximum yields with most varieties, these rates are recommended to aid in weed control.

OUR SUGGESTED SEEDING RATES FOR FALL DRILLED PLANTINGS WITH OLDER TALL VARIETIES

Wheat	Barley
100-125	100

Seeding rate trials with a new shorter variety, Kern, showed the optimum seeding rate was in range of 120-150 lbs. per acre.

ROW SPACING

Any row spacing up to 12 inches would be satisfactory for maximum production. However, closer rows would give faster ground cover and help in weed competition. The closer rowed drills present a problem when drilling in large clods. Seven and eight-inch spaced drills will plant better in large clods than a six-inch drill.

UC IPM PEST MANAGEMENT GUIDELINES - SMALL GRAINS

Since the IPM Pest Management Guidelines have not changed since December 1999, please refer to your 2000 Wheat & Barley Production book for the current guidelines. Or you may contact the Cooperative Extension office for a copy or go online at www.imp.ucdavis.edu.

The Pest Management Guidelines will be updated in January 2002. Don't forget to get your copy!

Table 5. **GRADES AND GRADE REQUIREMENTS FOR BARLEY**

Revised November 1, 1976. Grades and grade requirements for the subclasses Six-rowed Barley, Two-rowed Barley and the class Barley. (There are separate standards for subclasses of malting barley.)

	Minimum Limits of:		Maximum Limits of:					
					Defects		Barley of Other Classes	
Grade	Test Wt. Per Bu.	Sound Barley	Damaged Kernels[1]	Heat Damaged Kernels (Major)	Foreign Material	Broken Kernels	Thin Barley	Black Barley[2]
	Pounds	%	%	%	%	%	%	%
US #1	47.0	97.0	2.0	0.2	1.0	4.0	10.0	0.5
US #2	45.0	94.0	4.0	0.3	2.0	8.0	15.0	1.0
US #3	43.0	90.0	6.0	0.5	3.0	12.0	25.0	2.0
US #4[3]	40.0	85.0	8.0	1.0	4.0	18.0	35.0	5.0
US #5	36.0	75.0	10.0	3.0	5.0	28.0	75.0	10.0

US SAMPLE GRADE:

US Sample Grade shall be barley which does not meet the requirements for the grades of US # 1 to US # 5, inclusive, or which contains quantity of smut so great that one or more of the grade requirements cannot be determined accurately; or which contains more than 7 stones or more than 2 crotalaria seeds (Crotolaria sp.) per 1,000 grams of barley; or has a musty, sour or commercially objectionable foreign odor; or contains the seeds of wild brome grasses; or is heating or otherwise of distinctly low quality.

[1] Includes heat-damaged kernels (major). Frost-damaged kernels (minor) and mold damaged kernels (minor) shall not be considered as damaged kernels.

[2] These limits do not apply to the class Barley.

[3] Barley that is badly stained or materially weathered shall be graded not higher than US #4.

Table 6. **GRADES AND GRADE REQUIREMENTS FOR WHEAT**

Subpart L - United States Standards for Wheat

810.2201 Definition of wheat.

Grain that, before the removal of dockage, consists of 50 percent or more common wheat (Triticum aestivum L.), club wheat (T. compactum Host.), and durum wheat (T. durum Desf.) and not more than 10 percent of other grains for which standards have been established under the United States Grain Standards Act and that, after the removal of the dockage, contains 50 percent or more of whole kernels of one or more of these wheats.

810.2202 Definition of other terms.

(a.) Classes. There are eight classes for wheat: Durum wheat, Hard Red Spring wheat, Hard Red Winter wheat, Soft Red Winter wheat, Hard White wheat, Soft White wheat, Unclassed wheat, and Mixed wheat.

(1) Durum wheat. All varieties of white (amber) durum wheat. This class is divided into the following three subclasses:

(i) Hard Amber Durum wheat. Durum wheat with 75 percent or more of hard and vitreous kernels of amber color.

(ii) Amber Durum wheat. Durum wheat with 60 percent or more but less than 75 percent of hard and vitreous kernels of amber color.

(iii) Durum wheat. Durum wheat with less than 60 percent of hard and vitreous kernels of amber color.

(2) Hard Red Spring wheat. All varieties of Hard Red Spring wheat. This class is divided into the following three subclasses:

(i) Dark Northern Spring wheat. Hard Red Spring wheat with 75 percent or more of dark, hard, and vitreous kernels.

(ii) Northern Spring wheat. Hard Red Spring wheat with 25 percent or more but less than 75 percent of dark, hard, and vitreous kernels.

(iii) Red Spring wheat. Hard Red Spring wheat with less than 25 percent of dark, hard, and vitreous kernels.

(3) Hard Red Winter wheat. All varieties of Hard Red Winter wheat. There are no subclasses in this class.

(4) Soft Red Winter wheat. All varieties of Soft Red Winter wheat. There are no subclasses in this class.

(5) Hard White wheat. All hard endosperm white wheat varieties. There are no subclasses in this class.

(6) Soft White wheat. All soft endosperm white wheat varieties. This class is divided into the following three subclasses:

(i) Soft White wheat. Soft endosperm white wheat varieties which contain not more than 10 percent of white club wheat.

(ii) White Club wheat. Soft endosperm white club wheat varieties containing not more than 10 percent of other soft white wheats.

(iii) Western White wheat. Soft White wheat containing more than 10 percent of white club wheat and more than 10 percent of other soft white wheats.

(7) Unclassed wheat. Any variety of wheat that is not classifiable under other criteria provided in the wheat standards. There are no subclasses in this class. This class includes:
(i) Red durum wheat.

(ii) Any wheat which is other than red or white in color.

(8) Mixed wheat. Any mixture of wheat that consists of less than 90 percent of one class and more than 10 percent of one other class, or a combination of classes that meet the definition of wheat.

(b) Contrasting classes. Contrasting classes are:

(1) Durum wheat, Hard White wheat, Soft White wheat, and Unclassed wheat in the classes Hard Red Spring wheat and Hard Red Winter wheat.

(2) Hard Red Spring wheat, Hard Red Winter wheat, Hard White wheat, Soft Red Winter wheat, Soft White wheat, and unclassed wheat in the class Durum wheat.

(3) Durum wheat and Unclassed wheat in the class Soft Red Winter wheat.

(4) Durum wheat, Hard Red Spring wheat, Hard Red Winter wheat, Soft Red Winter wheat, and Unclassed wheat, in the classes Hard White wheat and Soft White wheat.

(c) Damaged kernels. Kernels, pieces of wheat kernels, and other grains that are badly ground-damaged, badly weather- damaged, diseased, frost-damaged, germ-damaged, heat-damaged, insect-bored, mold-damaged, sprout-damaged, or otherwise materially damaged.

(d) Defects. Damaged kernels, foreign material, and shrunken and broken kernels. The sum of these three factors may not exceed the limit for the factor defects for each numerical grade.

(e) Dockage. All matter other than wheat that can be removed from the original sample by use of an approved device according to procedures prescribed in FGIS instructions. Also, underdeveloped, shriveled, and small pieces of wheat kernels removed in properly separating the material other than wheat and that cannot be recovered by properly rescreening or recleaning.

(f) Foreign material All material other than wheat that remains in the sample after the removal of dockage and shrunken and broken kernels.

(g) Heat-damaged kernels. Kernels, pieces of wheat kernels, and other grains that are materially discolored and damaged by heat which remain in the sample after the removal of dockage and shrunken and broken kernels.

(h) Other grains. Barley, corn, cultivated buckwheat, einkorn, emmer, flaxseed, guar, hull-less barley, nongrain sorghum, oats, Polish wheat, popcorn, poulard wheat, rice, rye, safflower, sorghum, soybeans, spelt, sunflower seed, sweet corn, triticale, and wild oats.

(i) Shrunken and broken kernels. All matter that passes through a 0.064 x 3/8 oblong-hole sieve after sieving according to procedures prescribed in the FGIS instructions.

(j) Sieve - 0.064 x 3/8 oblong-hole sieve. A metal sieve 0.032 inch thick with oblong perforations 0.064 inch by 0.375 (3/8) inch.

Principles Governing the Application of Standards

810.2203 Basis of Determination.

Each determination of heat-damaged kernels, damaged kernels, foreign material, wheat of other classes, contrasting classes, and subclasses is made on the basis of the grain when free from dockage and shrunken and broken kernels. Other determinations not specifically provided for under the general provisions are made on the basis of the grain when free from dockage, except the determination of odor is made on either the basis of the grain as a whole or the grain when free from dockage.

(b) Grades and grade requirements for Mixed wheat. Mixed wheat is graded according to the U.S. numerical and U.S. Sample grade requirements of the class of wheat that predominates in the mixture, except that the factor wheat of other classes is disregarded.

Special Grades and Special Grade Requirements

810.2205 Special grades and special grade requirements.

(a) Ergoty wheat. Wheat that contains more than 0.30 percent of ergot.

(b) Garlicky wheat. Wheat that contains in a 1,000 gram portion more than two green garlic bulblets or an equivalent quantity of dry or partly dry bulblets.

(c) Light smutty wheat. Wheat that has an unmistakable odor of smut, or which contains in a 250 gram portion, smut balls, portions of smut balls, or spores of smut in excess of a quantity equal to 14 smut balls, but not in excess of a quantity equal to 30 smut balls of average size.

(d) Smutty wheat. Wheat that contains, in a 250 gram portion, smut balls, portions of smut balls, or spores of smut in excess of a quantity equal to 30 smut balls of average size.

(e) Treated wheat. Wheat that has been scoured, limed, washed, sulfured, or treated in such a manner that the true quality is not reflected by either the numerical grades or the U.S. Sample grade designation alone.

2000 – 2001 FARM ADVISOR WHEAT VARIETY TRIAL RESULTS

This year's three county-based wheat variety trials are presented in Tables 7 –12. Frost blanked heads were found in Best, Squires/Rominger and Gill locations. At no location was frost damage heavy. Disease pressure was light in the trials this season. This year an over-locations analysis, Table 7, is provided to give an indication of regional "fitness" for the varieties. Squires/Rominger, Gill, Hunn and Merwin and Merwin, and Mello were nonirrigated trials. The 1000lbs/acre average difference in yield between Squires/Rominger and Gill is due to soil quality, fertility and soil water availability. Disease pressures were light this year with only slight stripe rust infections in Express.

Table 7. 2000 TO 2001 WHEAT VARIETY TRIALS - OVER LOCATION SUMMARIES

5 Locations: Best, Gill, Hunn & Merwin, Mello and Squires-Rominger

Kent L. Brittan - University of California Cooperative Extension

Variety	Days From Planting	Height (in)	Lodging (%)	Frost Damage (%)	Protein* (%)	Bushel Weight (lb/bu)	Yield (Lbs/Acre)	Duncan's Multiple Range Analysis @5%
Bonus	145	32	0	4	11.2	61	6127	A
Summit	149	34	0	3	11.2	63	5998	AB
Brim	150	36	0	4	11.4	64	5777	BC
TriTicale 105	146	41	4	4	10.9	59	5669	CD
Dariel	154	41	1	0	10.9	62	5610	CD
Kama	152	38	0	1	11.3	63	5606	CD
UC1113	154	38	0	0	11.5	64	5606	CD
UC1037	149	28	0	7	11.5	62	5584	CD
Kern	145	33	0	6	11.0	64	5582	CD
Yolo	154	38	0	5	10.8	63	5538	CDE
Stander	148	32	0	9	11.4	62	5507	CDE
Anza	154	37	0	4	11.2	63	5441	DE
Winanza	155	38	0	3	11.1	63	5300	EF
Express	150	37	0	2	11.8	63	5170	F
Average	150	36	0	4	11.2	63	5608	
C.V.%	0.8	3.2	717.2	72.7	4.5	0.7	7.0	
L.S.D @5%	0.8	0.7	1.6	1.7	0.3	0.3	246	

Table 8. BEST WHEAT VARIETY TRIAL - HARVEST YEAR 2001

University of California Cooperative Extension

Cooperators: Dan Best Jr., Frank Minney

Experimenters: Brittan, Kearney, Dubcovsky, Jackson, Scherer

Soil Type: Reiff very fine sandy loam, Class I

Planting Date: 11/06/00

Planting Method: Drilled with 8" single disk grain drill on 5 ft. beds

Planting Rate: 120 Lbs/Acre

Length of Plots: 120 feet

Plot Width: 10 feet (14 rows)

Previous Crop: 2000 – Tomatoes

Fertilizer: 86 lbs. N as NH_4 SO_4 preplant

Location: Knights Landing, north of County Rd. 14, ¼ mile East of County Rd. 101

2000 to 2001 Best Wheat Variety Trial Summary Sorted by Yield

Variety	Days From Planting to Heading	Height (in)	Lodging (%)	Frost Damage (%)	Protein* (%)	Bushel Weight (lb/bu)	Yield (Lbs/Acre)	Duncan's Multiple Range Analysis @5%
Kama	158	40	0	2	11.5	65	6833	A
UC1113	162	38	0	0	11.5	65	6824	A
Bonus	150	35	0	16	11.5	63	6797	A
Brim	156	37	0	5	12.1	65	6761	A
Summit	153	34	0	9	11.9	64	6661	AB
TriTicale 105	151	42	22	0	11.3	60	6625	AB
Yolo	160	39	0	2	11.1	64	6570	AB
Dariel	161	42	3	0	11.5	63	6298	BC
UC1037	155	28	0	11	11.9	64	6271	BC
Anza	161	38	1	4	11.4	64	6035	C
Stander	154	32	0	14	11.4	63	6008	C
Winanza	162	40	1	3	11.3	64	5899	C
Kern	149	34	0	11	11.3	66	5853	C
Express	156	37	0	3	12.6	64	5835	C
Average	156	37	2	6	11.6	64	6376	
C.V.%	0.9	3.0	320.8	65.6	4.2	0.7	4.5	
L.S.D @5%	2.1	1.6	8.2	5.3	0.7	0.6	414	

Table 9. GILL WHEAT VARIETY TRIAL - HARVEST YEAR 2001

University of California Cooperative Extension

Cooperators: R.C. Gill and Son

Experimenters: Brittan, Kearney, Dubcovsky, Jackson, Scherer

Soil Type: Yolo silty clay loam, Class I

Planting Date: 11/07/00

Planting Method: Drilled with 8” single disk grain drill

Planting Rate: 120 Lbs/Acre

Length of Plots: 110 feet

Plot Width: 10 feet (14 rows)

Previous Crop: Tomatoes – 2000

Fertilizer: 60 lbs. N as $NH_4 NO_3$ preplant

Location: Dixon, one mile north of Sievers Road on East side of Sparks Ranch Road

2000 to 2001 Gill Wheat Variety Trial Summary Sorted by Yield

Variety	Days From Planting to Heading	Height (in)	Lodging (%)	Frost Damage (%)	Protein* (%)	Bushel Weight (lb/bu)	Yield (Lbs/Acre)	Duncan's Multiple Range Analysis @5%
Bonus	149	35	0	3	10.3	62	7277	A
Brim	154	39	0	6	10.2	65	6782	AB
Summit	152	37	0	3	10.0	63	6732	AB
TriTicale 105	148	42	0	9	9.8	59	6653	ABC
Dariel	160	44	0	0	9.0	63	6633	ABC
Yolo	161	41	0	19	9.3	64	6584	ABC
UC1113	161	40	0	0	10.7	64	6485	BC
Anza	160	40	0	11	9.8	64	6445	BC
Winanza	161	39	0	9	9.9	64	6415	BC
UC1037	154	30	0	16	10.7	63	6277	BCD
Express	156	42	0	0	11.0	64	6168	BCD
Kama	157	38	0	4	10.3	64	6128	BCD
Kern	148	35	0	14	10.3	65	5900	CD
Stander	153	34	0	20	11.7	62	5653	D
Average	155	38	0	8	10.2	63	6438	
C.V.%	1.0	2.4		40.5	6.2	1.0	7.3	
L.S.D @5%	2.1	1.3		4.7	0.9	0.9	668	

Table 10. HUNN & MERWIN & MERWIN WHEAT VARIETY TRIAL - HARVEST YEAR 2001

University of California Cooperative Extension

Cooperators: Pete and Larry Hunn
Experimenters: Brittan, Kearney, Dubcovsky, Jackson, Scherer
Soil Type: Sacramento clay, Class III
Planting Date: November 8 & 9, 2000
Planting Method: Drilled with 7" single disk grain drill on beds
Planting Rate: 120 Lbs/Acre
Length of Plots: 70 feet
Plot Width: 10 rows
Previous Crop: 2000 - Safflower
Fertilizer: 138 lbs nitrogen preplant as urea
Irrigations: None
Location: One-quarter mile southwest of North Courtland Road and Z Line Road. Just east of the Deep Water Channel southwest of Courtland, CA.

2000 to 2001 Hunn & Merwin & Merwin Wheat Variety Trial Summary Sorted by Yield

Variety	Days From Planting to Heading	Height (in)	Lodging (%)	Frost Damage (%)	Protein* (%)	Bushel Weight (lb/bu)	Yield (Lbs/Acre)	Duncan's Multiple Range Analysis @5%
Bonus	154	29	0	0	12.5	61	4785	A
Stander	155	30	0	0	12.7	61	4620	AB
Summit	159	30	0	0	12.0	62	4389	ABC
Kern	155	30	0	0	11.9	64	4356	ABC
UC1113	161	37	0	0	13.6	63	4290	ABCD
UC1037	158	25	0	0	12.5	61	4125	ABCD
Kama	159	35	0	0	12.6	63	3993	BCD
TriTicale 105	154	39	0	0	11.9	59	3927	BCD
Yolo	161	35	0	0	12.1	62	3861	BCD
Brim	159	34	0	0	12.4	64	3828	BCD
Dariel	162	37	0	0	12.5	61	3828	BCD
Express	157	34	0	0	13.1	62	3729	CD
Anza	160	35	0	0	12.0	63	3630	CD
Serra	159	36	0	0	11.9	62	3630	CD
Winanza	161	35	0	0	12.1	64	3498	D
Average	158	33	0	0	12.4	62	4033	
C.V.%	0.6	3.6			2.8	0.7	11.9	
L.S.D @5%	1.3	1.7			0.5	0.6	687	

Table 11. MELLO WHEAT VARIETY TRIAL - HARVEST YEAR 2001

University of California Cooperative Extension

Cooperator: Steve Mello
Experimenters: Brittan, Kearney, Dubcovsky, Jackson, Scherer
Soil Type: Egbert much, Storie index 80, Class I
Planting Date: 12/6/00
Planting Method: Drilled with 7” single disk grain drill
Planting Rate: 160 lbs/acre
Length of Plots: 110 feet
Plot Width: 10 rows
Previous Crop: 2000 Corn
Fertilizer: 100 lbs. 16-20-0 drilled with seed
Irrigations: None
Location: Tyler Island

2000 to 2001 Mello Wheat Variety Trial Summary Sorted by Yield

Variety	Days From Planting to Heading	Height (in)	Lodging (%)	Frost Damage (%)	Protein* (%)	Bushel Weight (lb/bu)	Yield (Lbs/Acre)	Duncan's Multiple Range Analysis @5%
Summit	132	34	0	0	10.2	63	6336	A
Anza	136	38	0	0	10.3	63	6138	AB
Bonus	128	34	0	0	9.6	61	6102	AB
Dariel	137	41	0	0	9.9	63	6084	AB
Kama	136	40	0	0	10.4	64	6066	AB
Kern	129	33	0	0	10.0	64	6030	AB
Yolo	136	41	0	0	9.8	63	5994	ABC
Brim	133	36	0	0	10.4	64	5778	ABCD
Stander	132	34	0	0	10.4	62	5724	ABCDE
TriTicale 105	131	42	0	0	9.9	60	5652	BCDEF
Winanza	137	39	0	0	10.1	63	5580	BCDEF
UC1037	131	32	0	0	10.7	63	5400	CDEF
UC1113	134	40	0	0	9.8	64	5202	DEF
Express	133	38	0	0	11.0	64	5130	EF
Serra	133	41	0	0	9.5	62	5076	F
Average	133	37	0	0	10.1	63	5753	
C.V.%	1.1	4.0			3.2	0.6	6.6	
L.S.D @5%	2.1	2.1			0.5	0.5	542.5	

Table 12. SQUIRES & ROMINGER WHEAT VARIETY TRIAL - HARVEST YEAR 2001

University of California Cooperative Extension

Cooperators: Squires & Rominger
Experimenters: Kearney, Dubcovsky, Jackson, Scherer
Soil Type: Brentwood silty clay loam, Class I
Planting Date: 11/17/00
Planting Method: Drilled with 8" single disk grain drill
Planting Rate: 120 Lbs/Acre
Length of Plots: 100 feet
Plot Width: 10 feet (14 rows)
Previous Crop: 2000 - Fallow
Fertilizer: 100 lbs. 16-20-0 drilled with seed
Irrigations: None
Location: Winters, west of Co. Rd. 89, ½ mile north of Co. Rd. 31

2000 to 2001 Squires, Rominger Wheat Variety Trial Summary - Sorted by Yield

Variety	Days From Planting to Heading	Height (in)	Lodging (%)	Frost Damage (%)	Protein* (%)	Bushel Weight (lb/bu)	Yield (Lbs/Acre)	Duncan's Multiple Range Analysis @5%
Summit	147	35	0	3	11.7	61	5870	A
UC1037	148	27	0	9	11.5	61	5848	A
Kern	146	32	0	6	11.3	63	5772	A
Brim	149	37	0	10	11.8	63	5739	A
Bonus	146	31	0	1	12.0	59	5674	AB
Stander	148	32	0	9	10.4	61	5532	ABC
TriTicale 105	145	40	0	9	11.5	57	5489	ABCD
UC1113	151	35	0	0	11.9	62	5227	BCDE
Dariel	152	41	0	1	11.8	61	5205	BCDE
Winanza	152	39	0	6	11.8	62	5107	CDEF
Kama	150	38	0	0	11.9	63	5009	DEF
Express	150	37	0	8	11.1	62	4988	EF
Anza	151	37	0	4	12.7	62	4955	EF
Yolo	151	37	0	3	11.8	61	4683	F
Average	149	35	0	5	11.7	61	5364	
C.V.%	0.4	2.7		72.2	5.2	0.7	5.8	
L.S.D @5%	0.8	1.3		4.9	0.9	0.6	443.9	

2001 STATEWIDE WHEAT RESULTS:

This is a part of the annual Agronomy Progress Repot: 2001 Regional Barley and Common and Durum Wheat Performance Tests in California. Conducted by Lee Jackson, UCD Agronomist, Jorge Dubcovsky, J. Heaton, H. Vogt, L.K. Gibbs, Don Kirby, Mick Canevari, Harry Carlson, Tom Kearney, B. Marsh, Doug Munier, Case. Mutters, Steve Orloff, Jerry Schmierer, Ron Vargas, Jack Williams, and Steve Wright. For a complete report please contact Lee Jackson at UC Davis (530) 752-0701 or visit the Agronomy Department's web site: http://agronomy.ucdavis.edu/agronomy/

University of California Cooperative Extension cereal evaluation tests were conducted in the intermountain valleys of northeastern California; the Sacramento, San Joaquin, and Imperial Valleys; and in the south central coastal region in 2001. 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. Winter barley (10 entries) was evaluated at 8 locations (Table 2).

Tests were conducted at University of California Field Stations or in fields of cooperating growers. 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 rainfed 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, except at the UC Desert Research and Extension Center (Imperial) where plots were 16 feet long and at the UC Intermountain Research and Extension Center (Tulelake) where plots were nine drill rows (5 feet) wide. Grain was harvested with a Wintersteiger Seedmaster Universal 150 plot combine. Foliar diseases were assessed at the soft-to-medium dough stage of growth by estimating the percentages of areas of penultimate leaves (flag-1 leaf) affected. BYD assessments, however, were based on the percentage of plants showing symptoms. Black point was assessed on grain samples of durum wheat after harvest. Yield, test weight, kernel weight, plant height, days to heading and maturity, lodging, shattering, disease reaction, and grain quality were determined as indicated in the tables.

Results show 2001 Statewide yield and disease summaries. Table 13 displays the yield results summarized for the four Sacramento Valley area trials conducted in the 2000-2001 season. These trials contained 43 varieties both commercial releases and new experimental lines. The first column contains the over-location means. Table 14 contains a 2-page summary of the stripe rust and leaf rust susceptibility of those same varieties statewide. To provide an indication how stable these varieties are an analysis over the last three years (1999-2001) and over the same locations was conducted, Table 15.

Additionally, are two tables describing how well these varieties performed in nonirrigated (rainfed) conditions. Table 16 compares the results of these varieties this year. Table 17 compares the same common varieties over the past three years and locations.

Table 13.
2001 SACRAMENTO VALLEY COMMON WHEAT SUMMARY

YIELD Summary Table

Name	Entry	Mean 4-loc 2001 LBS/ACRE		BUTTE 2001 LBS/ACRE		COLUSA 2001 LBS/ACRE		UCD 2001 LBS/ACRE		DELTA 2001 LBS/ACRE	
20	ANZA	5490	(15)	6190	(6)	5850	(8)	4720	(22)	5190	(21)
112	YECORA ROJO	5050	(30)	4850	(40)	5630	(15)	4670	(25)	5060	(26)
353	YOLO	5470	(17)	6150	(7)	5290	(25)	4680	(24)	5760	(11)
415	KLASIC	6100	(2)	6320	(4)	6440	(1)	5630	(12)	6020	(7)
638	SERRA	5060	(29)	6140	(8)	5150	(29)	4530	(30)	4410	(33)
788	EXPRESS	5210	(24)	5680	(23)	4910	(38)	5130	(16)	5110	(23)
804	WWW BR 5144	5140	(26)	5820	(19)	5310	(24)	4210	(36)	5220	(20)
827	CAVALIER	5330	(19)	5980	(14)	5830	(9)	4330	(33)	5170	(22)
901	BROOKS	5480	(16)	6120	(10)	5820	(10)	4570	(28)	5420	(16)
970	CUYAMA	5220	(23)	5740	(21)	5320	(23)	4520	(31)	5300	(17)
976	RSI 5	4570	(39)	6120	(9)	3880	(42)	3990	(39)	4290	(35)
1020	BONUS	6050	(5)	6100	(11)	6240	(3)	5440	(13)	6440	(2)
1036	KERN	5770	(10)	5540	(29)	5760	(12)	6000	(5)	5780	(9)
1124	ELDON	5000	(32)	5400	(31)	5510	(19)	4310	(34)	4770	(31)
1130	STANDER	5670	(12)	5790	(20)	5580	(16)	6060	(4)	5250	(18)
1155	SUMMIT	6100	(4)	5660	(24)	5900	(7)	6540	(1)	6300	(4)
1193	SUNSTAR KING	4690	(38)	4970	(39)	5280	(26)	4080	(38)	4420	(32)
1202	BRIM	5250	(22)	5160	(36)	5320	(22)	5430	(14)	5100	(24)
1232	DA 995-127	4810	(35)	5600	(26)	5070	(33)	4710	(23)	3840	(41)
1242	GM 40001	5150	(25)	5600	(25)	5150	(30)	5080	(17)	4780	(30)
1243	GM 40002	4030	(42)	4320	(43)	5130	(31)	2700	(42)	3950	(40)
1244	GM 40003	3490	(43)	4410	(42)	3700	(43)	2430	(43)	3430	(43)
1258	BETH HASHITA	5250	(21)	5940	(15)	4920	(37)	4930	(19)	5220	(19)
1260	DARIEL	5450	(18)	6060	(12)	5460	(20)	4800	(20)	5460	(14)
1261	KAMA	5870	(7)	5320	(34)	5710	(13)	6330	(2)	6110	(5)
1268	UC 1268	4810	(34)	5240	(35)	4670	(39)	5040	(18)	4310	(34)
1271	UC 1271	4240	(41)	5030	(38)	4940	(36)	3510	(40)	3490	(42)
1274	DIANA 2000F	4710	(36)	5420	(30)	5200	(28)	4210	(37)	4010	(39)
1290	YU 995-315	5140	(27)	5540	(28)	5260	(27)	4730	(21)	5030	(27)
1291	DA 998-50	5770	(9)	5990	(13)	6140	(5)	5200	(15)	5760	(12)
1292	DA 998-15	5600	(13)	5920	(16)	5450	(21)	5930	(6)	5080	(25)
1293	BZ 998-181	5890	(6)	5890	(18)	6170	(4)	5640	(11)	5860	(8)
1294	WWW COI957-3	5040	(31)	5560	(27)	5060	(34)	4590	(27)	4970	(28)
1295	WWW BR 9118	4930	(33)	5360	(33)	4990	(35)	4560	(29)	4820	(29)
1296	UC 1296	5090	(28)	6220	(5)	5570	(17)	4300	(35)	4270	(37)
1297	UC 1297	4700	(37)	4800	(41)	5080	(32)	4660	(26)	4280	(36)
1309	APB W98-231	5820	(8)	5910	(17)	6010	(6)	5750	(8)	5620	(13)
1311	GM 40027	4370	(40)	5680	(22)	4310	(41)	3420	(41)	4050	(38)
1321	PRIMAVERA 8233	5260	(20)	5100	(37)	5650	(14)	4520	(32)	5770	(10)
1322	RSI 99WY50413	6440	(1)	6780	(1)	6260	(2)	6210	(3)	6500	(1)
1323	RSI 99WY51107	5680	(11)	6370	(3)	4610	(40)	5680	(9)	6080	(6)
1324	RSI 99WY51149	5520	(14)	5390	(32)	5560	(18)	5680	(10)	5460	(15)
1325	RSI 96WY50815C-2	6100	(3)	6400	(2)	5790	(11)	5790	(7)	6420	(3)
	MEAN	5250		5660		5370		4880		5130	
	CV	8.7		7.0		6.3		10.5		10.4	
	LSD (.05)	320		550		480		720		740	

Numbers in parentheses indicate relative rank in column.

Table 14. 2001 Common Wheat Stripe Rust and Leaf Rust Summary – Statewide

		Stripe Rust								Leaf Rust					
Entry	Name	Mean (6-loc)		Butte	Colusa	UC Davis	Sac-SJ Delta	Madera	Kings	Mean (4-loc)		UC Davis	Sac-SJ Delta	Madera	Kings
20	ANZA	1.0	(1)	1.0	1.0	1.0	1.0	1.0	1.0	1.6	(12)	1.0	1.5	2.8	1.0
112	YECORA ROJO	2.3	(21)	1.0	2.8	1.0	6.3	1.8	1.0	4.4	(31)	4.3	5.3	4.8	3.5
353	YOLO	1.1	(10)	1.0	1.0	1.3	1.3	1.0	1.0	3.3	(27)	5.0	4.3	3.0	1.0
415	KLASIC	1.2	(12)	1.0	1.0	1.0	1.0	2.0	1.0	4.8	(32)	5.5	5.5	4.5	3.8
638	SERRA	1.0	(1)	1.0	1.0	1.0	1.0	1.0	1.0	3.8	(29)	4.8	4.8	4.5	1.3
788	EXPRESS	1.7	(18)	1.3	3.0	2.0	2.0	1.0	1.0	1.3	(7)	1.0	1.5	1.5	1.0
804	WWW BR 5144	1.2	(15)	1.0	1.8	1.3	1.3	1.0	1.0	3.9	(30)	5.3	4.8	4.0	1.8
827	CAVALIER	1.8	(19)	1.0	2.0	1.0	5.0	1.0	1.0	4.8	(32)	5.8	5.0	4.5	4.0
901	BROOKS	2.5	(24)	1.0	4.5	3.8	3.5	1.5	1.0	3.8	(28)	4.5	4.5	4.3	1.8
970	CUYAMA	4.1	(30)	1.5	6.3	5.0	6.3	2.0	3.5	1.7	(14)	1.5	1.3	3.0	1.0
976	RSI 5	6.8	(32)	3.8	8.0	7.8	8.0	6.3	7.0	1.0	(1)	1.0	1.0	1.0	1.0
1020	BONUS	1.1	(11)	1.0	1.0	1.0	1.3	1.5	1.0	2.9	(25)	5.3	3.3	1.3	2.0
1036	KERN	1.0	(5)	1.0	1.0	1.0	1.3	1.0	1.0	1.6	(12)	1.8	1.8	1.5	1.3
1110	UC 1110	-		-	-	-	-	1.0	1.0	-		-	-	1.0	1.0
1124	ELDON	3.6	(27)	1.5	6.0	4.3	7.0	1.0	1.8	2.1	(21)	3.3	1.5	2.8	1.0
1130	STANDER	1.2	(12)	1.0	1.0	1.0	2.0	1.0	1.0	2.4	(22)	4.3	2.5	1.8	1.3
1154	RSI 96WV51505	-		-	-	-	-	1.0	2.5	-		-	-	1.0	1.0
1155	SUMMIT	1.4	(16)	1.0	2.0	1.0	2.5	1.0	1.0	1.1	(5)	1.0	1.0	1.5	1.0
1156	BLANCA GRANDE	-		-	-	-	-	1.0	1.0	-		-	-	3.5	1.5
1162	UC 1162	-		-	-	-	-	1.0	1.0	-		-	-	1.5	1.0
1193	SUNSTAR KING	2.4	(22)	1.3	4.0	4.0	2.0	1.0	2.3	2.8	(24)	3.0	3.8	3.3	1.0
1202	BRIM	2.4	(22)	1.0	4.3	2.5	4.3	1.0	1.5	1.0	(1)	1.0	1.0	1.0	1.0
1232	DA 995-127	1.0	(1)	1.0	1.0	1.0	1.0	1.0	1.0	1.8	(15)	2.3	1.8	2.0	1.0
1235	YU 995-244	-		-	-	-	-	1.0	1.5	-		-	-	3.5	2.3
1236	YU 997-135	-		-	-	-	-	1.5	1.0	-		-	-	4.5	2.0
1242	GM 40001	1.0	(5)	1.0	1.0	1.0	1.3	1.0	1.0	1.8	(15)	2.8	1.8	1.5	1.0
1243	GM 40002	3.3	(26)	1.5	5.3	2.0	7.3	2.8	1.0	3.2	(26)	3.8	4.0	4.0	1.0
1244	GM 40003	6.8	(33)	5.3	8.0	7.3	8.0	4.5	8.0	1.0	(1)	1.0	1.0	1.0	1.0
1255	PLATA	-		-	-	-	-	1.0	1.3	-		-	-	4.3	1.3
1256	NEKEV	-		-	-	-	4.3	1.0	1.0	-		-	1.0	2.5	1.5
1257	LINE K	-		-	-	-	3.5	1.8	1.0	-		-	2.3	1.3	1.0
1258	BET HASHITA	3.6	(27)	1.8	6.0	5.3	6.5	1.0	1.0	1.8	(15)	1.0	1.0	3.8	1.3
1259	ATIR	-		-	-	-	3.8	2.8	1.0	-		-	1.0	1.0	1.3
1260	DARIEL	1.5	(17)	1.0	1.5	2.0	2.5	1.0	1.0	1.1	(4)	1.0	1.3	1.0	1.0

Table 14. (cont'd)

Entry	Name	Mean (6 loc)		Butte	Colusa	UC Davis	Sac-SJ Delta	Madera	Kings	Mean (4loc)		UC Davis	Sac-SJ Delta	Madera	Kings
1261	KAMA	1.0	(5)	1.0	1.0	1.0	1.3	1.0	1.0	1.2	(6)	1.5	1.3	1.0	1.0
1262	YANIV	-		-	-	-	5.8	1.0	2.0	-		-	1.0	1.0	1.0
1268	UC 1268	1.0	(5)	1.0	1.0	1.3	1.0	1.0	1.0	1.3	(7)	1.0	2.0	1.0	1.0
1271	UC 1271	-		1.0	1.0	1.0	1.0	-	-	-		3.5	2	-	-
1274	DIANA 2000F	1.9	(20)	1.0	1.8	2.3	2.5	2.8	1.0	1.4	(9)	1.0	2.8	1.0	1.0
1287	PH 996-7W	1.0	(1)	1.0	1.0	1.0	1.0	1.0	1.0	-		-	-	4.8	3.5
1288	BZ 998-256W	2.7	(25)	1.5	6.0	3.3	3.5	1.0	1.0	-		-	-	1.8	1.0
1289	BZ 998-247W	1.0	(5)	1.0	1.0	1.0	1.3	1.0	1.0	-		-	-	1.3	1.8
1290	YU 995-315	1.2	(12)	1.0	1.0	1.0	1.5	1.5	1.0	-		1.3	1.8	-	-
1291	DA 998-50	6.7	(31)	4.8	8.0	6.3	8.0	8.0	5.3	-		2.0	2.5	-	-
1292	DA 998-15	4.0	(29)	2.0	6.8	4.8	7.0	2.0	1.8	-		1.5	2.0	-	-
1293	BZ 998-181	-		1.0	2.3	3.0	2.3	-	-	-		3.8	4.3	-	-
1294	WWW COI957-3	1.0	(1)	1.0	1.0	1.0	1.0	1.0	1.0	1.5	(11)	2.3	1.8	1.0	1.0
1295	WWW BR 9118	2.7	(25)	1.5	6.0	3.3	3.5	1.0	1.0	2.6	(23)	2.3	3.5	3.8	1.0
1296	UC 1296	1.0	(5)	1.0	1.0	1.0	1.3	1.0	1.0	1.8	(18)	2.5	2.3	1.5	1.0
1297	UC 1297	-		1.0	2.5	1.5	2.8	-	-	-		3.0	4.5	-	-
1298	UC 1298	-		-	-	-	-	1.8	1	-		-	-	1.5	1.3
1309	APB W98-231	1.2	(12)	1.0	1.0	1.0	1.5	1.5	1.0	2.0	(20)	3.3	1.5	1.8	1.5
1310	APB W98-261	-		-	-	1.0	2.0	-	-	-		1.5	2.0	-	-
1311	GM 40027	6.7	(31)	4.8	8.0	6.3	8.0	8.0	5.3	1.4	(9)	1.5	1.8	1.5	1.0
1321	PRIMAVERA 8233	4.0	(29)	2.0	6.8	4.8	7.0	2.0	1.8	1.9	(19)	1.0	1.3	3.0	2.3
1322	RSI 99WY50413	-		1.0	1.0	1.3	2.8	-	-	-		4.3	4.0	-	-
1323	RSI 99WY51107	-		3.3	7.5	6.0	4.0	-	-	-		3.8	2.5	-	-
1324	RSI 99WY51149	-		1.0	3.3	2.3	3.3	-	-	-		1.0	1.3	-	-
1325	RSI 96WY50815C-2	-		1.3	1.5	2.0	2.0	-	-	-		1.8	1.5	-	-
1326	RSI 97WY64312A	-		-	-	-	-	2.3	2.3	-		-	-	1.8	1.0
1327	RSI 97WB60009	-		-	-	-	-	1.0	1.0	-		-	-	1.0	1.0
1328	RSI 99WY51142	-		-	-	-	-	1.5	1.3	-		-	-	2.0	1.0
1329	RSI 99WY51136	-		-	-	-	-	1.0	1.0	-		-	-	1.8	1.0
1330	RSI 98WV12810	-		-	-	-	-	1.0	1.0	-		-	-	1.3	1.0
1331	RSI 99WY51362	-		-	-	-	-	1.0	1.0	-		-	-	1.0	1.0
1332	RSI 99WY51462	-		-	-	-	-	1.0	1.0	-		-	-	3.3	1.0
	MEAN	2.3		1.4	2.9	2.3	3.3	1.6	1.5	2.2		2.6	2.4	2.3	1.4
	CV	36.6		28.1	20.6	21.8	30.3	81.6	50.9	38.0		34.8	28.5	50.3	26.7
	LSD (.05)	0.5		0.6	0.8	0.7	1.4	1.8	1.1	0.6		1.3	1.0	1.6	0.5

Rating scale (area of flag-1 leaf affected): 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 15. SAC VALLEY OVER LOCATION/YEAR YIELD SUMMARY

ENTRY		Average S/ACRE		BUTTE 1999 LBS/ACRE		BUTTE 2000 LBS/ACRE		BUTTE 2001 LBS/ACRE		COLUSA 1999 LBS/ACRE		COLUSA 2000 LBS/ACRE		COLUSA 2001 LBS/ACRE	
20	ANZA	6140	(7)	8700	(5)	5470	(14)	6190	(2)	6540	(4)	5090	(8)	5850	(4)
112	YECORA ROJO	5010	(14)	5080	(14)	6120	(10)	4850	(14)	2900	(14)	4390	(14)	5630	(8)
353	YOLO	6340	(4)	8610	(6)	6840	(3)	6150	(3)	7260	(2)	5060	(10)	5290	(11)
415	KLASIC	5730	(12)	5830	(13)	6230	(7)	6320	(1)	3760	(12)	5060	(11)	6440	(1)
638	SERRA	6140	(6)	9020	(2)	6120	(9)	6140	(4)	5980	(8)	5660	(4)	5150	(12)
788	EXPRESS	5840	(11)	8460	(9)	5660	(12)	5680	(10)	6160	(6)	4660	(13)	4910	(13)
827	CAVALIER	5490	(13)	7480	(12)	5770	(11)	5980	(8)	3690	(13)	4790	(12)	5830	(5)
901	BROOKS	5920	(10)	7970	(10)	6410	(5)	6120	(6)	4640	(11)	5070	(9)	5820	(6)
976	RSI 5	5960	(8)	8510	(7)	7070	(1)	6120	(5)	6510	(5)	5820	(3)	3880	(14)
1020	BONUS	6630	(2)	8730	(4)	6990	(2)	6100	(7)	5560	(9)	5900	(2)	6240	(2)
1036	KERN	5960	(9)	7500	(11)	5490	(13)	5540	(12)	5480	(10)	5100	(7)	5760	(7)
1130	STANDER	6280	(5)	8500	(8)	6400	(6)	5790	(9)	6150	(7)	5200	(6)	5580	(9)
1155	SUMMIT	6860	(1)	9560	(1)	6420	(4)	5660	(11)	7170	(3)	6000	(1)	5900	(3)
1202	BRIM	6360	(3)	8800	(3)	6170	(8)	5160	(13)	7270	(1)	5550	(5)	5320	(10)
	MEAN	6050		7910		6040		5660		5540		4950		5370	
	CV	7.2		5		5.3		7		9		6.4		6.3	
	LSD (.05)	160		560		450		550		690		440		480	

ENTRY		SUTTER 1999 LBS/ACRE		SUTTER 2000 LBS/ACRE		UCD 1999 LBS/ACRE		UCD 2000 LBS/ACRE		UCD 2001 LBS/ACRE		DELTA 1999 LBS/ACRE		DELTA 2000 LBS/ACRE		DELTA 2001 LBS/ACRE	
20	ANZA	6980	(6)	4750	(12)	7400	(6)	5040	(12)	4720	(8)	7690	(7)	6380	(2)	5190	(8)
112	YECORA ROJO	5320	(13)	4520	(14)	4680	(14)	5030	(13)	4670	(10)	6220	(14)	5710	(7)	5060	(12)
353	YOLO	7770	(1)	4920	(10)	7700	(3)	5230	(10)	4680	(9)	8060	(4)	5430	(12)	5760	(5)
415	KLASIC	6530	(8)	4520	(13)	5340	(13)	5280	(9)	5630	(4)	7550	(9)	5710	(8)	6020	(3)
638	SERRA	7570	(2)	4750	(11)	7330	(7)	5950	(5)	4530	(12)	7500	(10)	5880	(5)	4410	(13)
788	EXPRESS	6560	(7)	5010	(8)	6720	(9)	5180	(11)	5130	(7)	6890	(13)	5670	(11)	5110	(10)
827	CAVALIER	6460	(9)	4990	(9)	5400	(12)	4840	(14)	4330	(13)	7060	(12)	5130	(13)	5170	(9)
901	BROOKS	6180	(11)	5230	(7)	6170	(11)	5740	(7)	4570	(11)	7870	(6)	5750	(6)	5420	(6)
976	RSI 5	6450	(10)	5570	(5)	7610	(5)	6020	(3)	3990	(14)	8160	(3)	3480	(14)	4290	(14)
1020	BONUS	7380	(3)	5340	(6)	7220	(8)	6210	(1)	5440	(5)	9110	(1)	6120	(4)	6440	(1)
1036	KERN	5140	(14)	5810	(3)	6590	(10)	5290	(8)	6000	(3)	7320	(11)	6610	(1)	5780	(4)
1130	STANDER	5970	(12)	5580	(4)	7660	(4)	6180	(2)	6060	(2)	7950	(5)	5680	(10)	5250	(7)
1155	SUMMIT	7270	(4)	6140	(1)	8210	(1)	5940	(6)	6540	(1)	8530	(2)	6370	(3)	6300	(2)
1202	BRIM	7140	(5)	5880	(2)	7840	(2)	6000	(4)	5430	(6)	7690	(8)	5690	(9)	5100	(11)
	MEAN	6490		5030		6670		5160		4880		7610		5720		5130	
	CV	6.2		6.6		4.7		7.4		10.5		9.1		5.3		10.4	
	LSD (.05)	560		460		440		530		720		970		420		740	

Table 16.

2001 COMMON WHEAT RAINFED OVER LOCATION YIELD SUMMARY

Name	Entry	Mean 4-loc 2001 LBS/ACRE		YOLO 2001 LBS/ACRE		SLO 2001 LBS/ACRE		TULARE 2001 LBS/ACRE		BENITO 2001 LBS/ACRE	
20	ANZA	2270	(27)	1260	(22)	2240	(27)	670	(25)	4930	(25)
112	YECORA ROJO	2410	(24)	1280	(21)	2360	(21)	640	(27)	5370	(12)
353	YOLO	2480	(20)	1500	(15)	2300	(26)	830	(16)	5280	(16)
415	KLASIC	2770	(02)	1520	(14)	3050	(01)	850	(13)	5660	(04)
638	SERRA	2500	(19)	1370	(18)	2350	(24)	670	(24)	5610	(07)
788	EXPRESS	2500	(18)	1730	(07)	2480	(19)	870	(12)	4910	(27)
804	WWW BR 5144	2440	(22)	1050	(25)	2550	(14)	840	(14)	5330	(14)
827	CAVALIER	2740	(04)	1680	(08)	2490	(17)	770	(20)	6000	(01)
901	BROOKS	2740	(03)	1840	(02)	2630	(08)	880	(10)	5620	(06)
970	CUYAMA	2850	(01)	1810	(03)	2820	(02)	1300	(01)	5450	(11)
976	RSI 5	2430	(23)	1170	(24)	2620	(10)	670	(26)	5240	(17)
1020	BONUS	2540	(14)	1390	(17)	2450	(20)	750	(21)	5590	(08)
1036	KERN	2640	(07)	1640	(10)	2560	(13)	690	(23)	5660	(05)
1124	ELDON	2240	(28)	990	(26)	2350	(23)	700	(22)	4910	(26)
1130	STANDER	2560	(13)	1650	(09)	2510	(16)	830	(15)	5240	(18)
1155	SUMMIT	2590	(11)	1810	(04)	2560	(12)	550	(28)	5450	(10)
1193	SUNSTAR KING	2540	(15)	1590	(13)	2640	(07)	820	(17)	5120	(22)
1202	BRIM	2610	(10)	1920	(01)	2360	(22)	790	(18)	5360	(13)
1232	DA 995-127	2630	(09)	1290	(20)	2810	(03)	1100	(03)	5310	(15)
1242	GM 40001	2320	(26)	940	(27)	2230	(28)	1060	(04)	5060	(24)
1243	GM 40002	2630	(08)	1300	(19)	2700	(04)	950	(06)	5580	(09)
1244	GM 40003	2350	(25)	790	(28)	2620	(11)	880	(09)	5120	(21)
1268	UC 1268	2500	(17)	1200	(23)	2660	(06)	1020	(05)	5120	(20)
1294	WWW COI957-3	2450	(21)	1590	(12)	2530	(15)	920	(07)	4770	(28)
1295	WWW BR 9118	2540	(16)	1740	(06)	2340	(25)	890	(08)	5190	(19)
1296	UC 1296	2580	(12)	1770	(05)	2660	(05)	780	(19)	5100	(23)
1309	APB W98-231	2710	(05)	1430	(16)	2490	(18)	1190	(02)	5730	(02)
1311	GM 40027	2710	(06)	1630	(11)	2630	(09)	880	(11)	5690	(03)
	MEAN	2550		1460		2540		850		5340	
	CV	13.6		28.4		15.7		29.4		5.6	
	LSD (.05)	240		580				350		420	

Numbers in parentheses indicate relative rank in column.

Table 17. 99/00/01 COMMON WHEAT RAINFED OVER LOCATION/YEAR YIELD SUMMARY

YIELD Summary Table

ENTRY		Average		YOLO 2001		YOLO 2000		YOLO 1999		SLO 2001		SLO 2000		SLO 1999		TULARE 2001		TULARE 2000		TULARE 1999		BENITO 2001	
		LBS/ACRE		LBS/ACRE		LBS/ACRE		LBS/ACRE		LBS/ACRE		LBS/ACRE		LBS/ACRE		LBS/ACRE		LBS/ACRE		LBS/ACRE		LBS/ACRE	
20	ANZA	2860	(10)	1260	(12)	3080	(5)	3500	(1)	2240	(13)	2860	(9)	2680	(11)	670	(10)	3950	(13)	3480	(1)	4930	(12)
112	YECORA ROJO	2860	(11)	1280	(11)	2770	(10)	2100	(12)	2360	(10)	3200	(4)	3210	(5)	640	(12)	4580	(1)	3040	(13)	5370	(8)
353	YOLO	2890	(9)	1500	(8)	3020	(6)	2890	(5)	2300	(12)	3080	(6)	2860	(9)	830	(5)	3980	(12)	3130	(11)	5280	(9)
415	KLASIC	3080	(2)	1520	(7)	2830	(8)	2370	(10)	3050	(1)	3280	(2)	3780	(1)	850	(3)	4210	(7)	3200	(8)	5660	(2)
638	SERRA	2920	(7)	1370	(10)	3190	(1)	3450	(2)	2350	(11)	2890	(8)	2620	(12)	670	(9)	4010	(11)	3050	(12)	5610	(5)
788	EXPRESS	2920	(8)	1730	(3)	2750	(11)	3320	(3)	2480	(8)	2690	(10)	3150	(6)	870	(2)	4140	(8)	3160	(10)	4910	(13)
						26																	
827	CAVALIER	3060	(3)	1680	(4)	90	(12)	2630	(7)	2490	(7)	3280	(3)	3120	(7)	770	(6)	4530	(2)	3410	(4)	6000	(1)
901	BROOKS	3030	(4)	1840	(1)	3150	(3)	2380	(9)	2630	(2)	2670	(11)	3330	(3)	880	(1)	4380	(4)	3410	(5)	5620	(4)
976	RSI 5	2790	(13)	1170	(13)	3090	(4)	3000	(4)	2620	(3)	2140	(13)	2570	(13)	670	(11)	4050	(9)	3370	(6)	5240	(10)
1020	BONUS	2940	(5)	1390	(9)	3160	(2)	2350	(11)	2450	(9)	3350	(1)	3020	(8)	750	(7)	4230	(6)	3160	(9)	5590	(6)
1036	KERN	3080	(1)	1640	(6)	2840	(7)	2670	(6)	2560	(5)	3140	(5)	3730	(2)	690	(8)	4430	(3)	3440	(3)	5660	(3)
1130	STANDER	2800	(12)	1650	(5)	2800	(9)	1990	(13)	2510	(6)	2650	(12)	2800	(10)	830	(4)	4030	(10)	3480	(2)	5240	(11)
1155	SUMMIT	2930	(6)	1810	(2)	2530	(13)	2470	(8)	2560	(4)	3010	(7)	3290	(4)	550	(13)	4300	(5)	3330	(7)	5450	(7)
	MEAN	2940		1460		2720		2710		2540		2830		2960		850		4200		3230		5340	
	CV	13		28.4		11.5		17.5		15.7		12.3		22.3		29.4		6.3		6.1		5.6	
	LSD (.05)	170		580		440		660				490		920		350		370		280		420	

Numbers in parentheses indicate relative rank in column.

To simplify information, when trade names have been used, no endorsement of products named is intended, nor is criticism implied of products which are not mentioned.
