

COOPERATIVE EXTENSION
University of California – Yolo, Solano & Sacramento Counties

South Sacramento Valley Field Crops Report



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What's Up With Wheat?

Some information you should consider **before** you plant.

Market Supply

It looks like we are heading into another period of wheat production being greater than the demand. Where domestic stocks start to build above that nebulous level that the market likes to see and the price is pushed further down. An additional factor affecting the local wheat industry is the closure of the General Mills facility in Vallejo. This plant purchased local wheat and a good portion of the lower protein wheat that is often hard to move. It was also a buyer of the new white wheat we are now producing. The USDA is still pushing the white wheat market because of the international demand, but the US is still not able to produce enough volume to be a "regular" player.

Varieties

We are in a holding pattern here with nothing new this season. Two new stripe rust (SR) resistant forage wheats are in the seed increase phase this season, with commercial availability planned for next year. Super Dirkwin, to be marketed by Resource Seeds, Inc., and PR1404 that is available through Lockhart Seeds and Adams Grain, are awnless forage wheats that will allow us to be rid of our number one stripe rust producer Dirkwin. I know of at least 4 new HRS wheats that will be entered into my trials this fall so I am hopeful we might get some help in this category. It looks like we will lose the variety Express this year, its susceptibility to SR and historical low yields have caused seed producers to stop production. Its high bread making quality kept it in demand; we desperately need a high quality variety to replace it.

Diseases

Just because we had an unusually dry spring did not mean Stripe Rust (SR) did not reduce wheat production in California this season. Lee Jackson, Small Grain Specialist at UC Davis, estimates a 5% loss in production statewide to this disease for 2004. Additionally, we have identified 7 new strains of SR from around the state, three of which are virulent to Summit and one virulent to Blanca Grande. I found SR on Summit in Dixon, Esparto and on Sutter Island (this was treated). If you are in the Delta or Sacramento Valley regions it would be wise to pencil in at least one fungicide treatment for this next season. Septoria leaf blotch was a problem this year, but the dry weather saved us. In most of the Summit fields I visited all of the lower leaves were lost to this disease. Unlike SR, Septoria leaf blotch produces viable resting spores in wheat residue that will infect wheat the following season. Do NOT plant wheat following wheat if you can help it, especially not Summit because that variety is very susceptible. If we have a normal rainfall season, with rain in late March and April, I suspect we will have to spray for both SR and Septoria. Fortunately, the registered fungicides for wheat are effective against both pathogens.

2004 Southern Sacramento Valley Wheat Variety Trials Over-Location Analysis

Kent Brittan - Farm Advisor Yolo, Solano and Sacramento Counties

Trial Locations: Dan Best Ranches; R.C. Gill & Son; Hunn, Merwin & Merwin; Mello Farms and Rominger Brothers

Planting Dates: Nov. 13, 2003; Nov, 13, 2003; Nov. 5, 2003; Dec. 3, 2003; Nov. 21, 2003 respectively.

Varieties arranged by highest to lowest yield.

Variety	Days to Heading	Plant Height (in)	¹ Flag leaf Disease Rating 1 to 8:					Protein (%)	Bushel Weight (lbs/bu)	Yield (lbs/acre)	Duncan's Mean Separation
			Loose Smut	Leaf Rust	Stripe Rust	BYDV	Septoria Blotch				
Trical 96	125	31	1	1	4	1	2	11.2	60.6	6387	A
PR1404	139	36	1	1	1	2	1	11.1	62.1	6333	A
Blanca Grande	129	33	1	1	2	2	2	12.3	64.1	6194	AB
Summit	132	30	1	1	2	2	3	11.6	62.4	6179	AB
Plata	129	33	1	1	1	2	2	12.0	64.1	6159	AB
99WY51394	138	34	1	1	3	2	2	12.1	61.6	5885	BC
DA998-12	135	36	1	1	2	2	2	11.9	63.0	5787	CD
BZ998-256-W	127	28	1	1	3	2	5	11.9	63.3	5751	CD
Stander	132	28	1	1	6	2	3	11.5	61.6	5479	D
Express	131	33	1	1	5	2	3	12.4	62.1	5094	E
Anza	137	35	1	1	9	2	3	11.2	61.1	4702	F
Average	132	32	1	1	3	2	3	11.8	62.4	5814	
C.V. (%)	0.9	4			28	24	29	3.1	1.7	9	
L.S.D @5%	0.8	1			1	0.3	0.5	0.2	0.7	311	
Significance by:											
Location	**	**			NS	**	**	**	**	NS	
Variety	**	**			**	**	**	**	**	**	
Interaction	**	**			**	**	**	**	**	**	

**= Significance at the 1% level, NS=Not Significant

¹Flag leaf Disease Rating: 1 to 8:1=0-3%, 2=4-14%, 3=15-29%, 4=30-49%, 5=50-69%, 6=70-84%, 7=85-95%, 8=96-100%

Loose Smut, Leaf Rust and Frost were effectively zero.

Grain moisture at harvest averaged 10%.

Trical 96 is a triticale produced by RSI for forage.

PR1404 forage wheat developed by Westbred, L.L.D. and handled by Lockheart Seeds and Adams Grain.

Based on stripe rust susceptibility I no longer recommend planting Express, Stander, Trical96 or Anza.

Falling Numbers

Falling Numbers (FN) became a major issue for at least the first part of harvest this year. Many loads were docked and most were assessed a fee to check FN values. The FN test measures the time in seconds that it takes a plunger to fall through a mixture of wheat flour and water (or ground-wheat and water). If the enzyme alpha-amylase (which converts starch into sugar) has been activated, as normally happens during sprouting (germination), a low falling number will be recorded and the wheat will be unsuitable for bread-making. Grain mills unfortunately can not blend low falling number wheat with high and get an average quality. Low FN wheat drops the blend FN much lower due to the activity of the enzyme when the dough is made. For those of you, like myself, wondering why FN were a problem this season I have put together a summary of a discussion Lee Jackson led at the Small Grain Workgroup meeting last week. Alpha amylase is abundantly present in germinating seed and is thought to be activated in mature wheat when the crop gets rained on. Additionally, it is naturally abundant in immature wheat prior to the soft dough stage. This may be a problem in a field that is harvested with many late tillers. Abundant alpha amylase can also be found in damaged spikes. Research has found that spikes damaged by the Orange blossom midge (not found in CA) had high levels of alpha amylase. We saw high levels of aphids in the heads this season and wonder if there may be correlation. British research has also shown that high temperatures during grain fill (early soft dough) can stress the plant triggering high alpha amylase activity in the mature grain. Lastly, some wheat varieties can produce unacceptably high levels of alpha-amylase (low falling numbers) in harvest-ripe grain in the absence of conditions that stimulate preharvest sprouting. These varieties do not become industry favorites. However, Blanca Grande has a parent in its genetic background that has naturally high alpha amylase. As you can see from this discussion it is very difficult for us to pin-point what the conditions were this season that exacerbated alpha amylase activity. I evaluated the four most popular wheat varieties from our area by sending samples from 5 trials to the California Wheat Commission. As you look at the results note the wide variability between maximum and minimum readings within one location and in the over locations analysis. With this kind of variability between replications you can understand why there was so much variability between loads coming out of your fields.

Falling Numbers By Location

Location	Falling Number (sec)		
	Average	Min	Max
Best			
Blanca Grande	267	257	287
Express	335	324	345
Plata	274	252	316
Summit	266	259	275

Location	Falling Number (sec)		
	Average	Min	Max
Mello			
Blanca Grande	235	223	240
Express	275	167	349
Plata	227	150	331
Summit	219	148	251

Location	Falling Number (sec)		
	Average	Min	Max
Gill			
Blanca Grande	314	294	335
Express	341	326	363
Plata	298	263	329
Summit	318	302	338

Location	Falling Number (sec)		
	Average	Min	Max
Rominger			
Blanca Grande	294	201	346
Express	339	290	367
Plata	288	278	304
Summit	320	297	367

Over Location Falling Numbers

Location	Falling Number (sec)		
	Average	Min	Max
Hunn			
Blanca Grande	241	198	307
Express	335	329	347
Plata	307	279	323
Summit	336	315	355

Location	Falling Number (sec)		
	Average	Min	Max
Over All			
Blanca Grande	270	198	346
Express	325	167	367
Plata	279	150	331
Summit	291	148	367

Coefficient of Variation: 13%

Least Significant Difference @5%: 24 sec

Duncan's Multiple Range Test at alpha 5%

Falling Numbers (sec)		
Express	325	A
Summit	291	B
Plata	279	B
Blanca Grande	270	B

2004 UC Davis Barley Results – Lee Jackson
Sorted by highest yield

Name	Yield (lbs/acre)	Test Wt (lbs/bu)	Shatter	Plant Ht (in)	Days to		BYDV	Net Blotch	Leaf Rust	Stripe Rust
					Head (from 3/1)	Mature				
UCD C135	7020 (1)	51.0	1.0	34	52	82	1.0	1.0	1.5	1.5
UCD C140	6990 (2)	50.6	1.0	32	49	81	1.0	1.0	1.0	1.0
23 IBYT 7	6970 (3)	50.2	1.0	35	48	78	1.0	1.0	1.0	2.3
UCD C108	6930 (4)	50.8	1.0	37	50	81	1.0	1.0	1.0	1.0
UCD C147	6830 (5)	49.5	1.0	34	47	81	1.0	1.0	1.0	2.0
UCD C142	6830 (6)	48.7	1.0	38	51	75	1.0	1.0	1.0	1.0
UCD PYT99 A-13	6750 (7)	51.8	1.0	34	47	80	1.0	1.0	1.3	2.3
*UC 933	6620 (8)	48.4	1.0	33	45	80	1.0	1.0	1.3	1.0
UCD YP03-9/9	6390 (9)	48.4	1.0	31	54	82	1.0	1.0	1.0	1.0
*UC 969	6310 (10)	53.4	1.0	35	38	71	1.0	1.0	1.0	4.3
*UC 937	6260 (11)	50.1	1.0	34	54	81	1.0	1.0	1.0	1.0
UCD C122	6250 (12)	50.4	1.0	37	49	79	1.3	1.0	1.0	1.0
UCD YP03-8/16	6230 (13)	50.5	1.0	35	54	83	1.0	1.0	1.3	2.0
UCD C109	6210 (14)	50.2	1.0	33	55	83	1.0	1.0	1.0	1.5
UCD YP03-9/3	6140 (15)	58.7	1.0	29	44	79	1.3	1.0	1.0	3.3
UCD PYT01 C6	6080 (16)	50.5	1.0	30	49	77	1.5	1.0	1.0	1.8
WPB DA 599-021	6030 (17)	51.7	1.0	35	54	81	1.0	1.0	1.0	1.5
UCD YP03-9/16	5890 (18)	50.5	1.0	35	55	83	1.0	1.0	1.0	1.8
*UC 603	5840 (19)	51.2	1.0	31	39	74	1.0	2.3	2.3	2.0
G196M046	5810 (20)	51.2	1.0	35	40	73	2.0	1.0	1.0	1.0
UCD YP03-8/2	5460 (21)	56.3	1.0	31	43	77	2.0	1.0	1.0	3.8
*PATTI	5160 (22)	50.9	1.0	26	50	82	1.3	1.0	3.3	1.5
6B98-9339	5030 (23)	53.0	1.8	47	40	71	1.0	1.0	1.0	8.0
UCD YP03-9/2	4750 (24)	60.7	1.0	33	63	82	1.0	1.0	1.0	1.0
*TRADITION	4270 (25)	52.8	1.5	43	43	75	2.8	1.0	1.0	8.0
APB BB-409	4260 (26)	47.2	1.0	26	61	81	1.3	1.0	1.3	5.5
*MELTAN	4090 (27)	54.5	1.0	30	60	78	2.8	2.3	1.0	3.8
*COMMANDER	3520 (28)	46.0	1.0	28	55	81	1.0	1.0	1.0	8.0
*MAX	1660 (29)	42.4	1.0	28	60	82	1.0	1.0	1.0	8.0
MEAN	5750	51.1	1.0	33	50	79	1.2	1.1	1.2	2.8
CV	6.4	1.4	13.5	4.2	3	1.6	29.4	30.3	21.7	13.6
LSD (.05)	510	1.5	0.2	3	3	3	0.5	0.5	0.4	0.5

* In red type **UC 969** = commercially available.

For you “dyed in the wool” Meltan growers, don’t you think its time you switched????

A complete analysis of results from all sites of the UC Regional Cereal Testing Program will be published in an **Agronomy Progress Report** and made available on line at:

<http://agric.ucdavis.edu/crops/cereals/cereal.htm>.

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Submitted by,

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