

COOPERATIVE EXTENSION

University of California – Yolo, Solano & Sacramento Counties

South Sacramento Valley

Field Crops Report

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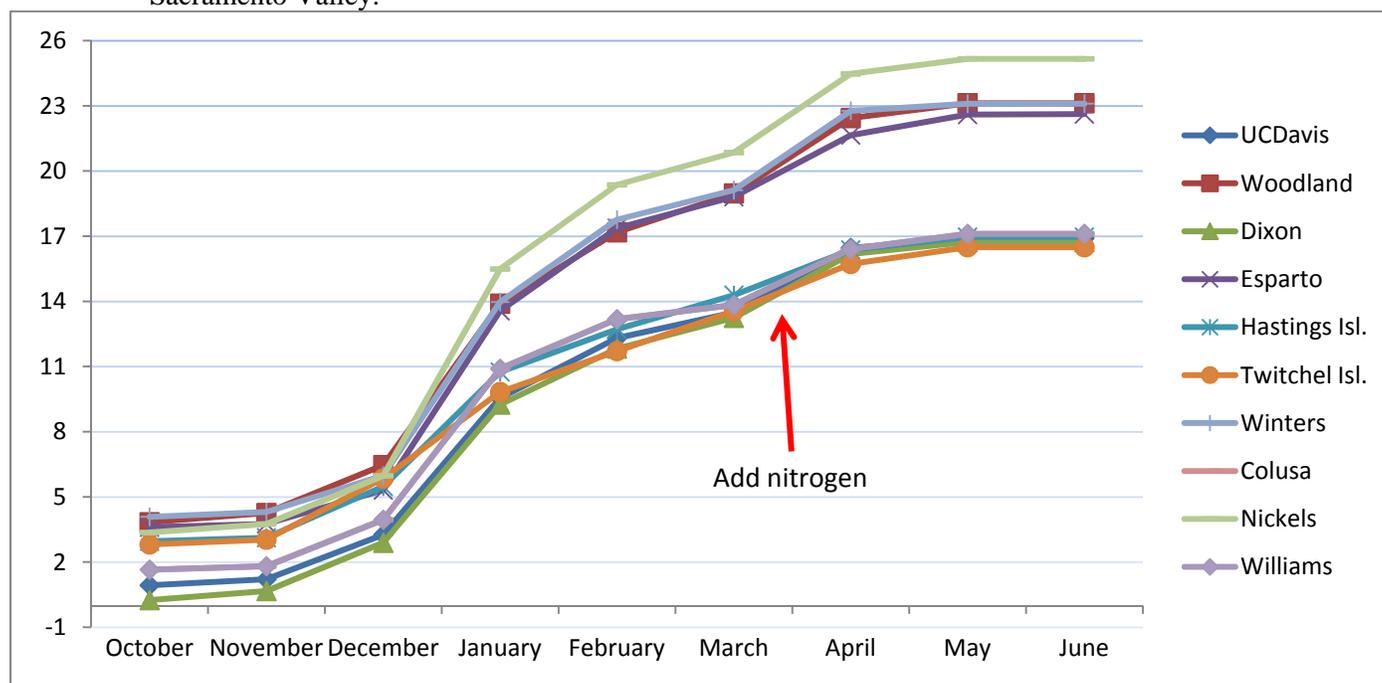
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2010 Small Grain Growing Season

As we head toward another season of small grain production, it's time to look over our shoulder and see how we did this last season. With a good price for grain to sell into, let's take some time to pick the right varieties for our particular growing conditions. This last year's rainfall and cooler temperatures allowed some dryland growers to set yield records for both barley and wheat. Figure 1 describes a near ideal rainfall season pattern.

Figure 1: 2009-10 Precipitation accumulations, in inches, during winter small grain growing season in southern Sacramento Valley.



Two patterns stand out in the above graph: timing of rainfall events and 6" or higher rainfall where the soil types are generally coarser. By having steady light rains from February to May, soil moisture remained good throughout the critical grain development and fill periods. It is important to watch weather patterns developing just before or at bloom. The ideal time for flying on nitrogen to boost grain protein is just before a rain event. As many of the dryland, poorer fertility area growers found out when they tested for grain protein, good soil moisture gives high yields but low protein without available soil nitrogen. I have not tested this on the hard white varieties, but we know this works for the hard reds. For coarse soils, I would expect a response of at least 0.5% in low soil moisture years and 0.75% to a full percent increase in years like this last one. If you are following tomatoes or some other high residual nitrogen crop in loam to clay soils, do not expect to see much of a response. Your grain protein levels should have been around 11% or more. We have found that grain protein levels is variety dependent, so always pay attention to the protein results in our variety trials. In areas where we have cool night time temperatures like the Delta, do not expect the same high

protein levels of a variety grown at UC Davis or further up valley where it is hotter. I try to provide research trial locations that show this difference. This season, my Delta area trials either were not planted or were drowned out so I cannot show you this difference. Take a look at last year's results to see the difference.

2010 Small Grain Research Trial Results

This year I planted 3 trial locations but harvested only two. My trial with Larry Hunn in Sacramento clay soil stayed wet too long and was eventually sprayed out March 18th. Interestingly, Blanca Royale was an inch taller (5inches) and greener than all the other entries, showing slightly better flooding tolerance. I obtained great results at both harvested trial locations: Craig Gnos Farms, Dixon, CA and Rominger Brothers, Winters, CA.

Figure 2. 2009 to 2010 Gnos small grains research trial results.

2009 to 2010 Gnos Wheat Variety Trial Summary Sorted by Yield

Variety	Grain Type	Stand (Plants/ft ²)	Days to Heading	Plant Harvest			Disease Rating:		Test			Duncan's Means@5% Separation
				Height (in)	Lodging (%)	Shatter (seed/ft ²)	Stripe Rust	Septoria Blotch	Weight (lbs/bu)	Protein (%)	Yield (lbs/ac)	
09T14058HB1-T	T	37	162	38	0	0	2	1	60.33	9.5	10405	A
Camelot	T	33	151	44	3	0	6	1	58.53	10.8	9565	B
Cal Rojo	HR	36	148	34	1	1	1	1	61.98	11.9	9523	BC
Blanca Fuerte	HW	34	153	36	0	1	1	3	64.45	11.4	9453	BC
Trical Brand 118	T	41	144	41	20	0	7	1	60.25	10.0	9391	C
Desert King	DR	48	166	40	0	0	1	1	62.35	11.0	8868	D
Blanca Royale	HW	37	149	35	14	1	1	1	63.70	11.6	8588	E
Patwin	HW	42	151	36	3	0	1	1	62.35	12.6	8527	E
Redwing	HR	41	150	35	9	1	1	1	62.40	12.4	8517	E
WB-Cristallo	HW	39	160	38	1	0	1	2	63.75	12.4	8443	E
Fortissimo	DR	34	159	38	0	0	1	1	62.93	11.8	8227	F
Lassik	HR	39	165	39	55	0	1	1	62.43	11.8	7915	G
Espresso	HR	36	152	39	16	1	1	3	62.63	12.9	7903	G
Volante	DR	35	163	33	0	0	1	1	62.40	11.4	7638	H
Lariat	HR	36	152	37	0	1	1	1	63.35	11.0	7423	I
SJ908-247	HR	35	146	35	0	0	1	3	63.43	13.9	7367	I
Triple IV	HR	37	135	38	98	0	1	4	60.08	13.3	5613	J
PR1404	MR	39	166	41	86	0	2	3	59.80	12.4	5591	J
Pacheco	T	38	145	44	0	0	7	1	49.53	13.0	3325	K

Average: 38 154 38 16 0 2 2 61.40 11.8 8015

C.V.% 5.9 1.5 1.4 49.6 195.5 5.8 7 1.23 0.8 1.3

L.S.D @5% 4.6 3.3 0.8 11.3 0.7 0.2 0.163 1.68 0.1 148.4

Significance by Variety ** ** * * * *

Significance by Rep * *

** = significant 99% of the time * = significant 95% of the time

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

Grain color/type: HR= Hard Red MR= Medium hard Red T=Trical= triticale DR = Durum

No frost or Loose Smut detected in the trial this season.

Most notable this season was the increased stripe rust in the triticale varieties at both locations. Figure 2 indicates that the new triticale variety 09T14058HB1-T from RSI was the least susceptible to stripe rust (SR) and had the best yield at the Gnos location. Camelot was much slower in its SR development and still yielded well but significantly lower than the new variety. Trical 118 has definitely lost its high yielding place in areas where the disease is present. Figure 3 describes the difference in Trical 118 yield for locations with early and late disease development. We do not have very many acres of triticale in our area so I would not expect to see a lot of stripe rust on it. With any stripe rust strain, it takes enough acres of a susceptible host to maintain that strain, which makes it hard to guess what next year's disease pressures will be for triticale.

Figure 3. 2009 to 2010 Rominger small grains research trial results.

2009 to 2010 Rominger Brothers Wheat Variety Trial Summary Sorted by Yield

Variety	Grain Type	Plant Height (in)	Harvest Lodging (%)	Shatter (seed/ft ²)	Stripe Rust	BYDV	Protein (%)	Test Weight (lbs/bu)	Yield (lbs/ac)	Duncan's Means@5% Separation
Trical Brand 118	T	38	0	0	3	1	9.97	60.7	7614	A
Camelot	T	41	0	0	3	1	10.77	59.6	7249	B
Blanca Fuerte	HW	33	0	0	1	1	10.68	65.1	6993	C
Cal Rojo	HR	33	0	1	1	2	10.55	62.3	6936	C
Lariat	HR	36	2	1	1	1	11.51	63.9	6287	D
Fortissimo	DR	37	0	0	1	1	11.23	62.6	6261	D
Redwing	HR	33	0	1	1	1	10.69	63.0	6209	DE
Patwin	HW	34	0	0	1	2	12.00	62.2	6179	DE
Blanca Royale	HW	33	2	0	1	1	11.65	63.3	6178	DE
Lassik	HR	36	1	0	1	1	11.40	64.1	6122	EF
PR1404	MR	40	8	0	1	1	10.89	62.9	6016	FG
WB-Cristallo	HW	36	3	0	1	1	11.22	64.1	5969	G
Pacheco	T	41	0	0	7	1	11.19	56.6	5689	H
Espresso	HR	35	0	0	1	1	12.02	63.4	5682	H
SJ908-247	HR	34	0	0	1	1	12.58	63.9	5663	H
Desert King	DR	39	0	0	1	1	10.60	62.0	5572	H
Volante	DR	32	0	0	1	1	11.37	62.9	5344	I
Triple IV	HR	36	48	0	1	2	13.69	62.2	4259	J
Frassinetto	SR	55	40	47	3	1	14.08	58.2	1536	K
GDFRG1WW5	SRS	54	22	27	6	1	14.13	60.2	1310	L
Average		38	6	4	2	1	11.61	62.2	5653	
C.V.%		2.0	130.1	93.5	6.9	16.3	2.17	0.7	1.3	
L.S.D @5%		1.2	13.6	5.9	0.2	0.3	0.42	0.7	120.9	
Significance by Variety		**	**	**	**	**	**	**	**	
Significance by Rep		*				**			*	

** = significant 99% ; * = significant 95% of the time

¹Disease Rating (1-8):

Grain color/type: HR= Hard Red HW= Hard White T=Trical= triticale SR= Soft Red wheat DR= Durum
 GDFRG1WW5 Gahba DiFarro E Rosa Gentile rare soft red wheat from Italy.

Frassinetto rare soft red wheat from Italy.

No Frost or Loose Smut detected within the trial this season.

Cal Rojo was the clear winner for the hard red wheat class with significantly better yield at both locations than Redwing. However, note that the protein in Redwing (12.4%) was a half percent higher than Cal Rojo (11.9%). Test weight was also better for the Redwing. No new hard red or white varieties this next season.

For the hard white wheat class, Blanca Fuerte was the clear yield winner at 9453lbs/ac and 11.4% protein. Patwin had the best (12.6%) protein but lower yield. Always check with your grain handler before planting to check market demands for what you wish to grow and sell. This is especially true for Durum wheat; do not grow it without a contract. As you can see, Desert King is currently the best durum variety for the southern Sacramento Valley. Fortissimo had 0.8% higher protein but significantly lower yields at the Dixon area trial location. At the Rominger trial, Fortissimo had the best yield and protein. All three durum varieties had stripe rust resistance speckling this year for the first time with Volante being the most sensitive (6 rating) during February through April. Fortissimo was less affected with a 4 rating and Desert King a 3 rating at its worst.

For a more in-depth discussion on small grain production please come to my **Southern Sacramento Valley Small Grains Meeting, October 21st** right here in Woodland, CA (information on next page).

Southern Sacramento Valley Small Grains Meeting

October 21, 2010 8:00am-12:00pm Norton Hall, 70 Cottonwood St., Woodland, CA
CDFA DPR Continuing Education Hours applied for: 0.5 "Laws and Regs," 1.5 hours "Other"
Certified Crop Advisor Hours applied for: 2.9

7:45-8:05	Registration, Welcome, and Introductions Kent Brittan, County Director and Advisor; UCCE Yolo, Solano, and Sacramento Counties
8:05-8:20	Wheat Industry Updates Janice Cooper, Director; California Wheat Commission
8:20-9:00	Teff Production for Forage, Production Information with Diseases and Pests Dan Putnam, PhD, Forage Specialist; UC Cooperative Extension UCD
9:00-9:20	Roundup Ready Canola – a New Roadside Pest Doug Munier, Agronomy Farm Advisor; UCCE Glenn, Butte, and Tehama Counties
9:20-9:50	Wheat Breeding for Plant Disease Resistance Oswalda Chicaiza, PhD, Wheat Breeder; UCD
9:50-10:00	Break
10:00-10:30	Small Grains Pesticide Handling and Use Laws and Regulations Jennie King, Agriculture and Standards Specialist; Yolo County Agriculture Department
10:30-10:45	Marketing and Handling Organic Whole Grains Monica Spiller; Whole Grain Connection
10:45-11:45	Small Grain Varieties for the So. Sac. Valley – Pest Management and Adaptability Kent Brittan, County Director and Advisor; UCCE Yolo, Solano, and Sacramento Counties

Smartphone app delivers soil data to growers in the field

Growers can now get information about the properties of their soil by using their cell phones while standing in the field. The UC Davis Soil Resource Laboratory has developed a smartphone application that performs location-based queries from GPS-enabled cell phones. Although soil information is on the Internet, it may not be convenient to bring a computer out to the field. Using its online soil survey, the SoilWeb application allows users to identify soils and access soil survey data from any place in the U.S. that has cell phone coverage in the 48 contiguous states.

"The intent was to enable more people to access, and more importantly, apply soil survey information in a manner that best accommodates how soil surveys are used -- *in the field*," said Anthony O'Geen, a UC Davis Cooperative Extension soil resources specialist.

UC Davis Ph.D. candidate Dylan Beaudette, and his advisor O'Geen, developed SoilWeb to take advantage of the GPS or cell tower triangulation capabilities of modern smartphones. The spatial queries are sent to the UC Davis Soil Resource Laboratory's online interface for soil survey information. Query results are presented as a series of soil profile sketches, depicting soil horizons, series names, landscape position, and taxonomic classification.

Clicking on a soil name provides the user with information such as depth profiles of soil chemical and physical properties, land classification indices, land-use interpretations, and links to a variety of other environmental databases.

SoilWeb was designed for a wide range of users, from scientists to home gardeners. The application is available for free for iPhone and Android OS platforms at: <http://casoilresource.lawr.ucdavis.edu/drupal/node/886>
Details about the application appear in the latest issue of Soil Science Society of America at: <https://www.soils.org/files/publications/sssaj/abstracts/74-5/s10-0144nabs.pdf>. This research was funded in part by the UC Kearney Foundation of Soil Science.

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