

COOPERATIVE EXTENSION

University of California – Yolo, Solano & Sacramento Counties

South Sacramento Valley Field Crops Report

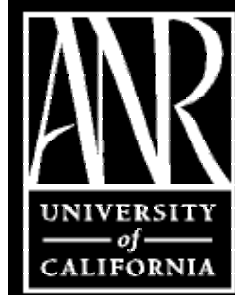
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January 2005 • Vol. 1 No. 1

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2004 Corn Research

During the 2004 corn season I conducted 8 corn field trials: 3 variety, 2 disease screens, 1 post-emergence herbicide, 1 seed treatment and 1 private variety screen. This season was an excellent growing season and I achieved my personal best for corn grain yield at a little over 8 tons/acre. Plant populations of 30,000 plants/acre worked well for my Russell Ranch trial under moderate temperatures, high soil fertility and good uniform soil moisture. Craig Gness, north of Dixon, won the National Irrigated Grain Corn contest this year with a yield of over 9 tons/acre, congratulations! He planted a staggered offset of 2 rows on 30" beds, an interesting idea I'll have to try.

Grain Corn Seed Treatment for Wireworm Control

I took a quick look at the potential control of wireworm by the seed treatment Pancho. This was one of those experiments that you try to get similar treatments and controls for good analysis, but you can't quite get them. So this is just a preliminary look at the potential effect Pancho has on wireworms compared with the grower's Temik treatment and an untreated control. As you can see from Table 1, I was unable to have an untreated control to compare with each treated variety. With the yields it is a little "apples to oranges" comparison, ST7539 treated compared to N67-H6 with or without Temik. All stands started out with the same seeding rate, but as you can see the untreated N67-H6 continued to lose stand at a greater rate up to the last count prior to bloom. I am quite encouraged by this look and plan on a better trial this next season.

Table 1. Grain Corn Seed Treatment for Wireworm Control -Tyler Island, Sa cramento County

Co. Initials	Entry Name	Pancho Rate (mg ai)	Temik 20G Rate (lbs/a)	Stand Counts (plants/ac)			Bushel Wt. (lbs/bu)	Yield*** (lbs/A)	Duncan's Multiple Range Test(5%)	
				5/27/04	6/3/04	7/6/04				
ST	7539RR	1.25	0	35806	34935	32670	58.3	12312	A	
DK	DKC63-10 RR2	1.25	0	35893	34587	33628	60.0	11901	AB	
DK	DKC63-10 RR2	0.25	0	34674	33541	31799	60.6	11831	B	
NK	N67-H6	0	5	34935	34151	32931	58.0	11481	BC	
ST	7570RR	0.25	0	33890	32583	31450	58.2	11353	C	
NK	N67-H6	0	0	27791	24916	22041	57.7	9142	D	
				Average	33832	32452	30753	58.8	11337	
Coefficient of Variation					3%	4%	7%	0.5%	1.4%	
LSD @ 5%					2795	3636	5784	0.7	1419	
Probability of Significance					**	**	**	**	**	
Non-additivity					**					

No-till Roundup Ready Grain Corn Variety Trial - Solano County

I conducted a no-till roundup ready grain corn variety trial with Eric Freese, south of Dixon this past season (Table 2). Sixteen varieties generated yields that ranged between 6210 and 9617 lbs/acre, a difference of just 3407 lbs. The least significant difference (LSD) at 5% was 1396 lbs/ac which only allowed for three levels of separation for the variety yield means. Despite two Roundup applications, heavy water grass pressure was evident from bloom on. This was the second year in a row for field corn at this location so pest pressures were higher, yields and bushel weights were lower than expected. Yields were also lower than the Solano County 13 year average of 9870 lbs/acre. Corn earworm infestation was very high, with about one per ear except for two varieties with BT genes. CropPlan's 818RR/BT had about a 6% rate of earworm larvae present and Dekalb DKC63-24 RR2/YGCB less than 2%. This DK variety is a good example of stacked gene technology with: RR2 for Roundup Ready 2 gene; YG for Yield Guard gene. The YGCB part is a BT gene with activity on the corn borer (CB) beetle larva which feed on roots. We do not have a problem with CB in California at this time. However, it appears there might be some activity on corn earworm with this gene. As of now there are 322 Bacillus thuringiensis (BT) delta-endotoxins identified that have wide range of toxic activity on a wide host of insects. It will be interesting to see which ones we will see in pesticides and/or genetically. You might as well get used to the complicated variety names as the seed companies try to find the best fit of genetic solutions for our region. I noticed that most of the seed companies are doing a fairly good job educating the grower community to these new options and stewardship requirements. It is important to remember that each of these genes come at an additional cost to your seed.

Table 2. 2004 Freese No-till Roundup Ready Corn Variety Trial

<u>Cooperator:</u>	Erik Freese	<u>Seed drop:</u>	7 inches
<u>Experimentors:</u>	Brittan, Kochi	<u>Length of Plots:</u>	1257 feet
<u>Soil Type:</u>	Capay silty clay loam	<u>Row Width:</u>	2 row 60 inch beds
<u>Planting Date:</u>	April 8, 2004	<u>Replications:</u>	2
<u>Planter:</u>	Case IH 1200 No-till planter	<u>Previous Crop:</u>	Corn
<u>Planting Depth:</u>	2.5 inches	<u>Herbicide:</u>	Roundup Ultra, 2 applications
<u>Rows Per Plot:</u>	4	<u>Harvest Date:</u>	09/29/04
<u>Fertilizer:</u>	32gal/ac N + water run	<u>Insecticide:</u>	None
<u>Irrigation:</u>	By furrow		
<u>Location:</u>	First field east of Pitt School Rd. and Weber Rd.		

Cmpny Initials	Entry Name/NO.	Stand (Plants/A)	Days to Bloom	Ear Rot (%)	Cmn Smut (%)	Ear Height (in)	Moisture at Harv. (%)	Bushel Wt. lbs/bu	Yield*** (lbs/A)	Duncan's Multiple Range Test(5%)
MY	2T801	25613	80	10	1	47	15	58.9	9617	A
ST	7539RR	25439	83	11	1	47	14	58.0	9614	A
GH	H-9248 RR	23784	80	8	0	49	14	58.2	9308	A
CP	818RR/BT	24655	87	1	0	45	16	58.7	9251	A
AS	RX752RR/YG	26180	83	9	1	47	14	59.5	8893	AB
AS	RX940RR2	25875	93	4	0	60	15	59.2	8750	AB
PI	31G97	26267	93	2	1	59	14	59.9	8702	AB
ST	7570RR	27138	81	13	0	42	13	58.8	8641	AB
PI	31N26	24437	91	2	0	48	15	61.4	8634	AB
TB	SX5447RR	24263	82	2	3	41	13	56.4	8586	AB
DK	DKC63-24 RR2/YGCB	25483	90	21	2	56	14	60.1	8299	AB
NK	L78-U7	26092	89	3	3	49	14	58.3	8032	AB
NC	5413R	24089	84	10	0	48	14	57.9	8022	AB
DK	DKC64-10 RR2	25962	89	1	1	47	14	58.8	7554	BC
NC	4825R	23348	85	11	2	46	13	58.8	7361	BC
TB	SX5400RR	20822	85	10	0	49	13	58.5	6210	C
Average		24965	86	7	1	49	14	58.9	8467	
Coefficient of Variation		4.0%	1.2%	61%	82%	7%	4%	1%	8%	
LSD @ 5%		2147	2	9	1	7	1	1.6	1396	
Probability of Significance		99%	99%	NS	NS	99%	99%	99%	99%	

** Yield adjusted to 15% moisture

Conventional Grain Corn Variety Trial - Yolo County

UC Davis Russell Ranch contains some of the finest soils in Yolo County and my conventional grain corn variety trial demonstrated how well it can produce. Table 3 displays the yield and disease results of this trial. I had good help from Monsanto's research team, Wayne Edwards and Tom Johnson. Thanks for helping get the planter adjusted for each of the varieties we planted. Outstanding yields and amazing ear heights were recorded for some of the varieties in this very uniform field trial. Plot lengths were only 210 feet compared to ~1300ft at the other two locations. It is important to note that at the Russell Ranch two of the varieties had ear heights, measured from the top of the bed to the base of the ear, at or above 80 inches. I start to get concerned about lodging when corn plants get this tall. I had no problems with lodging in any of the varieties this season, but my plots are only 4 rows wide and they tend to rely on the shorter varieties to stay upright when they get this tall. Yolo County's ten year grain corn yield average is 10,073lbs/acre and the yield range for this trial was 16,357 to 11,361lbs/acre. Very good field uniformity gave me a low coefficient of variability and allowed for a nice separation of the varieties.

Table 3. Conventional Grain Corn Variety Trial – Russell Ranch, Yolo County

<u>Cooperator:</u>	UC Davis LTRAS	<u>Seed drop:</u>	7 inches
<u>Experimentors:</u>	Brittan, Bryant, Kochi	<u>Length of Plots:</u>	210 feet
<u>Soil Type:</u>	Yolo silt loam, Class I	<u>Row Width:</u>	30 inches
<u>Planting Date:</u>	4/15/04	<u>Replications:</u>	2
<u>Planter:</u>	John Deer 71 plate planter	<u>Previous Crop:</u>	Tomatoes
<u>Planting Depth:</u>	2.5 inches	<u>Herbicide:</u>	None
<u>Rows Per Plot:</u>	4	<u>Harvest Date:</u>	9/30/2004
<u>Fertilizer:</u>	45 lbs. N,P,K/acre preplant, 165 lbs. N/acre sidedress (urea)	<u>Insecticide:</u>	None
<u>Irrigation:</u>	By furrow		
<u>Location:</u>	UCD Russell Ranch South 0.2mi of Russell Rd. 0.5mi west Co.Rd. 95		

Company Name	Entry Name/NO.	Stand (Plants/A)	Days to Bloom	Fusarium Ear Rot (%)	Cmn Smut (%)	Ear Height (in)	Moisture at Harv. (%)	Bushel Weight (lbs/bu)	Yield** (lbs/A)	Duncan's Multiple Range Test (5%)	
Asgrow	AS	RX752RR/YG	30579	77	8	0	60	13.0	63	16357	A
Croplan	CP	818RR/BT	29708	78	0	0	66	13.9	61	15444	AB
Mycogen	MY	2T780	30318	78	27	0	70	12.9	60	15314	ABC
SeedTec	ST	7570RR	27530	73	7	1	59	12.2	60	14923	ABCD
Tuleburg	TB	SX5447RR	31102	72	0	0	58	12.6	60	14664	BCDE
DEKALB	DK	DKC61-42	38246	76	12	7	60	13.6	61	14229	BCDEF
NC+ Hybrids	NC	5433RB	29621	74	3	0	64	12.1	60	14147	BCDEF
SeedTec	ST	7539RR	28053	72	5	1	61	13.1	60	13929	BCDEF
Sieben	SI	7743	31973	73	1	4	65	13.1	61	13907	BCDEFG
Pioneer	PI	3162	28750	74	2	2	58	13.6	63	13767	BCDEFG
Asgrow	AS	RX940RR2	30666	81	4	0	82	13.5	62	13718	BCDEFG
Mycogen	MY	2D835	31102	77	1	0	75	13.7	61	13634	CDEFG
NC+ Hybrids	NC	7101	28837	77	0	1	60	13.9	61	13454	DEFG
Sieben	SI	7730	30928	77	4	0	64	12.6	62	13405	DEFG
DEKALB	DK	DKC61-43	32844	78	19	1	58	12.0	60	13177	DEFG
GoldenHarvest	GH	H-9407	29534	75	0	0	58	13.5	60	13026	EFGH
Tuleburg	TB	SX5400RR	35806	75	7	1	68	12.2	61	12970	EFGH
NorthrupKing	NK	NX8582	29969	83	1	0	80	13.7	63	12499	FGH
DEKALB	DK	DKC6410RR2	31189	78	2	0	67	12.2	61	12159	GH
NC+ Hybrids	NC	4616	27356	78	3	0	63	12.8	60	11361	H
		Average	30705	76	5	1	65	13.0	61	13804	
Coefficient of Variation			7.1%	1.3%	77%			5.5%	2%	5%	
		LSD @ 5%	4584	2.2	8.2			1.5	2	1520	
Probability of Significance			99%	99%				NS	NS	99%	

** Yield adjusted to 15% moisture.

Conventional Grain Corn Variety Trial – Tyler Island

My conventional grain corn trial on Tyler Island also showed how good a season it was last year. For the fifteen varieties, the yields ranged between 15,715 to 12,186lbs/acre compared to a Sacramento County 9-year average of 9075lbs/acre. There was no lodging in any of the varieties despite some fairly tall lines.

Table 4. Conventional Grain Corn Variety Trial – Tyler Island, Sacramento County

<u>Cooperator:</u>	Steve Mello	<u>Location:</u>	Tyler Island
<u>Experimentors:</u>	Brittan, Kochi	<u>Length of Plots:</u>	~1300 feet
<u>Planting Date:</u>	April 9, 2004	<u>Row Width:</u>	30 inches
<u>Planting Method:</u>	White air planter, 8 row	<u>Previous Crop:</u>	2003-Wheat Sept. 16,
<u>Planting Depth:</u>	2 inches	<u>Harvest Date:</u>	2004
<u>Rows Per Plot:</u>	4		
<u>Fertilizer:</u>	25 gallons per acre of 8-24-6 with 1/2% zinc		
<u>Insecticide:</u>	5 lbs Thimet 20G at planting		
<u>Herbicide:</u>	Accent + Shark		
<u>Irrigation:</u>	By spud ditch		
<u>Seed drop:</u>	6 inches, 35,000seed/acre		
<u>Soil Type:</u>	Rindge mucky silt loam, 10-25% Organic matter		

Company Initials	Entry Name/NO.	Stand (Plants/A)	Days to Bloom	Fusarium Ear Rot (%)	Head Smut (%)	Ear Height (in)	Moisture at Harv. (%)	Bushel Wt. lbs/bu	Yield** (lbs/A)	Duncan's Multiple Range Test(5%)
CP	818RR/BT	29660	81	0	1	61	17	57.6	15715	A
GH	H-9359	30215	82	1	6	60	14	59.4	15648	A
NK	N72-J5	32314	84	0	1	53	13	57.9	14975	AB
DK	DKC61-42	31601	81	2	8	58	13	59.0	14944	ABC
AS	RX752RR/YG	29146	85	0	8	57	13	60.3	14901	ABC
NC	5433RB	29423	83	1	1	54	14	60.1	14899	ABC
MY	2T780	31442	83	5	2	62	15	58.9	14769	ABC
DK	DKC60-17RR2	35284	84	1	3	50	13	60.2	14324	ABCD
ST	7539RR	28750	84	0	1	50	14	59.6	14207	BCD
PI	31G98	29700	88	0	4	67	14	60.0	13852	BCD
NC	4822	31918	86	0	11	57	13	59.4	13541	CDE
AS	RX940RR2	29423	91	2	7	78	15	60.8	13536	CDE
ST	7570RR	32987	82	0	5	54	13	59.9	13295	DE
MY	2D835	32512	80	0	3	68	14	58.1	13079	DE
PI	32B33	29344	83	0	14	62	14	59.5	12186	E
	Average	30914	84	1	5	59	14	59.4	14258	
Coefficient of Variation		2.2%	1.1%		82%	8.2%	4.7%	1.0%	4.1%	
LSD @ 5%		1454	2.0		8.2	10.4	1.4	1.3	1248	
Probability of Significance		99%	99%	NS	NS	99%	99%	99%	99%	

** Yield adjusted to 15% moisture.

Post Emergence Herbicide Trial

This is a quick note about this herbicide trial which was conducted at the request of Monsanto to generate some data for CA DPR registration of Yukon. Accent or Steadfast gave good control of Johnson grass.

Yukon plus Accent also gets lambsquarters and pigweed. The best treatment was Steve Mello's Accent plus Shark. It is very important to make sure you include the proper surfactant.

Supervisory Skills Workshop

Increase your farm manager's people-handling skills. On Tuesday, Feb 8, 2005, Spanish-speaking agricultural supervisors, foremen, farm labor contractors, and others can attend a training program, "Agricultural Supervision & Management." Topics to be covered include interpersonal relations on the job, employee discipline, employee counseling techniques, listening skills, and conflict management. Our workshop, conducted in Spanish only, provides supervisory staff a chance to actively participate through role-playing examples, case studies, and lecture discussions.

The meeting will take place at our UC Cooperative Extension office, 70 Cottonwood Street, Woodland, CA 95695 in Norton Hall. The full-day seminar is scheduled from **10 AM to 4:30 PM on Tuesday, Feb 8, 2005**. Participants should check in by 9:30 AM.

The trainer is Gregorio Encina Billikopf, UC labor management farm advisor from Stanislaus County.

Fee for the meeting is \$20 per participant to cover lunch and a Spanish-language version of Gregorio Billikopf's book, *Labor Management in Agriculture: Cultivating Personnel Productivity*. Any participant who instead would prefer to receive an English-language version of the book should request one when registering. If registering after Feb 1 (postmarked with payment enclosed), fee will be \$30. To register, mail the form below. For additional information, telephone our office manager, Teresa McClellan, at (530) 666-8143 or e-mail tlmcclellan@ucdavis.edu

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Agricultural Supervision & Management Workshop in Spanish only (Tues, Feb 8, 2005)

Name _____ ☎ () _____

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Address _____

City _____ State _____ Zip _____

Enclosed is a check payable to *UC Regents* for \$ _____.

- postmarked by Feb 1 (\$20/person)
 postmarked after Feb 1 or later (\$30/person)

Sorry, **no** refunds for cancellations, but substitution of participants may be made. Reservations will be limited to 80. Lunch will be Mexican food.

Mail to: UC Coop Extension, 70 Cottonwood Street, Woodland, CA 95695
or **FAX to:** (530) 666-8736
or Via **Internet:** Go to <http://ceyolo.ucdavis.edu>, (*In the right column*) Click here for more information & register. **After registering via mail or internet, Please mail checks to the address above!**



- Wheelchair accessible facility. With advance request, efforts will be made to provide accommodations for persons with disabilities.
- *Instalaciones accesibles a las sillas de rued. Con notificación previa, se harán esfuerzos para proveer acomodaciones para personas con incapacidades.*

UC Cooperative Extension Office, Yolo County 70 Cottonwood Street (northwest side of town) **530- 666-8143**
From Sacramento take I-5 North to Woodland. Take the West St. exit. Turn left on to West St. and go back over the freeway. Turn right on to Kentucky Ave. Turn left on to N. Cottonwood St. The UCCE building is on the right-hand side of the street. As you face the building, the door to UCCE is on the left side.

From Redding take I-5 South to Woodland. Take the West St. exit. Turn right on to West St. Turn right on to Kentucky Ave. Turn left on to N. Cottonwood St. The UCCE office is on the right-hand side of the street. The door to the UCCE office is on the left side, when you are facing the building.

From San Francisco take I-80 East towards Sacramento. Go past Dixon and take the Pedrick Road exit. Turn left and go over overpass. Stay on Pedrick Road for ~13 miles. Turn right on to Main Steet and turn left on to Cottonwood Street. The UCCE office is 3 blocks up, on the left-hand side of the street. The door to the UCCE office is on the left-hand side, when you are facing the building.

Submitted by,

Kent Brittan

Farm Advisor, Yolo, Solano and Sacramento Counties

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January 20, 2005

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