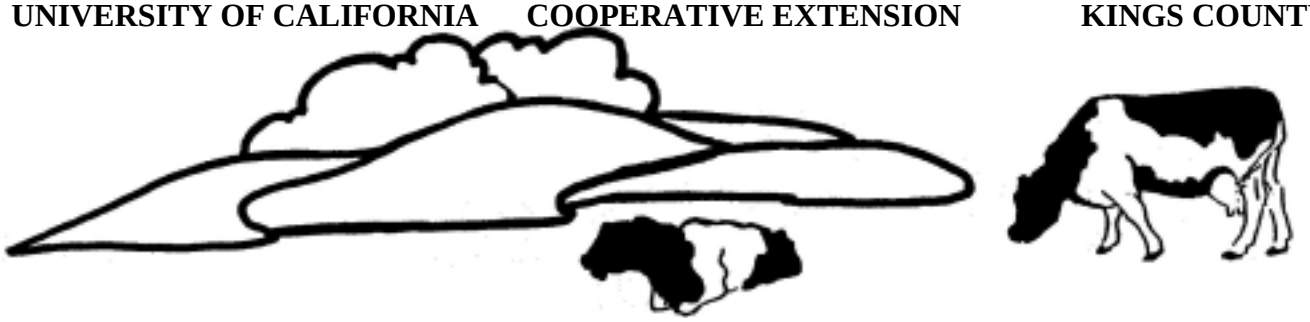
DAIRY NOTES

UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION KINGS COUNTY



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1999 Corn Silage Variety Trial Results

It's time to plant corn again and that means a look back at recent years to see what varieties have done well. Overall 1999 was a very good corn year. According to the recently released 1999 crop report for Kings County, yields were about 1 ½ tons per acre higher than 1998. Other sources estimate that the increase was closer to 3 to 4 tons per acre higher. It was not uncommon to see average yields of 30 tons/acre. Favorable weather during most of the growing season contributed to high yields *and* excellent quality in 1999. Yield and quality results from corn silage variety trials conducted by UC Cooperative Extension Farm Advisors in Kings (Carol Collar) and Tulare (Carol Frate) counties are shown in Tables 1 and 2.

Kings County trial - Thirteen varieties were planted in six row plots on 30 inch rows that were ¼ mile long on March 29th. The trial was located on the NE corner of 6th and Excelsior in Hanford, which has a Kimberlina fine sandy loam soil type.

Tulare County trial - Fifteen varieties were planted in six row plots on 38 inch rows that were ¼ mile long on May 27. The trial was located west of Porterville on Cajon fine sandy loam soil.

In both tables, yields are listed in tons per acre on an "as harvested" basis and also on a "moisture adjusted" basis. The moisture adjustment is made because comparing weights as they come out of the field without considering differences in moisture content can give an incorrect picture of results. All the varieties in these trials are harvested on the same day, so there are usually some maturity differences, even though we try to account for that in selecting varieties to enter in the trial. Varieties that are less mature at harvest contain more water than varieties that are more mature. To compensate for the difference in moisture content at harvest, a mathematical formula is used to adjust all yields to 70% moisture. The concept of moisture correction for comparing tons per acre of corn silage is similar to the fat correction we do for milk when we compare milk production on a 3.5% fat corrected milk basis.

Special thanks are due to Gil den Dulk in Kings County, and Garret DeJong in Tulare County for allowing us to conduct corn trials at their farms. Also thanks to Netto Ag and Vercauteren Custom Harvesting for their patience and special care in ensuring that each variety was handled separately for weighing and sampling.

Table 1: 1999 Kings County UCCE Silage Corn Variety Trial

Cooperator: Gilbert denDulk
Harvester: Netto Ag, Inc.
Planted: March 29, 1999
Harvested: August 16, 1999

		Yield Summaries[1]			Quality Parameters[2]			Ear Characteristics[3]			
Company	Brand	Tons/A as harvested	% Moisture At Harvest	Tons/A adjusted to 70% Moisture	% protein	% ADF	% NDF	Plant height (ft)	Ear height (ft.)	Ear % Dry Matter	Lbs/ear. @ 60% DM
Asgrow	RX 913	27.2	60.5	35.5 a	6.4	26.9	45.9	9.3	4.3	53.3	0.58
DeKalb	679	30.5	65.7	34.9 ab	6.7	27.7	45.7	9.3	4.7	55.2	0.77
Cargill	9027	28.1	63.1	34.5 abc	6.5	25.3	43.3	9.8	4.3	51.7	0.65
SeedTec	7638	27.5	63.8	33.0 abcd	6.3	27.9	46.0	10.3	4.6	52.2	0.62
Fielder's Choice	8216	27.4	64.0	32.9 abcd	6.2	27.9	47.1	9.7	4.5	51.2	0.64
Simplot	XL Big Maxx	30.1	67.2	32.6 abcd	7.0	30.0	46.8	9.8	4.4	51.3	0.63
Pioneer	3223	27.6	64.7	32.2 bcd	7.0	24.6	41.6	8.7	4.2	53.9	0.66
Fielder's Choice	8417	26.8	64.6	31.6 cd	6.7	26.6	44.5	10.3	4.8	50.6	0.64
Guttwein	2696	25.4	63.0	31.3 cd	6.7	24.8	42.9	8.8	4.3	51.8	0.65
Novartis	NK 8214	25.7	63.6	31.3 cd	6.6	27.0	44.7	9.0	4.0	49.3	0.57
Agri-Pro	9707	27.5	66.3	30.8 de	7.1	27.6	45.9	8.8	3.8	49.5	0.59
DeKalb	647	22.0	58.9	30.0 de	6.9	23.6	39.1	9.8	4.2	54.7	0.61
Mycogen	TMF 113	23.4	64.1	28.0 e	7.2	27.4	46.7	11.0	3.8	49.9	0.63
Coefficient of Variation %		*6.27*	*3.19*	*6.00*	*7.04*	*7.82*	*6.74*			*4.57*	*8.85*
LSD (0.05)		*2.85*	*3.44*	*3.26*	*0.79*	*3.53*	*5.08*			*4.00*	*0.09*
average of all plots		*26.9*	*63.8*	*32.2*	*6.7*	*26.7*	*44.6*	*9.6*	*4.3*	*51.9*	*0.63*

[1]Values within a column followed by a common letter do not differ significantly at the 5% level of probability using Least Significant Difference (LSD). There were three replications.
[2]Nutrient analyses were done using wet chemistry (Dariyland Lab, Tulare)
[3]Ear weights were measured at the north and south portion of the field in all three replications. At each location, 10 consecutive ears were harvested, weighed and sampled for dry matter.

Table 2: 1999 Tulare County UCCE Silage Corn Variety Trial

Cooperator: Garret DeJong
Harvester: Vercauteren Custom Harvesting, Inc
Planted: May 27, 1999
Harvested: September 20, 1999

Company	Brand	Plant Population per Acre	Yield Summaries[1]			Quality Parameters[2]			Plant height (ft)	Ear Height (ft)
			Tons/A as harvested	At Harvest Moisture %	Tons/A adjusted to 70% Moisture	% protein	% ADF	% NDF		
Novartis	NK 8214	32920	39.4	68.4	41.5 a	7.3	29.3	45.0	12.5	6.6
DeKalb	679	31580	35.4	65.3	41.0 ab	6.8	29.8	46.3	12.5	7.3
Gutwein	2696	33690	34.5	65.1	40.2 abc	7.5	29.4	44.9	12.2	6.6
Cargill	9027 (field variety)	29950	38.8	69.0	40.1 abc	7.3	27.9	43.4	13.3	6.1
Pioneer	32K61	31140	36.1	67.2	39.5 abcd	8.1	29.4	45.1	12.8	6.0
SeedTec	ST 7838	30080	36.5	67.6	39.4 abcd	7.3	29.0	43.1	13.2	7.0
Cargill	8327	32080	35.3	66.8	39.0 bcde	6.8	29.4	44.9	12.2	6.9
Cal Valley	8681	31450	37.0	69.4	37.8 cdef	7.4	29.6	44.7	12.2	6.1
Asgrow	RX 938	30920	40.1	72.1	37.3 defg	7.5	29.4	46.4	11.6	6.6
Germain's - ABT	Hi Test 4138	34050	34.0	67.5	36.9 efg	7.1	29.0	42.7	13.0	6.3
Simplot	Big Max XL	28280	37.0	70.4	36.5 fg	6.8	29.6	44.9	13.8	7.2
Mycogen	TMF113	29920	32.5	66.6	36.1 fg	7.5	28.2	46.3	13.4	5.7
Baglietto	5555	25920	33.0	67.3	36.0 fg	7.2	27.7	43.4	12.2	6.7
AgriPro	9707	29090	34.8	69.6	35.2 g	7.5	29.3	44.5	12.0	5.7
Farmers Warehouse	6481	30280	28.3	66.5	31.6 h	7.4	27.9	42.6	12.0	5.7
Coefficient of Variation %		*2.67*	*3.1*	*1.7*	*3.89*	*5.7*	*4.5*	*4.4*	*3.4*	*6.3*
LSD (0.05)		*1372*	*1.8*	*2.0*	*2.46*	*0.7*	*NS*	*NS*	*0.8*	*0.7*
average of all plots		*30756*	*35.5*	*67.9*	*37.9*	*7.3*	*29.0*	*44.6*	*12.6*	*6.4*

[1]Values within a column followed by a common letter do not differ significantly at the 5% level of probability using Least Significant Difference (LSD). There were three replications.
[2]Nutrient analyses were done using wet chemistry (Mid State Lab,Visalia).

ARS develops new, improved corn . . .

Feeling weak? Try the tortillas!

Can corn combat anemia? It's a possibility. Tortillas and other foods made from the flour of a unique corn may help combat iron deficiency anemia. That could be a boon in developing countries where corn based foods are a part of nearly every meal. In fact, products made from this corn could some day become useful around the world since iron deficiency is fairly common in developed nations as well.

This novel corn, according to Agricultural Research Service geneticist Victor A. Raboy at Aberdeen in Idaho, may help the body to better absorb and use iron - an essential nutrient.

The plants that Raboy developed yield corn that is low in a naturally occurring compound called phytic acid or phytate. Phytic acid is thought to reduce the body's ability to use certain nutrients, like iron. The Raboy corn lines have up to 95 percent less phytic acid than most common varieties.

Researchers from the Institute of Nutrition of Central America and Panama and from the University of California's Berkeley and Davis campuses coordinated the corn flour experiment with Raboy. Fourteen healthy men, age 19 to 35, volunteered for the investigation, which was conducted at Davis.

Blood tests indicated that iron absorption by the volunteers was about 50 percent greater if they ate tortillas made from the flour of low phytic acid corn than if they ate tortillas prepared with normal corn flour having about two-thirds more phytic acid.

The Rockefeller Foundation, US Agency for International Development, and Pioneer Hi-Bred International, Inc. - one of the companies licensed with ARS to produce corn—helped fund the research.

Raboy says the study is the first to test the potential nutritional benefits of the low phytic acid corn in humans. Next, a team led by University of Colorado researchers will probe the effects of corn on zinc, iron and calcium absorption in a new study in Guatemala.

The unusual corn, patented in 1997, has already received national attention.because of it's ability to reduce phosphorus pollution in ponds, lakes, streams and rivers. Phytic acid is a form of phosphorus, an essential mineral. Raboy's low phytic acid corn is correspondingly high in inorganic phosphorus—the form that one stomached animals like pigs, chickens or farm-raised fish can readily absorb and use.

These animals can't absorb most of the organic phosphorus in conventional corn, so too much of it can end up in their manure. Phosphorus leached from manure may make its way into rivers and streams, leading to algal blooms and fish kills. Ongoing experiments in the US and abroad will reveal more about the ways that the special corn—and other grains with the low phytic acid trait—should benefit people, animals, and the environment. *By Marcia Wood, USDA Ag Research Service, March 2000 bulletin.*

This research is part of Plant, Microbial and Insect Genetic Resources, Genomics, and Genetic Improvement, an ARS National Program (#301) described on the World Wide Web at
http://www.nps.ars.usda.gov/programs/cppvs.htm.

Carol Collar, UC Farm Advisor
Dairy, Livestock & Forages

Quality Assurance For Dairy Market Cattle

Friday, April 28, 2000 - Tulare Sales Yard, 4013 South K, Tulare

This seminar will provide up to date information for dairy producers and herdsmen on issues such as what packers are looking for in market cattle; injection site lesions and antibiotic residues; new rules for prescription drugs; explanation of guidelines for condemned cows; and practical on-farm steps to reduce contamination of market cows by salmonella and E coli O157.

10:00 Introduction

10:15 *Larry Hollis, Beef Packers Inc* – What is happening within the packing plant to reduce risk of food borne disease in meat and what types of market cows are packers looking for from dairies.
10:45 *Dr. Jim Reynolds, VMTRC*, Injection site lesions, antibiotic residues and new rules for prescription drugs.
11:30 *Dr. Dale Moore, VMTRC*, Why was my cow condemned? Cancer eye, lymphoma and septicemia.
12:15 *Dr. John Kirk, Veterinary Medicine Extension*, Biological hazards: Possible on-farm control of salmonella and E coli O157.
1:00 Lunch Provided by California Beef Council

Spanish speaking interpreters will be present to assist in questions and answers

To insure adequate lunches will be available, please call the **Tulare Sale Yard – 688-7569 or VMTRC – 688-1731** for a reservation:

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Water Meters for Measuring Flow of Dairy Lagoon Water

Tuesday, May 9th 10 AM to Noon
Rio Blanco Dairy (south side of Avenue 192 and just west of Road 52)

Dr. Larry Schwankl, Department of Land, Air and Water Resources at UC Davis has installed and tested several water meters designed for use with lagoon water. These meters will be on display and the results of the meter tests will be presented.

Lagoon water contains lots of solids so it requires different types of flow meters than can be used with well water or canal water. *The purpose of this field day is to show the types of meters that work with lagoon water, what pipeline requirements are needed for meter placement, and to discuss the performance of the meters tested.*

Background: Dairy lagoon water contains many nutrients needed by crops, particularly nitrogen and potassium. It can be a valuable source of fertilizer, reducing the amount of commercial fertilizer needed. If using lagoon water as a fertilizer source, the first step is to know how much lagoon water is being applied. Various methods, such as pond drop, or estimating the output of the lagoon pump can be used to determine the approximate amount of lagoon water applied, but meters are more accurate and much easier to use. Using a flow meter and valve with lagoon water analysis, target fertilizer rates can be applied.