



Field Crop Notes

December 2001

Corn Stunt and Spider Mites Meeting

Tuesday, January 8, 2002

1:30 – 3:30 p.m.

Tulare County Agricultural Building Auditorium
4437 S. Laspina, Tulare
(across the street from the International Agri-Center)

Corn Stunt

Corn Stunt in 2001 and Preceding Years

Carol Collar, UCCE Farm Advisor, Kings County

Background on the Pathogen

Carol Frate, UCCE Farm Advisor, Tulare County

The Insect Vector, Research Results to Date, and Management Options for This Year

Dr. Charlie Summers, UC Entomologist, Kearney Agricultural Center, Parlier

Spider Mites

Developing Thresholds and Treatment Options

Dr. Larry Godfrey, UC Entomology Extension Specialist, UC Davis

(If this afternoon meeting is not convenient for you, the same topics are also being addressed in Hanford from 10 a.m. to noon on the same day, Jan. 8, 2002, at the Knights of Columbus Hall, 5152 11th Avenue in Hanford.)

Please see announcement on reverse side for short course on lagoon water crop nutrients.

Three-Session Workshop on Using Dairy Lagoon Water Nutrients for Crop Production

All sessions will be from 1 to 4:30 p.m.

Tulare County Agricultural Building Auditorium
4437 S. Laspina Street, Tulare
(just across the street from the International Agri-Center)

SESSION 1:

Tuesday, January 15, 2002 – Manure Composition and Management

Update on nutrient management regulations; dry manure composition; lagoon water content, sampling, and lab analysis; managing salts in lagoon water.

SESSION 2:

Tuesday, January 22, 2002 – How to Measure and Adjust Lagoon Water Applications

Measuring nitrogen concentration; measuring lagoon water applications; adjusting application rates; record-keeping.

SESSION 3:

Tuesday, January 29, 2002 – Balancing Nutrient Applications with Crop Uptake

Applying lagoon water through irrigation systems; seasonal patterns of crop nutrient uptake; using plant and soil tests.

(The same short course will be given in Modesto on January 18, 23, and February 1—call Stanislaus Farm Advisor Marsha Campbell Mathews, 209-525-6800, for more information. It will also be held in Riverdale from 9:30 to 1:00 p.m. on February 4, 7, and 8—call Fresno Dairy Advisor Jerry Higginbotham, 456-7558, for more details.)

Winter Forage Selection And Planting

(This article is adapted from an article by Carol Collar, UCCE Dairy Advisor in Kings County.)

What to plant. The list includes wheat, barley, triticale, oats or a forage mix. There are multiple cultivars within each species from which to choose. Your decision should be based on what your feeding objectives are. If you are looking for a forage to feed to high producing milk cows, then you should consider a tall variety that you can harvest at boot stage or a short, high grain yielding variety to harvest at soft dough stage. If you want forage for heifers, dry cows or late lactation milk cows, then high yielding, soft dough stage forages should be your choice. The idea is to “match the feed to the need.”

When to plant. In general the best time to plant in the Kings-Tulare area is mid-November to mid-January. Earlier plantings are at greater risk for damage from disease, frost and lodging. Late plantings have a lower yield potential due to a shortened growing season.

Seeding rate and depth. Successful plantings should average 25 to 30 seedling plants per square foot. Consider replanting if germination results in less than 13 plants per square foot at the 2 to 3 leaf stage. The following table provides suggested seeding rates for irrigated and dryland conditions:

Crop	Irrigated (lbs/ac)	Dryland (lbs/ac)
Wheat	100 - 150	60 - 100
Barley	80 - 120	60 - 100
Triticale	100 - 150	60 - 100
Oats	80 - 150	60 - 100

Ranges are provided because the actual seeding rate will depend on soil conditions, planting date and method, seed size and intended end use. For example, the lower end of the ranges would be used if the seed is drilled into a well-prepared seed bed. The higher ranges would be used if the seed is broadcast or if planting is late (after

mid-January). High seed rates can also be used to produce finer stems in hay, although lodging is more likely under these conditions. Seeding rates also need to be adjusted to account for varying seed size; varieties with larger seed need to be planted at higher rates than varieties with smaller seed to ensure adequate plant populations. Wheat and triticale should be planted at a depth of ¾ to 1½ inches; barley and oats can germinate when planted as deep as 2 inches. Planting deeper than this will reduce stand, seedling vigor and yield.

How much fertilizer. The amount of fertilizer required depends on the type of forage or grain selected, soil type, residual from the previous crop, rainfall and irrigation, manure applications, forage yield and quality goals. Nitrogen (N) and sometimes phosphorus (P) are the nutrients most often limiting to high yields of cereal forages. Potassium and zinc deficiencies are not common in the San Joaquin Valley. The following table provides reasonable N fertilizer rates for an entire season:

Crop	Irrigated (lbs N/ac)	Dryland (lbs N/ac)
Wheat	160 - 210	10 - 50
Triticale	125 - 175	10 - 50
Barley	100 - 150	10 - 50
Oats	100 - 125	10 - 50

Phosphorus fertilizer should be applied preplant only if a soil test shows a deficiency. Soil levels of PO₄-P less than 10 ppm usually respond to P₂O₅; apply 40 to 80 lbs/acre depending on severity of deficiency. Phosphorus is important for germination and seedling vigor and is not typically a management concern once the crop has advanced past early jointing stages of growth.

Dairy manure solids and liquid manure water are commonly applied to winter forage crops. These sources of nutrients can contribute part or all of the

fertilizer requirement. Since levels of N and other nutrients in manure vary widely, these sources should be sampled prior to application and commercial fertilizer application rates adjusted accordingly. Managing manure nutrients for forage crops has been the focus of an educational program for growers and dairy producers developed by UC Cooperative Extension farm advisors. The class will be offered again this winter. See the announcement in this newsletter.

When to apply fertilizer. Winter cereals need most of their nitrogen during the period of rapid growth. This is usually mid-February through April, depending on planting date. Applying all of the N fertilizer preplant is not recommended. On sandy soils, most applied fertilizer nitrogen will wash away or be leached below the root zone during winter storms. On heavy soils that waterlog, the nitrogen will be converted to gaseous nitrogen which escapes into the atmosphere. The more rain, the more pronounced the losses. Only enough nitrogen should be applied at planting to cover the

growth expected before mid-January. As a thumb rule, about 16 lbs of nitrogen are needed per ton of growth. For example if you anticipate about 3 tons of wheat forage before midwinter, then apply $3 \times 16 = 48$ lbs of N per acre preplant. The remaining nitrogen should be applied in at least two split applications: one in late January as the plants begin their rapid vegetative growth and one just as the grain head starts to emerge (usually mid to late March in our area depending on variety and planting date). So following through with the example above, if you applied about 50 lbs. of N per acre preplant, then you could reasonably apply about 60 lbs. of N/acre in late January and another 50 lbs. of N/acre in March for a season total of 160 lbs of N.

The results of the Kings County winter forage trial are available on the Web at:

<http://countyofkings.com/kingsce>

At this Web site, there are links to the statewide cereal trials.

Results of Winter Forage Variety Trial

The 2001 winter forage trial was conducted in cooperation with den Dulk Farming. The field was planted on December 12, 2000, in a 35-acre field east of 4th Avenue and north of Excelsior. Each of the nine forage entries was planted in four blocks or plots. The plots were planted in random order in strips that were 20 feet wide by 1/4 mile long. The field was harvested by Netto Ag on May 22. A 15' swath was cut down the center of each plot and immediately chopped into an empty truck. Trucks were weighed and forage samples were collected at the silage pit.

Last May was exceptionally hot which caused the field to dry down rapidly the week prior to harvest. This explains the high dry matter (low moisture) at harvest.

The forage trial averaged 40% dry matter (60% moisture), which is a bit too dry. Ideally one should shoot for 30 to 35% dry matter to ensure a good pack in the silage stack.

Statistical tests of the data reveal that any of the other varieties could have ranked on top. The numbers in bold at the bottom of the table relate to the statistical analysis. The triticale was taller than all the wheat entries, and despite its height it had very little lodging. Lodging was a problem for Zancor, the tallest wheat, and also for Brooks and Baglietto SSK wheat. Rust, a leaf disease of winter forages, was most severe for Yecora Rojo wheat, but it was also heavy in the Brooks and Eldon wheat plots.

Carol Frate
Farm Advisor
(559) 685-3309, Ext. 214

2001 Kings/Tulare Counties UC Cooperative Extension Winter Forage Trial

Cooperator: den Dulk Farming, Gil den dulk

UC Farm Advisors: Carol Collar (Kings) and Steve Wright (Tulare)

Harvested by: Dias & Fragoso

Planted: December 12, 2000 @ 135 lbs/acre

Harvested: May 22, 2001

* Denotes non-certified seed;
all others were CCIA certified

Feed analysis provided by Dairyland Lab

Cultivar	Cereal type	Tons/acre as harvested	% DM at harvest	Tons/acre at 30% DM	Plant ht. (in)	% CP	% ADF	% lodging
Baglietto SSK *	Wheat	18.4	40.3	24.7	42	10.6	30.6	33
Kronos	Durum wheat	19.8	36.3	23.8	38	11.1	27.6	3
Bonus	Wheat	17.1	41.6	23.7	35	11.8	28.0	1
Brooks	Wheat	15.6	44.9	23.4	39	12.0	28.4	33
Trical 111	Triticale	21.0	33.2	23.3	46	10.5	32.5	4
Eldon	Wheat	18.0	38.2	23.0	39	10.6	28.0	3
Express	Wheat	17.3	39.7	22.8	38	11.5	29.8	0
Yecora Rojo	Wheat	14.6	46.7	22.6	35	11.7	27.5	9
Zancor *	Wheat	17.2	39.5	22.6	40	11.3	31.9	44
Mean (4 reps)		17.7	40.0	23.3	39.2	11.2	29.36	14.25
CV %		6.82	6.10	8.09	7.02	3.27	4.08	122.4
LSD(.05)		1.761	3.570	2.760	4.03	0.537	1.754	25.51

CP=Crude protein ADF=Acid Detergent Fiber – a measure of cellulose and lignin; the fibrous, less digestible parts of the plant.

Description of statistical terms (in bold): **Mean** = the numerical average; **CV%** = the coefficient of variation. It is the standard deviation expressed as a % of the mean of all the plots. For example, there was very little variation in % crude protein (CV is 3.27) but huge variation in the % lodging (CV is 122.4). Generally, the lower the CV, the more confidence you can have in the data.

LSD = Least significant difference. It is a statistical test used to determine whether differences between varieties are real or are just the result of random variation within a field or analytical process. If you compare two varieties in a column, and the difference between them is greater than the LSD value, then you can be 95% sure that the difference is real, and not just due to chance.