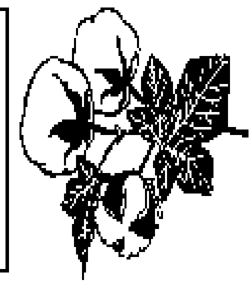
University of California Cooperative Extension

California Cotton Review

The Newsletter of the UC Cooperative Extension Cotton Advisors
Volume 61 December 2001

In This Issue

Visit our web site at: http://cottoninfo.ucdavis.edu



PRE-PLANT IRRIGATION IN A WATER SHORT YEAR

Dan Munk and Bob Hutmacher

Surface water storage reserves are down in California as a result of below average runoff in the 2000-2001-water year. These low reserves combined with implementation of CVPIA legislation have resulted in more restricted availability of surface pre-plant irrigation water supplies for use by San Joaquin Valley (SJV) producers. Unless we are fortunate in experiencing high to exceptional precipitation during the remaining winter and early spring seasons, the likely outcome of low project storage levels will be a reduced availability of surface water supplies, an increased use of more expensive water and the increased use of lower quality groundwater reserves during the 2002 production season.

As the water manager makes decisions on how to best use this scarce and essential resource, it is helpful to review the basic reasons for pre-plant irrigation in cotton and realign our thoughts on how to best develop a season-wide approach for irrigation management.

The benefits of the pre-plant irrigation, commonly referred to as preirrigation, are twofold. Firstly, the preirrigation is conducted to replenish soil moisture reserves that are depleted as a result of evapotranspiration (ET) from the previous crop. Replenishing moisture during the winter months provides ample moisture for the developing seedling and stores deep moisture for the plant later in the season when roots are capable of extracting important deep water. Secondly, preirrigation is important to leach salts from the soil profile that essentially

(continued on page 2)

DOUBLE-ROW 30 INCH COTTON: FIELD EXPERIENCES

Bill Weir, Bob Hutmacher, Ron Vargas, Scott Stoddard, Dan Munk

Conventional cotton production in California employs 38 inch or 40 inch beds, planted to a single line of seeds, typically at seeding rates that result in 30,000 to 60,000 plants per acre. University of CA studies in Merced County in the 1980's and 1990's compared growth and yields in narrower beds (30 inch) with those in 38 or 40 inch cotton. Results from these studies over multiple years in Merced County demonstrated an average 9% increase in lint yields with 30 inch beds. In the northern San Joaquin Valley, these findings, in combination with changes in crop rotation patterns, have resulted in widespread conversion of spindle pickers to harvest 30 inch rows, with more than 70% of north SJV cotton currently produced on narrow (30 inch) beds.

In an attempt to further decrease production costs of cotton, a unique variation of ultra narrow row production was initiated in Merced County in 1998. These efforts have been variously called the "California version of ultra narrow row" or "Double-Row 30 inch cotton". The planting configuration used has been two seed lines of cotton, seven to ten inches apart, on a 30 inch bed. As an update, this article will summarize yield responses, and where available, approximate cost savings information collected since the first 1998 trials of the double-row 30 inch system.

1998 Research: During the first year (1998) the cotton was planted by making two passes on the same beds, and harvested with a conventional 30 - inch spindle picker.

(continued on page 4)

Support for this publication is provided by California Cotton Growers through their Cotton Incorporated State Support Program.

Pre-Plant Irrigation (*Munk and Hutmacher)*
(continued from page 1)

compete with the plant for soil moisture thereby reducing crop water availability and yield. Proper leaching is particularly important in soils having a shallow water table, soils having been only partially reclaimed from high residual salt levels, and in soils that are using high TDS well waters for irrigation purposes. Leaching may also be economical when current irrigation systems have been managed in such a way that salt buildup near the soil surface has occurred over time.

Is Preirrigation Necessary?

Though a small percentage of the total, rainfall plays a significant role in restoring soil moisture in surface soil and should be factored into the need for a preirrigation event. In the San Joaquin Valley's semi-arid climate, average annual precipitation coming from winter rainfall will provide 10 to 20 percent of the seasonal water used in most years. Perhaps the biggest reason rainfall is not often factored into the preirrigation decision is because of the uncertainty in the timing and amount of rainfall.

Precipitation typically varies from less than 5 inches to greater than 12 inches during the fallow period and can be distributed quite unevenly from November through April. Estimating the contribution of rainfall to actual stored soil moisture available for subsequent crop ET is not exact unless rigorous attention is given to soil moisture changes during the fallow period. But as a general rule, studies have shown that at least 50 percent of the precipitation falling at the field site is "effective precipitation" that can be used later by the crop. For example, if a rain gauge established near the field recorded November through February precipitation at 5 inches, it is generally reasonable in the San Joaquin Valley to estimate that 2.5-inches of soil water storage will be derived from that rain and will be available at planting. Delaying the preirrigation as long as possible will improve the chances that an estimate is reliable often resulting in a reduced preirrigation volume requirement and in some cases eliminate the need for it.

Soil Type Impacts on Decisions

Soil type also factors into the preirrigation volume decision since there is such a wide range of soil moisture storage capacities. Soils with low moisture storage capacity such as the loamy sands and compaction-prone sandy loam's will benefit the least from preirrigation activities in years when late-season rainfall is significant. Because of their limited soil water storage capacity, rainfall will account for a substantial portion of the preirrigation water requirements and can allow wetting to occur well below 36 inches. Many growers were successful in achieving good plant stands and early growth in 1995 and 1998 despite elimination of preirrigation as a result of steady, significant winter rainfall that extended well into the months of March and April.

Evolving Approaches to Preplant Irrigation

Establishing best management approaches for seasonal irrigation management during droughts will be benefited by the development of a minimum preirrigation requirement (MPR) approach. This could be defined as the minimum amount of irrigation necessary to provide adequate leaching and soil moisture reserves for crop requirements prior to the first seasonal irrigation. With the exception of soils requiring a sizable leaching fraction, a sound preirrigation objective for cotton will be to produce a well-watered soil to a minimum depth of 24 to 30 inches prior to planting.

This corresponds closely to the depth of rooting and water extraction limits for the crop at the time of first irrigation. Applied late enough in the season, this amount easily provides enough soil water to establish a good stand and provide for all of the plant needs (2 to 3.5 inches) prior to the first seasonal irrigation event. Controlling the depth of preplant wetting using this approach has potential to give significant increases in irrigation efficiency on what is typically the most inefficient irrigation of the season.

It is reasonable for growers to have concerns that plant root development progresses, unimpeded, during the weeks after planting. If soil aeration, temperature and physical conditions are right, the tap root can extend to depths ranging from 6 inches (somewhat slow development) to 10 inches or more (optimal conditions) by the time the first true leaf is visible. Root development the next month after that time may extend to 24 inches or more, but also includes extensive lateral root development in that upper 24 inches. Any water management approach which leaves dry soil layers within the upper 18 to 24 inches of soil profile early in the season is risky, but good water status in the upper 24 to 30 inches at that time will be adequate.

A preirrigation approach that doesn't allow complete soil root zone wetting can have dual benefits. Limiting the preirrigation volume improves preirrigation efficiency because deep percolation and runoff are minimized and deep storage capacity is retained. The first seasonal irrigation event will achieve a higher efficiency, since a larger portion of infiltrated water will fill deeper soil zones that the crop will use later in the season. Implementing an MPR approach therefore results in pre-plant drainage and runoff volume reduction, increases in post-irrigation precipitation effectiveness, and significant efficiency gains of the first seasonal irrigation. Because these two irrigation events are the most inefficient irrigations of the cropping year, large gains in seasonal irrigation efficiency can be realized by many growers that restrict pre-plant water applications.

Surface Irrigation (Furrow and Flood Systems). Undoubtedly the most difficult type of preirrigation to control is with surface irrigation systems. Although a combination of factors can explain why the highest soil intake rates are found during the winter and spring periods, low antecedent moisture and tillage activities are among the primary causes. Of these two factors, the one most easy to manage is usually tillage. Deep tillage practices in particular can influence infiltration rates and can often cause dramatic changes in water uptake.

Assessing the necessity and proper frequency of deep tillage activities may help control unnecessary drainage losses. Similarly if deep tillage is deemed necessary and water supplies are limited, system conversion to sprinkler or drip becomes an increasingly attractive option.

The most successful and efficient surface irrigation activities tend to be found on low intake soil types and where high water application rates allow rapid wetting uniformly across the field. Increasing the speed of the furrow water advance can be accomplished in many soils with the use of "torpedoes" dragged through non-wheel rows. It is rare to find surface systems that apply too little preirrigation water where drainage is unimpeded.

Sprinkler Irrigation. There has been a large increase in the use of sprinklers over the last five to ten years for good reason. Growers have benefited by the flexibility of volume control as well as the relatively high uniformity well-maintained systems offer. With proper design and operating pressure, irrigation uniformity can be above 80 percent. The most common benefits cited from using sprinklers for preirrigation are that high efficiencies result, as set times are varied allowing drainage and runoff to be minimized. Inefficiencies begin to develop on systems that have joint seal problems, when lines run beyond their design length, and when emitter output varies due to nozzles size changes or are plugged.

Although runoff is not always eliminated when using sprinklers it can be limited by well-sealed equipment and matching set times with the field water infiltration characteristics. If there is some uncertainty or questions about sprinkler performance, than it may be time to evaluate your system. Evaluating system uniformity may allow you to assess the need for repairs, changes in spacing or other design changes that can result in significant water savings or long-term reductions in irrigation costs.

Drip Irrigation. Subsurface Drip Irrigation (SDI) systems have a range of distribution uniformities and irrigation efficiencies. Properly designed systems have produced reasonably high uniformity results often above 85 percent. However if proper filtration and contaminant control are not practiced, uniformity is reduced and most water saving benefits are surrendered. Considered over their useful life, SDI systems may not be as costly as once thought since the price of drip tape has come down significantly over the last 5 years. Tape replacement costs that often follow 4 to 8 years after initial installation, commonly range from as little as $400 to over $900 per acre, depending upon factors such as lateral and emitter spacing and overall quality of components of the system.

With microirrigation, very controlled application amounts can be applied for preirrigation, often resulting in good potential to minimize deep percolation and runoff quantities if the systems are properly managed and soil characteristics understood. Emitter location, flow rate, time of application and soil transmission properties will govern the ability of drip preirrigation to be effective regarding good early plant stand establishment. Particularly if the drip system is installed subsurface at a depth making it difficult to move water to the surface, the use of a secondary irrigation system such as sprinkler or furrow has been necessary to establish a good plant stand. Finally, yield improvements with drip irrigation are most likely to occur in fields experiencing low surface distribution uniformity and in soils with high water storage variability.

Timing is Everything!

Although we emphasize here the efficiency and uniformity components of preirrigation, it can be a costly mistake to lose sight of the primary goal of pre-plant irrigation, namely, to provide adequate moisture to the seed for spring planting. When adequate and timely rainfall does not occur, or when a preirrigation was conducted too early in the season, high evaporation rates during warm spells can result in surface soil water dry-down. When possible, the timing of bed preparation activities should consider the likely actual planting date. The timing of preirrigation activities must then also consider surface tillage timing. Here again, soil type and variability within the field are key considerations in timing and can eliminate or minimize any planting delays. When used together with the 5-day forecast and University of California Cooperative Extension planting date guidelines, risk can be managed and first-planting successes improved.

Double-Row 30 Inch Cotton (*Weir et al*)
(continued from page 1)

In the single site double-row 30 inch comparison with single row 30 inch cotton in 1998, approximately $50.00 per acre were saved in production costs since the crop was cultivated only once, nitrogen was applied in the irrigation water, and irrigation ditches did not have to be opened, closed, and reopened.

1999 Results—Merced County

In 1999, three farms cooperated to reassemble an older sled planter which was capable of planting two rows, seven inches apart, on thirty inch beds. This was accomplished by placing sixteen, model 71 John Deere planters on two tool bars – eight on the front bar and eight on the back bar, offset seven inches. The sled provided stability and precision. Using this planter system, a number of test locations were planted with comparison tests of the single versus double-row plantings on 30 inch beds.

A forty-acre test was planted near Dos Palos using the Roundup-Ready CPCSD variety "Riata". Lint yield increases of 8.8% were measured in the "Riata" field. At another comparison site near Dos Palos, a five-acre block was grown under the double-row 30 inch system using drip irrigation. A 30-acre field of CPCSD "Maxxa" was planted for a comparison near Firebaugh. At each of these Dos Palos area locations, yield increases with double-row 30 inch cotton ranged from about 7 to 11 percent in 1999. These tests were done with plant populations averaging between 70,000 and 85,000 plants per acre.

Aproximately 60 acres near Los Banos were planted in a single versus double-row 30 inch comparison, with the CPCSD variety "Maxxa" planted to at very high plant density, approaching 120,000 plants per acre. There were no significant effects of the double-row configuration on yields at this site, suggesting that the plant population was too high. Boll weights were significantly smaller at the 120,000 plants per acre population than those observed in an adjacent single-row 30 inch planting or in the other 80,000 plants per acre double-row 30 inch fields at other sites planted with the same variety.

A small comparison of responses to single versus double-row 30 inch was also done on five acres of Pima variety "S-7" in 1999. No yield improvements were achieved with double-row plantings with the Pima. Plant measurements in this limited test suggested that the relatively indeterminate growth habit of Pima was not conducive to enhanced fruit retention with this planting technique and the higher plant population. However, the Pima test should be repeated in other areas and growing conditions.

2000 Results—Merced County

Approximately 100 acres of the Roundup-Ready CPCSD variety "Riata" were planted in double versus single-row 30 inch comparisons in various fields near Dos Palos in Merced County in 2000. The fields in this discussion all received one quart of glyphosate (Round-Up) prior to the fourth true-leaf stage of growth. Yield improvements over single row 30 inch plantings by switching to the double-row 30 inch planting configuration at these different sites were quite consistent, with a signfiicant lint yield increase averaging 7.3 percent.

In a first effort to answer some questions regarding suggested plant populations to consider with the double-row 30 inch system, a 25-acre test plot was set up near Los Banos in 2000. The field was planted to achieve plant populations of about 60,000, 80,000, 100,000, and 120,000 plants per acre. The best lint yields were achieved at plant populations in the 60,000- 80,000 plants per acre, with slight yield reductions at higher plant populations.

2001 Results—Merced County

Table 1 shows the average lint yield responses of single-row 30 inch versus double-row 30 inch comparisons in replicated trials conducted in grower fields in the Dos Palos area (Merced County) in 1998 through 2001.

Table 1. Average lint yields and percent yield increase with double-row 30 inch planting configuration in replicated grower field studies near Dos Palos, CA from 1998 through 2001.

	Average Lint Yield (lbs/acre)		Percent Increase With Double Row 30
Year	Single-Row 30-Inch Beds	Double-Row 30-Inch Beds	
1998	1123	1256	8.4
1999	1300	1475	8.8
2000	1976	2114	7.3
2001	1548	1837	15.7

Management Approach Used, and Potential for Cost Savings

In looking at the potential for cost savings, it is worthwhile to consider what the crop and weed growth expectations and management principles are with the double-row 30 inch cotton planted at a fairly high population density. The management approach used assumes that with the double-row, high density planting:

- Cotton should more effectively compete with weeds and achieve earlier row closure and shading of beds and furrows than with single-row plantings, resulting in less need for cultivation and perhaps herbicides
- Higher plant densities mean that fewer bolls are required per plant to achieve the same yield, as long as average boll size is not significantly affected

At the sites near Dos Palos represented by the lint yields summarized in Table 1, grower records of expenses and changes in production costs with the single versus double-row 30 inch production methods were carefully recorded. The records indicated that an average of $43.00 per acre was saved using the double-row 30 inch bed configuration in place of the single-row 30 inch configuration. The cost savings in the field studies ranged from about $25.00 to over $70.00 per acre.

Savings Potential versus Increased Costs

Savings were generally found in reduced number of field tractor operations, including fewer cultivations with higher density double-row beds, and fewer openings and closings of irrigation ditches under furrow irrigation at the study sites. With the management approaches used with the double-row 30 inch cotton to date, there does not appear to be any increased costs or additional savings in fertilizer requirements, defoliation or harvesting costs.

Additional costs incurred with switching to the double-row system as described here can include costs of additional seed needed for high density planting, initial costs and operating costs for a planter suitable for this configuration, and technology fees (if the grower decides to use a transgenic herbicide tolerant variety). Although data is not conclusive at this point, more applications and higher rates of Mepiquat chloride growth regulator may be useful to help manage growth and earliness of double-row 30 inch cotton and keep defoliation and harvesting problems to a minimum.

Yields in Other Test Locations

More than 1000 acres of double row 30 inch cotton were planted in 2001 in the northern San Joaquin Valley using either a "Monosem" brand planter designed to precisely place seeds in two lines as close as 7 inches apart, or variations on the sled planter used in the earlier years of field trials. In Merced County, we know of 14 different growers who tried various size blocks of double row 30's and compared them to single row 30's.

Sites have been initiated at several other locations in other areas of the San Joaquin Valley in recent years also to investigate the potential utility of the double-row planting concepts. Two of these locations have been small plot studies done since 1999 at the University of CA West Side and Shafter Research and Extension Centers. The Shafter trials have been single versus double-row 30 inch studies, while those at the West Side site have been single versus double-row 40 inch studies. Two additional large-scale grower field sites were added in Madera County in 2001. Yield results from these trials plus additional 2001 Merced County grower field trials are shown in Table 2.

Table 2. Average lint yields and percent yield increase with double-row 30 inch planting configuration in other field studies (various locations and years).

Location / Year	Average Lint Yield (lbs/acre): Single-Row 30-Inch Beds	Average Lint Yield (lbs/acre): Double-Row 30-Inch Beds	Percent Increase With Double Row 30
Merced Co.			
Fld #2 2001	1329	1504	12
Fld #3 2001	1056	1132	7
Madera Co.			
Fld #1 2001	(4280) *	(4320)	1
Fld #2 2001	(4423) *	(4540)	3
West Side REC			
1999	1104	1083	- 2
2000	1654	1709	3
Shafter REC			
1999	1520	1652	9
2000	1428	1355	- 5

* yields shown in parentheses are seedcotton yields

Yield improvements at some other test sites shown in Table 2 have not always been as consistent as those achieved in the Dos Palos area. At the West Side REC

Double-Row 30 *(Weir et al—continued from page 5)*
site, it should be noted that these were 40 inch single versus double row comparisons, and plant populations in the double row plantings averaged 52,000 (1999), 61,000 (2000) and 53,000 plants per acre (2001), while the Merced County studies averaged over 75,000 plants per acre in double-row plantings. At the Shafter REC site, heavy early season lygus pressure and early fruit losses heavily impacted both single and double row plantings in the 2000 study. The work was repeated in 2001 but data is not available at the time of this report.

Based upon these generally promising results from field trials, good evidence exists supporting the desirability of further evaluations to assess potential for yield improvements as well as production cost savings. Provided that suitable planters can be secured and transported to meet planting schedules, University of CA research plans for 2002 are to request grower fields for replicated comparisons of single versus double-row 30 inch cotton in multiple sites from Merced County down through Kern County.

One potential problem future tests need to address in some soils will be how to maintain adequate moisture for both seed lines when planting two lines closer to the bed edge rather than one line down the center.

Additional Considerations—Double-Row 30 Inch

Many, but not all of the test locations to date have been with herbicide-resistant transgenic cotton (Roundup-Ready). However, the comparison tests done to date with conventional varieties and a more traditional weed management program have shown similar potential for favorable yield responses and some cost savings, so a herbicide-resistant transgenic cotton may be a good choice, but does not appear to be a requirement, for this system.

It is important to note that all field trials and Merced County grower fields monitored to date have been harvested using conventional spindle pickers. During the initial year of tests (1998), some double picking was required due to picker adjustment and bed height problems, but otherwise most harvest operations have been single picks. No significant, consistent differences in fiber quality, leaf trash or other quality issues have been identified in HVI analyses conducted to date on single-row 30 versus double-row 30 comparisons in replicated trials or grower fields.

* *

2000 AND 2001 COTTON SEED TREATMENT EVALUATIONS

Bob Hutmacher, Brian Marsh, Bill Weir (UCCE) and Dick Garber (CPCSD)

Much of the potential for the variety you choose to eventually achieve an acceptable plant population, develop a good root system and stem structure to support good yields is strongly impacted by early seedling damage done and plant losses. Fields that start out with "skippy" or low populations, or early damage to roots and shoots, then have an uphill battle to achieve good yields, timely harvests. Incidence of plant damage severe enough to damage yield potential or even cause replanting can be reduced by paying attention to several factors:

- quality seed (with good warm and cool test results)
- Consider available chemical seed treatments
- 5-day heat unit forecast at planting time
- Potential (with very early plantings) for exposure to chilling injury, damage when cold, wet weather sets in even when planting time 5-day forecasts are o.k.

Previous issues of the CA Cotton Review (available on the web at **http://cottoninfo.ucdavis.edu)** review optimum seedbed conditions, sensitivity of seeds and seedlings to chilling injury (Volumes 35, 46, 51), and discussions of seed treatment chemicals and their relative performance on seedling disease problems such as *Pythium, Rhizoctonia and Thielaviopsis (*Volume 39). Data in Table 1 is from UCCE seed treatment trials in which companies submitted formulations already in use or likely for consideration for California cotton. Although results from several locations cannot represent the full cross-section of conditions growers are up against (weather, soil moisture, seedling disease pressure), several points are worth considering. In 2000, many locations were not exposed to weather conditions that promote seedling disease pressure when 5-day heat unit forecasts were followed for planting, and this is reflected in only modest increases in emergence of treated seed as compared with untreated controls (Table 1). Sites used in 2001, particularly the Kern Co. site, were exposed to cold and rain at and after planting, cooling the soil and increasing disease losses (Table 1). Consider what seedling disease "mix" you've had in the past and consider if effective chemicals are available to help. Remember that in difficult conditions / years such as 1998, none of the seed treatments have much chance to completely remedy long-term exposure to cold, wet conditions and fend off pathogens, so even normally effective seed treatments cannot provide protection under extreme conditions.

Table 1. Seedling emergence / survival in cotton seed treatment trials in 2000 and 2001 (data from field trials conducted by Bob Hutmacher, Bill Weir and Brian Marsh (UCCE-Shafter, Merced, Kern Co., respectively, Dick Garber (CPCSD - Shafter). Emergence values followed by different letters were significantly different at the 5% significance level using the Duncan's Multiple Range test.

	Year 2000 Trials					**Year 2001 Trials**			
	Seed Treatment Formulation	**Chemical Rate Used**	**Mean Seedling Emergence - *surviving seedlings on evaluation*** *date* (% emerged out of planted seed)			**Seed Treatment Formulation**	**Chemical Rate Used**	**Mean Seedling Emergence - *surviving seedlings on evaluation*** *date* (% emerged out of planted seed)	
			Shafter site	**Kern County**	**Merced County**			**Kern Co. site**	**Fresno Co. Site**
Planting date			4/26	3/30	4/24			4/06	4/17
Evaluation date			5/12	5/05	5/16			5/07	5/14
	Untreated control	N/A	72 b	55 c	73 b	Untreated control	N/A	35 c	67 b
	Apron XL Nuflow ND Nuflow M	0.32 14.5 1.75	85 a	59 bc	82 a	Baytan-30 Vitavax-PCNB-FL Allegiance-FL Kodiak Conc.	0.75 7.0 1.5 0.25	70 a	80 a
	Allegiance Vitavax-PCNB Baytan-30	0.75 6 0.5	89 a	70 ab	79 a	Baytan-30 Ascend-30 Allegiance-LS	0.75 1.5 1.2	65 ab	79 a
	Apron XL Nuflow M Maxim	0.32 1.75 0.08	85 a	59 bc	85 a	RTU Baytan- Thiram Allegiance-FL	3.0 0.75	62 b	72 ab
	Allegiance Baytan-30 Thiram	0.75 0.5 3	85 a	70 ab	85 a	Protégé-FL Ascend-30 Allegiance-LS	0.2 1.5 1.2	63 b	78 a
	Apron XL	0.32	75 b	64 abc	77 ab	LO149 Ascend-30 Allegiance-LS	0.8 1.5 1.2	67 ab	78 a
	Apron XL Nuflow ND Nuflow M Maxim	0.32 14.5 1.75 0.08	85 a	63 abc	82 a	Nuflow ND Nuflow M (40WP) Apron XL-TL Orthene	7.5 0.79 1.0	70 a	73 ab
	Allegiance Baytan-30 Ascend-30	0.75 0.5 1.5	89 a	74 a	81 a	Nuflow ND Nuflow M Apron XL-TL Orthene BSN-10(143-144)	7.5 0.79 1.0 not stated not stated	71 a	78 a
						Maxim 4FS Apron XL-TL Nuflow M Adage-5FS	0.08 1.0 0.79 not stated	67 ab	76 a
	Other treatment combinations in addition to those shown here were included in 2001 trials, but are not shown in this table to simplify the table & since no similar treatments were tested in 2000					Maxim Apron XL-TL Nuflow M Adage-5FS BSN-10 (143-144)	0.08 1.0 0.79 not stated not stated	63 b	74 ab

VARIETY TRIAL RESULTS, 2001 —YIELD INFORMATION:

- A summary of yield results from 2001 and earlier years will be available in late December / early January from your UCCE Farm Advisor, or at the University of CA Cotton Web site: **http://cottoninfo.ucdavis.edu**
- HVI quality data will be available (late January or early February) after USDA classing office data is summarized

****

WINTER UCCE FARM ADVISOR COTTON PRODUCTION MEETINGS - 2002

- KERN COUNTY MEETING Thursday, **February 21, 2002 (time to be announced)**
  (contact Brian Marsh for more information—phone number on back page)
- MADERA / MERCED COUNTIES MEETING Tuesday**, February 26, 2002 (time to be announced)**
  (contact Ron Vargas or Bill Weir for more information—phone numbers on back page of this newsletter)
- TULARE / KINGS COUNTIES MEETING Wednesday**, February 27, 2002 (time TBA)**
  (contact Bruce Roberts or Steve Wright for more information—phone numbers on back page)
- FRESNO COUNTY MEETING Thursday, **February 28, 2002 (time TBA)**
  (contact Dan Munk for more information—phone number on back page)