

the dust storms. A longer than usual growing season permitted the maturing of bolls from late blossoms.

Final yield and consumptive-use data substantiate the early-season indications; i.e., yields were good and final consumptive use was close to a nine-year mean. Two varieties produced over three bales of lint cotton per acre and consumptive use was close to 40 inches.

Table 1. Yield and Consumptive Use by Solid-Planted Cotton

| Variety | Lint/Acre (Pounds) | Seasonal CU (Inches) |
|----------------|--------------------|----------------------|
| Acala 44-10 | 1219 | 40.0 |
| Hopicala | 1361 | 37.3 |
| Delta Pine SL | 1608 | 38.3 |
| Stoneville 213 | 1806 | 37.7 |
| Pima S-4 | 1041 | 33.6 |

End of the season calculations showed plants were irrigated when 66% of the available water had been used from the top 3 feet of soil. When soil was allowed to dry out to this level, "thirst" signs were evident.

Results show that irrigation schedules developed for the Acala 44-10 and Delta Pine cotton are also applicable to the newer varieties.

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SILTING OF SELECTED SOILS IN EASTERN MARICOPA COUNTY

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Ordinarily heavy rainfall or irrigation washes silt and clay downward to leave the surface soil lower in these fine materials. The Chandler S.C.S. Work Unit selected ten modal soil types for Eastern Maricopa County for analysis. D. D. Evans, University of Arizona Soil Physicist, made mechanical analyses for this office as shown in Table 1.

Attention is called to the fact that Gila loam and Vinton loamy fine sand samples were taken from two adjoining farms. These two farms have won all the Hi-Yield Cotton Contest awards for Eastern Maricopa County since the contest beginning in 1962. Laveen loam and Laveen clay loam soils in another area have not been yielding well and silting of the surface is in reverse order. This reduces the permeability of the surface soil to both air and water.

Table 1. Mechanical Analysis* of Ten Modal Soil Types - Eastern Maricopa County

| SOIL DEPTH | Vinton | | | | | | | | |
|---------------|--------------|--------------|--------------------------|---------------------------|----------------|------------------------|----------------------|------------------------|----------------|
| | Gila Loam | Fine Sand | Anthony Sandy Loam | Adelanto Sandy Loam | Laveen Loam | Laveen Clay Loam | Gila Silt Loam | Mohave Clay Loam | Mohave Loam |

SILT CONTENT - PERCENT

| | | | | | | | | | |
|--------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 0-6" | 29 | 29 | 28 [↑] | 15 | 41 [↑] | 43 [↑] | 53 [↑] | 24 [↑] | 23 [↑] |
| 6-12" | 31 | 44 | 27 [↑] | 13 | 40 [↑] | 43 [↑] | 56 [↑] | 24 | 24 [↑] |
| 12-18" | 35 | 51 | 22 [↑] | 14 | 39 [↑] | 45 [↑] | 47 [↑] | 20 | 19 [↑] |
| 18-24" | 61 | 64 | 20 [↑] | 16 | 41 [↑] | 43 [↑] | 43 [↑] | 22 | 21 [↑] |
| 24-30" | 69 [↓] | 60 [↓] | 29 [↑] | 14 | 37 [↑] | 41 [↑] | 40 [↑] | 30 | 24 [↑] |
| 30-36" | 55 | 28 | 34 [↑] | 26 | 36 [↑] | 42 [↑] | 41 [↑] | 33 | 34 [↑] |
| 36-42" | 44 | 21 | 34 [↑] | 34 | 35 [↑] | 39 [↑] | 43 [↑] | 34 | 32 [↑] |
| 42-48" | 46 | 18 | 32 [↓] | 44 [↓] | 35 [↑] | 43 [↑] | 40 [↑] | 31 [↓] | 34 [↓] |

CLAY CONTENT - PERCENT

| | | | | | | | | | |
|--------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 0-6" | 15 | 6 | 7 | 8 | 24 [↑] | 30 [↑] | 22 [↑] | 30 | 23 [↑] |
| 6-12" | 15 | 6 | 6 | 8 | 24 [↑] | 30 [↑] | 21 [↑] | 32 | 20 [↑] |
| 12-18" | 15 | 5 | 7 | 8 | 26 [↑] | 24 [↑] | 19 [↑] | 40 | 18 [↑] |
| 18-24" | 22 | 7 | 8 | 10 | 19 [↑] | 24 [↑] | 19 [↑] | 44 [↓] | 24 [↑] |
| 24-30" | 22 | 10 [↓] | 15 [↑] | 10 | 19 [↑] | 21 [↑] | 15 [↑] | 36 [↑] | 31 [↑] |
| 30-36" | 21 [↓] | 6 | 15 [↑] | 12 | 20 [↑] | 24 [↑] | 9 [↑] | 31 [↑] | 30 [↓] |
| 36-42" | 17 | 6 | 15 [↓] | 14 | 20 [↑] | 28 [↑] | 8 [↑] | 27 | 23 [↑] |
| 42-48" | 14 | 4 | 11 | 14 [↓] | 21 [↑] | 27 [↑] | 24 [↑] | 28 | 17 [↑] |

* Arrows indicate direction of increased silt or clay content.

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PIMA IRRIGATION - SPACING - VARIETY TESTS

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Two Pima varieties, S-3 (high-altitude variety) and S-4 (low-altitude variety), were tested in irrigation -- plant spacing tests at Phoenix and Safford. Time of irrigation was determined by soil sampling at Phoenix. The wet treatments were irrigated when approximately 50% of the moisture in the top 3 feet of soil was used. Medium was at 65% and dry was at 75%. Irrigation at Safford was on the human judgment basis. Details are given in Table 2.

Plant spacing was planned to be at 3", 6", 12", and 24". The smallest spacing at Phoenix was the natural stand. All others at Phoenix and Safford were hand thinned.