

CROP MATURITY

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For a number of years, the maturity distribution for several varieties and strains has been determined by hand harvesting at two-week intervals starting about September 1. The 1981 crop was the earliest crop in 12 years of measurement using this procedure with an average of 64% of the crop open on that date. By contrast, the 1975 crop had only 5% open on September 1. The following table shows the maturity distribution by date for several varieties starting on August 18.

PERCENT OF CROP OPEN BY DATE

VARIETY	08/18	09/01	09/15	09/29	10/12	10/26	TOTAL YIELD
7209-110	40.7	55.7	65.7	73.2	90.7	100	1733
Deltapine 62	36.5	65.3	77.8	83.6	93.8	100	1755
Deltapine 70	43.3	65.0	76.7	81.0	92.7	100	1949
Deltapine 41	39.0	65.1	80.0	87.1	97.3	100	1856
Deltapine 712	41.6	70.6	83.9	89.7	96.9	100	1627
Deltapine 299	46.3	65.3	79.8	84.6	93.6	100	1952
Stoneville 213	39.6	66.6	81.0	85.0	93.6	100	1700
Stoneville 825	42.0	68.0	82.6	86.8	95.1	100	1657
Stoneville 506	40.8	64.1	75.4	82.2	95.8	100	1577
McNair 220	47.2	58.6	64.6	72.2	93.7	100	1904
AVERAGE	41.7	64.4	76.8	82.5	94.3		

Careful study of the maturity distribution for the various years seemed to indicate that early season temperatures were closely associated with the earliness of the crop as measured by the percent open on September 1st. Heat units (defined as mean temperature minus 55°) were calculated for the various years using Phoenix Sky Harbor temperatures. The total heat units from planting date (these ranged from March 16 to April 16) through April 30 were correlated with the percent open on September 1. A linear regression of the effect of heat units on earliness was highly significant with an R² value of .85. The following figure shows this regression line and the actual values for various years. Simply stated, this regression indicates that there is a 12% increase in earliness for each 100 heat units accumulated through April 30.

