

Hypocotyl growth in pregerminated cotton seedlings grown at 20C, with or without a 7C chilling treatment at 24 to 48 hours after planting.

Time (days)	Hypocotyl length (cm) of control seedlings			Hypocotyl length (cm) of chilled seedlings		
	Observed	Predicted	Obs.-pred.	Observed	Predicted	Obs.-pred.
4	1.0	1.0	0	-	0.3	-
5	1.6	1.6	0	0.8	0.8	0
6	2.2	2.2	0	1.4	1.4	0
7	2.7	2.7	0	2.1	2.0	+0.1
8	3.1	3.1	0	2.6	2.6	0
9	3.4	3.3	+0.1	3.0	3.0	0
10	3.5	3.6	-0.1	3.3	3.2	+0.1
11	3.6	3.7	-0.1	3.4	3.4	0
12	3.7	3.7	0	3.6	3.6	0
13	3.8	3.8	0	3.6	3.7	-0.1
14	3.8	3.8	0	3.8	3.7	+0.1

soil environments. Dr. Wanjura has agreed to cooperate with us in an attempt to substitute the Gompertz equation for the autocatalytic equation now used in his hypocotyl elongation model, which should result in a greatly improved seedling emergence model. We plan to use the soil tank approach to verify the response of the "improved" model to fluctuating soil temperatures, as well as conducting appropriate field studies.

PIMA COTTON PLANTING SEED

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Seed from the Pima Regional tests in 1974 located at Safford, Salome, Phoenix (CRC) and Marana in Arizona and El Paso, Texas were saved for planting in 1975. The Pima lines were S-4, P-28, P-29 (S-5) and P-30. Seed from P-30 was not saved from Texas.

The seed were acid delinted and an equal number counted into packets for planting. Seed from Texas were divided and half treated with adenosine monophosphate (AMP) or cyclic adenosine monophosphate (CAMP). The seeds were planted at Phoenix, Marana and Safford and emerged seedlings counted twice weekly until the count remained constant. The results are presented below.

Percent Final Emergence

		Location of Test			
Seed Source		Safford	CRC	Marana	Avg.
Safford	P-28	54.0 abc	41.0 ab	56.9 ab	50.6 ab
	P-29	49.3 abc	62.0 ab	48.4 a	48.5 ab
	P-30	59.2 abc	61.3 ab	71.3 ab	64.0 ab
	S-4	68.8 bc	52.5 ab	55.2 ab	58.8 ab
	Avg.	57.8	54.2	58.0	55.5
Salome	P-28	53.4 abc	51.6 ab	56.3 ab	53.8 ab
	P-29	42.4 abc	62.0 ab	63.0 ab	55.8 ab
	P-30	56.0 abc	68.6 ab	72.9 ab	65.9 ab
	S-4	51.0 abc	67.6 ab	40.7 a	53.1 ab
	Avg.	50.7	62.4	58.2	57.2
CRC	P-28	49.2 abc	62.9 ab	46.7 a	53.0 ab
	P-29	70.3 c	55.6 ab	64.8 ab	63.6 ab
	P-30	48.9 abc	80.8 b	72.1 ab	67.2 ab
	S-4	62.5 abc	74.0 b	60.1 ab	65.5 ab
	Avg.	57.7	68.3	60.9	62.3

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Percent Final Emergence (continued)

Seed Source		Safford	CRC	Marana	Avg.
Marana	P-28	63.6 abc	65.9 ab	58.7 ab	62.7 ab
	P-29	70.3 c	77.3 b	67.4 ab	71.7 b
	P-30	44.8 abc	69.7 ab	84.1 b	66.2 ab
	S-4	54.1 abc	72.0 ab	58.7 ab	61.6 ab
Avg.		58.2	71.2	67.2	65.6
Texas	P-28	39.2 abc	70.5 ab	54.0 ab	54.6 ab
	P-29	54.2 abc	60.1 ab	55.4 ab	56.6 ab
	S-4	46.3 abc	61.2 ab	45.0 a	50.8 ab
	Avg.		46.6	63.9	51.5
Texas	P-28+AMP	56.7 abc	70.5 ab	54.8 ab	60.7 ab
	P-29+AMP	52.4 abc	55.2 ab	44.5 a	50.7 ab
	S-4+AMP	39.9 abc	34.1 a	58.0 ab	44.0 a
	P-29+CAMP	38.8 abc	48.0 ab	45.7 a	44.2 a
	Avg.		47.0	52.0	50.8

SEED QUALITY OF UPLAND COTTON

B.B. Taylor and R.G. McDaniel

The effect of adenosine-monophosphate (AMP) on emergence of five varieties of upland cotton planting seed was evaluated by planting an equal number of treated and untreated seed. The seeds were planted April 11 and 21 in Safford and Casa Grande, respectively. Emerged seedlings were counted twice weekly. Results are presented in table below.

Although the advantage of AMP as a seed treatment has been conclusively demonstrated in greenhouse and growth chamber tests, these tests and others conducted in 1975 have not demonstrated an advantage for the treatment in the field. It is believed that an organic chemical to act as a carrier is needed to bind the compound into the seed coat. Dr. R.G. McDaniel is currently studying various chemicals and evaluating methods of application that hopefully will prove successful.

Percent Seedling Emergence - Casa Grande

Sam Stedman and Jerry Minyard in cooperation with Delta and Pine Land Co.

Date of Count	ST-213	ST-213 AMP	DPL-16	DPL-16 AMP	DPL-66	DPL-66 AMP	ST-256	ST-256 AMP	DPL-61	DPL-61 AMP
May 5	33.0	30.7	29.3	27.1	26.2	25.5	26.3	24.0	22.0	24.0
May 8	33.0	32.3	30.3	28.0	27.5	27.7	26.5	25.5	22.5	24.0
May 13	57.6	57.6	55.1	48.5	51.8	50.0	49.5	47.5	45.7	46.7
May 16	59.3	56.8	55.3	50.8	51.8	48.0	49.8	46.3	44.2	45.2
Standard										
Germ. %	97.3		97.2		92.0		85.8		92.0	
Final Average					W/O AMP = 52.1		W/AMP = 49.4			