

PETIOLE NITRATE LEVELS IN NARROW-ROW COTTON

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Nitrogen management in narrow-row cotton culture is important in most soils to obtain the most economical yield. One nitrogen diagnostic tool that has been used in cotton production is petiole nitrate analysis. The nitrate level is monitored during the season and can be used to indicate when nitrogen additions are required.

Three soil types were chosen to study the petiole nitrate levels of narrow-row cotton culture. Five levels of ammonium nitrate were applied to the soil before planting. The plots were 150 feet long and six beds wide (40-inch beds). The treatments were replicated five times and arranged in a Latin square design. The center two rows of each plot were harvested.

Even though there were differences in the petiole nitrate levels the yields were similar. The soils used in these trials had sufficient nitrogen in their profiles to grow the narrow-row cotton without applying fertilizer nitrogen. This reinforces the recommendation that there is little need to add nitrogen initially when the soil test levels are above 20 ppm and the petiole levels remain above 3000 ppm.

Caution should be used in using these guidelines to interpreting petiole nitrate data of narrow-row cotton. This is only one year of data and next year may present a different picture and interpretation.

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NARROW-ROW SHORT STAPLE VARIETY TRIAL

Larry Carpenter - Safford

Agent in Charge - J.L. Sears

Variety	Rep.		lbs. seed cotton /A	% turnout <sup>1/</sup>	lbs. lint /A
	I	II			
Stoneville 213	860	780	3183.6	28.0	891
DPL-16	630	780	2606.4	31.7	826
Rilcot Stripper S	710	720	2866.5	28.0	803
Dunn 56C	750	780	2951.8	28.0	827
Dunn 118	700	790	2843.6	27.1	771
Rilcot Stripper N	620	710	2527.8	28.9	731
Dunn 119	600	670	2404.9	28.9	695

<sup>1/</sup> Percent turnout based on laboratory gin results.

CROP HISTORY: Previous crop - cotton. PRE-IRRIGATED 3/7/71. FERTILIZER: No fertilizer applied. Irrigation water contained 20 lb N/A in each 12" of water applied. PLANTED: 4/12/71. PLANTING RATE: 28-30 lb seed/A. PLANTING PATTERN: 2 rows/bed seed rows 8" apart on 38" beds. Plot size 2 beds. HARVEST: 11/20/71 with a Garland stripper.

NARROW-ROW vs. SINGLE ROW

Ed Hooper - Casa Grande Agricultural Agent - Sam Stedman

Variety	lbs. seed cotton /A	% Turnout <sup>1/</sup>	lbs. Lint /A	Ground Cotton /A	Total Yield
Double Row					
ST-213	3889	25.37	987	102	1089
DPL-16	3849	26.10	1005	94	1099
Single Row					
ST-213	3550	25.37	901	93	994
DPL-16	3329	26.10	869	82	951

<sup>1/</sup> Percent turnout based on actual gin results.

CROP HISTORY: PLOT SIZE: both planting patterns in the same field. Double row, 2 rows 14" apart on 40" beds. Single row 40" beds, 8 beds/plot, 4 reps. PLANTED: 4/25/71 30 lbs/A - double row, 15 lbs/A - single row. HERBICIDE: none. Four cultivations and two hand howings. INSECTICIDE: 8 applications of Methyl-Ethyl parathion. FERTILIZER: 300 lbs. of urea 6/7/71. IRRIGATIONS: preplant irrigation plus 5 additional irrigations, last application 8/10/71. DEFOLIATION: Sodium Chlorate 10/18/71. HARVEST: Garland Stripper 11/8/71.

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NARROW-ROW VARIETY TRIAL

Buster Brown - Casa Grande Agricultural Agent - Sam Stedman

Variety	lbs. Seed Cotton/A	% Turnout <sup>1/</sup>	lbs. lint/A
DPL-16	2321	33.2	770.6
Stoneville 213	1937	34.1	660.5
Az 6401	1880	34.6	650.5

<sup>1/</sup> Percent turnout from laboratory gin results.

CROP HISTORY: PLOT SIZE: 4 beds x 1314 ft. 40" beds 3 reps. PLANTED: 3/15/71 32#/A seeding rate. INSECTICIDE: none. FERTILIZER: injected 100#NH3 preplant 100#NH3 Post Emerg. IRRIGATION: 8 times 8/5/71 cut off, short of water early. DEFOLIATION: 9/15/71 DEF 9/25/71 1 pt. paraquat. HARVEST: Van Kapp, rooded twice for 1/5 bale/A. PREVIOUS CROP: barley 1970, cotton 1969.

NARROW-ROW VARIETY TRIAL

Ron Miller - Maricopa Agricultural Agent - Sam Stedman

Variety	lbs. Seed Cotton/A	% Turnout <sup>1/</sup>	lbs. lint/A
DPL-16	2835.0	27.7	785
Stoneville 213	2982.5	27.2	812
Az 6401	2475.0	26.9	655
Lockett 4789A	1943.7		
Dunn 56C	2518.7		
OKRA Leaf	1137.5		

<sup>1/</sup> Percent turnout from actual gin results.

CROP HISTORY: PLOT SIZE: 4 bed plots, 5 rep. PLANTED: 4/15/71 at a rate of 30 lbs/A irrigated up. HERBICIDE: 3/4 lb/A treflan plus 1.5 lb/A Caparol preplant over bed. INSECTICIDE: 5 applications of Tox-parathion for pink bollworm from 8/19 to 9/11/71. FERTILIZER: 120 lbs /A of NH<sub>3</sub> in water 6/8/71. IRRIGATION: 8 irrigations last application 8/7/71. DEFOLIATION: Folex + insecticide 9/11/71. HARVEST: 11/12/71 with Garland stripper.

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NARROW-ROW COTTON VARIETY

Parke Gilbert - Casa Grande Agricultural Agent - Sam Stedman

Variety	lbs. Seed Cotton/A	% Turnout <sup>1/</sup>	lbs. lint/A
DPL-16	3725	32.3	1203
Stoneville 213	3498	31.2	1091
Az 6401	2963	31.8	942
Hybee	4013	33.9	1360
Dunn 56C	2275	27.3	621
Lambright	1125	28.8	324
Lockett 4789A	3050	30.6	933
Rilcot Stripper S	2550	31.4	801
Rilcot Stripper N	2500	31.9	798

<sup>1/</sup> Percent turnout based on laboratory gin results.

CROP HISTORY: PLOT SIZE: 8 beds/plot, 5 reps., 40" beds. PLANTED: 3/16/71 at 30 lbs./A, preirrigated. HERBICIDE: 3/4 lb. treflan + 1.5 lb. karmex/A over bed and mulched with P.T.O. mulcher. INSECTICIDE: 1 application of tox-parathion for lygus and 4 applications of parathion for pink bollworm. FERTILIZER: 150 units N broadcast preplant. IRRIGATION: 9 irrigations last application 8/11/71. DEFOLIATION: 8/26/71 with 1 qt. DEF in 5 gal. water by air. 9/3/71 1.5 pt. paraquat by air. HARVEST: 9/12/71 with Garland Stripper. PREVIOUS CROP: small grain 1970.

NARROW-ROW VARIETY TRIAL

W.T. Gladden - Buckeye

Agricultural Agent - Chuck Farr

Variety	lbs. Seed Cotton/A	% Turnout <sup>1/</sup>	lbs. lint/A
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Picked October 25

DPL-16	4771	30.1	1436
Stoneville 213	4909	29.5	1448
Az 6401	4221	31.1	1313

Picked September 27

AC 1764	2411	28.8	694
Dunn 118	2713	28.6	776
Lockett 4789A	2360	30.5	720
Dunn 56C	2704	28.7	776
Dunn 119	3062	30.1	922

<sup>1/</sup> Percent turnout based on laboratory gin results.

CROP HISTORY: PLOT SIZE: 4 row plots 40" beds 4 reps. PLANTED: 3/25/71 irrigated up, 26#/A seeding rate. HERBICIDE: Treflan on the flat, disc incorporated. INSECTICIDE: 4 applications of Totbidon. FERTILIZER: 250 lb/S 16-20-0 preplant. IRRIGATION: 5/25/71 first, 5 additional irrigations, 8/1/71 cut off. DEFOLIATION: 5/15/71 DEF on 9/71 pick. HARVEST: Garland Stripper. PREVIOUS CROP: Cotton 1970.

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FLAT PLANTING VARIETY TRIAL

Gladden Farms - Cashion

Agricultural Agent - Chuck Farr

Variety	lbs. Seed Cotton/A	% Turnout <sup>1/</sup>	lbs. lint/A
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Dunn 118	2593	24.2	627
Dunn 119	3309	22.5	745
AC 1764	3309	25.3	837
OKRA Leaf	3157	28.7	906
DPL-16	2745	26.7	733
Acco Dwarf	2943	30.8	907
Stoneville 213	3111	28.7	893
Lockett 4789A	2333	25.9	604

<sup>1/</sup> Percent turnout based on laboratory gin results.

CROP HISTORY: PLOT SIZE: 28 ft. x 510 ft. not replicated 12" rows. PLANTED: 4/26/71 in moisture, seeding rate varied with variety. HERBICIDE: 1 pt. Treflan + 1 lb. Karmex/A disc incorporated before preplant irrigation. IRRIGATION: 3 irrigations, 8/15/71 cut off. INSECTICIDE: none. FERTILIZER: none. DEFOLIATION: none. HARVEST: 10/26/71 Garland stripper.

NARROW-ROW VARIETY TRIAL

Garth Lamb - Queen Creek

Agricultural Agent - Chuck Farr

Variety	lbs. Seed Cotton/A	% Turnout <sup>1/</sup>	lbs. lint/A
DPL-16	3948	27.1	1070
Stoneville 213	3850	26.6	1024
Az 6401	4774	27.3	1139
Lockett BXL	3395	25.0	849
Dunn 56C	4081	24.1	984
Dunn 118	4228	22.7	960
Lockett 4789A	3353	26.4	885
Dunn 119	4529	20.9	947
AC 1764	4046	22.0	890

<sup>1/</sup> Percent turnout based on laboratory gin results.

CROP HISTORY: PLOT SIZE: 4 rows x 1263 ft. 37" centers 2 reps. PLANTED: 4/20/71 irrigated 4/25/71 37 lbs/A seeding rated. HERBICIDE: 1 pt. Treflan + 1 lb caparol before bed shaping + band over bed not incorporated. INSECTICIDE: 15 appl. early June ground rig Bidrin 6/20 & 6/29/71 1/2 pt. parathion 6-3, 7/9/71 1 pt. parathion 6-3, 7/22, 7/26 & 7/30/71 1 pt. Azodrin, 8/4/71 1 pt. parathion 6-3 + 2 lbs. tec. toxaphane, 8/10/71 1 pt. parathion 6-3, 8/16/71 1 pt. 6-3 + 2 lb. toxaphane + ringed field with 1/2 lb. toxaphane 8/27/71 ringed 1/2 lb. lannate, 9/2/71, 8 + 14 1 pt. 6-3 + 2 lb. toxaphane, 9/14/71 1 pt. 6-3. FERTILIZER: 200 lb/A 17-34-0 preplant. IRRIGATION: 7 irrigations total, cut off 9/10/71. DEFOLIATION: none. HARVEST: 11/30/71 with Garland Stripper. PREVIOUS CROP: cotton 1970.

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NARROW-ROW VARIETY TRIAL

Earl Hughes - Gadsen

Agricultural Agent - Jim Hazlitt

Variety	% Turnout <sup>1/</sup>	lbs. lint/A	Ave. Grade	Ave. Staple	Ave. Mike <sup>2/</sup>	Value/A
DPL-16	32.97	722	32	34	3.7	\$142.28
DPL- S.L.	34.49	648	32	34	4.0	127.70
Az 6401	34.51	725	41	34	4.1	143.94
Coker 310	33.84	821	41	34	4.4	163.05
Lockett 4789A	32.88	710	41	34	4.4	141.01
Dunn 56C	30.00	590	51	34	3.8	103.33
Stoneville 213	32.32	947	41	34	4.2	188.01

<sup>1/</sup> Percent turnout based on actual gin results.

<sup>2/</sup> Quality measurements made by actual gin sample method.

CROP HISTORY: PLANTED: 4/4/71 after lettuce watered up 4/5/71 40" beds, 40 lbs/A seeding rate, hand thinned to stand. HERBICIDE: none. IRRIGATION: cut off 9/1/71. DEFOLIATION: about 9/15/71 DEF + Paraquat ground sec. time 10/1/71 DEF Paraquat. HARVEST: Van Kapp.

NARROW-ROW VARIETY TRIAL

Ben Simmons - Parker

Agricultural Agent - Jim Hazlitt

Variety	lbs. Seed Cotton/A
Az 6401	2498
Stoneville 213	2403
Lockett 4789A	1510
Dunn 56C	1430
Lambright X-15-5A	960
Rilcot Stripper Cala S	880
Lambright X-15-3	795

CROP HISTORY: PLANTED: Flat planting 14" - 26" spacing. HARVEST: 11/11/71  
Van Kapp one pick.

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NARROW-ROW COTTON VARIETY

Lee Mauldin - South Gila Valley

Agricultural Agent - Jim Hazlitt

Variety	% Turnout <sup>1/</sup>	lbs. lint/A
DPL-16	25.8	1123
Stoneville 213	26.0	1082
Az 6401	26.6	1138
Dunn 56C	21.3	1066

<sup>1/</sup> Percent turnout based on actual gin results.

CROP HISTORY: PLANTED: 4/6/71 at 35 lbs. seed/A. Planted flat on 20" rows with flex planter. HERBICIDE: 1 1/4 lb. karmex + 2 pt. treflan/A preplant incorporated with power mulcher. INSECTICIDE: 9 applications from 7/15/71 to 9/13/71 5 of 1 pt. Azodrin/A and 4 of parathion 6-3. FERTILIZER: 400 lbs. 17-17-0 preplant. IRRIGATION: preplant 3/23/71 5 additional applications last one 8/14/71. DEFOLIATION: 1 pt. DEF + insecticide 9/13/71. 2 pt. DEF + 1 pt. accelerate 9/25/71. 1 pt. paraquat 10/12/71. HARVEST: 11/3/71 Garland Stripper. PREVIOUS CROP: cotton 1970.

NARROW-ROW VARIETY TRIAL

O. Hunter - Salome

Agricultural Agent - Jim Hazlitt

Variety	lbs. Seed Cotton/A
Stoneville 213	3481
DPL-16	3434
Lockett BXL	2944
Lockett 4789A	2733
Dunn 56C	2597
Del Cerro	2278
DPL-16 1 row/bed	3128
DPL-16 2-1 skip	4392

CROP HISTORY: PLANTED: 4/4/71 with Planet Jr., 2 rows 7" apart per bed.  
 Irrigated up poor stand established. HERBICIDE: 1 pt/A treflan, no  
 cultivation one hand weeding. INSECTICIDE: 4 applications of parathion  
 6-3. FERTILIZER: 90 lbs. N/A preplant, 100 lbs. NH<sub>3</sub>/A in water.  
 IRRIGATION: 13 irrigations 9/1/71 cut off. DEFOLIATION: none.  
 HARVEST: spindle picked 11/9/71 and rooded.