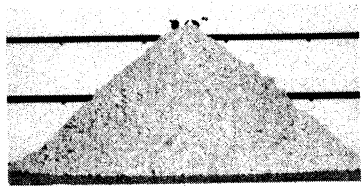
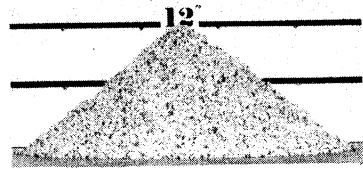


# RATES *and* METHODS *of* PLANTING-

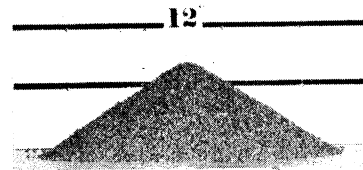
*Fuzzy . . . .*



*Reginned and*



*Acid Delinted*



## COTTON SEED

AGRICULTURAL EXPERIMENT STATION  
of the ALABAMA POLYTECHNIC INSTITUTE

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# RATES and METHODS of PLANTING FUZZY, REGINNED, and ACID-DELINTED COTTON SEED

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Different methods and rates of planting cotton seed have been used to conserve seed since cotton seed became a valuable commodity in the cotton industry. The practice of planting reginned and acid-delinted cotton seed has been growing rapidly in recent years. Wide variations occur in the rates at which these seed are planted. The Agricultural Experiment Station of the Alabama Polytechnic Institute has conducted two rather extensive series of experiments to determine the best rates and methods of planting fuzzy cotton seed and seed that have been reginned or acid delinted (sulfuric).

## PROCEDURES

**Series 1.** The first series of these experiments was conducted from 1942 through 1946 at the Monroeville and Prattville Experiment Fields, and the Sand Mountain and Tennessee Valley Substations. These experiments included the following six treatments numbered in the order listed:

1. Fuzzy seed—1 bushel per acre, drilled, constant depth, thinned to 1 to 3 plants every 16 inches.

2. Fuzzy seed— $\frac{1}{2}$  bushel per acre, drilled, variable depth, thinned to 1 to 3 plants every 16 inches.

3. Fuzzy seed—9.4 pounds per acre, hill-dropped, 3 to 5 seed

spaced 16 inches, thinned to 1 to 3 plants per hill.

4. Fuzzy seed—9.4 pounds per acre, hill-dropped, 3 to 5 seed spaced 16 inches, not thinned.

5. Fuzzy seed—21 pounds per acre, hill-dropped, 8 to 10 seed spaced 16 inches, thinned to 1 to 3 plants per hill.

6. Acid-delinted seed—7 pounds per acre, hill-dropped, 2 to 4 seed spaced 16 inches, not thinned.

The seedbeds of the plots were thoroughly prepared and uniform applications of 600 pounds of the recommended grade of fertilizer were applied in the furrow and bedded on 2 weeks before planting. Three dates of planting at 2-week intervals were used for all treatments at each location. Depth of planting was increased from  $\frac{1}{2}$  inch

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<sup>1</sup>Tests were conducted in cooperation with F. E. Bertram, R. C. Christopher, W. W. Cotney, S. E. Gissendanner, C. L. Kornegay, E. L. Mayton, J. W. Richardson, E. F. Schultz, J. F. Segrest, Fred Stewart, and D. G. Sturkie on the Substations and Experiment Fields of the A.P.I. Agricultural Experiment Station.

<sup>2</sup>Plant Breeder; agronomist (deceased); and associate agronomist of the Station staff, and agricultural engineer with the U. S. D. A. Tillage Machinery Laboratory, respectively.

for the first planting to 1 inch for the second, and 1½ inches for the third planting. Treatment number 2 was planted with a variable depth planter, which varied the depth by about 1½ inches.

**Series II.** The second series of experiments was conducted at 12 locations in the State for 3 years from 1949-51. These experiments were designed to compare different rates of hill-dropped, acid-delinted (sulfuric) and reginned seed with the conventional method of drilling approximately 32 pounds per acre of fuzzy and reginned seed of the same variety of cotton. Seed of Plains cotton were used for all tests.

The reginned and acid-delinted seed were processed by commercial plants and the fuzzy seed were treated at Auburn. All tests were planted in randomized blocks of six replications using one-row horse drawn planters with adjustments for drilling and hill-dropping cotton seed. Corn plates with 8, 12, and 16 holes were used with the dropping attachment for hill-dropping the acid delinted seed at the approximate rates of 8, 12, and 16 pounds per acre, respectively. The reginned and fuzzy seed were each drilled at the approximate rate of 32 pounds per acre using the regular attachments for planting cotton seed.

Counts for missing hills were obtained for each method of planting by measuring all skips four or more feet long and calculating the number of missing hills. None of the tests were replanted.

## RESULTS and DISCUSSION

**Series I.** Results of the averages

of the three planting dates in these experiments are presented in Table 1. The average of the experiments at all locations shows that yields are proportional to the amount of seed planted. Thinning of plants in treatment 3 reduced the yield slightly below the unthinned treatment 4. The 7-pound rate per acre of acid-delinted seed did not yield as well as other treatments at heavier planting rates. No comparison of the different types of seed at the same rate of planting was included in these experiments.

From the results obtained, it is evident that rate of seeding affects yields of cotton more than method of seeding. For instance, variable depth planting at the half-bushel rate did not yield as well as 1 bushel planted at constant depth in Series I experiments. In earlier experiments at the same locations (1939-1941), no yield differences resulted from the same seeding rates at constant and at variable planting depths, except for unusual seasons. The one exception was the difficulty in getting stands from shallow plantings that were followed by dry weather. Under these conditions variable depth plantings resulted in higher yields. Such was the case at the Tennessee Valley Substation in 1941 when variable depth planting yielded 800 more pounds of seed cotton.

Also compared in these earlier experiments was planting with and without a seed press wheel in addition to the regular surface press wheel. No increase was obtained from the use of a seed press wheel on the planter.

Results of these experiments emphasize the importance of planting enough seed to get a good uniform stand. On the basis of these data, rates less than 1 bushel of seed per acre cannot be recommended.

TABLE 1. YIELDS OF SEED COTTON FROM DIFFERENT METHODS OF PLANTING SEED AT FOUR LOCATIONS, 1942-46

Treatment	Monroe-ville 1942, 43 and 46 (3 yr.)	Pratt-ville 1942-46 (5 yr.)	Tennes-see Valley 1943- 46 (4 yr.)	Sand Moun- tain 1942 (1 yr.)	Weighted average (13 ex- per- iments)	Compared with treat- ment No. 1
No.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.
1 1 bushel fuzzy seed drilled, constant depth <sup>1</sup>	758	1,272	1,632	1,923	1,314	.....
2 ½ bushel fuzzy seed drilled, variable depth <sup>1</sup>	639	1,216	1,594	1,793	1,244	-70
3 3 to 5 fuzzy seed at 16 inches, hill-dropped <sup>1</sup>	642	1,173	1,477	1,789	1,191	-123
4 3 to 5 fuzzy seed at 16 inches, hill-dropped <sup>2</sup>	643	1,164	1,528	1,823	1,206	-108
5 8 to 10 fuzzy seed at 16 inches, hill-dropped <sup>1</sup>	782	1,251	1,588	1,746	1,285	-29
6 2 to 4 acid-delinted seed at 16 inches, hill-dropped <sup>2</sup>	522	1,150	1,495	1,895	1,166	-148

<sup>1</sup>Thinned to 1 to 3 plants every 16 inches.

<sup>2</sup>Not thinned.

Series II. Results of the 35 tests conducted over a 3-year period (1949-51) at 12 locations in Alabama are given in Table 2. Both the yield and the number of missing hills from the various treatments are presented. The averages for all locations appear in the last line of the table. These averages are also shown graphically in Figure 1.

Best yields resulted from the use of 1 bushel of either fuzzy or reginned seed drilled in the row. These treatments produced about 80 pounds more seed cotton than did 16 pounds of acid-delinted seed planted by the hill-drop method. Acid-delinted seed hill-dropped at the 16-pound rate produced 55 pounds more seed cotton than reginned seed planted by the same method and at the same rate. Yields

from both the reginned and acid-delinted seed increased as the rate of seeding was increased.

The yield of seed cotton in these experiments was determined by the stand obtained from the different treatments. As the number of missing hills increased between treatments the yield decreased. The difference in yield between the low and high treatments was about 150 pounds of seed cotton. Yields from both the acid-delinted and the reginned seed increased as the amount of seed planted was increased. The highest rates of these two types of seed used were 16 pounds of acid-delinted and 32 pounds of reginned seed per acre.

In the experiments at several locations during years when soil and weather conditions were favor-

TABLE 2. YIELDS OF SEED COTTON AND NUMBER OF MISSING HILLS FROM DIFFERENT METHODS AND RATES OF PLANTING FUZZY, REGINNED, AND ACID-DELINTED COTTON SEED, 3-YEAR AVERAGE, 1949-51

Location, yields and number of missing hills per acre	Planting method and seeding rates per acre					
	Hill-dropped			Drilled		
	Acid-delinted		Reginned	Reginned	Fuzzy	
	8 lb.	12 lb.	16 lb.	16 lb.	32 lb.	32 lb.
<b>BREWTON</b>						
Yield, lb.	981	938	982	966	991	1,020
Missing hills, no.	605	694	178	872	383	142
<b>MONROEVILLE</b>						
Yield, lb.	1,113	1,122	1,138	1,104	1,195	1,229
Missing hills, no.	1,995	1,775	1,475	1,410	935	840
<b>PRATTVILLE</b>						
Yield, lb.	1,480	1,499	1,507	1,458	1,480	1,450
Missing hills, no.	220	125	240	20	10	0
<b>ALICEVILLE</b>						
Yield, lb.	1,275	1,375	1,400	1,433	1,529	1,444
Missing hills, no.	2,409	1,672	1,510	1,534	342	189
<b>TUSKEGEE</b>						
Yield, lb.	1,047	1,051	1,073	1,039	1,084	1,166
Missing hills, no.	3,300	2,669	3,005	2,884	2,974	1,640
<b>TALLASSEE</b>						
Yield, lb.	851	859	860	865	944	968
Missing hills, no.	3,272	3,627	3,646	2,716	979	1,108
<b>AUBURN</b>						
Yield, lb.	1,426	1,387	1,542	1,636	1,821	1,797
Missing hills, no.	2,900	2,987	2,387	1,980	399	164
<b>CAMP HILL</b>						
Yield, lb.	775	766	837	725	882	892
Missing hills, no.	1,539	1,274	1,181	2,404	391	322
<b>ALEXANDRIA</b>						
Yield, lb.	1,036	1,104	1,068	942	1,224	1,140
Missing hills, no.	1,516	1,090	802	1,596	133	415
<b>WINFIELD<sup>1</sup></b>						
Yield, lb.	1,380	1,590	1,723	1,471	1,820	1,802
Missing hills, no.	-	-	-	-	-	-
<b>CROSSVILLE</b>						
Yield, lb.	1,296	1,367	1,374	1,244	1,471	1,372
Missing hills, no.	1,580	780	876	1,339	483	490
<b>BELLE MINA</b>						
Yield, lb.	1,163	1,272	1,292	1,199	1,326	1,491
Missing hills, no.	2,519	2,119	1,787	2,387	1,474	860
<b>AVERAGE, 35 tests</b>						
3-year period						
Yield, lb.	1,144	1,182	1,219	1,164	1,300	1,302
Missing hills, no.	2,095	1,775	1,607	1,785	786	577

<sup>1</sup>No test in 1951 - 2 year average

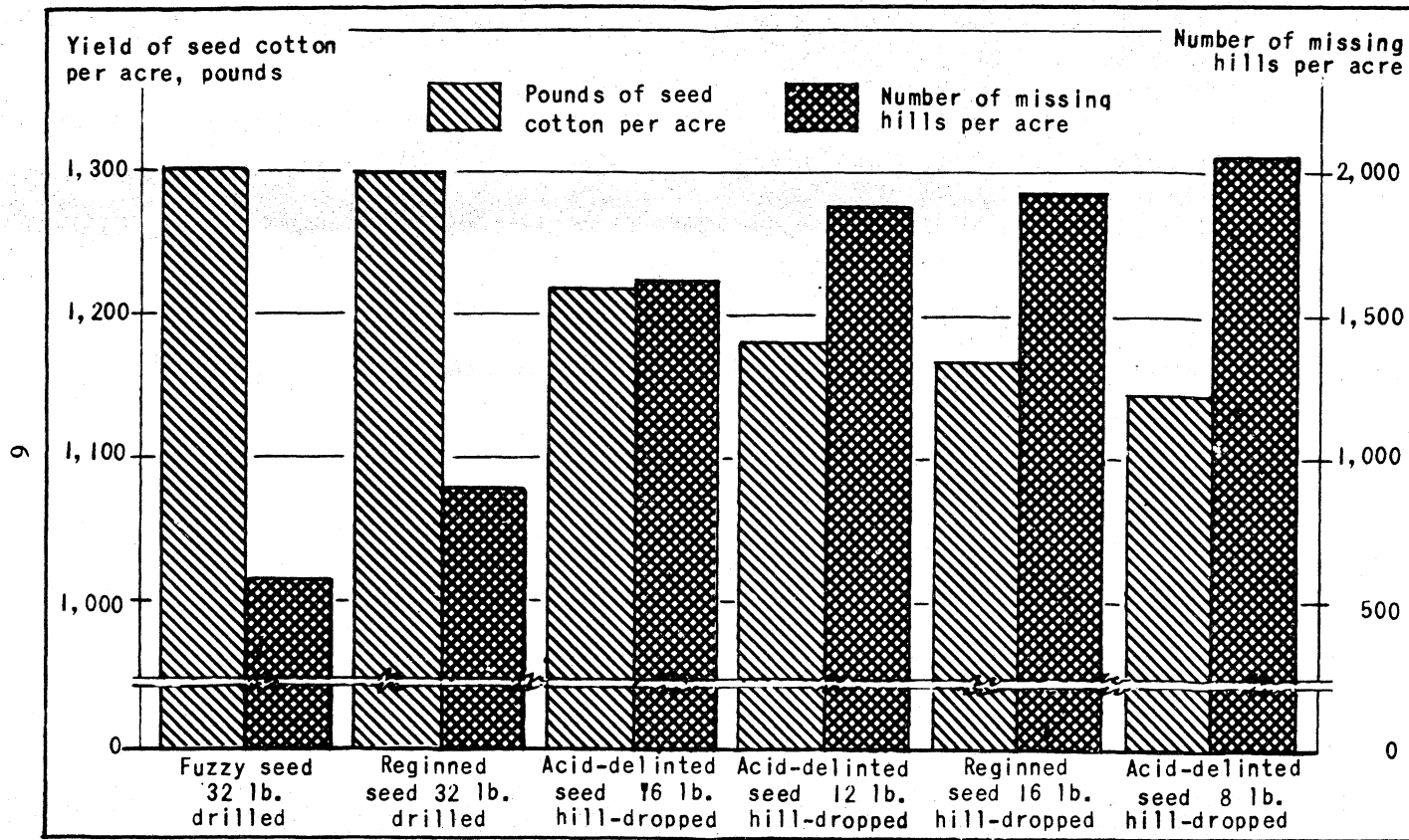


FIGURE 1. Yields of seed cotton and number of missing hills from different methods and rates of plant-fuzzy, reginned, and acid-delinted seed at 12 locations, 3-year average, 1949-51.

able for emergence and seedling growth of cotton, there was very little difference in yield or stand obtained from the different methods of planting or amounts of seed planted. However, in cases where there was difficulty in getting good stands, the higher seeding rates were consistently superior.

## SUMMARY

Two series of experiments were conducted at several locations in the State over periods of 3 and 5 years, respectively, to determine the best rates and methods of planting fuzzy, reginned, and acid-de-

lintered cotton seed. Results showed that 32 pounds of reginned or fuzzy seed per acre was superior to all of the lower seeding rates used in the experiments. Yields in these experiments increased as the amount of seed planted was increased. Yields were decreased as the number of missing hills resulting from the various treatments increased.

Results of both series of experiments lead to the same conclusions. They emphasize the importance of planting enough seed to get a good uniform stand. Rates less than 32 pounds of seed per acre are not recommended.

