

AGRICULTURAL EXPERIMENT STATION of The Alabama Polytechnic Institute, Auburn, Ala.

M. J. Funchess, Director

SEED TREATMENTS FOR PEANUTS ^{1/}

COYT WILSON, Assistant Plant Pathologist

H. R. ALBRECHT, Associate Agronomist ^{2/}

I. F. REED, Senior Agricultural Engineer ^{3/}

Good stands of peanuts usually can be obtained from machine-shelled seed if they are treated with the proper seed disinfectant. Furthermore, seed shelled, treated, and stored as much as 6 weeks ahead of planting time produce just as good stands as those shelled immediately before planting.

A small, simple, and inexpensive peanut sheller^{4/} developed by the U.S.D.A. Farm Tillage Laboratory, Auburn, Alabama, was used in shelling the peanuts for most of the tests reported here. Seed treatments were applied immediately after shelling. Records on stands (germination and emergence) were taken about 6 weeks after planting.

.....
S u m m a r y
.....

1. Treatment of machine-shelled peanut seed of both runner and Spanish type resulted in good stands.
 2. Seed can be shelled and treated as much as 6 weeks before planting.
 3. Any of a number of materials may be used. Arasan, Spergon, and Yellow Cuprocide are safe and reliable. Ceresan (2%) is reliable when used with caution. However, use of more than 4 ounces 2% Ceresan per 100 pounds of shelled seed usually injures the seed.
 4. Complete coverage of the seed with the disinfectant is necessary if best results are to be obtained.
-

^{1/} Three-year progress report, 1943-45.
^{2/} Indiana Agricultural Experiment Station; formerly Associate Plant Breeder, Alabama Agricultural Experiment Station.
^{3/} U.S.D.A. Bureau of Plant Industry, Soils, and Agricultural Engineering, Farm Tillage Laboratory, Auburn, Alabama.
^{4/} Write the Farm Tillage Laboratory, Auburn, Alabama, for information on construction and operation of sheller.

Some machines appear to injure the seed more than others. The machine used in these tests has been very satisfactory. With other operators or with other machines, different results might be obtained.

Treatment of Shelled and Unshelled Seed

The effects of 2% Ceresan on the emergence of unshelled, hand-shelled, and machine-shelled Spanish peanut seed are given in Table 1. The greatest increases in stands (germination and emergence) were obtained from treating machine-shelled seed. Usually, hand-shelled seed germinate well even without treatment. As shown by these results, very little is to be gained from treating unshelled seed.

The increases in germination and in emergence from treatment depended upon a number of conditions. These include quality of the seed, conditions under which they were shelled, and climatic conditions that prevailed at planting time. The greatest increases from seed treatment resulted when machine-shelled seed were used. Under some conditions the emergence was doubled. Runner and Spanish peanuts appear to respond about alike to seed treatments.

Table 1. - Effect of Method of Shelling and Seed Treatment on Emergence of Spanish Peanuts, Main Station, 1943-44

Method of shelling	Disinfectant	Emergence, 1943-44 average	
		Per cent	
Not shelled	None	57.88	
	2% Ceresan	60.37	
Hand shelled	None	72.29	
	2% Ceresan	83.71	
Machine shelled	None	50.37	
	2% Ceresan	78.66	

Materials Tested

A number of different materials have been tested on both Spanish and runner peanuts. (See Tables 2 and 3.) All of the materials resulted in increased stands. Some gave better results than others. In most instances 2% Ceresan was the best. However, it is necessary to use caution in applying this material. More than 4 ounces of 2% Ceresan per 100 pounds of shelled seed is likely to result in poor stands.

New Improved Ceresan should NEVER be used. This material contains 5 per cent of the mercury compound. Seed injury nearly always results when New Improved Ceresan is used.

Most seed treatments are poisonous. They should be handled with caution. Treated seed should be plainly labeled and used only for planting. Treated seed should not be used for food, livestock feed, or sold to oil mills.

Arasan and Spergon are not injurious to the seed, even when used in excess of the recommended dosage. For this reason, they may be preferred to 2% Ceresan.

Spergon also has given good results, but at present it is slightly more expensive than Arasan.

Table 2. - Effect of Various Seed Disinfectants upon Emergence of Machine-Shelled Spanish Peanuts, Main Station, 1943-44

Disinfectant	:	Emergence, 1943-44 average	
		Per cent	
None		50.37	
Yellow Cuprocide		67.92	
Merc-O-Dust		69.29	
Spergon		69.54	
Arasan		71.58	
Ceresan 2%		78.66	

In 1945 a number of seed disinfectants were tested on Alabama runner peanuts at the Main Station, Auburn, and at the Wiregrass Substation, Headland. The results are given in Table 3. Dow-9, Dow-9B, U. S. 604, and Fermate are still in the experimental stage as peanut seed disinfectants. They are not likely to be found in local markets. Treatments with 2% Ceresan, Arasan, Spergon, and Yellow Cuprocide, all of which are available, resulted in good increases in stands.

Table 3. - Effect of Various Seed Disinfectants upon Emergence of Machine-Shelled Runner Peanuts, Wiregrass Substation and Main Station, 1945

Treatment	: Rate of application per : 100 pounds of : shelled seed Ounces	:	Emergence		
			Headland : Auburn : Average		
			Per cent	Per cent	Per cent
None	-		46.50	63.50	55.00
Merc-O-Dust	3		47.50	67.17	57.33
Dow-9B	2		60.50	68.83	64.66
Fermate	3		59.16	74.00	66.58
Dow-9	2		65.16	77.83	71.49
Yellow Cuprocide	4		72.16	72.17	72.16
Spergon	4		64.33	81.17	72.75
Arasan	3		69.66	78.67	74.16
U. S. 604	2		-	80.00	-
Ceresan 2%	4		81.16	79.33	80.24

Shelling in Advance of Planting

Some farmers believe that seed must be shelled just before planting. Otherwise poor stands result. Experiments in 1944 and 1945 by this Station show that this is not the case. Peanuts were shelled and treated 6 weeks, 3 weeks, and 1 day before planting. All seeds were planted the same day. There was no great difference in the stands due to the time of shelling. This was true for both runner and Spanish peanuts.

