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MISSISSIPPI AGRICULTURAL EXPERIMENT STATION

A. & M. COLLEGE, MISSISSIPPI

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Seed Treatment For The Control of Irish Potato Scab

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Common scab is one of the most important diseases of the Irish potato crop of this state, ranking second in importance only to mosaic and taking an annual toll of about 50,000 bushels. Satisfactory control measures have been worked out in other states for several years. From the results obtained in other states, seed treatment for the control of this disease has been recommended for a number of years but the practice has not generally been adopted in this state. To test the value of seed treatment under Mississippi conditions an experiment was conducted on the Raymond Branch Experiment Station during the spring of 1925. Mr. C. B. Anders, in charge of the Station, furnished the land and fertilizer for the test, and aided in other ways.

The seed used in the experiment was of the Triumph variety and was obtained from a local seedman as field run stock. The seed was sorted into two lots, one containing only tubers free from scab lesions and the other having only slightly scabby tubers. One half of each lot was placed in wooden containers and covered with a solution of an ounce of corrosive sublimate (Bichloride of Mercury) in eight gallons of water for thirty minutes. After soaking for the desired time, they were removed and dried. The other half of

each lot was left untreated and used to plant the check rows. In cutting the seed, care was taken to have the seed pieces the same size, in order to eliminate the differences that might arise from seed pieces of different weights .

The soil on which the experiment was conducted is a fairly uniform medium heavy sandy loam. One thousand pounds of a 10-4-4 (P-N-K) fertilizer per acre was applied in the drill at the time of planting, March 10. The rows were three and one-half feet apart and one hundred and twenty-four and one-half feet long, one-hun-

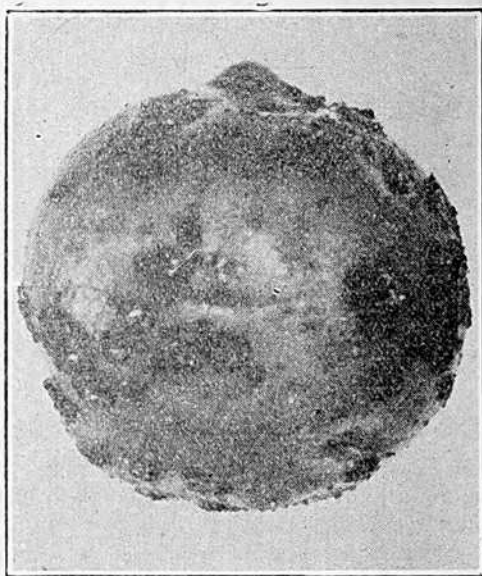


Fig. 1. Potato showing typical scab spots with fruiting bodies of the organism causing the disease.

dredth of an acre. The potatoes were planted one foot apart in the drill and one and one-half inches deep. The different treatments were planted in the order as given in Table 1, and each was repeated three times.

The potatoes were harvested on June 15 and sorted into the various classes. The "unsalable scabby" potatoes were covered entirely with scab lesions. The "salable scabby" potatoes showed injury varying from only slight scab lesions to those that were very scabby but not entirely covered. The averages of three rows are given in Table 1 for the different treatments.

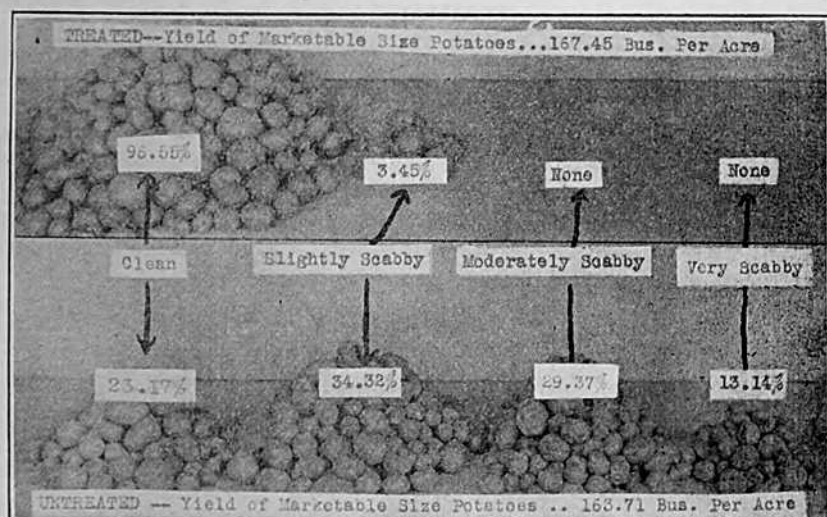


Fig. 2. Upper, classes of tubers from seed treated 30 minutes in a solution of corrosive sublimate 1-1000. Lower, Classes of tubers from untreated seed.

TABLE 1

INFLUENCE OF TREATING IRISH POTATO SEED FOR 30 MINUTES WITH CORROSIVE SUBLIMATE 1-1000 ON COMMON SCAB OF POTATO

Kind of Seed and Treatment	Scabby			Yield of Culls	Yield of Market- able Size Tubers
	Clean	Salable	Unsalable		
	Percent	Percent	Percent	Bushels per Acre	Bushels per Acre
Free of Scab (Treated)	96.55	3.45	0	10.61	167.45
Free of Scab (Untreated)	23.17	63.69	13.41	13.13	163.71
Slightly Scabby (Treated)	93.06	6.94	0	7.80	162.15
Slightly Scabby (Untreated)	12.35	69.17	18.48	12.89	162.51

From Table 1, it will be seen that the total yield of marketable size potatoes was practically the same for each treatment. However, since 13.41% and 18.48% respectively for the scab free and the slightly scabby seed were unsalable, it may be considered that the treated lots of seed produced 21.95 and 30.05 bushels more than their respective untreated lots. The benefits derived from seed treatment cannot be measured by the amount of unsalable scab alone, since the class "salable scabby" would sell for a lower price than clean tubers. It is also evident from the table that scabby seed will produce more scab than clean seed even when the latter has been in contact with the scab organism.

SUMMARY

1. Experiments were conducted to test the value of seed treatment for the control of the common scab of Irish potato.

2. Seed free of scab lesions treated for 30 minutes in a solution of corrosive sublimate, one ounce in eight gallons of water, produced 96.55% clean tubers, 3.45% salable scabby and no unsalable scabby tubers compared to 23.17% clean tubers, 63.69% salable scabby and 13.41% unsalable scabby tubers produced from a similar lot of seed that was untreated.

3. Slightly scabbed seed treated for 30 minutes in a solution of corrosive sublimate, one ounce in eight gallons of water, produced 93.06% clean tubers, 6.94% salable scabby, and no unsalable scabby tubers compared to 12.35% clean tubers, 69.17% salable scabby, and 18.48% unsalable scabby tubers produced from a similar lot of seed that was untreated.

4. Clean seed selected from a lot of slightly scabby potatoes produced 13.41% of unsalable scabby tubers compared to 18.48% produced from slightly scabby seed.