KENTUCKY

AGRICULTURAL EXPERIMENT STATION

OF THE

STATE COLLEGE OF KENTUCKY.

BULLETIN No. 61.

POTATOES.

1. **Experiments with Fertilizers.**
2. **Insects and Fungus Pests.**
3. **Tests of Varieties.**

LEXINGTON, KENTUCKY.

MARCH, 1896.

KENTUCKY

Agricultural Experiment Station.

Address of the Station : LEXINGTON, KY.

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POTATOES.

1. *Tests with Fertilizers.*
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1.—TESTS WITH FERTILIZERS.

BY M. A. SCOVELL.

The Season.

The season was unfavorable to the potato crop on account of dry weather. The following table gives the summary of rainfall, the mean temperature and the average per cent. of sunshine during the time specified:

MONTH.	Rainfall. Inches.	Degrees Mean Temperature.	Per cent Sunshine.
April	3.17	55.8	34
May	4.05	62.3	35
June	2.93	75.4	47
July	5.07	73.4	46
August	1.56	75.8	48
September	.33	72.8	53
October	1.28	52.3	64

THE SOIL.—The soil is derived from the Lower Silurian limestone, and is rich in phosphoric acid. The land is worn, having been in cultivation many years. The subsoil is a light-colored clay, so retentive as to make the soil deficient in natural drainage.

Explanations—The leading elements of plant food are nitrogen, phosphoric acid and potash. Plants feed on other soil elements besides these, and they are just as essential to plant life as these three, but generally speaking all but these ingredients are furnished to plants in abundance, and therefore in studying what to put on our soils to make them more productive, we need concern ourselves with only these three. Commercial fertilizers are manufactured and sold for the purpose of supplying nitrogen, phosphoric acid and potash, and the market prices depend upon these ingredients. Some fertilizers contain one of these ingredients, some two, and some all. Generally speaking, a commercial fertilizer is a mixture containing two of these ingredients, and sometimes all; the proportions varying greatly in the various brands and often in the same brand. It is at once seen to be a very difficult, if not an impossible task, to test all the various brands sold on a given soil in order to find out those that produce the best effect. It is an easy matter, however, to find out whether a given soil needs potash, phosphoric acid or nitrogen or any combination of these elements for a given crop. Having found out this by experiment, we have only to look to the analyses of the various fertilizers to tell which brands, if any, could be used to advantage on the soil and crop tested. If the experiment proved that potash was all that was needed on a given soil for the corn crop, all those fertilizers whose analyses show little or no potash would not produce favorable results, under whatever name sold.

The Experiments.

The potatoes used for seed were Northern grown Early Rose. They were immersed for ½ hour in a solution of mercuric chloride before being planted. This solution contained 3½ ounces of corrosive sublimate (mercuric chloride, or bichloride of mercury) to 30 gallons of water. After drying, the potatoes were cut and planted. (As the above solution is poisonous, the work of treating the potatoes with the solution should never be done where stock might get to the solution or the treated potatoes.)

The size of the experimental plots was 1-10 acre each.

After the ground was well prepared with plow and harrow, the rows were marked out with a small plow. The fertilizers used were scattered in the row by hand and afterwards slightly mixed with the soil by a brush being dragged along in the row.

The fertilizers were applied and the potatoes planted April 6th.

The following table shows the kind of fertilizers applied to the various plots, their amount calculated per acre, the number of pounds of leading elements of plant food applied per acre, and the per cent. of these elements in the various fertilizers:

TABLE 1—Showing fertilizers applied and per cent. of ingredients.

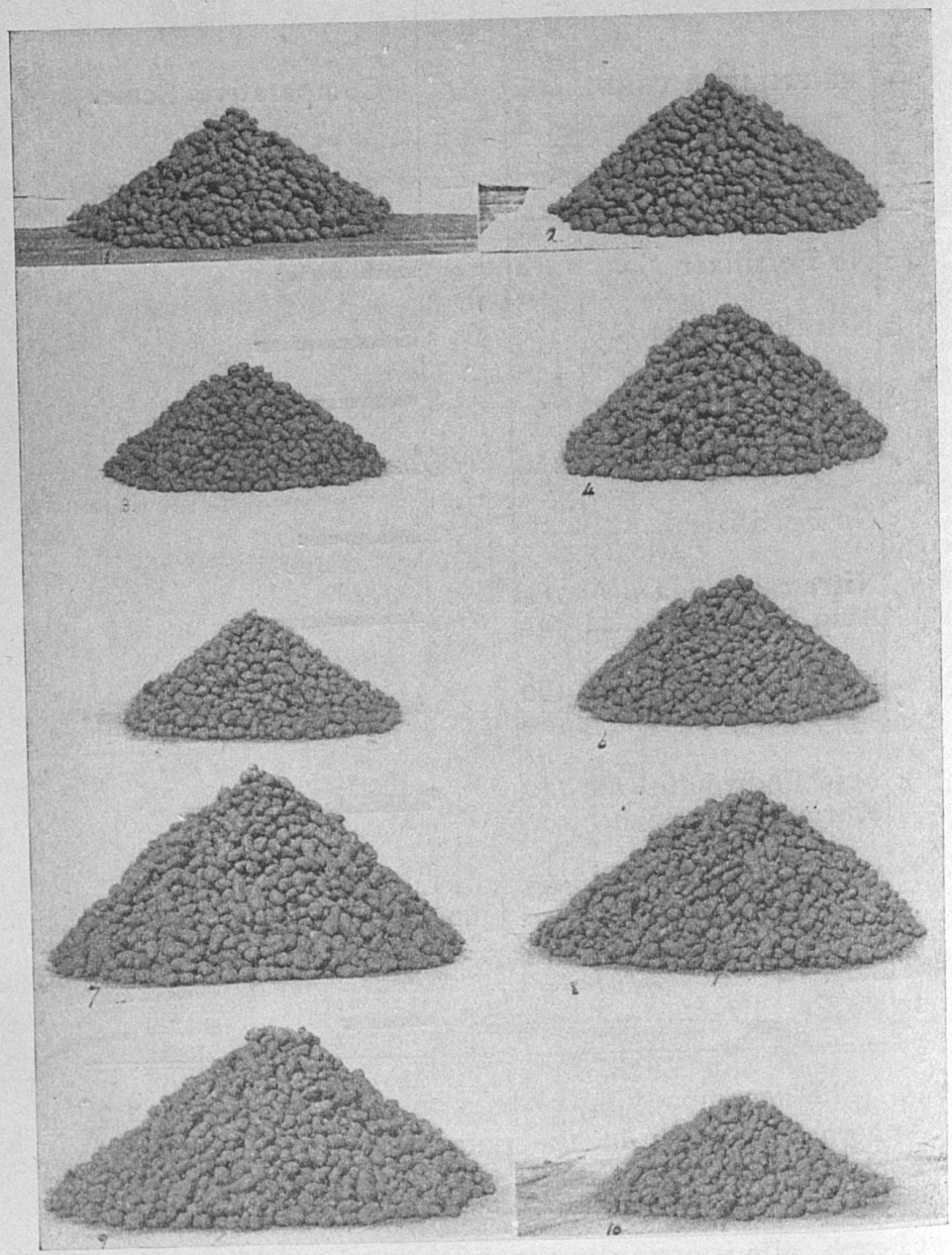
NUMBER.	FERTILIZERS USED.	Number of Pounds.	Number of pounds of the leading elements of plant food.			Per cent. of the leading elements of plant food in fertilizers used.		
			Phosphoric Acid.	Potash.	Nitrogen.	Phosphoric Acid.	Potash.	Nitrogen.
1	No Fertilizer.	.....	.. ....	.....	.....	.....	.....	....
2	Nitrate of Soda.....	160	0	0	25.6	0	0	5.5
3	Acid Phosphate.....	140	57	0	0	12.4	0	0
4	Muriate of Potash..	160	0	80	0	0	17.	0
5	No Fertilizer.....	.....	.....	.....	.....	....	.....	..... .
6	Acid Phosphate..... 140 Nitrate of Soda..... 160		57	0	25.6	12.4	0	5.5
7	Muriate of Potash.. 160 Nitrate of Soda..... 160		0	80	25.6	0	17.	5.5
8	Acid Phosphate..... 140 Muriate of Potash.. 160		57	80	0	12.4	17.	0
9	Acid Phosphate..... 140 Muriate of Potash.. 160 Nitrate of Soda..... 160		57	80	25.6	12.4	17.	5.5
10	No Fertilizer.....	... .	.. ..	....	.....	.. ..	.....	.....

The following table gives the name and amount of fertilizer used and the yield of potatoes, calculated to the acre, for each plot:

TABLE 2—Showing Results of Fertilizers on Potatoes.

No. of Plot.	FERTILIZER USED.	Amt. per acre, pounds.	Yield per acre, bushels.	Comparative Scale.
1	No Fertilizer	.....	50.0	
2	Nitrate of Soda.....	160	60.5	
3	Acid Phosphate	140	43.8	
4	Muriate of Potash ..	160	87.0	
5	No Fertilizer.....	.....	45.0	
6	Nitrate of Soda.....	160	59.3	
	Acid Phosphate	140		
7	Nitrate of Soda.....	160	122.8	
	Muriate of Potash .	160		
8	Acid Phosphate	140	95.0	
	Muriate of Potash..	160		
	Nitrate of Soda.....	160		
9	Acid Phosphate	140	126.8	
	Muriate of Potash .	160		
10	No Fertilizer.....	... .	33.8	

The accompanying plate is an exact reproduction of a photograph taken of the potatoes grown on each plot. Each pile was exactly the same distance from the camera when photographed, and therefore the difference in size of each pile is owing to the difference in yield.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Financial Results.

The Financial Results obtained by the use of the fertilizers in various combinations may be seen in the following table. The acid phosphate costs at the rate of $3.30 per acre, the muriate of potash $3.60, and nitrate of soda $3.60. In these estimates the potatoes are rated at 30 cents per bushel, including the small potatoes.

TABLE 3—Showing Financial Results.

	FERTILIZER USED.	Cost of Fertilizer used per Acre,	Value Potatoes per Acre.	Value of Increased Yield of Potatoes per Acre.	Profit or Loss,
1	No Fertilizer.....	.....	$15.00	.....	.....
2	Nitrate of Soda.....	$ 3.60	18.15	$ 5.28	$1.68
3	Acid Phosphate	3.30	13.14	0.27	3.03*
4	Muriate of Potash ...	3.60	26.70	13.83	10.23
5	No Fertilizer.....	.....	13.50	.....	.....
6	Nitrate of Soda..... Acid Phosphate	6.90	17.79	4.92	1.98*
7	Muriate of Potash ... Nitrate of Soda.....	7.20	36.84	23.97	16.77
8	Muriate of Potash ... Acid Phosphate	6.90	28.50	15.63	8.73
9	Nitrate of Soda..... Acid Phosphate ..... Muriate of Potash ...	10.50	38.04	25.17	14.67
10	No Fertilizer.....	.....	10.14	.....	.....

* Loss.

From the results obtained it would appear that both potash and nitrogen are needed on our soil, for potatoes; that potash alone greatly increases the yield; that nitrogen does to some extent, but that the best results are obtained by a combination of the two. Trials for six years have shown that potash greatly increases the yield of potatoes, when applied to our soil.

That this is not true for all soils is demonstrated by the experiments of Mr. Thos. R. Walker, of Junction City, Boyle Co. His results show that phosphoric acid is the element needed on his soil. Below are given the results of Mr. Walker's experiments in detail:

Experiments of Mr. Thos R. Walker,

JUNCTION CITY, BOYLE CO., KY.

SOIL.—A light, clayey loam, cleared from original timber about twenty two years ago, and has received no manure during that time. Probably of the Devonian geological formation.

Medium sized, home grown, Early Rose potatoes cut into two pieces were planted April 25.

The plan of the experiment was the same as that followed out by the Station. Ten 1-10 acre plots were used for the experiments, each plot being 181½ feet long and 24 feet wide. The fertilizers used were the same as heretofore given in this bulletin.

Mr. Walker reports the following field notes: Rows run north and south. Potatoes covered with Planet Jr. Cultivator.

May 9. Harrowed crosswise of the rows, some potatoes beginning to show above the ground.

May 14. Heavy rain all day washed out some few gulleys in the plot.

May 31. Cultivated with Planet Jr. Plot No. 6 showed by far the best growth and color of tops.

June 3. Hoed plot.

June 11. Cultivated with Planet Jr.
June 17. Potatoes beginning to bloom.
July 8. Cultivated.
July 25. Vines on No. 6 beginning to die.
July 29. Vines on Nos 7, 8 and 9 beginning to die.
Aug. 19. Vines all dead.
Sept. 10 and 11. Dug potatoes.

The following table gives the kind and quantity of fertilizers used and the yield of potatoes in bushels. All calculations made per acre :

TABLE 4—Effect of Fertilizers on Potatoes.

No. of Plot.	FERTILIZER USED.	Amt. per acre, pounds.	Yield per acre, bushels.		
			Merchantable.	Small.	Total.
1	No Fertilizer	.....	57.4	21.1	78.5
2	Nitrate of Soda.....	160	51.3	21.0	72.3
3	Acid Phosphate.....	140	86.7	34.8	121.5
4	Muriate of Potash.....	160	56.3	20.3	76.6
5	No Fertilizer	.....	53.1	21.0	74.1
6	Nitrate of Soda..... ... . Acid Phosphate.....	160 140	106.0	39.8	145.8
7	Nitrate of Soda..... Muriate of Potash.....	160 160	46.5	28.5	75.0
8	Acid Phosphate..... Muriate of Potash	140 160	80.6	44.5	125.1
9	Nitrate of Soda..... Acid Phosphate..... Muriate of Potash.....	160 140 160	86.3	34.5	120.8
10	No Fertilizer.....	.....	44.5	35.5	80.0

The results are striking, and they show the necessity for each farmer to experiment to find out the kind of fertilizer that is needed on his own land. Mr. Walker was under the impression that he needed potash until he obtained these results.

Sometime after his first report Mr. Walker sends the following interesting item:

"I may say that after digging my potatoes on the 10th and 11th of Sept. last I sowed rye, and though I cultivated cross ways of the potato rows with a Planet Jr. Hoe, the rows where double superphosphate was applied are as distinctly visible as a board on a fence. The rye on these plots are thick and green whilst on the other plots no difference is discernable between the plots fertilized and those without fertilizer."

INSECT AND FUNGUS ENEMIES OF POTATOES IN KENTUCKY.

BY H. GARMAN, ENTOMOLOGIST AND BOTANIST.

The Colorado Potato Beetle

(*Doryphora* 10-*lineata*).

The Colorado potato beetle is the most destructive insect enemy of the potato in Kentucky. It occurs everywhere in the State and is constantly injurious, though varying somewhat in the mischief it does from year to year. The adult beetles may be seen flying about on warm days of spring, when potatoes are being planted. They have spent the winter in the soil, and are ready to place their eggs as soon as the plants come up. Several broods develop during the season, hence one can during several months find young, adults, and eggs, about the plants. In the fall only adult beetles can be found, and these go into the soil for the winter only when the plants of late potatoes cease to furnish them food.

The injuries of the insect have ceased to interest the economic entomologist since the use of Paris green on the plants has been found to be an inexpensive and sure remedy. Any one who will take the trouble to mix Paris green with water in the proportion of one pound to 160 gallons, and apply this to his plants promptly when the adults are laying their eggs in the spring, and once or twice later in tne season when the second brood begins to appear, can rest assured that the beetles will do his crop little injury. He can apply the mixture with a watering can, a knapsack sprayer, or with a large force-pump connected with a barrel or fixed to a tank, as in the accompanying figure.

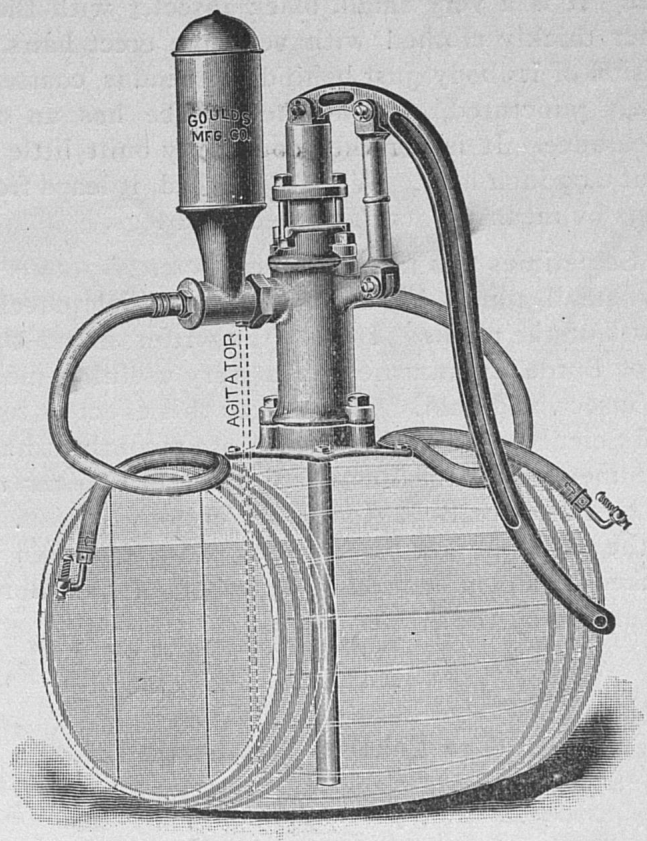

FIG. 1.—A force-pump suitable for spraying potatoes. Price given in manufacturer's list, with hose and nozzle, $14.00.

The knapsack sprayer and spray pump are much the best for the work, since they save much time, and make possible a more thorough wetting of the plants.

The Southern Flea-beetle of Potatoes

(*Epitrix fuscula*).

Another beetle belonging to the same family as the Colorado potato beetle is a common frequenter of potato patches, and can when abundant do a good deal of mis-

chief. It is a very small, black insect,* with the body rather thickly clothed with very fine erect hairs. The division of its body just behind the head is coarsely and closely punctured, so that the surface has an opaque appearance. It is a rather compactly built little beetle about 0.09 inch long. When disturbed, it leaps from the leaves by means of its thickened hind legs.

Sometimes this insect riddles leaves of potatoes with very small round holes, an injury which checks the growth of the plants. In 1889 the writer found that the use of Bordeaux mixture was a very useful remedy for this insect, and published a note to this effect in Agricultural Science, volume 6, 1892. More recently it has been recommended for the Eastern flea-beetle (*Epitrix cucumeris*) by Professor L. R. Jones, of Vermont Station. During the past summer its injuries were observed to be checked by a combination of Paris green and Bordeaux mixture, or by the former alone.

The Tobacco Flea-beetle

(*Epitrix parvula*).

This small brown beetle (about 0.06 inch long) is often associated with the preceding species on potatoes, where it does mischief of the same sort. It is to be destroyed by the same insecticides as the other species, as I have recently proved both on tobacco and potatoes.

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* This beetle is closely related to the *Epitrix cucumeris* of Harris, often mentioned in the writings of economic entomologists as injurious to the leaves of patotoes and related plants. Harris's species has not been seen by me about potatoes here. It may be distinguished from the southern species by its less densely punctured thorax, more shining surface, and smaller average size; it is about 0.06 inch in length. I am disposed to think that some recent references by writers to injuries supposed to have been occasioned by *E. cucumeris* will be found to be the work of *E. fusculs* instead.

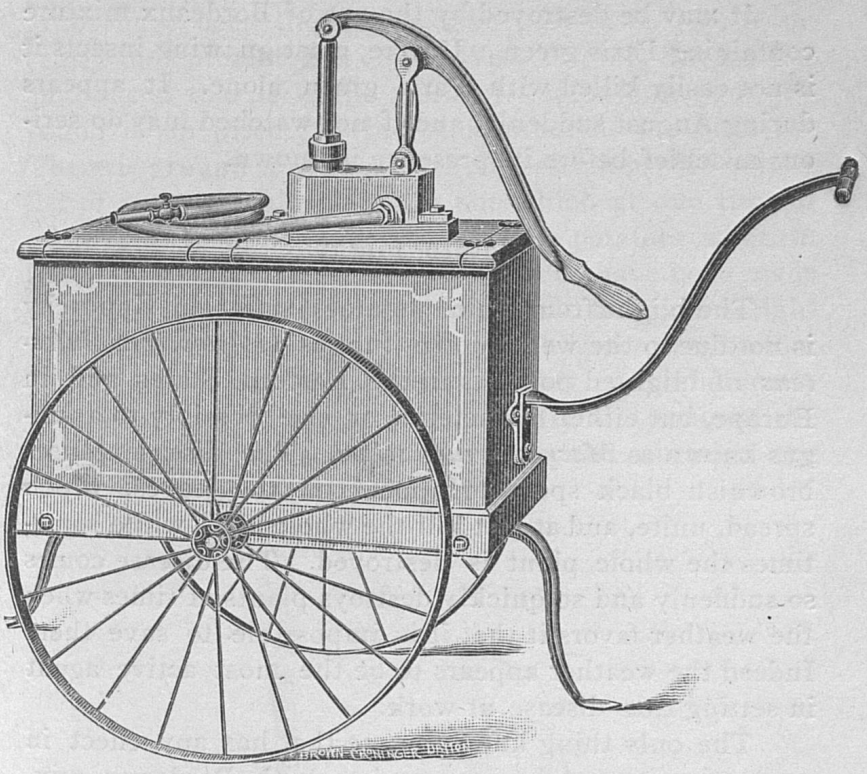

FIG 2.—A spray cart suitable for spraying potatoes. It can either be hauled by hand, or, better, placed in a wagon or horse cart. Capacity of tank, 20 gallons. List price, ready for work, $20—$22.50, according to size of pump.

The Margined Blister Beetle

(*Epicauta cinerea*).

A rather slender black blister beetle, 0.50–0.56 inch long, is often very common on both potatoes and tomatoes in Kentucky, from which it may completely remove the leaves in a few days. It is a near relative of the "old fashioned potato beetle," but differs in color, being black, with gray margins to the wing-covers, a gray line along the middle of the thorax, and some gray on the head and under parts.

It may be destroyed by the use of Bordeaux mixture containing Paris green. Unlike most gnawing insects it is not easily killed with Paris green alone. It appears during August suddenly, and if not watched may do serious mischief before its presence is known.

Potato Blight.

The blight from which potatoes suffer in Kentucky is not due to the well known fungus (*Phytopthora infestans*) of blighted potatoes in the Eastern States and in Europe, but either to bacteria, or else possibly to a fungus known as *Macrosporium solani.* The disease causes brownish black spots to appear on the leaves, which spread, unite, and at last kill the whole leaf; while sometimes the whole plant is destroyed. The disease comes so suddenly and so quickly destroys plants at times when the weather favors it that it is impossible to save them Indeed the weather appears to be the most active agent in setting this disease at work.

The only thing known to me that has any effect in preventing its attacks is spraying with Bordeaux mixture, and where the blight is troublesome this mixture should be applied at intervals during the summer to ward off its attack. The Bordeaux mixture with a little Paris green added becomes a very effective preventive of insective attacks also, and hence the combination is to be used in preference to the Bordeaux mixture alone.

Scab Produced by Insects.

For many years it has been claimed that scab is caused by insects, among other things, which gnaw the tubers, thus admitting moisture, which in turn causes the discoloration and roughening of the surface. Wireworms are sometimes accused of the mischief. White

grubs have been thought to take part in it. Quite recently the entomologist of the West Virginia Station has announced that it is the work of a minute maggot, the young of an insect of the same order as the housefly. There is ground for some of these assertions, for quite a list of insects could be made out which at one time or another have been observed to gnaw potatoes when in the ground. Mr. Hopkins' observations have been made with care and thoroughness, and must be given weight in considering the subject. The truth appears to be that scab is a term that has been somewhat indiscriminately used by writers in agricultural journals, and some of the forms referred to seemed to be beyond question the result of insect attack.

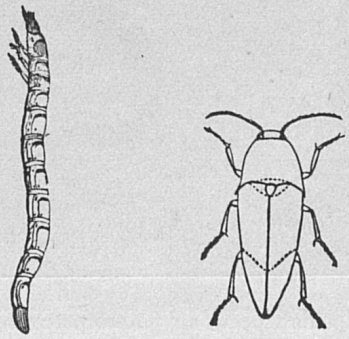

FIG. 3.—A wire-worm, young and adult.

I have had the insect origin of the trouble in mind since 1889, and without making it an object of special study, have examined every year scabbed potatoes taken from the plots on the Experiment Farm at Lexington, and also those which come to our market. In none of the potatoes examined have I found Mr. Hopkins' dipterous larva. I think this can not be because it has been overlooked. Several species of the same family are common here among decaying vegetation and fungi. Several mould-eating species (described by me in the Bulletin of

the Essex Institute and in Science) are found in our caves. A similar species, with which I have long been familiar, is found in Illinois on rotting seed corn in the ground during cold damp springs. Nothing of the kind has been found by me here at Lexington on potatoes, and I am well satisfied that the prevailing scab in this part of Kentucky is caused by something else. It would be unwise perhaps to assume that but one kind of scab prevails in all sections, and it may yet prove that the fly maggot does mischief in the State.

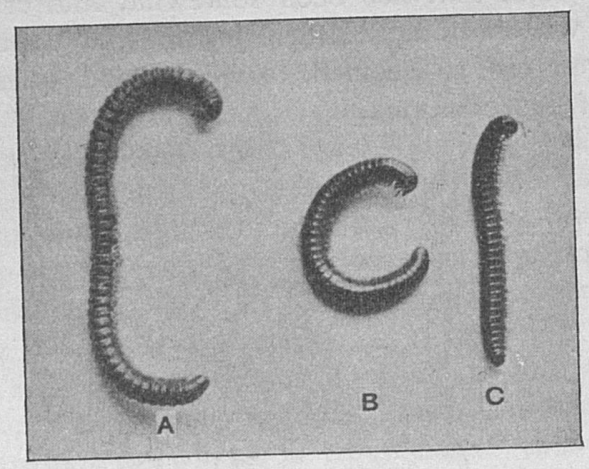

FIG. 4.—Millipedes which occur in potato patches. A, *Cambala annulata*. B & C, *Parajulus impressus*.

The "insect" which does produce a sort of scab in this region is one of the millipedes (*Cambala annulata*). On October 4, 1889, Mr. C. L. Curtis, Assistant Agriculturist at the Experiment Station, brought me a large potato with several examples of this species lodged in fissures of the blackened and deadened tissue. They were confined in a jar with a couple of thick slices of potato so cut that any gnawing could be readily detected. On the 24th it was found that they had made small pits in the cut surface of the slices. The millipedes are fre-

quent every year in potato fields, and I have several times encountered them on and about tubers which seemed to have been gnawed by them. The creatures are sometimes called wire-worms by farmers, and it is just possible that some of the statements with reference to wire-worms causing scab may have had in view this animal instead of true wire-worms.

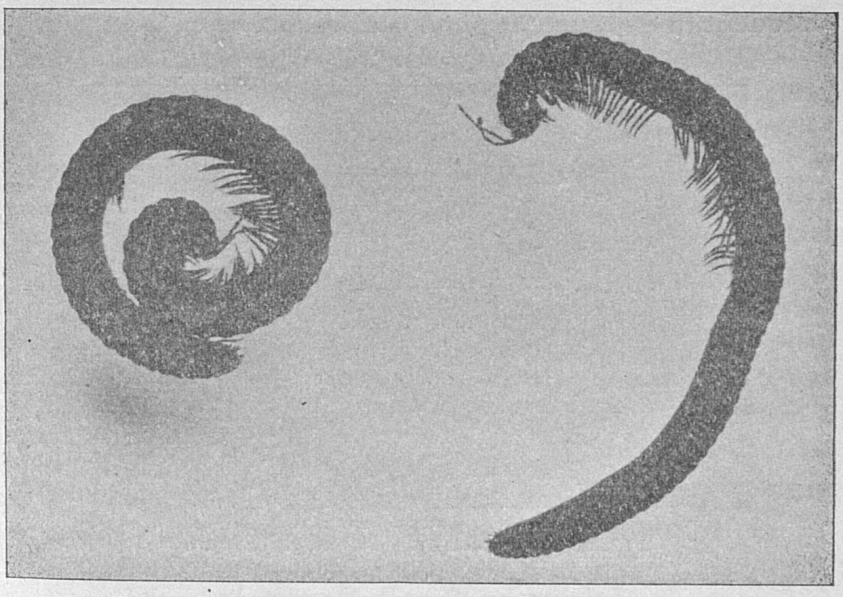

FIG. 5.—A millipede (*Lysiopetalum lactarium*) sometimes found about potatoes.

But wire worms (immature *Elateridae*) may sometimes be found with their heads buried in the substance of a potato, and where a potato patch is allowed to become very weedy may occasion a good deal of mischief.

Potatoes Injured by White Grubs

An injury to potatoes which is widespread in this country is that done by white grubs It is so characteristic, however, that it is not very likely to be taken for scab.

The grubs gnaw into potatoes, making a large opening, and then push on in, sometimes mining out most of the substance before leaving. When potatoes are dug late in the fall the mines are found empty, but early potatoes when dug up for use sometimes show the grubs in their burrows. The ones observed here are the young of brown beetle called in northern States June bugs. They are most abundant in land recently in sod The injury was frequent in experiment plots last season.

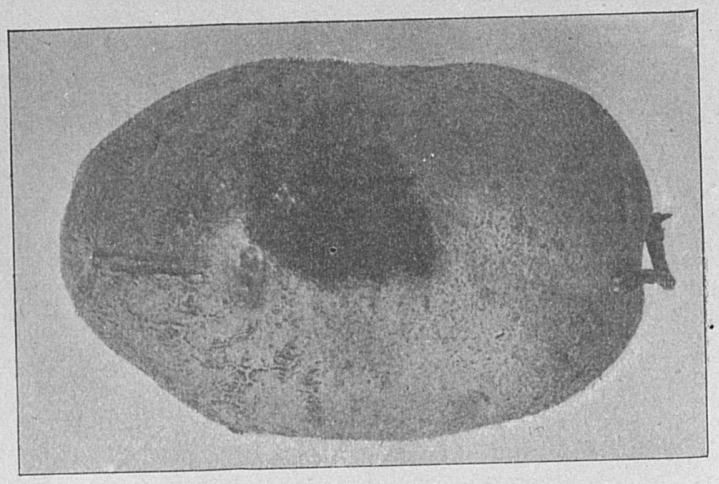

FIG. 6.—A pototo injured by a white grub.

Injury by Small Mammals.

Still another injury noted in our plots was due to some small mammal, probably a field mouse. The marks of the teeth are very plain in many cases, and occasionally the greater part of a potato is devoured. The mole has been accused of this latter mischief. But if guilty he certainly pays for all the potatoes he eats by destroying white grubs and wire-worms. An examination of the stomachs of 14 moles (See our Annual Report for 1894), collected mostly on the Experiment farm, shows that this animal depends very largely for food on earthworms and insects, and that it is especially fond of white grubs.

Since my paper on the food of the mole was printed I have chanced upon a published observation on this point that bears out my conclusion as to the generally insectivorous and useful character of the mole. In the Canadian Entomologist, volume 14, page 17, Professor E. W. Claypole, writing from Yellow Springs, Ohio, says: "In digging potatoes this year I observed the runs of a mole in all directions through the ground. It was a piece of old sod, and very much infested with white worms, the larvæ of the cockchafer (*Lachnosterna fusca*). Many of the potatoes had been partly eaten by these worms, but I observed that wherever a mole-run traversed a hill of potatoes no white worm could be found, even though the half-eaten potatoes were proof of his former presence. The inference is fair that the mole had found him first and eaten him, and very likely the mole's object in so thickly tunnelling this piece of ground was to find these grubs." Professor Claypole goes on to say that it would be easy to make of these facts an accusation against the mole, but that the work of the grubs is very different from that which would be done by a mole, and that he has never seen marks on potatoes which could have been made by a mole's teeth. As has already been stated, such marks do occur, but the fact does not weaken the force of his argument as applied to the particular case he had in view.*

*But while I am still of the opinion that the mole is in the main useful on the farm I have a fact to report that goes counter to all my other experience with it.

On January 31, 1890, the Assistant Agriculturist of the Experiment Station Farm brought me a large mole which was caught in the pasture. It was killed at once and the contents of its stomach given a preliminary examination. The vial containing this material is now before me, and after having made three separate examinations of it the following is my best judgment as to its constituents:

Vegetable matter, 50 per cent.

Insects, 50 per cent.

The vegetation as far as recognizable seems to consist of grasses, together with a few seeds.

The insects recognizable are a leather-jacket (the larva of a crane-fly) and a white grub, both insects known to be injurious in grass lands.

It seems to me not improbable that even this large percentage of vegetable matter was taken unintentionally while the mole was eating the grass-infesting insects. But the proportion is much larger than in any of the fourteen stomachs examined in preparing the paper published in our 1894 report.

Scab Due to Fungus Attack.

Scabbed potatoes from this region show at first faint rust-colored spots on the skin which are certainly not the work of any insect. They are confined largely at this stage to the surface, and beyond the effect on the appearance of the tubers cannot be considered as affecting the quality of potatoes. They are often so faint that

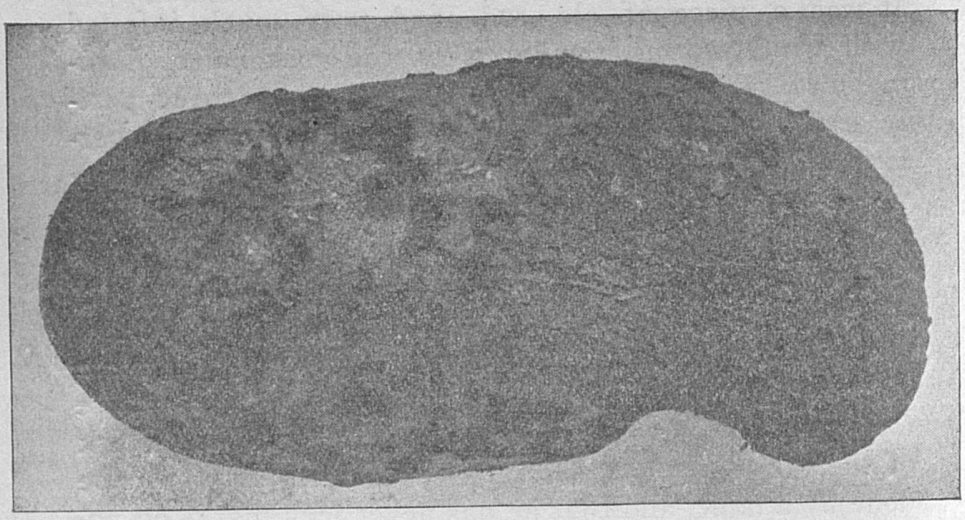

FIG. 7.—Scab due to fungus attack. Photographed from a potato raised on the Experiment Farm.

they are likely to be completely overlooked except by one who knows their nature and makes special search for them. This was the condition of most of the scab occurring on potatoes or experiment plots on the Experiment Farm last summer. A good many of the potatoes were examined carefully as soon as exposed by the plow, and certainly no insect was at work on them. Occasionally tubers were pretty well covered with the growth in an advanced stage, the skin being brown, hard and fissured, but still careful search showed no insect present that could reasonably be charged with the injury. The scab occurring here seems to me to be in great part at

least occasioned by some fungus, probably *Oospora scabies* (Thaxter, Annual Report Connecticut Station for 1890, p. 80). Scabbed potatoes kept through the winter have in the diseased tissue the threads of some one of the higher fungi, but this is probably not in any way concerned in producing the scabbed skin, since the fungus now assumed to cause the trouble is of a very different character.

Recent experiments made by Prof. Bolley and others indicate that this fungus is often carried to the soil on scabbed seed potatoes, the supposition being that the fungus retains its vitality among potatoes stored during the winter, and makes its way from the diseased seed to the potatoes which develop from it. The results obtained by the use of materials calculated to destroy the fungus on the seed potatoes seem to support this view of the manner in which the trouble is conveyed to new soil. But once the fungus is in the soil, such treatment would not avail against the scab, and hence when potatoes suffer greatly from the disease when planted repeatedly on the same land, it is well to put the crop elsewhere for a time until the fungus has disappeared. Just how long it is necessary to avoid infested land is not yet settled, I believe. Such fungi are often short-lived, and probably a couple of seasons in corn or wheat would be sufficient to rid land of the scab fungus. Then by treating seed planted with corrosive sublimate, avoiding also badly scabbed seed, a return of the trouble may be avoided.

The experiment reported below was suggested by tests made and published by Professor Bolley. The results are not such as to warrant any very positive statements as to the merits of the treatment practiced, because the scab was not common enough on any of the rows, treated or untreated, to give opportunity for satisfactory comparisons. They will be supplemented by other tests the coming spring.

Experiments in Checking Scab, Made in 1895.

An acre of land on the Experiment Farm was devoted to this preliminary test of fungicides for checking scab. The land was recently in meadow, but had been the preceding summer in tomatoes and tobacco. It was thus new land for potatoes, a circumstance probably to be accepted as explaining to some extent the scarcity of scab on the crop. There was, however, some scab on the seed potatoes used, and occasional tubers were badly effected, hence it is probable that the weather conditions also were unfavorable to the development of the fungus.

The acre of land was divided into tenths, each tenth constituting a plot and containing eight rows planted in the usual way. The potatoes were cut to bear three eyes. They were all planted April 6. The variety used was "White Star." All the plants were sprayed with Paris green to check the injuries of the Colorado potato beetle.

PLOT 1.—The first four rows of this plot received no treatment of any sort and constituted a check on the remaining four rows. The seed used for the latter was dipped in a barrel of Bordeaux mixture, while in bags, and left ten minutes. Then the potatoes were poured on the ground to dry, and were finally cut for planting. When dropped in the furrows the pieces, and the soil about, received a spraying with Bordeaux mixture.

When the plants came up those of rows 5 and 7 were sprayed with Bordeaux mixture and Paris green, on May 31, June 8, June 17, and July 11. Rows 6 and 8 were not sprayed and serve for comparison, to show if the spraying benefited the plants.

From the four untreated rows we gathered in September 557 pounds of potatoes. From the four treated rows were gathered only 481 pounds Rows 5 and 7 together, the leaves of which were sprayed, yielded 249½

pounds, while rows 6 and 8, which were not sprayed during the season, yielded at harvest time 231½ pounds, showing a slight advantage for spraying.

PLOT 2.—This was a duplicate of Plot 1, except that the seed used in rows 5–8 was not sprayed as it lay in the furrows. Rows 1–4 yielded 480½ pounds, while rows 5–8, the treated rows, yielded only 464¾ pounds, the advantage being with the untreated rows. Rows 5 and 7 were sprayed during the season on the same dates as the corresponding rows of Plot 1 and yielded 239½ pounds, as against 225¼ pounds yielded by rows 6 and 8, the plants of which were not sprayed. The spraying of the plants is in this case again apparently beneficial.

PLOT 3.—This is a duplicate in every respect of Plot 1. The four untreated rows produced 474¾ pounds, while the treated half of the plot yielded 393 pounds. The two rows (5 and 7) of which the plants were sprayed yielded 173½ pounds, to 218½ pounds from the two check rows (6 and 8), the result in this instance being opposed to that from corresponding rows in Plots 1 and 2

PLOT 4.—This plot duplicates the treatment of Plot 2. The four untreated rows produced 370 pounds of potatoes, while the four treated rows yielded 331 pounds, the advantage being again with the untreated rows. The two rows (5 and 7) whose plants were sprayed, yielded 185¼ pounds to only 145¾ produced by rows 6 and 8, the leaves of which were not treated.

PLOT 5.—The seed used for this plot was not treated in any way. But the plants of alternate rows, beginning with row 1, were sprayed with Bordeaux mixture containing Paris green, May 31, June 8, June 17, and July 11. The four remaining rows (2, 4, 6 and 8) received no treatment. In every case the sprayed rows yielded better than the adjacent unsprayed rows, and the total yield for the four sprayed rows was 406 pounds as against 334½ pounds from the untreated rows of the plot.

PLOT 6.--This is the first of the plots on which corrosive sublimate was tested on the seed. The seed was dipped while in bags in a barrel containing 4½ ounces of corrosive sublimate dissolved in ½ gallon of water and then diluted to 30 gallons. They were left in the solution one-half hour. The rows 1–4 were, as in preceding plots, left untreated. They yielded 441 pounds. The treated rows produced 526¼ pounds, a considerable gain, but hardly to be considered the result of treating the seed. Two of the treated rows (5 and 7) were sprayed during the season on the same dates as were corresponding rows of Plots 1 and 4. They produced 272¼ pounds of potatoes as against 254 pounds taken from the two unsprayed rows of this half of the plot.

PLOT 7.—This plot duplicates Plot 6 in every way. The untreated half produced 480 pounds of potatoes, while the treated rows, 5–8, yielded 521 pounds. The result from the two sprayed rows of this plot is opposed to that of all the others, rows 5 and 7 producing only 235 pounds, while the check rows, 6 and 8, yielded 286 pounds.

PLOT 8.—This duplicates Plots 6 and 7 except that none of the plants were sprayed. Rows 1–4 produced 487¾ pounds, while the treated rows 5–8 produced 487¼ pounds.

PLOT 9 —Plot 9 duplicates in every way Plot 8. The untreated half of the plot yielded 495½ pounds, while the treated half produced only 483¾ pounds.

PLOT 10.—This duplicates Plots 8 and 9 as far as treatment is concerned. The yield from rows 1–4, which received no treatment, was 472½ pounds. Rows 5–8, the seed of which was dipped in the corrosive sublimate solution, produced but 330½ pounds.

Summary.

1. The scab present on both untreated and treated plots was not abundant enough anywhere to give opportunity for profitable comparison. The potatoes were not appreciably injured by it. By close examination one could find the faint, rust-colored stains showing the trouble beginning, but they were so small and slight that they would not have been seen at all by the average man, and certainly would not have had the slightest effect on the market value of the potatoes. Occasional tubers showed the surface pretty badly injured, and this was especially true of potatoes near the south ends of rows of Plots 6–10. I thought it probable at first that potatoes had been grown on adjoining land, but inquiry of those who have had the land in charge showed this not to be the case. As far as fertilizers were concerned, too, the treatment had been the same. It seems probable that it was due to something in the drainage. The potatoes of both treated and untreated rows were affected, from which it would seem reasonable to suppose the fungus to have been brought to this part of the land by water.

2. It is evident that the soaking of seed potatoes in the Bordeaux mixture as here practiced has no beneficial effect on the yield. In fact it looks very much from our results as if this treatment reduced the yield by injuring the seed. During the summer I thought the rows of Plots 1–4 from seed soaked in this mixture were not quite as thrifty as those from untreated seed. But the difference was not marked. In every case the untreated halves of plots produced more potatoes than the treated halves. The total yield from the untreated parts of Plots 1–4 taken together is 1882¼ pounds. It will be observed, however, by reference to the table that there was a gradual diminution in yield from Plot 1 to Plot 4 (from east to west) due probably to a change in the soil, the un-

treated halves of plots being always on the east side, had the advantage of position; but I think this will not account for all the difference. Certainly the treatment did no good else it should have checked this diminution in yield.

3. Spraying the plants with Bordeaux mixture, on the contrary, benefited the plants, as shown both by their condition during the summer and by the yield. In every plot but one (Plot 7) the sprayed rows produced more than the unsprayed rows adjacent. The total yield from sprayed rows of Plots 1–4 was 847¾ pounds, while the unsprayed rows of the same parts of the same plots was 821 pounds. Taking all the sprayed rows, without regard to the treatment of the seed, and comparing them with the check rows we get a sum of 1761 pounds from sprayed rows and 1695½ pounds from those not sprayed.

4. The effect of spraying without other treatment is well shown in the results obtained from Plot 5, where the sprayed rows yielded 406 pounds, to 334½ pounds from the unsprayed rows. This is an increase at the rate of 15.25 pounds per row. If the whole 80 rows of the acre had been sprayed, we may suppose that the increase would have been in proportion, and consequently 1220 pounds more potatoes would have been obtained as a result of spraying (about 20 bushels).

5. There is no very apparent reason why soaking seed potatoes in corrosive sublimate solution should increase the yield and value of the crop, unless it be as a result of checking the scab. Since the scab did not appear on the untreated potatoes, there is but little of interest in the results from this treatment, beyond the possibility of an injury to the seed and a consequent reduction of yield. Plots 6 and 7 show a decided increase in yield from the treated rows as compared with their

untreated rows. In Plot 8 the yield is a half pound the greater from the untreated half of the plot. In Plot 9, again, the untreated rows show a better yield, while in Plot 10 the treated plants fell 142 pounds below the untreated ones. However, the totals for treated and untreated rows are not very different, the former having a yield of 2348¾ pounds to their credit, while the latter have 2376¾ pounds. Such differences may be the result of differences of soil, and in this instance the reduction of total yield of the treated rows was caused by a poor piece of soil in Plot 10. If this plot is excluded, the total yield of the rows planted with treated seed will be found to be greater than that of the rows from untreated seed.

In short, I do not think the corrosive sublimate had the slightest injurious effect on the potatces.

Conclusion.

While the season was not a favorable one for scab and consequently our results do not give us the data we wanted concerning the prevention of scab by the use of corrosive sublimate, I have confidence in the statements made by other workers to the effect that it will check this trouble to a great extent when properly used.

To those who are troubled with the scabbing of potatoes I would recommend the following:

1. Plant on land which has not been in potatoes for several seasons.

2. Soak the seed potatoes from an hour to an hour and a half in a solution of corrosive sublimate made by dissolving 4½ ounces crystals of corrosive sublimate in a couple of gallons of hot water and then diluting this to thirty gallons. The solution is very poisonous and

must be kept where stock will not get it. The crystals cost about eighty-five cents a pound. The potatoes can be most conveniently dipped while in bags, the bags used being thus disinfected the cut potatoes can be returned to them for taking to the field. Dry the potatoes at once after taking them from the solution.

Table Showing Results of Treatment.

	Row.	Treatment of seed.	Treatment of plants.	Weight by half plots.	Weight by rows.
PLOT 1.	1	.....	.....	557 lbs.	
	2	.....	.....		
	3	.....	.....		
	4	.....	.....		122¼ lbs.
	5	Dipped in Bord. mixture 10 m. Sprayed.	Sprayed.		105 lbs.
	6	Dipped in Bord. mixture 10 m. Sprayed.	.....	481 lbs.	127 lbs.
	7	Dipped in Bord. mixture 10 m. Sprayed.	Sprayed.		126½ lbs.
	8	Dipped in Bord. mixture 10 m. Sprayed.	.....		
PLOT 2.	1	.....	.....	480½ lbs.	
	2	.....	.....		
	3	.....	.....		
	4	.....	.....		123½ lbs.
	5	Dipped in Bord. mixture 10 m.	Sprayed.		110¼ lbs.
	6	Dipped in Bord. mixture 10 m.	.....	464¾ lbs.	116 lbs.
	7	Dipped in Bord. mixture 10 m.	Sprayed.		115 lbs.
	8	Dipped in Bord. mixture 10 m.	.....		

Table Showing Results of Treatment —*Continued.*

	Row.	Treatment of seed.	Treatment of plants.	Weight by half plots.	Weight by rows.
PLOT 3.	1	.....	.....	474¾ lbs.	
	2	.....	.....		
	3	.....	.....		
	4	.....	.....		77¼ lbs.
	5	Dipped in Bord. mixture 10 m. Sprayed.	Sprayed.		101¾ lbs.
	6	Dipped in Bord. mixture 10 m. Sprayed.	.....	392 lbs.	96¼ lbs.
	7	Dipped in Bord. mixture 10 m. Sprayed.	Sprayed.		116¾ lbs.
	8	Dipped in Bord. mixture 10 m. Sprayed.	.....		
PLOT 4.	1	.....	.....	370 lbs.	
	2	.....	.....		
	3	.....	.....		
	4	.....	.....		94¾ lbs.
	5	Dipped in Bord. mixture 10m.	Sprayed.		67 lbs.
	6	Dipped in Bord. mixture 10 m.	.....	331 lbs.	90½ lbs.
	7	Dipped in Bord. mixture 10 m.	Sprayed.		78¾ lbs.
	8	Dipped in Bord. mixture 10 m.	.....		
PLOT 5.	1	.....	Sprayed.		85 lbs.
	2	.....	.....		76 lbs.
	3	.....	Sprayed.		108 lbs.
	4	.....	.....		82 lbs.
	5	.....	Sprayed.		105 lbs.
	6	.....	.....		86½ lbs.
	7	.....	Sprayed.		108 lbs.
	8	.....	.....		90 lbs.

Table Showing Results of Treatment.—*Continued.*

	Row.	Treatment of seed.	Treatment of plants.	Weight by half plots.	Weight by rows.
PLOT 6.	1	.....	.....	441 lbs.	
	2	.....	.....		
	3	.....	.....		
	4	.....	.....		136 lbs.
	5	Dipped in corr. subl. sol. ½ hr.	Sprayed.		118½ lbs.
	6	Dipped in corr. subl. sol. ½ hr.	.....	526 ¼ lbs.	136¼ lbs.
	7	Dipped in corr. subl. sol. ½ hr.	Sprayed.		135½ lbs.
	8	Dipped in corr. subl. sol. ½ hr.	.....		
PLOT 7.	1	.....	.....	480 lbs.	
	2	.....	.....		
	3	.....	.....		
	4	.....	.....		104½ lbs.
	5	Dipped in corr. subl. sol. ½ hr.	Sprayed.		136½ lbs.
	6	Dipped in corr. subl. sol. ½ hr.	.....	521 lbs.	130½ lbs.
	7	Dipped in corr. subl. sol. ½ hr.	Sprayed.		149½ lbs.
	8	Dipped in corr. subl. sol. ½ hr.	.....		
PLOT 8.	1	.....	.....	487 ¾ lbs.	
	2	.....	.....		
	3	.....	.....		
	4	.....	.....		
	5	Dipped in corr. subl. sol. ½ hr.	Sprayed.		
	6	Dipped in corr. subl sol. ½ hr.	.....	487 ¼ lbs.	
	7	Dipped in corr. subl. sol. ½ hr.	Sprayed.		
	8	Dipped in corr. subl. sol. ½ hr.	.....		

Table Showing Results of Treatment.—*Continued.*

	Row.	Treatment of seed.	Treatment of plants.	Weight by half plots.	Weight by rows.
PLOT 9.	1	.....	.....	495½ lbs.	
	2	.....	.....		
	3	.....	.....		
	4	.....	.....		
	5	Dipped in corr. subl. sol. ½ hr.	.....	483¾ lbs.	
	6	Dipped in corr. subl. sol. ½ hr.	.....		
	7	Dipped in corr. subl. sol. ½ hr.	.....		
	8	Dipyed in corr. subl. sol ½ hr.	.....		
PLOT 10.	1	.....	.....	472½ lbs.	
	2	.....	.....		
	3	.....	.....		
	4	.....	.....		
	5	Dipped in corr. subl. sol. ½ hr.	.....	330½ lbs.	
	6	Dipped in corr. subl. sol. ½ hr.	.....		
	7	Dipped in corr. subl. sol. ½ hr.	.....		
	8	Dipped in corr. subl. sol. ½ hr.	.....		

VARIETIES OF POTATOES.

BY C. W. MATHEWS, HORTICULTURIST.

A large number of varieties of potatoes was planted upon the station farm in 1895, these being the entire collection offered by the Edward F. Dibble Seed Co. of Honeoye, N. Y.

This collection of seed potatoes (2 pounds of each variety) was shipped to us about the first of April, and was an unusually fine lot of tubers, having evidently been well cared for during the winter, as even the early varieties had not commenced to sprout, so that the seed was in the best condition to give good results in planting.

Although the tubers showed no indications of being affected with scab or other diseases, they were nevertheless treated, as a preventive measure, with a solution of corrosive sublimate (1 part to 1000 parts of water) for half an hour and then dried before cutting. Each lot of two pounds was cut into twenty pieces of as nearly an even size as possible, the pieces thus weighing approximately 1½ ounces each.

The soil was in fair condition, probably about that of the average farm in this locality, and the only fertilizer applied was sulphate of potash at the rate of 80 pounds per acre.

The potatoes were planted on April 15, in drills about 4 inches deep, the pieces being placed 16 inches apart, each variety thus occupying about 27 feet of a row. The plot was given good cultivation through the season; at first—just as the potatoes were breaking through the ground—with a smoothing harrow across the rows, and afterwards with a one-horse cultivator.

Most of the varieties were allowed to remain in the ground until the last of September, as, on account of the small amount of rainfall in August and September, this was considered the best method of keeping them.

Each variety was sorted and weighed in the field as

dug. All tubers under a diameter of 1½ to 1¾ inches were placed in the "unmarketable" lot.

It will be observed that the yield of each variety is given in *bushels per acre*.

This estimate, being based upon the product of so small an area as 80 square feet, is liable to error, and cannot, of course, be relied upon as the exact measure of productiveness of the different varieties. The product is given in this way, however, because to most people the yield in "bushels per acre," gives a clearer idea both as to absolute and relative productiveness than when it is given in pounds and ounces.

The following table, showing the product of each variety, is given therefore as a suggestion of what some of these varieties can do, not as a final and absolute test. Doubtless in a repetition of the experiment, a number of varieties which appear considerably below the head of the list might be found to be among the best in productiveness, and, on the other hand, those varieties which stand at the head would perhaps take a more subordinate position.

Variety No.	Name of Variety.	Total yield per acre.	Marketable.	Small.	Per cent. of marketable potatoes.
		BU.	BU.	BU.	
227	Vaughan	265½	216	49½	81
131	Marshall White	239½	231½	8	97
203	Sherman	219	190½	28½	87
32	Crown Jewel	206	142	64	69
99	Hilton Rose	204½	155½	49	76
133	Mill's Prize	204½	179	25½	88
113	King of Roses	200½	175	25½	87
31	Clay Rose	200	176	24	88
215	Tiral Rose	195½	175	20½	90
202	Salyer's Prizetaker	195	118	77	61
233	White Whipple	193½	177½	16	92
143	Nameless	192½	172½	20	90
7	Arizona	192	172½	19½	90
124	Monroe Pride	191½	170½	21	89
147	New York State	191½	164½	27	86

Variety No.	Name of Variety.	Total yield per acre.	Marketable.	Small.	Per cent. of marketable potatoes.
		BU.	BU.	BU.	
244	Wilson Rose	191½	185½	6	97
166	Polaris	190	117	73	62
93	Green Mountain	187½	179½	8	96
75	Early Norther	187½	129½	58	69
223	Vick's Perfection	187½	173	14½	92
218	Vick's Early Market	183½	164½	19	89
185	Rochester Rose	183½	154½	29	84
53	Early Washington	181½	138½	43	76
33	Crane's June Eating	181½	140½	41	77
111	James Vick	181	152	29	84
98	Henderson's Late Puritan	180½	147½	33	82
209	Thornburn's Early	180½	136	44½	76
49	Early Fortune	180	154½	25½	86
71	Early Walton	179½	162	17½	90
186	Rose No. 10	179	162	17	91
50	Early Rose	179	157	22	88
226	Vick's Early White	178	149	29	84
135	Moore's Dakota	177	159½	17½	90
210	Tuscarora Red	177	150	27	85
239	White Imperial	175	165	10	94
136	Narragansett Red	172	164½	7½	96
40	Carman's Favorite	171	143	28	84
44	County Cork	170	147½	22½	87
134	McCormick Seedling	169½	154½	15	91
125	Matchless	169½	154½	15	91
56	Early Mohawk Valley	169	152	17	90
15	Bill Nye	168	150	18	89
9	Baldridge Seedling	168	131½	36½	78
106	Irish Daisy	168	154	14	92
142	Napoleon	168	150	18	89
191	Summit	167½	122½	45	73
83	Fuller's Seedling	167½	154½	13	92
178	Red Star	167	95½	71½	57
109	Jersey White	166½	151½	15	91
57	Early Mohawk	166½	120½	46	72
190	Sherman White	166½	154½	12	93
204	State of Maine	165	147½	17½	89
88	Good News	164½	151	13½	92
73	Early Harvest	164	118	46	72
157	Paris Rose	164	143	21	87
61	Early Ohio	163½	147½	16	90
46	Dewdrop	163	129½	33½	79
151	Ontario Red	163	152	11	93
114	Lee's Favorite	162½	128	34½	79
80	Flower's Extra	162½	137½	25	85

Variety No.	Name of Variety.	Total yield per acre.	Marketable.	Small.	Per cent. of marketable potatoes.
		BU.	BU.	BU.	
92	Gov. Rusk	162	145½	16½	90
230	White Bermuda	162	143	19	88
180	Reeve's Rose	161	128	33	80
194	Signal	160½	118	42½	74
76	Early Pride	160	130½	29½	81
240	Wall's Maggie Murphy	159½	155	4½	97
96	German Rose	157	141½	15½	90
238	World's Fair	156½	138	18½	88
235	Webster Rose	156	143	13	92
42	Caroma Beauty	156	118	38	76
85	Gregory's No. 1	155½	141½	14	91
58	Cream City	155½	116	39½	75
192	Stray Beauty	155½	140½	15	90
26	California Best	155½	66½	89	43
123	Monroe Beauty	155	146½	8½	95
245	White May Queen	155	136	19	88
58	Early Essex	154½	138	16½	90
60	Early Puritan	154½	73	21½	47
77	Everett Rose	154½	124	30½	80
78	Early Vermont	154½	104½	50	68
220	Vick's Early Advance	154½	125	29½	81
236	White Mayflower	154	138½	15½	90
234	Watson's Seedling	154	143	11	93
104	Irish Cups	154	140½	13½	91
41	Colossal	153½	145½	8	95
64	Early Hebron	153	109	44	71
62	Everett's Heavy Weight	153	127½	25½	83
103	Henderson's Best	153	145½	7½	95
59	Early White Prize	152½	128½	24	84
74	Early Vanguard	152½	112½	40	74
183	Rochester Favorite	152½	116	36½	76
173	Queen of the Valley	152½	131	21½	86
159	Pat Murphy	152	138½	13½	91
79	Elephant	152	152	.....	100
55	Early Mayflower	152	136	16	89
228	Vick's Long Late White	152	129½	22½	85
23	Chapman's Early	151½	113½	38	75
19	Banner	151½	151½		100
184	Rural New Yorker No. 2	151½	118	33½	78
156	Prolific	150½	144½	6	96
145	No Name	150	130	20	87
11	Burpee's Extra Early	150	118	32	79
163	Pride of the West	150	125	25	83
126	Maggie Murphy	149	125	24	84
21	Brook's No 2	149	132½	16½	89

Variety No.	Name of Variety.	Total yield per acre.	Marketable.	Small.	Per cent. of marketable potatoes.
		BU.	BU.	BU.	
13	Belle Rose	148½	140½	8	95
119	Monroe Seedling	148½	128½	20	87
199	State Peacon	148	113	35	76
8	Blush Rose	147½	138½	9	94
25	Charter Oak	147½	105	42½	71
39	Clark's No. 27	146½	104½	42	72
116	Lightning Express	146½	143	3½	98
206	Stoor's Seedling	146	117	29	80
176	Randall's Beauty	145½	131	14½	90
68	Early White Wax	145	127	18	88
219	Vick's Armstrong	145	122½	22½	84
108	Jarrard Harbinger	145	122	23	84
242	White Superior	144½	138	6½	96
243	White Elephant	143½	140	3½	98
158	Prolific Alexander	143	132½	10½	93
14	Burbank Seedling	143	134	9	94
81	Ford's Late White	143	128	15	90
69	Early Harbinger	143	134	9	94
43	Cayuga Chief	142½	109	13½	77
37	Champion	141½	128	13½	91
195	Strong's Pride	141	129½	11½	92
127	Maine Pearl	141	133½	7½	95
112	King Excelsior	140	110½	29½	79
20	Brownell's Winner	140	106	34	76
231	Wood's Early	139½	95½	44	68
217	Vick's Late White	138½	125	13½	91
198	Snowflake	138½	95½	43	69
171	Pride of America	138½	120	18½	87
63	Empire State	138½	109	29½	79
237	Wheeler's Seedling	137½	120½	17	88
110	Jersey Peachblow	136½	111	25½	82
169	Pullman's Seedling	136	128	8	94
107	Jumbo Charley	134	124½	9½	93
122	Monroe Prize	133½	120½	13	90
200	Seneca Beauty	133½	122½	11	92
189	Suffolk Beauty	133	118	15	89
160	Pride	133	125	8	94
86	Garfield	132½	129½	3	98
241	Wilson Rose	132½	128	4½	97
144	Nameless	132½	124½	8	94
128	Montana Rose	132½	109	23½	83
129	Messuck	132½	120	12½	91
36	Chicago Market	132	102	30	77
175	Rundle Rose	130½	126	4½	97
82	Freeman	130	129½	½	100

Variety No.	Name of Variety.	Total yield per acre	Marketable.	Small.	Per cent. of Marketable potatoes.
		BU.	BU.	BU.	
214	Telephone	128½	109	19½	85
222	Victor Rose	128	125	3	98
28	Chas. Downing	128	55	73	43
154	Peerless Jar	127	121	6	95
174	Queen of the Valley	127	105½	21½	83
164	Pride of New Jersey	126½	119½	27	94
72	Early Six Weeks	125	114½	12½	92
16	Bliss' Triumph	125	86½	38½	69
148	Overturn No. 9	125	113	12	90
22	Chapin's Seedling	124½	106½	18	85
118	Lake Erie	123	113	10	92
188	Rupert's Perfection	123	104½	18½	85
24	California Giant	123	111	12	90
187	Roseman Seedling	122½	94½	28	77
196	Sarnia Red	122	104½	17½	86
172	Queen Victoria	121½	98½	23	81
94	Great Eastern	121½	114½	7	94
201	Summit	121½	91	30½	75
84	Garlic	121	107½	13½	89
30	Carter's Early Sunrise	120½	83	37½	69
101	Harvest Queen	119½	108½	11	91
211	Tuscarora	119½	113	6½	95
67	Early Sunlit Star	119½	117	2½	98
193	Snowflake Jr.	119½	94½	25	79
89	Gov. Foraker	118½	104½	14	88
208	Sackett's Early	118½	118½	.....	100
197	Snow Queen	117½	91½	26	78
170	Potentate	117½	116½	1	99
152	Pinkeye Rusticate	117½	115	2½	98
90	G. B. McClelland	116½	97	19½	84
207	Spanish Beauty	116½	91½	25	78
182	Rever Rose	116	102½	13½	88
66	Enos' Seedling	116	108½	7½	94
231	Vick's Baker	115½	88½	27	77
150	Ohio Junior	115	102½	12½	89
161	Pride of the East	115	100	15	87
149	Orphan	113½	102	11½	89
51	Early Albino	113	88	25	78
65	Early Oxford	112	94½	17½	84
141	New Queen	111½	91½	20	82
213	Troy Seedling	111½	98	13½	88
120	Manchester Rose	111	107½	3½	97
121	Morning Star	111	94½	16½	85
52	Early California	111	102	9	92
225	Vick's Early White	111	103½	7½	93

Variety No.	Name of Variety.	Total yield per acre.	Marketable.	Small.	Per cent. of marketable potatoes.
		BU.	BU.	BU.	
130	Money Maker	110½	103	7½	93
162	Purple Blush	110	91½	18½	83
146	New Seedling	110	96	14	87
45	Durand Seedling	110	88½	21½	80
4	American Wonder	110	89½	20½	81
246	Yosemite	109½	91	18½	83
229	Vick's Abundance	109½	100½	9	92
168	Peerless	108½	100	8½	93
12	Burpee's Superior	107½	97½	10	91
117	Layman Seedling	107	94½	12½	88
137	Northern Spy	107	102½	4½	96
177	Republican	106	72½	33½	68
138	Niggertoe Seedling	105	86½	18½	82
3	Allegheny King	105	91	14	87
155	Putnam's Favorite	104½	94½	10	90
167	Pittsford Prize	104	85	19	82
87	Great Divide	103½	91	12½	88
70	Early Peacon	103	91	12	88
95	Genesee County	103	94½	8½	92
115	Late Experiment	103	91	12	88
2	Allbright's Seedling	102½	92½	10	90
139	New Champion	102½	93½	9	91
47	Dictator	102	102	.....	100
216	Thunderbolt	101	79½	21½	79
97	Home Comfort	100½	89½	11	89
5	American Beauty	98	94	4	86
54	Excelsior	95	88½	6½	93
153	Pane's Rose	92	83	9	90
29	Collin's Pride	91½	61½	30	67
91	Garnet Chili	89	83	6	93
205	Siberian White	88½	70½	18	80
179	Rural Blush	88	68	20	77
48	Delaware	86½	86½	.....	100
6	American Giant	86	72½	13½	84
105	Irish Greys	80	72½	7½	91
34	Calico	79½	52	27½	65
100	Home Chili	74	66½	7½	90
35	Cuba Orange	52	17½	34½	34
10	Badger State	49	36½	12½	74
27	California Peachblow	42½	16½	26	39
1	Alexander's Prolific	41	33½	7½	82
232	White Peachblow	38½	.....	38½	0
102	Henderson's Best	36	31	5	86
180	Rhode Island Peachblow	35½	27	8½	76
17	Baraboo White	30	22½	7½	75
165	Purple Troup	23½	18	5½	77