

1890

Irish potatoes

William Carter Stubbs

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SECOND SERIES.

No. 4.

BULLETIN
OF THE
AGRICULTURAL EXPERIMENT STATION.
LOUISIANA STATE UNIVERSITY A. & M. COLLEGE,
BATON ROUGE, LA.

WM. C. STUBBS, PH. D., Director and Official State Chemist.

IRISH POTATOES.

—BY—

DR. W. C. STUBBS,
PROF. H. A. MORGAN AND MAJOR J. G. LEE.

ISSUED BY THE BUREAU OF AGRICULTURE.
T. S. ADAMS, Commissioner.
BATON ROUGE.

PRINTED AT THE TRUTH BOOK AND JOB OFFICE.

1890

THE AGRICULTURAL EXPERIMENT STATION,

LA. STATE UNIVERSITY AND A. & M. COLLEGE.

BUREAU OF AGRICULTURE.

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The bulletins and reports will be sent free of charge to all farmers, by applying to Capt. T. S. ADAMS, Commissioner of Agriculture, Baton Rouge, La.

LOUISIANA STATE UNIVERSITY AND A. AND M. COLLEGE, }
OFFICE OF EXPERIMENT STATIONS, BATON ROUGE, LA. }

Captain T. S. Adams, Commissioner of Agriculture, Baton Rouge, La.:

DEAR SIR: I transmit herewith the results of experiments during the past season with Irish Potatoes. The peculiarities of soil and climate of this State, together with superior transportation facilities now afforded to nearly every Parish, suggests the possibility of Louisiana becoming at no very distant day the early market garden for the Northern and Western States. To aid in the development of this seemingly preordained destiny, these experiments were instituted. I ask that you publish this as Bulletin No. 4, and trust it may be both interesting and instructive to our farmers and planters.

Very respectfully submitted,

WILLIAM C. STUBBS, Director.

IRISH POTATOES.

The experiments with this crop were conducted at two of the stations under my charge, and will be given in detail for each.

Sugar Experiment Station No. 1.

AUDUBON PARK, NEW ORLEANS, LA.

The primary question asked of the experiments at this station was: Which of the varieties usually sold for seed in New Orleans was the best for this section of the State? Another, incidentally asked, was of equal importance. It is a popular belief that only Eastern raised potatoes are suitable for seed in this climate, and accordingly thousands of dollars are annually spent in the increased price of these potatoes over Western—the latter being used only for the table. The crop was planted on the last of February and dug June 4th. They were manured with a mixture of cotton seed meal and acid phosphate at the rate of 500 pounds per acre. They were not up on March 2nd and 3rd, when the severe freeze took place, and hence, unlike the very early crop of potatoes, did not suffer.

Below is a table of results:

YIELD OF IRISH POTATOES GROWN ON SUGAR EXPERIMENT STATION, PLANTED FEBRUARY 25TH, HARVESTED JUNE 3RD AND 4TH. YIELD PER ACRE.

VARIETY.	Merchantable.		Culls.		Total.	
	lbs.	bbls.	lbs	bbls.	lbs.	bbls.
Vermont Early Rose.....	16,191	102	1,953	12	18,144	114
Early Sunrise.....	15,435	96.5	1,701	10.6	17,136	107.1
Rural New Yorker.....	11,907	74.4	882	5.5	12,789	79.9
Beauty of Hebron.....	13,167	82.3	1,575	9.9	14,742	92.2
Rural Blush.....	21,861	136.6	1,323	8.3	23,184	144.9
White Elephant.....	21,546	134.6	1,134	7.1	22,680	141.7
Thorburn.....	14,472	90.1	882	5.5	15,309	95.6
Russetts.....	19,782	123.6	441	2.7	20,223	126.3
Western Peerless.....	14,238	88.9	1,197	7.5	15,435	96.4
Boston Peerless.....	12,537	78.4	819	5.1	13,356	83.5

The Rural New Yorker, White Elephant, Thorburn and Peerless are white. The rest are more or less rose colored.

The Beauty of Hebron and the Peerless varieties were badly injured by the attacks of a worm, which destroyed the fair appearance of the tuber. Prof. H. A. Morgan, entomologist of the Experiment Station, to whom were referred these worms, says:

"The specimens handed me are what are called 'galley' worms, but are more commonly known as thousand-legged worms. They belong to the sub-class of Myriapoda, which differ from real insects (Hexapoda) in that they have in many cases very many more than three pair of legs.

"The insects belonging to the Myriapoda are, as a rule, beneficial to agriculture, in that many of them destroy numerous injurious insects, while they all inhabit decaying vegetable matter and are thus useful in preparing it for plant food.

"To avoid the attack of these so-called worms, potatoes should be planted on soil that had not been in roots for some time previous, avoid low, damp ground, and especially if it is clayey or if it contains much vegetable matter. Drain your soil if possible, and air it well by frequent plowing."

The other varieties were but slightly attacked. The tubers were large and with a very small proportion of culls.

Contrary to popular belief, the Western Peerless exceeded the Boston in yield. This has been the experience of the writer for three years, and no good reason has been found for preferring Boston potatoes over those raised in the West for seed.

North Louisiana Experiment Station.

CALHOUN, LA.

In North Louisiana little or no progress has been made in "Truck Growing," though the soil is extremely well adapted to the growth of both fruits and vegetables, and railroad facilities are rapidly increasing. With intelligent yeomanry, anxious to develop this country, and seeking by every means within their power to improve their agricultural methods, this section of the State offered superior inducements for a complete series of experiments in fruits and vegetables. Of the latter, the "Irish Potato" was selected as worthy of our first investigations, and results of numerous experiments are herein given.

The experiments were of four kinds:

1st. To test variety of potato best adapted to this soil and climate.

2d. To test size of the potato best adapted for seed.

3d. To determine the fertilizer best adapted to the potato on this soil.

4th. To determine the money value and profits of a crop of potatoes.

The first two are purely physiological experiments, the third chemical, and fourth economical.

FIRST ~~SERIES~~—PHYSIOLOGICAL.

VARIETIES BEST ADAPTED TO THIS SOIL.

The soil was a loose gray sand, very poor. Previous culture, Ensilage corn. Broken with two horses. Rows laid off three

feet apart, with straight shovel, into these furrows the fertilizer was evenly distributed by hand and covered with two furrows of turn plow. This was opened again with straight shovel and into this furrow, pieces of potatoes, cut to three or four eyes, were dropped, twelve inches apart and covered with a turn plow. The fertilizer used was 700 pounds per acre, of a mixture consisting of 400 pounds cotton seed meal, 200 pounds acid phosphate and 100 pounds kainite. The seasons were very propitious. It received one cultivation with hoe and plow.

TABLE 1—GIVING YIELD OF VARIETY PER ACRE.

Name of Variety.	Merchantable No. bushels	Culls, No. bushels	Total per acre No. bushels	Abort when ripe.
Vermont Early Rose.....	367.5	60.1	427.6	May 25
Burbank.....	290.5	48	338.5	June 4
Beauty of Hebron.....	372	44.5	416.5	June 1
Rural Blush.....	308	43	330	June 1
Russett.....	355	46	401	June 5
Extra Early Vermont.....	330	44.5	374.5	May 30
Boston Peerless.....	391	44.3	435.3	June 1
James Vick.....	263	47.7	310.7	June 5
Brana.....	92.5	50.3	142.8	June 10
American Magnum Bonum.....	199	37.4	236.4	June 4
Silver Skin.....	184	40	224	June 4
Idaho.....	198	44	242	June 10
Andross Seedling.....	126.5	52.1	178.6	June 10
Callum's Superb.....	371	32	403	June 5
Mitchell's Seedling.....	209	41	250	June 5
Early Dawn.....	133.4	56	189.4	May 30
Rochester Favorite.....	216	39.3	255.3	June 5
Burbank's Seedling.....	162	34	196	June 5
Bliss Triumph.....	297	43.4	340.4	June 1
Irish Cup.....	279	47	326	June 5
Early Electric.....	97	63	160	June 1
English Kidney.....	293	37.4	330.4	June 1
St. Patrick.....	226.4	38.1	264.5	June 5
Enos Seedling.....	367	32	399	June 5
Craine's Keeper.....	229	43	272	June 10
White Star.....	123	51	174	June 8
Dunmore.....	273.1	41	314.1	June 8
Platt's No. 5.....	315	43	358	June 5
Mason's Seed.....	196	48	244	June 1
White Mountain.....	244	38	282	June 7
Great Eastern.....	297.4	33	330.4	June 7
Strawberry.....	317	28	345	June 5
Parson's Prolific.....	366	33	399	June 10
Early Maine.....	162	42	204	June 1
Hercules.....	217	33	250	June 5
Baker's Imperial.....	312	35	347.5	June 5
Cayuga.....	386	19	405	June 1
Adirondack.....	221	36	257	June 5
Dunn's Seed.....	340	27	367	June 1
Garrison's Seedling.....	204	48.4	252.4	June 10
Sylvian.....	341	36	377	June 10
Sunset.....	298	41	339	June 1
Potentate.....	224	38	262	June 1
Pearl of Savoy.....	203	36	239	June 1
Brook's Seed.....	204	33	237	June 5
White Flower.....	216	34.5	249.5	June 8
Dictator.....	332	29	361	June 8
Early Puritan.....	324	40	364	June 1
Scotch Bruffin.....	386	29	315	June 10
Carpenter's Seed.....	241	32	273	June 6
Late Favorite.....	348	31	379	June 15
Home Comfort.....	350	31	381	June 5
New Queen.....	238	49	287	June 10
Webb's Early.....	340	39	377	June 20
Lopine Triumph.....	159	61	190	June 7
Buffalo Beauty.....	249	51	300	June 15
Capt. Sheaf.....	948	38	986	June 15

REMARKS:

1. Vermont Early Rose.—Medium size, oblongated egg-shaped; many well marked, deep-set eyes. Very early, a good bearer, sound.

2. Burbank.—Good size, a round, smooth potato, slight pink tinge, with well marked pink eyes, medium early. Good bearer, sound.

No. 3. Beauty of Hebron.—Oblong, slightly pointed, many deep-set, pink eyes, white skin. A good bearer, medium sized potato.

No. 4. Rural Blush.—Irregularly round, slightly knotty, deep eyes, pink tinge; good bearer, sound.

No. 5. Russett.—A large, irregular-round potato, slightly russetted, with few well marked eyes, very sound. Very popular on the market.

No. 6. Extra Early Vermont.—A medium potato, oblong to egg shape, smooth skin pinkish tinge, resembles Early Rose.

No. 7. Boston Peerless.—Is a very large, round potato with some protuberances, white skin, very sound and easily kept. A prolific bearer.

No. 8. James Vick.—A large, oblong potato, with knotty, irregular surface, many pink eyes, cream skin, few culls, and in general a very satisfactory variety.

No. 9. Banana.—A long, slender potato, with well developed eyes, light yellow color, knotty, somewhat russet. A great many culls and a poor bearer.

No. 10. American Magnum Bonum.—Large, round, some inclined to oblong, irregular surface, with few well marked eyes, very prolific. A good marketable potato.

No. 11. Silver Skin.—Medium size, oblong potato, with smooth, regular surface, indented with few eyes. Not good for shipment as rot easily.

No. 12. Idaho.—Large, irregular potato, with light skin and pink eyes, few culls, fine variety.

No. 13. Andross Seedling.—Large, oblong, knotty, pink and yellow potato, with many eyes well marked. In spite of slight rot a fine potato.

No. 14. Callum's Superb.—Excellent potato, large and oblong, smooth, regular and sound, flesh color, resembling Early Rose, with well marked eyes, very few culls.

No. 15. Mitchell's Seedling.—Large, round, with smooth, white skin, with few eyes slightly indented; inclined to rot.

No. 16. Early Dawn.—Medium sized, long pointed, with smooth white skin; inclined to rot.

No. 17. Rochester Favorite.—Large, oblong, smooth white skin, with well developed eyes; surface a trifle irregular, few culls; little or no rot.

No. 18. Burbank's Seedling.—Medium sized, long, knotty, light yellow potato; sound and smooth.

No. 19. Bliss' Triumph.—Medium size, round, knotty and rough, few eyes, well marked; entirely free from rot.

No. 20. Irish Cups.—A light yellow potato of medium size, oblong, irregular, with a number of small protuberances upon surface; perfectly sound.

No. 21. Early Electic.—A round, light yellow variety, rose tinted about the eyes; good merchantable potato.

No. 22. English Kidney.—Above medium size, round, with irregular surface, light yellow skin.

No. 23. St. Patrick.—Long, pointed at one end, white skin, irregular surface; very sound.

No. 24. Enos Seedling.—Large, inclined to oblong, diversified surface, warty and shows parentage of potato, few well marked eyes.

No. 35. Crane's Keeper.—Large, round potato, light yellow skin, few well marked eyes, rough.

No. 26. White Star.—A medium potato, oblong, white skin, smooth, few eyes, rather poor potato.

No. 27. Dunnmore.—Large, round and flat, knotty potato, few well marked eyes, light yellow smooth skin, pink eyes.

No. 28. Platt's No. 5.—Medium potato, deep set eyes, yellow skin with pink flesh, regular and smooth.

No. 29. Mason's Seed.—Medium potato, oblong and flat, yellow and slightly pink about the eyes, slightly protubed, numerous well marked eyes.

No. 30. White Mountain.—Small potato, oblong, smooth, few eyes well marked; very prolific.

No. 31. Great Eastern.—Very large, irregular form, round and flat, few eyes and poorly marked, yellow skin.

No. 32. Strawberry.—Very large, round and oblong, few well marked eyes, knotty, yellow skin, pink flesh about the eyes.

No. 33. Parson's Prolific.—Medium, oblong potato, deep eyes, pink skin and smooth.

No. 34. Early Maine.—A medium potato, oblong, deep eyes, warty, yellow skin.

No. 35. Hercules.—Medium potato, yellow skin, few eyes, deep set and smooth, oblong.

No. 36. Baker's Imperial.—Large potato, smooth, pink skin, few deep eyes.

No. 37. Cayuga.—Large potato, knotty and irregular form, a few well marked eyes, prolific.

No. 38. Adirondaek.—Medium potato, white skin, regular, smooth, few eyes.

No. 39. Dunn's Seed.—Large potato, irregular form, flat and oblong, white skin, few well marked eyes.

No. 40. Garrison's Seedling. Large, irregular potato with few well marked eyes, white skin.

No. 41. Sylvian. A medium, oblong and irregular potato, white, smooth skin and few well marked eyes.

No. 42. Sunset. Large, round potato, white, warty skin, few well marked eyes.

No. 43. Potentate.—Medium, irregular potato, cream skin, few eyes.

No. 44. Pearl of Savoy.—Medium, oblong potato, pink skin, smooth with well marked eyes.

No. 45. Brook's Seed.—Medium potato, slightly knotty, few poorly marked eyes, cream color.

No. 46. White Flower.—Medium potato, oblong, few eyes, poorly marked, smooth yellow skin, slightly protubed.

No. 47. Dictator—Large potato, round, white skin, few eyes well marked.

No. 48. Early Puritan.—A medium potato, cream color, oblong, many well marked eyes.

No. 49. Scotch Bruffin.—Large potato, oblong, irregular, many deep-set eyes, cream color.

No. 50. Carpenter's Seed.—Long, round pointed potato, cream color, smooth, few well marked eyes.

No. 51. Late Favorite.—Very large, round, red skin, white about eyes, regular and smooth deep eyes.

No. 52. Home Comfort —Large, irregular, knotty, oblong, deep eyes, light yellow.

No. 53. New Queen.—Large, round, white skin, deep eyes.

No. 54. Webb's Early.—Large, oblong, flesh skin, deep eyes.

No. 55. Lapine Triumph.—Medium, round, deep pink eyes, well marked, pink.

No. 56. Buffalo Beauty.—Medium potato, very long and irregular, deep eyes, pale pink color.

No. 57. Capt. Sheaf.—Very large, irregular, oblong, deep eyes, yellow skin.

CONCLUSIONS.

Six of the above varieties yielded over four hundred bushels per acre, viz: Boston Peerless, Vermont Early Rose, Beauty of Hebron, Cayuga, Callun's Superb, and Russett. Eleven gave over three hundred and fifty bushels, viz: Parson's Prolific, Enos Seedling, Home Comfort, Late Favorite, Webb's Early, Sylvian, Extra Early Vermont, Dunn's Seed, Early Puritan, Dictator, Platt's No. 5. Thirteen followed with yields over three hundred bushels per acre, viz: Baker's Imperial, Strawberry, Bliss' Triumph, Burbank, Sunset, Great Eastern, English Kidney, Rural Blush, Irish Cup, Scotch B., Dunnmore, James Vick, and Buffalo Beauty. Of the remainder, seven gave less than two hundred bushels per acre.

The lowest yield was 170 bushels per acre, with the highest 435.

Should the record above be maintained through a series of years, it would show the necessity of planting a variety adapted to this soil and climate, as the first element of successful culture.

SECOND SERIES—PHYSIOLOGICAL.

Shall we plant the whole potato or cuttings, and what size of each are most productive and economical? Seven varieties of potatoes were used, each being treated exactly alike.

In each row there were planted eight large potatoes, [a]; eight medium potatoes, [b]; eight pieces cut, two or more eyes, [c]; and eight pieces cut to one eye, [d]; weighed and planted one foot apart.

Below is a table giving weight of potatoes and cuttings planted; [a], weight of eight large potatoes; [b], weight of eight medium potatoes; [c], weight of eight cuttings, two or more eyes, and [d] weight of eight cuttings, one eye.

Name of Variety Used.	Weight of 8 large pota- toes planted	Weight of 8 medium po- tatoes pl't'd.	Weight of 8 cuttings, 2 or more eyes planted.	Weight of 8 cuttings, one eye planted.
	"A"	"B"	"C"	"D"
Early Rose.....	3 lbs	1 1-4 lbs	7-16 lbs	1-6 lbs
Boston Peerless.....	4 lbs	1 5-8 lbs	5-8 lbs	1-8 lbs
Beauty of Hebron.....	2 11-16 lbs	1 lbs	7-16 lbs	1-4 lbs
Rural Blush.....	3 lbs	1 1-4 lbs	7-16 lbs	3-16 lbs
Extra Early Vermont....	2 7-24 lbs	1 lbs	5-8 lbs	1-8 lbs
Russett.....	2 7-16 lbs	7-16 lbs	1-2 lbs	1-8 lbs
Burbank.....	1 5-16 lbs	1 lbs	3-16 lbs	1-8 lbs

Below is a table giving results:

TABLE II—GIVING YIELD PER ACRE OF SERIES 2, PHYSIOLOGICAL EXPERIMENTS.

Name of Variety.	"A,"			"B,"			"C,"			"D,"		
	Merchantable, bushels.	Culls, bushels	Total number bushels.	Merchantable, bushels.	Culls, bushels	Total number bushels.	Merchantable, bushels.	Culls, bushels	Total number bushels.	Merchantable, bushels.	Culls, bushels	Total number bushels.
Early Rose.....	327	49	376	285	21	306	241	21	262	248	12	260
Boston Peerless.....	344	49	393	299	12	311	335	20	355	203	10	213
Beauty of Hebron....	285	20	305	268	20	288	248	20	268	207	4	211
Rural Blush.....	344	30	374	203	30	233	149	20	169	149	10	159
Extra Early Vermont.	199	10	209	157	20	177	183	20	203	157	20	177
Russette.....	248	30	278	244	30	274	248	10	258	142	20	162
Burbank.....	234	20	254	183	10	193	203	10	213	115	20	135
Total.....	1,981	208	2,189	1,639	143	1,782	1,607	121	1,728	1,211	96	1,307
Average.....	283	29.7	312.7	262.7	20.4	283.1	229.5	17	246.5	173	13.7	187.2

The productive results obtained concur with those of previous years; the larger the seed planted the greater the yield. The economical results are, however, different. To determine these an account must be taken of seed planted and the net yield per acre determined. To make this plain, a table is given showing amounts planted per acre with each experiment and variety, together with the net yield. In this calculation a farmer's acre seventy yards square is assumed for convenience. The rows were three feet apart and the potatoes dropped one foot apart. This gives 14,560 hills per acre.

The following will give a concise statement of results :
ECONOMICAL PRODUCTION OF SERIES II, PHYSIOLOGICAL EXPERIMENTS.

Variety.	"A," Bu. per acre.		"B," Bu. per acre.		"C," Bu. per acre.		"D," Bu. per acre.	
	Planted.	Net yield.	Planted.	Net yield.	Planted.	Net yield.	Planted.	Net yield.
Early Rose.....	97½	278½	41	265	14	248	5½	254½
Boston Peerless.....	130	263	45	266	20	335	4	209
Beauty of Hebron.....	87	218	32½	255½	14	254	8	203
Rural Blush.....	97½	276½	41	192	14	155	12	147
Extra Early Vermont.....	74½	134½	33½	144½	20	183	4	173
Russett.....	80	198	14	260	16	242	4	158
Burbank.....	43	211	32½	160½	6	207	4	121
Average.....	87	225½	34½	220½	15	225	6	181

From the above it would seem that while the total production is in direct proportion to the size of potato planted, the net yield, after deducting seed planted, varies but little. It is doubtful whether on a large scale pieces of potatoes larger than four eyes or smaller than two eyes, will be found of the most profitable use as seed.

THIRD SERIES—FERTILIZERS.

TO TEST FERTILIZER BEST SUITED TO POTATOES IN THIS SOIL.

The land is essentially the same as that occupied by varieties, but much poorer, and had previously grown a crop of Irish Potatoes. Cultivation, etc., same as given above. Below is the table giving results:

TABLE III—YIELD PER ACRE OF FERTILIZER TEST ON IRISH POTATOES.

No. Experiment.	Kind and Quantity of Fertilizer Used per Acre.	Merchantable No. Bushels.	Culls No. Bushels.	Total Yield, No. Bushels.
1	252 lbs. Nitrate Soda..... 168 lbs. Sulphate Ammonia..... 504 lbs. Cotton Seed Meal..... 420 lbs. Acid Phosphate..... 336 lbs. Kainit.....	151	39.1	190.1
2	252 lbs. Nitrate Soda..... 168 lbs. Sulphate Ammonia..... 504 lbs. Cotton Seed Meal..... 420 lbs. Acid Phosphate.....	169	33.5	202.5
3	No Manure	75.6	26.5	92.1
4	252 lbs. Nitrate Soda..... 168 lbs. Sulphate Ammonia..... 504 lbs. Cotton Seed Meal.....	98	50.3	148.3
5	504 lbs. Acid Phosphate.....	42	28	70
6	1512 lbs. Cotton Seed Meal..... 420 lbs. Acid Phosphate..... 336 lbs. Kainit.....	270	27	297
7	1512 lbs. Cotton Seed Meal..... 420 lbs. Acid Phosphate.....	322.5	50	372.5
8	1512 lbs. Cotton Seed Meal.....	266	56.6	322.6
9	No Manure.....	67.2	35.8	103
10	336 lbs. Kainit.....	42	37.8	79.8
11	5040 lbs. Crushed Cotton Seed..... 504 lbs. Acid Phosphate..... 336 lbs. Kainit.....	210	36.6	246.6
12	5040 lbs. Crushed Cotton Seed..... 504 lbs. Acid Phosphate.....	316.6	36.4	343
13	5040 lbs. Crushed Cotton Seed.....	229.6	33.6	263.2
14	No Manure.....	56	15.4	71.4
15	5040 lbs. Crushed Cotton Seed..... 336 lbs. Kainit.....	270.2	47.6	317.8
16	5040 lbs. Green Cotton Seed..... 504 lbs. Acid Phosphate..... 336 lbs. Kainit.....	324.8	32.2	358
17	5040 lbs. Green Cotton Seed..... 504 lbs. Acid Phosphate.....	327.6	21.6	349.2
18	No Manure.....	56.1	30.8	86.9
19	5040 lbs. Green Cotton Seed.....	303	28	331
20	5040 lbs. Green Cotton Seed..... 336 lbs. Kainit.....	236	86	322

The Boston Peerless was planted using the whole medium potato.

Experiment No. 7.—A mixture of Cotton Seed Meal and Acid Phosphate, has given the best results.

Kainit appears to be without effect—a surprising result, with Irish potatoes (a potash plant) upon a poor *sandy* soil.

The mineral forms of Nitrogen did not accomplish results expected. They were doubtless washed from the soil by the very heavy rains of early spring before the plant could assimilate them, and again suggest caution in the use of these forms upon sandy soils in this climate.

Cotton seed, either whole, crushed or composted, and cotton seed meal are most excellent forms of Nitrogen for this plant, and when combined properly with Acid Phosphate gives the best fertilizers for Irish potatoes.

SERIES IV—ECONOMICAL.

TO DETERMINE THE MONEY VALUE AND PROFITS OF A CROP OF IRISH POTATOES.

Can Irish potatoes be raised and sold at profit in North Louisiana?

The following experiment was instituted to determine this question: A plat of ground of similar composition to above, not quite an acre in area, was planted in potatoes for the express purpose of testing the propriety of growing Irish potatoes for market. From this piece of ground there were gathered 36 bbls. merchantable and 16 bbls. of culls. The former were shipped to L. B. Smith & Co., Chicago, Ill., by railroad, and after a long detention reached their destination and sold for \$3.00 per bbl. The freights, cartage, commission, etc., amounted to \$45.12. Deducting this from \$108, the gross sales, and there is a net balance of \$62.88, as the proceeds of the 36 bbls. shipped. The 16 bbls. of culls were saved for feeding stock and fall planting. The largest amount of expense in shipping was the freight. Had a car-load been sent instead of the 36 bbls., the freight per bbl. would have been considerably less, and a net average of over \$2.00 per bbl. would have been obtained. Mr. Smith in returning sales writes:

"Your potatoes arrived this day in very bad condition owing to the very hot weather and the length of time on the road. The stock was fine and if it had been cooler, they would have brought \$3.50 per bbl., etc."

The result of this experiment expressed in money terms, is very encouraging. From less than an acre of very poor land, with exclusive use of commercial fertilizer, there was raised a crop which netted clear of all expenses over \$50 per acre. There were produced besides, ten barrels of culls which were used on the farm. The ground was occupied by this crop about four months, being removed in ample time for a good fall crop. It is hoped that a large number of farmers will try this crop the coming year. The Station will hereafter co-operate with them in securing regular information regarding the state of the markets, and arranging for rapid and cheap transportation.

There is a prevalent opinion among farmers and planters of this State that home-grown seed are not as good as those grown in the North. This opinion is erroneous and should be discarded. The entire crop of potatoes described above were grown from seed raised on the farm last year. Indeed, three successive crops have been grown since the Station purchased its seed potatoes.

DEDUCTIONS FROM ABOVE EXPERIMENTS.

First: Select for planting varieties known to be adapted to soil and climate.

Second: Western-raised potatoes are as good for seed as those raised in the East, and are usually cheaper.

Third: There is no necessity of buying seed from either, as home-grown seed are equal if not superior to any.

Fourth: Cotton seed, or cotton seed meal, mixed with a high grade acid phosphate furnishes an excellent and cheap fertilizer for potatoes and should be used liberally.

Fifth: That cuttings containing from two to four eyes are perhaps the best size of the seed, when planted on a large scale.

Sixth: That any early potato crop when properly harvested and shipped can be made very profitable.

RESULTS OF EXPERIMENTS MADE ELSEWHERE.

The following is a condensed synopsis of the results obtained by Experiment Stations elsewhere with the Irish Potato.

Best Varieties.—Chief benefit accomplished in discarding worthless varieties. Soil and climate largely control decisions. An excellent potato in one place is without value in another. A good eating potato should contain from 23 to 25 per cent of dry matter, mainly starch, and 75 to 77 per cent of water.

The following table gives the best variety in the different States named. It may be mentioned in this connection, that the Rural Blush and White Elephant gave the best results at the Sugar Experimental Station, with Burbank at Baton Rouge and Peerless at Calhoun.

Station.	Number and date of Bulletin.	Best Variety and Yield.
Michigan.....	No. 57, March, 1890.	Tunpe's No. 4 and Summitt.
Michigan.....	No. 60, April, 1890.	Dakota Red.
Wisconsin.....	No. 22, January, 1890.	C. E. Angell's Seedling.
Rhode Island.	No. 5, December, 1889.	Thorburn and Bliss Triumph.
Kentucky.....	No. 22, December, 1889.	Irish Wonder.
Pennsylvania.	No. 10, January, 1890.	White Victor and Early Puritan.
Maryland.....	No. 2, September, 1889.	Burbank, Early Dawn, White Flower
Kentucky.....	No. 16, December, 1888	Rand's No. 42.

White Elephant, White Star, Early Rose and Empire State are mentioned by all as among the best varieties.

Size of Seed to Plant.—In all experiments, except in one or two cases, the greatest yield resulted from greatest amount of seed planted; however, where the seed was very high at the time of planting, and potatoes at a very low price when dug, the profits were very little, if any, where large whole potatoes were planted.

At the Tennessee Experiment Station a test was made with large whole potatoes, and halves of large potatoes, planted with cut side down, and while the large whole potatoes gave the better results as to quantity, the halves produced more merchantable potatoes. (Tenn. Expt. Station Bulletin, Vol. III, No. 1.)

In experiments carried on by Professor Goff, of Wisconsin Experimental Station (Bulletin No. 22, January, 1890) he obtains as good results from portions of potatoes containing two eyes as from large whole potatoes. However, this is quite contradictory to the results of other Stations.

Seed Ends of Potatoes.—Many people, especially superstitious persons, have entertained ideas about planting at certain

stages of the moon, and along with this they firmly believe that where the seed end of a potato is planted no growth will take place. Experiments of Michigan Station, bulletin 57, March '90, show that good results are obtained from planting the seed end of potatoes, and the per cent. of small potatoes compare as follows with middle and stem ends: Where 100 per cent. of small potatoes are produced on middle piece, 55 per cent. are produced on seed end, and where 100 per cent. on stem end, 70 per cent. produced on seed end.

Wisconsin Experiment Station bulletin No. 22, Jan. '90, the results of seed end over stem end are very marked, being 132 bushels per acre as against 97 bushels of merchantable, and 117 bushels as against 120 unmerchantable.

How Shall we Plant.—Deep vs. Shallow.—Potatoes love a deep, friable, rather light, well-drained soil, and when these conditions are present the depth of planting may vary to some degree without any material effect on the result. With wet and compact soil shallow is preferable.

French vs. Usual System.—Kentucky Experiment Station, bulletin No. 22, Dec. '89. A test was made under different fertilizers which varied some, according to the fertilizers used, but on a whole the results were in favor of the usual method.

Fourteen Inches Apart in the Row vs. Twenty.—Kentucky Experiment Station, bulletin No. 22, Dec. '89, shows that out of fifty-five varieties tested all but four were much in favor of fourteen inches apart, while the difference in the four in favor of twenty inches was very slight.

DISEASES OF POTATOES.

The following diseases have been studied and discussed:

Potato Rot—Potato rot is now recognized to be caused by a fungus disease known as *Phytophthora infestus*, the mycelium of which permeates the intercellular tissues of the potato and by means of haustoria or suckers absorb the nutriment from the surrounding cells. This mycelium, pushing its way through the intercellular spaces, throws out branches which penetrates the breathing pores of the potato and soon upon these branches are

borne pear-shaped conidia. These conidia correspond to the seeds of phanerogamous or flowering plants and are held and carried by the atmosphere, so that at any time they may fall upon the potato or vine and with the assistance of moisture growth readily takes place. From this second growth, as conidia only serve to propagate the disease through the growing season, the spores are formed, which lie dormant through the winter and on the arrival of spring the disease recommences its destructive career by the germination of the winter spores.

Remedies and Preventives.—In addition to exercising care in the handling of potatoes, the storing of them away in a dry cool room and the planting of them on a well-drained or light loamy soil, the following has been used with marked success, as reported by A. W. Pearson, of Vineland, N. J., in the "Garden and Forest" of December 4, 1889 :

Bordeaux Mixture, (a) sulphate of copper (pulv.), 6 pounds in 4 gallons of hot water ; (b) fresh lime, 4 pounds in 4 gallons of cold water. Mix (a) and (b) slowly and thoroughly and dilute to 22 gallons.

Ammonia Solution of Copper, (a) copper carbonate, 3 ounces ; (b) ammonia (liquid), 1 quart. Dissolve (a) and (b) and dilute to 22 gallons.

Potato Scab.—For a long time scientists were at variance as to the cause of potato scab. From the discovery of so many fungus diseases in connection with vegetables it was thought that the scab on potatoes was due to the presence of some fungus, but by actual experiment it has been found that the same variety of potatoes on the same soil may be influenced to produce scab by the application of certain substances to the soil. It has been found, as every potato producer will testify, that potatoes grown on new land, or land containing a good deal of decaying vegetable matter, become more or less effected by scab. In the latter case it may be due to the presence of insects, as millepedes are nearly always found in this kind of soil. It is true that decaying vegetable matter has a great attraction for those insects and that they readily feed upon decaying potatoes, but, as will be seen in another part of this bulletin, that where millepedes are very numerous much damage may be done by them to perfectly sound

potatoes. It is now generally conceded that these scabs are due to injury to the breathing pores or lenticels of the skin of the potato, as when they are injured abnormal growth at once begins and ulcers or scabs are formed.

Regarding remedies nothing definitely can be recommended, except to guard against injury by insects by not using the same ground for potatoes two or three years in succession. Avoid undrained land, and soil containing large quantities of humics.

Colorado Potato Beetle.—The recent appearance of the Colorado potato beetle (*Doryphora 10-lunata*) into the northern part of Louisiana, means that ere long its disastrous effect may be felt throughout every portion of the State.

A few statements in connection with this insect will perhaps arouse us, that we may exercise great vigor in fighting it.

The eggs, light yellow in color, are deposited on the underside of the leaves in numbers ranging from ten to fifty. In about a week's time they hatch, when the young larvæ at once proceed to defoliate the vines. With this insect, as is not the case with all insects, it feeds upon the *same* plant in both its larval and adult stages. The adult insect may be easily recognized by the black stripes on its wing covers, five on each, while the soft dark red bodied larvæ are best detected by the numbers in which they appear. As many as five generations appear in a single season and hence the very great importance of diminishing the numbers of first brood.

Remedies.—(1) Carefully examining the vines and destroying all the eggs.

(2) The collecting of the insects in dishes and destroying them by scalding water or fire.

(3) The application of Paris green or London purple just as soon as the insect appears.

These insecticides may be applied in two ways; dry, as by 1 part of either of these substances to 50 parts of gypsum or flour, and dusting the mixture over the vines, or by dissolving one-tablespoonful of Paris green or London purple in ten quarts of water, or one pound in one barrel of water.

Either of the above may also be applied dry by dusting through an oblong muslin sack attached to a pole, as is now universally done by the cotton planters in destroying the cotton caterpillar.

