

tility the feed must be purchased, for if that which is grown on the farm only is consumed nothing is added to the resources it already contains. Therefore, the only feasible plan that can be devised is to buy the amount of fertilizer that will be required to produce the crop intended to be sold, or the farm will be just the amount short that it required to produce the crop grown.

The practice of growing potatoes for sale is really worse in one particular than producing wheat, for here the straw is left to be returned to the land; therefore, it is more on a par with growing grain and selling both straw and grain from the farm. Here also the greater the yield in the crop sold a larger amount is sold from the producing power, and it is only a question of time until a farm under this management will not pay for the expenditures required in growing the crop sown on it. The advantages of the experiments that have been conducted through the prizes offered in the contest we are about to review must be of untold benefit to all agriculturists. If it can be proved that a fertilizer can be supplied at an expenditure that the crop will warrant, the tables are then turned the other way, and the crop thus produced is a material advantage to the land it is produced upon, for the potato crop is one that gives the best results as a cleaning crop, and it is also one of the most useful to follow with grain.

It must be borne in mind, in estimating the results obtained from any commercial fertilizer or stable manure, that it requires a moderate amount of moisture all through the growing season. In order to receive the best advantage from any fertilizer, the elements contained in it must be made soluble under a moist condition of the soil to which it has been applied. Therefore, the extremely dry weather experienced at the most critical period prevented the crop in this contest obtaining the benefit that it otherwise would have derived. Taking it all round we must consider that the results obtained were astonishing, as it is generally conceded that last season was the most unfavorable for potato production we have had in many years.

The following are the yields per acre reported, together with the mode of working the land adopted by each of the most successful contestants:

David Quantrell, Cobourg, grew 315 bushels of potatoes, of which 15 bushels were small, comprising two varieties, viz., Burbank's Seedling and Rural New Yorker No. 2. The land was prepared by plowing (in the fall of 1891) out of sod off which had been cut one crop of hay one year after being seeded. The land was replowed May 12, 1892, and thoroughly harrowed and drilled; then 600 pounds of Freeman's potato manure was applied in the drill and mixed with the soil, an additional 600 pounds having been sown broadcast, thus 1,200 pounds was used on this acre. The seed was planted whole (medium-sized potatoes being selected), and 960 pounds to the acre, and planted May 24th. The vines appeared above ground June 3rd. The cultivation consisted in harrowing the ground three times, twice cultivating between the rows; also hand hoeing, to effectually kill the weeds among the plants. The crop was harvested September 20th by hand digging with potato forks. Mr. Henry Pickett, Clarkson, grew 281½ bushels of potatoes, of which 30 bushels were small, comprising two varieties, viz., Freeman and Rural New Yorker No. 2. He used 2,200 pounds of Freeman's potato manure, and prepared the land by applying first 400 pounds before plowing, which was performed May 16, then 600 pounds were sown broadcast and the land harrowed and drilled, and another 600 pounds applied in the drill, and a fourth application was made after working around the hills. The seed on this plot was planted May 20, and cut two eyes to the set the day previous to planting, 930 pounds being used. The plants appeared above ground June 11, the ground having been harrowed twice and cultivated between the rows three times, and hand-hoed three times, drawing a little earth to the plants the last time. The crop was dug with potato forks on the 20th to 24th of October and weighed and pitted. Jno. Armour, Victoria Road, grew

261 bushels and 20 pounds of potatoes, one variety, viz., Rural New Yorker No. 2, and used 1,800 pounds of Freeman's potato manure, 1,200 pounds of which were applied in the drill after planting and covering one inch deep with the hoe, balance when the potatoes were six inches high—the land having been cropped with potatoes, corn and turnips for the three previous years. In his case the land was plowed in the fall of 1891, and harrowed and drilled in the spring. Francis Peck, Ameliasburg, Albury P. O., Prince Edward County, grew 189 bushels on his acre, of which 13 bushels were small, the land having been cropped with potatoes for three years previous without manure, at this time having been plowed from an old pasture. Four different varieties had been tried in this contest, of which Munroe County Prize did the best. The land was plowed the 7th of May. In this test 1,350 pounds of Freeman's potato manure were used, 600 of which were applied after plowing and harrowing, the balance being applied in the drills. Equally good results were obtained by other parties in this competition, but they were disqualified by applying stable manure to their plots, which the rules strictly forbid, the object being to find out the benefit to be derived by applying the fertilizer alone.

It is evident that all the contestants did not apply the fertilizer by methods through which the greatest efficacy might be traced, but in these cases there would be a large proportion of fertilizing elements left over for the next crop.

The subjoined table gives the names of the four highest competitors, the amount in pounds each applied, the amount in bushels in the different yields, money value applying, money value obtained at 60 cents per bushel—the current prices at this writing, profit between the value of manure applied and the crop obtained. The rent of land and work required each can easily figure for themselves:—

Name of Contestant.	Amount Applied in Lbs.	Amount of Yield in Bush.	Money Value Applied.	Money Value Obtained.	Money Value Taken by Crop.	Profit.
D. Quantrell.	1200 315		\$24.00	\$180.00	\$14.26	\$156.70
Hv. Pickett.	2200 281½		44.00	168.90	12.79	124.90
Jno. Armour.	1800 261 15		36.00	158.52	12.02	122.52
Francis Peck	1350 189		27.00	113.47	11.31	96.40

This contest will be continued in 1893, when we expect to see a still larger number of competitors

A Few Points on Horse Breeding.

Perhaps there is less judgment shown in horse breeding than in that of any of the animals on the farm, and those engaged in this interesting work must be again reminded that all success in the breeding of animals is based on the selection of the parents and on the treatment of the progeny. We again lay down the fundamental principle that "like produces like," and this maxim applies not only to the production of the qualities of external form and utility, but to the constitutional vigor and the predisposition to disease. Experience has most fully shown that no animal we breed is more liable than the horse to transmit blemishes as well as beauties, and that diseases of all sorts are transmitted to the progeny; if not in the first generation, they very speedily appear in that immediately succeeding. This consideration increases the necessity of a judicious selection, for the propagation of diseases of any kind is even worse than the continuation of unsightly form and of condemned points.

The mare from which the breeder intends to breed must be free from disease of any kind; carcass roomy, barrel wide, large and round form, with ribs curving from the back, the short rib well "home," or leaving a short space between it and the hook bone; thighs deep and muscular, bone of hind legs flat and thin, and must have no appearance of swelling or any kind of thickness; feet clean, firm and sound; pasterns oblique; the arm in front wide, chest deep, shoulder oblique and sloping backwards at the withers and shortening the back; top of the shoulder narrow, neck rising in an arched form from the

withers and drooping a little from the set on of the head; crest strong and firm, and thickening downwards; ears long and fine, and quick in motion; eyes prominent, quick, bold and lively; face broad between the eyes and tapering to the muzzle; cheek bone not very broad, which shows coarseness; muzzle small, lips short and thin, nostrils expanded but neat; foreleg standing well forward, and not under the belly of the animal; bone clean and short in hair, feet standing concave and not flat, knee joints flat and broad.

The most objectionable points that the breeder has to guard against are heaviness of form and dullness in action, and round, bound legs. These indicated disease, and never fail to constitute a dull, lumbering animal with a sluggish motion and with funereal tastes. In order to remedy this defect, ample elements exist, so soon as the breeder is able to divest himself of the idea that bone and flesh constitute strength. A heavy belly is also objectionable, showing a great quantity of offal to be carried about in a loose shape. A main point in breeding lies in reducing the size of useless parts and in getting rid of unnecessary appendages. A leading point with our first breeders is to reduce the size of the animal, in order to acquire symmetry and compactness.

The productions of nature are so varied that ample store of elements almost everywhere exist; one animal is found of a finer form than another, produced by nature or by chance, and these varieties afford the instruments with which the further improvement is effected. No organ in the animal body shows the result of a superior organization more quickly or more durable than the eye; in every case of breeding it is prominent, pert and lively, and forms a point of great importance in the selection of animals. When the body is in a state of inaction the visual organ should appear placid and easy; but when any symptoms of exertion are required, the eye must give the first signal, and communicate to the other parts the intelligence that the time of action has arrived, and these parts must be ever ready and willing to obey the summons, by being closely knit and joined in combination, compact and ready for action, and not loose or disjointed or far between. A horse may be called society in miniature, the component parts of which must be refined for action and polished for use, and adjusted so that each part assists the other in the most direct, the most rapid and the most precise combination. These qualities are obtained under the name of "spirit and action," and proceed from a superior organization by assorting and joining the similar parts in combination.

The qualities of the male require a similar examination, for though the best animals are usually kept for the purpose of propagation, yet a discrimination is essentially necessary. The animal must be clean-legged, with a flat, thin bone, barrel rounded, and carcass rather light; lofty oblique shoulders, tapering withers, arched neck and small head; eye impetuous, but at the same time placid; ears fine, but quick in motion; color, bay or brown. It is a sign of hardihood when the legs are darker in color than the body. The brown or dark bay seems to be the hardest of all colors, and an animal of that sort, when well-bred and of a uniform color throughout, shows a production of skill and judgment.

The breeder having by the exercise of his professional skill obtained a valuable progeny, the rearing of it demands equal care and attention with the propagation, or his purpose is only half effected, and the neglect of one part will render the other useless and of no avail. The finest forms are destroyed, the most unbounded spirit and action are broken down and annihilated, by bad usage and carelessness. An ignorant consorting of the elements of propagation and a starvation in the rearing produce a race of animals to be seen in our fairs—a specimen of ignorance and a disgrace to the agricultural occupation. Breeders are possessed with the idea that animals must be starved in order to be reared and kept at little cost; and certainly a more fallacious idea cannot be entertained on any subject of the kind. Ample feeding and comfort are essential to the rearing of animals of any sort; feed the dam while she is employed in suckling, and she will nurse her progeny.