

Ashes as a Fertilizer.

From time immemorial ashes have been known and valued as a fertilizer. They presumably contain all the mineral substances found in plants, and it is these which are most generally deficient in soils long cropped. Nitrogen is found in unlimited quantities in the atmosphere, and it is now generally conceded that soil, or plants, or both, have some means of utilizing or retaining it. With this element supplied, the chief probable deficiencies would be in phosphate of lime and potash. Ordinary woodashes supplies both of these elements, notably the potash, of which, when unleached, it usually contains six to twelve or more per cent. The phosphate of lime in ashes is not in very soluble condition, and it is retained with very slight loss after leaching, while there is also a considerable quantity of potash remaining in leached ashes.

We have found some good farmers say they regard leached ashes fully as valuable as those unleached. They are good farmers, and their conclusion was based on the result of experience. They had found by trial that leached ashes produced even better average results than ashes that were fresh and unleached. Of course there must be a loss of potash and some other soluble elements in the former case, and a result so apparently contradictory to the popular idea deserves examination and, if possible, explanation. We have given this matter some thought, and broach a theory which will at least set our readers to thinking, and may develop ideas still nearer the exact truth.

While potash is always valuable, and particularly so for some plants, the potash in newly burned ashes is not in best condition to be available as plant food. It is just the thing for the soap-maker in its caustic state, as it will then eat the grease and make a good soap. But for growing plants, this caustic potash is not immediately available—its alkali needs to be neutralized, leaving its mineral element in the form of a sulphate or nitrate of potash. It requires no act of man to make this change. Nature and the elements will do it in very little time. Ashes kept in any confined place where a current of air is not constantly blowing over them rapidly absorb moisture, and with that they have the faculty of uniting with the nitrogen of the atmosphere, forming from their potash a nitrate of potash or crude saltpetre, one of the most valuable of all mineral manures, and freely soluble. But this nitrate of potash is unfit for soap making. Housewives have learned this, for they all know that they cannot make soap by leaching old ashes that have become damp from long exposure to the air. Why? They say the ashes have lost their strength; but there has been no leaching, so the mineral element must still be present. Nothing is gone from the ashes. It is only the nitrate acid of the damp atmosphere which has neutralized the alkali of the potash and formed a nitrate. No housewife would think of making soap from saltpetre, yet this is what is attempted unless the ashes are fresh.

These old ashes, damp from long absorption of moisture from the air, are just what the farmer wants for his crops. They have lost most of their caustic properties—their "strength" for soap—but they are just what is needed for manure. They give the plant both nitrogen and potash, each in its most available form, and cause growing plants to shoot up with astonishing vigor. They are especially valuable for potatoes, corn, and tobacco. So important do we regard it that the alkali should be neutralized for immediate benefit to crops, that we would have a house built of stone and, if possible, partly under ground for storing ashes. Here the change to nitrate of potash would go forward rapidly, and once a year when cleaned out it would furnish a considerable quantity of valuable manure. The same building could be used as a smoke-house, and being of stone would not be liable to be burned. Under some circumstances not well understood, moist ashes are liable to spontaneous combustion, and would be dangerous if left in contact with wood.

It is not doubted that fresh ashes will be good manure. This change to a nitrate can and does take place in the soil as well as elsewhere. It is quite probable that it does occur soon after the ashes are washed down into the soil, and only after the ashes are washed down into the soil can they do any good. But the question arises, Does not the nitrogen in the soil uniting with potash detract so much from the soil's fertility, while if the combination was made above ground it would be so much addition thereto? This subject involves many interesting questions well worthy the attention of thoughtful farmers and scientific men.—*Rural New Yorker.*

How to Make a Farm Pay.

The following essay on the above subject was delivered by Mr. Appleton Elcoat, at a late meeting of the Tuckersmith Farmer's Club:—

In order to create a starting point we must have a farm of say 90 acres of clearing. To stock this the farmer should have five cows and their offspring, which will give him five head of cattle to sell at three years old every year, bringing say \$30 each. He will also require two mares and one colt one year old and another two years old, and by raising a colt every year he will always have one three years old for disposal, which should be worth \$100. He can also fatten half a dozen hogs till they weigh about 250 lbs each, two of which it will be necessary to keep for his own use, while the other four can be sold at \$7 per cwt. In addition to this it is also desirable to have some poultry. The butter and eggs will keep the house in groceries and the children in clothes. To keep this stock will require 30 acres, part for hay and the rest for pasture. This will leave sixty acres for the crop.

The farmer must seed 10 acres down every year, and then he will have 10 acres of sod to plough. He should put his sod in with peas, his pea stubble in with wheat, the wheat stubble with oats, which should be well manured and afterwards put in with wheat, the stubble of which will require the rest of his manure. He must also put in at least two acres of potatoes, which will be worth \$50 per acre, besides turnips, carrots and other green crops for the use of the cattle. This field can afterwards be planted with barley and seeded down. This will give a regular rotation of crops. There will be 10 acres of peas, 20 of wheat, 10 of oats, 10 of barley, and 10 of roots, &c. I will now endeavor to give you an estimate of the yield and value of these crops. Peas at 30 bushels would aggregate 300 bushels, 100 to be used for seed and to fatten the hogs on, leaving 200 bushels to sell at 60 cents; 20 acres of wheat at 25 bushels per acre would give 500 bushels for seed and bread, leaving 400 bushels to sell at \$1 per bushel; 10 acres of oats at 40 bushels per acre would produce 400 bushels, of which, after allowing 200 bushels for the horses and for seed, 200 bushels could be sold for 35 cents; 300 bushels of barley, the product of 10 acres at 30 bushels per acre would give 300 bushels for seed and leave 200 bushels to sell at 75 cents. Then we have two acres of potatoes worth \$50 per acre. Now let us see how much we have made from the farm:—

Five head of cattle at \$30 per head.....	\$150
One horse at \$100.....	100
Four hogs, weighing 250 lbs. each, at \$7 per cwt.....	70
200 bushels of peas at 60 cents per bushel.....	120
400 bushels of wheat at \$1 per bushel.....	400
200 bushels of oats at 35 cents per bushel.....	70
200 bushels of barley at 75 cents per bushel.....	200
Two acres of potatoes at \$50 per acre.....	100
Total.....	\$1210

I will now give you my way of cultivating the land. For peas, plough about seven inches deep in the spring; for wheat, plough in the fall ten inches deep and then cultivate in the spring; for oats, plough eight inches in the fall and then cultivate in the spring. The land used for the root crop should be ploughed twelve inches deep in the fall, and, after the turnips are taken up, plough ten inches deep, and again in the spring, and seed down with barley.

Ammoniated Phosphates.

The use of prepared fertilizers by the farmers of this State is yet in its infancy. The service which they would render its agriculture is almost unknown, yet if the growth of crops and of live stock is to be carried out so that the land will continue to yield all that it is capable of producing, they must come into the service of those who cultivate it. The experience and successful practice of agriculturists who depend largely upon them cannot much longer be ignored. It is but a few years since their use became a part of the practical work of the farmers, and now it is well understood that their application to the land has become a necessity. Every farmer knows that his live stock increases in size and weight by feeding, because they assimilate in their bones and tissues substances extracted from the soil by vegetable growth. The very grasses, the commonest of all productions of the farm, yield the substances which form the animal, and the greater the production the more they take of these valuable matters in the soil. Some of these substances are of more value than those which form the bone, for the greater part of the matter they contain are composed of the phosphates. So with the grain crops—they too contain a large amount of the

phosphates. These substances, when absorbed by the animal, are never returned to the soil, and consequently each year the soil diminishes in its productive power, and the profits of the farmer are lessened. Modern agriculture tells us that all matters contained in the animal comprise a large proportion of phosphates, and when the offal, the bones, and the other parts of the animals that are daily slaughtered for consumption, are applied to the land in a form not too concentrated, they add materially to its productive power. It is these substances properly prepared that take the form of manufactured fertilizers. They have been tried and tested and found of the greatest service in the increased production of the crops where it has been applied to the land. It contains not only a large proportion of phosphates reduced to such a condition as best fits it for the immediate food of plants, but also a large proportion of ammonia or nitrogenized substance which is peculiarly serviceable as one of the substances which enriches the soil that it comes in contact with, and renders it more adapted to grow plants. Hence this substance is an ammoniated phosphate, a form of fertilizer whose action enriches and mellowes the land where it is employed, and is not a mere stimulant like plaster. This fertilizer should be one of applications which the farmer may use with profit.

Good Seed.

How important is parental influence! and how unreasonable is the practice (still pursued by some) to sow inferior or unsaleable seed as a matter of economy! Admirably as our dressing machines now separate superior seed, still the more powerful blower which follows soon exhibits a selection of light or comparatively imperfect kernels or seeds. A light ordinary sample of dressed grain passed through a powerful blower comes out in a very improved condition. I invariably blow all my seed and grain, and by doing this with oats often extract one-fourth as unfit for sowing. The same remark applies in some degree to grass and other seeds. In the case of peas or beans, a riddle or screen gets rid of the scraggels. How forcibly and clearly does Liebig, in his "Natural Laws of Husbandry," enforce the necessity for care in the selection of seed. The development of a plant depends upon its first radication, and the selection of proper seed is therefore of the highest importance for the future plant. Poor and sickly seeds will produce, in a great measure, the same character. The horticulturist knows the natural relation which the seed bears to the production of a plant which is to possess all or only some properties of the species, just as the cattle breeder, who, with a view to propagation and increase of stock, selects only the healthiest and best formed animals for his purpose. J. J. MECHI.

Weather and Crops in England in February.

The Farmer (England) says:—We experienced fairly seasonable weather in February, although the weather was somewhat changeable. A few cold winds helped to dry the ground, and the mildness of the temperature at other times was favorable to the development of young corn and early seeds and grass. Reports from the country show that the weather has been, on the whole, favorable for resuming field work. On light soils the "ground teams" have been afield busy at work ploughing for oats and barley, and doing other necessary field work. The autumn sown wheat is doing well, and the plant is strong and healthy. Wheat more recently grown spears thickly, and will now grow apace if the mild weather continues. Artificial grasses look well, and the pastures are in good condition for this time of the year. What nipping frosts we may yet experience to cut down the thriving wheat plant, none can tell, but we hope for the best. Hay and straw are abundant in most districts, and will last out the winter, and as far into the spring as necessary. Roots also being a good crop last year are generally plentiful, although from some places reports reach us that the wet winter has considerably damaged their keeping qualities. All kinds of farm stock continue to thrive well, except where those lamentable contagious diseases, foot and mouth and pneumonia, are prevalent. The lambing season progresses fairly, certainly with average success to the flock-master, who is deeply anxious just now for a continuance of mild, open weather for his flock, both old and young.