

have raised crops for market. They have given a dignity and glory to the occupation of farming it never had before.

Fancy farmers have changed the wild boar into the Suffolk and Berkshire; the wild bull of Britain into the Shorthorn; the mountain sheep, with its lean body and hair fleece, into the Southdown and the Merino. They have brought up the milk of cows from pints to gallons. They have lengthened the sirloin of the bullock, deepened the udder of the cow, enlarged the ham of the hog, given strength to the shoulder of the ox, rendered finer the wool of the sheep, added fleetness to the speed of the horse, and made beautiful every animal that is kept in the service of man. They have improved and hastened the development of all domestic animals, till they hardly resemble the creatures from which they sprang.

Fancy farmers introduced irrigation and under-draining, grinding and cooking food for stock. They brought guano from Peru and nitrate of soda from Chili. They introduced and domesticated all the plants we have of foreign origin. They brought out the theory of rotation of crops as a natural means of keeping up and increasing the fertility of the soil. They first ground up gypsum and bones and treated the latter with acid to make manures of peculiar value. They first analyzed soils, as a means of determining what was wanted to increase their fertility. They introduced the most approved methods of raising and distributing water.

Fancy farmers or fancy horticulturists have given us all our varieties of fruits, vegetables, and flowers. A fancy farmer in Vermont a few years ago, originated the Early Rose potato, which added millions of dollars to the wealth of our country and proved to be a most important accession in every part of the world where it was introduced. Another of these same fancy men originated the Wisconsin strawberry, and another the Concord grape. It was a fancy farmer that brought the Osage orange from Texas to the Northern States.

Among the men in this country who were classed as fancy farmers at an early day one first introduced mules; the second, the cultivation of improved rice; the third, the use of land-plaster; and the fourth, the raising of lucerne. More than any men of their time did they add to the wealth of the country. After them came another race of fancy farmers, who introduced Arabian horses, Spanish sheep, and the improved breeds of English cattle and swine. These fancy farmers added immensely to the wealth of the practical farmers of the country. What we want, to develop the agriculture and horticulture of the country to their fullest extent, is a large number of fancy farmers—men who work for pleasure, rather than for private gain. These are the men who will perform experiments, and give the world the benefit of them. These are the men who will carry on investigations for the sake of investigating. These are the men who will bring in new grains, new fruits, new vegetables, and new varieties of animals. These are the men who will devote their time and money to the improvement of old varieties and the creation of new ones. The country is sadly in need of more fancy farmers.

Application of Lime.

E. H. Libby, in a recent number of the *Scientific Farmer*, from an investigation of the nature and action of lime, draws the following conclusions in regard to its application:—

Soils rich in organic matter, even though they already contain it in considerable quantities, drained peat swamps, stiff clays, and coarse, heavy soils, and especially those destitute of it, are all benefited by an application of lime. Good results also follow its use on light soils after an incorporation of organic matter, as green manure, muck, or thick sod or green crops plowed under. Sterile soils are rapidly rendered more sterile by its application. Wet lands show least effect from treatment with lime. Hence such lands must either be drained or receive an extra amount. Clays should also have organic matter applied in connection with lime. It acts most effectually near the surface. The apparent effect is greater the second season than the first, so the most satisfactory results are obtained by sowing broadcast in the early fall, with at most only a light harrowing or brushing. It should be applied in an air-slaked, fine mechanical condition. The most profitable quantity to apply depends much on the land; wet soils, those well filled with organic matter, and clays, taking most—from ten to forty bushels being recommended, according to the circumstances. A careful study of this subject will explain why soils containing lime are benefited

by an addition; and also why, though an excess of lime in soils causes the production of coarse plants, yet its use often improves grasses and grains. It is said that turnips on some farms grown on land well limed, are better cattle food than otherwise, perhaps of the potash set free for their use. But a great deal still remains to be learned by this subject.

Fall Planting.

Fruit-bearing trees, shrubs, vines and brambles may be transplanted in the fall, and very often under more favorable conditions, and with better prospects of success, than if set out in the spring. There are some well known objections raised against fall planting, especially of fruit trees, such as the long exposure to the swaying of the winds before growth commences. But the injury or displacement of the roots from swaying at the tops amounts to little compared to the many striking advantages gained in planting at a season of the year when there is comparative leisure, when the ground is usually dry and in good condition, and when the necessary preparatory stirring of the soil can be made without any extra expense. These are points that tell in the growth and productiveness of fruit trees, either in the garden or the orchard. If planted in the fall the soil settles closely around the roots and fibres by the time the spring opens, and an earlier growth is started than with spring setting, which is often pushed back until the season is well advanced from causes over which the planter has no control. The spring may be backward enough to hinder planting of trees in a way in which they should be set out to insure success. All other things being equal, there is no doubt that spring would be the better time to plant trees. But this does not often happen to be the case, as every practical fruit grower well knows. It is therefore wise to transplant in the fall, if the trees and the ground are in readiness.

Improvement of Soil—A Good Wheat Yield.

Many farmers complain that wheat raising does not pay. It is true that many, owing to their methods of cultivation and preparation for seeding, find their wheat returns insufficient to pay expenses of seeding and harvesting. To show what intelligent farming can do, we subjoin the following facts furnished us by Mr. A. A. K. Sawyer, who has succeeded in getting the heaviest yield of wheat per acre that we have heard of in this country. Some six years ago Mr. Sawyer came into possession of "Scherer Farm," situated about two miles south-west of town. It is one among the oldest settled places in the county, and was considered pretty well "run down."

The tract in question, upon which the wheat was raised, was a clay side hill, a part sloping off into a sort of sandy bottom. When Mr. Sawyer took charge of the farm, this tract was considered worn out and almost worthless. It had been in cultivation since 1818.

Mr. Sawyer first seeded the tract in clover, about six years ago. It remained in clover three years, he, in the meantime, having cut one crop of the clover, the remaining time using it for hog pasture for about 150 head of hogs.

In August, 1873, about fifty-four acres of the tract were plowed, turning under the second crop of clover. The ground was then thoroughly pulverized by harrowing and rolling some five or six times. The wheat was drilled about the 10th of September; two varieties, the Bouton and Indiana Yellow, were sown. The yield was 27½ bushels per acre average. The clover re-seeded itself, though Mr. Sawyer thinks that in most cases it will not re-seed so as to be thick enough for immediate use for pasture, and if such is desired it is better to put on some seed. The land was again used for pasture till the latter part of July, 1875, when the second crop of clover was again plowed under. The ground was again thoroughly pulverized with harrow and roller, and about Sept. 10th 32 acres of the tract were sown with drills. The tract sown included about five acres of the sandy bottom above mentioned, which had never been in clover. The average yield was 32 bushels per acre. Owing to the wet weather in harvest, a large amount of wheat was lost on the ground. Could all have been saved the average yield would have been fully 35 bushels per acre. The four acres of bottom which had never been in clover only yielded about 15 bushels per acre, which reduces the average materially, however, which it really was on the clover land. Of the several varieties, Mr. Sawyer found that the Fultz led, yielding 40 bushels per acre.—*Prairie Farmer*.

The Supremacy of Price.

The English *Agricultural Gazette*, in an article under the above caption, says: All the influences affecting production, are receiving remarkable illustration, as we become aware, through the Statistical Department of the Board of Trade, of the extent which is year by year under wheat and other grain crops in this country. Even agriculture answers at length to the spur or rein of market price; it is true that here routine exerts its utmost sway; and it is not merely habit which controls but a rule of practice which is imperative—certain rotations, out of which no escape is possible, being, as it were, enacted. During the past two years no fewer than 635,342 acres have been taken out of the wheat growth of Great Britain—an alteration of farm management in so short a time as to amount almost to a revolution. More than one-sixth of the area in wheat in 1874 has been this year devoted to other crops. Barley has increased 245,000 acres, and oats nearly 200,000 acres. The effect of falling and rising of prices is to be seen in this, even more than the effect of season or of weather. And the process thus in operation appears likely to continue. Prices are now unprofitable for wheat culture; and therefore it will no doubt still diminish. It is value, not mere unproductiveness, that will bring about this end. The two are, indeed, no more related as they used to be; and our bad crops this year are being sold at as low a price as formerly was the penalty of plenty.

A Minnesota paper, referring to the light crop in that State, says:—

"Looking for the cause of the light crop, it is believed that some of the causes were within the control of the farmers and some were not. The small size of the berry is attributable in many instances to poor and imperfect seed. Gen. Delaplaine cited a notable instance. A farmer had two fields sown near Delano, one from his own seed and the other from seed obtained farther north, where it was entirely free from the late rains last harvest. The result is that the wheat from this seed is plump, full and perfect, while the other is small, shrunken and stunted. It is a well settled fact that a vigorous growth cannot be obtained from seed in which the germ is once started, however slightly, in the previous season. Similar instances to the one above might be mentioned in Winona county, in which the fields of grain from different seed show the same significant difference in the yield. This cause, let it be emphatically repeated, is within the control of farmers, and merits their careful consideration."

The bulk of all fertile soils consists of three earths, to wit: silica, alumina, and lime. Unmixed with clay, sand or other organic and inorganic substances, lime consists of the oxide of the metallic element calcium, and as it enters into the composition of all plants, it necessarily occupies a large place in Nature's laboratory. Chemistry tells us that it has an affinity for water and carbonic acid; when applied to the land it absorbs water, forming hydrate of lime; this hydrate then absorbs carbonic acid, so that lime, although applied to the land in the caustic state, really exists, shortly after its application, in the form of carbonate, along with a little sulphate and phosphate, as previously mentioned. Lime has for a long time been used as a fertilizer; when land previously unworked is brought into cultivation, or when worn-out pasture land is broken up, lime is generally applied. It effects chiefly the vegetable matter contained in the soil, promoting its decomposition, and thus rendering it available as plant food.

In reply to queries upon this subject, the *Scientific Farmer* advises, as the flesh of most fruits contains much potash, as well as lime, in combination with the fruity acids and the seeds of phosphoric acid, the application each year per acre of from 200 to 250 pounds of bone dust, 300 to 400 pounds of sulphate of potash—the latter guaranteed to contain 35 to 40 per cent. of sulphate of potash. This would give us 70 or 80 pounds of potash, 50 to 60 pounds of lime (from the bones), 10 to 20 pounds of nitrogen, and some magnesia in the potash and fertilizer. Such treatment has been found successful by fruit growers both in this country and Europe. We should apply broadcast in the fall to the surface, and leave it to the rains to incorporate with the soil, or at most only harrow the fertilizer in. A ton of dry, unleached wood ashes per acre would furnish nearly the same ingredients. The same amount of mineral phosphates as mentioned of bones, would furnish more phosphoric acid, but in a more insoluble condition.