

Agriculture.

Is the Application of Plaster Beneficial?

This has been the purport of enquiries from several correspondents. Some have applied it without any perceptible results. From the *Michigan Farmer* we take the following article on the subject:—

We believe in sowing plaster on whatever crops it is to be applied early, and especially on sandy, light loamy or opening lands. Plaster helps to develop the growth of the green, leafy and woody part of the plant. Of itself we do not think that it has any effect in developing the seed or grain directly. But the plant that is developed well physically, so to speak, is strong through its large leaf and stem surface, and capacity to absorb the light and heat of the sun, to nourish the seed, and to grow it more perfectly. The result is that plaster sown early stimulates the growth of the plant in its young stage of development when, like the calf, it seeks milk because it is close at hand, near to the young rootlets that are sent out, after the food that is stored up in the seed is exhausted. Plaster helps to gather, absorb and change what elements are furnished by the air, the water, and the mineral and earthy matters on the surface of the soil, and to transform them into substances that are soluble enough for the plant to feed upon. The chemical movement or changes caused by the particles of plaster when acting on the soil and under the influence of light, heat, air, water and contact with mineral matters, unquestionably develops a certain amount of heat that tends to stimulate the feeding and digestive powers of the young plant, and promotes its growth at an early day, somewhat as oil-cake fed to the calf in addition to the milk of its dam develops it into a large size, builds up its muscular system, increases its vital organs, and expands and strengthens the young animal, so that it retains all these advantages till it is ripe as a full grown well developed bullock. It is the aid thus given to the young plant which makes the application of plaster at an early day so valuable, and especially to some plants such as clover, which are leguminous, and need a trace of sulphur as a part of their composition!

Professor Kedzie tells us that plaster benefits crops for four reasons:—

1. Because of its composition, as it contains two substances that are necessary for the growth of crops, viz: sulphur and lime.

2d. Plaster has the power of combining with the volatile carbonate of ammonia, the pungent fumes of which pervade stables and other places, and which also is contained in many fertilizing substances, and on the surface soil itself, at the close of winter when the snow is melted and the ground is no longer frozen. This volatile substance would be dispersed if plaster was not applied, and hence the earlier it is distributed the more useful it is as a fertilizer, or rather in rendering useful the fertilizing matters which the soil and the decaying debris of the vegetation of last year has gathered and accumulated during the winter, but which has not had time to become assimilable by the young plants just hatched (as we may say) from the eggs or the seed.

3d. The solution of sulphate of lime or plaster caused by the rains, has a peculiar distinguishing influence on the compound silicates of the soil, setting free potash and magnesia for the use of the plant, so that it gets an increased supply of the very food it needs in the condition it is best adapted for promoting its growth. Hence says the professor, we furnish by the use of plaster, an increased supply of four very essential constituents of plant growth, sulphur, lime, potash and magnesia, and we may add also, it furnishes the plant with a certain amount of power to store up, or gather nitrogenous material for the more thorough organization and perfection of the seed. We think this is very fairly proven by the results of all the crude experiments, and of the actual practice of farmers, but also by the results of the experiments of Dr. Kedzie himself, who says after studying these very results:—

"Does plaster afford an increased supply of nitrogen to plants by reacting upon the vegetable mold of the soil, setting free its inert nitrogen in an active form? To test this matter I weighed out two equal quantities of the same swamp-muck, placed one in a given measure of a solution of

plaster, the other in the same quantity of pure water. These two specimens were placed side by side, stirred up occasionally, and after a week a quantity of water filtered from each, and the solutions carefully tested for ammonia. This experiment I have repeated, and with results nearly uniform. The plaster always gave decided indications of ammonia, while the pure water with muck either gave no indications of ammonia, or very feeble ones."

Elmira Farmers' Club.

Items from the late discussion as reported in the *Husbandman*:—

WHAT IS BEST FOR HEDGES?—Why not try our native Buckthorn? It is easy to propagate, will stand frost, water and drought, and even the browsing of animals, sheep included. It will keep its own tenaciously, but will not spread and occupy all the ground adjoining it. While it does not grow as rapidly as some other shrubs, it grows slowly and compactly, in a way to endure and become a dense, reliable, permanent hedge. In a warm climate, with constant moisture, perhaps it would not be best to wait for it to grow; but in our climate, subject as we are to alternations of extreme cold, wet and dry weather, I apprehend it is that or no permanent hedge.

A CHEAP WASH FOR BARNES AND FENCES.—W. A. Armstrong: We have used cement and skim milk. We think it is better than lime. It is a light drab color. It costs but little; fifty cents worth will paint a large barn. We put two quarts of cement into a six-quart pail, add two quarts of skimmed milk, mix well, and it is ready for use. Stir occasionally while applying it. The cement is the kind used in building cisterns.

SUMMER FALLOWING.—W. A. A.: Summer fallowing will kill sorrel. Ten acres of my farm was troubled with sorrel; a good coat of manure and a fallow destroyed it. A summer fallow will kill other weeds as well as sorrel. It has the result also of increasing the fertility of all heavy soils, or at least of putting them in such condition that the plant food they contain is more readily available.

BEET SUGAR.—In a letter to the Secretary, D. W. Payne describes the method pursued by him in manufacturing beet sugar, of which he has succeeded in producing a very good article: The beets used gave, by analysis made at Washington, ten and one-fourth per cent. of sugar, which is nearly equal to the average yield of the beets grown in France. I am unable to state from my experiments what amount of marketable sugar could have been obtained from these beets, but in Europe, from beets containing twelve per cent. sugar, eight per cent. is extracted. The apparatus used was so crude, and so many mistakes were made, that it was impossible, through waste, to arrive at correct conclusions as to quantities. Indeed, at one time, it seemed extremely doubtful whether any sugar would be obtained at all. To get sugar became at last the only aim, and everything else was neglected. One thing alone, and that is really of the most importance, was determined, viz., that beets can be grown in this valley, yielding a sufficient amount of saccharine matter to render the manufacture of sugar here not only practicable, but profitable. It is made in Europe from no better roots, with great profit, and it would seem that the necessary knowledge only is wanting to enable us to do it. During the past year important discoveries have been made, doing away with the complicated process generally in use, and making it an easy matter for the farmer to work up his crop of beets on the farm into marketable sugar, thereby enabling him to participate in the manufacturer's profits.

Larger Crops at Less Cost.

Our national prosperity depends more on the husbandman than on the statesman or financier; wealth must be produced before prosperity can be gained, and any means employed by which we can produce more and at less cost must be a national blessing. Our production is already large, but is not what it should be with the resources we possess. We have soil, climate and opportunity to supply millions of the old world with bread, and by thus giving the staff of life to the hungry of other nations, we secure the best good and greatest prosperity to our own people. The want of our country is greater knowledge and better practice in agriculture; a knowledge that will enable us to produce two bushels of grain or two pounds of meat at the present cost of one; and this, no intelligent farmer will doubt, is attainable. The average re-

turn of wheat in our country is below ten bushels per acre, and as the cost of growing one crop cannot but exceed \$10, it follows that the product costs fully market value, and in a large portion of our country it does not pay for labor expended.

Now, if we can increase the yield to twenty-five bushels per acre with but little added expense, we see how great would be the increased profit. But many will say such return cannot be realized. I believe it can under all ordinary circumstances. It is true that there is a difference in the adaptation of soils to crops, but on all natural wheat lands, such as prevail in Western New York, such yield is not extraordinary, and for a succession of years, under good cultivation. My own crop has for several years averaged fully up to that figure, except the crop of 1875, when the yield was but about seventeen bushels, owing to the extreme frost of winter. I will give the return for fifty acres in wheat, and the cost of the same last season on my farm. My practice is to follow a rotation of crops, wheat following barley. This land had grown a full crop of barley in the season of 1876, and the stubble turned under early in August, the furrow about eight inches deep. The cost of the crop of wheat harvested in 1877 was as follows:

Plowing 50 acres at \$2 per acre.....	\$100 00
Harrowing four times, 25c. per acre each...	50 00
Surface plowing twice with gang plows...	62 50
Rolling once, 25c. per acre.....	12 50
Seed, 1½ bush. at \$1.50 per bush., per acre	112 50
Drilling, 50c. per acre.....	25 00
150 lbs. superphosphate per acre, at \$30 a ton.....	112 50
Harvesting and drawing to barn.....	150 00
Threshing and marketing, \$35 per acre....	175 00
Picking loose stone, etc., 25c. per acre....	12 50

Total..... \$812 50

Contra.

Yield, 30 bush. per acre, 1,500 bush., sold at \$1.26 per bush.....	\$1,890 00
Value of straw per acre, \$2.....	100 00
Total.....	\$1,990 00

Use of land, \$23.91 per acre.....\$1,177 50

These figures are not given as being an extraordinary crop, for many have produced larger ones. The season was unusually favorable for grain, and we do not expect like crops every year, but we may approximate to it. Certainly this gives a good return, and shows that wheat growing may be made profitable under good cultivation; but had the yield been only an average of the State—some ten or twelve bushels per acre—it would not have paid cost of cultivation, and nothing for the use of the land. It is seldom that our seasons are so bad that wheat growing does not afford reasonable encouragement to the farmer when wisely conducted. Land must be kept clean and fertile to make grain growing a paying business in any of the older States, which the virgin soils of the West are producing so abundantly and at so little cost. That is, we must be better farmers in the older States to enable us to compete with the many bad farmers of the West. A new country is never well farmed, for when Nature produces abundantly for negligent culture, we need not expect thorough cultivation, but when necessity demands a better and more thorough system we need not expect success unless we comply.

Our Eastern farmers must farm better than the Western, or we cannot grow grain as a paying business; but with good cultivation and a judicious use of fertilizers, we can produce wheat, barley, oats, beans, etc., and put them on the Eastern market at as good per cent. profit as the Iowa, Kansas or Minnesota farmers will do in years to come. The important question for the Eastern farmer now is, to know how he can produce crops as cheaply as the Western farmer can, including transportation. They have some advantages over us that are hard to overcome; we have many advantages over them: we have a more uniform climate, less subject to extremes, and are less troubled with insects that destroy. Yet our main reliance must be on a better and a more economical system of husbandry. Our farmers must use more mind, more thought in their business that they may get advantages which the Western farmers already possess. Their lands are already fertile; ours must be made so by economizing every means of adding to our supply of manure, and by the use of such mineral elements as experience may prove beneficial to the soil and profitable to the farmer.—F. P. R., in *N. Y. Tribune*.