THE PROGRESSIVE FARMER

THE INDUSTRIAL AND EDUCATIONAL INTERESTS OF OUR PEOPLE PARAMOUNT TO ALL OTHER CONSIDERATIONS OF STATE POLICY.

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Agriculture.

ECONOMY IN FEEDING PLANTS.

Correspondence of The Progressive Farmer.

If the wastes of the average farm could be converted into cash each year, what a difference they would make in the farmer's bank account. The trouble is though, that not one in ten knows how these leaks occur, hence their stoppage is extremely difficult.

Economy in all departments on the farm is naturally the only remedy, but knowing when and how to practice the economy is not the most simple matter in the world. In nine cases out of ten when a farmer wishes to cut down expenses the first move he makes is to reduce his fertilizer bill. This is the proper step sometimes, but it will always be worth a farmer's while to make a little investigation before taking such a radical step. The farmer thinks that because he is spending two hundred dollars a year for fertilizers he can save that amount which he considers extra expense. If the expenditure of two hundred dollars does not pay interest on the investment, then by all means, cut it off. On the other hand though, if the two hundred dollars produce an increase in the crop equal to more than the outlay, then it would be poor economy or rather stupidity to try to lop off expenses in that direction. As a matter of fact this money would not represent an expense, but should be considered an investment with strong chances of proving profitable.

What really should be done though by every farmer is to try and find out if the money invested for fertilizer is bringing as much profit as it should. In other words, endeavor to learn if he is using the cheapest and most available forms of the three essential fertilizer ingredients, nitrogen, phosphoric acid and potash and applying them at the time and in the manner and proportion to produce the highest returns. These points are of great importance because it is a known fact that land may be almost destitute of plant food and still fail to produce paying crops if bad judgment is used in feeding the crops.

It is not only necessary to study the needs of the crops so far as their requirements of nitrogen, phosphoric acid, and potash are concerned, but it is equally important to study the individual action of each of the different forms of these ingredients on every crop and the nature of the sources from which they are derived. For example, tobacco needs nitrogen and plenty of it. Now, stable manure is valued principally for its nitrogen, but if put on tobacco, stable manure produces a heavy thick leaf of inferior flavor and poor burning quality. On the other hand nitrate of soda, which is a readily available, quick-acting form of nitrogen, makes a clear leaf of excellent aroma and flavor.

With Irish potatoes a somewhat similar experience is met with. Barnyard manures cannot be safely used as they supply nitrogen because being a perfect hiding and breeding place for microbes which produce "scab" in potatoes, they bring about this dreaded disease. Truckers, therefore, usually depend on a chemical form of nitrogen like nitrate of soda, which is pure and at the same time soluble and quick acting, two qualities of importance to those engaged in raising early vegetables for the market.

Similar illustrations can be made with potash and phosphoric acid. On oranges and tobacco for example, forms of potash like the muriate which contains chlorine have to be avoided, and sulphate of potash ed instead. With phosphoric acid care has to be taken that the material is readily soluble and available to the plant at a time when needed, otherwise the crop will suffer for lack of nourishment. Availabilipy has much to do with regulating the size of the crop. There are times, especially during dry weather, when if the crops can get a little digestible and stimulating food it will tide them over for the time being and prevent a failure. Nitrogen is usually called on for this purpose, but as there are a number of forms, discrimination has to be practiced. Ground hoof meal, leather scraps, etc., furnish nitrogen, but these are so slow acting that the plant would actually starve while waiting for them to rot first in the soil and then become available. The most soluble form of nitrogen is nitrate of soda, which acts almost immediately, hence can be applied at those periods when the crop is beginning to lag or show signs of lack of vigor. This gives it a fresh start and hastens it on to maturity. No farmer can expect to get the best returns from his soil, if it is in need of plant food without studying carefully properties and actions of each of the nourishing ingredients.

It has been truthfully said "Fertilizers are like improved weapons. They show their full value to those who best understand their use."

P. J. Christian.

The Hillsbero Observer reports that Col. Julian S. Carr has appointed Col. Robert L. Abernethy Manager of the famous Occoneechee Farm, and the contract states that Col. Abernethy shall manage the farm for five years, beginning the first of next January, with an option of retaining the management for 10 years from that date. Col. Abernethy, the Charlotte Observer says, will sell his farm and valuable live stock at River Bend, and will move to Occonneechee the latter part of December.

FERTILIZERS ON WHEAT.

Says Prof. Chas. E. Thorne, Director of the Ohio Experiment Station: In the tests of the Ohio Experiment Station, phosphoric acid, in the form of acid phosphate, has been decidedly the chief factor in producing increase of crop during the season just past. A similar result has been reached by many farmers, and the natural consequence is a general tendency to limit the use of fertilizers the coming season to plain acid phosphates; a tendency strengthened by the fact that the phosphates are not so completely under the control of the fertilizer trust as are the mixed fertilizers.

When, however, the experiments at the Ohio Station are studied as a whole, taking not simply the effect upon the present season's wheat crop, but the average results upon wheat, corn, oats and grass for the past seven years, it will be seen that it would be a decided mistake to base conclusions upon this one wheat crop alone.

In the experiments of the Central Stution at Wooster, where wheat has been growing in rotation with corn, oats, clover and timothy, the average increase per acre from plain acid phosphate, applied at the rate of 160 pounds per acre to wheat and eighty pounds per acre to corn and oats, or a total of 320 pounds during the five years of a rotation, has been 4.6 bushels of wheat, 3.6 bushels of corn, 7.2 bushels of oats and 500 pounds of hay, while from the same quantity of acid phosphate, carried partly in acid phosphate and partly in tankage. but reinforced by the nitrogen carried in the tankage and by a small addition of muriate of potash, the average increase has been 7.2 bushels of wheat, eight bushels of corn, eight bushels of oats and 1,600 pounds of hay.

The cost of the acid phosphate used on an acre in five years has been about $2.40, while that of the mixture of acid phosphate, tankage and muriate of patash, has been about $3.75; but the average increase from this mixture has been so much greater than that from acid phosphate alone as to give a total net profit, over the cost of the fertilizer, of about $12 per acre in five years for the mixed fertilizer against about $6 for the acid phosphate used alone.

In mixing this fertilizer "7 and 30" takage and 14 per cent. acid phosphate are used in equal quantities, adding about 100 pounds of muriate of potash to the ton. This gives a fertilizer analyzing over 3 per cent. ammonia, 10 to 12 per cent. phosphoric acid and 2½ per cent. potash, and may be made up at a cost of $18 to $20 per ton.

AGRICULTURAL COLLEGES.

Secretary of Agriculture Wilson Tells Some of the Reasons Why Agricultural Schools Are Necessary for the Country.

Secretary of Agriculture James Wilson has been making a tour of the agricultural colleges of the West. In a recent address before the students of the Kansas Agricultural College the Secretary said in part:

The United States occupies the first place as a producing, manufacturing, commercial people. The interests that attach to these great industries justify the education of those who engage in them. We are concerned on this occasion with the education of the producer of the soil and the supervision of our mechanics. Eight hundred million dollars' worth of our exports during the last fiscal year were from the soils of the country. Some of them represent hard work, unenlighted and unassisted by any of the discoveries of the investigators of the age. * * * They were produced by long days in the field, and their prices brought few of the luxuries of life to the toilers who made the crops. They are staple crops with us, but they are raw material for the people beyond the seas who buy them from us. We boast of our free schools, but they do little to teach the man who works in the field, or in the shop, with his coat off, regarding the soil he tills, the plants he cultivates, or the animal he rears, or the machine he makes.

We have universities to which we look as the finished product of advanced learning, but they have not existed and do not exist to lighten the burdens of those who contribute to the grand total of the nation's exports that keep the balance of trade in our favor and assure prosperity to our people generally. We pay more taxes for education than for all other purposes, but stop short of helping those of our people who pay most taxes and contribute most to all other classes—the giant millions with giant nerves and cool heads, the national reserve, from which the national defenders come. * * * Halt the nation is engaged in producing from the soil. Methods of cultivating have been improved so that the individual can produce more of this raw material for our own and foreign countries. Far-seeing, patriotic men have long recognized the necessity of educating the producing class. The physicist found that soil varied as the rocks from which they came varied; that the movement of moisture in soils was governed by laws; plants require certain elements, without which they could not grow. Many of these processes are imperfectly understood at the present time.

The gathering together of facts regarding the breeding of plants and animals led to the conclusion that nature operated through laws that are little understood. The ravages of insects suggested inquiry into their life and history. The microscope revealed a world of plants and animals working with man and against him. Progress in all these directions suggested that something mignt be done for the farmer.

These and kindred questions presented themselves so persistently that provision has been made for the education of the producer from the soil in the several States. These colleges are new in our system of edueation, and new in the world. The Federal legislators, seeing the struggle that must soon take place between producers here and abroad, owing to the cheapening transportation and more rapid communication, provided for the education of the mechanic and the farmer. The wisdom of that step has been fully justified. The industrial colleges and experiment stations of our country are already far in advance of those of other countries.

The new education for the farmer and mechanic teaches observation and trains toward experimentation. It is as comprehensive as the universe; it lays all sciences under tribute. The good work being done by college and experiment station is recognized by all classes of society. The Department of Agriculture is a clearing house for the colleges and stations of the several States with regard to their work. It is the aim of the Department to encourage work that bears directly upon the requirments of the farmers of the country; to help in the solution of problems that the farmer cannot grapple with for want of time, training and apparatus. Our agricultural colleges are endeavoring to induce young farmers to avail themselves of the facilities offered to study the sciences relating to their work. How is the youth on the farm to know what things are most important? How does decaying vegetation become plant food? Why does clover enrich land more than blue grass? Why should we harrow, and when should we use the roller? Where does the rain go that falls upon the ground? Why feed a milch cow different from a fattening steer? Why have some soils less plant food than others? Why does cotton seed kill hogs? Why do Americans send to Germany for potash? Why do smokers taste cotton seed fertilizers in a cigar? These things present themselves to a farm boy, and without a correct answer he cannot make a successful farmer. They were samples of questions which were presented to tens of thousands of farmers—some of them every day. Four years of study in our agricultural colleges will make these thousands of questions plain. Before any one can teach along these lines he must be a master. Education begins at the top, where specialists are aggregated. Common schools should prepare the students for the agricultural colleges.

It was difficult to get the farmer to comprehend the value of this special education to himself and his children. It is difficult now. Many of our colleges have but few students in strictly agricultural courses, where scientific study takes the place of dead languages and dry philosophy. Progress is being made, however. We shall soon have highly educated farmers fit to represent their fellows in deliberative assemblies; the American horizon is enlarging; our responsibilities are increasing. There is no work to do as a people that we cannot decline. No man lives for himself alone, we know; no nation lives for itself, we are learning.

Not only should the agricultural college see to the scientific education of the farm boy, but the girl should receive scientific instructions regarding home duties. She should understand the laws of nutrition with regard to feeding human beings. She should know about bacteria and their work on meats and dairy products. She should learn to balance a ration for a child, a growing boy, a working a man, or an octogenarian. All these need not exclude music, art and literature. There is every reason why the colleges of agriculture should be encouraged. We live in the age of great activity, and in the years of great prosperity. Educated men have charge of commerce and manufactures; our country is famous for both, but both depend upon agriculture.

COTTON SEED IN DEMAND.

Charlotte is at present one of the most active cotton seed markets in the South. In addition to the agency of the two local oil mills, there are buyers on this market from Charleston and Spartanburg, S. C., and from the neighboring town of Concord. All of these buyers have runners on the streets, and they go for a wagon load of seed like the cotton cutters would go for a bale of cotton in times past.

The rivalry between these buyers has become quite lively in the past few days, and as a result the market price for cotton seed yesterday reached 33 cents per bushel. This is the highest price ever paid for cotton seed and the indications at the close of the market yesterday were that 35 cents would be paid today.

The situation is one of intense satisfaction to the farmers. Ten-cent cotton and 33-cent cotton seed is a combination that has heretofore been unknown and one that is calculated to make them happy.—Charlotte Observer.

Horticulture.

STRAWBERRY CULTURE—LATE FALL AND WINTER PLANTING.

Correspondence of The Progressive Farmer.

I set my first strawberry plant in 1874, following then the usual plan of spring setting. I well remember having had my ground all ready in February and was anxious to begin my new venture. But the man I had engaged plants from advised me to wait later. Again in March he gave me the same advice, adding that the plants had not even begun to grow yet. About April 15th I obtained the plants, set them out and, fortunately, got a perfect stand.

Still it would have been wise to have done the planting much earlier. A very small fraction of the twenty-six years experience that intervene between now and then, was sufficient to show me that the safest and best time to transplant the strawberry is while it is in a dormant state. I do not mean that it will not live and thrive planted at other times, but that it is easier and surer to live and thrive in proportion as you approach the period of dormancy.

Thus we transplant successfully between October 1st and April 15th. But the great bulk of our planting—100 to 200 acres—we prefer to do in late fall and winter. The soil is then always moist, the sun weak and all conditions favorable to this plant which loves coldness and moisture and hates heat and dryness.

This enables us to avoid hurry, to prepare the soil well and to do the planting in a thorough manner. If bad weather interferes, no harm results. We simply let it pass and go to work again.

We usually begin late in October and continue through late fall and winter till all the big job of setting a million or more plants is over. We have had the temperature to fall nearly to zero within a few days after fields of plants were set. No harm whatever resulted. But on stiff, wet land we always step on the plant after it is set, if planted in winter. This compresses the soil around the plant and prevents its heaving so bad in heavy freezes. On light or dryish soils this is not necessary.

With this simple precaution plants can be safely set anywhere south of the latitude of Washington, D. C., at any day in winter when the ground is not actually frozen. This same can be done at the North, provided a little protection is given. A forkful of litter or stable manure applied over the and around the plant affords the protection needed. The manure will benefit plants whether set North or South. But it should never be applied till freezing weather comes, and part of it should be removed as plant growth begins in spring. Thus applied manure benefits in two ways—it lessens the freezing and heaving of the soil and also nourishes the plant.

If growers were more alive to the above facts they would escape much loss and worry—which is also loss—that they now suffer. That is if they remember that in cool and even cold weather the strawberry plant is as hard to kill as a mule or cat, but that during the warm months, as easy as at other times it is hard.

O. W. Blacknall.

Vance Co., N. C.

SOME APPLE NOTES.

Correspondence of The Progressive Farmer.

From most parts of the country come the reports that the apple crop on the whole will be larger this season than ever before, and the danger now confronting farmers is the inevitable consequence of a big crop. The tendency will be for low prices. Some farmers will rush their apples to market as soon as possible and flood the merchants, who must work them off at a discount. In this way early low prices are established, and it may be that they will not recover until late in winter. There is no reason for doing such a foolish thing, for great as the supply is the market is greater. While the crop promises to be the greatest on record, the consumptive demand also promises to be beyond all precedent. It should be remembered that we have opened up new markets abroad for our apples, and the countries south of us are beginning to eat our famous winter fruit. Then factories annually consume millions of pounds of apples for jellies, canning and preserves. All these combined will this year take care of the surplus apples if they are marketed with wisdom.

There is first the necessity of studying the foreign demand. Europe will take our apples freely at prices that will pay well, but they must be selected with care and carefully packed. The farmer who will select the best keeping and best selling apples, dry them thoroughly, pack them for long shipment, and send them to responsible exporters will make money. Nine-tenths of the apples received at shipping points have to be re-packed, and defective fruit taken out. The farmer pays for this extra labor in his diminished returns. There is no reason why the apples should not be packed properly at home so that they could go straight to the steamer, and when unloaded in London they would be in good marketable condition. A fact worth remembering is that Canadian growers do this work better than American. This is not due to patriotism, but simply to superior handling of the fruit. Canadian apples are no better than ours nor as good as many of our choice varieties, but if foreigners only get our second rate fruit we cannot blame them for thinking otherwise.

Jas. E. Lewis.

Commission Merchant.

PROTECTING THE YOUNG FRUIT TREES

Correspondence of The Progressive Farmer.

One of the most fruitful sources of injury to the young fruit trees in fall and winter is from mice, which seem to swarm in the orchard and seek shelter around the trees, where they nibble the bark when their other food is scarce. Rabbits are another source of nuisance, and I fear if the present Belgian rabbit craze continues we will in time have an epidemic of rabbits again which will do great injury to the fruit trees. A few of these prolific breeders escaping to the woods might in a few years start a new generation of half wild creatures on a crusade that would take years for us to counteract. It is to be hoped that the craze will keep within decent proportions until we know something more of the bad side of the rabbits. At present we know only of the good side, and it hardly seems possible that there is no reverse side to the picture. As one who has suffered much from the depredations of the wild rabbits in the past, I should like to enter this mild protest against the encouragement of what may yet prove a disaster to our fruit interests.

In fighting against the mice and rabbits I have tried all of the commonly recommended methods, such as smearing the bark with blood, fat, tar and other substances supposed to be obnoxious to the rodents. If very hungry the little pests will not stay away from the trees if only blood or tar are the protections used. I have also tried wrapping newspapers around the base of the trunks, but I cannot exactly see the good that this does. My method is to mound up the earth around the trunks in the fall of the year and then put a shield of wire netting a few inches from the tree. This wire netting runs up a couple of feet from the ground, and if the mesh is fine enough neither mice nor rabbits will disturb the bark. The mound of earth I believe helps the trees also from the winter cold. It acts in many respects as a mulch and protects the top roots from being injured by severe freezing and thawing. This alone should recommend it to the attention of all. Young trees are often blown about so by the winter winds, especially during heavy rain storms, that they are loosened at the roots, and by banking up the dirt around them we prevent this a good deal. After a storm then it is an easy matter to press the soil close around the trunk again, and when it freezes in this position it makes the tree as firm and rigid as if held there by a double anchor.

S. W. Chambers,