THE PROGRESSIVE FARMER

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

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Agricul re.

THE CULTIVATION OF COTTON.

Mr. Merriam Tells How His Big Crops are Made.

Correspondence of The Progressive Farmer.

The principal function of cultivation is to put the land in such condition and keep it in such condition as will make the plant food it contains as fully available as possible. This, of course, includes deepening the soil so it will hold more water, for plant food is not available for the use of crops except as it becomes soluble in water, and also the keeping of a dust mulch, or thin layer of fine, freshly-broken soil on the surface to prevent the escape of this water after it has been secured.

Now, cotton, while it does most of its feeding in the first four inches of surface soil, has, as you all know, a large tap root which plunges into the sub-soil to pump up water and plant food from below, and the people who make the largest yields of cotton are those who take into consideration the structure of the plant and fit their land accordingly.

I have a friend in South Georgia who has made three bales of cotton to the acre. It is true he applied guano at the rate of 1,000 pounds per acre, but it is also true that he broke his land 18 inches deep.

I have often been asked how much fertilizer can be applied profitably to the cotton crop, and my reply has been that no rule can be laid down; but that the profit would depend in a great measure on the condition of the land and its ability to hold water sufficient to make the guano soluble; and it would also depend largely on the guano itself, whether it was properly balanced, and contained a sufficient quantity of potash, together with the other elements of plant food to supply the needs of the soil and crop to which it was applied. Where very large quantities of fertilizers are used, especial preparation must be resorted to, as in the case of my South Georgia friend, who not only broke his land deeply, but pulverized it thoroughly, applying 800 pounds of his fertilizer broadcast, and 200 pounds in the drill. The general experience is, however, that under ordinary conditions 400 pounds or 500 pounds of a high grade fertilizer to the acre will give the most profitable results.

There is an old saying, that thorough preparation is half of the cultivation. We have proved this to be eminently true, and each succeeding year finds us spending more time and labor in putting our land in the best possible condition before planting.

The land we shall plant in cotton next spring was subsoiled a year ago, the ground being broken at that time about 15 inches deep. It has been in cow peas the past summer, and is now in fine condition for cotton. We shall break this land deeply in the spring, with a two-horse plow, and work it down fine with cutaway, smoothing harrow and roller. We will then lay off our rows about three and a half feet apart, after which the guano will be applied on top of the ground in between these rows, and a fine tooth cultivator run over it to work it in. The planter will follow this, putting in the seed on the general level of the land, thus still further stirring in the fertilizer. The rows that were laid off simply serve as a guide.

The general practice of putting in fertilizer with the seed, or applying it through a guano horn in a little streak and all in one place is, in my opinion, a poor practice. Probably there is so little fertilizer used to the acre by the majority of farmers, that this is the only means by which enough can be put in one place to have any marked effect. It is all put immediately under or around the seed and serves to give the plants a start, and that is about all. When farmers learn to use enough fertilizer to make their crop, and not simply to start it off, we shall hear less about guano helping to impoverish the soil upon which it is used.

The cultivation of our cotton will commence almost as soon as the seed is put in the ground. If it rains and a crust forms over the seed, the seed, the land will be harrowed as soon as it is dry enough for the stock to walk over it. This breaking of the crust insures a good stand and kills thousands of weed seed that would otherwise interfere with cleaning the crop. As soon as the plants are well up, we run through, once to the row, with a fine tooth cultivator, leaving the plants on a narrow ridge, when the work of chopping immediately begins. Great care is taken to have the rows of uniform width, as we do the majority of our cultivation with these fine-tooth cultivators, and when the rows are even, one passage is sufficient to break the crust nicely from row to row. By this method we are enabled to get over our crop a number of times with the same amount of work the ordinary farmer with scooter and scrape employs in plowing his once. This has the double advantage of keeping a dust mulch constantly on the surface and leaving the land perfectly level, in which condition it retains moisture better, and is much less liable to wash. The cultivation is so shallow that the roots of the plants are not disturbed, and during a dry time we go right ahead when other farmers are afraid to plow for fear of injuring the plants by breaking the roots at such a time.

If we have a long-continued wet spell and the grass gets a start, we cultivate with the Planet Jr. cultivator, using the ten-inch sweep to kill the grass, and then go back to our fine-tooth cultivator with board or block behind, to rub everything down smooth.

When we lay by, in August, we sow to crimson clover; or in September, if the cotton is not too large, in oats. Or later still, in October and November, in wheat. All of which are worked in between the rows with the cultivator without re-plowing. At the present writing—Dec. 17th—our this year's cotton patch is a mass of green, having been planted to oats in September. When the ground freezes the cotton stalks will be knocked down and hauled out onto adjoining land, where they will be turned under in spring, as we object to the burning of anything that does not harbor insects, and can be made to create humus in the soil.

The cultivation of cotton all the summer sets free a great deal of nitrogen in the soil, which grain or clover can utilize, and thus prevent its leaching away during the heavy rains of winter. It is, however, advisable to fertilize these crops with a few hundred pounds per acre of a chemical fertilizer consisting of potash and phosphoric acid.

F. J. MERRIAM.

Fulton Co., Ga.

AGRICULTURAL PROGRESS IN NORTH CAROLINA.

Increased Wheat Acreage and Great Activity in Apple Culture in the West.

Col. F. A. Olds had an interesting interview with Secretary T. K. Bruner, of the North Carolina Board of Agriculture last week. Among other things, Mr. Bruner said:

"Great activity has been brought about by what I term the rediscovery of the apple region in Yancey county. A great many orchards are now being set in that county and in Watauga, Wilkes, Madison, Haywood, etc. That region is the habitat of the apple. The seedlings developed there offer the world its finest apples. The plan is to have an orchard of one kind of fruit. This is what we term a commercial orchard. You have spoken of the need of good methods of packing and also of better means of transport. We will teach how to pack. The great need of that mountain country is not railroads but turnpikes and macadamized roads. There is plenty of stone at hand.

"The most notable thing is the great fall seeding of wheat from Central North Carolina to the mountains that may quite properly be termed a piedmont feature. The next thing is the impetus given cattle raising in the mountain country. More cattle and improved breeds are demanded. Shorthorn, Durham and Polled Angus are coming in vogue.

"The large shipments of lettuce from the east continues. It began December 15 and will continue until all the winter crop is exhausted. I consider the winter crop more profitable than the spring crop."

HARRY FARMER'S TALKS.

IX.

Correspondence of The Progressive Farmer.

Now the holidays are past, let us begin anew our farm work. Suppose we get an account book and keep an account of the work on each field or plot of land on the farm and see which crop pays best for the work and fertilizer used. A farmer who rented land a few years ago said to the writer: "My crop this year did not pay me. I ought to have made $11 a day, but only got about $9." Of course this included his family of six or seven. I thought over these words and began to calculate the real time devoted to the work of the farm crops and found the man was right. If you spend six days in planting, cultivating and harvesting a crop of corn on an acre of land that will yield 25 bushels of corn, 500 pounds of fodder, 8 bushels of pease, all worth $18, you get $3 per day for your work, fertilizer, land, etc. This is not counting the cost of harvesting the peas, and for that reason a low value is given the crop. Many farmers can tell you the cost of a cotton crop, but not of any other crops. I simply used the figures to show you the necessity of keeping accounts so that you can tell when you are making or losing on your farm operations.

Read the article written by Prof. Irby on the oat crop in The Progressive Farmer of Dec. 4th. The writer has made money just that way. Make up your mind to give one acre a trial and be convinced. Or a better plan is, to see if the supply of forage is not short in your neighborhood, and sow about five acres of oats and supply that neighbor of yours who has gone mad over the high price of cotton last year. Somebody must supply him with hay and you can do it and make more money than he will.

As usual, the price of poultry was very low just before Christmas and everybody wanted to sell. The thoughtful farmer will not be caught in that trap again. Eggs sold well and are still bringing good prices. Give your hens a little red pepper in some meal on cold mornings and it will help egg production greatly.

Do not depend upon government seeds for your garden. Harry Farmer has been disappointed more than once by sowing such seed. Looking over the columns of The Progressive Farmer you can find a number of reliable seedmen who will be glad to send you their catalogues, from which you can make selections. Harry Farmer likes vegetables and nearly always has a supply the year round. HARRY FARMER.

Columbus Co., N. C.

FERTILIZERS FOR TOBACCO.

Correspondence of The Progressive Farmer.

The following letter has just reached me:

Mr. W. F. Massey, Raleigh, N. C.:

DEAR SIR—I have read a good deal from you on fertilizers, and in 1899 you sent me a good formula to make a tobacco fertilizer. I would like now to have your opinion on this subject: I have a good deal of coarse stable manure, oak leaves and cut corn stalks I am thinking of cleaning out and composting with kainit and rich dirt. Would you so advise and in what quantity should I use the kainit? Please reply by letter or in The Progressive Farmer.

Respectfully,

T. Y. ALLEN.

Mecklenburg Co., Va.

While the addition of the kainit to the stable manure will improve it as a general manure, it will not make it a good tobacco manure. If you want to use it on tobacco never use kainit nor muriate of potash, but any high grade sulphate. And be sure that it is a really high grade sulphate and free from chlorides, for there is a good deal of so-called high grade sulphate on the market that has a large percentage of chlorides in it, and hence is not good for tobacco. The potash in the kainit is in the form of sulphate, but it is associated with such a large percentage of chloride of sodium (common salt) that it acts as a chloride. If for other crops, the addition of kainit to the manure will be a good thing as it will tend to prevent the loss of ammonia from the manure.

As a rule I do not think the lands of Mecklenburg county, Va., lack potash greatly, and while kainit is a good thing in stable manure to prevent the loss of ammonia, it is the most costly form in which you can buy potash. Kainit has but about 12 per cent. of actual potash, the rest being mainly common salt, which is of no value as a manure, and at your distance from the ports of entry the freighting of 88 per cent. of useless matter is a serious thing when you can get muriate or sulphate which has 50 or more per cent. of actual potash. Of course you will have to pay more per ton for the concentrated article, but you do not have to buy more than one fourth as much to get the same amount of potash, and the potash is all that is valuable in either. But I would repeat, never use muriate of potash or kainit on tobacco, as they will injure the quality of the leaf.

The formula I gave you for tobacco cannot be improved upon, and for the sake of others I will give it here again: acid phosphate 900 pounds, dried blood 600 pounds, nitrate of soda 100 pounds and high grade sulphate of potash, free from chlorides, 400 pounds, to make a ton. Use 700 pounds per acre on tobacco. This formula has made the tobacco that brought the highest price in Granville county in this State.

W. F. MASSEY.

Wake Co., N. C.

SUMATRA TOBACCO IN CONNECTICUT.

The Agricultural Department Successfully Grows a Crop Under a Cheese Cloth Cover.

Correspondence of The Progressive Farmer.

Milton Whitney, Chief of the Division of Soils, reports a successful termination of experiments conducted in co-operation with the Connecticut Experiment Station in the production of Sumatra tobacco near Hartford. One-third of an acre was planted under a cheese cloth shade nine feet high, and cultivated and fermented under the direction of M. L. Floyd, tobacco expert of the Department. The yield of cured tobacco was 700 pounds, making an estimated yield for one acre of 2,100 pounds. This lost about 10 per cent. in the fermentation. The crop has just been sold by L. B. Haas & Co., of Hartford, to Michelson & Hibbard, of Kansas City, for $473.70, making an estimated value for one acre of $1,421. The cost of production, including the whole cost of the shade—the frame for which will last five years—will not exceed $500 per acre, leaving a net profit of over $900 per acre. This was an average price of 71 cents per pound.

The crop grown in the same field, without the shade, and fermented in the same way yielded about the same quantity and brought 27 cents per pound or at the rate of $507.87 per acre. Deducting the cost of cultivation, fertilization and treating, this would leave a profit of about $300 per acre. The ordinary crop of the Connecticut Valley brings farmers 20 cents per pound of $260 per acre and deducting the cost of expenses leaves a profit of about $260 per acre. The Sumatra tobacco grown under shade has been submitted to New York and Philadelphia business men and has been pronounced entirely satisfactory and fully equal to imported Sumatra.

These facts, taken in connection with the award at the Paris Exposition of 2 points for the Florida-grown Sumatra over that given for the imported Sumatra, show that we can grow Sumatra tobacco of the highest quality in this country and save to our farmers between $6,000,000 and $7,000,000, which is now sent abroad annually for the foreign-grown leaf. This work is the result of the soil survey made in the Connecticut Valley two years ago, and similar results can be expected only from very limited areas where the soils and climatic conditions are similar to those in the Connecticut Valley and in Florida. B.

Washington, D. C.

INJURIOUS INSECTS—SOME FUNDAMENTAL PRINCIPLES REGARDING THEM.

Entomologist Sherman Talks of the Rapidly Increasing Number of Crop Pests.

Correspondence of The Progressive Farmer.

Farmers, as well as truckers and fruit growers, are obliged to keep up a constant warfare with injurious insects if they are to secure a proper remuneration for their labors. Thus, the apple, our most common and highly prized fruit, is subject to serious attack in this State, from not less than eight standard pests, as follows: Scurfy scale, San Jose scale, woolly aphis, green apple aphis, flat head borer, round head borer, codling moth, and tent caterpillar. Corn, one of the staple crops, is liable to serious injury from a no less number, to-wit: Army worm, corn worm, corn root worm, cut worms, wire worms, white grubs, bill bugs and chinch bugs. The above mentioned insects do not by any means include all those which attack these plants, but they are only those that occur to the mind of the writer at the present time, without even referring to any articles on the subject.

If our older farmers will look backward for fifty years, or even less, they will at once realize that in their boyhood, the number of pests was not so great, nor were their attacks so serious, as at present; and to find out the reasons for these differences, as well as to discover remedies for the pests, is the work of the entomologist. And it is because of late years our insect pests have come so much more prominently into notice than formerly, that States are now laying more stress upon entomological work than ever before.

Now the entomologist, in spite of any suppositions to the contrary, has no remedy to offer for injurious insects that does not imply labor in its application, and he has little patience with the man who writes for information, declines to follow advice, and then complains of his losses. Injurious insects will be from this time henceforward a permanent factor in farming and horticulture, and the men engaged in these pursuits need to meet the problem, not try to hide from it.

Probably ninety-five per cent. of the farmers of North Carolina have one or more apple trees, upon which they depend to supply them with wholesome fruit. Probably one-third of the crop which these trees would produce is destroyed each year by the codling moth alone, and of these not less than seventy-five per cent. might be saved by the proper application of the proper insecticide at the proper time Nevertheless, the farmer allows his tree to shift for itself, and takes the fruit as it comes, good, bad, and indifferent. The writer does not propose to discuss the matter of insecticides at this time, but simply to point out the places where the farmer needs to mend his methods if he is to combat these enemies rightly.

For the tobacco grower, one of the worst enemies is the flea beetle, which causes small holes in the leaves, and the proper application of insecticides in the fall of the year, *after the crop is harvested*, will lessen their numbers materially for the next season. Nevertheless, not one tobacco grower in twenty takes the least precaution against them.

The same story might be repeated with regard to a dozen of the standard pests, but the writer forbears to carry the illustration further.

Let us now see if the numbers of serious insect pests is greater than formerly.

The San Jose scale was unknown in the East until about twenty-five years ago, and made ite appearance in North Carolina about 1888, so that here is a pest that is really new.

The Hessian fly is a native of Europe, and appeared in this country during the latter part of the Revolutionary War, and has been spreading slowly over the country ever since. Here, then, is another pest which has not been with us always.

The white cabbage butterfly is a native of Europe, and first made its appearance in America about 1868, and is now a standard pest. We see, then, that this pest is comparatively new.

The potato beetle is a native of the Rocky Mountain region, where it habitually fed on a certain wild plant closely allied to the potato, but as cultivation spread to the Westward, the lands were cleared, its native food was destroyed, and, finding a suitable substitute in the cultivated potato, it has since lived on that, and spread to all places where it is grown, to the dismay of the grower.

We have here, then, two primary causes of the great prominence that insects now assume in our farm practice, (1.) Commercial development, as illustrated in the case of the first three insects discussed, and (2.) Destruction of the native food plants of the insects, as illustrated in the case of the potato beetle.

But while the insects have been extending their range, and have been ravaging our crops, the farmer has not been energetic in his warfare, else they would not now have the hold upon him that they have. But, granting that they have been neglectful in this, the question remains as to the course that he should now pursue. and the answer comes, that he must first be brought to recognize that *the first principle in an intelligent warfare against insects lies in the intelligent use of the spray pump*. For such pests as the Hessian fly, which affect grasses, etc., spraying is not practicable, but for the vast majority of our garden insects it is the best means of combat, and the writer looks for the time when a spray pump shall be as much a part of the outfit of the garden, as the drill is for the wheat field.

The writer expects to insist on this first fundamental idea until the farmers adopt it, for he believes it to be the first true step, in the solution of our insect problems. If the reader has been troubled every year with insect enemies, let him no longer bemoan his loss, but let him be assured that regret will not relieve his distress, but that it can only be relieved by his making an energetic effort himself. The writer is glad to correspond with those concerned in these matters.

FRANKLIN SHERMAN, JR.

Entomologist Dep't of Agriculture, Raleigh, N. C.

AGRICULTURAL GLEANINGS.

The rural mail delivery system grows rapidly in popularity. A carrier tells me that during August, the first month of the service, he handled 1,373 pieces of mail, while in December he has handled over 5,000, says Col. Olds.

The white farmer, therefore, who thinks of his own future, and of the future of his children, should not shut his eyes to the plain and inevitable drift of things. He should put his house and his farm in order. Grain growing and stock raising (they go inevitably together) is the white farmer's avocation. Cotton is his natural surplus crop.—Macon Telegraph.

On 20 acres of land, in one solid body, J. F. Ratledge made 1100 bushels of corn. Mr. Ratledge bought this land one year ago and paid $25 per acre, so this year's crop more than pays for the 20 acres bought. In the tract there was 80 acres and should the whole amount have been in corn it would come near paying for itself and the cost of production. Considering that all crops were short this year there would seem to be a little money in farming yet.—Davie Times.

The Raleigh Post recently referring to the tobacco sections of the State left Wilkes out entirely. Bro. Furman should not so easily forget that a portion of Wilkes is one of the finest tobacco sections on the globe, and that tobacco raised near Boomer, Wilkes county, took the premium at the International Fair at Vienna several years ago. There is no squabble about this fact, and the records in the Agriculture Department no doubt shows these fac —Wilkesboro Chronicle.