

THE PROGRESSIVE FARMER.

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

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PAPERS.

Progressive Farmer, State Organ, Raleigh, N. C.
Business, Raleigh, N. C.
Accrury, Hickory, N. C.
Banner, Wintakers, N. C.
The Home, Beaver Dam, N. C.
The Populist, Lumberton, N. C.
The People's Paper, Charlotte, N. C.
The Plow Boy, Concord, N. C.
The Vigilante, Wadesboro, N. C.
The Watchman, Salisbury, N. C.

Each of the above-named papers are requested to keep the list standing on the first page and add others, provided they are duly elected. Any paper failing to advocate the Ocala platform will be dropped from the list promptly. Our people can now see what papers are published in their interest.

AGRICULTURE.

Prospects for a fine hay crop are good.

Mississippi and Florida have a smaller cotton acreage than last year.

Nothing can take the place of frequent tillage. Manure and rains will do much more profitable, if the ground is frequently stirred.

Another industry much neglected by North Carolina farmers is the fruit industry. There is much money in it for some enterprising men.

In no other business is there so little uncertainty because of probable fluctuations in prices as the dairy business. Farmers, keep an account of the money you make on your butter supply. It may surprise you.

See that the roots are not torn in cultivating your crops. They are as essential to the life of a plant as rains and arteries to our existence and any diminution in the number are as damaging to the plant as a proportionate number of arteries would be to us.

Take that small boy by the ear if you find him stealing birds' nests. Better still, teach him what good friends of yours the birds are. Do you know which of the birds are your friends, by the way? Some of them have a bad name among the farmers who hardly serve it. Says the exchange.

Don't think that you can make a successful farmer without using your brain. Farming is getting in line with other occupations in demanding uninterrupted attention, system and order. The more study and brain-work you put on your farm, the greater will be the profit from it.

Farmers would be surprised to know how much they are losing by allowing weeds to go to seed. If you have a field covered with them, better use a mower at once. Even if you have a modern mower, it would be better to use a scythe or even a hoe rather than allow the weeds to go to seed.

WEEKLY DIGEST

Of Experiment Station Bulletins.

No. 76.

APPLE LEAF FOLDER AND LEAF CRUMPLER

Bulletin 36 of Missouri Station, treats of two insects which have within recent years become quite destructive to orchards and nurseries in that State.

Complaints of the ravages of the Lesser Apple Leaf Folder became so general that the entomologist of the station was sent to a badly infested nursery near Kansas City to study the insect and experiment with remedies.

The one year old apple trees standing in the nursery rows were found so badly infested that they looked as if fire had swept over them. Very few leaves were exempt from the attack. In many cases a single cluster of unfolding leaves contained three or four larvae.

These little worms attack the bud just as it has begun to unfold its young leaves. One, two, three, or all the leaves from a bud are rolled together and fastened by a silken thread or web wound around them, and inside of this the worm feeds, grows, pupates and comes forth a moth to lay eggs for another brood. The moths of the first two broods are of an orange color while those of the third and last brood of the season are ash gray.

The larvae of the first brood began to appear May 8th, and these developed into moths by May 14th. These began to lay eggs at once and the second brood hatched out May 23d and were fully developed moths by June 28th. The eggs deposited by this second brood began to hatch July 10th and were fully developed gray moths by August 20th.

The season was early and the several broods are usually about a month later than above noted, in Missouri, and still later farther north and earlier south of that State.

As soon as the young worms have folded the young leaves about them, they begin to feed upon the interior of their cages and this causes the leaves to turn brown and gives the appearance of having been scorched by fire. Usually a single leaf is sufficient to feed a worm till it pupates and is transformed into the moth stage.

The Leaf Crumpler is similar in habit to the Folder, but attacks plum, cherry, peach and quince trees as well as apples and wild crabs, and they appear somewhat later in the season and are single brooded. The moth appears in June, and the eggs hatch in about a week.

The moth is gray and nearly an inch from tip to tip of wing; the larvae is a brown worm with a few scattered hairs. It draws the edges of a leaf together and fastens them with a fine web and lines this case with a silken web. The case is small at one end and large at the other, like a horn, and the worm hides in this in day time and ventures out to feed at night, on the tender leaves and buds. At the approach of cold weather they fasten their case to a limb and hang in the pupa stage during winter.

The old remedies against these insects, were to gather the cases of the Crumpler, during winter, and burn them and destroy the first brood of the Folder by squeezing their cases between the thumb and finger and thus mash the worms within.

But the experiments of the Missouri Station at the nursery above mentioned showed that spraying with poisoned Bordeaux mixture is effective against both. Spray thoroughly just as the buds are ready to burst open, and again after the blossoms fall, and you will rid your trees of these insects and of the codling moth and such fungus diseases as apple scab, etc.

For spraying nursery stock, four spraying nozzles were arranged behind a wagon so as to spray four rows at once. Drive slowly, and turn at the end of rows and go back over the same rows.

APPLE GROWING IN NEW JERSEY.

This is the subject of bulletin 119, of New Jersey Station. A statistical survey was made of the State in 1895, which showed that one-tenth of the farmers of that State are engaged in fruit or berry culture on a commercial scale, with an average of over 12 acres each, and 79 out of every 100 growers reported the business profitable.

The above statistics were procured by a farm-to-farm canvass, and this bulletin was issued to give the most commendable methods in growing and marketing practiced by the most successful of these practical farmers.

The favorite soil is an open, porous soil underlain by clay not too close and tight, so that the roots and air may penetrate deeply. Some gravel and sand in the subsoil is considered advantageous.

The soil should contain an abundance of potash, phosphoric acid, and lime, and should be well supplied with decayed vegetable matter by applying barn manure or turning under an occasional crop of field peas or clover.

Of every 100 orchards 80 were on high land and 20 on valley land; and 58 of every 100 sloped northwest, 20 north and 22 south.

Choice of varieties is largely governed by the demands of the markets, though soil and climate are also factors. The 717 growers report 114 varieties, but scarcely any one grower had more than 10 of these 114 varieties.

Those most largely grown are as follows, in the order named: Baldwin, Smith's Cider, Hagloe, Ben Davis, Orange Pippin, Main's Blush, Red Astrachan, Fallo water and Rhode Island Greening. Golden Russet, York Imperial, and Johnathan are also becoming popular, as evidenced by the later plantings.

Of every 100 growers, 77 buy trees from local nurseries, 20 from New York State, and 3 from other sources. Two-year old trees are most generally preferred for setting and fall planting is more largely practiced than spring planting. There is much controversy over proper distance, but the tendency seems to be towards close planting and severe pruning, possibly on account of high price of land. The station advises at least 40 feet each way for the most vigorous growers.

Pruning is mostly done in spring. Of every 100 apple orchards reports, 40 are in sod, and generally pastured; 20 have clean culture; 37 have crops grown in them, and 13 are plowed annually and 10 plowed occasionally.

Of every 100, manure is used by 80. Of these 80, 60 use barn manure annually, 12 use it occasionally, 3 use commercial fertilizers exclusively, and 5 use a mixture of barn manure and commercial fertilizers. Manure is used at the rate of 5 to 20 tons per acre, and the commercial fertilizers at the rate of 200 to 1,000 pounds per acre.

A majority of the growers spray for fungus diseases and insect, but only a few practice thinning out the young fruit, though these report it profitable and the practice is spreading. Thinned fruit is larger, of better color, yields as many bushels, sells higher, costs less to gather and sort, and is much less exhaustive to the tree and soil.

The average yield was 60 barrels per acre; but the most successful growers exceed 100, showing that the average could easily be brought up to 100 barrels per acre. The average price realized was \$1 per barrel, or \$60 per acre, and the average cost of cultivating, pruning, spraying and picking, was \$22.40 per acre. This does not include cost of packing and marketing, as freight rates and commissions vary so much that it was difficult to get reliable data on those points, but there was much complaint against both the railroads and commission men.

The best market is the local town or city, and the best package a paper-lined basket holding a third of a bushel.

One of the most successful orchards in the State made the following report: Two year old trees were procured from a local nursery and set in fall, 35 feet apart each way, on a sandy loam, with clay subsoil, sloping southwest. In July or August of every year, crimson clover is sown and the crop is plowed under the following May. The orchard is then harrowed every two or three weeks till July or August, when 1,000 pounds per acre of an even mixture of acid phosphate and muriate of potash is applied and seed of crimson clover again sowed. The average yield in 1895 was 130 barrels per acre, bringing \$142.50. The average total expense of cultivating, pruning, manuring, spraying, thinning, harvesting, packing, and marketing was \$45 per acre, leaving a net profit of \$97.50 per acre. Pruning was generally done in late winter, the tops being kept open to sun and air.

UTILIZING UNMERCHANTABLE APPLES.

This is the subject of bulletin 57, of Virginia Station. The bulletin states that a large portion of the Virginia apple crop is unmarketable nearly year, and especially in years of heavy crops. This is due to the fact that very few Virginia orchardists thin the fruit, and many neglect fertilizing, pruning and cultivation, and many very old orchards are of seedling trees, all of which conditions tend to the production of small, knotty and defective fruit.

Very little evaporating has been done in Virginia, but considerable fruit is sundried every year, and much of this poor fruit has been converted into brandy by distilleries, and still many

thousands of bushels go to waste every year. A former bulletin (No. 48) of the station treated of evaporating, and this one is devoted to the manufacture of cider, vinegar, jelly, and marmalade.

That the station might treat these subjects advisedly and make reliable recommendations to the apple growers of Virginia, a complete set of machinery was purchased and a full season's run was made, notes and accounts being carefully kept throughout. The machinery was purchased at the State Fair at Richmond on most favorable terms, is of latest build, and is fully illustrated by cuts in the bulletin. It consists of a pulping or grinding machine, run by steam, a hydraulic press, a steam evaporator, for converting the cider into jelly, and a steam cooker and colander for making apple butter and marmalade. The mill has a capacity of three or four thousand gallons per day.

Before purchasing this outfit, the station had a hand mill and press, and the bulletin gives the following comparison of cost per gallon by the two methods: To run the hand outfit a day took 4 men at \$1 each, 3 boys at 25 cents each, and 125 bushels apples at 8 cents each, a total of \$14.25, and the output was 250 gallons of cider, at a cost of nearly 6 cents per gallon.

With the larger outfit, a day's run took 5 men at \$1 each, 20 bushels coal at 10 cents and 750 bushels apples at 8 cents, a total of \$87, and turned out 3,000 gallons of cider at a cost of less than two and a third cents per gallon.

This outfit cost \$700 and the station operated it on the toll plan, working by the small, unsalable fruit of surrounding farmers. Fruit was brought in from a distance of ten miles and customers were served as fast as they could unload. After taking toll, each customer received nearly 3 gallons of cider for each bushel of fruit, and the daily toll yielded 500 to 600 gallons of cider to the mill. The tollage for the season, at one and a half cents per gallon, amounted to \$750, or \$50 more than the cost of the outfit. By adding vats in which to wet down and repress the pomace for vinegar or jelly, this income can be considerably increased.

For making jelly, 20 pounds of sugar was added to each 100 pounds (11 gallons) of juice, and this yielded 40 pounds of jelly much superior to average jelly, at a cost of 3 cents per pound.

For making marmalade, 80 pounds of apples were sliced and cooked in 8 gallons of cider and 35 pounds of sugar. This made 116 pounds of marmalade at a cost of less than 2 cents per pound.

The manufacture of vinegar is simple and profitable. The station was converting 5,500 gallons of its toll cider into vinegar when the bulletin went to press, with every promise of success, though no figures are given as to cost. The statement is made that though thousands of bushels of apples go to waste every year, in Virginia, there is not a well equipped vinegar factory in the State, and good cider vinegar is high and hard to get.

The bulletin gives directions for the operation of the machinery and the manufacture of cider, jelly, marmalade and vinegar.

DEEP PLOWING.

Correspondence of the Progressive Farmer.

In your issue of May 18th you make the following statement:

"Most lands are benefited by deep plowing, but after crops are planted shallow and frequent cultivation is best. It has been demonstrated that corn should never be cultivated to a depth of more than two inches."

The benefits to be derived from plowing corn and other crops are twofold.

1. To admit the air to the roots of plants.

2. To make the soil loose in order that the roots of the plants can penetrate it more readily.

The killing of grass and weeds may be regarded as incidental. If the land be stirred sufficiently often to accomplish the two objects named there will be no grass nor weeds to bother.

The authorities are divided on the subject of deep plowing, some recommending one thing and some another. One party advises that corn be plowed four times, the two first deep, the two last shallow. This appears to be about as good advice as can be given for the large majority of cases. Were it not for breaking the roots of the corn, it would doubtless be best to plow deep first, last and all the time. Hence it follows that the roots take possession of the soil, the depth of plowing should be proportionately reduced.

But by constructing the drills wide

apart, say 8 feet, the stalks therein being half the usual distance apart of 4 feet rows, a strip from two to three feet wide, midway between the rows, can practically be plowed deep at each plowing, thus affording the much-needed protection in time of drouth.

Corn should be plowed soon after each rain. The roots in the middle of the rows are fine and can safely be broken when the ground is moist. At all events the damage from breaking these small roots is doubtless far less than would follow a lack of thorough pulverization. Hence, the first and second times plow deep throughout, then employ a cultivator next the corn, but continue the deep plowing in the middle. From the 1st to the 10th of June drill cow peas between the corn rows and cultivate thoroughly, thus raising two full, or nearly full, crops, one of corn, the other of peas.

Long Leaf, N. C.

BRYAN TYSON.

PROTECTION OF MELON VINES

Correspondence of the Progressive Farmer.

One of our neighbors recently set out to have a first class watermelon patch. He plowed thoroughly, manured heavily, in fact, did everything necessary, except look after the young plants after they came up. The plants came up strong and all looked well. About this time he discovered some insects (striped bugs) on the plants of two hills. The next morning he was going to sprinkle on the plants, while the dew was on, a mixture of soot and ashes.

He forgot it and delayed his visit for three or four days. When he went, the bugs had cleaned up the vines, root and branch, not a single one left. Having no more seed, he then planted his patch in corn.

But not so at our house. We, too, went in for a first class patch, but we had an eye to protection. We constructed some decoy beds according to plan recently given in your paper, (small beds 6 to 8 inches square in immediate vicinity of the patch in which watermelon seed are thickly sown; these beds should be well supplied with stable or other manure). We dusted the plants in the hills early of a morning while the dew was on with about equal parts of soot and wood ashes, mixed, shaken through a bucket. (The application should not be too heavy, lest it injure the young plants. But I never knew them so injured but once, and then the application consisted wholly of strong ashes, the quantity administered being unnecessarily large. Two thirds soot and one third ashes may be better.)

After the application of soot and ashes, dirt was drawn around the plants close up to the bottom leaves, thus protecting the stems.

But the stems of the plants in the decoy beds were left exposed and a sufficiency of bugs to destroy several patches flocked to them. The beds were visited (early in the morning is the best time) and the bugs destroyed until they have seemingly been exterminated. As a result the vines in the hills were not injured in the least and are thriving luxuriantly.

Long Leaf, N. C.

BRYAN TYSON.

CRIMSON CLOVER AFTER CORN.

As a general rule wheat is the least profitable crop in the rotation, especially as the wheat harvest is apt to occur in the hottest and driest time in the season, writes S. Peacock, in Pennsylvania Farmer.

And the sudden removal of the partial shade afforded the young clover by the standing wheat, only too frequently causes a failure in the clover stand. For this reason many attempts have been made to omit wheat from the rotation, with more or less success. The best method, no doubt, is to sow crimson clover in the corn after the last working in August. This not only brings the sod one year earlier, but also acts as a catch crop to prevent the loss of available fertilizers during the winter season.

Unfortunately, we do not always seem able to get a stand of clover from sowing in the corn. The corn crop uses an immense quantity of water and mineral fertilizers. Frequently the seed sown in August fails to germinate, and the time and seed are lost, besides the disarrangement of working plans. The rainfall does not regulate this "catch" as I have known good stands obtained during a dry season, and bad stands obtained in a fairly wet season. No doubt the quantity of available fertilizer present has much to do with a successful stand.

All the clovers are rank potash feeders; give them enough potash and phosphoric acid and they will not only furnish all the nitrogen they need for their own development, but also for several successive crops. The most successful method I have known for insuring a clover crop sown in corn, is to apply liberal minerals to the corn; that is, to fertilize the corn both for itself, and also for the proposed clover crop. As is well known, kainit has a beneficial action in absorbing moisture from the air. So great is this action that during periods of severe drought, it has been known to carry a crop through successfully when untreated adjacent fields suffered severely.

The best preparation, therefore, to insure a good stand of crimson clover and at the same time to greatly aid the corn crop, is to sow kainit and acid phosphate, the former preferably early in the spring if its action in absorbing moisture is an object. On light soils, 150 pounds of muriate of potash per acre, and 500 pounds of acid phosphate should be used. Do not think the quantities are too great; it will pay to feed crimson clover liberally. If the soil is a heavy one, the land should be limed and the potash application much the same as with the light soil; the phosphate would preferably be some form of bone or bone tanage. The potash and phosphates may be safely applied in the fall of the previous year.

It is well to remember that the most of this potash and phosphoric acid applied to the crimson clover will be held by the roots of that crop ready for the next step in the rotation, and joined to a liberal supply of ammonia obtained from the atmosphere, will be as nearly cost free as anything can be cost free in the world.

PLOWING PREVENTS DROUGHT.

It will be found that where the soil is kept loose by plowing and cultivation its capacity for absorbing and holding water is much greater than where it is neglected. Thus every weed and surplus growth must be scrupulously kept down, as everything that grows is constantly drawing moisture from the soil. If we can get the upper and lower moisture in the soil to meet the battle is won, for the cultivation is favorable to the capillary action of the soil in drawing moisture from below, and cultivation will prevent its evaporation from the surface. If, however, there is a dry streak of soil a foot or more below the surface, vegetation will suffer accordingly.—Rural World.

Water in which soot has been dissolved is excellent to keep off bugs and injurious insects. It has a slight smell of sulphur, and to this, perhaps, is due its virtue in repelling them. A little soot in water, if put on melons and cucumbers before the eggs are laid, will keep off the striped bug.

Clover for hay should be cut before it fully matures; that is, just as the heads are beginning to turn brown. If cut before the sap fully leaves the roots the plants will send out new shoots and will be in better condition for producing a crop the next season than would be the case if the clover is cut after the heads are brown.—Ex.