

# PROGRESSIVE FARMER

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

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## Agriculture.

### A NEW DISEASE OF COTTON.

Correspondence of The Progressive Farmer.

A good deal of complaint has been made during the past fall in regard to a disease of cotton which some of the complainants call "wilt" and others "lightningblast." The latter name indicates a belief that in some mysterious way the damage was wrought by electricity. Samples of the diseased cotton from the vicinity of Red Springs show that the trouble is of fungous origin and not due to lightning. It is also different from the old root rot disease.

The cause of the new wilt disease is a fungus belonging to the genus *Fusarium*. This genus includes many species most of which are saprophytes on the roots of dead plants. A microscopical examination of the sections of the root and stem shows the sap vessels or tubes more or less choked by the spawn of the fungus. These vessels are the channels by which the crude sap and water normally ascend from the soil to the leaves. When they become choked by the spawn of the fungus the water evaporated from the leaves is not promptly restored by the soil water. The plant as a consequence wilts and soon dies of sunstroke, not lightning stroke.

So far this disease has been reported only from the southern and eastern counties. It is especially bad in fields where melons have been recently grown. Correspondence shows that the disease also exists in the coastal counties of South Carolina. No complaints have been received from the red clay regions. But it is likely to invade all regions where cotton is grown.

It is well known to economic botanists that a species of *Fusarium* also causes a wilt disease in watermelons. Another species of same genus causes "sore-shin" in tobacco. And it is significant that the present complaints about wilt diseases all come from the sandy eastern section where watermelons are a standard crop. On account of the mild winters the melon plant there frequently remains in the soil from year to year as a voluntary weed. Inoculation experiments with the fungus from watermelon to cotton and vice versa are necessary to show whether or not the fungi in these two crops are the same or different species. Present indications are that the fungus is the same species, and that it was originally developed in the soil by and upon watermelon plants.

Complaints are also being made by farmers in sections where watermelon and cotton wilt is known, that the cow pea often wilts and dies before producing flowers or seed. A sample of diseased cow pea vines recently examined by the writer shows fungous infection similar to that above described. The sap vessels of the pea plants were nearly plugged by the spawn of a *Fusarium* and probably the same species we find upon cotton. Inoculation experiments are, however, requisite to settle this practically very important point.

What practical farmers want to know is how to eradicate the disease or prevent it from destroying their crops. But a rational remedy requires a fuller knowledge of the life history and specific identity of the fungus attacking these different crops. If the fungus is one species only it will attack several widely different crops and is therefore very dangerous. If the fungus upon different crops are specially distinct, we can starve them out by planting peas on cotton land and cotton on peatland. Rotations of crops is the most rational treatment for such diseases. The lack of such rotation has probably been the chief agency in developing these diseases. Fungi are naturally saprophytes. That is, they naturally feed upon dead or dying plant tissue. But when they are offered year after year the same species of food they eventually develop such an appetite for it that they attack it while still living. In other words they change their habit from saprophytes to parasites. When

there is a yearly rotation of crops so that one crop comes upon the land not oftener than once in three years the saprophytic fungi are never able to cultivate an intense partiality for any particular crop, and so remain in their normal and useful position of scavengers.

There are several possible chemical treatments for disinfecting the soil of fungus diseased areas. But all these are too expensive for use upon cheap land and for crops which bring low prices like five-cent cotton. The most promising soil treatments are powdered sulphur and blue stone worked into the soil. But these will at the same time destroy useful bacteria and fungi in the soil and may render the soil unfruitful for a year or more.

The exact amount of chemicals and the best way to apply them can be determined only by practical trial on a small scale. Generally speaking, sulphur must be used in doses of about 300 to 500 pounds per acre and copper sulphate at the rate of 25 to 50 pounds per acre. Sulphur is better and safer than copper sulphate for this purpose. The undersigned has started some pot experiments with infected soil and hopes to be able to furnish more definite information before the planting season opens. In the mean time the following suggestions for preventing the spread of this disease and the further loss of crops is offered:

1—Do not plant cotton on land where watermelons have been grown within two years.

2—Do not follow cow peas by cotton if the peas were destroyed by the wilt disease. Do not plant peas on spots infected by the cotton wilt fungus.

3—Do not follow cotton by cotton, but rotate crops so that cotton will not come in oftener than once in three years. Corn is a proper crop to follow cotton. Follow corn by peas and this by wheat or rice or sorghum or turnips.

4—If you must or will replant cotton on a field which showed spots infected by the cotton wilt fungus, stake out these spots and a surrounding ring 10 feet wide. On such spots plant corn or sorghum or rice. In cultivating the cotton do not pass through the diseased spots. Go around them. Cultivate the spots separately, and carefully and thoroughly clean the tools before using upon cotton land. The fungus lives in the soil of diseased areas and is easily spread by the cultivating tools and the feet of men and animals.

The undersigned desires to map out the region in North Carolina known to be infected by the wilt fungus of cotton. Farmers who have it are requested to report and state how long it has been known in the neighborhood and amount of damage occasioned.

GERALD MCCARTHY,  
N. C. Department of Agriculture.  
Raleigh, N. C.

### THE FARM IMPLEMENT TRUST.

The combination of manufacturers of agricultural implements formed in Chicago some months ago, at which time the meeting was reported in The Progressive Farmer with a list of the firms represented, seems to be ready for business now. What may be expected is told by Mr. Frank Baldwin, who has been for years the Toledo, Ohio, representative of McCormick Company. He says: "The great trust of agricultural implements will be in full running order by January 1, 1901. This means that prices will be advanced from 25 to 150 per cent. to the farmers, that thousands of traveling agents will be thrown out of employment, the wages of those retained will be left at the complete mercy of this giant monopoly. The trust schedules of prices are being arranged now and will go into effect after the big monopoly takes hold. Nearly all the big implement firms of the country have agreed to pool their issues in the trust. It means that every piece of machinery, plow, harrow, roller, pick, shovel, hoe, rake, scythe, etc., must be purchased through the trust at trust prices. There will be no remedy. It will be a case of stand and deliver."

### HARRY FARMER'S TALKS.

#### VII.

Correspondence of The Progressive Farmer.

Harry Farmer wishes to discuss the crop of children a little more just at this time.

Every farmer who wishes to succeed with horses, cows, hogs sheep or poultry tries to breed out bad qualities and implant good qualities or characteristics in the various animals. Now examine your family record closely, and see if there were any who drank to excess or who died drunkards. This is to a certain degree a quality that is hereditary in families and has often brought sorrow and trouble for its harvest. Begin today and make up your mind not to drink yourself or give to your children any intoxicating drink during this Christmas. Take the money and buy something else with it or give it to the orphans, and after the holidays have passed you will be happier and will hope to celebrate the coming Christmas in the same manner.

As I write these lines and study to impress these words upon the readers of The Progressive Farmer, how many are planning to buy that which will not only mar their own pleasures, but that of the loved ones which a great Creator has given them to make happy and useful men and women?

If you sow oats you cannot reap wheat; if you plant bitter gourds you cannot gather sweet watermelons from the vines; so, too, if you teach your children by precept and example to drink, you may expect them to become drunkards. These may not be pleasant lines to read, brother farmer, but see if they are not true. Harry Farmer wishes a happy Christmas to all  
HARRY FARMER.  
Columbus Co., N. C.

### THE FARM WORKSHOP AND ITS TOOLS.

A great deal of money can be saved annually by any intelligent farmer who will purchase some of the tools most needed on the farm and keep them where they can be easily found. In a recent issue of Farmers' Voice C. D. Lyon discusses this subject as follows:

Our own shop has for twelve years been located in the southwest corner of a barn, but this is not always desirable, and in the near future we shall change it to a 12x18 foot building with eight-foot siding and gable roof—just such a building as we have for a poultry house, except in height of ceiling (see Voice of October 20). The work-bench is 3½x12 feet, and has a strong steel carriage-maker's vice set on it. This bench is of two-inch elm lumber put together with pins, and has three drawers for small tools in front. A hardwood chopping block stands in one corner next the door, and in the other corner is the tool chest.

Our outfit of tools is far from complete, but we will tell our readers just what we have and leave them to add to the list as suits their needs: Four saws, a No. 8 handsaw, No. 5 rip saw, No. 10 turn saw and a key-hole set; four planes, jack, foreplane, jointer and smoothing plane; five augers, by quarters, from half-inch to inch and a half; chisels from half-inch to two-inch; bits from three-sixteenths to one inch, by eighths; bits are numbered by sixteenths, and we find the odd numbers, like 3, 5, 7, 9, etc., best suited for farm use. Then we have braces, squares, gauges, drawknife, spokeshaves, cold chisels, punches, nail sets, level, compasses, calipers and other small tools. There is one light and one heavy hatchet, claw hammer, small riveting hammer and two-pound hammer for heavy work; mallet, chalk-line, straight edge, wrenches, pliers and nippers, and a ten-foot pole are all part of our outfit.

Our tools were bought at different times, some of them at sales, and when we computed the cost of them as new a year or so ago we were surprised to find that they could be bought at that time for \$20. We like to buy of our home dealers, but in all cases would keep on hand the catalogue of some of the great mail order houses that advertise in this paper, and if home dealers do not

sell at right prices would order the tools sent by freight.

A set of tools consisting of hand-saw, square, hatchet, drawknife, three augers, two planes, brace and four bits, three chisels and mallet and a hammer can be bought for just about five dollars, and will save its cost every year to any man who farms a fifty-acre farm.

In mentioning cold chisels, files and punches, we want to say that by the use of these and strips of thin iron, such as old buggy tire, we may mend a broken tool in the field and save a trip to the shop.

We have several files of all shapes and sizes, from a three-inch stub to a sixteen-inch double bastard cross-file. Flat, square, knife edge and round files are all cheap and a dollar will buy quite an outfit of them.

One word about using a file. If a new one, use it very light at first. It does not need forcing to make it cut. Always push a file squarely across the work and lift it back. It only cuts one way, like a handsaw, and to draw it toward you only wears it out twice as fast as if it is used in a proper manner.

A good grindstone is necessary to keep the tools in condition. This is best bought ready hung unless you are sure of your ability to hang one true; and when a stone is rightly hung if you are careful not to allow careless persons to wear it out hollowing in the center it will last for many years.

Keep all tools sharp; a dull tool does not do good work, and it certainly does make hard work for the user of it.

Keep all tools in place; one should be able to go to the shop in the darkest night and get the tool desired.

Keep all tools at home. Do not think that we do not lend our tools, for we do; but we make a bargain with the borrower that he bring them home just as soon as done using them. If he does not return them soon, we go or send after them. One lesson of this kind is always enough.

It was our intention to tell of some home-made farm conveniences in this paper, but we will leave this for another time to tell of some of the things made in our shop in the past ten years. Four sleds; one sold for \$20, one for \$7.50 and two are used on the farm; three hayricks, one for home use, the others sold for \$5 each; a sleigh, two harrows, two drags, a wheelbarrow, two plow stocks, wagon-bed, and repair work of all kinds at all seasons.

We have part of a set of twist drills that we forgot to mention. With these we can make holes in iron or wood and they can be used on old work where a wood-boring tool would be ruined.

Bolts, screws, nails and brads of all sizes are kept on hand; an old machine furnishes lots of good bolts and we take all these out before we sell the castings to the junk dealer, and light strap iron is always valuable to brace a gate or mend a broken implement until a new part can be made or fitted.

Scotland Neck Cor. Post: A farmer whose circumstances have been such as to acquaint him with the hard lot of the poor, said to your correspondent yesterday that farmers generally can pay out this year if they will just be careful and economical. The farmers of this section are certainly in better condition than they have been in many years.

### MECKLENBURG FARMING.

A. J. Hunter, of Mecklenburg county, writes as follows to the Charlotte Observer: "I am glad to inform your readers that Mecklenburg farmers in my opinion have sown the largest crop of wheat and oats this year in her history. I speak advisedly, because I have traveled during the summer and fall over a large part of the county. Many fields of cotton have been plowed under and sowed in wheat, and the good work is still progressing. Many fields are now green and beautiful to the sight. The disc drill has given a wonderful impetus to wheat culture and I predict that the time is not far distant that Mecklenburg will be self-supporting, so far as wheat bread is concerned."

### GET RID OF THE STUMPS.

The Timely Advice of a Sampson Farmer. Correspondence of The Progressive Farmer.

I am spending my winter taking up lightwood stumps. I never could make a crop over a stump, and besides very few things are more annoying than continued hitching and breaking hame-strings, back-bands, trace-chains, plows and the plowman's temper.

Here's my plan: Drive an iron wedge into the stump near the ground; put the large ring at the end of a log-chain over the wedge, carry the chain around the stump and run it through the ring and turn back in the opposite direction and fasten around the end of a 12 or 15 foot lever of such size as will give strength, hitch a yoke of steers or a strong mule or horse to the end and start round, and if something don't break the stump will twist off; just at such moment let a quick strong hand jump into the hole, which has previously been dug around it, and lift slightly and the stump is out. Of course such side roots as are in the way must first be cut off. Haul to the wood pile and put at a separate place from the wood proper and you can enjoy the fine kindling on getting up early in the morning.

Wood should be cut where there are no lightwood splinters, so that the chips may be raked together with a little earth and used for manure.

I get a few loads of good manure from my woodpile every spring, and I tell you these little things count in the end.

Go over the field and dig away the earth to a depth of eighteen inches or more, cut off all side roots and then go back and twist them off, and you will be surprised to know how quickly you can rid your field of stumps. Don't touch any but lightwood; others will soon disappear any how.

My brother has a 100-acre field that has not a stump in it, and I feel like I want to farm in that field one year just to cool down.

More anon.  
WM. A. BARBREY.  
Sampson Co., N. C.

A peanut factory is being built on the Caledonia farms, which will make the State independent of the recent trust, the intention being to thrash, clean and hull the nuts ready for the consumer before shipment.

Commissioner of Agriculture Stevens, of Georgia, returned a few days ago from a trip over the State and said the cotton acreage next year would not be any larger than that planted this year. "Diversified crops are beginning to tell," said Mr. Stevens. "I find the farmers are planting large quantities of wheat, more than ever before. This I regard as a good sign. The cotton in Georgia has been nearly all picked and now there are but a few hundred bales left in the fields."

### THE DOG IN POLITICS.

It is hardly necessary to waste time in arguing about the profit which might be derived from sheep-raising in Alabama under favorable circumstances, for there can hardly be two opinions on that subject, but the business can never be successfully carried on until some means of protecting them from dogs is found. Of course, any man who wishes to go into the business on an extensive scale can employ shepherds for the protection of his flock, but the ordinary farmer who wishes only to keep a few sheep to supply his family with wool and mutton is deterred by the knowledge that his flock may be destroyed in a single night by some worthless dog whose only value is measured by the money that his dressed hide would sell for. This knowledge prevents many farmers from attempting to raise sheep who would be glad to engage in it on a modest scale if the one drawback of sheep-killing dogs was out of the way. But for all that, a dog-law is the worst object that a law-maker can be confronted with. They always feel that it is loaded.—Montgomery Advertiser.

## Live Stock.

### MONEY IN CALVES.

Correspondence of The Progressive Farmer.

Success in calf raising depends upon the methods pursued on the farm. If a farmer permits his calf to run with the mother right along, there is little or no profit in the work. By the time the calf is weaned then the dam is dry, and about all the profit she represents for the whole year's keep is the price received for the calf. It hardly pays for the ordinary expenses of feeding and sheltering the cow. Unless we can make the milk of the dam pay for the cow's cost of keeping, it is more profitable to put the money in some other line of work.

There is no necessity of letting the calf run with the dam beyond a few days after birth; the creature can be weaned and fed on skim milk with a little bran and grain until ready for the market. The heavy milk yield of the dam can be sold for butter or cream, and the profits obtained in this way should eliminate the loss that might otherwise occur. On the best dairies this is the common practice, and the methods differ only in slight details. A dairyman who permits the calves to run with the dams is hardly up to date sufficiently to make a success.

The problem we have before us where calves are raised for market is to adopt such methods of feeding which will make the skim milk calves as heavy and valuable as the calves that run with their dams. When we succeed in this we can count upon a profit that has never before been realized in calf-raising. It has been done time and again in recent years, and on some first-class dairies the pure-bred calves for the show rings have been fed entirely on skim milk.

A calf should be allowed to run with the mother up to the fourth or fifth day, at which time the cow's milk should be in excellent condition for market purposes; then take the calf away from the mother and keep it off all food for about one day or night. By this time it will be so hungry that it will take almost anything, and can be easily taught to drink. Its first meals should be of whole milk, fed at the rate of four pounds in the morning, four at night and two in the middle of the day. The milk should be warmed to the natural temperature of the dam's milk. The whole milk diet should be kept up for about two weeks, and then gradually should be transferred to a skim milk diet. This change should be made at the rate of half a pound of skim milk every two or three days. When the calf is on skim milk the quantity must be increased. At first ten to twelve pounds a day may satisfy the creature, but in time this will have to be increased to eighteen, twenty and twenty-four pounds. A little flaxseed jelly mixed with the skim milk at first will help. As soon as old enough to take other food the calf should be fed hay and possibly a little grain; anything in short to keep it growing rapidly, so that at the end of six months it will be as large and heavy as the calves kept with their dams. A little care in the feeding will make them fully as valuable as the mother-fed calves, and all the cream and butter fats of the cows will be saved for market purposes.  
W. E. EDWARDS.

### GOOD BLOOD ON THE FARM.

We fear that there are few sections of the country where the average farmer stands in sorer need of the good advice given below than in North Carolina. It is clipped from the Breeders' Gazette:

One of the unsolved mysteries in connection with American agriculture is the amazing indifference displayed by such a large proportion of even the better class of farmers in the matter of the quality of their live stock. In spite of the daily lessons of the market places there is widespread failure to apply them in actual practice. Many do not patronize improved sires of any sort. Others choose unwisely and are dis-

[CONTINUED ON PAGE 8.]