

TOBACCO CULTURE.

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(Continued from last week.)

CULTIVATION.

After planting, the ground should be stirred with a one-horse cultivator about once in ten or twelve days, so as to keep the land thoroughly clean from weeds, and in a porous and mellow condition. Frequent cultivation will also induce more favorable conditions of moisture. This should be continued as long as the cultivator can be passed through the rows without injuring the plants. After this, as the roots of the plants will then almost fill the space between the rows, the ground should be kept clean by shallow hoeing.

PRIMING AND TOPPING.

By the word "priming" is meant the removal of the lower or primary leaves which come out too near the ground, and often touch the surface and become torn and sandy. It is an advantage to do this work early, so that the plants may not unnecessarily lose strength by their growth. The distance from the ground this priming should be done depends somewhat on the variety, but the bottom of the stalk is usually stripped to a height of from four to six inches from the ground.

Topping is the removal of the flower stalk with one or more of the upper and smaller leaves. This is done to throw the strength of the plant which would otherwise go to the production of seed, into the more perfect development of the leaves. The plant is ready to top when the "button," as the blossom is called, has grown long enough to be taken hold of without injuring the upper leaves of the plant. As the plants do not all blossom at the same time, it is usual to let those stocks which bloom first run a little beyond the usual time of topping, so that all may be topped at the one operation. The tops when broken off should be thrown between the rows and allowed to decay. The number of leaves left on the stem at the time of topping varies from ten to sixteen or eighteen, depending on the variety grown; if topped too high the upper leaves are apt to be too small to be of much value. As the leaves of the tobacco plant are arranged on the stem in eight perpendicular ranks, the ninth leaf stands directly over the first. This fact will assist the operator in determining the number of leaves on a stalk without counting them.

SUCKERING.

After topping, "suckers" soon begin to grow, shooting out from the stalk on the upper side of each leaf at the base, those at the top starting first. As soon as they are large enough to be pulled they should be promptly removed, otherwise much of the strength of the plant will be lost and the maturing of the crop delayed. Should they start a second or third time, they should be again removed.

SAVING OF SEED.

To obtain seed for sowing the following year, a few of the earliest, most thrifty, and large-leaved stalks should be left without topping. These will

bloom and seed freely, and when the crop is cut these stalks should be allowed to stand. As soon as the seed pods turn to a blackish color the seed will be nearly matured; then cut off the heads and hang them up in a dry place to cure. Later in the season strip the seed pods from the stalks, rub them in the hand, and clean the seed by sifting through a fine sieve. Tobacco seed is said to retain its germinating power for several years.

INSECT ENEMIES.

Cutworms are sometimes very active in destroying the newly-set plants. Where these are troublesome they may be reduced in number by placing at many different points in the field small bunches of poisoned weeds, grass, or clover. These hunches are tied and rendered poisonous by dipping them in a mixture of Paris green and water in the proportion of two ounces of the poison to a pailful of water. The cutworms take shelter under the bundles of weeds and eat of the poisoned material and die. In hot weather these bundles should be put out after sundown and a shingle may be laid on each to keep it fresh. Cutworms are the caterpillars of dull-colored, active moths or "millers," which fly at night, mostly during the month of July. The caterpillars lie hidden during the day and come out to feed at dusk. They are smooth and naked, and are usually of some dull shade of greenish grey, or brown, with dusky markings. When these caterpillars are fully grown, which is usually in the latter part of June, they enter the ground and change to chrysalids, from which the moths emerge later in the season. These deposit their eggs on grass or other plants or weeds; the young larvae hatch in about a fortnight and feed usually unobserved amid the abundant growth of summer, and when they reach a length of one-half to three-quarters of an inch they bury themselves in the ground in autumn, where they remain until the following spring. On emerging from their long period of torpor they become very active and feed greedily on almost any green plant which comes in their way.

Cutworms usually attack the plants about the base, and having eaten the stem through leave the greater part of the young plant to wilt and perish. Where a plant suddenly withers and dies, the author of the mischief can generally be found within a few inches of the plant, buried just below the surface of the ground. In such cases they should be searched for and destroyed. Where cutworms are plentiful it is necessary to look over the plants every day or two, and to promptly reset any which may have been killed.

After the cutworms have disappeared the caterpillar of a large sphinx moth, *Sphinx quinquemaculatus*, becomes a most troublesome foe to the tobacco grower. This insect spends the winter in the chrysalis state buried in the ground. Early in June the chrysalis wriggles its way up to the surface, when the moth escapes. It flies at dusk and in its flight much resembles a humming-bird, and soon begins to deposit eggs. These are laid singly on the under side of the leaf, where they hatch in the course of a few days, when the young larva or

"worm" begins to feed on the leaf, making small holes here and there in it. About the time when the leaves are as large as a man's hand these caterpillars appear. The plantation should then be gone over carefully, looking at every plant. A sharp eye will detect the small holes they make in the leaf very promptly, and on turning it up a small green caterpillar will be seen on the under side with a projecting horn on the hinder end of its body. These should be at once destroyed, which may be done by crushing them between the finger and thumb. As the eggs of these caterpillars continue to be laid during a considerable part of the season, constant watchfulness and frequent inspection is needed to prevent injury to the crop. Where the fields are neglected these caterpillars grow rapidly and eat voraciously, and a single specimen will soon destroy the greater part of the leaves of the plant on which it has been placed and on several others near by. When full grown this larva is three inches long, or more, and about the thickness of the forefinger, green, with paler stripes along the sides of the body. When disturbed it raises its head in a threatening manner and looks quite ferocious, but is incapable of inflicting any injury.

(To be continued.)

AWARDING PRIZES IN A MILK TEST.

DR. BABCOCK RECOMMENDS A NEW SCALE OF POINTS.

At the leading exhibitions in Canada where cows are judged for milk production, the scale of points used is that adopted by the British Dairy Farmers' Association, and which is as follows: 1 point for each pound of milk; 20 points for each pound of fat; 4 points for each pound of solids (not fat); 1 point for each 10 days in milk, after the first 20 days (limit, 200 days); 10 points shall be deducted from the total score for each per cent. of fat below three per cent. of fat in the milk. At the Provincial Fat Stock and Dairy Show 20 points are added for constitution and conformation. Though this basis of awarding the prizes has given pretty fair satisfaction as far as the general public is concerned, yet in a quiet way there has been considerable objection to it in some quarters. While those having cows giving a large quantity of milk are well satisfied, those having cows noted for giving a large percentage of fat and a comparatively small quantity of milk are quite strong in their objections to it because, as they claim, not enough points are given for fat production. It has been continued largely because there was nothing better to put in its place.

Among those who have taken considerable interest in this question is Mr. W. E. Butler, of the firm of Wm. Butler & Son, Dereham Centre, Ont. Mr. Butler has just completed a three years' course at the Ontario Agricultural College, Guelph, in which he has given special attention to dairying. During the past year he has given much attention to the question of judging dairy cows, with the object of finding out a better basis for granting the awards in a milk test than that now in general use. In this connection he communicated with several dairy experts connected with agricultural col-

leges in Canada and the United States. Among the replies received was one from Dr. Babcock, of the Wisconsin Agricultural Station, in which a new plan for awarding prizes in a milk competition is given, and which reads as follows:

Madison, Wis., April 23rd, 1898.
W. E. Butler, Esq.,
Guelph, Ont.,

DEAR SIR,—Your letter of April 9th to Prof. Henry in relation to rules for testing dairy cows has been referred to me. The scale of points submitted appears to me to give altogether too much prominence to the yield of milk and too little to the yield of fat which is now generally admitted to be the most important factor in determining the value of milk for manufactured products, on account of the nearly constant per cent. of solids not fat in all milks, from whatever source the yield, according to their rules, influences the score twice, once directly and again as the solids not fat. The effect of this is shown in the following example:

100 pounds of average milk contains 9 lbs. of solids not fat, and 3.5 lbs. of fat. On the plan proposed this gives the following points for milk:

1 point for each pound of milk.....	100
4 points " " " solids not fat 36	
20 " " " fat	70

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This gives to the fat only about one third of the value of the milk, whereas for almost any purpose it should constitute fully three-fourths of the value. The best way which occurs to me of avoiding this inequality is to base all of the points upon the solids of the milk, giving a relative weight to the solids not fat and the fat which shall as nearly as possible represent average values when all branches of the dairy industry are considered. When milk is converted into cream, butter or cheese, a pound of fat has from 12 to 20 or more times the value of a pound of solids not fat. Only when milk is sold for direct consumption is the difference less than this. It seems to me that giving a pound of fat ten times the value of a pound of solids not fat is a fair average all things considered. On this basis the milk considered in the above example would represent the following points:

9 lbs. solids not fat.....	9
3.5 lbs. fat	35

44

The proposed plan for equalizing the effect of advancing lactation is unfair to cows giving a large yield of milk. They will lose more as lactation advances than cows giving a small quantity. This may be avoided by making this correction upon a percentage basis. I would suggest that one per cent. of the total points scored for milk be added for each week of lactation after the first month, and that this increase be limited to 25 per cent.

Upon the scale of points which I have outlined it would be necessary to make the points for conformation less than in the rules submitted in order that this be not given too great prominence. I think five points for this would be fair. The scale of points would then be as follows, viz.:

Five points for conformation.

One point for each pound of solids not fat.

Ten points for each pound of fat.

One per cent. of the total points for milk to be added for each week of lactation after the first month, the total increase to be limited to twenty-five per cent.

I realize the difficulty in accepting a plan like the above which differs so widely from that in general use, still I believe the principle involved is just, and I hope before long to see something of this kind adopted. It may at first be necessary to fix a lower ratio between the fat and solids not fat, but I believe that when all things are considered that the ratio given is none too high."

Very truly yours,

(Sgd.) S. M. BABCOCK.

The scale of points submitted to Dr. Babcock by Mr. Butler was that used at the Provincial Fat Stock and Dairy Show last fall. After receiving Dr. Babcock's proposal Mr. Butler took the trouble to compare it with that now in use, basing his calculations upon the value of milks containing different percentages of fat ob-