I believe in spraying the whole tree right from the root up. It does not pay to be stingy with spraying material at all. As I have said, I have sprayed this year about 25 acres of fruit, practically covering all kinds. I sprayed apples, plums, pears, cherries, grapes, red currants, and gooseberries, and I have had very gratifying results in all cases. I used just the same material on the grapes as I did on the others. I might instance the red currants. We have about two acres of red currants, and we generally figure to get from $250 to $400 for them. Last year I sprayed them very thoroughly, at the same strength, and about the same time as I sprayed the apples for the first and second spraying. We had in our district a large crop of currants, and a bulk were harvested at 4 to 5 cents a quart. With my spraying last year I noticed that I had a very heavy foliage, the heaviest foliage I have ever seen on red currants, so I decided that while other people were picking their currants I would leave mine, and did not pick a currant until I think every currant in the district had been picked and shipped. Then I started picking my red currants, and never got less than 10 cents for a single quart, and I never had a blistered currant. Also, of all the cherries grown in this district only those cherries which were sprayed were worth buying at all. There were some men who did not spray their cherries, and on the following morning after they were picked they were rotten. I spray the cherries just before the buds swell, and then spray with a second spraying just after the small cherry forms. I just spray twice for cherries.

I have been an apple buyer for a good many years, and I have come to the conclusion that there is more money in growing apples than there is in buying them or handling them in any other way. It is surer money, and it is easier-made money.

I would like to draw one or two comparisons of what 33 cents a tree means. It might seem to some a big expense to spend 33 cents a tree. A bushel of culls is worth 15 cents, and a bushel of good apples is worth 50 cents; therefore, the difference between a bushel of culls and good apples is 30 cents on the present market. On an average a tree should produce 10 bushels, which is not a big average—some would produce 20 and some 5—and if you convert one bushel of culls at 15 cents into one bushel of good apples at 50 cents you are making 35 cents. If you have a tree of apples bearing 10 bushels and do not spray them, you will have half culls, and if you convert that 5 bushels into good apples, you will make $1.75 profit on that one tree, or on 400 trees a net profit of $700. That is not the profit on your orchard, but that is over and above what you would get if you did not spray. Take the cost of your spraying off that and it means a net profit of $567. Besides all that, you will strengthen the tree and stimulate it to produce a better crop another year, and you will also help your neighbors by getting rid of pests.

Bruce Co., Ont. R. B. DALE.

## Controlling Plant Lice in Apple Orchards.

The information gained by a series of experiments extending over a number of years in the treatment of apple orchards for the control of aphids or plant lice is summarized by F. H. Hall in a bulletin recently received from the New York Experiment Station. It is pointed out that the greatest amount of injury in orchards is done by the early broods. The first brood checks the growth of the young leaves and retards the development of blossoms, while those that follow by sucking out considerable quantities of the vital plant juices at a time when these are most needed, dwarf and deform the developing apples and defoliate the branches.

All the tests emphasize the necessity of spraying at the proper time namely when the buds are just swelling in the spring. Later than this the insects work into the buds where they are protected by the hairy growth of the opening leaves. As the leaves unfold the lice feed on the under surface causing the leaf to curl around and further protect the insects.

The cheapest and most satisfactory method of dealing with these pests has been found to consist of spraying with Lime-sulphur to which has been added three-fourths pint of 40 per cent, nicotine solution. Arsenate of lead may be used in the spray at the same time if desired.

Attention is drawn to the fact that where early spraying has been omitted the trees may be helped over a critical period and some protection afforded by a later spraying. For this any one of the following mixtures is recommended.

No. 1.—Nicotine Solution (40 per cent.), ¾ Pint: Water 100 gals.; soap, 3 to 5 pounds. The soap should be omitted in combining the solution with lime-sulphur.

No. 2.—Kerosene, 2 gals.; fish oil soap ½ pound; soft water, 1 gal. The soap is dissolved in boiling water, after which the kerosene is added and the mixture violently agitated for from three to five minutes. One gallon of this mixture should be diluted with eight gallons of water before being applied.

No. 3.—Fish oil soap 12 to 20 pounds; water 100 gals. It is recommended that where this mixture is used a test should be made to determine the amount of soap to use, as this soap varies greatly in its water content.

Experiments conducted at this Station prove that from 95 to 98 per cent. of the lice are killed by spraying with a suitable mixture when the buds are showing green but still compact. Liberal quantities of material under the high pressure are necessary in order to obtain these results.

# POULTRY.

## Fitting Birds for Exhibition.

The art of fitting birds for exhibition is founded on the wise selection of individuals worthy to be exhibited. There are so many defects and disqualifications in each particular breed that the exhibitor must be, to a certain extent, a fancier, in the particular strain of fowls he may be handling. There is "fitting" and faking but between the two operations no very distinct lines can be drawn. There is a common maxim which says, "faking is faking only when it is found out." This statement, although not morally true, has considerable truth as applied to showing at a poultry exhibition. Illegitimate methods of fitting birds are commonly considered wrong but when is a practice illegitimate? There is no doubt as to the ethics of performing surgical operations to remedy certain defects of the head parts, removing important feathers and plugging holes left by the removal of the same, dying or staining the plumage and legs and using chemicals to such a degree that the plumage has been materially altered in color. However, there are some practices which are looked upon rather leniently, such as removing a few unimportant defective feathers and the removal of fine down and stubs from the legs and feet of birds of clean-legged varieties.

When birds which bear the greatest promise are selected they should be given considerable range where they can enjoy either sun or shade at will, yet it should be remembered with white plumage there is a tendency to go brassy when exposed to too much sunlight. The feeding should be liberal and if new plumage is being grown such feeds as will best encourage the same should be given. Clean, sanitary, natural conditions accompanied by plenty of nourishing feed are the fundamental principles of growing and developing exhibition stock.

When the time comes to prepare the birds for the exhibition coops the exhibitor must then show considerable skill in cleaning the head parts, legs and plumage yet, if the legs of the bird are inclined to be scaly they should be washed and oiled weeks previous to the time of entering the show. To clean the legs and feet they should first be washed with castile soap and warm water and scrubbed with a tooth-brush or nail-brush. After a thorough washing any remaining particles of dirt beneath the scales can be taken out with a small stick or wooden tooth-pick. The legs should then be well dried and rubbed with cotton-seed oil or sweet oil. The oil should be rubbed in until none is left on the outside to collect dust. Birds of white plumage will require washing. This operation requires considerable time, patience and energy. There is a knack in washing which every would-be exhibitor should acquire before the time comes for final fitting. It would be well to practice on some cull stock not intended for exhibition purposes. The washing should be done in a warm room at a temperature between 85 and 90 degrees and everything should be in readiness before the work begins. Three or four tubs are necessary. First lather and soap the bird thoroughly with castile soap and warm water then rinse in a tub of luke-warm water and again in two changes of cold water. Rinsing must be carried on until every trace of soap is removed. The specimen should then be dried in a clean coop or a clean pen at a fairly high temperature which may be reduced to about 70 degrees.

Dead and broken feathers should be removed weeks prior to the date of the exhibition so new feathers may take their place, yet during the final preparation more will probably be seen and they too should be removed. Down appearing on the shanks or toes is plucked off at this time. During the period of fitting it is wise to handle the birds a few moments each day for the individual that is quiet and docile at the fair has an advantage over the entry that is not "coop broken." The specimen should also be taught to pose in such a manner that the wings and tail will show to best advantage while being judged.

# FARM BULLETIN.

## A Big Yield of Wheat.

The Census and Statistics Office issued August 11 a bulletin giving a preliminary estimate of the yield of fall wheat, of hay and clover and of alfalfa, based upon appearances at the end of July as estimated by correspondents, and a report on the condition of other field crops at the same date.

The preliminary estimate of the average yield per acre of fall wheat in Canada for 1915 is 28.10 bushels, as compared with 21.41 bushels last year and with 21.78 bushels, the average of the five years 1910 to 1914. The harvested area of fall wheat in the five provinces of Ontario, Manitoba, Saskatchewan, Alberta and British Columbia amounts in 1915 to 1,208,700 acres, as compared with 973,300 acres in 1914, and the total estimated yield to 33,957,800 bushels as compared with 20,837,000 bushels in 1914, an increase in total yield of 63 per cent. In area harvested, in average yield per acre and in total yield the fall wheat harvest of 1915 is therefore expected to be the largest on record. In Ontario the total estimated yield is 27,080,000 bushels from 972,000 acres, an average of 27.86 bushels per acre and in Alberta the other large fall wheat province, the total yield is 6,225,000 bushels from 215,700 acres, an average of 28.86 bushels per acre. The estimated yield of hay and clover in 1915 is 10,589,800 tons from 7,875,000 acres, as compared with 9,206,000 tons from 7,997,000 acres in 1914, the average yield per acre being 1.34 ton, as compared with 1.15 ton in 1914. Alfalfa shows a total yield of 158,755 tons from 92,665 acres, as compared with 129,780 tons from 90,385 acres in 1914; the average yield per acre is 1.71 ton as compared with 1.44 ton.

Spring-sown grain crops continue to show an excellent average condition, all being for Canada above 90 per cent. of the standard representing a full crop. Beans, buckwheat and flax are 88 per cent. of the standard, potatoes and turnips are above 90 and the remaining crops are as follows: Corn 82, mangolds 89, hay and clover 81, alfalfa 87, sugar beets 89 and pasture 89. Converted into a standard wherein 100 represents the average yield per acre of the seven years 1908 to 1914, the condition of the principal grain crops at July 31, 1915, is as follows: Fall wheat 120, spring wheat 112, all wheat 113, rye and barley 111, oats 108, flax 107. That is to say, the yields per acre of these crops, according to their appearance on July 31, are expected to be above the average yields of the previous seven years to the extent of 20 per cent. for fall wheat, 12 per cent. for spring wheat, 13 per cent. for all wheat, 11 per cent. for rye and barley, 8 per cent. for oats and 7 per cent. for flax.

## Welcome Each Rebuff.

Editor "The Farmer's Advocate":

To see one's wheat shocks growing green on top, and one's oat crops beaten flat upon the ground is painful enough but is not without compensation, such compensation as the city dweller misses. In the city one has but to "press the button" and everything that the heart desires appears. The fairy tales that used to fascinate our childish imaginations are indeed surpassed by the achievements of modern civilization, the enjoyment of which has been in a large measure as yet confined to our cities. The urbanite is largely independent of storm and flood and all the gigantic destructive forces of nature. His work goes on with complete disregard to the weather. His food comes to his door, in many cases already prepared for the table. Clothing and shelter are ready and close at hand. Personal services of all kinds are immediately available. In the city man's triumph over nature seems complete, and one can appreciate to the full the advantages that have come to humanity by reason of the way in which man has changed his own environment.

But these advantages bring with them many corresponding losses. The everlasting and everlastingly necessary struggle of man with opposing natural forces is forgotten in the enjoyment of the fruits of the struggle, especially by those far removed from the struggle itself. To-day thousands of bushels of ruined wheat, and other losses of a similar character are some more of the many reminders to the farmer of his dependence upon the uncontrollable forces of nature. Nature's smiles and nature's frowns come very close to him. But the typical urbanite knows nothing of such dependence, or knows it only in a remote, unsympathetic way. He misses the moral discipline of those engaged in the primary industries. Occasionally the terrible upheavals of earthquake or volcanic eruption bring home to him man's littleness and powerlessness; or perhaps the more terrible upheavals of the Satanic forces of human nature, such as we see in the present war, destroy and ravage more than a hundred earthquakes. But in general the typical urbanite knows not the meaning of the command: "In the sweat of thy brow thou shall