

Poultry Feed Situation.

The egg and poultry markets report for the week ending September 25 contains the following relative to the poultry feed situation: Some important developments have taken place during the past week which should have an important bearing upon the poultry and general live-stock feed situation throughout the Dominion. An order-in-council has been passed prohibiting the export of screenings except under license. In light of the above a brief description of the origin and nature of screenings may be of interest at this time. The wheat from the western wheat fields is for the most part handled in bulk. Except at the Government elevators and at the flour mills very little cleaning takes place at interior points. This is practically all done at Fort William and Port Arthur. Only wheat at present is cleaned. The screenings at the first separation consist of the small or broken kernels of wheat, wild buckwheat, oats, barley, flax, chaff and weed seeds. These are further separated into three grades:

A. or buckwheat screenings, being composed of whole or broken wheat, buckwheat, flax, some oats and barley and a small percentage of the larger weed seeds.

B. composed of weed seeds, mustard, etc.

C. composed of chaff, some grain and dust.

It is the "A" or buckwheat screenings that is being recommended as suitable for feeding purposes. The following analysis of a sample as submitted has been supplied by the Seed Branch: wheat, 47.0 per cent.; oats and barley (chiefly oats), 6.8 per cent.; flax, 1.42 per cent.; wild buckwheat, 36.52; wild oats, 2.52 per cent.; weed seeds, 2.18 per cent.; chaff, 3.56 per cent. The samples vary somewhat, some having shown as high as 55 per cent. wheat with a corresponding reduction in buckwheat.

THE APIARY.

Bees in Combless Packages.

There are only three methods used at the present time for shipping bees (excepting queens), from place to place as an article of commerce: (1). Full colonies; (2). Nuclei; (3). The combless package. A full colony as sold by a dealer in bee supplies has six to eight frames of brood, a young vigorous queen and a small supply of honey and pollen, with sufficient bees to fill the spaces between the frames. A nucleus, as the name suggests, merely consists of a small colony and may consist of one, two, three or five frames of brood and bees. This smaller package was introduced to overcome the heavy transportation charges which were incurred when shipping a full colony. Nuclei are now shipped in special cases instead of the hives themselves which reduces the transportation cost much more. The latest method of shipping bees—the combless package—is a further effort to reduce the high initial cost of bees and transportation and involves the shipping of bees in wire cages without even comb or brood.

Indeed, the shipment of bees in combless packages is about the latest development of importance in commercial beekeeping. It is so new that extensive beekeepers have hesitated to order bees in quantity for fear of failure, until trial shipments were made. So successful were the trial shipments, however, that, this year, for the first time, large orders have been placed with the shippers and the possibilities of the shipping of bees in packages are just beginning to be realized.

Since most of the orders are for delivery in April and May the package business is highly developed in the South. Because of the long breeding season and the mild winters the Southern States are peculiarly adapted to this branch of beekeeping and it may be expected to become increasingly popular there. The packages are filled in the middle of the day when the old bees are in the field. In this way mostly young bees are shipped. This, under favorable conditions, insures their safe arrival and also that there will be no dwindling before the bees have time to rear brood.

It requires more capital to venture into a pound package business than is needed for any other branch of beekeeping. The season is comparatively short and the shipper must have a large number of colonies to draw from. He should first be a queen breeder, since he can hardly depend upon buying queens in sufficient numbers to fill orders. Most orders are for bees with queens since they are required to build up to strong colonies for the main honey flow. It has been found that there is a greater loss of queenless bees in transit where the bees are shipped with the queen.

The two main uses for the combless package are: (1). Where the beekeeper wants to increase the number of colonies under his control in spring, and who is looking for a crop from the same that season.

(2). To strengthen the weak colonies in order that they may build up into good strong colonies for the honey flow.

Where increase in spring is desired, and the packages are received about May 1st, it is quite easy for them to build up into full, strong colonies in time for the clover flow, when provided with full drawn comb and good stimulus (a steady flow of nectar and pollen.) However, if received late in May, if the buyer has no drawn comb, or if the stimulus is poor, then full colonies cannot be developed in time for the clover flow.

But the combless package comes into its own for the purpose of strengthening the weak colonies in spring. Colonies which are weak in spring are weak in bees and not in brood. At this time of the year the queen is seen to expand the brood nest and she is only limited by the flow of nectar and pollen and by the number of her

attendants. Instinct forbids her to lay more eggs than the worker bees can care for and keep warm, hence it is useless to add more brood. The queenless package serves the purpose admirably and supplies the colony with young worker bees.

Probably the greatest advantage of the combless package to the buyer of bees is the fact that he is sure of not introducing disease in his yard. Since the packages come from the South, it requires over three days for them to reach their destination and thus the bees are automatically treated for foul brood en route. The bees have no combs in which to deposit any honey they may have in their honey sacs at the time they are shaken into the cage, and they cluster and consume it while travelling.

The importance of the introduction of the combless package trade in commercial beekeeping may be recognized, when many extensive producers in Canada are considering the question of extracting all their honey in the fall and buying bees from the South the following spring, rather than winter the large number of bees necessary for their extensive operations. They figure that it requires at least four dollars worth of honey or sugar syrup to carry each colony through, and for the same cost a three pound package of bees with a queen may be bought and thus eliminate winter losses. A few have experimented in a small way with this idea in mind and some have been definitely convinced by the results obtained that it would pay. However, this plan is not yet possible on any extensive scale because no sufficient source of supply is yet available. It is now, at least, a proven fact that it is as cheap to buy bees in packages and place them on combs in spring, as to make late increase to winter over.

The beekeeper who desires to make heavy increase should aim to produce as many drawn combs as possible during the honey flow and then buy the bees the following spring. The buyer assumes no risk as the shipper guarantees their safe arrival.

In conclusion, the business is yet in its infancy and no one can foretell what its ultimate development may be. As yet the experimental stage has not been passed. There is no standard cage and the feed in some is supplied from the top of the cage while in others from the bottom. The feed, of course, is in the form of candy of just such a consistency that it is not too soft to muss up the bees and cage, nor too hard to cause the bees to die from lack of food. Last year many packages died from starvation, over long journeys due to delay at the Custom's office and poor transportation facilities. This year this defect has been remedied by the use of a larger candy container and by better arrangements with the Custom's officials. Other improvements are still to be made and the combless package may eventually prove to be the biggest factor in modern beekeeping.—W. F. GEDDES in O. A. C. Review.

HORTICULTURE.

Reasons for Poor Sets of Fruit.

When there is no bloom in the orchards growers expect no fruit, but it is rather disappointing to have a full bloom and then see the petals fall leaving nothing of promise on the trees. The reasons for this phenomenon are probably numerous, but outside of severe unseasonable frosts experimentalists are more or less at sea to explain the causes of blossoms but no fruit. A wide study of conditions by the various horticultural stations throughout Canada and the United States point to the destructiveness of heat and cold not evenly distributed over the period when the blossoms are open. U. P. Hedrick, of the New York Agricultural Experiment Station writes lucidly on this subject, and his explanation has a direct bearing on the weather conditions that existed last spring over a considerable area in Western Ontario where the apple crop is light. The two paragraphs which follow are from the pen of Prof. Hedrick.

"There has long been a question in the mind of the writer as to whether the set of fruit might not be more or less influenced by a difference in the hastening or retarding effect of temperature on the two essential organs of flowers. The pistil, the female organ, and the stamen, the male organ, seem to be affected in different degree by cold and heat. Thus, all know that the pistil is often injured by a light frost which does no harm to the stamen. A considerable amount of work in cross-pollinating at this Station has led to the general observation that very warm weather leads to a more rapid development of the stamen than of the pistil. Not infrequently in exceptionally hot weather it will be found that the stamens have developed much more rapidly than the pistils—that the anthers have burst and lost their pollen before the stigmas are receptive. On the other hand the stamens develop least rapidly in cold weather. May not this unequal response of stamen and pistil to heat and cold be one of the causes of the uncertainty which attends the setting of fruit even when trees blossom well? Here is an important problem for some student of blossom biology.

"Rain during blossoming time, as we have shown in Bulletin 299 from this Station, is a frequent cause of a poor setting of fruit, doing damage oftener than frosts in New York. Usually the injurious action of rain on blossoms has been ascribed to the dilution of the stigmatic fluids or to its removal by washing out. During the current season Mr. W. F. Friedman, a student assistant at this Station, has found that pollen grains of practically all fruits burst and will not germinate in water. From his work, extending through the whole of the blossoming season of 1915, there can be little doubt but that the action of rain on pollen is quite as potent

in preventing a set of fruit as is its injurious effect on the stigmatic juices."

In an address before the last Ontario Fruit Growers' Association, Prof. Macoun, Dominion Horticulturist, explained that should the temperature run fairly regularly below 70 degrees F. during the blossoming season fertilization is not likely to be good. Extensive experimental work has shown that not only is moderately warm weather necessary during the blooming period but that bright, sunny weather is desirable also, and a long spell of cool, wet weather beginning when the flowers are open is very unfavorable to pollination.

A cool, northeast wind during the period when apple trees are in bloom used to be looked on very unfavorably by the apple growers in the Annapolis Valley. It was said to "blight" the blossoms. After spraying became more general crops were surer, nevertheless there might have been some detrimental effect arising out of the prolonged cool spell occasioned by such winds. Considerable uncertainty accompanies the pollination and fertilization of the blossom, which depends not only on the weather conditions of the time but upon the tree itself and what it has undergone during the preceding season.

Select Seed Potatoes This Fall.

The importance of seed selection has impressed itself on every progressive farmer. It is an insult to a well-prepared seed bed to deposit in it seed that carries with it no pride of ancestry or no promise of productiveness. Potatoes are, perhaps, the easiest seed to select for one can handle them and see that they are the right type and clean. The common practice is to obtain the seed potatoes from the bin in the spring at planting time, but this is not the most expedient method, nor does it insure the best results. It is the easiest way no doubt, but very rarely is the easy way the best. The great disadvantage with bin selection is that one knows nothing regarding the parent of the tuber chosen. The parent plant might have produced one lone tuber, perhaps only two or three, in which case it is a bad strain to breed from. In selecting a sow pig for a breeder one usually chooses from a large litter, knowing that the progeny of a fecund female is likely to inherit and transmit still further the breeding characteristics of its dam. Bin selection of potatoes is like picking a sow pig out of a deckload on the market, not knowing whether it was one of a litter of thirteen or a litter of five. Plants, like animals, inherit and transmit certain tendencies and characteristics so the parent should be known in one case as well as in the other. Hill selection is the way out of the difficulty. Choose from hills, the plants of which matured about the same time. This will tend towards uniform ripening in the succeeding crop. Type is the next thing to consider for varieties are now becoming well known and conformance to the standard type for the variety indicates purity. Next choose from those hills that have a large number of tubers on each plant for in this way the yield can be materially influenced in the succeeding crop. Possibly the lone potato in a hill will be the most attractive one individually, but unproductiveness will be propagated and encouraged by the use of it for seed. This is where hill selection excels the method of selecting from the bin. Anyone interested in their potato yield should spare the time this fall to set aside their seed potatoes for next season.

Growing Apple Trees From Seed.

EDITOR "THE FARMER'S ADVOCATE":

I have some good apple seeds which I should like to plant. Kindly advise me concerning the time and manner of planting and also regarding transplanting same.

G. M. G.

Ans.—When imported apple seeds are used they frequently arrive in the winter and are planted in the spring. In the meantime they are soaked for three days in water, the water changed twice a day, after which they are stored in small bags between layers of ice. As soon as the land is fit to work in the spring they are planted. Good results can be obtained from planting apple seeds in the autumn, or very early spring. They usually germinate better when sown in the autumn. When it is not convenient to plant them then they should be stratified, or, in other words, mixed with moist sand (not wet) and kept in a cool, dry place until spring. It is not well to plant apple seeds in the autumn in land that heaves badly. Select a deep soil, that is, where the hard-pan does not come close to the surface, and stir it up thoroughly to a depth of 8 or 10 inches so the tap root will have a chance to develop. Prepare the land and fertilize it well, then sow the seed about 1 to 2 inches deep in rows from 2½ to 3 feet apart. If only a small quantity is to be planted, small beds will be just as good. With thorough cultivation they should make a growth of from 1 to 2 feet the first season. The next spring they should be transplanted into rows from 2½ to 3 feet apart and 12 inches apart in the rows. The following spring they can be planted in the seedling orchard. Seedlings of the apple do not come true to variety so it is necessary to bud or graft some known variety on to the stalk produced from the seed, unless one wishes to conduct an experiment for his own enjoyment. For root grafting the seedlings are taken up during the autumn and healed in in moist sand in a cool cellar. They are grafted during the winter, after which they are stored in moss or sawdust until spring; then they are planted in the nursery rows, about 1