

clover hay, or some such green food, can be given. The whole grain can be fed again at night in troughs, and what the birds do not eat should be covered in the litter. Rolled oats should be kept constantly before the hens in hoppers, and good water, or better yet, sour milk or buttermilk (preferably the latter) kept in clean dishes for them at all times. This, with good grit, should constitute a very good laying ration. A small handful per hen at each feed is enough of the whole grain. The other foods should be given in sufficient quantity to satisfy the hens' appetites.

GARDEN & ORCHARD

Topical Fruit Notes.

The early cold snap came unexpectedly, and took most growers unawares, although it is probable that not many will be inconvenienced to any great extent, owing to the early fruit-ripening which prevailed all through the past season, and which allowed growers to get ahead with their fall work earlier than usual. Some few would have been grateful for another week in which to have finished their fall plowing, for, despite sharp controversy on this subject, the great majority of fruit-growers in the Niagara Peninsula plow their orchards in the fall, throwing the soil up to the trees and vines. Some had still a few apples out, and some were caught with their potatoes in the ground. The nurserymen had a few belated orders to dig for fall planting. However, most fruit-growers will go into their winter period of comparative rest with a spirit of thanksgiving for a past bountiful season.

The next call for the fruit-grower is to get ready for pruning. Grapes are usually done first, and it is recommended by some that pruning grapes can be begun immediately after the leaves have all fallen. It is probably safer, though, to wait until after one good sharp frost, so that the unripened wood of the more tender varieties, such as Niagaras and Rogers, will be well frozen back, and thus show up well, so that the pruner may be certain to get it all cut out. Such wood is light-colored and lifeless, and does not show the freshness of well-matured wood. The great advantage in getting as much pruning done now as possible is that one has not such severe weather to contend with as in the months of January and February. It is a much more pleasant job when the weather is fine.

There were two suggestions, among many other important ones, which appealed to me most forcibly at the Thursday afternoon session of the Ontario Fruit-growers Association, held at Toronto recently. The one was proposed by James Johnson, of Simcoe, that noted working advocate of co-operation, and supported by his worthy namesake, Donald Johnson, of Forest. It was, briefly, that the strong point about co-operation was the small association, composed of loyal, educated, working members. This is strong enough to be called the first principle of co-operation, and the strength of the California Fruit-growers' Exchange is based on the recognition of this principle. Co-operation, to be successful, must be built slowly and strongly from the ground upwards. An imposing theoretical superstructure on an imperfect foundation will not last, and its only attribute is that it has been a tendency in the right direction.

The other suggestion was for the removal of fruit inspectors and other horticultural officers by political preferment. This was strongly advocated, and rightly so, from a body of unprejudiced men, as there can be no argument in favor of political preferment over merit in technical appointments to the civil service. British custom is strongly against advancement in the civil service that is not based solely on merit. In California, the State Boards of Horticulture see to it that appointees are recommended by them. They are out for efficient men to serve their interests. And what else—more or less—would one expect of men who are alive to their own interests.

Fruit-growers in the Niagara Peninsula will generally commend the editorial in the November 16th issue of this paper, dealing with the regeneration of the Department of Agriculture. In the general housecleaning which is suggested, we should be glad to see the Horticultural section given a more important status. As constructed at present, it has the dignified name of a "Division," which its actual position hardly warrants, but which the recent remarkable development of fruit-growing in all our older Provinces demands should become more than a name. However, the fruit-growers believe that their case is in very good hands.

To the growers in the Niagara Peninsula, apples are in a secondary position to the more tender fruits. Still, a very great many visit the Horticultural Exhibition every autumn. Would it not be at least a kindling of their vanity if the apple and pear exhibit were a little larger and better? But, under any circumstances, would

it not reflect more credit on the Exhibit management if the judging were done at least before the show closed?

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Natural Fruit Tree Braces.

There has always been more or less difficulty, in orchard practice, in preventing the trees from splitting at the crotches, due to overloading with fruit, or to the injury of severe windstorms. Forrest Crissey, writing in the Saturday Evening Post, explains the method used by the Portuguese fruit-growers on the Pacific Coast to counteract this difficulty. They use what Mr. Crissey terms "live wood bolts." The large branches of the trees are connected some two feet above the main crotch by a brace or rod of living wood. The ends of two sprouts, one from each branch are overlapped, twisted about each other, and bound together when the tree is young. In time, these sprouts grow together into a strong, and, according to Crissey, semi-pliant brace of living wood, showing greater power of wind resistance than the iron rod often used by careful orchardists to prevent breaking and splitting. This looks quite reasonable, as there would be no weakening holes in the tree, and the braces yielding a little, would add to their strength. Some of these live wood-braces are as thick as a man's wrist, writes Mr. Crissey, and in such trees other and later-formed like braces are used in the limbs higher up in the tree. "To look upon a tree equipped with these natural bolts and ropes, part and parcel of its own living fibre, is instantly to understand the kind and quality of resistance that it would offer against a high wind or a heavy storm, the supple strength with which each branch would at once support and accommodate the other branches, all the members of the head yielding and resting together." Trees in full bearing often require props when heavily loaded. Much trouble is avoided by these natural supports, and much loss averted. The system looks practical, and fruit-growers might do well to consider it seriously and test it out.

THE FARM BULLETIN.

Short Crops in Ontario.

The November Crop Bulletin of the Ontario Department of Agriculture, based upon reports of 2,000 correspondents sent in during the first of the month, gives, as usual, a valuable and fairly reliable review of the season's crop production throughout the Province. Oats were the poorest of the cereals this year, as to both yield and quality. Drouth and extreme heat at time of filling affected a considerable proportion of the crop, and there are many complaints of light grain, while the straw was decidedly short. Peas have experienced another bad season, the dry weather catching many of them in bloom. Beans were uneven, and corn variable, best reports of this crop coming from Western Ontario. Wheat yields were below the average of recent years. As to the new crop, we note: "In the Western half of the Province, where most of the fall wheat is raised, a slightly increased area has been put in, except in the Georgian Bay District, where a smaller acreage than usual is reported. The bulk of the new seeding found a good bed, and the young wheat was looking well when correspondents reported. Sowing ranged all the way from the 24th of August to the first week of October, the bulk of the crop being got in during the first half of September, although some was sowed later purposely, in order to avoid the Hessian fly, which is reported to be operating in some of the new fields.

The growing of mixed grain does not appear to be gaining favor, although some correspondents heartily advocate the practice. The yield of potatoes will be light, as they were affected by drouth both at the time of planting and during growth. All classes of roots suffered from drouth, mangels evidently faring best. The thin second growth of clover produced a light crop of seed, though the heads were well filled and the seed apparently of excellent quality.

As to fruit, the benefits of spraying are pointed out by a large number of correspondents. Several report that most apples and other orchard fruit had a cleaner and more presentable appearance this season than usual. A considerable quantity of fruit was blown off the trees in September.

Live Stock.—Fall pastures were short after the long drouth earlier in the season, but most of the live stock were still on the grass as correspondents reported, and, by their general condition, looked as if they were able to get the usual pickings off the fields. Horses are in demand at good prices. Cattle are rather thin, but healthy; in fact, no returns make mention of any serious disease existing among any class of farm animals. Hogs and cattle are much scarcer than usual, and some correspondents assert that the tendency just now is more toward milk production. Sheep are

reported to be in excellent condition, but are not plentiful. Shipments of swine have been more or less steady all the season through, and there was a large supply on hand at the beginning of November, but some correspondents insist that the high price of feed and the comparatively low price of pork will cause a number of brood sows to be marketed. Silos are increasing in number all over the Province.

Dairying.—With cheese commanding factory rates which at one time in the season went well over 14 cents a pound, good prices for all dairy products were assured. But as a marked shrinkage in the milk supply was the main cause of these high prices, some correspondents claim that dairy profits will be little, if any, ahead of other years. Cheese factories and creameries have to contend more than formerly with the increasing demand for milk and cream for the growing towns and cities of the Province. The Folslein cow is now fairly in the lead as the favorite for the dairy, although the Shorthorn, the Ayrshire and the Jersey have their champions.

Poultry.—More attention than ever before is being given to poultry-raising on the farm, and an improvement in their general quality is reported. While more hens, geese and ducks are reported, and all these classes of fowl are, as a rule, in excellent condition, several correspondents refer to turkeys as being very hard to raise, and predict a scarcity.

STATISTICS OF LIVE STOCK.

The numbers of live stock on hand on July 1st, 1911, were as follows: Horses, 737,916, against 724,384 in 1910, and 728,308 in 1909; milch cows, 1,045,610, against 1,052,796 and 1,075,496; other cattle, 1,547,595, against 1,514,332 and 1,593,088; sheep and lambs, 1,040,245, against 1,065,101 and 1,130,667; swine, 1,744,983, against 1,561,042 and 1,551,187; poultry, 12,942,293, against 12,460,787 and 12,086,432.

The numbers of live stock sold or slaughtered in the year ending June 30th, 1911, were as follows: Horses, 105,741, against 97,900 in 1910, and 76,461 in 1909; cattle, 837,544, against 817,239 and 800,228; sheep, 505,015, against 512,909 and 533,441; swine, 1,936,937, against 1,844,405 and 1,986,432; poultry, 5,011,313, against 4,164,715 and 4,177,582. The clip of wool was 3,780,798, against 4,010,800 in 1909.

FIELD CROPS OF 1911.

The following statements give the area and yields of the principal field crops of Ontario for 1911. The areas have been compiled from individual returns of farmers, and the yields by a special staff in each township, in addition to our regular crop correspondents.

Fall Wheat.—837,492 acres yielded 17,926,534 bushels, or 21.4 per acre, as compared with 19,837,172 and 26.7 in 1910. The annual average per acre for thirty years was 21.0.

Spring Wheat.—133,711 acres yielded 2,295,534 bushels, or 17.2 per acre, as compared with 2,489,833 and 19.3 in 1910. Annual average, 15.9.

Barley.—616,977 acres yielded 16,248,129 bushels, or 26.3 per acre, as compared with 19,103,107 and 30.5 in 1910. Annual average, 27.7.

Oats.—2,699,230 acres yielded 84,829,232 bushels, or 31.4 per acre, as compared with 102,084,924 and 37.0 in 1910. Annual average, 35.5.

Rye.—98,652 acres yielded 1,562,971 bushels, or 15.8 per acre, as compared with 1,620,333 and 17.0 in 1910. Annual average, 16.4.

Buckwheat.—189,039 acres yielded 3,852,231 bushels, or 20.4 per acre, as compared with 4,693,881 and 24.1 in 1910. Annual average, 20.3.

Peas.—304,491 acres yielded 4,462,182 bushels, or 14.7 per acre, as compared with 6,016,003 and 14.9 in 1910. Annual average, 19.3.

Beans.—51,508 acres yielded 898,212 bushels, or 17.4 per acre, as compared with 892,927 and 17.9 in 1910. Annual average, 17.2.

Mixed Grains.—486,112 acres yielded 14,845,595 bushels, or 30.5 per acre, as compared with 18,261,803 and 36.7 in 1910. Average (five years), 33.4.

Potatoes.—162,457 acres yielded 13,918,698 bushels, or 86 per acre, as compared with 21,927,804 and 130 in 1910. Annual average, 115.

Mangels.—64,855 acres yielded 31,578,442 bushels, or 487 per acre, as compared with 34,686,137 and 503 in 1910. Annual average, 460.

Sugar Beets.—24,664 acres yielded 8,941,659 bushels, or 363 per acre, as compared with 11,238,577 and 418 in 1910. Average (five years), 402.

Carrots.—3,207 acres yielded 815,129 bushels, or 254 per acre, as compared with 1,049,348 and 296 in 1910. Annual average, 344.

Turnips.—100,593 acres yielded 39,664,275 bushels, or 394 per acre, as compared with 49,425,472 and 456 in 1910. Annual average, 429.

Corn for Husking.—308,350 acres yielded 21,913,290 bushels (in the ear), or 71.1 per acre, as compared with 24,900,386 and 77.7 in 1910. Annual average, 71.3.

Corn for Silo.—335,935 acres yielded 3,764,