

Roots for Dairy Cows.

The Edinburgh and East of Scotland College of Agriculture has conducted some experiments with sixty dairy Shorthorn cows to ascertain the value of roots in feeding dairy cows. Twenty cows were used for this purpose in 1909, twenty-two in 1910, and eighteen in 1911. Two rations were used, one called the turnip ration, the other the concentrate ration. The turnip ration was made up of 2 lbs. bean meal, 2 lbs. bran, 112 lbs. turnips, and 15 lbs. of hay; an albuminoid ratio of 1 to 14, and a total dry matter in the ration of 28.6 lbs. The concentrate ration consisted of 2 lbs. bean meal, 2 lbs. bran, 4 lbs. pea meal, 2 lbs. dried brewers' grains, 14 lbs. turnips, and 15 lbs. hay; an albuminoid ratio of 1 to 7.6, and the dry matter 26.7 lbs. Straw was supplied to each lot of cows. The turnip ration had only four pounds of concentrate material, but it had the most dry matter. The results of the three years' experiment showed that in yield the concentrate ration gave better results than the turnip ration, but in the amount of fat produced in the butter the turnip ration scored a success.

The following conclusions were arrived at:

1. The feeding of a ration containing a large quantity of water does not increase the percentage of water in the milk or reduce the percentage of fat.
2. In all the experiments the greater yield of milk was obtained from the cows on the concentrated ration. On the other hand, the milk from the cows on the turnip ration contained a higher percentage fat and a greater total weight of fat was recorded in the milk.
3. The cost of production, when allowance was made for the percentage of fat in the milk, was less in the case of the turnip ration.
4. At the end of the experiment the condition of both lots of cows was satisfactory.
5. While the milk of individual cows frequently contained less than 3 per cent. fat, the percentages of fat and solids, not fat in the mixed milk of both lots, practically never fell below 3 per cent. and 8.5 per cent., respectively, during the course of the experiments.

GARDEN & ORCHARD.

Storing Vegetables.

A writer in the American Cultivator gives the following advice to vegetable growers.

If the farmer will construct a root cellar away from the buildings and cover it with earth, he can keep many of his vegetables until late in the spring, and sell them at an excellent profit.

Few house cellars are adapted to storage purposes. In order that vegetables may keep well, they should have a uniform temperature, darkness and some degree of moisture. A temperature of about 40 should be maintained as far as possible.

In mid-winter the aim should be to keep the cold out and in the spring to keep it in. One or two lighted lanterns will help to increase the warmth, and a heavy blanket of manure or straw, as the sun gets higher, will aid in keeping the frost in the ground until late in the season.

Probably the best storage cellar is made with roof, sides and floor of cement. Such a cellar covered with earth will give the utmost satisfaction. A stone cellar will also prove efficient, and one built of boards is much better than none at all, although a little more care will be required to keep the conditions right.

It is always well to lay tile drains with proper outlets under a cellar of this kind, and to provide a ventilator. It is important, too, to have the door wide enough to push a wheel barrow through, but after the vegetables have been stored for the winter, as little light as possible should be admitted, and the temperature should not be allowed to rise above forty. Too much warm air is sure to result in loss.

The earth covering is important for two reasons—it aids in keeping the cold out in winter and the heat in spring, and it supplies just about the right amount of moisture. Such a cellar may be built anywhere, but of course there is some economy in labor if it is placed on or rather in a side hill.

Advantages of Fruit Growing for Small Farms.

"In addition to the many other advantages which are possessed by a section of country devoted to the growing of fruits of various kinds is the tendency to sub-divide large farms into smaller holdings," says Wm. H. Bunting, concluding his recently-published report on fruit-growing conditions in Canada. "Professor Warren, of Cornell University, head of the Department of Farm Management, after a thorough survey of two of the more important counties of New York State, devoted largely to general farming, sums up the limit of profitable farm management as being in inverse ratio from the smaller holdings to the farm of at least two hundred acres, under which the greatest efficiency may be obtained with a minimum of expense. He shows by actual data that 90 per cent. of the farmers in these counties whose farms do not exceed thirty acres in extent, receive less than \$500 per annum net for their labor. On the farms of 200 acres and over, only one-third of the farmers receive \$1,000 and over as a reward for their labor in the course of the year.

"When we come to compare these figures with the average returns from a well-managed fruit plantation, one year with another, there is a marked difference. Net returns from \$50 to \$200 per acre and even more are not at all unusual and it is safe to say, from a perusal of the replies received from over one hundred and fifty correspondents in all parts of Canada in answer to an enquiry on this subject, that at least \$50

per acre, net, may be counted upon in this country for the area under fruit. In many sections farms of one and two hundred acres, which were returning their owners not more than a comfortable living while devoted to general farming, are now supporting from six to twelve families who are devoting their energies to fruit culture, and doing so successfully.

"Fruit-growing furnishes pleasant and profitable employment to all the members of the family, encourages the sub-dividing of the land into smaller holdings, gives social and educational advantages, leads to the establishment of many allied industries in the district, and in many other ways adds materially to the substantial wealth of the community."

Fruit Growing in Canada.

A year ago the Department of Agriculture at Ottawa, through the Branch of the Dairy and Cold Storage Commissioner, undertook an investigation of the fruit growing conditions throughout Canada. The enquiry was entrusted to Wm. H. Bunting, an extensive fruit grower at St. Catharines, Ont., who secured as much information as possible on the following points:—

1. The possibilities of an extension of the fruit growing industry of Canada in the different localities visited.
2. The tendencies in the matters of the planting and growing of different kinds of fruit, and with regard to apples, the varieties which are being most extensively planted in the different districts.
3. The difficulties which are likely to be encountered in the further development of the fruit growing industry.
4. Methods of production and orchard management which have been most successful in the different districts, and the probabilities of over-production.

5. The conditions under which British Columbia, Ontario and Maritime Province fruit is marketed in the prairie Provinces as well as the character, and the effect of American competition.

The enquiry was concluded in due time, and the report has been printed for general distribution. It contains a large amount of detailed information gathered in every province, making it an invaluable guide to persons who desire to take up fruit growing as an industry.

In his general conclusions Mr. Bunting points out that while the growing of fruit offers ample reward to the man of energy, patience and perseverance, there is perhaps no phase of agricultural endeavor which requires to be more closely studied, and in which a wider range of information is more desirable and necessary. The future of the industry, he states, was never brighter than it is to-day, the prospects never more attractive, nor the field of extensive effort in all fruit growing provinces more inviting.

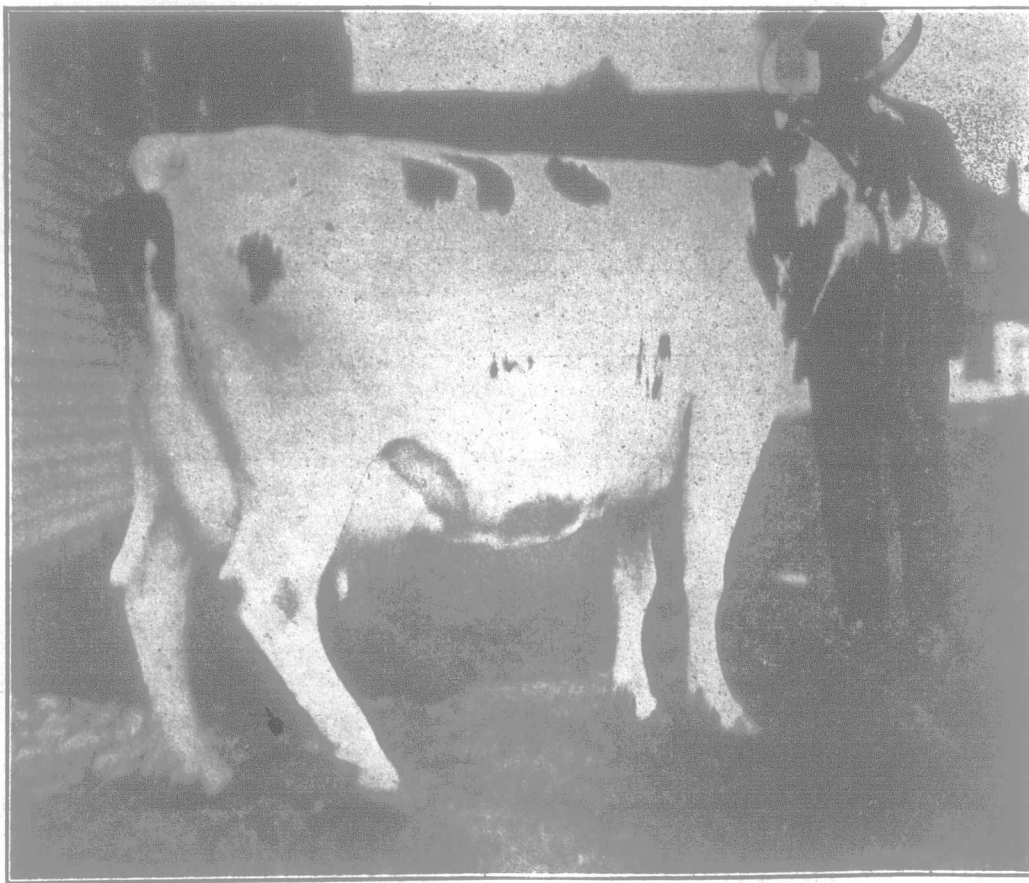
The report which contains eighty-four printed pages and many illustrations, is available to all who apply for it to the Publications Branch of the Department of Agriculture, Ottawa, Ont.

Onion Rots in Storage.

Bulletin 214 of the Ohio Experiment Station dealing with onion rots, says: Onion rots is a serious matter with onion growers, and onion dealers as well. It has been found that particular varieties of onions in our climate are susceptible to special diseases. For this reason we must consider white onions, such as White Silverskin, White King, etc., in a separate class from the rots of red and yellow onions, such as the Globe and Wethersfield varieties.

With the white onions the problem is partly a field problem at harvest time and partly one of storage. The growers are in the habit of gathering the white onions before the tops fall and topping them immediately, instead of throwing together in heaps for absorption of the substance of the tops by the onion bulbs, as is practiced with the riper red and yellow varieties. After topping, the white onions are placed in slatted crates, and these crates are stacked in the field or open sheds, where they are kept dry. Often the loss from rot during the six weeks following harvest may reach 60 per cent. of the crop, and, as shown by investigations in Connecticut and Ohio, it has not always been clear why these losses are so large. Recent investigations lead us to believe that the green onion neck of white onions handled in this way affords entrance for the organism of rot.

The sclerotium rot (*sclerotium cepivorum*) appears to be the most serious, although smudge or anthracnose of the onion (*Vermicularia circinans*) may sometimes cause large losses. It is believed that both these rots may be handled by disinfection of the onions immediately after harvest. This disinfection may be carried out as described under the Maine formula for formaldehyde-gas treatment, which consists of commercial 40 per cent. formaldehyde, 3 pounds; potassium permanganate crystals, 23 ounces, sufficient for 1,000 cu. ft. of space occupied by crates or trays.



Bellsland Nan 4th (imp.)—24899—.

Ayrshire cow; champion female of the breed, at Western Fair, London, 1912. Owned by Alex. Hume & Co., Menzies, Ont.

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