

the right direction has been made and at no distant future we believe Ontario butter will be uniformly of the finest quality.

Produce men have signified their willingness to buy butter on a graded basis and many creamerymen have followed suit. It is recognized that a new departure cannot be introduced all at once. The people must be enlightened as to the workings of the new venture and of the benefits accruing to them. The Dairy Branch of the Department of Agriculture, under the supervision of E. Hens, Chief Dairy Instructor in Western Ontario, carried on considerable work during the past summer and winter. The grading was done by J. H. Scott, of Exeter, and it was found feasible to introduce grading of butter by sample and that commercial grading was practicable in Ontario. The quality of butter depends primarily on the quality of cream, consequently improvement must start with the producer. When cream is purchased on a quality basis, it is reasonable to expect that better care will be taken of the cream on the farm. Grading has improved the quality of butter in other provinces and has given the dairymen higher returns; there is no reason why it will not do the same in Ontario. On a rising market quality does not count for so much as when prices are flat. These are abnormal times and butter-fat and butter find ready sale. Under normal conditions trade will seek out the highest quality products. By getting grading under way now we will be prepared for emergencies later on. Under the new system of paying, the aim of every dairyman will be to keep the cream in the most approved manner, because it will pay him. Likewise, creamerymen will exercise their ingenuity to make that cream into first or special grade butter.

Producing High grade Cream.

The production of first-grade cream requires adherence to several well-known principles. The cows must be healthy and be given clean, wholesome feed. The stable where the milking is done should be free from objectionable odors and dust. Cows' udders and flanks should be wiped, and the milker's careful not to allow dirt to get into the pails. Do not have too thin a cream; it reduces the amount of skim-milk and increases the cost of caring for and marketing. Cream is sold on a per cent. fat basis, therefore, one hundred pounds of twenty per cent. cream is worth no more for butter making than fifty pounds testing forty per cent. Turn the screw of the separator so as to skim a thirty to thirty-five per cent. cream. In order to have a fairly uniform test the milk must be of the same temperature and fed into the separator at the same rate from day to day. It is also essential that the machine always be turned at the same number of revolutions per minute. The cream should be cooled immediately after separating and kept as cool as possible until delivered at the creamery. Warm milk and cream absorb odors, thus fermenting or decaying material in the stable may seriously affect the flavor of the cream. Most people object to turny butter, and no one can blame them. Fresh clover and several other crops will impart a flavor to the milk and cream unless it is properly looked after. It is advisable to remove fresh milk from the stable as soon as possible after it is drawn. Cleanliness is essential at all times in the handling of dairy products.

Since the advent of the cream separator, it is claimed by some creamerymen that the quality of the cream is lower than when creaming was done by using the pans or cans. Under the latter method it was essential that the milk be cold in order that complete separation take place. This resulted in the cream being cold when it was skimmed. Under the almost universal system of creaming by action of centrifugal forces, cream is warm when it leaves the machine. The too common practice is to pour fresh cream in the can with old cream. The result is that warm cream brings into activity bacteria which have been dormant. Under the old system the cream was always cool when mixed in the can. It is necessary that cream from the separator be cooled immediately after it leaves the machine. This is best done by setting the pail or can in a tub of cold water, the colder the better. If possible the temperature of the cream should be lowered to about fifty degrees F., then when it is mixed with old cream there are no ill effects. Many of the bacteria which develop "off flavors," souring, etc., grow and increase rapidly in numbers at a warm temperature, but multiply slowly at or below fifty degrees. Warm, new cream added to ripened cream just before churning causes an excessive loss of fat, therefore, whether it is to be made into butter on the farm or shipped to a creamery, it means dollars and cents to the producer to carefully cool it immediately after separating. Cold, running water will reduce the temperature, but ice to put in the water materially aids in cooling. By taking this precaution there is less danger of the cream becoming over-ripe or rancid.

The opening of spring, which brings high temperatures, increases the difficulty of keeping cream sweet if it is to be held for several days, and as summer advances a poorer quality product is secured by the average creamery. However, it was proven last year that it is possible to so look after cream that it can be delivered in first-class condition. To do this requires cooling after separation and keeping the can in cold or ice water. Cream must not be held too long during hot weather. It is necessary to make more frequent deliveries in July and August than during fall and winter. When shipping, many have too large a can; it takes too long to fill when only a few cows are kept and the milk flow drops down as it usually does in hot weather. Creameries usually secure the best product from the patrons who do their own delivering. When

it is gathered by team or truck, which is out all day in the hot sun, oftentimes without a canopy to shade the cans, the cream secured at the commencement of the trip cannot be as good as that only hauled a mile or two. A large amount is shipped by rail and is delivered in good condition. The fact that it can be shipped, thus affording many markets, is partly responsible for carelessness in handling cream on the farm. If one creamery won't accept it on account of quality, another usually will. This difficulty is always experienced under the pooling system. It is different when payment is made according to quality, and the condition of the cream is taken into consideration as well as the percentage fat. Healthy cows, good feed, cleanliness and keeping the cream cool will go a long way towards being able to market first-grade cream, which will make first-quality butter that will compete favorably with the best of other countries. By the grading system the producer is paid for taking extra care of his milk and cream. When grading of cream and butter becomes general throughout the province, Ontario butter will not have to take a second place. This means something to the dairy industry and to the dairymen in particular. The movement, though belated, has started; let every dairymen, creameryman and produce merchant put their shoulders to the wheel and boost it along so that in a short time practically all Canadian butter will be in the special or first grades. It can be done; it will be done if everyone does his part.

POULTRY.

More Eggs and Poultry.

EDITOR "THE FARMER'S ADVOCATE":

There never was a time when an increase in poultry production was as necessary as it is at present. The demand was never as good, and prospects indicate that this demand will continue for some time to come. With the scarcity of meat, Canadians are eating more eggs, and Great Britain needs all the eggs we can supply.

As a business proposition increased production of poultry products has much to commend it. In normal times Great Britain eats a million eggs a day. Present consumption is less than this owing to the war having cut off many sources of supply. Canadian eggs are good eggs and are at a premium in England. Several cents a dozen more are paid for them than for eggs from some other countries.

For two years Canada has been producing a small surplus, and there is no reason why the surplus for 1917 should not be from five to ten times what it was in 1916. We have the climate, we have the feed, and though labor for other lines of work is scarce, there is plenty of labor suitable for poultry keeping.

Unfortunately, efforts to increase production will not affect the supply of eggs until the early pullets start to lay next fall. To help the egg supply in the meantime, make sure that laying hens are well fed; give them exercise and fresh air; market all weaklings and non-producers. Use vigorous males; have the fertility egg count. Aim to have hatching done before May 25. For general purpose breeds, and for light breeds, no later than June 15. Give special attention to rearing the chicks.

The farm flock always pays when given proper care. Production here might be materially increased with very little additional labor or expense. One farmer in Eastern Ontario made \$4.00 per hundredweight out of his feed grain by selling it as new laid eggs. If one can do that, others can. Feed is dear, but so are eggs. Breed from bred-to-lay strains; market the eggs when new-laid; distribute the sale of table poultry over as much of the year as possible; cull out the weaklings and feed intelligently. Increased production will follow, resulting in a larger surplus to meet Great Britain's demand for eggs.

DOMINION DEPARTMENT OF AGRICULTURE.

HORTICULTURE.

Spraying for Scab, Bud Moth and Codling Worm.

Perhaps the scab and codling worm cause more unmarketable apples than all other diseases and insects combined. The bud moth, too, works concealed and destroys the prospect of fruit within the bud as well as much foliage, particularly on young trees. Where there is any San José scale the dormant spray should have been applied, but in any case the application just before the blossom buds burst and again when about ninety per cent. of the blossoms have fallen, should not be omitted. If the British embargo on Canadian apples continues in effect next fall and winter, no doubt the influence will be detrimental. There is no use hedging this question; but on the other hand what up-to-date grower can afford to neglect his orchard and allow it to become a breeding ground for disease and insects? Such neglect will militate against profits in years to come and make future operations all the more difficult and expensive.

Scab can be dealt a heavy blow just before the blossom buds open by spraying with lime-sulphur, (one gallon of commercial lime-sulphur diluted with 30 or 35 gallons of water) or Bordeaux mixture. The price of bluestone will naturally decrease the popularity of Bordeaux mixture this year. The addition of two or three pounds of arsenate of lead to forty gallons of the solution will help to control the bud moth, so both scab

and bud moth are attacked at the one time. The spray just mentioned will not ensure freedom from scab. Another application of lime-sulphur will be necessary, and the next opportunity presents itself just as the blossoms are about all fallen. At this time the solution may be a trifle weaker than the previous one, or one gallon of commercial lime-sulphur with thirty-three to forty gallons of water. This is an opportune time also to combat the codling worm, so two pounds of arsenate of lead to forty gallons of the solution should be added. The codling worm, as most all growers know, causes the wormy apple, and the young larvæ enters the fruit at the calyx end. If this entrance be blocked with poison, the small worm eats a very little and its career is ended before any material damage is done. Thus in the first spray referred to, one would prevent the development of scab on the foliage and twigs, as well as destroy many small larvæ of the bud moth. With the second spray one would cover the small apple, just in the formative stage, and the stems, with material very injurious to scab spores, and at the same time block the entrance to the apple so the codling worm will find an unsurmountable difficulty in gaining admittance.

This is the theory or philosophy of these two sprays, and they should be applied at exactly the proper time, if possible. As an illustration of the result of tardiness we might point out that after a short time, subsequent to the falling of the petals, the small apple turns down and the calyces close. It is then difficult to get the spray into the calyx end, and an opportunity has been lost. Study the Spray Calendar, which appeared in the issue of March 29, and follow its directions as closely as conditions will permit.

FARM BULLETIN.

The 1917 Budget.

No tariff changes were proposed by Sir Thomas White, Minister of Finance, in the Budget address in the House on April 24, but increased taxes were imposed on abnormal business profits. The Business Profits War Tax Act of 1916 permitted the Government to collect twenty-five per cent. of all profits over seven per cent. on invested capital. Now the Minister of Finance proposes to extend this tax to the extent of collecting fifty per cent. of all profits over fifteen per cent., and seventy-five per cent. of all profits over twenty per cent. Incomes were untouched on the grounds that the larger earnings, apart from salaries, were derived from holdings in joint stock companies already subject to taxation under the Business Profits War Tax Act, and that the Canadian public are now contributing voluntarily to the Canadian Patriotic, Red Cross, and other funds. While some of the more wealthy are not doing their part, it was felt that they would still be able to shun their duty under any system of income taxation the Government might impose, especially when holding issues of Dominion bonds exempt from Dominion taxation.

The results from the tax on abnormal profits for the first accounting period have been gratifying to the Government. As much as \$12,500,000 has already flowed into the public treasury from this source, and when the full levy is made it is anticipated that upwards of \$15,000,000 will be collected in respect to the first period. The profits of the first accounting period were much affected by the depression and dislocation of business incidental to the first months of the war, but owing to the business prosperity which has subsequently prevailed, the Finance Minister looks for a considerable increase in revenue from profits for the second period.

For the first year of the war the revenue from all sources was about \$130,000,000. It rose during the second year to \$170,000,000. For the year ending March 31, the revenue will reach \$232,000,000, or \$100,000,000 in advance of the fiscal year 1915. In round figures \$134,000,000 of the aggregate was derived from customs, \$21,000,000 from excise, and \$12,500,000 from the Business Profits War Tax. Outside of the direct war expenditure the outlay for the past year upon ordinary account was \$146,000,000 and \$27,000,000 upon capital and subsidy account or a total of \$173,000,000. Of the expenditure on ordinary account \$25,000,000 represents increased interest and pension charges due to the war.

Since the beginning of hostilities the total war outlay including estimated and unadjusted liabilities to Great Britain for the maintenance of our troops at the front, and inclusive of withheld pay, totals approximately \$600,000,000. As the result of this large war expenditure the net national debt of Canada, which was \$336,000,000 before the outbreak of the war, has risen to over \$900,000,000. By the end of the present fiscal year the Finance Minister stated that it may reach \$1,300,000,000.

The only safeguard against the conditions as expressed in the foregoing figures that Sir Thomas White could suggest was a saving on the part of all who are now engaged at good wages and are in a position to save, and the careful husbanding of their resources by firms and companies engaged in business. The position of most businesses in Canada is now thoroughly sound, he said, and it is for their proprietors, with the prudent watchfulness of their bankers, to keep them in that condition. The sources of danger to business in war time are speculation in commodities and stock exploitation on the exchanges. With these avoided and national saving greatly increased we might look forward with confidence to whatever may occur in the reconstruction period after the war.