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AND HORTICULTURE

Volume 36 *April 1st 1933* *Number 10*

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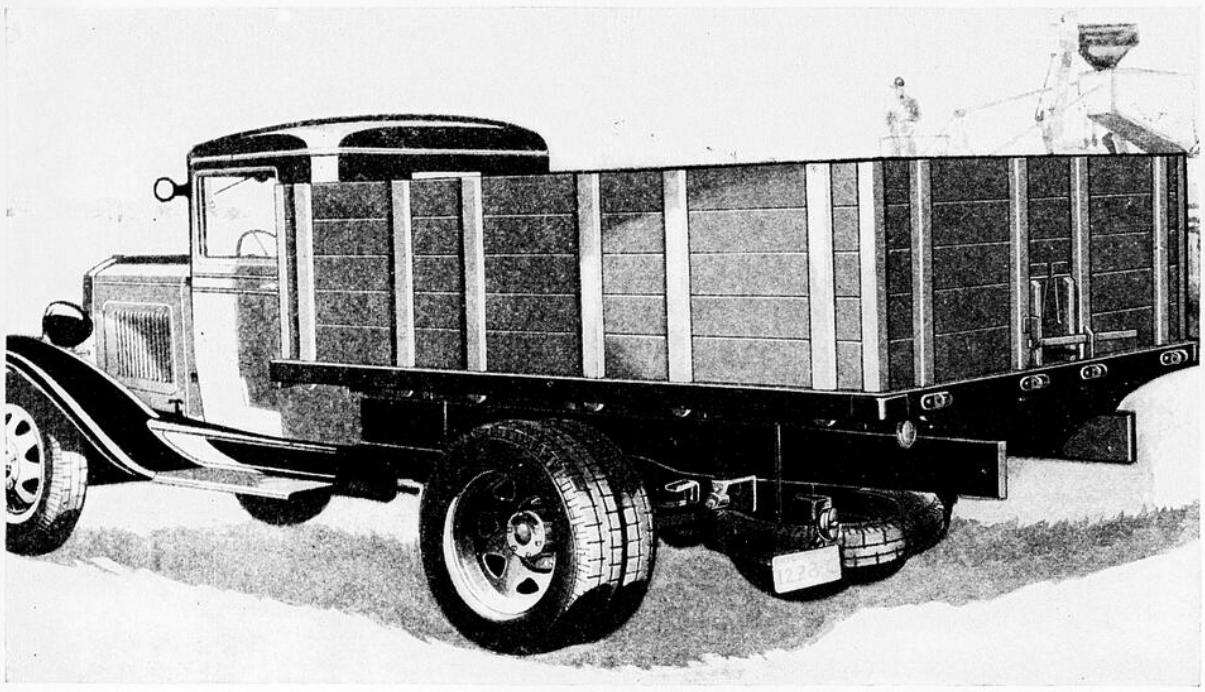
FOR ECONOMICAL TRANSPORTATION

CHEVROLET GM GENERAL MOTORS PRODUCTS

LEADS IN SALES AND VALUE



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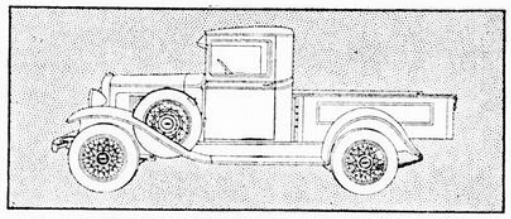
• A new line adaptable to the Farmer's every need

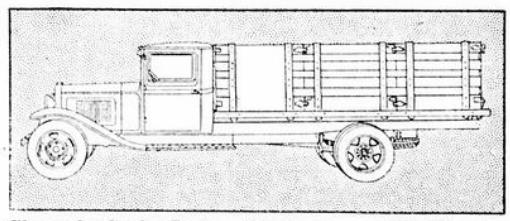
• Chevrolet-built bodies • Bodies and Chassis Made-in-Canada

WHEN a truck proves its ability to save owners money—then rural Canada is going to demand it, in a big way! And Canadian farmers have proved that Chevrolet six-cylinder trucks are so efficient and dependable—so economical to buy and operate—that they are investing in more Chevrolets than any other make.

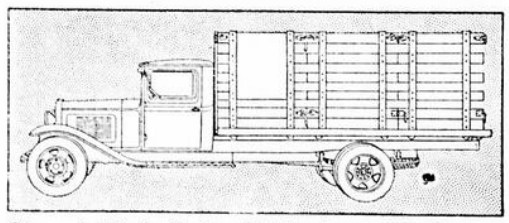
Chevrolet ½-ton and 1½-ton Trucks have long been famous. The Maple Leaf Heavy Duty 2-ton models have chalked up amazing records of stamina, power and savings. And this year, Chevrolet matches these great chassis with a wide range of new Chevrolet-built bodies. Get the full details at your Chevrolet dealer's. Learn why Chevrolet is winning first choice everywhere for lowest transportation costs!



½-ton Chevrolet Pick-Up with Enclosed Cab



Chevrolet Stake Body—36" Racks on 157" Chassis



Chevrolet Stake Body—50" Racks on 157" Chassis

CHEVROLET LEADERSHIP

Charted from official registration figures as at December 31, 1932

CHEVROLET	34.61%
TRUCK "A"	29.33%
TRUCK "B"	9.33%
TRUCK "C"	6.53%

. . . In a year when VALUES were paramount CHEVROLET assumed OUTSTANDING LEADERSHIP in the ENTIRE TRUCK INDUSTRY

CF-4T

CHEVROLET SIX-CYLINDER TRUCKS

Milk "Makes" the Headlines

Dairying Difficulties Aired at Probe into City Milk Prices by Ottawa House Committee on Agriculture and Colonization.

MILK and its prices, more particularly in so far as the city milk trade is concerned, have achieved front-page prominence in our newspapers during the past few weeks. This has resulted from an investigation into the "spread" between prices paid to farmers delivering milk to Montreal and that paid by consumers in the city—an investigation demanded by members of parliament following charges made by Dr. F. H. Pickel, M.P., for Brome-Missisquoi, that the distributors are taking too large a share of the consumer's milk dollar. The investigation has been carried out by the House Committee on Agriculture and Colonization, and before this body have been summoned officials of the Montreal Milk Producers' Association, and a number of the better known milk distributors of Montreal.

Contending that city dairy businesses were carried on in the most extravagant manner with no effort at economy, and that the farmer had to pay for it all, Dr. Pickel pointed out that the farmer deserved at least a 50-50 division of the consumer's dollar, especially since he has to bear the cost of transporting the milk to the city—yet at present he gets far from that.

"The distributor of milk receives $4 per hundred in quarts and two cents a quart extra if he distributes by the pint," protested Mr. Pickel. "If you consider the spread he gets out of the ice cream which costs him 37½ cents a gallon and which he sells at $1.20 and consider the buttermilk which he steals entirely from the farmer, and sells for nearly as much as he does the whole milk, and if you consider further the separated milk which he uses to reduce super-standard milk which he also steals from the farmer, you will readily see he is getting more than $5 per hundred. How in the world such an unjust condition of affairs can be permitted to exist in this supposedly civilized country is more than I can imagine."

Producers' Side Heard

Appearing first before the Committee were two officials of the Montreal Milk Producers' Association, P. D. McArthur, Howick, president, and W. W. Moore, Montreal, secretary.

Mr. Moore in his evidence before the committee stressed the need of some utilities commission to operate in the Montreal district during the present emergency and on lines similar to

(Continued on page 175)

The JOURNAL of AGRICULTURE
AND HORTICULTURE

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EDITORIAL COMMENT

SIZE OF FACTORY AND QUALITY OF PRODUCT

IN the Report of the Provincial Dairy Commission, which we published last month, the recommendation is made that small butter and cheese factories be amalgamated, where possible, into larger productive units—to effect economies of various kinds, and to ensure products of a higher and more uniform quality. Evidence of the possibility of achieving the latter aim is offered in a note in the current News Letter from the Dairy Branch, Ottawa. In this, the following table is presented, based on data obtained in the enquiry made into cheese making in Ontario, Quebec, and Prince Edward Island in 1932, by federal workers, co-operating with the officials of the provinces concerned.

CHEESE, 1932—QUEBEC, ONTARIO AND PRINCE EDWARD ISLAND

Factories Making No. Boxes	No. of Factories	Total Cheese Boxes	Avg. No. Boxes per Factory	Percent First	Average Score
Below 750	700	304,792	435	87.8	91,850
751 to 1000	238	212,156	891	93.3	92,186
1001 to 2000	328	435,111	1,327	95.4	92,356
2001 to 3000	69	164,317	2,381	96.7	92,466
3001 to 4000	17	61,966	3,645	98.0	92,495
4001 and up	18	85,268	4,737	97.9	92,513
Total.....	1,370	1,263,010	922	93.7	92,237

The News Letter makes the following comment on the data:

"An analysis of the foregoing table reveals some very enlightening information. It is interesting to note the definite correlation between the average production output of factories and the percentage of first grade cheese and their average scores. While some of the small cheese factories are manufacturing a high percentage of first grade cheese, these data would indicate that increased volume of production tends to further the quality production which, no doubt, is the result of more efficient control methods in plant operation. This higher quality in turn reflects back to the producer in dollars and cents and is a stimulus to better quality raw materials from the farm."

SHARING THE MILK DOLLAR

Since the publication in The Journal last month of the Report of the Provincial Dairy Commission, milk has leaped into the limelight through the investigation into city milk prices by the Committee of Agriculture and Colonization of the Ottawa House of Commons.

The chief interest of the sponsors of this investigation has apparently been to establish the "spread" between the price of milk paid by the consumer and that received by the producer, for it is felt that the farmers producing the milk have not been getting their share, and more particularly in these recent years of falling prices.

While the evidence adduced at this enquiry has been somewhat contradictory, the general contention of Montreal milk distributors seems to be that even today the farmer gets about fifty per cent of the consumer's dollar. This is not borne out by the findings of Dr. M. C. Bond, of Cornell University, who carried on an investigation last summer for the Quebec Provincial Dairy Commission. His figures for Montreal show that, while the producer received fifty per cent or more of the retail price of milk up to 1930, his share since then has been considerably less than this—though he bears the cost of transporting the milk to the city, in addition to the many costs incurred in its production. These figures follow:

MILK PRICES MARGINS—MONTREAL—1910-1932

	Retail price	Reported price to producers	Distribution margin	Per cent the farm price was of retail price
		Price par quart		
Avg. 1910-14	$0.083	$0.048	$0.035	57.8
1915	0.092	0.052	0.040	56.5
1916	0.097	0.053	0.044	54.6
1917	0.114	0.067	0.047	58.8
1918	0.128	0.079	0.049	61.7
1919	0.139	0.085	0.054	61.2
1920	0.156	0.089	0.067	57.1
1921	0.140	0.072	0.068	51.4
1922	0.121	0.060	0.061	49.6
1923	0.117	0.061	0.056	52.1
1924	0.121	0.062	0.059	51.2
1925	0.119	0.060	0.059	50.4
1926	0.120	0.063	0.057	52.5
1927	0.119	0.066	0.053	55.5
1928	0.124	0.064	0.060	51.6
1929	0.128	0.070	0.058	54.7
1930	0.128	0.064	0.064	50.0
1931	0.114	0.049	0.065	43.0
June 1932	0.098	0.035	0.063	35.5

This table shows a rather steady increase in the margin taken per quart of milk for distribution services in Montreal, from 3.5 cents in the pre-war years to 6.3 cents in June of last year—the last month included in Dr. Bond's study. While milk prices were going up during war years the distributor's margin advanced, without bearing too hard on the producer; but now that prices have fallen to extremely low levels, it is disappointing to note that the margin remains at approximately top figures.

Mr. George Hogg, president of the Guaranteed Pure Milk Company, in giving evidence before the Ottawa committee, stated that, even if the farmers supplied milk free, it would be necessary for his company to charge at least six cents a quart in order to continue in business. In other words, with distributing costs as they are at present, it requires that margin to care for processing, delivery, and the other costs of handling, and to look after depreciation and profits. But what of the farmer? Who is to establish the margin that he must have if he is to keep in business—even without laying anything aside for depreciation, interest on his investment, or profits? Now that the retail price of milk has been cut from ten cents a quart to eight, is the farmer's share to be two cents? And should the price fall to seven cents, is the distributor's margin still to remain at six cents, leaving the farmer one cent a quart, four cents a gallon, forty cents a hundred?

Surely there is something wrong when so large a share of the consumer's dollar goes to the distributor, and so small a portion to the man who produces the milk, and who pays the cost of transporting it to the city. Whether it be that our distributing services are overcapitalized, that they have too much of an overhead in plant, or that they are offering the consumers services for which the latter are not paying at present prices, it is clear that the producer is bearing most, if not all, of the burden of falling retail prices. To quote from Dr. Bond's report: "If Montreal distributors had to bear a portion of each decline in the retail price, it is doubtful if retail prices would decline as rapidly or drop as far as they have done and are likely to do under present conditions. Changes in the retail price of milk, either up or down, have been reflected almost entirely to producers, though the increase to producer has been slower than the decrease of pay to the same."

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Subscribers and members of agricultural societies, of farmers' clubs and of the Provincial Dairymen's Association, who do not regularly receive either the English or the French Journal of Agriculture and Horticulture are requested to address their complaints to the Secretaries of their respective Societies, who will transmit them to the Secretary of the Council of Agriculture at Quebec.

If, for various reasons retail prices for city milk must be low, then it would look as if some attempt should be made to cut distribution costs in proportion—perhaps by reducing some of the more or less expensive services for which consumers at today's prices are not paying. In any case, it is manifestly unfair to except the producer to bear all the burden of falling prices.

MORE MAPLE PRODUCTS SHOULD BE USED

Hon. Adelard Godbout, in a Newspaper Interview, Tells Consumers of the Quality of Quebec Sugar and Syrup

With the production of maple sugar and syrup under way for the 1933 season, special interest attaches to an interview given to newspapermen at Quebec a few days ago by the Honourable Adélard Godbout, Minister of Agriculture, on the importance to the farmers of this province of the maple industry—and on the part that shou'd be taken by the delicious products of the maple tree in the menus of the people of our towns and cities.

"The position of this province in the matter of maple sugar and syrup is so important, and so outstanding in Canada, that too much stress cannot be laid on the subject, and especially so at this time," declared the minister. "Just a few figures by way of illustration. During the year 1932 this province produced 6,681,000 pounds of maple sugar, and 1,142,000 gallons of maple syrup, or, translating the gal'onage into pounds of sugar, a total of 18,101,000 pounds of sugar. In all of Canada, this province included, the sugar production was 7,217,000 pounds and 1,740,479 gallons of syrup, which converted into sugar would have meant a total production for all of Canada of 24,662,090 pounds, so it will be seen that Quebec stands at the top of the tree, to use an appropriate simile, with three-quarters of the total production to her credit."

"And the prospects for this year?"

"Excellent as regards quality, at least as high in standard as last year, and that was a year of which we are proud; dubious as to quantity, but as to results, it is entirely a matter of the people favoring the finest of all products rather than molasses, manufactured sugars, and other sugars and syrups which reach us from far south," replied the minister. "There is one factor I would like to insist upon, and it is that today there can no longer be given in excuse for not buying our maple products that there is danger as to quality.

"I do not wish to obtain any credit for my department in this matter, not even for Cyrille Vaillancourt, head of the maple sugar industry service, who has done so well, but may I be permitted to say that such steps have been taken of late years as to guarantee to each consumer choice quality. We are not worrying as to production, but as to consumption."

Hon. Mr. Godbout said that it was rather strange that people should spend money on imported products far inferior to the quality of maple syrup and sugar, when by buying Quebec products they would get the best in quality and keep the money circulating at home, and drifting back to themselves.

"Our people should get the habit of using these products 12 months a year, and not looking upon the consumption of maple syrup or sugar as something of a spring delicacy," said the minister. He went on to point out that so many ways have been devised of using maple products that the housewife has a fine choice, and incidentally referred to the culinary recipes in a book'et issued by the department entitled: "The Maple, Pride of Quebec." There is a considerable number of such recipes running all the way from doughnuts to use in hot wine.

ON MY WAY

IMPEDING winter begins these days at my very door and stretches far with billowing depth, over the curving world around me. It matters not that March is here, nor that a returning sun, with warming face, has kindly shone, or even that I have hoped, perhaps to-morrow, to walk the waning edge of winter where it meets the melting breath of spring; there comes day after day, only the snow-filled wind to hinder, with its piling up, my every effort and buffet my spirit as it tries to wait in patience. In words to suit my need I would sing in the strain of a Southern song and plead "Old Man Winter stay 'way from my door," and, further on, likewise acknowledge how vain is all my entreating as Old Man Winter "don't say nothin' but just keeps drifting along."

Passers-by are few; the hard sole of the highway safely rests from the wear of whirring wheels; the activities of a busy world cast scarce a ripple on the surface of the still life that cloaks field and hill, dusky wood and latent lake. A great quiet here prevails; a muffled stopping of sounds, such as one hears when one wanders upon the buried brook babbling and tinkling beneath its blanket. There is a solitude so wide that every man may feel it is his own, space and to spare, where to soothe men's nerves a war against noise, such as is spoken of in the city, would be a humorous thing. Nature was moulded in a fashion far and free, safe from change, perhaps for no greater purpose than that inventive and ingenious man might be saved from himself. Just now, in the living present, there are hundreds of humans who, through a disruption of the plan on which their lives were built, have gone back benumbed in spirit to find that the life made simple because of many lacks could still be satisfying and good.

On days of besieging storm, any traveller on the trackless country road becomes at once a person of interest and curiosity; for a trip through blinding blizzard does not seem justified unless it be a matter of illness or injury. Of course, the mail route is a common feature of rural life now and the postman is the one man who is expected to be out when everyone else stays comfortably at home. But there are times when even His Majesty's Mail must stand still and await the abating of storm and wind; and on that day farm folk go back to the country post office days where mail, instead of being delivered, remained until called for. About the same time as mail ceases to get through, the voice on the wire fails, receivers become silent and empty, and another source of news is cut off. Hydro power likewise becomes affected, lights falter and flicker, then plunge into darkness, taking with them the one wide connection that links remote places to many centres, the radio. Then for a brief spell the generation of today abide in their humble homes, in the aloofness and seclusion that marked the life of pioneers as they pushed out farther and farther to make new frontiers in a vast virgin land. On these rare occasions, when the comfort and convenience of ready communication has ceased, when the shadow of sudden illness or other calamity occurs with a new degree of anxiety, the faith and trust that sustained the lives that had never known such things finds a responsive admiration through sympathy and understanding.

But keeping in touch with the town and the city is not such a simple matter for the country dweller when it comes actually to coming and going, for progressive travel has done little to overcome the lack of winter roads. The convenient car must be put away just at the time when it would be the greatest boon; all the money is spent on insuring that its day of travel will be certain and swift, and nothing is done to make the way of the horse even passable. Besides, people that travel by car usually do not go far, or often, by sleigh in cold weather, and in severe storms of wind and snow, roads disappear entirely. This is especially true in these years of little lumbering when almost no hauling is being done. There is a milkman who passes our way. His record is worthy of praise; for with nine miles of road to travel—the greater part of which is trackless on a stormbound morning—he has never yet missed a day; and as his caravan moves slowly along the uncertain road, which is only a one-horse track, there is about him a strong reminder of Old Country ways, for his team is tandem hitched so that both horses may walk in the same track. As I watch him it occurs to me that people who find milk at their doors every day of the year should remember with appreciation the unfailing service of the milkman.

H.H.

Corn Varietal Hybrids

By L. C. RAYMOND
Asst. Prof. of Agronomy
Macdonald College

INTRODUCTION:

ALTHOUGH belonging to the same family as the small grains crops such as wheat, barley, and oats, the corn plant differs greatly in a number of respects, and particularly in its mode of reproduction. The former are what are generally referred to as close or self-pollinated. This simply means that they produce entire or complete flowers, and that the pollen produced by any one flower fertilizes the embryo seed therein contained. This process of reproduction assures the maximum degree of uniformity. Given a pure variety of any of these crops, any variation found in their habits may be ascribed to differences in the environment or conditions under which the crop is produced.

On the other hand, corn is what is known as an open or wind pollinated plant. Nature has so designed it that self-pollination is a rare occurrence. It has, in fact, been determined that not over five per cent of the seed on an ear of corn results from fertilization by pollen of that same plant. Nature's provision against such self-fertilization is found in the arrangement of the floral parts. The tassel, which is borne at the uppermost end of the main stalk, bears only the male element of a complete flower, viz. the pollen, while the female part is borne on the ear which is situated on a side branch usually about halfway down the stalk. To effect fertilization, pollen must reach each individual silk, whereupon it develops a pollen tube which pushes down the whole length of the silk and unites with the embryo seed at the base. The position of the floral parts definitely precludes any high degree of self-fertilization.

In contrast with the situation in small grains, the characteristic open-fertilization of corn promotes a lack of uniformity, which is very evident in any field of commercial corn. Variation is extreme in each individual plant character, whether it be a matter of colour of plant or ear, size, time of maturity, or any of the many other characters that go to make up the plant.

This variation is not only an integral part of any commercial corn variety, but at least a reasonable amount of it seems necessary if the plant is to remain vigorous and continue to produce well. Plant breeders have found that if artificial self-fertilization is practised with corn, the vigor is so far reduced that after two or three generations the stature is reduced on the average at least one half. The process is, nevertheless, productive of great uniformity, but the "pure-line" is worthless as a commercial entity.

It is found, however, that by crossing two of these pure lines, the vigor is at once restored, the resulting hybrid being in many cases better than the original and vastly superior to the two pure lines from which it sprung. This characteristic of exceedingly vigorous growth in hybrids is very generally observed in both plants and animals, the phenomenon being known as "hybrid vigor." It is a common custom in British agriculture to cross two of the so-called pure breeds of livestock in order to reap the benefit of the increased growth due to hybrid vigor in the offspring. This practice is in use, particularly, where meat production is the objective.

In plants, no extensive use has yet been made of first generation crosses in a way comparable with that in livestock. Two systems of increasing the yield in corn have been rather extensively employed, each of which depends for its success on the hybrid vigor resulting from crossing two unlike sorts. The first of these involves a previous period of purification and will not be discussed at this time. The second, viz. varietal hybrids, is concerned solely with crossing two already existing and highly variable strains, with the object of stimulating further hybrid vigor in the offspring. It is with the latter of these that we wish to deal at some length.

It should be recognized at the outset that, due to cross-pollination between all the varying types that make up a variety, the vigor displayed is in large measure due to hybridity. Consciously or unconsciously the tendency is always to select towards greater uniformity in any variety. There is a distinct relation between the amount of uniformity a variety possesses and the vigor displayed. The result is that most commercial sorts are not as vigorous as they would be if they were more mixed.

It may also be stated as a general truth that the greater the difference there is between two varieties, of the same or closely related species, the greater will be the amount of hybrid vigor shown in the offspring.

Here, then, we have a basis for instilling greater productivity in the corn field by simply making appropriate crosses and utilizing the resulting seed for commercial planting. Experiments to discover the best combinations of commercial sorts have now been under way for several years in the agronomy department at Macdonald College. It has been possible to use pairs of varieties that differ distinctly in a number of different characteristics. For example, a number of varieties of each of the three important corn types, viz. dent, flint, and sweet, have been employed. The differences in these types are, of course, very much more than are to be found in the ear alone. They involve as well the structure and composition of the plant. Among a number of other contrasting types used, we have also had late and early maturity. In this connection it has been necessary to restrict the varieties used as the female or seed producing parent to those that were early. This practice had to be followed since the earlier parent of such a cross had, in some instances, to be planted several weeks later in order to hold back the flowering of that sort until pollen was mature on the later parent. For the great majority of the hybrids made and tested we have used either Quebec No. 28 (a small early maturing, twelve-rowed variety of flint), or North Western Dent (a relatively early maturing red dent) as the female parent. Late dents and sweets have been crossed on the flint, and flint and sweet on the dent parent. Some of these crosses have been as extreme as the length of our season would allow. For example, a cross has been made using Quebec No. 28 as the female and Red Cob as the male parent. The latter is a very late and large ensilage variety which in an ordinary season, in this vicinity, rarely develops any grain on the cob. This cross has been very successful. Ears develop well on the hybrid—the maturity being much closer to the earlier parent.

The above photograph illustrates the planting plan followed in the production of varietal hybrid seed corn. The two larger rows at the right are on the west side and are Stowell's Evergreen. The next three are Quebec No. 28, followed by one row of the former and so on across the block.

RESULTS OBTAINED :

In the table herewith will be found data showing the results obtained with four varietal hybrids, together with the parent sorts. These are all that have had a full five years test. The figures given are relative yields. North Western Dent (M.C.) has been used as a standard check, and the yields of all other sorts under test are expressed in relation to it. In other words the yield of the check, whether for ears or fodder, is placed at 100. If another variety yielded one half as much more it would be given 150, and so on.

The varieties involved may be briefly described. White Cay Yellow Dent is a medium-maturing dent corn, bearing yellow kernels with a white cap. Stowell's Evergreen is a late, leafy variety of sweet corn. In this latitude it is difficult to mature. Wisconsin No. 7 is a large, late ensilage variety producing pure white ears. It seldom matures in this locality. Quebec No. 28 and North Western Dent have already been mentioned as an early maturing flint and dent respectively.

The table lists the yield of both ears and fodder. By fodder is meant the whole plant, including ears, just as it is cut and put into

Relative Yield of Varietal Hybrids and Their Parents, 1927-1932

KIND.	RELATIVE YIELD OF EARS						RELATIVE YIELD OF FODDER					
	1927	1928	1929	1931	1932	AVER.	1927	1928	1929	1931	1932	AVER.
White Cap Yellow Dent	98.1	95.0	82.3	102.5	81.2	91.8	114.2	118.0	108.8	121.1	106.1	113.6
Quebec No. 28xWhite Cap Yellow Dent	141.6	113.0	114.5	127.8	117.9	123.0	140.9	133.0	126.3	136.4	134.8	134.3
North Western Dent x Stowell's Evergreen	124.2	108.5	139.2	125.7	125.6	124.6	164.7	119.2	134.5	132.5	138.7	137.9
Stowell's Evergreen	62.5	83.5	69.0	67.4	81.6	72.8	88.3	85.0	86.8	81.3	99.8	83.2
Quebec No. 28 x Stowell's Evergreen	138.0	121.0	146.8	109.9	116.2	126.4	152.1	120.8	146.6	110.4	114.5	128.9
Quebec No. 28 x Wisconsin No. 7	146.7	133.7	108.2	121.1	129.6	127.8	156.5	113.4	124.7	125.5	144.6	132.9
Wisconsin No. 7	77.0	95.0	59.5	95.8	67.4	78.9	129.2	120.2	101.8	131.2	105.8	117.6
Quebec No. 28	138.0	91.5	108.9	86.7	—	106.3	116.7	84.9	97.6	77.5	—	94.2
North Western Dent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

the silo. A portion of the fodder is then examined for ear yield, with the result as shown. It will be noted that the hybrids far outyield the earlier parent in fodder yield, and also that on the average they are also well above the later parent. This is the effect of hybrid vigor spoken of earlier. If this impetus were not found in the hybrid, one might expect the cross to fall just intermediate between the two parents. Special attention should be called to ear yields. In this respect the hybrids are much superior to the later parent and well above the earlier ones. We are thus able to conclude that not only is the fodder yield higher, but the quality of that fodder is also much better in the hybrids, since the feeding value of ears is very much greater that of stalk and leaf.

The results given do not in any sense cover all of those obtained. Many other combinations have been tested for one or two years. Some of these look very promising and, if they continue as they have begun, will be heard from in a few years time.

SEED PRODUCTION :

The arrangement of the floral parts in the corn plant allows for hybrid seed production with comparatively little extra expense. Pollen is produced only by the tassel which, as has been mentioned previously, is a separate structure on the end of the stalk, and this can readily be removed before any pollen has shed. Obviously, then, if suitable planting methods are followed, it is an easy matter to so arrange things that the two varieties to be crossed can be planted in the one field and, if the tassels are removed from one of these, any seed borne on the detasselled parent must, of necessity, be hybrid. Nature's lavish production of pollen further facilitates this practice. It is estimated that for every seed formed in a corn field there are produced between five and ten thousand pollen grains.

Taking these factors into consideration, the planting arrangement for seed production can be quite simple. The usual plan is to plant one row of the pollen parent to three of the hybrid seed producing one. It is a good measure usually to plant the rows of the pollen parent on the west side, since west winds are more prevalent when pollination is actively proceeding. Thereafter they would alternate throughout the field in a ratio of one to three. If, as is usually the case, two varieties are to be crossed that differ widely in date of maturity, some compensation has to be made for this at time of planting. The later parent is generally used as the male or pollen producer, and it must therefore be planted first and the planting of the other sort delayed until sufficient start has been made by the former. A definite knowledge of the relative maturity dates allows this to be accomplished without any difficulty. The accompanying illustration shows the plan. The taller plants are those of the male parent. They were planted approximately two weeks earlier.

Just as soon as tassels begin to appear, all of those on the seed-producing rows are removed. Thus all pollen that sheds is derived from the late male parent.

Three factors are involved to increase the cost of seed production. Seed has to be planted at two different dates, which makes it difficult to utilize machinery for that operation. Detasselling, while not a heavy expense, must be done at exactly the right time. Lastly, the area producing hybrid seed is reduced of necessity by the space occupied by the pollen parent. This latter need not necessarily represent a loss, as the plants can readily be used for fodder.

DISCUSSION :

Attention has been called to the increased yields obtainable through the use of varietal hybrids as fodder producers instead of the so-called pure varieties. The results indicate an increased production of from 15-20% over that obtained by those varieties commonly employed for ensilage production. It was also pointed out that this yield was one of higher quality due to the larger ear content of the fodder.

One drawback to the use of seed of varietal hybrids was mentioned, viz. the higher price of seed made necessary by the increased cost of seed production, the reasons being given.

These two factors should be considered in relation to one another. The cost of seed corn per acre is after all comparatively small. The usual recommendation is to provide one bushel of seed for three acres. Actually the quantity varies with the germination and size of seed. With small seed one has many more potential plants per bushel than are found in the large seeded varieties. In all of these hybrids where Quebec No. 28 is the female parent, the seed is very small and one bushel will readily plant four acres. The small supply of this seed that is available is selling at four dollars per bushel. In view of the greatly enhanced yield, the extra cost of seed seems entirely justified.

One of the hybrids referred to in the table, viz. Quebec No. 28 x Stowell's Evergreen, has now been given a name and is known as Iroquois. It has been grown for several years in the central part of Quebec and has given a very good account of itself. Only one other has been distributed to any extent, viz. Quebec No. 28 x Wisconsin No. 7. It is of much the same value but a better appearing crop, since it grows taller and is somewhat more free of sucker growth at the base.

In these days when returns count for so much, the use of varietal hybrid seed should be given consideration. The agronomy department does not run a seed business, but is, nevertheless, interested in thoroughly testing the possibilities of the different kinds of crops and seeds. In this connection there is available every year a small supply of seed of some of these hybrid corns. This year, even at this early date, our supply is already exhausted. In the normal course of events it is expected that, once the best sorts for this Province have been determined, provision will be made to supply seed in accordance with the demand.

Good seed of the best proven sorts one of the surest means of increasing the productivity of the farm. High yields are important, but high yields of quality crops are still better. This should be our objective.

NEW CATTLE REGULATIONS

By Order in Council an important alteration has been made in the quarantine regulations governing the importation of cattle into Canada. It has now been decreed that cattle reacting to the tuberculin test or showing clinical symptoms of tuberculosis shall be permanently marked in the right ear with the letter "T" and shall be slaughtered forthwith, without compensation, or returned to the country of origin. The above order is contained in the new Section 57 of the Quarantine Regulations under the Animal Contagious Diseases Act, and is substituted for the deleted Sections 57 and 58 of the Act as amended in 1927. Under the deleted Section 57 an officer making the test could release the animal at the expiry of the prescribed period of quarantine if found free from all other infectious or contagious diseases, while by Section 58 cattle showing symptoms of tuberculosis could be destroyed or otherwise disposed of as the Minister of Agriculture might direct. Now diseased animals must be slaughtered forthwith or returned to the country of origin.

Seed Treatment

By R. F. SUIT

Asst. Prof. of Plant Pathology, Macdonald College.

AT this time of year it is well to consider the advisability of treatments to control those diseases of various crops that are carried on the seed. Such treatments will reduce the loss from these diseases and result in increased yields. On the other hand, it is generally considered that over production is the cause of low prices; so why increase the yield? The cost of producing an acre of a given crop is the same regardless of yield. Therefore, if the yield be increased, the cost of producing a bushel of such crop is reduced, and consequently more profit can be obtained even with lower prices. A second point, aside from that of monetary return, is the result of growing diseased crops. A few years of diseased crops is likely to establish the disease in that field, or the seed may become so highly infected that the crop cannot be grown. Furthermore, severe control measures would then need to be practised to bring about control of the disease and profitable growing of the same crop. In general, seed treatment may be regarded as insurance. A small sum is expended to obtain control of the seed-borne diseases. It must be remembered, however, that many of our diseases are not seed borne and so could not be controlled by seed treatment. Some of these diseases are leaf and stem rust of cereals, mildew of many kinds of plants, club root of cabbage, late blight of potato and others.

Those diseases of plants that are seed borne may be divided into two groups. In the first group are the diseases that are carried by means of the disease organisms within the seed. In this case, as the seed starts to grow, the disease organisms grow within the plant tissue, and when the plant has reached a certain stage of development, the disease appears. Loose smut of wheat is a good example of a disease of this nature. The second group of seed-borne diseases carry the disease organisms as spores, on the surface of the seed. In this case, the spores start to grow and infect the plant during the period between the germination of the seed and when the seedling reaches the surface of the soil. The disease then appears on the plant at the stage of development characteristic for that disease. Seedling blight and oat smut are two examples.

For effective seed treatment, the manner in which the disease is carried on the seed determines the method of treatment. In the case of the first group, those in which the disease organisms are within the seed, successful treatment is accomplished by subjecting the seed to conditions that will kill the organisms but not the seed. The second group, in which the disease is carried as spores on the surface of the seed, are more effectively treated by putting the seed in poisons that will kill the spores.

Most farmers are well acquainted with seed treatment methods, but the correct compounds and amounts to use for each specific disease are easily forgetten. A summary of the methods of seed treatment for the more important diseases is given in tabular form for your reference. It is generally understood, however, that disease free seed is to be desired, and if such can be obtained, seed treatment is not necessary.

General Considerations

While the most important features of the various methods for seed treatment are given in the chart, there are several facts with reference to seed treatment that should be expressed.

With respect to the common scab of potato, there is some doubt as to the efficiency of tuber treatment. Recent experimental results have indicated that treatment does not control the disease if the soil

A SUMMARY OF METHODS FOR SEED TREATMENT

CROP	DISEASE	COMPOUND	STRENGTH	METHOD
Barley	Covered Smut	Formalin	1 pt. to 32 gals. of water.	Soak 30 minutes, drain well, cover for 1 hour.
	Loose smut	Hot Water	124°-128° F.	Soak 4 hrs. in cold water, 3 min. at 120° F. 10 min. at 124°-128° F.
	Stripe	Ceresan	3 oz. per bu.	Mix in container for 3-5 minutes.
Garden and Vegetable Seeds	General Diseases	Mercuric chloride (corrosive sublimate)	1 part to 1000 parts water.	Soak 10-15 minutes and rinse thoroughly.
	Damping-off	Semesan	1 teaspoonful to 1 lb. of seed.	Mix in container for 3-5 minutes.
		Formalin	6% dust (Commercial product)	1½ ozs. per sq. ft. Mix in upper 2-3 inches soil. Plant seed and water well.
Oats	Loose and covered smut	Formalin	1 pt. to 40 gals. water.	Use about 1 gal sol'n for each bushel. Sprinkle and shovel grain. Then cover for 4 hours.
			1 pt. to 1 pt. water.	Spraying grain as shovelled. Cover for 5 hours, sufficient for 50 bus.
Onion	Smut	Formalin	1 pt. to 50 gals. water for 4000 ft. of row.	Apply with dripping attachment on seeder.
Potato (Better results are obtained by the hot treatments, but the others are effective)	Common Scab Powdery Powdery Scab Rhizoctonia	Mercuric chloride	4 ozs to 30 gals. of water.	Soak 1½ hrs. add ½ oz for each new batch of 4 bus.
		Hot mercuric chloride	4 ozs. to 15 gals. of water	Soak at 110°-113° F. for 5 minutes.
		Formalin	1 pt. to 30 gals. of water.	Soak 1½ hours.
		Hot formalin	1 pt. to 15 gals. of water.	Soak at 124°-126° F. for 5 minutes.
Rye	Ergot	Salt solution	2¾ lbs. per gallon of water.	Put in solution, stir well and skim off ergots. Rinse grain thoroughly and dry.
Wheat	Stinking smut	Copper carbonate	3 ozs. per bu.	Mix in container for 3-5 minutes.
	Loose smut	Hot water	125°-129° F.	Soak 4 hours cold water, 3 mins. at 120 F. Then 10 mins. at 125°-129°F.

Royal Lily, Lilium regale

By Prof. T. G. BUNTING,
Horticultural Dept., Macdonald College

The Royal Lily LILIUM REGALE. About 75,000 seeds were saved in 1932 from these plants growing on the Campus at Macdonald College.

THE lily has become one of the most popular and generally-grown flowers in America during recent years. The reason for this popularity has been the introduction of the Royal Lily, *Lilium regale*, introduced at first into England in 1903 by "Chinese" Wilson, the late Director of the Arnold Arboretum, Jamaica Plains, Mass. Since that time it has spread far and proved itself adaptable to a wide range of conditions; it is hardy in Canada.

It has few faults, if any, and has done much to dispel the funeral idea connected with the thought of lilies. It is as easily grown as almost any perennial flower from seed, and may be further propagated by bulblets and division of the bulbs.

Not long ago the seeds were priced at $1.00 per packet, and the bulbs from 25¢ to $1.00 apiece; but as it produces seed freely, this is the easiest method of handling; it is only a matter of two to three years from seed to bloom, and reaches full growth, as indicated in the pictures, in four to five years.

The Royal Lily will thrive on almost any good garden soil, preferring the lighter and gravelly soils. It is best not to use manure with the seeds or the bulbs, but the plants while young should be kept free from weeds. Later even hoeing is not necessary, but the plants will respond to good conditions and in time clumps will become over-grown and should be divided. The bulbs should be planted about 8 inches in depth on the heavier types of soils, and increased to 12 inches in the lighter types of sand and gravelly soils.

The Department of Horticulture, Macdonald College, has saved a quantity of seed, estimated at over 75,000 seeds, from the plants shown in the illustration, and is offering liberal-sized packets of this lily with a number of other perennial flower seeds as per the adjoining statement. With these seeds, complete directions for their care and planting and the management of the growing plants is given.

PERENNIAL SEED DISTRIBUTION 1933

The Department of Horticulture, Macdonald College, offers a liberal sized packet of seed (over 125) of the Royal Lily, LILIUM REGALE, shown in the illustration, for 35¢, together with six other packets of perennial seeds to be selected from the following varieties of perennials:

Aquilegia, Anthemis (Golden Marguerite), Delphinium (mixed hybrids), Echinops (Globethistle), Eremurus robustus, Gaillardia, Hollyhocks, Lupines, Lychnis (campion), Polemonium (Jacob's Ladder), Pyrethrum, Shasta Daisy, Veronica.

TERMS: 1 pkt. Lilium regale + 6 pkts. other perennial seeds, with directions for planting and care, for 35¢ in silver or postal money order. Postage stamps will not be accepted. Three lots will be sent to one address for $1.00. Horticultural Department, Macdonald College, Quebec.

FARM PRODUCTION CONTROL IS URGED IN U. S. A.

Washington, March 12.—Farm organization leaders of the United States yesterday agreed to ask Congress to confer sweeping powers on Secretary Wallace of the Department of Agriculture to control farm production and increase prices.

The plan, announced after the visit to the White House, proposed that Congress confer these emergency powers upon the President and the Secretary of Agriculture:

"Authority to lease agricultural land and to enter into contractual agreements for the control of agricultural production.

"To regulate and supervise the marketing and processing of agricultural and competing products in domestic and foreign commerce.

"To take such action and to make such settlements as are necessary in order to acquire full legal title to all cotton or other farm commodities on which the Government has made loans or advances, upon such terms as may seem fair and just, and to exchange such cotton or other products with growers for acreage production.

"To levy such charges on agricultural products or products manufactured from them as seems necessary to accomplish the purpose of the act.

"In the drafting of a bill to carry out these recommendations, all powers necessary to the successful carrying out of the purpose to be achieved shall be included."

Commodities for which the group suggested application of the programme were wheat, cotton, corn, hogs, cattle, sheep, rice, tobacco, milk and its products.

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is contaminated. On the other hand, it is advisable to treat diseased tubers used for seed if they are to be planted on new soil. In this way contamination of the new soil is prevented. Treatment of tubers for Rhizoctonia and black leg is effective. In the case of powdery scab it is also questionable if treatment gives any results when the tubers are planted in contaminated soil. However, treatment is essential if diseased tubers are being used for seed on new soil.

Treatments using heat—

Strict adherence to the temperatures given is important. If the temperatures are allowed to rise higher, injury to the seed will result; while if allowed to fall below the given temperature, the treatment will not effectively kill the disease organism. The length of treatment is also essential for the same reasons. With respect to the treatment of grain with hot water, it is essential that the grain should be dried as rapidly as possible after treatment. The grain may be seeded as soon as it is dry enough to be handled satisfactorily, or may be stored for a time after it has completely dried. Hot water treatment of grain usually reduces the germination five to ten per cent.

Treatments using formalin—

The fumes of formalin are irritating to the eyes and nose and should not be inhaled to any great extent, although these fumes are not fatal. With reference to treatment of potatoes by the formalin method, it is well to make the treatment about a month before planting. Grain treated by any of the formalin methods should be sown the day after treatment, while the amount of water used should be kept at a minimum. If the grain is stored for more than three days at the most, severe injury to the germination is apt to result.

Treatments using mercuric chloride (corrosive sublimate)—

Mercuric chloride is deadly poison and should not be left where children or farm animals can get it. Treatments involving the use of mercuric chloride should be made in wooden, crock or cement containers, but never in metal containers as the mercuric chloride corrodes metal.

Treatments using organic mercury dusts—

In making treatments with such compounds as semesan, ceresan, and others, the dust is poisonous and should not be inhaled. These compounds contain an organic mercury compound as the toxic principle, and a thorough coating of each seed is essential for successful treatment. The action of these disinfectants usually does not take place until the seed has been planted. There is usually no reduction in stand from these treatments, although occasionally under unusual conditions some injury may result.

The Plant Pathology Department will be glad to answer questions, in so far as possible, concerning plant diseases. Address: Plant Pathology Department, Macdonald College, Que.

For the Control of Orchard Ills

By W. H. BRITTAIN,
Professor of Entomology, and
J. G. COULSON,
Professor of Plant Pathology, Macdonald College.

General

1. *Uses and Limitations of the Spray Calendar.* The Spray Calendar herein presented is intended as a general guide to the treatment of orchard pests. In utilizing it, however, it is essential that the grower understand its limitations as well as its uses. Weather conditions may so favour the development of apple scab, for example, that supplementary sprayings, in addition to those called for by the calendar, may be required. In the case of certain insects, also, a treatment that may be satisfactory for ordinary outbreaks is inadequate when dealing with epidemics. The grower, therefore, should carefully study his own conditions and be prepared to modify his schedule to meet such emergencies. Furthermore, he should keep in close touch with the "Spray Service" to assist him in meeting unknown pests or unfamiliar situations. Still further, it may be pointed out that the particular Spray Calendar presented is not the only one that may be used, since various alternative calendars may give equally good results. Some growers prefer to use a dust calendar, and still others a combined spray and dust calendar.

Orchard Sanitation

For Curculios, Aphids, etc. While prominence is rightfully given to spraying in the campaign against insect pests, it should be understood that there are pests that cannot be controlled by spraying, and that, in other cases, it is necessary to resort to supplementary measures to insure satisfactory control. An example of the latter category are our two curculios, viz., (1) the apple and (2) the plum curculio, which appear to hold the centre of the stage as orchard pests in this region. The reduction of the natural breeding places of these insects, viz., thickets of hawthorn and crab, the destruction of insects in their winter quarters by burning over stone fences and fence rows during April and May, and the raking of the small drops into the light are among the measures recommended.

During primary operations, water-sprouts and suckers bearing eggs of the green apple aphis may be cut out and egg-masses of tent caterpillars similarly destroyed.

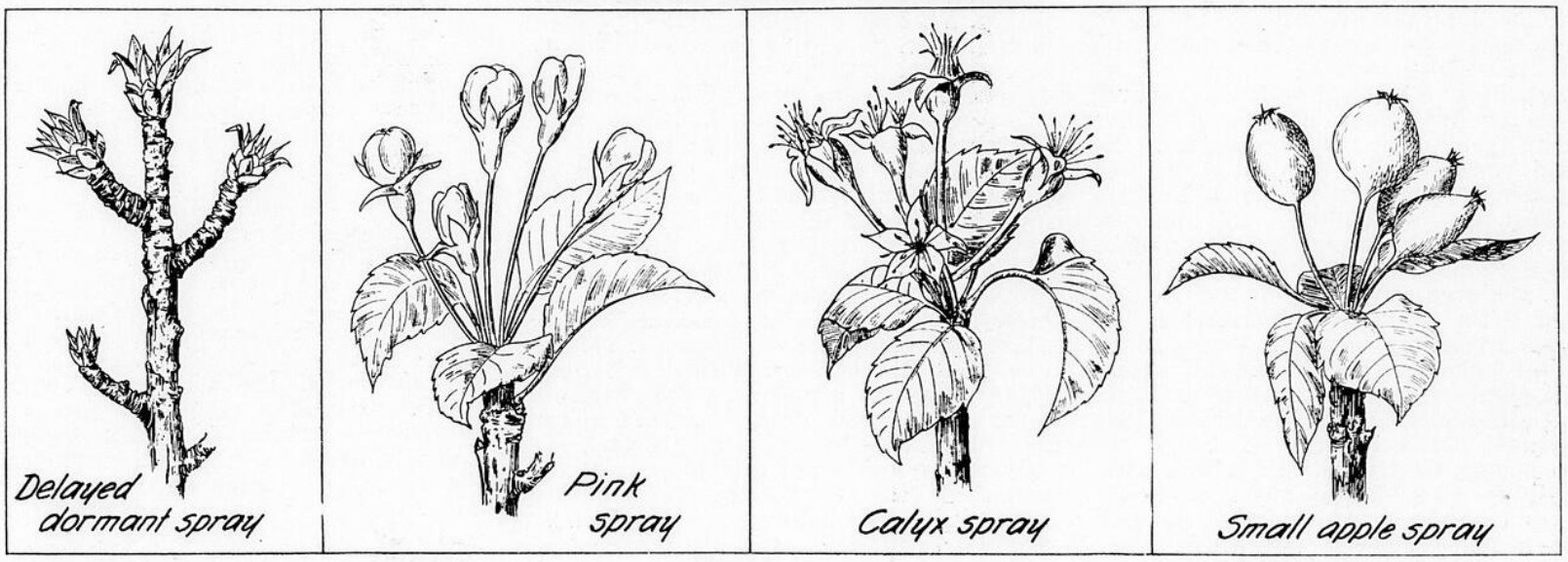
Orchard sanitation is also essential in the control of diseases of the apple such as fire blight, black rot cankers, and apple scab. This involves such measures as the destruction of wild apple trees along the fence rows, and the cutting out of trees such as Alexanders which are very susceptible to fire blight and have not high commercial value. Other plants such as the hawthorn and mountain ash are often diseased with fire blight. Similarly other pests are harboured by wild trees, and so these trees should not be allowed to grow near the orchard. The orchard trees should be pruned each year to remove all diseased twigs and branches, and cankers should be cut out and treated. All diseased parts removed from the trees should be immediately destroyed by burning. All of these precautions are beneficial, since they remove the places where the parasites causing the diseases live over the winter and multiply abundantly during the growing season.

Notes on Specific Pests

Apple Scab. The scab spots on fruit and leaves typical of apple scab are so well known to the apple grower of Quebec that no description of the appearance of this disease on these parts is required in this article. However, it is worth while drawing attention to the fact that apple scab may involve the blossoms and young fruit stems. Blossom and fruit stalk infections cause destruction of the flowers and dropping of fruit. This may be a serious type of loss in certain years, and hence the need for the early sprays.

The fungus or mold causing this disease lives through the winter on the old dead

AN APPLE SPRAY CALENDAR



When	How	What For	Remarks
"Delayed Dormant" When tips of more advanced buds have opened.	2½ gals. of lime sulphur and 2½ lbs. arsenate of lime to 100 gals. of water; or sulphur-lead arsenate dust (90-10)	Apple Scab, bud moth, tent caterpillars, etc.	If bud moth is not being controlled by regular sprays add nicotine sulphate 1½-2 pints to 100 gals. or one half this amount for rosy aphis. For outbreaks of red mite an oil spray would be required.
"Pink Spray" Just before blossoms open.	Same materials as former spray.	Same pests as foregoing and also fruit worms, canker worms, curculios, etc.	(A spray of identical composition between this and the former, called the "pre-pink spray," may be given when required to control apple scab; supplementary sprayings for certain leaf-eating caterpillars may also be needed.) *An important spray for curculios applied as late as possible before blossoms open.*
"Calyx Spray" Immediately after blossom petals fall.	Same materials as former spray.	Mainly for codling moth and curculios.	For curculios this should be applied when about two thirds of the petals have fallen.
"Small Apple Spray" Ten days to two weeks after the past spray.	Same materials as former spray.	Same pests as preceding and various leaf-eating caterpillars.	*For bad outbreaks of curculios apply a spray four to seven days earlier than indicated;* especially if temperature reaches 75° on two consecutive days.
"Special Maggot Spray" About July 12th and again July 28th if required.	Same materials as former spray.	Apple maggot.	One or more applications necessary for maggot between the middle and the end of July depending on weather and severity of outbreak. If lime sulphur is not considered necessary to control scab it may be omitted and *arsenate of lead used* alone, 2½ lbs. to 100 gals. of water.

leaves, lying on the ground, which were infected with scab the previous years. In these leaves, early in the spring, arise spores or germs which are carried up into the trees by air currents and which cause the first infections, which may occur on leaves, blossoms, and young fruits. These early established scab spots soon form other spores which serve to spread the infections. Thus these infections increase throughout the season so long as the weather is wet, due to the spores produced on scab spots, and late infections may arise even up to the time of picking. These facts draw attention to the great importance of the early sprays in the spring, for it is then that the first infections occur. The need for thorough spraying throughout the season is also indicated.

It is evident that if the old diseased leaves could be destroyed in the orchard there would be no spores to initiate infections in the spring. No economically satisfactory method of doing this is known. Cultivation of the orchard in the spring is very helpful as this tends to destroy many old leaves, but few growers use this practice for various reasons under Quebec conditions.

Fire Blight. The appearance of this disease has become well known to the Quebec orchardist within the last few years. It, therefore, needs no description here. This blight is favoured by environmental conditions that produce a sappy and rapid growth of the trees. Heavy rainfall, warm and cloudy weather are favourable to its development. These conditions prevail in the spring, so it is then that the disease does most damage. The warm dry weather of the summer retards it, but it may become somewhat active again in wet falls. It has been asserted by many investigators that the application of large amounts of nitrogenous fertilizers increase fire blight and so care is required in this respect. Avoid heavy pruning which might force the tree into too rapid growth. Similarly late cultivation of the orchard is to be avoided, and the use of cover crops to utilize any excessive moisture in the fall is also useful.

The value of spraying has not been proven as yet for fire blight. The only effective weapon that can be used against it at the present time is the pruning out of diseased twigs and branches and cutting out of cankers from the diseased limbs and trunks of the trees. Sometimes large branches may be so severely involved that they have to be cut away, and even a tree may have to be destroyed if the trunk is badly infected. The disease organism, which is a bacterium, lives through the winter in the old cankers of the previous year and to a less extent in the diseased twigs. Since diseased areas are the sources of infection for the new growth in the spring, the trees should be very carefully inspected in the fall and again in the late winter or early spring, and all diseased parts should be removed. The twigs and any branches which may have to be cut away should be cut off several inches (6-8 at least) below the visible signs of the infected areas. All new growth in the spring showing infections should be removed at once. All cankers on large branches and trunk should be cleaned out during the fall and winter, removing the tissues well beyond the visible diseased area.

In the treatment of cankers the cut should have an edge at right angles to the wood. This is to aid in the healing of the wound. It should be so shaped as to come to a drainage point at the bottom edge of the cut. After all diseased tissue has been cut out, the exposed surfaces should be sterilized with a solution made up as follows:

Mercuric chloride..... 1 oz.
Mercuric cyanide..... 1 oz.
Glycerine 3 parts)
Water 1 part).... 3½ to 4 gals.

Furthermore, after each operation and before the pruning tools are used again to cut into healthy tissues, the pruning implements should be sterilized by dipping them into this solution. It is to be remembered that this solution is extremely poisonous and so must be used with great care. All diseased parts should be burned at once after they have been removed from the tree.

Suckers should never be allowed to grow from the trunk or large limbs as they are very subject to infections, and these are very apt to spread quickly into the branch or trunk and so often give rise to a serious type of canker.

Insects such as aphids increase fire blight, so these insects should be controlled by proper spraying at all times.

Black Rot Canker. This disease occurs to some extent as a leaf spot and fruit rot, but it is most important as a canker. The cankers occur most frequently on the upper surfaces of the limbs but will develop anywhere following a wound. They are sunken, dark areas of the bark bordered by cracks. They may increase in size for several years so they become very long or may completely girdle the branch, or they may die out in the winter and become inactive. Numerous spores develop in them, and each spore is capable of causing a new infection.

The careful cutting out of cankers is the effective treatment for this trouble. The exposed surfaces should be sterilized with a solution of bichloride of mercury made up ½ ounce of the bichloride to 4 gallons of water, or with the solution mentioned above for fire-blight canker treatment. After the wound has dried, coat it with coal tar, asphaltum paint, or lead paint.

The usual spraying for apple scab is also helpful against this disease.

Frost Injuries. This type of injury may occur particularly in the less hardy trees or parts of trees when long continued or sudden severe cold is encountered. Frequent freezings and thawings also may lead to severe injury. When blossoms and leaves are frozen and killed in the spring the loss is evident and appreciated. Killing of twigs and parts of branches, even trunk and roots, frequently occurs, and it is not always so evident at the time. A certain amount of twig injury occurs almost every winter; the tree is particularly susceptible to this type of killing if the trees grew late into the fall and so were not properly hardened off. Killing of the bark of the collar of the tree at the ground line is a troublesome type of winter injury. In this case the bark becomes loosened, or splits and exposes the wood. This is then likely to be followed by decay. Root injury is apt to happen in poorly drained soils, or when the ground is bare under the trees, in severe cold spells. Crotch injury and sunscald are evident in the late spring as dead bark. Both these troubles occur most frequently in trees not well matured in the fall. Often the inner parts of the wood of branches or trunks are killed while the living layer on the outside is left unharmed to form new wood. The killed wood usually stains black, and its condition is referred to as black-heart.

The outstanding remedial measures for winter killing may be briefly listed as follows:

(1) Plant hardy varieties;
(2) Plant on well drained land;
(3) Apply nitrogenous fertilizers in the spring;
(4) Avoid late cultivation and all practices which might prevent the trees from thoroughly hardening in the fall;
(5) Trees with bad collar trouble may be saved by bridge grafting;
(6) All killed areas of bark should be cut away and treated.

Curculios. Special efforts should be made to apply the spray for these pests at the period indicated by the calendar, and with the greatest possible thoroughness. Owing to the small amount of surface eaten by the adults, the need for stronger and more adhesive poisons is indicated. For this purpose the use of the lime-sulphur-calcium arsenate-iron sulphate mixture may be suggested. This has been developed and used on a large scale in orchards in Nova Scotia. The writer has employed this on a commercial scale for the past three years with good effect against various pests and without damage to the trees. Used at the time indicated, it would appear to have some promise of improving present results. The mixture is prepared as follows:

1. On commencing to fill tank, sift in the iron sulphate (chrystal powder) *using 4 lbs. for each gallon of lime sulphur concentrate.*

2. When tank is nearly full add lime sulphur.

3. Add calcium arsenate at rate of 5 lbs. per 100 gals. of spray. This strength is for the curculio sprays. For later applications reduce strength of the calcium arsenate to 3 lbs., but do not use this mixture after the fruit has become well formed, as it is likely to adhere to the fruit, interfering with colouring and creating a residue problem.

Aphids. These insects deserve a special article, as they cannot be dealt with adequately in a brief outline such as this. There are a number of species found attacking the apple, but the only one that we will mention at this point is the green aphis. Like all aphids, this insect is chiefly notable for its great powers of reproduction, successive generations occurring all of which are females that give birth to living young, so that a small initial spring infestation may result in a very heavy midsummer infestation. Sometimes extremely serious outbreaks occur even though few first generation individuals were present. Furthermore, it may happen that the source of the midsummer outbreak is wild trees such as hawthorn, which often harbour this species. Breeding in enormous numbers on such wild food plants, large numbers of winged aphids sometimes invade the orchards and, if conditions are favourable, set up a destructive outbreak.

Normally, the green aphis is a feeder mainly on juicy shoots and leaves, but in severe cases they may "overflow" onto the fruit, ruining it for commercial purposes. Protected inside the curled leaves, adult females continue to produce young at a rapid rate, so that even though all the individuals outside the curled leaves are destroyed a new crop is quickly produced. Nevertheless, should the aphids begin to attack the fruit in midsummer, the only thing to do is to spray at once, using as high a pressure as can be obtained combined with unusual carefulness, since even a few aphids attacking the apples are ruinous. It is only an unusual combination of circumstances that permits of such infestations, and often before the aphids are able to breed again and seriously attack the fruit, natural enemies, or unfavourable weather may intervene and check further increase, in which case the growers' work will not be in vain. Sometimes another spray may be needed, but, unfortunately, in other cases, the attacks are very persistent and all spraying methods may prove inadequate. Luckily, however, such occasion are rare. They are often associated with conditions that favour excessive vegetative growth in the form of terminals, water sprouts and suckers.

Other Insects. Certain other pests which sometimes become unusually abundant and troublesome will be discussed in later articles.

(Continued on page 174)

Top-Grafting Apple Trees

By J. L. WEBSTER
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IT is our observation that most orchards contain varieties of trees which are unprofitable to the owner. Census figures show us that there are thousands of undesirable varieties in bearing in Canada, and nursery sales statistics indicate that large numbers of these are still being planted each year.

Many growers, perhaps, have been wrongly advised in the selection of varieties and are now endeavouring to show a profit on those for which there is little market demand. The consumer is becoming more descriminating as to quality, and some varieties which were popular some years ago are no longer desired.

There are many cases known where nurserymen have delivered trees not true to name due either to mistake or to an attempt to get rid of surplus stock of an undesirable variety.

On the other hand there may be cases of pollination difficulties in some orchards due to trees being planted in solid blocks. This is one of many instances where top-grafting of apple trees would be distinctly advantageous to the fruit grower. Trees in every fifth row may be top-grafted to a variety suitable for pollenization.

Or it may be that many good varieties of apples are not fully hardy in a given locality. It is possible to eliminate some forms of winter injury which might occur, such as sun scald, bark splitting and crotch damage by top working such varieties on to a hardy tree. An example of this might be Red Delicious, Golden Delicious or Northern Spy top-worked on to a framework of Hibernal, Tolman Sweet, McIntosh, etc. This is becoming a common practice in some Western districts. It may lengthen the life of such varieties considerably in the Province of Quebec, but of course cannot be depended on to prevent top injury or winter killage of the young wood.

Important Considerations

All those attempting grafting should be familiar with the following terms: cion,

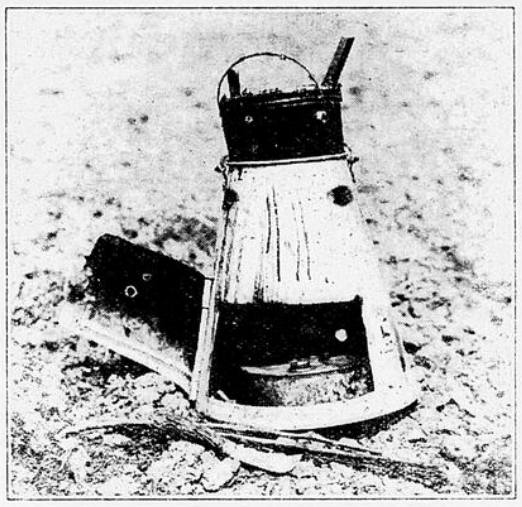


Fig. 1. Grafting pot, with door open to show lamp. Lard pail is used as container for wax. Note cion wood and knife in foreground. (photo by Prof. J. G. Coulson.)

stock, cambium layer. The cion is wood of the past season's growth which produces on grafting the same variety as the tree from which it is taken. The stock is that part of the tree upon which the cion is set. The cambium layer refers to the actively growing layer between the bark and the wood.

Cions should be taken in the dormant season and stored in a cool place in moist sand or earth until ready for use.

Grafting is done in the spring immediately after the sap starts to run, at which time the bark slips easily. From about the end of April up until the middle of May is considered a good time. One may graft later providing the cions are dormant, but should not expect optimum growth that season.

Do not attempt to graft onto trees which are unsound at the crotch, which show signs of decay, or onto varieties which are known to be tender. Such trees will be short lived at best.

Grafting on large trees should be done gradually and not completed in less than 3 or 4 years. Small trees, however, may be safely grafted or budded over in one year.

Materials:

A good pruning or hand saw to cut limbs and a sharp knife to cut and prepare cions are required. Hand pruning shears are convenient and usually necessary to cut off interfering growth. When cleft grafting is practised, a grafting tool or grafting wedge and hammer to drive the wedge in splitting the stub or stock to be grafted will be required.

A convenient grafting wax pot may be easily made as shown in Fig. 1, either from an inverted pail or from galvanized tin. A lard pail is a suitable article in which to melt the wax. Any low kerosene lamp may be used as a burner. A tin or mica chimney is of advantage to steady the flame on windy

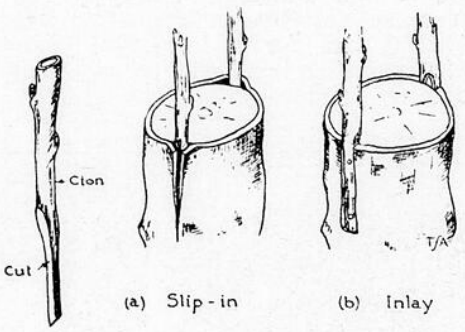


Fig. 3 Two types of bark graft.

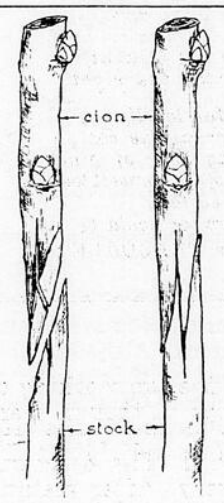


Fig. 4. Whip & Tongue Graft.

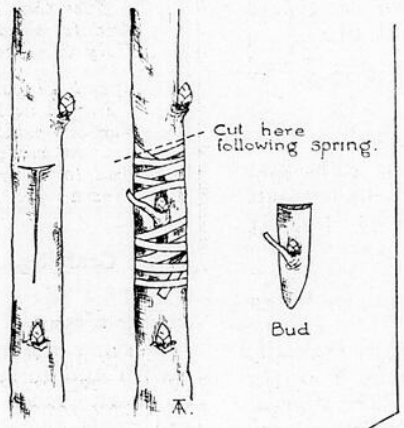


Fig. 5. Budding.

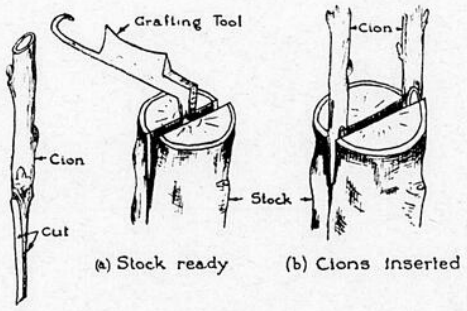


Fig. 2 Cleft graft.

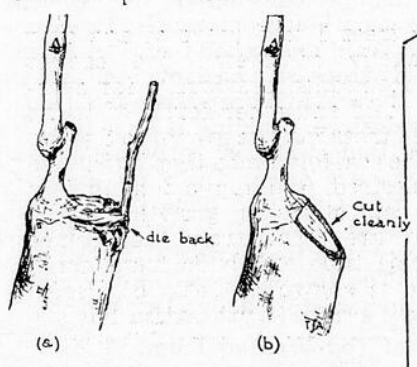


Fig. 6. Showing die-back of stock when cion has failed & method of treatment to facilitate healing.

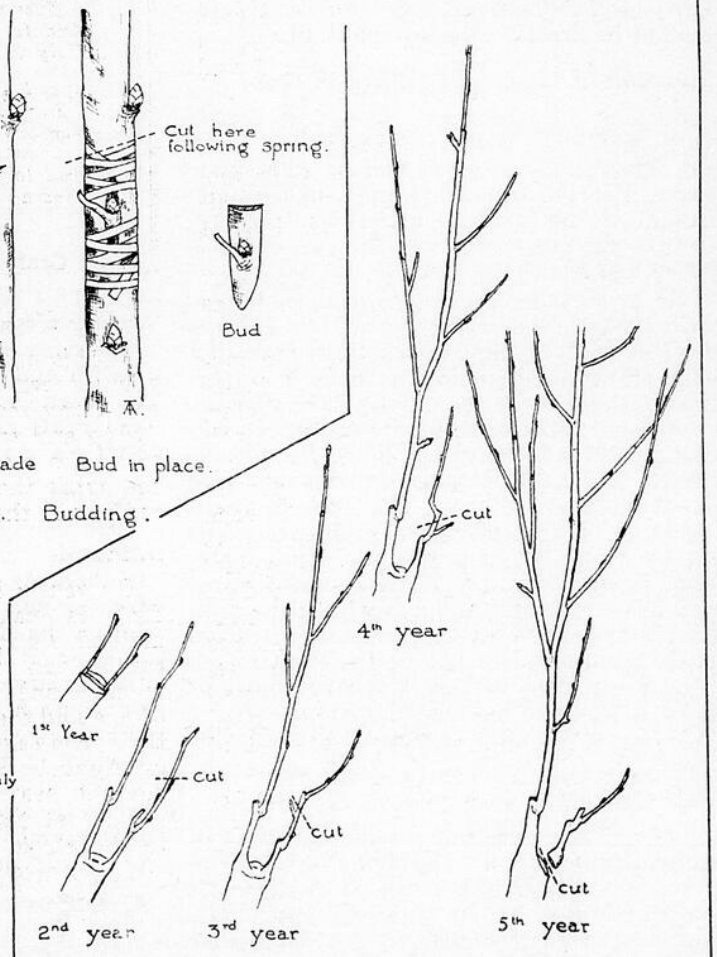
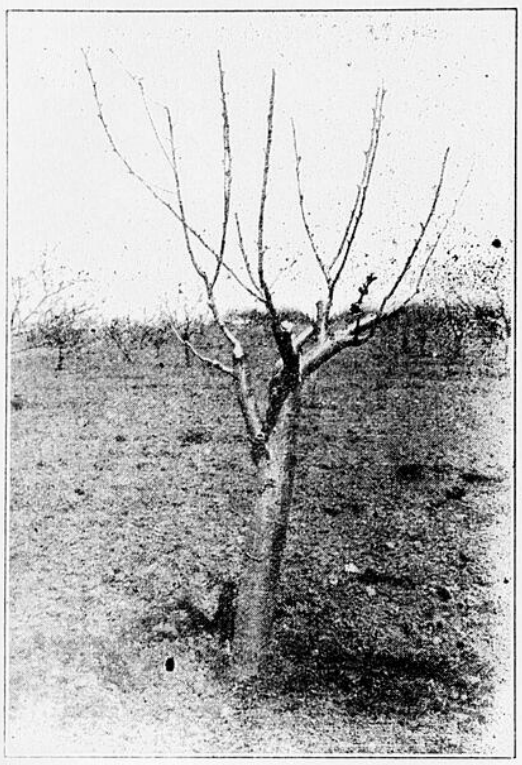


Fig. 7 Pruning of graft up to 5th year.



Tree in spring of third year after grafting. On a tree of this size it is safe to complete grafting and remove balance of limbs in the third year. Pruning of grafts, however, has been rather severe.

days. For applying the melted wax an old paint brush from 1½" to 2½" in diameter is suitable.

There are many waxes of varying formulae used and there are many made up waxes for sale. The following home made hard wax is to be recommended:

Resin	6 pounds
Beeswax	1 pound
Raw linseed oil	1 pint

To prepare: melt resin and beeswax together, then add the linseed oil and mix thoroughly. The wax on cooling will be in a hard block. Pieces may be broken off and melted in grafting pot as required.

Selection of Limbs and Where to Cut.

This is all important. The ideal framework should be borne in mind when deciding what limbs to graft and at what point to cut. Poorly formed and unnecessary limbs should not be grafted but left as "feeders" to take care of excess sap for two or three years and then removed.

On large trees there is considerable controversy as to the height of grafting. It is unwise to graft on limbs over 4" in diameter, such as the large main scaffolds. The healing of these large wounds is slow and uncertain. It is better to graft smaller laterals farther out and leave the large framework intact. Utilize this large framework that has taken years to grow. The trend in grafting to-day is to replace the bearing wood on the tree by a larger number of small limbs. This results in early bearing and insures well healed wounds and a final healthy tree. It is surprising that the large tree grafted in this manner will not be too high; often it is lower than before. Moreover most of the grafting can be done the first year and the tree will be back to normal in a shorter time.

Cleft Grafting.

This is the most common method used in top-working trees in Eastern Canada. The stock is split with a large knife or cleft grafting tool as shown in Fig. 2 (a). Cions prepared from last season's growth should be about the thickness of a lead pencil and contain about 3 buds. Use a sharp knife and make clean long, sloping cuts on either side as shown. One side is cut slightly thicker than the other which is placed outward in the stock. Care should be taken to obtain contact of cambium layers of stock and cion. The latter should be set in slightly tilted to insure crossing of the cambium. Stocks 1" to 3" in diameter require two cions—one on either side. Stocks larger than 3" should have 4 or more. Immediately after insertion of cions the stock should be carefully waxed, care being taken to exclude all air. It is also important to wax the tip of the cions to prevent drying out.

Bark Grafting.

This method is commonly used in Western fruit destricts on account of the speed with which it may be done in large scale operations and the high percentage of "take" claimed for it. Of the two main types the "slip-in" type Fig. 3 (a) is in most common use and gives a satisfactory take. A long sloping cut is made only on one side of the cion. It is then pushed down firmly between the bark and wood of the stock after the bark has been slightly loosened on either side of cut as shown. The cion is then either tied tightly in place with raffia or tacked with fine finishing nails.

For the inlay type Fig. 3 (b) prepare the cion similarly but remove a strip of bark from the stock about two inches in length and of the exact width of the cion. All grafts should be carefully waxed immediately to exclude air.

BARTER

Life has loveliness to sell:
All beautiful and splendid things,
Blue waves whitened on a cliff,
Soaring fire that sways and sings,
And children's faces looking up
Holding wonder in a cup.

Life has loveliness to sell:
Music like a curve of gold,
Scent of pine trees in the rain,
Eyes that love you, arms that hold,
And for your spirit's still delight,
Holy thoughts that star the night.

Spend all you have for loveliness,
Buy it and never count the cost;
For one white singing hour of peace
Count many a year of strife well lost,
And for a breath of ecstasy
Give all you have been, or could be.

—Sara TEASDALE

Whip Grafting.

This has a place in the top working of young trees or small stock. Although there are many modifications of this graft, the "whip and tongue" method (Fig. 4) seems to be the most satisfactory. After making the graft the union is bound tightly with raffia and then waxed.

Budding.

On young trees 1 to 5 years of age budding is usually considered the easiest method. As mentioned previously, for overcoming sun scald and other forms of trunk injury, hardy trees may be grown to 5 years of age and the scaffold limbs then budded to the variety desired. Budding is done in July or August. Bud sticks or growths of the current year are taken from the desired variety at this time and buds transferred to the stock as shown in (Fig. 5). Buds, when in place, are tied with raffia but are not waxed. The following spring the stock is cut off immediately above the bud.

After Care of Top-Worked Trees.

In the years following actual grafting many large trees may die from neglect or as a result of malpractices. Rot, imperfect healing, sour sap and sun scald take a heavy toll of trees at this time. However, with an understanding of several important fundamental causes and by close observation and careful handling, the grower should not lose a tree.

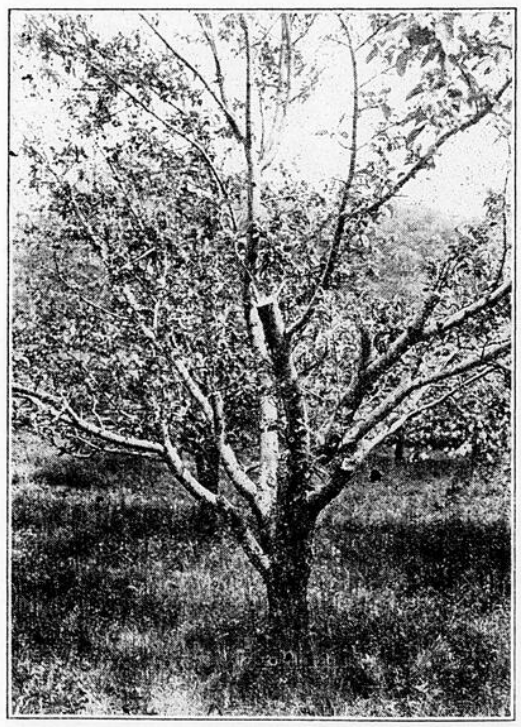
One common mistake is the removal of all suckers from the stock in an effort to obtain more growth on the cions. When we take off large limbs, as in grafting, the excess sap coming up from the large roots must go somewhere, and heavy sucker growth in the tree is Nature's way of removing it by transpiration from this growth. If the tree is pruned too heavily, the excess sap accumulates at various points and may sour. This condition or disease is known as sour sap and closely resembles sun scald. Following a sour sap condition rot will immediately become established and the tree will finally die. Suckers, however, may be kept in bounds somewhat, and those interfering and directly shading or competing with growth of the cion may be cut back or removed. Prune sparingly for at least three years after grafting.

It is advisable to allow only one cion to develop and form a limb. The remaining cions should be used for healing and transpiring off excess sap coming up the stock. If a cion does not take, there will be no healing and there is always the danger of die-back or sour sap at this point, see Fig. 6 (a). A sloping cut away from the living cion removing one side of the stub will do much to induce healing of the wound. Fig. 6 (b).

Where two or more cions have "taken" the method of pruning as shown in Fig. 7 will be found satisfactory. The upper cion should be preserved if possible and the lower one dwarfed by cutting back each year up until the healing of the stub is nearly completed. It may then be removed entirely.

When the old wax on the stub cracks off it is advisable to apply a thick coat of paint containing a small amount of wood preservative. This is better than re-waxing as moisture often collects under the wax to start rot.

We would conclude by reminding the orchardist to watch the grafted tree as carefully as one would a patient recovering from an operation. Give your grafted trees individual care for at least five years and your resulting trees will be as sound, and as heavy producers, as the originals.



Large tree in spring of second year of grafting. Framework of tree has been utilized, but selection of limbs could have been better.

Selected Varieties of Vegetables

MANY varieties and strains of vegetables are listed each year in the catalogues of seedsmen. Some are much better than others, and quite often there is almost as great a difference in some strains as you would expect to find in varieties. Novelties and new originations are often extensively advertised and are usually worthy of trial on a small scale, but few of these are any better than, if as good as, the older or standard varieties and never become of commercial importance.

The following list of vegetable varieties have been selected as some of the best, and if the seed purchased is of good quality, and the garden receives reasonable care, then favourable results may be expected.

The varieties are arranged in order of earliness, and the first choice is in italics.

ASPARAGUS:—*Mary Washington.*

BEANS:—(Yellow) *Round Pod Kidney Wax, Pencil Pod Waw.*
(Green) Bountiful, *Stringless Green Pod.*
(Pole) *Kentucky Wonder* (both yellow and green strains available)

BEET:—Crosby Egyptian, *Detroit Dark Red,* Long Smooth Blood.

BRUSSELS SPROUTS:—*Improved Half Dwarf.*

CABBAGE:—*Golden Acre,* Glory of Enkhuizen, *Danish Ballhead* (Short stem strain)

CARROT:—*Chantenay,* Danvers Half Long, Nantes.

CAULIFLOWER:—*Early Snowball.* Early Erfurt.

CELERY:—*Golden Plume,* Golden Self-Blanching, Giant Pascal.

CORN:—Banting, Sunshine, *Golden Bantam.*

CUCUMBER:—Early White Spine, *Davis Perfect,* Improved Long Green.

CITRON:—Colorado Preserving (Green seeded)

EGGPLANT:—Early Dwarf, *Black Beauty.*

HERBS:—Dill, Fennel Mint, Sweet Marjoram, *Sage, Savory,* Thyme.

LETTUCE:—(Leaf) *Grand Rapids,* Black Seeded Simpson.
(Head) *May King,* Big Boston, New York .
(Cos) *Paris White.*

MUSKMELON:—(Green Fleshed) *Rocky Ford,* Montreal.
(Salmon Flesh) *Bender Surprise,* Oka, Hearts of Gold.

WATERMELON:—Cole Early, Peerless.

ONION:—(Red) *Red Wethersfield,* Southport Red Globe.
(Yellow) *Yellow Gloge Danvers,* Southport Yellow Globe.
(Sets) Ebenezer.
(Transplanting) Ailsa Craig.

PARSLEY:—Champion Moss Curled.

PARSNIP:—Hollow Crown.

PEAS:—(Dwarf) Laxton Superb, *Blue Bantam,* Thos. Laxton.
(Tall) Alderman, *Telephone.*

PEPPER:—*Harris Earliest,* Ruby King.

POTATO:—*Irish Cobbler, Green Mountain.*

PUMPKIN:—Pie.

RADISH:—(Summer) Saxa, *Early Scarlet Globe,* French Breakfast, *White Icicle.*
(Winter) China Rose.

RHUBARB:—*Macdonald,* Victoria.

SPINACH:—Bloomsdale, *King of Denmark,* Princess Juliana.

SQUASH:—(Summer) Straightneck.
(Winter) Hubbard (Green or Golden)

TOMATO:—(Red) Earliana, *John Baer* or Bonny Best.
(Pink) *Livingston Globe.*
(Yellow) Golden Queen .
(Forcing) *Livingston Globe, Grand Rapids,* Kondine.

TURNIP:—White Milan, *Purple Top Milan.*

SWEDE:—Canadian Gem.

VEGETABLE MARROW:—White Bush, Green Bush.

Plan of Farm Vegetable Garden

By H. R. MURRAY, *Asst. Prof. of Horticulture, Macdonald College*

Location:—Choose a well drained area, preferably with a gentle slope toward the south, and convenient to the house.

Soil:—Any good garden soil in a fine state of tilth is suitable for a home garden, but rich, deep sandy loams are to be preferred.

Arrangement:—Long rows are more easily cultivated with horse implements, but shorter rows lend themselves to a better "succession" arrangement. Quite often if long rows are planned, there is not enough variety grown, or too much is grown of one kind and not enough of another. The object of a home garden is to have an adequate supply of a variety of fresh vegetables over as long a time as possible, with a surplus of those which can be conveniently stored or canned.

Planting plan of a farm garden 135 feet wide with rows 75 feet long, suitable for the average family of five. (Each line means one row)

NORTH FENCE

	Distance Allowed	
Planting and seeding in this group to start as soon as the ground can be conveniently worked.	(1)	12 feet-hotbed 6′ x 6′, coldframe 3′ x 6′, rhubarb 4′ x 2′, Horse radish 1½′ x 30″
	3	" Asparagus
	3	" Asparagus
	3	" Onions, red (seed)
	1 foot	" yellow (seed)
	1 "	" white (seed sown thickly for pickles)
	1 "	Spinach, early
	1 "	" late
	1½	feet peas, very early
	1½	" lettuce, head ½ row, lettuce leaf ½ row (from seed)
Last week of April or first week of May.	2	feet Cabbage, early, (plants from frames)
	2	" " mid-season (plants from frames)
	2	" Lettuce, head ½ row, lettuce leaf ½ row, (plants from frames)
	2	" Cauliflower, early (plants from frames)
	1½	" Peas, Early Wrinkled (dwarf)
	1½	" " mid-season (dwarf)
	2	" Beets, early
	1½	foot Carrots, early
	2½	feet Potatoes, early
	2½	" Potatoes, "
	2½	" Potatoes, "
	4	" Cucumbers ½ row, melons ½ row (start under forcing boxes)
Third and fourth weeks of May.	1½	feet Celery, early
	2	" Parsnip
	1½	" "
	1½	" "
	2½	" Sweet corn, early
	2½	" " second early
	2½	" " mid-season
	3	" " late
	3	" " "
	4	" Tomatoes, early, on stakes or on the ground
	4	" Tomatoes, late, on stakes or on the ground (plants started in frames)
First of June	3	" Pepper, sweet, early ½ row, egg-plants, early ½ row
	3	" Potatoes, late
	3	" "
	3	" "
	3	" "
	3	" "
	3	" "
	3½	" Celery, late
	3½	" "
	3½	" "
	3	" Cabbage "
	3	" "
	3	" "
	3	" "
	2	" Carrots "
	2	" "
	2	" "
	2	" Beets "
	2	" "
Late cabbage	— Sow seed — middle of May	
Late cauliflower	— " " — " " "	
Late celery	— " " — last of April, first of May	
Late carrots	— " " — last of June	
Late beets	— " " — last of June	
Swede turnips	— " " — " " "	
Fall beans	— " " — first to middle of August	
Fall peas	— " " — " " " " "	
Fall spinach	— " " — " " " " "	
Fall letuce	— " " — " " " " "	

(1) Start preparing hotbeds March 15th to 30th, and cold frames about April 15th.

The spring sowing of beets, lettuce, peas and spinach, and the early plantings of cabbage and cauliflower, after harvesting, may be followed by other crops: spinach by late celery, late carrots or beets or both; lettuce by late cabbage and cauliflower; beets and carrots by late beans; early cabbage and cauliflower by Swede turnips; early potatoes by fall spinach. The kinds and the amounts of the respective vegetables which should be grown will depend to a large extent on the personal tastes of the family.

Making the Hotbed

By H. R. MURRAY

FERMENTING manure has for many years been the source of heat for the majority of hotbeds. It is material which is available on every farm and requires very little work to prepare it for use with the frame.

The best manure for a hotbed is from grain-fed horses, using about 2 parts manure to which one of bedding has been added. The manure should be piled for a week or so, allowed to heat before preparing the frame. This heating is accomplished by piling in a compact pile, and after a few days it is forked over to mix the litter with the manure. In about 4 to 5 days the manure will begin to steam, indicating that fermenting has started. It should then be forked over again into another pile, placing the outside of the old pile on the inside of the new; after a few more days the manure is ready for the hotbed. (1)

If the pile is not in the location where it is intended to have the hotbed, the manure should be moved, spreading about 12 to 15 inches deep (tramping it well) and projecting about two feet beyond the edge of the frame when it is laid on top. The manure is then banked on the outside of the frame to the top of the board for protection against the cold.

As soon as the manure starts to heat again, a prepared soil, to a depth of 4 to 6 inches, is placed on the manure. After the temperature of the soil has reached its maximum and dropped to 90° Fahrenheit or under (tested by a thermometer with the bulb buried in the soil), the seed may be sown.

Ventilation is very important when operating a manure-heated hotbed. Fermenting horse manure gives off ammonia fumes; this must be allowed to escape from the frame from time to time, as its presence is likely to injure the young seedlings. On warm sunny days the frames should be ventilated by lifting the sash on the side away from the wind. The brightness and warmth of the day will govern to a large extent the amount of ventilation the frames are to receive.

Watering is very important and should not be more frequent than necessary; this should be thoroughly done and with a rising temperature (in the mornings and on sunny days).

A hotbed made from 15 to 18 inches of manure will be cooled off in from 4 to 5 weeks and may then be used as a cold frame for any kind of plants. Usually the plants are moved from the hotbed to the coldframe before this, and the hotbed may then be used for a few hills of melons.

Plants whose seeds are usually sown in hotbeds: tomatoes, peppers, eggplants, cucumbers, melons, early cabbage and cauliflower, early lettuce and early celery.

(1) If the manure is slow in heating, a few buckets of warm water will quite often help. If nitrate of soda is added to the water, the action will be even faster.

Brooding the Chicks

By L. H. BEMONT
Poultry Dept., Macdonald College.

WE are continually running across the statement that poultrymen should hatch or purchase their chicks early. This does not mean that those hatched in May are not profitable, but only that chicks brought out during March and April have every chance to be more so. Probably a higher percentage of chicks hatched in April can be raised than those produced in either March or May. The price received from broilers will decrease at least ten cents per bird each month they are hatched after March. Other things being equal, the average annual egg production per bird will decrease about ten eggs for flocks hatched in April as compared with March, in May as compared with April. There will be a difference of at least ten percent production per bird during the season of high egg prices, according to the month in which the flock was hatched. These factors all influence the labour income derived from the enterprise and point the way to increased profits. Many other reasons are apparent for getting the products of a poultry plant onto the market or into production at the earliest possible date. The question of breed kept has not been discussed with reference to the time to bring off the chicks, because the ability and experience of the operator and the great difference in strains within the breed determines whether the breed being raised will be hatched early or late. Hatch as early as possible and make your brooder houses and brooding equipment work longer to give you the advantage of an early start in fall and winter egg production.

What System is Best

There are three brooding systems now in common use. These are as follows: 1. The Colony System; 2. The long Brooder System; 3. The Battery Brooder. In spite of the facts that rapid development of the latter two systems has taken place within the last few years and that the battery brooder system is out of the experimental stage, some of the largest and most successful poultry farms refuse to change from the colony system to the more intensive brooding systems for the reason that they claim disease is easier to control and stronger chicks may be raised in the old fashioned colony system. Small houses, especially constructed for brooding the chicks, are scattered over a wide range of land spaced about 150 feet apart. When only one house is required it is placed on clean land if possible, or at least on ground that old birds have not used for a few years. It is very important to keep chicks off land used for poultry is free from these diseases and parasites which cause heavy mortality in chicks live in the soil for years after being placed there by adult birds. Of course it is not guaranteed that land never before used for poultry is free from these diseases and parasites, for wild birds spread many of them. This precaution, however, should be taken where it is at all possible, because it helps a great deal in controlling the spread of these profit-consumers.

In any case, the houses should be so constructed that they may be moved a short distance once a month. The land immediately around the houses will soon become contaminated and dirty. Each time the house is moved, marked improvement will be noticed in the activity and general condition of the birds. This alone indicates that the small amount of labour so expended is well paid for in better growth of the pullets. Where only a small amount of range can be provided, it is especially important that the house be moved frequently. The spot where the house has been standing should be dug up, well limed, and covered with wire or brush to keep the birds from scratching in the accumulated filth until the weather has had a chance to clean it up.

Good Range Essential

The ideal range for growing chickens is a well-drained soil on which is growing a good sod containing abundant clover. Should the chicks not be able to eat enough of the green food to keep the clover growing tender leaves, the growth may be cut off every two weeks to provide new growth, which the chicks will eat greedily. Shade on the range is very important. Nature provides the best shade in the form of trees, bushes or tall-growing crops. These also furnish protection from hawks, crows, and sudden, heavy rain storms. In spite of all that is written and spoken on this subject, farmers still continue to build brooder houses on fixed foundations, running their chicks and old hens on the same ground year after year, and never consider that special green food and shade are essential if the birds are to be able to return to them eggs to the best of their ability. Do you give your chicks the opportunity to grow into their bodies the elements to manufacture lots of eggs?

Equipment

The equipment for brooding consists of a house, brooder stove, litter, range, and feeding and water utensils. The house should be at least 12 x 12, to give the operator ample room to work around the stove, and not more than 12 x 15, so the stove will not have to be run at too high a temperature to make the room temperature comfortable, and at the same time not make the heat at the hover or canopy too intense. If it is planned to rear the pullets to maturity in the same house they are brooded in, not more than 300 may be raised in this unit. A stove with a 52-inch hover should be installed. If a small stove is placed in a large house, the same conditions prevail as in the case of an excessively large house.

It is a good plan to eliminate all corners in the pen. Should the chicks be driven from the stove either from too much or too little heat they will crowd into the corners if they can find them. Very soon enough birds get into one corner to trample and smother each other to death.

Another place in which the poultrymen cannot afford to have his birds crowd is around the feed and water utensils. One inch of hopper space for each chick the first five weeks, and double that amount after that time, will give each bird an opportunity to get at the feed trough whenever it so desires. There are always a number of individuals who cannot stand competition at the feed trough. These will invariably pick up and do splendidly if they are given the chance they require. When a chick can get food whenever he wants it, he will not eat enough of the litter material to do him any harm. Shavings are the best litter material and should be used until the birds are separated according to sex. Other things may be used, but none of them quite does the job as well as shavings. Where there is an outbreak of coccidiosis, the shavings must be cleaned out every day from the place where the chicks sleep at night, and from the entire pen once a week. There is probably no better way to control this disease than to prevent reinfection or reinfestation by this method.

Operating the Brooder Stove

Brooder stoves may be purchased that burn coal, oil, or electricity. For most farmers the coal stove is the most satisfactory, but this does not mean that the other types of stoves are not as good. Each farmer must decide for himself which type he will have, and his decision will probably depend to a large extent on what salesman talks most convincingly. The old tried and proven coal stove is still popular with most people, but equally good results may be obtained with any well made stove that is handled carefully. Whatever type of stove is selected, it should be started at least two days before needed, so that it may be well regulated before the chicks are put under the hover. A well constructed stove, regulated properly before the chicks are entrusted to its care, is the best insurance the poultryman can have that his birds will not become chilled or over-heated. Once either of these things happens, the chicks can never be the same no matter how well they are looked after.

The stove should be placed on a piece of galvanized iron, preferably with a sheet of asbestos under it, although this is not absolutely necessary. The temperature should be 95 degrees at a point one inch from the floor just under the outer edge of the hover. The temperature may be gradually reduced about five degrees per week until the chicks are six weeks old. Further reductions depend on the weather entirely. If the stove is no longer necessary, the hover should be removed and the firebox cleaned out and kindlings for a new fire laid in case the fire is needed on a damp or cold and windy night. After about two weeks, the stove may be removed. It should be cleaned and painted before storing it for the summer.

Feeding

Success in rearing chicks depends much on giving them the proper feed and care for the first few weeks. Fresh air, correct temperature regulation, an opportunity to get the right kind of feed and drink all the time, and sanitary conditions are the prime essential features in management. The feeding problems are being well taken care of if feed from reliable concerns may be easily and regularily obtained. The only essential is to get good feeds from a reliable concern and follow the manufacturer's directions faithfully and to the letter. The men who made the feed have probably spent thousands of dollars in finding the correct mixture and just as much in finding the correct way to use it. This is one of the reasons why commercial mixtures are recommended for use until the chicks are at least eight weeks of age. Commercial mixtures may be more expensive in first cost than those put together at the farm, but since the first few weeks are so important to the entire life of the chick, I do not see how we can afford to take a chance of not giving the chicks the very best materials for a good start. Do not give milk as a drink after the chicks are eight weeks of age. Too rapid development of the egg-laying organs means trouble during the middle of the winter from a moult and low egg production. Common sense, knowledge of correct practices, and attention to details play a large part in raising the chicks successfully.

Easter is Coming

By RUTH B. RORKE,
Macdonald College

EASTER will soon be here once more, and with it will come really the first signs of spring. Everyone feels that a new Easter bonnet is in order. Not only do we wish to shed our winter hats and coats and look around for something new, but with the first signs of spring fever we feel that even the appetite needs to be tempted with something new in the matter of food. Now the housewife confronted with that everyday cry for variety searches about for something just a little different, or tries to dress up the same old favourites in another manner.

"Ham for Easter is almost traditional—and how attractive it can be made!"

Perhaps you are arranging a family gathering for this special time, or, at least, you will be planning for some pleasing hospitalities—the first spring-time parties of the year.

Breakfast, though not the most usual time for entertaining, will take on a more interesting note if we are entertaining visitors for the Easter week-end, or some wandering members of the family home for the holiday. For either guests or family a cheerful breakfast setting is the first essential to the meal's success. The clever home-manager realizes that the successful meal is one which not only satisfies the appetite, but also gives enjoyment in the eating, and pleases the artistic sense. All the equipment for the modern breakfast table reflects a cheerful note. We all respond more heartily then than at any other time to bright colours in china and in table-covers. Plain-coloured linen or the more striking checks and stripes add a cheery note; at the same time the smaller breakfast covers or doilies lighten the laundry problem as well.

The Easter Sunday breakfast will undoubtedly be rather a light one, but who would think of Easter breakfast without eggs? And what a choice there is in the methods of serving them! We may have them poached on golden brown toast, creamy, scrambled eggs, or a light, fluffy omelette with a bit of fresh, green parsley or cress. Whatever be the method chosen they must be carefully cooked to prevent toughening or hardening them. Eggs are so sensitive to heat in cooking that it is easy to over-cook or to cook them poorly though their preparation is so simple.

To many the Sunday dinner is one of the most important events of the whole week; and Easter Sunday dinner is especially important. At such special occasions we find so many interesting associations—colour schemes for instance. What combination is more lovely than the beautiful mauve and yellow that is so typical of spring and Easter? Is there anything so lovely as a bowl of daffodils and tulips or hyacinths just to cheer things up a bit?

Mauve or yellow candles will complete the centre piece for a very attractive table. If it is to be a really fussy party we may want to have some form of favours, or nut cups to hold the nuts and mints. The following diagrams and explanations will show how easily these tulips can be made. They may even take the place of fresh, spring flowers if you are not fortunate in having such a presentation made to you, and with candles they help to form the centre piece. Materials—for each tulip.

Green covered wire, 10-12 inches long.
Small paper nut cup, 1½ inches in diameter.
Green crepe paper for stem and leaves.
Yellow crepe paper for petals.

Bend the green covered wire at one end to hold the nut cup. This may be fastened in place with sticking plaster at side and bottom of cup. Bend wire at opposite end to form base, leaving stem of desired length **(Fig. 1).**

Cut two leaves of green paper about 5 inches long (Fig. 2).

Cut fine petals of yellow paper, 2½" Stretch paper through centre crosswise, to form cup shape (Fig. 3).

Arrange yellow petals around the cup with edges over lapping, holding in at the base of cup, and tie securely with thread (Fig. 4). Cut a strip of green paper about ¾" wide and 15" long. Twist paper around the wire starting at the bottom of the cup, covering bottom of petals, stretching the paper slightly to make stem smooth.

About one third of the way down the stem place one leaf, holding in position as you continue twisting to cover the stem. About one half an inch below on the opposite side place the second leaf and continue twisting until the wire stem is completely covered. The end of the paper may have to be glued to make a neat finish for the end of the wire of the base (Fig. 5).

EARTHY THINGS

I like the pungent smell of earthy things—
A meadow, and a ploughed field after rain;
A wine-red patch of clover brings
The feeling I am nearing home again.
I like the ancient smell of burning wood...
The musky essence of old cedar trees—
Upon a lonely sand dune I have stood
Sniffing the breakers from a thousand seas.

From every corner of the world they blow,
Drifting like incense to a deity...
They wake my laggard senses—and bestow
A redolence upon my memory.
Primeval odors... I have loved since birth—
Created when God made the fragrant earth.

—Gene Boardman Hoover—
(Literary Digest)

The colour scheme, then, is to be mauve, yellow and green, but we cannot satisfy our guests with colour schemes and pretty table decorations. What shall we have for dinner? At this time of year a tart fruit cocktail will no doubt make a good starter and the following will serve as a suggestion from which variations may be made.

PIQUANTE FRUIT COCKTAIL

½ cup powdered sugar
½ cup orange juice
⅓ cup grapefruit juice
1 cup diced pineapple
1 cup diced pears
chopped crystallized ginger.

Mix together the first three ingredients and chill. Cut pineapple and pears in small cubes as uniform as possible. Place the fruit in cocktail glasses, fill with the liquid, and sprinkle each with one-half tablespoonful of chopped ginger. (This quantity for six).

The cocktail will probably take the place of the soup if this is not a very formal meal. The main course will come next, and here, of course, there is no question—ham for Easter is almost traditional; and how attractive it can be made!

Perhaps this method is a little different from your present favourite and you might like to try it out.

For Southern Whole Baked Ham

Wipe ham, put into large kettle, cover with cold water, bring slowly to the boiling point, boil five minutes, add 1 cupful of molasses, 2 carrots cut lengthwise and 2 stalks of celery; reduce the heat and simmer until tender 3-4 hours, cool slightly, remove from water and take off skin. Stick whole cloves (about 3 dozen) into the surface, spread with a mixture of fine crumbs and brown sugar and bake in a hot oven 1 hour. Glazed pineapple rings baked with the ham for the last half hour will give a delicious finishing touch. Try one of the following for a little different flavour.

Rub the surface with mustard and pour over it fruit juice, cider or vinegar, and broth.

Pour over it a glass of currant jelly dissolved in water, and baste frequently.

Use molasses, honey, or maple syrup.

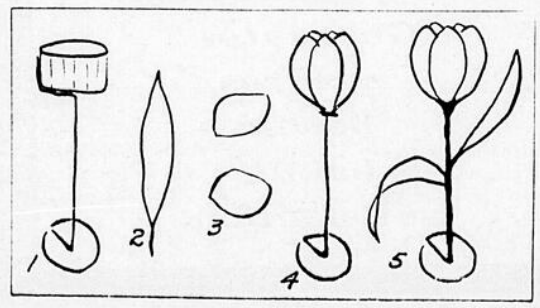
Brush with beaten egg, sprinkle thickly with bread crumbs and fine parsley.

Fresh spinach cooked to a turn and still delightfully green, garnished with hard cooked egg, along with riced potatoes, light and fluffy, cannot fail to be enjoyed. Or bake the potatoes while the ham is in the oven, scoop out the centre and mash well with milk and butter and return to the shell and brown in the oven. The top may be sprinkled with grated cheese.

The salad course can hardly be omitted for this occasion; a light salad of hearts of lettuce or a small jelly salad will be sufficient. The jelly can be moulded the previous day and will take only a moment to turn out on crisp lettuce, then top with a spoonful of cream dressing. For the cream dressing use a plain boiled dressing or mayonnaise, combining just before serving with twice the amount of whipped cream.

The question of dessert is next to be decided. A frozen dessert, as water-ice, or ice-cream is always a favourite—especially with the young people. As someone has said, "New desserts come and go, and yet ice-cream, cherished since that first birthday party, still holds its place." Whether one uses a crank or electric freezer it is easily made and may be ready several hours before if properly packed. Successful freezing in the automatic refrigerator depends on the recipes used and the temperature of the freezing compartment. Mousses, parfaits and other mixtures, which are usually frozen without stirring, are particularly adapted to freezing by this method. Ice-cream mixtures which contain a large percentage of milk cannot be frozen this way without special adaptation, due to the fact that the water crystallizes in the freezing. In general, the larger proportion of cream

(Continued on page 171)



Short Course at Shawville

A well-attended Short Course in Agriculture, of three days' duration, was held last month at Shawville, under the auspices of the Pontiac Agricultural Society No. 1, with some seventy boys taking part in the various contests staged. Many interesting lectures and demonstrations were given, by lecturers from Macdonald College, the Quebec Department of Agriculture, and the Dominion Department of Agriculture, while the prize money for the various contests for boys was subscribed by the Pontiac County Council. A challenge cup, donated by N. A. Drummond, local agronome, for annual competition, and going to the boy with the highest aggregate score for all contests, was won this year by Victor Belanger, Campbell's Bay, while all the contestants gave evidences of their keen interest in the work.

On the first day of the Course, Tuesday, March 14, a seed judging contest was run in the morning, followed by an address on "The Production of Good Seed" by John Dawson, Ottawa. In the judging contest three classes of seed were evaluated — barley, alfalfa, and red clover, with the youthful judges standing as follows in the various classes:

Alfalfa: 1. David Belanger, 2. Fred Elliott, 3. Ulric Hodgins, 4. Linden Young, 5. Clarence Dahms, 6. Clayton Campbell.

Barley: 1. Clarence Dahms, 2. Roley Wickens, 3. Dalton Richardson, 4. Borden Hodgins, 5. Clayton Campbell, 6. Melvin Young.

Red Clover: 1. Fred Elliott, 2. Linden Young, 3. Melvyn Young, 4. David Belanger, 5. Victor Belanger, 6. Clayton Campbell.

In the afternoon, Mr. Dawson gave an illustrated lecture, with slides showing seed-cleaning organizations in Eastern Ontario and Western Quebec. This was followed by a live-stock judging contest, consisting of three classes: Oxford sheep (four aged ewes), in charge of F. Robinson; Ayrshire cattle (three heifer calves), in charge of E. B. Fraser; and Beef cattle, (three Dual-Purpose Shorthorn cows), in charge of R. K. Bennett. The afternoon session was rounded out by an address on "Feeding Problems of Dairy Cattle and Hogs", given by E. B. Fraser.

The prize winning contestants in the live-stock judging were:

Sheep: 1. Ebert Richardson, 2. Norval Wilson, 3. Roley Wickens, 4. Fred Elliott, 5. Alex. Kilgour, 6. Carmen Morrison.

Dairy Cattle: 1. Ebert Richardson, 2. Melvin Young, 3. Clarence Dahms, 4. Ebert Horner, 5. Fred Elliott, 6. Llewlyn Hodgins.

Beef Cattle: 1. Victor Belanger, 2. Clarence Dahms, 3. Lindsay Kilgour, 4. Fred Elliott, 5. Norval Wilson, 6. Russell Currie Mills.

Tuesday evening was given over to music and public speaking. A boy's Public-Speaking Contest brought out much unexpected talent, with the winners lining up as follows:

1. Lindsay Kilgour, 2. Victor Belanger, 3. David Belanger, 4. Marshall Hodgins, 5. Earl Mousseau, 6. Geo. Stephens, 7. Ebert Horner, 8. Kenneth Armitage, 9. Clayton Campbell, 10. Lee Hodgins, 11. Theodore Morin, 12. Clarence Dahms, 13. Clifton Dale, 14. Hillis Thompson.

This was followed by a debate by four practical farmers, on the subject: "Resolved that there are greater opportunities in specialized than in diversified farming." The affirmative was upheld by Wyman Mackechnie and Arthur Dagg, and the negative by John R. McDowell and Hugh Young. The judges for the evening were Rev. Father Murray, Mr. E. B. Braser, and Rev. Mr. Folkes.

Wednesday's programme began with a lecture on "Beef Cattle," by R. M. Elliott, beef fieldman for the Quebec Live Stock

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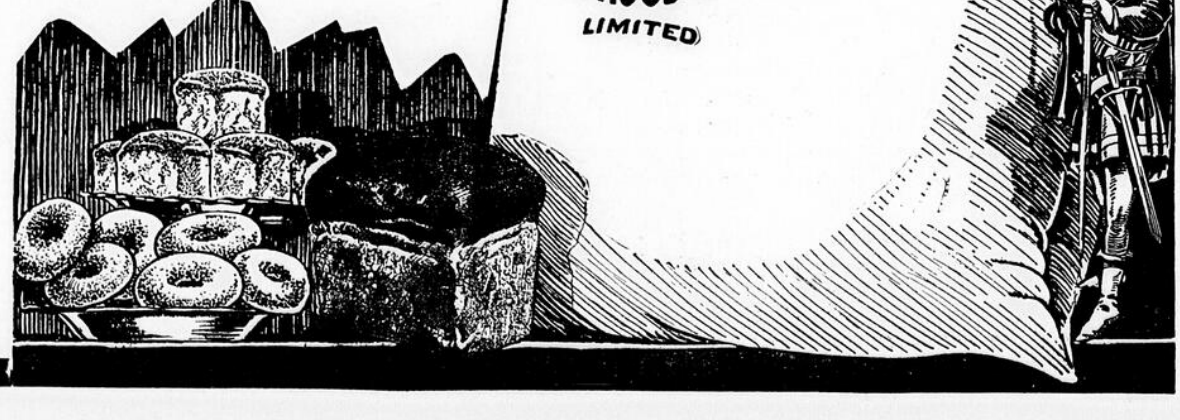

Branch, who will probably be doing a great deal of work in beef in Pontiac County. "Sheep and Swine Problems" were discussed by F. Robinson, and a post mortem made on a sick sheep, which was shown to be suffering from a heavy infestation of nodular and lung worms, and to have pneumonia.

In the afternoon, H. Robitaille, poultry promoter for the district, gave a good practical talk on poultry problems, and performed an autopsy on a sick hen. This was followed by a talk by R. M. Elliott on "Veal Calf Improvement and Marketing," a subject that evoked great interest, and that resulted in the laying of plans to begin shipments of veal calves May 1st. R. A. Stewart, of Ottawa, discussed Calf Club work.

Thursday was given over to two speakers from Macdonald College, Prof. L. G. Heimpel, of the Department of Agricultural Engineering, and Dr. J. E. Lattimer, Professor of Agricultural Economics. Prof. Heimpel spoke in the morning on "Farm Machinery" and in the afternoon on "Machinery Troubles." In connection with his afternoon address, the speaker gave a practical demonstration on a gasoline engine with a mowing machine. Dr. Lattimer's morning address concerned itself with "Trade," while in the afternoon he outlined an "Agricultural Programme for 1933." His addresses met with careful attention, and provoked much discussion.

On Thursday evening, the results of the various contests were given, and presentations made of the prizes won. Prof. Heimpel and Dr. Lattimer making the presentations. The aggregate results were as follows:

Six highest aggregate scores obtained at Shawville.

ANNUAL SHORT COURSE

	Public Speaking	Judging Classes	Average judging score for 6 classes	Total
1. Victor Belanger	179	509	85	688
2. Clarence Dahms	148	516	86	664
3. Geo. Stephens	162	466	78	628
4. David Belanger	176	441	73	617
5. Clayton Campbell	154	468	77	617
6. Lindsay Kilgour	180	402	67	582

The cup was won by Victor Belanger.

An illustrated lecture, by Fred. Ritchie, Ottawa, and music brought the short course to a satisfactory close.

(Mrs) C. KENEDY,
Campbell's Bay.

Easter is Coming

(Continued from page 169)

the smoother will be the ice-cream. The use of a small amount of gelatine, about 1 teaspoon to each cup of liquid, helps to prevent the formation of large crystals. It should be dissolved in the hot liquid before freezing. The following recipe for orange cream sherbet may be prepared for either method of freezing.

ORANGE CREAM SHERBET

1½ cups water
1 cup sugar
¼ cup lemon juice
¼ cup orange juice
½ cup cream

Boil sugar and water until sugar is dissolved. Cool, add lemon and orange juice. Freeze to a soft mush and fold in whipped cream. Continue freezing until stiff enough to serve.

What about Sunday supper? Something light and easily prepared will be most desirable. Here is an Easter egg salad that may be just the thing you are looking for.

EASTER EGG SALAD

6 hard cooked eggs
3 tablespoons fine-chopped olives
cream
lettuce or water-cress
½ cup mayonnaise
½ cup cooked asparagus (purée)

Remove shells from the hard cooked eggs and cut them in halves lengthwise, remove the yolks, mash three of them, mix with the chopped olives and enough cream to moisten. Refill the whites and place together to form the whole egg again. Arrange nests of shredded lettuce or cress on individual plates and place one egg in each nest. Serve with the mayonnaise dressing to which has been added the purée asparagus, the remaining egg yolks mashed and salt and paprika to season.

A few thin bread and butter ribbon sandwiches are simply made and will go nicely with this salad. A light gelatine dessert or a jar of your own home-canned peaches and ice-box cookies will complete the menu. If you haven't a good ice-box cookie recipe try this one.

ICE-BOX COOKIES

1 cup sugar
1 egg
2 cups flour
¼ lb. butter
½ teaspoon soda
½ " vanilla
⅓ cup nuts (chopped)
¼ teaspoon salt

Cream butter, add sugar and beaten egg. Add chopped nuts to the flour sifted with soda and salt. Add vanilla to first mixture then add flour mixture, mix well and shape into a roll about 2 inches in diameter and roll in waxed paper. Place in refrigerator to chill several hours. Cut in thin slices and bake ten minutes in a moderate oven.

This may sound very well, you may say, but it looks as though the housewife would be spending Easter day in the kitchen! With a little forethought and wise planning much of the last minute

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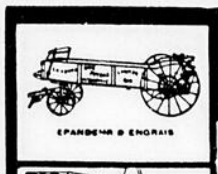

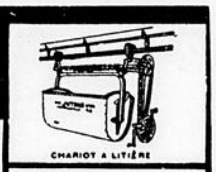

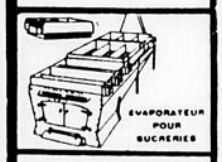

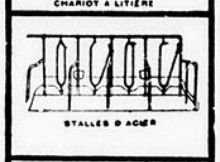

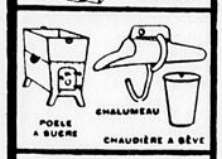

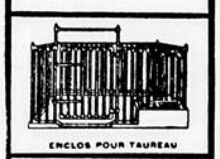

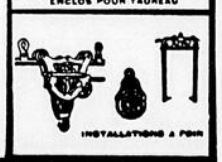

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rush can be avoided, and the hostess may enjoy, with her guests, the meals she has tried to make attractive—even though she has had to cook them herself. How much preliminary preparation can be made? The fruit for the cocktail may be prepared any time during the morning. The ham may be boiled the previous day and thus will need only the baking with its finishing touches. If the housewife is very smart she will have the spinach picked over and washed the previous day too. The sherbet prepared in the automatic refrigerator is simple; if frozen in the crank freezer it will, of course require more attention; but in either case the "ice" may be made some hours ahead provided it is well packed. The supper salad might even be cooked the day before, and kept thoroughly chilled. So the provident hostess quite unruffled may look forward to, and enjoy with the rest, "A Happy Easter".

Hot Supper Dishes

EGGS AU GRATIN

6 hard cooked eggs	1½ cups milk
4 ripe tomatoes	1 teaspoon salt
3 tablespoons fat	¾ cup grated cheese
3 tablespoons flour	buttered crumbs

Cut hard cooked eggs in half, and arrange around the edge of an oiled baking dish. In the centre place sliced, peeled tomatoes, or whole canned tomatoes may be used. Make a white sauce of the fat, flour and milk; add the cheese and stir over hot water until melted. Pour over the tomatoes and eggs, cover with buttered crumbs and bake in a moderate oven. About twenty minutes will brown the crumbs and heat the ingredients through.

LIVER AND RICE EN CASSEROLE

4 cups water	2 tablespoons flour
1 cup rice	crumbs
2 cups stock	salt and pepper
¼ cup butter	1 pound liver

Boil the liver, drain, chop fine, and season with salt. Cook the rice with the water, mash smooth with two tablespoons butter, season well, and line a well greased casserole with the mixture, leaving a large hollow in the centre. Brown the flour. Make a sauce with the browned flour, two tablespoons of butter, and the stock, and add the minced liver. Place the liver mixture in the centre of the rice, cover with buttered crumbs, and bake until heated through and the crumbs are brown.

Salmon Surprise

Line a greased casserole or baking pan with warm cooked rice. Fill the centre with flaked salmon seasoned with salt, pepper and a few grains of nutmeg. Cover with rice and steam an hour, or heat thoroughly in the oven. Serve with egg sauce.

Egg Sauce. Melt two tablespoons butter, add an equal volume of flour; when well mixed add one cup hot water, and season well. Stir until smooth and thickened. Let cook fifteen minutes over hot water. Add one teaspoon lemon juice and the beaten yolks of two eggs. If allowed to boil after adding the eggs the mixture may curdle.

FISH TURBANS

2 cups flaked fish	1 cup butter
1½ cups milk	¼ cup flour
1 slice onion	slt and pepper
blade of mace	2 egg yolks
1 teaspoon parsley	1 cup buttered crumbs
lemon juice	

Scald the milk with the onion, mace and parsley; then strain out the seasonings. Melt butter, add flour, salt, pepper, and pour the milk on slowly. Bring to the boiling point and add the beaten eggs and lemon juice. Combine with the fish. Fill greased individual moulds with the mixture, and cover with the buttered crumbs. Bake in a hot oven until the crumbs are brown and the fish mixture heated through.

CORN TOAST

2 tablespoons finely chopped onion	
2 tablespoons butter	¼ teaspoon paprika
2 tablespoons flour	salt and pepper
1 can corn	2 cups milk
	6 slices toast

Cook the onion with the butter until yellow. Add the flour and stir until light and frothy; then add the milk and stir until smooth and thickened. Add the corn and let simmer ten minutes. Pour over hot toast, garnish with parsley and toast points and serve at once. The paprika may be cooked in the sauce or sprinkled over the top of the corn.

SCALLOPED TOMATOES

1 can tomatoes	1 tablespoon sugar
1 teaspoonful grated onion	
1 tablespoon butter	1 teaspoon salt
	⅛ teaspoon pepper
	1 pint buttered crumbs

Butter the baking dish, put in a layer of buttered crumbs. Add a layer of tomato, dot with butter, sprinkle with seasonings and cover with crumbs. Repeat, having a thick layer of crumbs on top. Bake in a moderate oven. If the tomatoes are very juicy some of the liquid had better be drained off.

Planting Roses

It is important to plant roses as early in the spring as possible so as to get them established before there is warm weather or drying winds, is the advice of horticultural experts of the Dominion Department of Agriculture. If the branches look withered when they are received bury them in wet soil for about two days so the stems will take up some moisture. Prune back severely leaving only from three to six buds above the stock and plant so that the point of union between the bud or named variety and the stock is just below the surface of the soil.

Quebec Women's Institutes Follow Indoor Avocations

The season when much of the time must be spent indoors gives Women's Institutes an opportunity for many kinds of mental and physical activities of which they are not slow to take advantage.

Education and Better Schools

Several educational readings were given in Beechgrove branch, including one on the subject "Music in the Home" and "Taking Time to Visit." Outstanding "Canadian Women" were mentioned in the roll call. This branch heard a paper on "Progressive Education." Stark's Corners heard a History of St. Valentine's Day and Wyman heard a Book Review and refilled emergency kits for several schools. Cross Point branch heard the names of famous Canadian actresses through the roll call. Port Daniel had a paper on "Music in Schools" by Professor W. A. H. Martin of Stanstead College. The branch at Gore planned to have one of the McGill Illustrated lectures given in the local schools in the near future.

The formation of a Women's Institute library was discussed. Lennoxville has secured a second McGill Travelling Library for the local High School for this year.

The branch at Como, Hudson and Hudson Heights has been gathering funds by the means of card parties to finance their prize giving in the local schools. A combined French and English dramatic entertainment was held to supply finances, a generous quantity of milk being given to needy school children during the month. South Roxton held a Valentine Contest and reviewed the Current Events of the month. "What a Woman Should Know about Banking" was the subject of a paper in Dundee branch. "Hot School Lunches" were discussed in a paper by the Principal of Dundee Consolidated School. The Women's Institute held a reception for the school staff. Aubrey-Riverfield heard a paper on Robert Burns and reviewed departmental work of the Women's Institute.

Franklin Centre planned a debate for the next meeting. Chatham held a successful concert and Lakefield a very successful Valentine entertainment. Jerusalem-Bethany's roll call was "Noted Women." Lachute reports a literary programme, with papers on Pauline Johnson, Alfred Tennyson, John Galsworthy and Haydn's music. School problems were discussed in Morin Heights branch and a committee appointed to confer with the local school board. "Ancient Proverbs" was the subject of the roll-call in Upper Lachute meeting; school fees were provided and school equipment was donated by a member.

Home Economics

Fort Coulonge branch has gone in for rug-making this winter and also held a knitting contest, using Canadian wool, with prizes for the best. Wyman had a paper on the "Destruction of Moths." Stanstead County at its quarterly rally planned to offer prizes for knitting by girls at the County Fair next autumn and also discussed the Women's Institute exhibit. Lemesurier offered prizes for fancy work, knitting and mending at its next School Fair. Stamping patterns were ordered for the use of the girls in their work. A paper on "Linoleums" was read. Several social gatherings were sponsored by the branch. Hemmingford had a demonstration on making a wool comforter, the entire process being fully described.

Mrs. M. E. Honey, president of Abbottsford branch, gave an address on "The Business of Homemaking" at a church society meeting held in Granby.

A study of "Uses of Beef" was inaugurated by the Inverness Women's Institute.

"The Nutritive Value of Fish Foods" was the name of a paper contributed by Mrs. W. Doherty at Morin Heights meeting. Upper Lachute had a sale of small articles.

Child Welfare and Public Health

Clothing was provided for school children by the Women's Institute at Stark's Corners and groceries were sent to their families. Cross Point held a sewing meeting to provide for needy families for whom groceries were also provided. Beebe branch was active in relief work during the month. Hatley branch served an oyster supper after the regular meeting, followed by a card party. Way's Mills also held card parties and provided milk for children and sick ones. Ascot branch entertained a number of girls as their guests, the latter taking part in a cake contest. Brompton planned sewing and sent supplies to a sick member. Belvedere assisted the mothers of babies with necessities.

Lennoxville branch contributes a fixed monthly sum to the funds of the Central Relief Committee in the town. Inverness branch presented some "woollies" to a member for her new baby. Warden branch was gratefully thanked for kindnesses to those in need. North Shefford sent fruit to a shut-in and employed some of the time of meeting in making a quilt. Abbotsford distributed material for children's clothing together with second-hand clothing to be made up by the members for the Family Welfare Association in Montreal.

A paper on the subject of Child Welfare was given by Mrs. R. Thompson of this branch. "Child Labour Laws" was the

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GALLS and sore shoulders cut down your profits. They limit the work your animals can do. And they're easily prevented.

The horse that starts out in the spring, full in the neck and collar fitting well soon loses flesh under hard work. The collar becomes too big. It rubs, chafes. Soon there are galls, bruises, sore shoulders. Production suffers until the sores are healed.

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subject of an address by Miss Nish, of Macdonald College, in Dundee branch.

Dundee sent $10.00 to the Girl's Friendly Home and provided a floral tribute for a deceased member. Hemmingford heard a paper on "Parasites." Lakefield is working on several quilts to supply local needs. Upper Lachute also provided flowers for a deceased member, and Pioneer branch sent money, raised by a card party, to the Children's Memorial Hospital.

Canadianization and National Events

"Outstanding Events of the Year" was on the programme of Ayer's Cliff meeting and the subject covered Great Britain as well as Canada. Dr. F. O. Call of Bishop's University gave an address before Ascot branch on the "Maritime Provinces" which proved very interesting. Belvedere took steps towards forming a "Link of Empire" with an English Women's Institute. Mrs. E. E. Boothroyd was the speaker at Lennoxville branch and her description of a trip through England, illustrated by pictures, was a delightful one. Mrs. R. J. Ivall gave a fine paper on "Citizenship" at the Morin Heights meeting.

Canadian Industries

"Some of Canada's Trade Relations" was the subject of an address given by Miss Hazel B. McCain, Director of Extension Service, Macdonald College, at the quarterly Women's Institute rally of Stanstead County. Franklin Centre Women's Institute had a discussion on "Canadien Iudustries at the Present Time."

Agriculture

Wyman branch heard a paper on this subject. "Beautifying Home Surroundings" was the subject of an address by Miss Hazel B. McCain, Macdonald College, at a meeting of the Belvedere branch.

Immigration

A special programme on Immigration, with a paper and Scotch musical numbers, was conducted in the Beebe Women's Institute meeting. Way's Mills also heard a paper on this subject. Lakefield heard a paper on Immigration given by Mrs J. S. Giles.

Publicity

Cleveland branch meeting was in charge of the Publicity Convener, Miss Alma J. Healy, and her programme placed Home and Country in the lime-light. A paper on the subject of the Quebec Women's Institute Magazine was a feature and the programme was prepared from the Institute paper. The roll-call was answered by names of favourite Canadian papers or magazines.

Miss Hazel B. McCain addressed Milby branch on "Women's Institute Work." Miss C. MacMillan gave a paper on "Publicity" at the meeting of Inverness branch.

For the Control. . . .

(Continued from page 164)

Services Available to the Grower

It is impossible in a short account of this kind to give an adequate treatment of such a big and important subject. The purpose of this article is merely to bring to the attention the more important facts concerning orchard pest control, but many details have to be omitted. The grower should therefore take advantage of the various services organized for the purpose of giving to each apple grower specific and detailed information and help in connection with his particular problems. All growers should become members of the "Quebec Orchard Spray Service." Most growers are well acquainted with this service, which is organized for the purpose of advising each member by letter as to the proper time for spray applications and to give other timely advice in connection with pest control. This service is organized by the Quebec Department of Agriculture and is given free to all growers requesting to have their names enrolled as members.

A grower wishing to become a member should send his name to Mr. F. L. Godbout, Room 44, Sauvegarde Building, 152 Notre Dame Street East, Montreal, who is the technical man in charge of the field work of this service. Mr. R. N. Racicot, Plant Pathologist, Dominion Laboratory of Plant Pathology, Ottawa, Ont., is a specialist on fire blight of apples, and growers may receive special help by writing to him in connection with this disease. Each summer he conducts important investigations on fire blight in the province. Mr. C. E. Petch, Entomologist, Dominion Entomological Laboratory, Hemmingford, Que., is a specialist on orchard insects. Information and help on orchard pests will be gladly given by the Departments of Entomology and Plant Pathology at Macdonald College, and the corresponding departments of the Agricultural Colleges at Oka and Ste. Anne de la Pocatiere.

Turkey Egg-Laying Time

Just as soon as the spring weather comes, turkeys should be fed for egg production, and laying should commence about the middle of April in Eastern Canada and somewhat sooner in Western Canada with its earlier spring opening — especially in British Columbia, says Mr. A. G. Taylor, Poultry Husbandman, Dominion Department of Agriculture. Much depends on the weather becoming really spring-like as to the time for forcing for laying, as eggs laid too early would have to be held too long before setting. This important question must be practically left to the discretion of the attendants. To get turkeys laying just at the proper season requires experience, and beginners should be cautious in this regard.

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Milk "Makes" the Headlines

(Continued from page 11)

that of the Public Utilities Commission of Manitoba which has taken over the control of prices in the city of Winnipeg.

One of the big problems confronting the producers who are selling their milk in Montreal, Mr. Moore stated, was that of a large number of small companies who were continuing to buy their milk as cheaply as possible and undercutting the prices to the consumers in Montreal of what he termed "the reputable dealers." The other companies were afraid, he said, to attempt to force the small concerns into line by legal means because of the probable loss of good will and customers. Still another factor was that "we have had a terrific increase in the amount of milk coming into Montreal lately because of the stoppage of the movement of milk and cream from the Eastern Townships to the United States, so we have all that pressure on the Montreal market and a low price resulting."

The City Hall in Montreal, said Mr. Moore, was deluged with applications from farmers wanting to ship milk to that city, and the problem of "bootleg" milk had become a serious one. Last fall, he declared, milk was coming into Montreal at night from country factories.

Mr. Moore gave the committee figures on the consumption of milk in Montreal: 1928—21,900,000 gallons; 1929—23,300,000 gallons; 1930—25,250,000 gallons; 1931—26,949,000 gallons; and 1932—26,617,000 gallons.

Montreal, Mr. Moore stated, was in a very favorable position for milk distributing—more so than any other place on the North American continent.

Mr. Moore gave figures showing the gross spread between what the producer received and what the consumer paid over certain periods. In 1931 this spread was 5.26 cents a quart. Of the consumer's dollar the dealer obtained 56.05 per cent. and the producer 43.05 per cent. Today the dealer received 63 per cent. The percentage of decrease suffered in the matter of present prices was 29.84 by the producers and 6.55 by the dealers.

The producers had always striven to get two price changes per annum, one on June 1 and the other on October 1, so that "winter" prices would obtain for eight months of the year. Depressed conditions of the past three years had disrupted this, however, Mr. Moore said.

In Montreal there were 33 distributors, 2,800 grocery stores which sold milk, and 317 chain stores. In the spring of 1932 one of these chain stores, with 72 shops in Montreal, started to "feature" milk, selling it at three cents a quart below the top "house delivery" price. In the first 10 days of December last, the price per quart was five cents. This, Mr. Moore added, was a loss which that particular store charged up to advertising. The special attraction of low-priced milk was offered as an inducement to customers to patronize the store in the hope that they would make other purchases in addition to milk.

The chain stores, said Mr. Moore, had no regard for quality. All they wanted was volume of sales. The producers sought to confer with these stores, but were unable to meet them. As a compromise three chains decided to drop from 10 cents to eight, while the distributors dropped to nine cents.

"But we are apprehensive," Mr. Moore added "that they will drop below seven cents when supplies become abundant."

Montreal was repeating the conditions that obtained in Winnipeg where the whole business was disorganized. Finally milk was placed under the Public Utilities Board in the western province, and latest reports were that the situation was quite satisfactory.

The question which the producers wanted solved was whether the distributors were getting a fair return on their invested capital and for the services rendered, Mr. Moore declared.

"Hundreds of thousands of dollars have been lost by farmers through the failure of small dealers with whom some farmers had been dealing," Mr. Moore said.

Mr. McArthur told the committee the standards of the producers had been completely changed, that the producers wanted to supply good products but that the feeling of the farmers was that some requirements of the authorities were too stringent, "particularly when we cannot get a fair return for our product. We hope for relief and that relief must come soon. We cannot continue long to sell at less than cost." As a result of the recent agreement whereby the farmers got $1.35 per cwt., the farmers were fairly well satisfied, in the sense that they were pleased they were not asked to accept a further reduction. There were difficulties in the organization because of those who remained outside of it, and the officers were trying hard to get a 100 per cent organization. There were about 3,600 in the organization but the 300 remaining outside were making considerable trouble.

Gilbert McMillan, director of the Canadian Ayrshire Breeders Association, said that the present prices received for milk made it impossible for the farmers to keep going. The cheese and butter factories paid from

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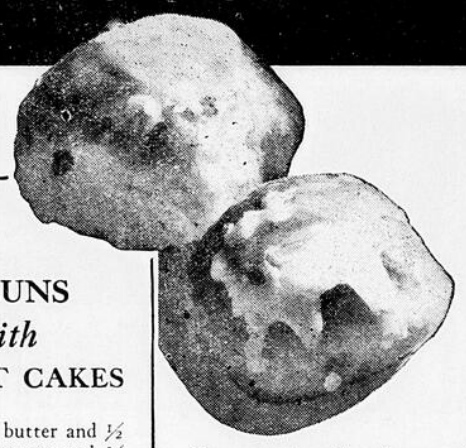

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Cream together ⅓ cup butter and ½ cup sugar, add 1 beaten egg and ½ cup milk. Then add with about 2 cups flour, ¼ teaspoon salt and ⅔ cup raisins to 1 cup Royal Yeast Sponge* to make soft dough.

Knead lightly and place in greased bowl, cover and set in warm place until double in bulk, about 1½ hours. Shape in buns, place in greased shallow pan, let rise in warm place until double in bulk. Brush over with egg wash. Bake in moderate oven (375 degrees) 20 minutes.

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Soak 1 Royal Yeast Cake in ½ pint lukewarm water for 15 minutes. Dissolve 1 tablespoon sugar in ½ pint milk. Add to dissolved yeast cake. Add 1 quart bread flour. Beat thoroughly. Cover and let rise overnight to double in bulk in warm place free from draughts. Makes 5 to 6 cups of batter.

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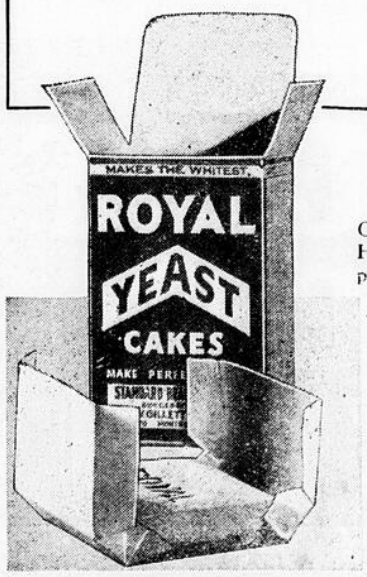

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60 cents to 80 cents a hundred. The farmers lost money at that price. It cost much more to produce milk for cities in view of inspections, uniform flow and express charges, etc. A farmer to exist should get $1.60 a hundred for his milk shipped to the city. Last year the shippers to the five big companies in Montreal received an average of about $1.10 after paying express.

He urged that only registered milk producers be allowed to ship into cities, and that the milk be paid for on a butter-fat basis.

Distributors Appear Before Committee

Despite the fact that one distributor paid the producer on two bases, namely the association and the surplus, while another paid on a flat basis, the spread between the price paid to the farmer for his milk and the price paid to the distributor in Montreal averaged about 50 percent. during the years 1931 and 1932, according to evidence given by Frank Cousins, dairy manager of Ernest Cousins, Limited, and by Fortunat Monette, president and manager of Perfection Dairy, Limited.

Mr. Cousins told the committee that his company made a net profit in 1931 of $16,515.77 and in 1932 a net profit of $19,964.22. In 1931, $233,868.39 was paid for the milk required by his company and that milk was sold for $466,140, a spread of 47 per cent. He explained that 88 per cent. of his company's business was wholesale and the remaining 12 per cent. retail. In 1932 his company paid $246,203.44 for its milk it wholesaled and retailed, a spread of nearly 50 per cent.

Fortunat Monette gave to the committee the average prices paid by his concern in 1931 and 1932 to the producer and the prices at which the milk was sold by his company in Montreal, a large proportion of it to the hotels, and his figures showed an average spread through the two years of about 50 per cent.

It developed, however, that some of the shippers to Perfection Dairy received a lower price than others for their product.

Mr. Tummon: "Your price to the producer is not the price agreed upon by the association?"

Mr. Monette: "No. Nobody pays the association price. The farmers are so dissatisfied with the two-price system that they want a flat price. We have a lot of new shippers and most of them are those who have become displeased with the two-price system."

Mr. Tummon: "Have you a uniform price for all your producers?

Mr. Monette: "No. There is no uniform price, but there are only slight variations, and these arise from differences in the quantity shipped and the regularity of shipments through the year." Mr. Monette said store business had greatly increased the sales of milk in Montreal. The stores, he added, made a profit of one cent per quart.

Mr. Cousins said the total dividends paid by his company were $13,394.45., and that the last dividend paid was on April 15, last year. He told the committee that the profits of his company were not "excessive." His company observed the prices set by the Montreal Producers' Association in conference with the distributors. Replying to a question by Mr. Tummon, it was stated by Mr. Cousins that not all the milk bought by his company was paid for at so-called association prices, that some was paid on a surplus basis. Later he disclosed in his figures that about one-half of the milk bought by his company was paid for on the surplus basis. Surplus milk was the milk received but not required for bottling purposes, and the surplus was governed entirely by competition, by supply and demand.

Too Much Milk

Milk bootleggers and the onerous health regulations imposed by the city authorities are responsible for the high cost of milk to the consumers in Montreal and for the wide spread between that cost and the price paid to the farmer, according to George Hogg, president and managing director of the Guaranteed Pure Milk Company. When one or two of the members complained of the disproportionately low price paid to the producer, Mr. Hogg declared that even if he secured his milk supply free from the farmers he would require at least six cents per quart from the consumer to remain in business.

"The whole world today," said Mr. Hogg, "is suffering from an over-production of milk, and one of our chief troubles is to keep the stuff from coming into the city. What makes it worse is that we cannot get co-operation from the farmers. When we have been unable to take milk from a certain producer, because of a surplus supply, that farmer has handed his milk over to a truck at 50 cents per 100 pounds when we had been paying from $1.35 to $1.46 per cwt. As a result the good farmers are suffering because some nonedescripts handed over their production for ridiculously low prices. Too much stuff is coming into the market and it is getting into undesirable hands."

Delivery charges, which in the case of his company were 18.8 per cent. of the total, constitute another factor in the spread and in the difficulties of the distributors. Mr. Hogg explained that his company enjoyed an "old family trade." "Competition is so keen," he said, "that it is impossible to get maximum loads on our wagons. If you don't get the milk delivered at a certain hour you lose the business, for there is always someone else ready to meet the delivery requirement."

When one of the members was questioning as to the cost of pas-

teurization and other hygienic costs Mr. Hogg said, "none of us want to go back to the rough and ready methods of 20 or 30 years ago."

E. O. Bertrand (Prescott) pointed out that the average price paid by Mr. Hogg's company to the farmer for his milk was 3.5 cents per quart, out of which the farmer had to pay the transportation charges, and that the Guaranteed Pure Milk Company sold the milk at an average of 9.5 cents. "Don't you think it strange there should be such a spread?" Mr. Bertrand queried.

Mr. Hogg: "If we got the milk from the farmer for nothing we would still need about six cents per quart to carry on our business."

Mr. Bertrand: "Have you anything to suggest that would lower the cost of the delivery system?"

Mr. Hogg: "So long as humans are what they are we could not reduce that cost. Competition is too keen. Moreover, you cannot tell the women where they are to get their milk."

Answering questions from Mr. Tummon as to the relations between the producers' association and the distributors and how they arranged prices, Mr. Hogg declared that "we have never yet broken our word with the producers' association." He explained that there were four large distributors in Montreal, namely, the Borden Milk Company, J. J. Joubert Company, the Elmhurst Dairy and the Guaranteed Pure Milk Company. There were in addition 400 independent dealers in the city. The four larger companies, he said, were trying to maintain a high class of business, a high grade of milk. As for the relations between producer and distributor, Mr. Hogg said, the producers seem to be satisfied. Most of the 400 dealers bought their supplies from smaller pasteurizing plants. Asked about price fixing and arrangements between the larger distributors, Mr. Hogg replied, "We are all tied up in one bundle. If there is a demand on us from the producers we distributors certainly compare notes and the producers do the same."

Mr. Tummon: "What percentage of milk purchases in 1932 were paid for at association prices?"

Mr. Hogg "All but 11.9 per cent. Some of it was paid for at higher than association prices. In that year we paid premiums for good milk which aggregated for the year about $18,000. We are not compelled to pay a premium, but we do so to get a high grade of milk. The best milk we can get is not too good for our trade." He told the committee that the net spread in prices of his firm in 1931 was 4.04 cents per quart and in 1932 it was 4.52 cents. Of the total sales of his firm 60 per cent. was retail. Asked by Mr. Tummon to indicate how the spread was made up, Mr. Hogg gave the following percentages of his costs; cost of products, 47.4 per cent.; dairy charges, 7.5 per cent; delivery charges, 18.8 per cent.; general expenses, 11.6 per cent.; depreciation and bad debts, 5.6 per cent.; income tax, 1.4 per cent.; net profit, 7.7 per cent. Replying to a query by the chairman of the committee, Mark Senn (Haldimand), Mr. Hogg said that whatever profit was made was on the retail sales, to the homes.

Inquiry May Extend

Closing moments of the milk probe were enlivened considerably when George Spotton (North Huron) made a request that inquiry be made into the set-up of milk distributors, details of their capitalization, of their parent companies, subsidiary companies and inter-locking directorates.

It was all very well, Mr. Spotton said, for representatives of milk distributors to appear before the agricultural committee with financial statements; but what the committee should do was to send auditors, if necessary, to inquire into the whole circumstances of their operations.

The present probe, he suggested was only a forerunner to inquiry into other institutions like packing houses and stock yards.

Chairman Mark C. Senn (Haldimand) thought the "whole story" should be told. He asked W. R. Aird, vice-president of the Elmhurst Dairy of Montreal, if milk distributors would have any objection to compulsory legislation whereby the loss and breakage of bottles would be paid for by the consumer. Some milk producers have charged as high as $18,000 to bottle losses.

Mr. Aird believed the carrying out of such legislation would be surrounded with difficulties. Replying to remarks of several members who supported Mr. Spotton's views, Mr. Aird commented "The figures I have given this morning are not cooked and if there is any suggestion they are cooked we would welcome the sending of any auditors you wish into our plant."

The terms on which milk is purchased from the producers are arrived at on a collective bargaining basis, Mr. Aird told the committee.

Periodically the executive of the Montreal Milk Producers Association meet with representatives of the dairies of the city to arrange the terms on which milk will be purchased, the terms agreed upon remaining in force until the next meeting which may be held at the call of either the Montreal Milk Producers Association or any distributor

The terms agreed upon are usually restricted to the prices to be paid for regular milk. It is left to the dairies to select their own shippers and to purchase from whom they will, Mr. Aird said.

It had been the policy of Elmhurst Dairy to adhere strictly to their agreement with the exe-

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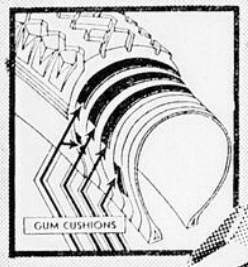

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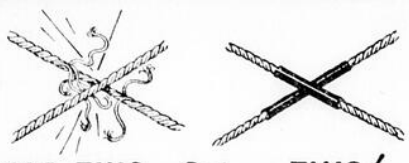

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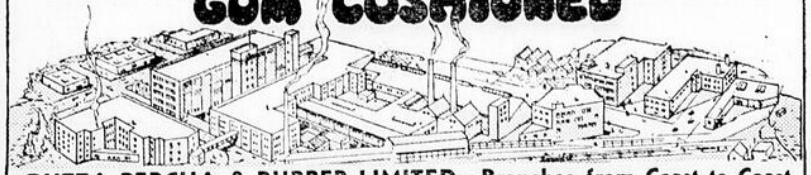

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cutive of the association. All shippers taken on must have had their farms inspected by inspectors employed by the health department of the city of Montreal, and shippers are taken on by this company only after notification from the health department that it is in order to purchase their milk.

The health department also reserves the right to cancel any shipper's permit, thus prohibiting distributors from purchasing milk from that farm.

"Frequently we have received numerous offers from producers to ship milk to us in considerable quantities at prices much lower than the agreed prices, but we have without exception turned down these offers. It is also our policy to adhere strictly to the regulations of the city of Montreal and to co-operate with them in every manner possible," Mr. Aird declared.

"The sales of milk fluctuate very considerably from season to season and also from week to week. For example, in the summer time when the production of milk is high the sales in the city are low and on the other hand in the winter time, when production is low, sales are higher. In addition to this sales are affected by changes in the weather, holidays, particularly school holidays, and they are also subject to change each time a change of price goes into effect. For this reason we sometimes find it necessary to take on extra shippers during the low production months. These shippers are paid on the same basis as the others with the exception that they ship only during part of the year, and are dropped off our lists when their milk is no longer required. These shippers are generally given the opportunity of shipping cream if they so desire."

The agreed price with the producers association was based on milk testing 3.5 per cent. butterfat with a bonus for higher butterfat content.

Shrinkage was inevitable in the handling of milk through modern dairy equipment and is due to evaporation, loss in the equipment, over-capacity of milk bottles, etc., said Mr. Aird.

The great bulk of the surplus milk received was not required for any other purpose and therefore had to be separated and used for the manufacture of butter.

The house to house method of delivering milk was an absolute necessity, witness said. On Sundays and holidays when the stores were not open a delivery of fresh milk can only be obtained from the distributing plants. By delivery direct from the dairy plant to the home, the most of which is made before breakfast, the public was assured of receiving milk of the highest quality.

The cost of delivering milk direct from the distributing plants to the homes was not excessive where a fair volume is sold. During the last two or three years, however, conditions had been such as to make the maintenance of a fair volume very difficult.

The continued unsatisfactory conditions prevailing throughout the country and the consequent lack of buying power had caused a decrease in the consumption of milk and a larger decrease in the consumption of cream. In addition to this a number of the chain stores had used milk as a leader, and in this way had divided the method by which a great many homes receive their supplies and thus caused an increase in the expenses of deliveries to them.

"Are you supplying any chain stores in Montreal?" asked J. L. Brown (Lisgar.)

"Yes," replied Mr. Aird. "We supply the Dominion Stores." This milk was supplied to the Dominion Stores, he said, at seven cents a quart which was sold to the consumer by the chain stores at eight cents.

"How long have you been delivering to chain stores?" enquired Frank Shaver (Stormont.) "Since March 1," answered Mr. Aird.

"This arrangement with chain stores means that these stores are selling the milk of our farmers at less than cost," Mr. Brown charged. "The farmer is being compelled to take less than he should. The farmer is suffering."

Mr. Aird was questioned about net profits made by his company. Witness computed that his company made .53 cents per quart net profit for the 12 months ended March 31, 1932, and .36 cents per quart for the ten months ended January 31, 1933.

Due to the fact that between 60 and 75 per cent, more milk was produced than was consumed, the distributors had to meet cut price competition from both producers and distributors in Montreal, said Mr Aird. Competition was not welcome because even now the producer was not getting enough for his product.

The reason why the distributors were unable to pay more lay beyond their control and had to deal with the depressed condition of the cheese and butter markets and also with irresponsible competition.

Witness declared that the Elmhurst Dairy was a subsidiary of the Eastern Dairies, Ltd. He was himself president of the parent company The Eastern Dairy subsidiaries operated in Montreal, in Ottawa (The Producers Dairy), in Toronto and Hamilton, through the Acme Farmers, Ltd., and in Winnipeg. Its capitalization was $8,500,000.

Mr. Aird told of how milk was sold to the chain stores, the distributors having been forced into this by threats of competition that might have been ruinous.

The price of milk had been reduced to the consumer in Montreal but so far the cut had not been passed on to the producer. He thought that eventually it would have to be, however.

A Warning Note About Cattle Exports

Too much importance cannot be placed upon the suggestions made in the following paragraphs from a report based on a thorough investigation by the High Commissioner's office of the situation in respect to our export cattle trade. A note of warning which we cannot afford to ignore is quite apparent in these paragraphs, which should be placed before every person interested in avoiding any action which might tend to jeopardize the development of our export cattle trade in Great Britain.

"It is now generally recognized that there has been an improved selection of steers for the export trade in recent years, and their popularity here has spread accordingly. Dealers and buyers are peculiarly sensitive to disappointment when the standard of excellence drops in any one shipment. The burden of returning a reasonably good price for common sorts of livestock imposes a difficult tax on salesmanship, and consignees appreciate the adverse effect on business of unfavourable price returns. Constantly they are telling the shippers what the trade wants and urging them, diplomatically, to choose export cattle carefully for type, weight, age and conformation. But the female-cattle trade, being rather more diversified, lends itself more readily to harassing experiences than does the trade in steers.

"Our healthy heifers and cows have been talked of and written about frequently. There has been created an atmosphere of hopeful expectancy . . . . The value of the British trade ranks high, and this fact should be weighed carefully by the Canadian shippers.

"It is not possible to forecast whether or not cows and heifers, suitable for breeding and dairy purposes, can be selected and shipped to advantage. That will be determined only by trial and experience.... Starving the trade demand for suitable stock is the more preferable and prudent policy; over-feeding it with common sorts, especially at the outset, will stunt, and may even damn, a promising potential trade.

"Female stock selected in Canada for breeding or dairy purposes in Great Britain, **and lacking the characteristics fitting to the ideas and needs of the people specializing in those particular activities, will not find buyers, except at uneconomic prices....** Experiences of this sort will give, in addition to uneconomic prices, a wrong impression in Great Britain of the value and usefulness of our female stock, a condition that will cost the producers and shippers considerable money, and one that will be difficult to correct. The same thing applies to our steers going into new areas.

"Such a result, if it were possible to forestall, should not be risked or permitted. Even extreme precautions to safeguard the new trade, and the new opportunity, could be justified. Furthermore, I misjudge the trade here if they would not support concentrated action, at the outset, to attain this desirable objective.

"For the general guidance of shippers who are considering the possibilities of serving the dairy industry with either heifers or springer cows freshening three or four weeks after landing, the great majority of the dairy farmers prefer a good size animal, which, of course, should possess milking qualities and conformation. The breeds most favoured are cross Shorthorns or crosses out of Holstein and Ayrshire by a Shorthorn bull. Pure bred Ayrshires or Holsteins are not favoured unless they are of the top class. The dairy Shorthorn type and size is what dairymen have in mind.

"One dealer suggests that:

> 'Shippers should give the fullest information as to probable dates of calving; what kind of sire produces the calf; and what age the cow is—whether first, second or third calf. We would recommend cows about four to five years old, carrying second or third calf. First calf cows would not sell as well, owing to the prospect of smaller milk volume during first calf period.'

"The first choice in Scotland, for heifers for beef breeding purposes, is well bred Angus or their crosses. Shorthorns are second. Herefords are not popular. In England, the Hereford takes a better place.

"Realizing and sustaining profitable results in building our cattle business will depend very largely upon the direction and conduct of the initial efforts in the new field of markets."

Common sense should convince us that the points made in the above paragraphs are well taken, and that all concerned would do well to exercise every reasonable precaution in respect to volume and quality of cattle exported to the United Kingdom. If, however, further proof is necessary, nothing could be more appropriate than the following statement from a letter dated February 17th from the Animal Products Trade Commissioner in London to the Dominion Live Stock Branch, Ottawa, in respect to a recent shipment sold at Birkenhead.

"The cows, whether or not they were intended for slaughter or milking, were unsuitable for either purpose. None of the buyers was interested to the extent of tendering a bid. Usually what happens with the sale of such animals is that they are left with the consignee until he commences to feel that the costs to

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The simple fact, on the contrary, is that they can't afford NOT to do so. In ordinary times a farmer may be able to afford the waste of a poor or badly worn separator —twice a day 365 days in the year—but he certainly can't afford to do so today, when a new De Laval would convert every particle of such waste into a ready cash product.

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If you don't know your nearest De Laval dealer, may we urge that you waste no time in writing the nearest De Laval office below.

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the shipper for holding the cattle are accumulating out of proportion to the chances of getting a satisfactory price; consequently, in his interests, the sale is concluded mostly at the buyer's figure, and for the very good reason that, although they are unsuitable for the meat trade, there is, nevertheless, no alternative outlet."

Adding conviction to conviction, we can do nothing better, in concluding this statement, than quote from a letter received from one who has, for more than a quarter of a century, been active in the United Kingdom market.

"You may advise any inquirers that rough cattle are not wanted, and it would be very foolish to put the cost of shipping on common cattle. It costs just as much to ship and sell a bad one as a good one. England wants only well-bred cattle in good condition."

CANADIAN BREEDING STOCK AT TRINIDAD

Call for Canadian Poultry in South America and West Indies

The arrival of a large shipment of registered Canadian birds at Trinidad on the Canadian R.M.S. Lady Drake affords a concrete example of the demand for Canadian Government inspected poultry, and, incidentally, has been the means of a large increase in orders. The Canadian National Poultry Record Association, through its members and its secretary, A. G. Taylor, Experimental Farm, Dominion Department of Agriculture, has been receiving a number of orders for breeding stock from many parts of the world; but within the past year or two, however, South America and the islands contiguous have been the most active in making enquiries concerning these northern-grown, Canadian inspected birds, the fine condition of which on arrival of the various shipments to the South precipitated a rush of orders. Letters are being received from Breeders who purchased birds, saying how pleased they are with the Canadian birds, and asking quotation of prices for more.

The Lady Drake shipment was due to the efforts of Mr. W. F. Bull, the Canadian Trade Commissioner, and he further reports that breeders by the hundreds are clamouring for prices of Canadian breeding stock. The breeders state that if transportation charges could be brought to the level of those of the United States that Canada would have the whole trade. This is an indication of what this class of Canadian stock is doing in many countries of the world through introduction by World Congress poultry exhibitors.

Agricultural Stabilization Fund

To Aid Farmers Exporting to United Kingdom

The most important news the budget today brought to the farmers of Canada was the announcement of the agricultural stabilization of the agricultural stabilization fund. By it the Government guarantees that Canadian exporters to the markets of the United Kingdom will be protected against the fluctuations in sterling exchange. This fund will make up the difference to the exporter between the exchange value of the pound sterling, which today was $4.11½ cents in Canadian funds, and a fixed price of $4.60.

The stabilization will be applied to animals, meats including bacon and hams, poultry, fresh fish, canned fish, tobacco, cheese, milk products, canned fruits, canned vegetables, maple products. Instead of the importer cashing his cheque on the basis of $4.11½ to the pound sterling, the bank will pay him at the rate of $4.60 and charge up the difference to the stabilization fund.

It is estimated that with the present rates, when the sterling is approximately 12 per cent. below the $4.60, and the improved export business which it will encourage, it will cost the Government roughly $6,000,000 a year. It should increase the price of a 1,200-pound steer to the exporter by $10.80, agricultural officials here estimate. It should boost the price in the domestic market to a somewhat similar amount. It is figured it will increase the price of live pigs in the Canadian stock yards by one cent a pound.

Shippers will now know what they will receive when they ship their products to the United Kingdom. In the past not only did the depreciated sterling exchange often wipe out their profits when their returns were converted into Canadian money, but sometimes made them losers on shipments. Now they will know they will be able to convert their sterling cheque into Canadian funds at $4.60 regardless of what changes sterling may make from the time the produce leaves Canada until the cheque comes back.

Farmers to Gain

It is contended that with a certainty as to exchange, the exporters should be able to operate on a narrower margin and accordingly the farmer should get most of the benefit from the stabilization.

It was explained by officials of the Agricultural Department that this will not be regarded as a bonus to Canadian farmers by the British, which might have caused retaliation to protect British producers. It does not put the Canadian in a preferred position to the British farmer because the Canadian will not yet be getting par for the sterling in Canadian funds.

While the fund will not help butter for the present because butter is not on an export basis, being much higher in Canada than in Great Britain, it should boost the price of cheese to Canadian factories over one cent a pound, agricultural experts say.

Canada should ship 40,000 head of cattle to the United Kingdom this year, one official of the department said. Last year it was about 20,000. Already without the benefit of the stabilization fund she has shipped 7,000 head this year. The estimate of 50,000,000 pounds of hams and bacon should be exceeded now that the exchange has been dealt with.

Wheat is not included in the list for which the exchange will be pegged. It was explained that since only a part of Canada's crop goes to the United Kingdom it would complicate the market and it was claimed Canadians would not get the advantage of the entire expenditures if the fund was extended to grain. Neither is it extended to apples. In this connection it was argued that Canada has such a big protection in the United Kingdom market as compared with United States apples, that the market is quite secure as it is.

Fresh and canned fish, honey, maple products and tobacco will come within the range of the fund. It should help the export of poultry and eggs.

Modes of Planting Dahlias

For amateurs, the usual method of growing dahlias is that of root division. The roots of one year are stored in cellars and divided up for new plants the following spring. The storage room for these roots should be frost proof and not too dry. Conditions which are suitable for storing potatoes are suitable for the storing of dahlias. These roots may be planted out into the garden towards the middle of May, or earlier if no danger from late frosts is expected. They may be planted from 2 feet to 4 feet apart, according to space available, and the size of the root planted. When dividing the roots, care must be taken to see that each part has at least one eye, which will be found on the crown to which the true roots are attached.

Another method, generally the commercial method, of propagating dahlias is by means of cuttings. During recent years raising them from seed has also grown in favour. In fact in the case of the new Collarette dahlias it is the simplest and best method. The seed should be sown about the beginning of April.

Where the dahlia succeeds it is a very satisfactory flower for the amateur. The dahlia, says the Dominion Department of Agriculture, requires plenty of moisture, rich soil, occasional artificial fertilizing, and not too hot a climate.

Truck and Market Gardening, 1932

Quebec, P. Q.—March 13th, 1933.—The Statistical Division publishes today its final estimate of the area, yield and value of truck and market gardenings (for markets or canning) in the Province of Quebec, in 1932.

This estimation has been carried out for the first time in Quebec. It has been made possible by the collaboration of truck and market gardeners and the Technicians of the Horticultural Service of the Department of Agriculture. Compilation has been made in collaboration with the Dominion Bureau of Statistics.

The present report refers to all gardening crops (other than family and home gardens) whether carried out on farms or in urban districts. The area under commercial gardenings is estimated at 38,600 acres, and the crop at $5,330,000.

AREA, YIELD AND VALUE OF TRUCK CROPS, 1932

	Area acres	Unit of Measure	YIELD	VALUE
Beets	1,970	Bush.	669,800	200,900
Celery	350	Doz.	651,200	390,700
Cabbages	2,380	Bush.	899,600	314,900
Cauliflowers	630	"	83,200	83,200
Cucumbers	2,160	"	330,500	115,700
Green Beans	2,050	"	264,500	185,100
Lettuce	1,130	Doz.	1,308,500	327,100
Sweet Corn	11,130	Bush.	1,257,700	503,100
Onions	1,900	"	448,400	269,000
Green Peas	4,500	"	274,500	205,900
Tomatoes	4,880	"	1,693,400	931,300
Strawberries	2,800	Quarts	4,900,000	539,000
Raspberries	1,370	"	2,005,000	287,700
Others	1,350	——	—	819,000
TOTAL	38,600			$5,330,00

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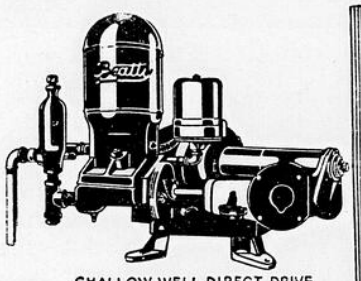

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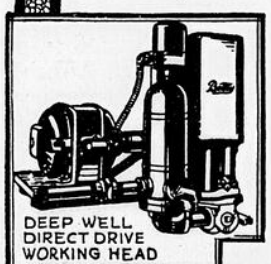
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Parasites Costly to Farmer

Dr. T. W. M. Cameron, of Institute of Parasitology, Macdonald College, Discusses Problem in McGill News.

An insight into the work that has been undertaken in the new Institute of Parasitology, at Macdonald College, and an explanation of the serious need, here and elsewhere, for this type of effort are given by Professor T. W. M. Cameron, director of the institute, in an article in the last quarterly issue of the McGill News. Parasitology is the branch of medical zoology dealing with those animals which live in, or on, other animals.

In agriculture it is difficult to estimate what parasitic disease is costing, Dr. Cameron writes. "Sheep and horses suffer more from it than from any other cause, pigs and carnivores nearly as much. Probably we would not be far from the mark if we estimate that about ten per cent of all sheep (especially lambs) die yearly from worms—directly or indirectly. The percentage is even higher in horses and pigs. There are no statistics available as to monetary loss in the Dominion caused by parasites in stock; the Bureau of Animal Industry in the United States, however, estimates the annual loss to be over $100,000,000 in that country. The losses here, and in the Empire generally, must assume terrific figures.

"We know that some of this loss is already preventable and we are reasonably certain that much more could be, if we had fuller information about the various species infecting animals. About a thousand species are already known to parasitise domesticated animals in various parts of the world. We know none of them thoroughly — not even well — and most of our existing knowledge is very recent. We can recognize them on sight, but that is the sum of our knowledge in nine-tenths of the cases. We know little of their distribution, or the causes governing this, and practically nothing about how they affect the host. In under five per cent of the cases do we know even the outline of the lifecycle.

"We have only the most superficial knowledge of therapeutic measures — few outstanding drugs have been introduced into parasitology in modern times, practically all the others in every day use are heritages of ancient civilizations. Research is too often uncontrolled and the workers are too few to make other than slow progress. Little help is given by the pathologist: the technique for examining parasites is too little understood, and even trained pathologists only see the grosser forms, and most species are minute. But even with our present knowledge much could be done to reduce losses in stock, if only the stock-owner would co-operate."

Dr. Cameron goes on to state that the situation is serious and is becoming more serious. More and better research is required and trained parasitologists are needed. The dangers were realized some few years ago by the National Research Council of Canada, the Empire Marketing Board and the Quebec Government who took steps to try and improve matters. Their collaboration resulted in the establishment in connection with McGill University of the Institute of Parasitology, the first of its kind in the British Empire.

Here a three-fold policy of information, education and research has been drawn up and work is now well under way. In regard to research a campaign has been started to find out what parasites exist in the country and what particular species are important. As the science has a profound economic bearing, a survey has been commenced of parasites of domesticated animals, fur animals and related wild animals, because many parasites of wild animals are transmissible to both man and economic animals.

Agronomists Doing Valuable Work

Value of the work accomplished in agriculture by technical experts employed by the Provincial Government to teach farmers modern methods was stressed by Cleophas Bastien, M.L.A. for Berthier, speaking in the Legislative Assembly recently.

The progress of agriculture in the province during the past ten years was very largely due to the work of these experts, Mr. Bastien said, explaining that while at first farmers had been hesitant about accepting advice they now appreciated its value and welcomed it.

He divided their work into three sections: improvement of soil, of seeding and of animal husbandry.

Through distribution of fertilizers and lime, the Department of Agriculture was remedying deficiencies of soil—over 23,000 tons of lime having been distributed last year.

The member for Berthier dealt with the results of work on Government experimental farms and also noted the value of contests among farmers, organized by the department, which created a competitive spirit and aided development. Thousands of pounds of grain had been grown as a result of seeding contests, he said.

Special Government grants to encourage further work along these lines had been given, while instructors were now maintained in every county of the province, Dr. Bastien stated.

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HEMORRHOIDS OR "PILES" are promptly and thoroughly relieved by the use of Dr. CHASE'S OINTMENT

Canadian Chilled Poultry in Great Britain

An Address by Mr. W. A. Brown, Chief of the Poultry Division, Live Stock Branch, Department of Agriculture, Ottawa, before the Canadian Produce Association.

WITH respect to the shipments of Canadian chilled poultry to Great Britain, I want to say, first, that our association with that product has been the finest experience we have ever had. For the past ten years or so we have all been working on dressed poultry standards. Seeing the product on the home market from one year to another one does not realize the improvement that has taken place, but when one sees that product laid down on the British market side by side with the products of other countries, the improvement is most pronounced; and it is clear that, insofar as entrance into that market is concerned, we have builded better than we knew.

Nothing would please me more than to walk through the avenue of Smithfield and take with me the Canadian farmers and shippers who were responsible for sending that product over there, and make them personally acquainted with the receivers of the product, so that they might hear some of the compliments and encomiums that were expressed. "The finest graded product that ever came to this market," commented one large firm. Another, "If you will continue as you are, you will soon replace foreign products on this market."

LET us keep our faith pinned to five main tenets of policy with respect to export. This applies not only to poultry but to all other agricultural products. These tenets are:—

1. **A high, high standard of quality. England has the world to pick from; she need be satisfied with nothing less than the best. To gain and hold her place Canada's quality must be just a little better than her competitors'.**
2. **Absolute uniformity in grading based, if possible, on a national standard.**
3. **Popular weights, with a minimum of tolerance in weight between units in the same box. Canadian turkeys are within the popular weight range 9-12, 12-15, and as such suffered least in the price debacle that occurred on the British market in the week before Christmas.**
4. **A product attractively packed and displayed. Smithfield market in some respects is the greatest art gallery in the world. To warrant a place in that gallery our products must be a work of art.**
5. **A product delicate and pleasing to the consumer.**

Another salesman remarked, as he pointed to a man just moving away, "That chap is a butcher from North London. Ordinarily he buys a hundred turkeys for his Christmas trade. The foreign product comes to us miscellaneously packed, and it used to take me about an hour and a half to go through my supplies and pick out the birds he wanted. But it was easy to take his order for your Canadian turkeys. We had opened a box of A's and a box of B's. We showed him those boxes. He asked us to open one more. That is good enough for me,' he said. He then gave me his order, and the whole transaction was completed in five minutes. It saved his time and my time. That is why we like Canadian turkeys."

The system of handling poultry in London and the south of England is different. You will recall that the old Poulterers' companies or guilds were distinct from the Butchers' guilds. They did not handle the same products, poultry being handled exclusively by the poulterers. But for about two weeks before Christmas the average butcher stocks up with turkeys. In Smithfield the poultry stalls are mostly at one end; but for two weeks before Christmas, turkeys are found all over the market, because in anticipation of the requirements of the butchers' trade in London the wholesale meat men stock up with turkeys.

No Canadian exhibition ever gave me greater satisfaction than to walk up through the avenues of Smithfield in the last two

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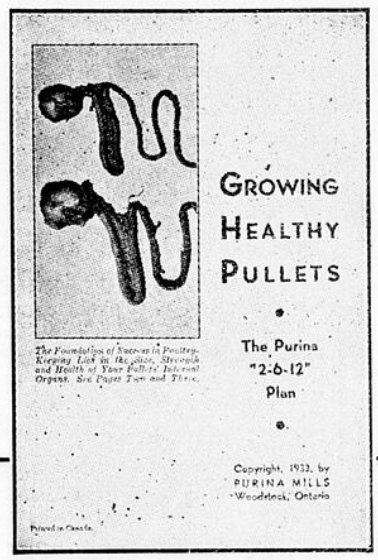

For every 50 chicks you buy or hatch this Spring, you need 100 lbs. of starting feed—and a feeder. Why not get the feeders FREE, with the feed? Ask your Purina dealer for particulars of his special offer of "Free Feeders" with Purina Startena—on EARLY orders. If you aren't getting your chicks till later, see your dealer NOW, and get in on the "Free Feeder" deal, before they are all gone.

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Don't stand back because you think it "costs more" to feed Purina Startena. It DOESN'T. The price of Startena is right in line with prices of "ordinary" starting feeds. Purina Startena stands head and shoulders above ordinary starting feeds, both in cutting down death losses of chicks, and in growing chicks more rapidly and uniformly. Don't take our word for it. Ask ANYBODY who has ever fed it.

There is a real reason for it. Six years of constant experimenting in our own Research Laboratory and on our own Experimental Farm, gave us our famous Ingredient "X" formula. Ingredient "X" in Purina Startena saved thousands of chicks last year, and gave them a "head start" in growth that put dollars and dollars into their owners' pockets, this past Fall and Winter. It will do the same for you this year—and with no more cash outlay than for "ordinary" starting feed that gives you "ordinary" livability and "ordinary" growth.

Arrange for your season's supply of Purina Startena NOW, and get Free Feeders, along with this extra livability and extra growth—all at NO extra cost.

AT THE STORE WITH THE CHECKERBOARD SIGN

Write For This Bulletin

Do you suffer losses of egg revenue every Fall and Winter, through prolapsus, feather-pulling, cannibalism, colds, roup, or other "troubles", that interfere with pullet production? This new bulletin shows how to PREVENT such troubles by growing pullets with a greater reserve of health and strength. Practical, sound "horse sense". Write for a copy—FREE.

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Another Good Poultry Year in 1933

By Fred. W. Bray

The signs point to another season of high egg prices next Fall. We started off the year without any surplus of eggs in storage, and the demand for eggs continues to be good in spite of low meat prices. Many pullets were so poorly fed last summer that they were small and stunted when they commenced to lay. While they are laying now, a lot of them haven't enough size or strength to continue laying on into next Fall. Which, naturally, will increase the Fall demand for the eggs of this season's pullets.

Quebec farmers have an advantage over the farmers of any other Province, in the matter of egg markets — having the City of Montreal right at their doors—the highest-priced egg market in Canada.

Opportunity for Good Chicks—Well Reared

Don't make either of the two mistakes so many people made last year—the mistake of buying cheap chicks, and the mistake of under-feeding them through their growing period.

"Cheap" pullets just CAN'T lay many eggs, because they haven't the breeding behind them—and under-fed pullets can't lay many eggs because they do not develop enough size and capacity More clear money will be made next Fall and Winter by buying well-bred, vigorous, blood-tested chicks, and raising them the best way you know how —than by buying DOUBLE the number of "cheap" chicks and "turning them out to pasture" for the Summer.

The Highway to Poultry Success in 1933

Let us send you our descriptive booklet, "The Highway to Poultry Success in 1933". It describes in detail the methods of rigid culling, selection, and blood-testing of breeding stock, and selection of hatching eggs, that we have carried on during the past seven years, to make our chicks live better, grow better and PAY better than ordinary chicks. It describes our seven standard breeds—White Leghorns, Brown Leghorns, Barred Rocks, White Rocks, Rhode Island Reds, and Jersey Black Giants—and tells how the Bray strain of each has been built up by seven years of constant improvement.

There can be no doubt that Bray chicks DO pay better than ordinary chicks. Otherwise the demand for them could not have increased so rapidly. In 1926, we produced and shipped just 50,000 chicks. In 1932, we produced and shipped 564,000. A ten-fold increase in orders, in six years, is pretty good proof of customers' satisfaction. 75,000 Bray Chicks went to Quebec last year.

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weeks before Christmas and encounter the fine displays of Canadian turkeys on every hand.

I would like to read a brief extract from a letter written by Mr. W. A. Wilson, Animal Products Trade Commissioner in London, to a producer in Saskatchewan. He says:

"The shipments of fresh-killed Canadian turkeys have been well prepared, graded and packed, and their arrival on the British market in such excellent condition has rather astonished the trade. Generally, it was not expected that the commodity would be so attractive and so good. Each grade, whether "Special", 'A', or 'B', has been equal to the official Standard, and the uniformity of the birds in each box, with respect to weight and appearance, has been satisfactory.

"An attractive commodity, one that is uniform in small details, and one that appeals to the eye, sells, relatively, quite readily in this market. Appearance is almost as valuable as a selling influence as the actual eating qualities of the product. I do not wish, of course, to minimize the value of eating qualities, but I make the comparison to emphasize the value of a neat, balanced appearance in one box of chickens or turkeys, in one shipment, and also in Canada's product as a whole."

This shipment of chilled poultry, rather than frozen poultry, from Western Canada to the British market, was an experiment of a very high order. It was not the first time that chilled poultry had been shipped to Britain, but never before was there such a demand for the product as there was for what we sent over this time. One of the things that had a great influence on the British buyers was the presence in the stall in Smithfield, when the display was made, of the thermograph that had accompanied the birds all the way from the farms in the Western provinces, where the birds originated. This thermograph was the proof of the uniform temperature under which the birds had been kept.

It is really surprising the way in which the Canadian birds held up. The weather during the week previous to Christmas was unusually warm, frequently with a temperature of 60 of 65 degrees, with the sun streaming in through the doors at Smithfield as on a bright June day. Naturally, under these conditions much poultry on Smithfield Market went bad, but not the Canadian stock; and it was very evident that our birds, which had been properly starved and the animal heat thoroughly removed, stood up under the stress of those conditions much better than even nearby birds which had been killed at that temperature and the animal heat never removed.

I would like to pay tribute, if I may, to some of those who were responsible for this most successful exports undertaking in agricultural products that Canada has attempted for some years. First I would mention the principal shippers, the Canadian Poultry Pool. You all appreciate the surpluses with which we were faced last fall. Every responsible exporter of poultry in Canada was consulted between the time of the Economic conference and late in the fall, in the hope that some means would be found to move a reasonable volume of the surplus off our market. With no immediate hope of profit for their efforts, the Canadian Poultry Pool was the only organization which definitely stepped into this breach. Their efforts were responsible for relieving our market of over a million pounds of turkeys and chickens. That was one of the finest things that has been done for this country in a long time. Even with that relief, the situation here was bad enough; but what would it have been without the Pool's action?

I would next mention the agents who did the preliminary work in England. It was they who arranged the displays in Smithfield. One firm in particular had done a tremendous amount of advance work in contracting prospective buyers, and after the product arrived it was a most delightful experience to accompany this representative in his rounds of the trade.

The transportation companies played a very important part in the successful outturn of this undertaking, one railway in particular spending a great deal of effort and going to considerable expense in planning and carrying through the original experimental shipment.

Those who had to do with the grading and inspection deserve real credit. Next only to the excellent condition of the product on arrival, was the high standard of quality appearing in the higher grades, and above all the uniformity of grading that backed up that quality. Possibly the most surprising feature about the shipments to the trade in Great Britain, and so expressed at the High Commissioner's dinner, was that the birds, which were without a break or tear, and with practically no pinfeathers anywhere, were killed and dressed by the farmers themselves. In Ireland, France and most parts of England turkeys are marketed alive and killed by specialists, and it was a revelation to the London trade that general farmers, over such a wide area as Canada, could achieve such uniformity in killing, plucking, and above all in bleeding. The freedom from feed in the crops was also most favorably noted. This revelation was probably the most surprising of all to the trade in England and speaks well for Canadian rural enterprise and achievement.

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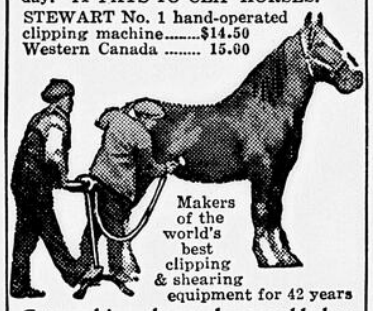

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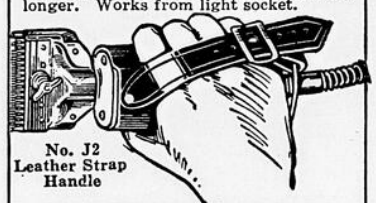

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There is no one group of men whose work is facilitated by good product, quality well maintained, like that of the Canadian Trade Commissioners in Great Britain. We have quoted from a letter from Mr. W. A. Wilson, the Animal Products Trade Commissioner, which speaks for itself, and it was a real delight to be associated with these representatives of Canada in our contacts with the trade, particularly after the sample shipments arrived. In keeping with their policy abroad, the Trade and Commerce Department provided a sum of money for the advertising of Canadian turkeys in Great Britain and placed the services of their publicity man in this connection. It was necessary, however, to use but a small part of the money, it being found that a good product was its own best advertisement. As this became increasingly evident, steps were taken to secure space in prominent retailers' windows. It was found, however, that expenditure of money in this direction was not necessary either as the product was creditably displayed in any case by the larger purchasers.

The total quantity, between a million and a million and a quarter pounds, was received in England between November 25th and December 20th, proportionate quantities coming forward each week with the larger volume just before Christmas. The shipments had been proportionately divided between Liverpool and London, London, of course, receiving the larger quantity. December 19th or 20th is too late for boats to arrive with Christmas supplies. There is always the danger of delay through fog or storm, and to receive the most effective reception, Christmas poultry should arrive in time to permit of its display on wholesalers' stands for at least two or three days and also permit the retailer to have it most of the week in advance of Christmas, for the reason that most of consumers' orders are booked up well in advance of Christmas Day. To arrive, therefore, in England most opportunely, shipments of Christmas poultry should leave Canadian seaports not later than December 5th or 6th.

Some Conclusions with Respect to Chilling

The Canadian turkeys were carried, for the most part, in a 30-35 degree temperature. There are two hazards with regard to a chilled product: one is condensation when that product is removed from chill to the comparatively warm, humid temperature that prevailed in England prior to Christmas; the other is slight freezing, that is, just a slight stiffening of the flesh, is apparently more hazardous than sharper or complete freezing in that there is even greater rupture of the small cells just under the skin with a resultant viscous coating of the bird rather than ordinary condensation. Birds in this condition held for any length of time in a warm, humid atmosphere would show quick growth of mold, apparently the broken down nitrogenous cell material being excellent cultural medium for fungus growth.

Some observers are of the opinion that five degrees higher, viz., a 35-40 temperature, would be more suitable as a carrying temperature. This, however, is considerably higher than the temperature at which Argentine meat is carried. The arguments in favor of this higher temperature are: first, that birds should keep equally well at this temperature; second, that there would not be more than 10 or 15 degrees between this temperature and average December weather, in which case there would be little or no condensation; third that, the probability of slight freezing through the railroad cars passing through undue cold belts or any slight fluctuation in temperature control anywhere would be less likely.

To insure success in the shipment of a chilled product, it would appear essential that the assembly history be fully known. Quick cooling after killing or processing is essential, but above all it is important that the product be never allowed again to become heated as, for instance, shipment in warm cars or held in warm rooms. It must be kept cool and uniformly cool at all times.

The High Commissioner's Dinner

The Canadian Standards for Dressed Poultry were written primarily with the demands of the home market in mind. It was felt that, with the very favorable reception of the Canadian product on the British market, it was both good psychology and good business for the Canadian representatives to place before the representatives of the British trade the Canadian grades, grade definitions and the rules for packing, with the expressed request that that trade indicate the ways and means in which the product could still be further improved to meet their requirements. To this end the High Commissioner invited some forty or fifty representatives of the wholesale and retail provision trade of London and vicinity to meet with him at an informal dinner. The invitation was well received, and to those in attendance there was previously distributed an outline of the points which had already come up in conversation and which it was felt could be discussed to further advantage.

In the first place they were asked about the grade "Specials". They were given the percentage of turkeys shipped last year which graded as "Spe-

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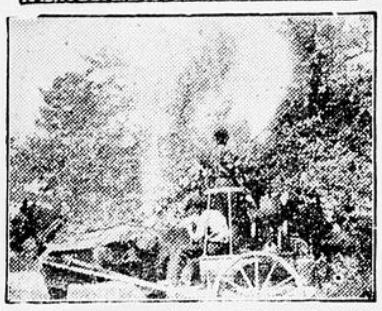

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TO FIT ALL MAKES OF PLOWS
Plow Points so tough and hard they do twice the work of ordinary points.

LOOK FOR THIS TRADE MARK D DO NOT ACCEPT ANYTHING ELSE

Mower and Binder Repairs. Cultivator Points, Pressure Pumps etc. If your dealer cannot supply you, write us for Catalogue and prices.

TWEED FOUNDRIES LTD.
Tweed, Ont.

Armstrong Chicks
Government Approved
Guaranteed to Live
5 breeds — 2 Grades
You cannot afford to miss this. Write
ARMSTRONG CHICKS
44 Market, St. Catharines, Ont.

FOR SALE

CHESTER White young pigs farrowed March 1st and 15th, coming from old swines. Leicester Sheep. Accredited Ayrshire herd, two bulls of 1 year, also few yearlings, females of all ages from registered sire. OLERY LALANNE, Mont St. Gregoire, Iberville Cty., Que.

cials" and were then asked if the continuance of this grade in an export way would help the effective sale of our product as a whole. In other words, we wanted to know if this grade was commercially practical. Their answer was "No."

With respect to "A" grade it was asked if the factor of plumpness should be further emphasized. There was no reaction to that. Then it was asked "Should a film of fat on the thighs be specified?" The answer was "Yes." The next question was with regard to "B" grade. It was pointed out that the darkness of the thighs and the lack of fat on the back in the birds of this grade have been criticised. The question was if this should be changed or accepted as deficiencies of the grade. The outcome of the discussion was a suggestion that "Some apparent fat on the back" to be added to "B" grade.

The next question was, "Is there a place for 'B' grade in the British market? does its presence help or retard the sale of 'A'?" There was sharp difference of opinion on this point. Some, more or less theoretically inclined, argued for one Canadian grade. They were supported in this by some of the retailers who claimed that if one retailer handled Canadian grade "A" and another one grade "B" there would be a difference in the price which the consumers would not understand. The more thoughtful members of the trade, however, admitted and endorsed the utility of two grades for export, recognizing, first, Canada in her shipments must be governed by the availability of her supply and, second, that there was a distinct place in the British market for products of different qualities. Another observation not made in the meeting but which might have quite a reaction was that, having started with two grades, Canada could not afford to stop and leave the impression that the lower grade possibly was being included in the higher.

The next question was: "Inasmuch as small head and head appurtenances are a recognized characteristic of Canadian turkeys, should there be specifications excluding coarse bone, coarse head, etc., from 'A' grade?" This question was asked with the specific purpose of drawing attention to these characteristics peculiar to Canadian turkeys. The birds from most countries competing with Canada are sold with necks dislocated. The waste on the head of a typical Canadian bird selected at random was 10 oz. while the head and blood of a representative bird from a nearby country was 23½ oz. This is a factor worth capitalizing in Canadian birds. Packing weights was probably the most serious criticism of Canadian turkeys. Our rules provide for a 3-pound tolerance between birds in the same box, but the English buyers prefer to have not more than a 1-pound. They are equally as insistent on uniformity of weights as of quality. From their standpoint it is unthinkable that an 18-pound bird could be placed in a box with birds of 14 or 16 pounds. The number of birds in the box must also be uniform.

It was asked if any change in dressing was desired. It was pointed out that it has taken ten years or more to secure the present uniformity, that all turkeys and most chickens are now farm-killed and dressed. There was unanimity of opinion that a collar of feathers should be left on the neck.

The method of pack is not clearly specified in the regulations and it was asked: "Of the three packs used this year, the 'full squat' pack, the 'semi-squat' pack, and the 'truss' or 'Devonshire' pack, which is preferred?" There opinion was divided. One thing is sure, that the semi-truss or breast pack which discloses a large part of the thigh does not help sell birds, more particularly in "B" grade. Some retailers like to hang their turkeys and make a display of them around their shop. Trussed birds take some time to straighten out. On the other hand some of the retailers are very emphatic in their preference for the "truss" or "Devonshire" pack; they like to display their birds on a shelf and trussing facilitates their showing them to customers.

There was a long discussion on weights of chickens. It was pointed out that the breeds of poultry popular in Canada give a 5-lb., and up, weight in a chicken four to five months old. An expression of views as to the place for this chicken on the English market was requested. The larger multiple shops claim to sell thirty to forty chickens under four pounds for every one over four pounds. On the other hand, wholesalers engaged in the hotel and ships' store trade maintain that there is a place for big chickens in England. There is no doubt, however, that the general tendency in trade is sharply in favor of a small chicken, one that matures and is plump and fat between 2½ and 3½ lbs. It would appear that if Canada is going to cater to that trade she will have to locate a new breed of chickens. The best imported chickens now come from Russia, Hungary and Holland, and it would appear that one of the most remunerative outlets for poultry products in Great Britain is the production of this light weight, plump, well-fatted chicken of the weights mentioned. The prevailing opinion with regard to heavy weights was that they would be in most demand just before Christmas to fill the demand from consumers who could not buy a turkey.

Just "Paint" Roosts

Body heat of birds releases fumes which penetrate feathers and kill lice and feather mites. An effective flock treatment.

Black Leaf 40"

Has many uses in garden, orchard and farm yard for spraying, dusting dipping and drenching.

For 20 years every use for Nicotine Sulphate has been based on official experiments in which "Black Leaf 40" was used exclusively. It is the pioneer, full strength, uniform brand of Nicotine Sulphate. Accept no other.

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Kills Lice and Feather Mites

OAK RIDGE CHICKS
Live—Lay—Pay
Because Oak Ridge Farm is
"Not Just Another Hatchery"
But has been many years one of Canada's biggest and best equipped Trapnest Breeding Farms under constant Gov't R.O.P. inspection. All stock Gov't approved, blood tested.
TOM BARRON WHITE LEGHORNS
Big bodies—big winter eggs.
O.A.C. BARRED PLYMOUTH ROCKS
For meat and eggs.
Get our new Price List. Lowest prices ever for EGGS, CHICKS, PULLETS, BROODERS. Poultry advice free—let us help you make more money from Poultry.
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FOX NECK CHIEVES
$7.00 Made From Your Own Skins
Experienced and reliable workmen, fully guaranteed by Canada's oldest and most reliable house. Send your skins by registered mail. OLIVER SPANNER & CO. LTD. 24 Elm Street, Toronto

9c Canadian Approved Chicks 10c
Why pay more when you can buy our Government Approved Chicks at such bargain prices. We guarantee 100% live delivery. Barred Rocks, Rhode Island Reds and White Rocks 10¢ White Leghorns. 9¢.
HILLTOP POULTRY FARM.
Elmira, Ontario

Farm for Sale
GOOD, level farm, 2 miles from the Cathedral Chicoutimi. Modern barns and stables, equipment, cattle. Good terms. Apply to Rev. EUG. GRENON, parish priest, St. Hilarion, Charlevoix, cty Que.

HORSES FOR SALE
GREAT selection of registered stallions and mares: Percheron, Belgian, Clydesdale, Hackney, Canadian and Standardbred. Few good stallions, A and B Classes. Also good working and travelling horses. Prices, very reasonable. All these horses sold guaranteed. If you want to buy or exchange write to us, telling what you want and w'll figure price delivered at your railroad station. Fifty stallions specially Percheron and Belgian now in stock; we expect a certain lot from the other side, in the first days of April. ARNOLDWOLD FARMS, Grenville, Que.

SHARPENED CLIPPERS, 30¢ set, guaranteed. Please inclose the same amount you paid to send them. R. H. JANELLE, Pierreville, Yamaska Cty. P. Q.

359 EGGS IN 365 DAYS
WORLD'S record by Lady Victorine. We have males related to Lady Victorine mated with over 500 of the finest Barred Rocks money can buy. Free catalog. Reduced prices. 8 Famous Breeds. ESSEX HATCHERY & BREEDING FARM. Box 207 A Essex, Ontario.

An emphatic negative was the answer to the question "Is a tolerance of one bird in twenty below grade stated acceptable to the trade practice in the British market?"

"What should be Canada's future policy for turkeys in the way of supplies?" was the final question. The potential production possibilities, especially of Western Canada, were pointed out and it was asked,—"To what extent should production be encouraged in order to supply the British market?" The answer was "Double the supply of last year," which in effect would mean fifteen or sixteen thousand boxes. This answer was made despite the fact that England has had more turkeys for several years at Christmas than she can use. It simply means that if Canada is to get a foothold in that market it must be at the expense of somebody else. It is clear that Canada must be careful to give the British buyer just what he wants.

Several of those at the dinner had taken the trouble to put their views in writing. One man, Mr. Keevil, of Keevil & Keevil, placed in my hands a detailed analysis of the conditions affecting the turkey market in England for the past ten years. Another, Mr. Henry Ridpath, of Ridpath Brothers Limited, wrote me at length following the dinner. I quote in part from Mr. Ridpath's letter:—

"In the first place although I said it was not necessary to use the description 'Milk fed' to turkeys, I think it is an advantage to have this description applied to chickens. In all cases, of course, the whiter the flesh the better for the English market.

"I still adhere to my views, that two grades of turkeys should be sent as they can be distributed to different trades. The differential in price, of course, would depend upon market conditions. The identity of the two classes definitely marked with the A and B medallion should be maintained and every effort made to see that the turkeys are retailed with this medallion still adhering.

"You received plenty of advice about the packing weights both as regards the differential in weight and the quantities and descriptions per case. The more you can pack without the need of long specifications, the better, and I would suggest a different colour marking on the cases for A and B grades. If at all possible have standard boxes in use all over Canada for export.

"I am in agreement with the opinion that a collar of feathers should be left on the neck, and sufficient on both hips of the bird to protect the skin from rubbing.

"I do not think that individual packing in parchment is desirable.

"Your advice as to tolerance of quality or weight was very definite, and with this I entirely agree.

"I think you should continue to ship chilled turkeys for the Christmas trade on an estimate formed each year of the quantities that could be profitably marketed in England, by consultation with some of the leading importers, and I agree, subject to the heavy decline in the importation of French turkeys which we anticipate, that 15,000 cases would be the maximum for next year.

"The frozen turkey demand before and after the Christmas sale would depend very largely upon price and the competition from Argentine and other sources, but I am definitely of the opinion that Canadian frozen turkeys will sell better than any others that have come on this market.

"There was rather a wide difference of opinion as to the chickens. I do not agree that the heavy weights would only be in demand for one month. In spite of fresh chickens coming from other quarters, there are dealers who like to have in April, May and June, a stock of chickens in their cold store which can be drawn upon when necessary and the fresh supplies are not available. Perhaps a 5 lb. chicken is a bit on the heavy side and the weight might be limited to about 4 lbs., in view of the retailers' ideas."

CANADIAN NEW LAID EGGS

The use of the words "New Laid," according to the Canadian Standard grades for eggs, is prohibited except in the case of the highest grade, viz. Specials. The use of this name is limited to eggs which conform to the special rules and regulations established by the Dominion Minister of Agriculture. Further, the use of any word or expression denoting freshness of production is also prohibited in any manner of association with eggs other than those of the grades Specials and Extras. It may be noted that eggs held under artificial refrigeration or subjected to artificial preservation shall not be included in these grades.

GOING OFF THE "OLD STANDARD" OF FARMING

Farming Today Finds It Profitable to Use a Massey-Harris Fertilizer Drill

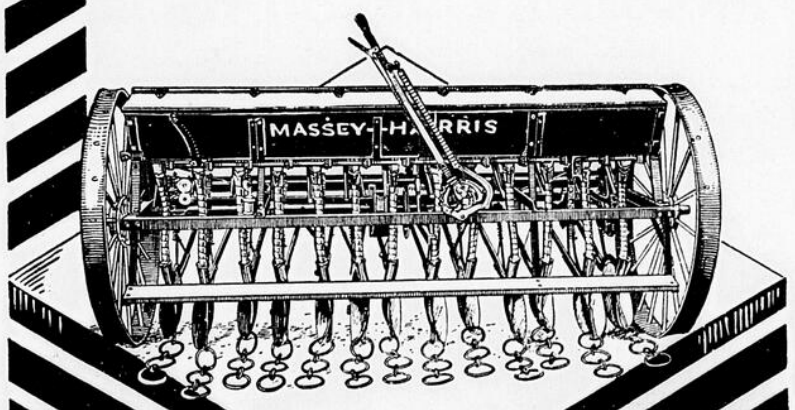
READJUSTMENT is the practice of to-day. Every kind of business is adopting new methods to meet present conditions.

Farmers have unusual problems to deal with. Many have realized that methods practical and profitable a few years ago are not so now. They are going off the "old standard" of farming and are adopting new ways of doing things—ways that will produce results at lower costs.

Take seeding for instance. The plain drill came along and broadcasting became a thing of the past. Now, the plain drill is being replaced by a combination grain and fertilizer drill. It is the logical machine for a man to buy because more and more farmers are finding it desirable and profitable to sow fertilizer at the same time as they sow grain.

The New MASSEY-HARRIS No. 20 GRAIN AND FERTILIZER DRILL is a clean-cut, well-designed machine that combines lightness in weight and draft with great strength. It has wide steel wheels, steel frame, and large capacity boxes with steel lids and ends. When you buy a MASSEY-HARRIS No. 20, you get the latest and best in a combined Grain and Fertilizer Drill.

Write for Descriptive Folder
or
Ask Your Local Massey-Harris Agent for Full Particulars

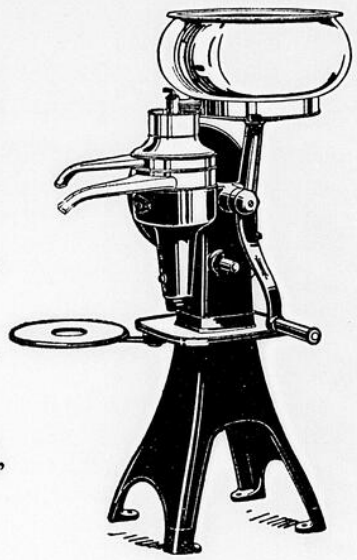


MASSEY-HARRIS COMPANY, LIMITED
BUILDERS OF GOOD FARM IMPLEMENTS SINCE 1847
TORONTO · MONTREAL · MONCTON · WINNIPEG · BRANDON · REGINA · SASKATOON · SWIFT CURRENT · YORKTON · CALGARY · EDMONTON · VANCOUVER

THIS GOOD CREAM SEPARATOR GETS ALL THE BUTTER-FAT

Some reasons why the McCORMICK-DEERING is so popular

- High-Carbon Alloy Steel Ball Bearings at all High-Speed Points
- Beautiful Glossy Japanned Finish
- Cream Regulated by Discharge of Skimmilk
- Two Skimmilk Openings
- Skims Clean Under Wide Variation in Temperature
- Easy to Keep Clean and Sanitary
- A Positive Automatic Oiling System
- 6 Sizes—"For One Cow or a Hundred"



THE dairyman who owns a McCormick-Deering Cream Separator has a big advantage when it comes to profits. He has the *closest skimming cream separator* and this means he is getting the maximum amount of butter-fat produced by his herd.

You will be repaid by having a McCormick-Deering on your farm. It is correctly designed all the way through. It has perfect balance, ball bearings at all high-speed points, and runs with minimum power. Features of sanitation make it easy to clean. The McCormick-Deering will give you perfect satisfaction for many years to come. See the McCormick-Deering dealer in your community for a demonstration. Write us for catalogs.

Save Time and Money... Milk With McCormick-Deering Milker

Dairying is more pleasant and profitable with the McCormick-Deering Milker. Its use not only eliminates the tiresome task of milking by hand but saves more than 50% in time and labor, effecting important reductions in the cost of producing milk. In addition, the McCormick-Deering tends to increase milk production through its regular, easy, natural massaging action.

INTERNATIONAL HARVESTER COMPANY
HAMILTON of Canada, Ltd. CANADA

McCORMICK-DEERING

Quebec's Dairy Factories

Preliminary figures for 1932

Quebec, P. Q., March 16th. 1933.—The Department of Agriculture publishes to-day its last report on the production of the Dairies of the Province of Quebec for the year 1932, based on the information collected by the Dairy Inspectors.

The total quantity of cheese and butter produced will be found for the year 1932 together with the quantity of cheese and butter produced during 1931.

In December 1932, (1931 figures within brackets) 81,761 (71,783) lbs. of butter-fat were delivered to cheese factories and 1,503,116 (1,411,220) lbs. were delivered to butter factories 224,-352 (198,950) lbs. of cheese and 1,851,982 (a) (1,768,183) lbs. of butter were made, being an increase of 12.7% for the cheese and an increase of 4.7% for the butter.

In the twelve months of the year 1932, (1931 figures within brackets) 11,340,217 (9,976,102) lbs. of butter-fat were delivered to cheese factories and 52,386,-694 (56,854,132) lbs. to butter factories: 29,359,721 (25,907,-681) lbs. of cheese and 64,397,-977 (b) (69,653,540) lbs. of butter were made, being an increase of 13.3% for the cheese and a decrease of 7.6% for the butter.

The return of cheese by lb. of butter-fat averages to 2.743 lbs. for the cheese and the return of butter by 100 lbs. of butter-fat averages to 123.2 lbs. for the month of December 1932; the return of cheese by lb. of butter-fat averages to 2.588 lbs. and the return of butter by 100 lbs. of butter-fat averages to 122.9 lbs. for the year 1932.

(a) Not including butter made in the city of Montreal.

(b) Including 3,893,793 lbs. of butter made in the city of Montreal.

NOTE.—Figures of 1931 referred to in this Bulletin have been revised and are final.
Charts showing production by district for the year 1932, will be published latter with revised figures for 1932.

CHEESE SUMMARY

From January 1st to December 31st

DISTRICTS	Cheese 1932 (Lbs)	Cheese 1931 (Lbs)(a)
Lower St. Lawrence	1,885,918	1,492,012
Quebec	2,135,665	1,765,826
Three-Rivers	5,106,160	4,479,323
Bois-Francs	7,583,008	6,042,184
Eastern Townships	109,613	105,789
S. E. of Montreal	3,398,616	3,795,516
Montreal & Ott. R.V.	3,323,017	3,157,883
North of the Prov.	5,817,724	5,069,138
TOTAL:	29,359,721	25,907,681

(a) Revised figures.

BUTTER SUMMARY

From January 1st to December 31st

DISTRICTS	Butter 1932 (Lbs)	Butter 1931 (Lbs)(a)
Lower St. Lawrence	6,416,575	6,418,135
Quebec	7,928,531	8,488,739
Three-Rivers	11,897,705	12,837,846
Bois-Francs	10,548,649	11,560,637
Eastern Townships	8 460,272	8,332,142
S. E. of Montreal	6,641,401	6,898,227
Montreal & Ot. R.V.	10,064,312	(b)12,303,594
North of the Prov.	2,440,532	2,814,220
TOTAL:	64,397,977	69,653,540

(a) Revised figures.
(b) Including the production of Montreal City, in 1932, as follows:

Cream (Lbs)	Butter (Lbs)	Butter (Lbs)
9,785,286	3,227,122	3,893,793

Export Cattle on New Footing

The United Kingdom agreement, as now ratified, puts Canadian cattle exporters on an equal footing with her competitors in the British market, for the first time in thirty-seven years. The segregation of store cattle from fat cattle moving on export is no longer required. Fat and store cattle are allowed to move freely to inland points, with the understanding that female cattle must be of a quality and type satisfactory to the British Ministry of Agriculture. Cheek branding is no longer required; the period of isolation has been reduced to one clear day; and a veterinary officer is no longer required to accompany the cattle on the ocean voyage. These concessions by the British Ministry of Agriculture are part of a bi-lateral agreement arrived at by the respective governments at the Imperial Economic Conference, and under which Canada recognizes the London Quarantine Station, according to conditions laid down in the agreement. —Department of Agriculture.

Fertilizers Sold in Canada

Of the almost innumerable brands of fertilizers offered to the public in the earlier days of the fertilizer business in Canada there were hundreds of brands which contained so little actual plant food that they were practically worthless for the purpose for which they were purchased. This condition led to the inclusion of a clause in the Fertilizers Act, 1922, requiring that every fertilizer sold in Canada contain not less than 12 per cent of available plant food as nitrogen, phosphoric acid and potash singly or combined. In 1928 this minimum of total plant food in any fertilizer was raised to 14 per cent, which is the requirement still in effect. During the first year of the operation of the 14 per cent total plant food requirements hundreds of brands of so-called fertilizers were put out of the market.

This provision of the Act established a reasonable basis of minimum plant food content and undoubtedly has meant a material saving to farmers in the purchase of fertilizer and prevented many a disappointment in crop returns which would have resulted from the use of inferior and fradulent materials.

Fallacy and Fact

IN these troubled days when the price of farm produce is at an exceptionally low level—when the farmer has great difficulty making ends meet—in times like these varied opinions are being expressed concerning the effect that Chain Stores are having on the farmer's lot. The opinions are both good and bad. Many people consider the Chain Stores an ideal method for distribution of food and as such of distinct benefit to the farmer; others believe that they work to the farmer's disadvantage.

Agriculture the Basis of Prosperity

IN looking towards the future no one dare overlook the farmer, as it is from him that prosperity makes its start. When he receives a fair price for his produce, he then has money to buy his needs of what the city man has to offer. Chain Stores are depending entirely on the prosperity of the city dweller and it is thus in the best interests of all to see that the farmer is well paid.

Chain Stores Contact

TO the farmer the Chain Stores offer a direct and organized method of sale. These stores will accept a farmer's entire output for the season. They guarantee him a market making it unnecessary for the farmer to arrive in the city a night before to find a place in the market and spend a sleepness night, and very often he is forced to return home with part of his load or dispose of it at any price it may bring.

Increased Markets Through Sale of Canned Goods

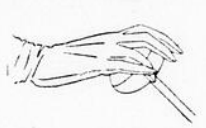
CHAIN STORES go a step further—they speciallize in canned goods. The development of the canning industry has played no small part in creating a new and larger market for the farmer. The canning industry takes care of the surplus products of the farmer and offers him an outlet for his surplus farm produce.

The Farmer Benefits

IN selling to the Chain Stores direct, the farmer has everything to gain. Week in and week out throughout the entire year, Chain Stores feature farm products creating a larger consumptive demand. The Chain Stores cannot dictate the general price that will be paid. That is beyond them. The prevalent price and the price paid for any commodity is controlled by economic laws, and in the last analysis the Chain Stores are but a small part of our general economic system.

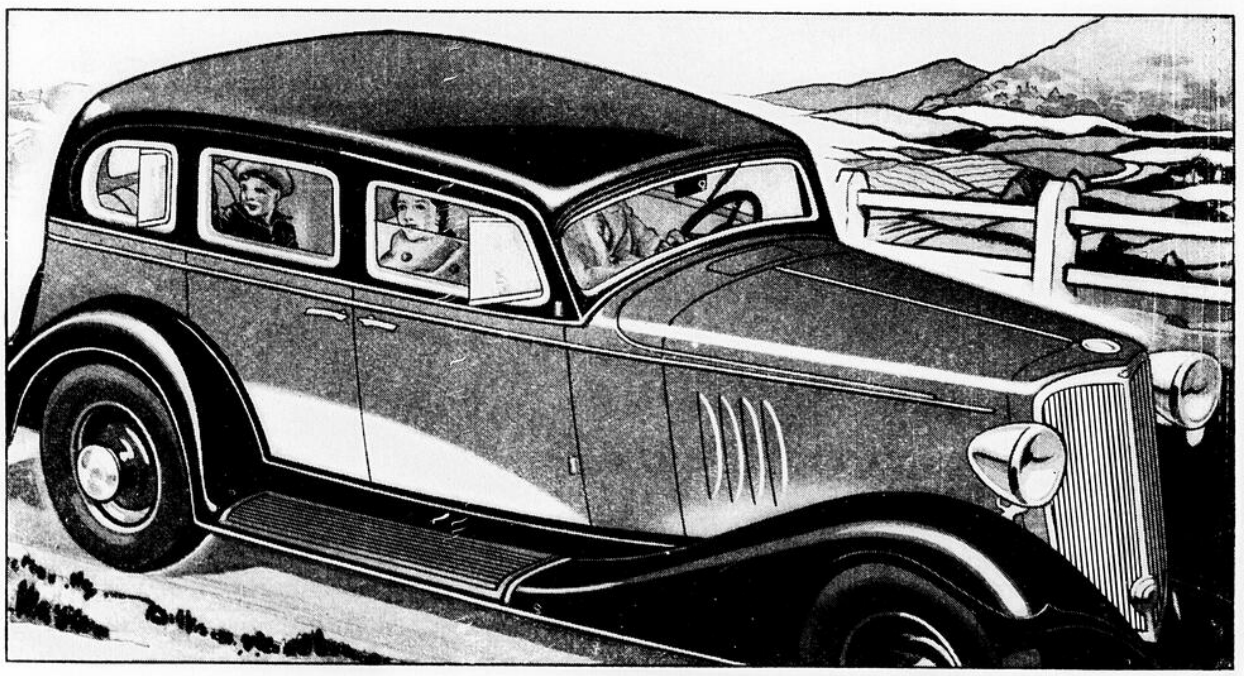
SO when the question of Chain Stores is brought up, think of the true facts. Remember that it is in the best interests of both farmer and Chain Store to be friends—that the farmer has the support of the Chain Store—that they serve the communities in which they are located, a benefit to everyone concerned.

Come for a ride in the
NEW CHEVROLET SIX

You start by just pressing the accelerator treadle, thanks to the new "Starterator"... Gears mesh without clashing or effort; that's Syncro-Mesh shifting!  ... There's "Silent Second", too ... No drafts, no stuffiness. Fisher No-Draft Ventilation takes care of that ... Safety Glass Windshield certainly! So comfortable and easy-riding on rutted roads, because it's roomier, longer and lower Don't forget, Chevrolet pioneered the Six in the low-price field.

CHEVROLET GM GENERAL MOTORS PRODUCTS

CF-5P



LOW DELIVERED PRICES . . . EASY G M A C TERMS