

STORAGE LOSSES IN APPLES DUE TO FUNGI

(Experimental Farms Note)

Storage losses are generally explained as the result of improper storage conditions. This is no doubt to some degree correct, and when the losses occur in cold storage houses something is generally amiss, and neglect has occurred in maintaining proper conditions. But one must ask: Do apples which are properly stored, not suffer from rot? The answer is simple enough: Apples will keep almost indefinitely up to the time when a slow maturing process—which is a chemical process—changes the composition, and natural collapse of the fruit takes place, providing they are absolutely sound when placed in storage.

The losses in storage amount annually to many thousands of barrels, simply because apples showing blemishes of one kind or another are stored with sound ones. The apples scab is one of the most common agents giving rise to decay of fruit kept in storage. As long as the temperature of the cold storage is kept low—about 32 degrees F., or close by—no rot is likely to show. But should such apples reach the vendor or the consumer, the trouble will begin as soon as the temperature changes. Any injured or scabby surface of an apple is quickly invaded by the common fungi such as pink rot, blue mould, etc., and once these fungi commence their destructive work, a barrel of apples is often destroyed more quickly than it could be eaten by an average-sized family. As soon as the rot is observed in a barrel, prompt action is called for. Out with all the apples; throw the bad ones right out, save what can be saved of partly spoiled fruit for immediate use, wipe the sound ones with a dry cloth and store them in a well ventilated but cool place, examining them from time to time. One rotten apple in a barrel will start all the others to rot in no time.

From the above it will be seen that while improper storage conditions—and once in the hands of the consumer a barrel of apples will rarely find proper, i. e., cool, well ventilated, but particularly, uniform temperatures—have some influence in starting the rot, if the apples are in good sound condition when placed in storage, the consumer will not so likely be the loser—as he generally is. The time will come when the consumer will be allowed to deduct from his bills the losses which are due to the negligence of others, particularly at a time when high prices prevail.

DISINFECT THE STABLES

(Experimental Farms Note.)

The fact that regular disinfection of the stables is not a common practice in Canada is sufficient evidence that we as farmers are not thorough and do not appreciate the importance of the health of our animals. As in other countries, disease of animals is responsible for the loss to farmers of many millions of dollars annually. Such diseases as tuberculosis, abortion, scours, blackleg, glanders, hog cholera, etc., take enormous toll from our revenues. Again, parasites such as lice, ticks, etc., each year cause the waste of enormous amounts of expensive feed, to say nothing of the losses in production of milk, meat, and young stock. Farmers of Canada, it is your duty and your best business to stop these losses. Don't wait till animals die of disease or are emaciated and hairless from parasites before disinfecting. Diseases are spread more rapidly when animals are confined in winter quarters.

One of the most important factors in cheap and healthy wintering of animals is clean quarters, and no quarters can be kept clean and free from disease and parasites without disinfection at least twice annually.

The basis of disinfection is direct contact. Disease germs under a layer of manure, straw or dirt cannot be killed by average disinfection. Hence the first step is the thorough cleaning out of the barns, scraping (and washing, if possible) all walls and floors, and sweeping dirt, dust, and cobwebs from walls and ceilings. Wood floors should be repaired and earth floors renewed with a layer of clean soil.

WHAT DISINFECTANTS TO USE

1. Sunlight. This is the cheapest and one of the best. Every stable should have at least 6 sq. ft. of glass per mature head of horses and cattle, and one-quarter this amount for calves and mature hogs. Sunlight induces cleanliness, health, comfort, and greater profits.
2. Whitewash: A good whitewash applied hot to ceiling and walls covers and kills germs and parasites. Add drug disinfectant, such as Carbolic Acid, if

Cause of Early Old Age

The celebrated Dr. Michelson, an authority on early old age, says that it is "caused by poisons generated in the intestine." When your stomach digests food properly it is absorbed without forming poisonous matter. Poisons bring on early old age and premature death. 15 to 30 drops of "Edgar's Syrup" after meals makes your digestion sound. To

barns have housed diseased animals.

Apply with spray pump or brush.
3. Drug Disinfectants: All floors, gutters, and mangers should receive extra care. Disinfect by soaking thoroughly with one of the coal tar distillates such as Kresol, Wescol, Zenoleum, Creolin, etc., etc., applied in water solution 3% to 6% varying with strength of disinfectant. Apply with spray pump or sprinkler and brush in.

The Health of Animals Branch, Department of Agriculture, Ottawa, can supply free instructions in selecting and preparing whitewash and disinfectants.

Thoroughness in the above disinfection is most important.

The intelligent stockman intent on maintaining healthy stock finds it wise to disinfect mangers and feed passages more frequently. A light spraying monthly will suffice.

Practice proves that disinfection is cheap insurance and an investment yielding a high rate of interest. If Canadian farmers unitedly will but realize this, our animal disease and losses therefrom would decrease 20% per annum.

THE CARE OF THE FALL LITTER

(Experimental Farms Note.)

The Measure of the swine-feeder's ability may well be taken by his success in handling his late summer and fall litters. Here the percentage of culls and unthrifty pigs is usually high, particularly with the late fall litter obliged to winter in cold or worse damp quarters. Generally speaking, no young pigs should arrive after September, unless the feeder has exceptional facilities for winter swine raising.

To ensure strong fall litters the sows should spend the summer on pasture with as much range as possible. Clover, alfalfa, rape, or grass may be utilized to the exclusion of meal for the first two months provided the pasture is abundant. For the duration of the gestation or carrying period, the use of a little meal, once daily, will be amply repaid. Shorts and bran, equal parts, with a handful of oats per sow, fed a few pounds daily, is recommended.

One very fertile cause of unsatisfactory fall litters is found where the sow has produced a litter in the spring, been heavily milked, and bred in a thin weakened state, and at the same time properly nourish the litter she is carrying. Ordinarily, breed the sow a few days after weaning. If she is much pulled down in flesh delay breeding even at the expense of a later fall litter.

When the sow farrows, if in August, September, or later, observe the following facts:—

1. See that the youngsters have exercise and plenty of it, right up to snowfall.
2. They must have a warm, dry place to sleep. One thorough chilling, such as may be contracted on a wet, cold fall evening, where improper shelter and little bedding are supplied, will ruin the sucker or weaner, for good and all. Given a dry floor, well bedded, the fall has no terrors for the little pig.
3. Start the pigs to eat when two or three weeks of age. If two or three sows farrow at nearly the same time, and if they are acquainted, place them together with their litters. Make a hole in the fence and give the little ones the run of the barnyard or adjoining field or paddock. Provide a small self-feeder where the sows cannot reach it, and keep a mixture of shorts, 2 parts; ground corn, 1 part; ground oats, 2 parts; before the little pigs at all times. Skim-milk in a trough similarly situated, will also prove popular and highly beneficial.
4. Mangels or sugar beets, fed tops and all, will be relished by the sows, as well as a few cobs of corn daily. A meal slop containing, if possible, milk in some form with a mixture of shorts, ground corn, and ground oats should be fed twice daily. Feed for milk.

WINTER CARE OF THE FALL PIG

The winter quarters for the three or four months pigs must be dry, above all things. A low sleeping berth built in an open shed covered over with straw and kept well bedded, with dry straw, provides comparative warmth, dryness, and fresh air. Access during the day time to a shed in which they may root in straw or litter after a few handfuls of oats, or whole corn, is highly to be recommended. Either the self-feeder, or burlough, may be used to advantage. Ashes, soda, earth, etc., should be constantly accessible. If any one feature should receive emphasis over all others in connection with the rearing of fall pigs, it is that of dry quarters.

THE FUTURE OF THE LIVE STOCK INDUSTRY

The arrival of peace has created new conditions in the export of meat and produce, and some uncertainty in the minds of Canadian farmers as to future markets. Information in the hands of The Honourable T. A. Crerar, Minister of Agriculture, convinces him that the export market will continue to absorb at firm prices, as compared with the prices for all other agricultural products, every pound of beef, bacon, and other animal products that Canada can supply. In discussing the situation the Honourable Mr. Crerar said: "In view of the great scarcity of cattle and live stock of all kinds in Europe, and because of the great demand for live-stock and

FISHERIES STATISTICS FOR ALL THE DOMINION

TOTAL FOR 1917 SHOWS INCREASE OF \$13,000,000

Dominion Bureau of Statistics has compiled Statement showing values by Provinces and by Species since 1913.

"Fishery Statistics" (1917) has just been compiled by the Dominion Bureau of Statistics. It was prepared in collaboration with the Dominion and Provincial Fisheries Departments and contains a statistical survey of the fisheries of the Dominion as a whole and of the provinces, as provinces. A prefatory note on the Canadian fisheries giving a comprehensive view of their national value and world importance, is as follows:—

"Canada possesses perhaps the most extensive fisheries in the world, those of Norway and of the British Isles alone disputing the supremacy, whether for the excellence or the abundance and variety of their product. The fertility of Canadian waters is indicated by the fact that the entire catch of salmon, lobsters, herring, mackerel, and sardines, nearly all the haddock, and many of the cod, hake, and pollock landed are taken within ten or twelve miles from shore.

CANADA'S GREAT FISHERIES
The coast line of the Atlantic provinces from Grand Manan to Labrador, not including the lesser bays and indentations, measures over 5,000 miles, whilst the sea areas to which this forms the natural basin embrace: the Bay of Fundy, 8,000 square miles in extent; the Gulf of St. Lawrence, fully ten times that size; and other ocean waters aggregating not less than 200,000 square miles, or over four-fifths of the fishing grounds of the North Atlantic. In addition there are 15,000 square miles of inshore waters, entirely controlled by the Dominion. Large as these areas, they represent only a part of the fishing grounds of Canada. Hudson Bay, with a shore 6,000 miles in length, is greater than the Mediterranean; the Pacific coast of the Dominion measures over 7,000 miles long, and is exceptionally well sheltered for fishermen; whilst throughout the interior is a series of lakes which together cover 220,000 square miles, or more than half the fresh water of the Globe, Canada's share of the great lakes of the St. Lawrence basin alone amounting to 72,700 square miles.

"Of even greater importance is the abundance and general excellence of the product. The cod and the salmon have long disputed the primacy among these, though in recent years the heavy pack and the high price of lobsters has sometimes sent cod to third place.

"The fisheries of the Atlantic coast may be divided into two distinct classes: the deep-sea, and the inshore or coastal fisheries. Deep-sea fishing is pursued in vessels of from 40 to 100 tons, carrying crews of from twelve to twenty men. The method is that of 'trawling' by hook and line. The bait used is chiefly herring, squid, and capelin, and the fish taken are principally cod, haddock, hake, pollock, and halibut. The inshore or coastal fishery is carried on in small boats, usually motor driven, with crews of from two to three men, and in a class of small vessels with crews of from four to seven men. The means of capture employed by boat fishermen are gill nets and hooks and lines, both hand-lines and trawls; whilst from the shore are operated trap-nets, haul seines, and weirs. The commercial food fishes taken inshore are the cod, hake, haddock, pollock, halibut, herring, mackerel, alewife, shad, smelt, flounder, and sardine. The most extensive lobster fishery in the world is carried on along the whole of the eastern shore of Canada, whilst excellent oyster beds exist in many parts of the gulf of the St. Lawrence, notably off Prince Edward Island. The salmon fishery is the predominant one on the Pacific coast, but a very extensive halibut fishery is carried on in the northern waters of British Columbia, in large well-equipped steamers and vessels. The method of capture is by trawling, dories being used for setting and hauling the lines, as in the Atlantic deep-sea fishery. Herring are in great abundance on the Pacific coast, and provide a plentiful supply of bait for the halibut fishery. In the

The following table shows the value of fisheries for the period 1913-1917, by provinces in order of value:—

Province	Value of Fisheries				
	1913	1914	1915	1916	1917
British Columbia	\$13,891,398	\$11,515,086	\$14,538,320	\$14,637,346	\$21,427,283
Nova Scotia	8,297,626	7,730,191	9,186,851	10,092,902	14,468,319
New Brunswick	4,308,707	4,940,083	4,737,145	5,656,859	6,143,088
Quebec	1,350,427	1,924,430	2,076,851	2,991,624	3,414,378
Ontario	2,974,685	2,755,291	3,341,182	2,658,993	2,866,419
Prince Edward Island	1,284,447	1,261,666	933,682	1,344,179	1,786,310
Manitoba	606,272	849,422	742,925	1,390,002	1,543,288
Saskatchewan	148,602	132,017	165,888	231,946	320,238
Alberta	81,319	86,720	94,134	144,317	184,009
Yukon	68,265	89,725	63,730	60,210	67,400
Totals	33,207,748	31,264,631	35,860,708	39,208,378	52,312,044

live stock products of all kinds sure to continue for some years at least, I am going to ask the farmers and live-stock men of Canada to maintain their breeding operations on a war-time scale, properly to finish all feeding stock, and to conserve all good breeding females, and still further to improve their herds and flocks by using even greater care in the selection of the sire."

inland lake fisheries, the various means of capture in use are gill nets, pound nets, seines, and hooks and lines."

The total value of the product of the Canadian Fisheries during 1917 was \$52,312,044, compared with \$39,208,378 in 1916. It is interesting to compare the product of 1917 with that of 1913, the year before the war. By species the statement is as follows:—

	1913	1917
Salmon	\$10,833,713	\$17,411,029
Cod (including black cod)	3,387,109	8,281,029
Lobster	4,710,062	5,654,265
Herring	3,173,129	2,260,606
Haddock	841,511	2,936,719
Halibut	2,036,400	2,066,635
Sardines	676,668	1,910,705
Mackerel	1,280,319	1,333,354
Whitefish	929,982	1,248,006
Smelts	810,392	1,027,555
Hake and Cusk	490,979	800,265
Trout	682,619	999,590
Pickering	440,539	650,632
Mixed fish	393,452	505,542
Pollock	187,723	486,195
Pike	372,868	429,396
Tullihue	63,910	333,686
Clams and quahaugs	368,325	222,965
Alewife	62,241	196,482
Perch	72,985	126,723
Oysters	173,753	109,265

Note.—The above table only relates to fish values of \$100,000 and upwards.

CAPITAL AND LABOR EMPLOYED
The capital invested in fishery operations and the number of persons employed were as follows:—

The amount of capital represented in the vessels, boats, nets, traps, wharves, freezers, etc., engaged in the primary operations of catching and landing the fish during 1917 was \$26,560,872. This compares with a total of \$22,639,001 in the previous year.

The number of employees engaged in these operations in 1917 was 75,462.

The capital represented in fish canning and preserving establishments, including canneries, fish and smoke houses, etc., was \$20,366,701, made up of land and buildings to the value of \$6,990,969; machinery and tools, \$3,401,435; stocks in hand, \$6,459,664; and working capital, \$3,514,133.

To the above total might be added \$215,552, the value of some 9,492 small fish and smoke houses.

In British Columbia the majority of the laborers in canning factories are employed under the contract system, the contractor engaging and paying his own help, and being himself paid by the factory according to the quantity of fish packed.

The return for 1917 showed that the employees in fish canning and preserving establishments during 1917 numbered 12,572 wage-earners, 8,339 male and 4,233 female. The total wages bill was \$2,808,277, to which \$668,987 must be added on account of salaries. These figures do not include contract labor, which was employed to the number of 3,431, male and 1,207 female, receiving wages to the amount of \$732,587. There were also 214 persons (155 male and 59 female) employed as outside pieceworkers, who were paid the sum of \$7,179.

The total value of imports was \$2,833,392, and of exports \$28,323,877.

BOUNTIES PAID

The bounties paid to fishermen and owners of boats and vessels under the arrangement for the distribution of the moneys received under the Halifax award were:—

To owners of vessels entitled to receive bounty, \$1 per registered ton; payment to the owner of any one vessel not to exceed \$80.

To vessel fishermen entitled to receive bounty, \$6.30 each.

There were 14,532 bounty claims received, and 14,516 paid. In the preceding year 13,604 claims were received and 13,593 paid.

The total amount paid was \$159,892.25.

DRIED BEET PULP AS A FEED FOR LIVE STOCK

(Experimental Farms Note)

An analysis of dried beet pulp taken from Henry's "Feeds and Feeding" shows that it contains on the average 8.2% moisture, 3.5% ash, 8.9% crude protein, 18.9% fibre, 59.6% n free extract, and 7.8% fat. The fibre content being high, digestibility is comparatively low, there being found only 4.6% protein, (5.2% carbohydrates and, 7.8% fat, a total of 71.7% digestible nutrients. Dried beet pulp will absorb from 4 to 5 times its own weight of water, and swells up proportionately, therefore it should not be fed, unless in very small quantities, without first being soaked. In this condition it has succulence, digestible nutrient content and laxative effect, somewhat similar to corn silage.

As a succulent food. It has been found that 9 lbs. of dried beet pulp and 5 lbs. of mixed hay was 11% better for milk production than 45 lbs. of corn ensilage. With hay at \$18.00 per ton and silage at \$4.00 per ton this would give dried beet pulp a valuation of \$10.00 per ton, to replace succulent roughage.

As a supply of protein. Taking the analysis given above it is calculated that to supply protein in a ration for milk cows when bran is worth \$32.00 per ton, then oats are worth \$24.80, corn \$20.00 and dried beet pulp \$17.80 per ton.

As a supply of digestible nutrients. On this basis if corn is worth \$50.00 per ton, then wheat bran is worth \$36.54, oats \$42.24, and dried beet pulp \$42.96 per ton. In this case the valuation placed on dried pulp agrees with that of

the Scandinavian feed unit system which rates it 10% below corn or barley. It also agrees with the findings of the Massachusetts Experiment Station where they found that it was equal to corn in a ration containing no succulence.

As a feed for fattening stock. When used for this purpose with beef cattle and sheep it has been found to produce growth rather than to lay on fat, therefore it can be used to advantage in the early part of the fattening period, but should be replaced by corn or other heavy grain during the finishing period. There appears to be no advantage in feeding it to horses, while for swine it is much too bulky and fibrous unless for maintaining brood sows.

Reviewing the subject it may be said: (a) dried beet pulp is low in protein and high in fibre, hence the protein is digestible in a relatively small degree, therefore it cannot replace any rich protein feeds like oilcake, cottonseed meal or even bran or oat chop in the supplying of protein in the ration; (b) it is useful when used to supplement a shortage of succulent roughages such as silage, roots, and grass, or to lighten up a heavy protein ration; (c) under certain circumstances (as a source of digestible nutrients) it may acquire a value of \$42.96 per ton, while in other cases where succulence and cheap home-grown carbohydrates (as in corn ensilage) are already present its value may be as low as \$10.00 per ton; (d) in the feeding of beef cattle and sheep it is better adapted to producing growth than to the laying on of fat, but even for the former purpose is but as valuable as oats.

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