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ieve, by J. A. Ruddick
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in which they are selling. Thus, out of, say, 500 boxes of number two cheese purchased in Montreal, there might be 100 boxes of number one Liverpool cheese. It would seem unwise, however, to institute a permanent system of grading on this more or less mixed basis. We have an example already in Canada of an excellent grading system for Canadian farm products in the case of eggs. Our eggs now go to Great Britain as number one, two or three merely, with the guarantee of the Government of Canada behind them. These egg regulations are being well enforced and have already meant much to the Canadian poultry industry. Cheese grades, we believe, could be established in an entirely similar way, notwithstanding the old custom among exporters of grading in a different manner for each market.

What will happen to the local cheese boards if the new system of selling gains widespread favor is a matter that must be given consideration. As at present operated these boards are expensive to the industry, but they originally served the purpose and do still, to a certain extent, of providing an individual market for the cheese of any particular district. This advantage operates in the case of several well-known cheese districts, the cheese from which frequently commands a premium over the product of other less well-known districts. It is commonly asserted, however, that cheese which is sold to be the make of a certain district is frequently not made closer than 100 miles away, although it may be of equal quality. With the establishment of permanent grades, number one cheese from all districts would be sold indiscriminately and for the same price, although if a special grade were created the cheese from the very best districts would naturally be elevated to this grade along with any other cheese of special quality. We are convinced that the principle of uniform grades is the soundest one and one which experience with eggs has taught us to believe that the British importer can be educated to appreciate.

It is to be hoped that the plan of co-operative sale by auction will be thoroughly tried out and that patrons will support a move which will extend their influence to the primary markets of the country and even into the export market. Before co-operation can reap its full and rightful harvest for the Canadian producer the co-operative sale of farm products must be further developed.

Udder Troubles in Cows.—Part 1.

MAMMITIS.

Mammitis or mastitis, commonly called "garget," consists in congestion with more or less well-marked inflammation of the mammae (in the cow called the "udder") which consists of four glands. As the period of gestation nears completion the glands increase in size, become more pendulous, increased in density and more muscular, and the teats are considerably developed so that the glands have attained dimensions and offer appearances very different from those they exhibited a short time previously; while milk is secreted in greater or less quantity, generally in proportion to the development of the mammae.

It is during this period that the activity of the mammae exercise so much influence on the health of the animal, and it is also at this time that these glands are most liable to derangements which are more or less serious. Even their normal physiological development, when it occurs rapidly and considerably, under certain conditions, often occasions uneasiness and pain. The temperature of the glands is increased, and they are much more sensitive than usual. This disturbance is usually very temporary, and in most cases disappears in two or three days without special treatment.

This condition may be called normal or physiological enlargement of the mammae; but there is often seen a diseased or pathological enlargement which is often the commencement of more or less serious inflammation of the glands.

Congestion of the mammae is due to many different causes, as direct injuries of many kinds, over repletion, exposure to wet and cold or alternate heat and cold, irregular milking, stings of insects, rough usage by milker or offspring. In many tubercular animals there appears to be a well-marked predisposition to the trouble, recurrent attacks appearing more or less frequently without apparent cause. Probably the most frequent cause is failure to remove the milk, either on the part of the offspring or attendant. The tendency of the mammae to become enlarged when the lacteal secretion is not removed at the proper time, is often made available with a fraudulent motive, when unscrupulous dealers are disposing of cows for milking purposes. The milk is not withdrawn for some time, the glands become greatly distended, and assume an excessive development, which may impose upon the unwary prospective purchaser, and give rise to the

belief that the animal possesses extraordinary lactiferous properties.

Symptoms.—When the congestion is due to accumulation of milk, the symptoms are, of course, gradually developed; but if arising from injuries, they may appear suddenly, a certain part becoming all at once swollen, hard and tense, but not entirely losing its softness and elasticity. We have already stated that the udder of the cow is composed of four "glands," commonly called "quarters." These glands or quarters are in close contact, apparently forming one mass which hangs more or less pendulous between the hind legs, each quarter terminating inferiorly with a teat. When we know that in cases of inflammation or congestion, or both, all quarters may be involved, or only one, or two or three, we can readily see that a diseased condition of the glands may give rise to very diverse symptoms, due to these anatomical peculiarities.

The real congestion may be limited to one or more quarters, though at the commencement the whole udder may be swollen, and localization occur only at a later stage of the trouble. There is often a swelling of a doughy nature around the udder, which, in some cases, extends to other parts of the abdomen; appetite is usually more or less impaired, and there is usually a tendency to constipation. There is also usually a well-marked increase in temperature.

The secretion of milk is diminished; it may at first be normal in consistence, and in some cases it may contain streaks of blood, which give it more or less of a rose tint. When the condition continues, however, its degree of fluidity is changed, and it becomes lumpy and clotted with a quantity of thin, yellowish serum, or the whole may be practically serum, without clot. In some cases the coagula obstruct the canal and prevent the escape of milk. This alteration in the milk is usually limited to the quarter or quarters involved, in the others the secretion may be normal in consistence, and healthy, though less abundant. In severe cases the quarter or quarters involved will be hot and tender. When the whole udder is involved, the patient usually stands with hind feet well spread, in order to avoid pressure upon the udder. She does not wish to move, and if forced to do so, will walk with a straddling gait.

Treatment.—While local treatment is of greater importance than constitutional, it is wise to administer a purgative in the early stages, as 1½ lbs. Epsom salt, and 1 oz. each of gamboge and ginger in about 3 pints of warm water as a drench. She should now be fed nothing but a little sloppy, easily-digested food, until purgation commences. This should be followed by 3 to 4 drams of nitrate of potassium 3 times daily for 2 days, and she should be fed lightly on food that does not tend to cause secretion of large quantities of milk. Local treatment consists in applying heat to the udder, either by keeping hot poultices to it, or



Plenty of Shade and Water are Valuable Factors in Milk Production.

bathing long and frequently with hot water, and each time after bathing, rubbing well with hot camphorated oil. Keeping hot poultices to the udder is very troublesome, and if the poultice is allowed to become cold the reaction is harmful; hence, unless the attendant can give almost constant attention, it is better to not attempt it. A poultice of a preparation known as "antiphlogistine" (which has adhesive properties) applied warm gives good results, lasts much longer and does not require nearly so much attention as an ordinary poultice. In all cases the fluid should be drawn from the affected quarters 3 or 4 times daily until the milk becomes normal. In some cases the milk ducts become occluded by the lumps or curds, in which case careful manipulation will generally succeed in forcing them out and allowing escape of the fluid.

In most cases where prompt and proper treatment is given early and properly attended to a complete recovery will result, but there are exceptions. The inflammation will not continue indefinitely. It must have a termination. We hope to discuss the different terminations and results in a future number.

WHIP.

HORTICULTURE.

If you are going to take care of the orchard this year, try and take care of it right. Remember that frequent thorough cultivation throughout the summer months is as necessary to fruit of good size as pruning and spraying.

Do not allow the old orchard to fall into neglect until you are sure it is past all redemption. Most of the neglected orchards throughout the country can be made profitable by careful pruning, spraying, fertilizing and cultivation.

Many successful orchardists have adopted the idea of leaving a sod strip for from four to six feet on either side of the apple or pear row in order to heighten the color of the fruit and to reduce the cost of cultivation. If this is done, however, the grass should be cut at least once during the summer.

Every successful gardener maintains a compost heap as a means of profitably utilizing waste vegetable materials about the place. Muck, peat, pond or river mud, old leaves, sods, the cleanings from ditches, road scrapings and loam can all be used to good effect, if built up in layers four or five inches thick with layers of manure in between.

Some orchards are so thickly planted that the branches are growing into each other. In such cases treatment will depend upon how aggravated this undesirable condition is. If the trees are very thick it will undoubtedly pay to remove every other tree so as to give plenty of room for the remainder, but if they are not thick enough to make this profitable, the ends of the branches should be headed back so as to allow of about three feet of air space between each two trees.

Maintaining Fertility in Orchard Soils.

No good farmer would think of trying to grow crop after crop of wheat, barley, or oats without replacing the fertility drawn from the soil. With the apple orchard however, the situation seems to be different and on many farms there are orchards that are expected to go on producing year after year without any additional plant food being furnished for the trees. This, of course, is unreasonable, because no tree can continue to draw its nourishment from the same soil year after year and bear good crops of fruit unless some effort is made by the owner to keep up the supply of available plant food. The fertilizing of orchard soils is probably the factor in successful orchard management that is most neglected. On light soils this factor is particularly important because the available plant food in such soils is more easily and more quickly drawn out.

The following paragraphs on this subject are intended for Ontario conditions and are taken from Bulletin 194 of the Ontario Department of Agriculture:

In this matter the orchards are more thoroughly neglected than any part of the farm. With most soils in this Province, to produce a profitable crop the orchard must be fertilized. Light sandy soils and also heavier soils which have been intercropped until the fertility has become exhausted, show splendid results from fertilization. The most essential elements to the production of fruit are nitrogen, phosphoric acid and potash. Roughly speaking, nitrogen encourages growth. Potash is essential to the development of the fruit and also is associated with the development of flavor in the fruit. Phosphoric acid is essential to the proper ripening of the wood and fruit. Lime is sometimes employed as a fertilizer for its secondary effect as it assists in the liberation of plant food.

Barnyard manure is more generally used than any other fertilizer. It supplies all the elements necessary to plant life and improves the physical condition of the soil. Where plenty of it can be had commercial fertilizer will not often be necessary. In the vicinity of large cities stable manure can be obtained in car lots at low prices, and the freight rates are sufficiently reasonable to make it profitable to ship up to at least 100 miles. An application of 10 tons per acre given yearly should keep the orchard in splendid condition. The manure should not be piled around the base of the tree under any consideration. In bearing orchards it should be applied in the same manner as for field crops, covering the ground evenly in all directions. In young, non-bearing orchards, the best way to apply barnyard manure, when it is only desired to manure the trees, is to spread it around the trees, about as far as the roots will spread, leaving clear at least from one to two feet from the base of the tree. The old practice of piling manure up against the tree places the plant food away from the feeding roots of the trees, and forms a harbor for mice in winter. As a tree develops, the greater proportion of the root feeding system is away from the trunk.

The use of commercial fertilizers has become more general among fruit growers, due largely to the fact that stable manure is somewhat scarce in many fruit-growing districts. When this is the case the mechanical condition of the soil and supply of nitrogen should be kept up by the use of cover crops and by the judicious application of commercial fertilizers, the other ingredients, phosphoric acid and potash, may be supplied.

In order to get the best results from the use of fertilizers, the grower must study his soil, and by observing the results obtained from experimental applications