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Definition of Good Butter.

"Good butter should possess a uniform appearance, neither patchy nor striped. Its color, which is influenced by the feeding and by the individuality of the cows, should be uniformly that demanded by the market. Good butter should neither be dull nor entirely sparkless in appearance, but ought not to possess too strong a glitter. It should possess the mild glitter that it has when it possesses the characteristic grain which distinguishes it from all other fats. In properly-prepared butter, the exceedingly fine division which the fat originally possessed in the milk should not be entirely lost. To this may be ascribed the fact that butter-fat is very easily digested—a fact quite characteristic of butter-fat.

"Good butter should neither be too soft—that is to say, smeary—nor too hard. The drops of moisture present in butter should not be too large nor too abundant, but must be quite clear, and should not have a milky appearance. Salted butter should not contain undissolved salt.

"The flavor of good butter should be that of pure butter only, and should not be associated with any kind of foreign or unusual flavor. Aside from the fact that salted butter is distinguished from unsalted butter by its salt flavor, butter possesses a different taste according as it is made from sweet or sour cream. Butter made from sweet cream is characterized by a clear, extremely mild, and by no means strong flavor. Butter made out of sour cream has a certain aroma and a powerful characteristic flavor which in most markets is demanded as an essential quality.

"We do not know the origin of this aroma, and we know nothing in regard to its chemical nature. We think it is due largely to the action of the lactic bacteria and partly to the food of the cows. Butter made from the milk of cows that have been in milk for a time is generally firmer than that from milk from recently-calved cows, and usually possesses a less fine flavor."—Fleischman.

The Food and the Cow.

In considering the great advancement made in agricultural lines in recent years, nothing is more noticeable than the tendency for stockmen to regard and care for their animals with the same degree of interest as would be given to other pieces of valuable and well-adjusted machinery.

Each of the various classes of animals is adapted to the performance of certain work. The horse comes into use principally as the means of applying power in the work of growing and harvesting food materials for the other animals, and for marketing their products. The others have for their function the manufacturing of the raw products of the soil into other forms of more useful and concentrated character, such as meat, milk, and wool. Peculiar conditions and demands in many instances have made it profitable to carry specialization so far that for the production of meat and of milk two different types of cattle are in use, almost as unlike each other as are representatives of two different species. In the middle Western States, where corn is abundant and creameries are becoming more popular, it has been found advisable to breed cattle that are fitted for combining the milking and beefing qualities. While it seems impossible to secure exactly the same excellence for either work that could be secured by the use of special-purpose animals, yet these cattle are found to yield paying returns for either work, and their owners have two markets to sell in, instead of being entirely dependent upon the value of beef or of dairy products. The care of the females in the dual-purpose breeds is much the same as that required for cows bred entirely for dairy purposes. While the analogy between our farm animals and manufactured machinery may not be always clear, it is most easily recognized in the case of the dairy cow. She consumes large amounts of food, masticates, digests and assimilates it, and in a few hours is ready to yield her product. The amount of her output, like that of any other machine, is, to a great extent, dependent upon the nature of the raw material and the skill of the attendant. There is nearly as much as ever of mystery in regard to the exact way in which milk is manufactured within the cow's body. Much is to be said for and against both theories, but it seems reasonable to conclude that the solids are the shed-off cells of the vesicles of the udder. If this be true, the materials which a cow yields for the nourishment of her calf are a part of her own body. This also explains the impracticability of feeding so as to change the composition of the milk. A young calf's stomach is too delicate an organ to be subject to sudden changes such as would result if his food varied with the pasturage of the dam. It is commonly considered that the quality of milk is dependent upon breed, and that the most that can be secured from feeding is an increase in quantity. As a rule, a machine is most economical when loaded to within a small percentage of the limit of its capacity. A certain amount of force is expended in overcoming friction in the machine itself, and this is but little greater when running at full capacity than when underloaded. A large part of a cow's food goes to repair the waste of tissue and for keeping up the heat and nervous energy of the body. These demands must be satisfied before any considerable amount can be used in the manufacture of milk, and it is by increasing the amount consumed above that required for running expenses that a profit can be secured. The extent to which the consumption may be profitably increased varies with the individuality of the cow, the price of feed, and the value of butter or cheese. There is some danger of overloading and permanently injuring the usefulness of the animal by maintaining the strain for too long a period, but this is seldom done except in some public test where an attempt is made to end the never-to-be-ended battle of the breeds. It is a fact that a cow will yield her greatest flow of milk in the early summer, when she has free access to an abundance of succulent and nutritious grass.

An evening visit to the yards at this season is very enjoyable. The animals having been at pasture all day, have so filled their paunches that a pressure is exerted upon the diaphragm, and accompanying respiration we hear the involuntary grunt so expressive of contentment and so suggestive of full milk-pails. Experience has shown that when for any cause the flow of milk is diminished, it can be but partially remedied, and that only by special care and feeding. In the time of failing pastures, it is not always directly profitable to use supplementary feeds. The immediate increase in the milk flow may not pay for the extra feed, but taking into account the whole period, it is a losing game to allow a shortness of feed to have any effect upon the amount of output. As pastures fail, the cow attempts to maintain her former yield by drawing upon her body flesh. This reduces her in condition, and when the inclement weather of autumn approaches, she is unable to withstand its effects, and a further decrease is the result, and when winter feeding is commenced, she is nearly dry and cannot be got back to her former performance. This phase of the subject is of especial importance in the case of dairy heifers. If, after a part of the season has passed, they are allowed to shrink in milk-flow, the udder and organs directly concerned in the production of milk are not as fully developed as they would be if kept at fair pressure with the animal in strong working condition. There are a variety of feeds that may be used for supplementing short pastures. Usually some green crop or early-planted corn is very convenient, and in some seasons the price of mill feeds permits of their being used at a profit. In any case, the young cows should be kept

going with no further decrease in flow than can be accounted for by the approach of the close of the lactation period.
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Percentage of Foals.

Often the question arises as to the number of foals a horse should get in a season. The following, while giving larger numbers than usually held, will throw some light on the subject:

"The most authentic record of stud service of any distinguished sire in this country is that of Rysdyk's Hambletonian. He went into the stud as a two-year-old. He received four patrons that season, the service being free. The result was four foals, one of which was the noted sire and perpetuator of light-harness speed, Alexander's Abdallah. Hambletonian's percentage of foals was remarkable. In 1852 seventeen mares visited him, and thirteen of them dropped foals—76 per cent. The next year his patrons numbered 101, and seventy-eight foals were dropped. In 1862, 158 mares were sent to him, and of this number 111, or 70 per cent., produced foals. Dictator was of this lot. In 1863 the unprecedented number of 217 mares were mated with Hambletonian, probably a larger number than ever has or ever will be sent to any other trotting stallion. His fee that year was \$100. The number that produced foals was 158, or about 67 per cent. of the number bred, which is six per cent. more than produced foals by him the previous year. In 1874 Hambletonian was allowed thirty-two patrons, and twenty-four of them, or about 75 per cent., produced foals. In 1875, the last season that Hambletonian performed stud service, there were twenty-four mares mated with him, only three of which, or eight per cent., produced foals. He was then twenty-five years old."

It may be stated that from forty to fifty per cent. is considered an average percentage of foals.

Provide Your Stock with Hay.

It will have been noticed that the columns of the ADVOCATE have contained several articles from practical farmers re retaining the fertility of the land, etc. The majority of the articles insisted on grass as a part of the rotation to be adopted. The value of grass was at the time mentioned, but without placing much emphasis on the hay end of the proposition. Often we are told, apologetically, as it were, by the farmer, that "my cattle had no hay, and are not in as good condition as I would like them to be." It seems, therefore, that good hay is almost an indispensable crop if the cattle are to be kept in good condition and the milk flow to be kept up. The following reasons are helpful in determining where hay scores as a fodder: Hay derives its great superiority over straw as a fodder for farm stock from the larger percentage of albuminoid or nitrogenous matter which it contains. It is also slightly richer in fats and carbohydrates, and is consequently a better-balanced food. Hay of good quality contains from eleven to twelve per cent. of albuminoid matters, whereas straw, even the best oat straw, does not contain more than four per cent. of this material. Good hay also contains from 3 to 3.5 per cent. of fats, as against 2.0 per cent. in straw, while of carbohydrates the average quantity in hay is about 40 per cent., as against 35 per cent. in straw. In the earlier days, the wild hay was depended upon entirely, and some of it was very nutritious, notably the red-top. It has, however, been proved time and again that rye grass, Brome grass and timothy will grow successfully here. The prudent farmer will in future so shape his farming operations as to include the growing and making of hay.

The Calgary Exhibition.

The Inter-Western Pacific Exhibition Company have issued their prize list for 1901. The fair will this year be held on July 10th to 13th, inclusive, and no effort will be spared to make it an unprecedented success. The prize list is a very liberal one. Especially in horses and cattle are the prizes offered such as will bring out strong competition. An elaborate programme of sports and attractions has been prepared, prominent features being broncho-busting, steer-roping contests, gymkhana races, etc. Calgary, the headquarters of the rancher, and beautifully situated on the Bow River, within sight of the snow-capped peaks of the Rockies, is an ideal place for a summer fair. Prize lists and all information re special transportation rates, etc., will be cheerfully furnished by the secretary, John De Sousa.

The Value of Porcine By-products.

A very considerable portion of the profit made by bacon-curers is derived from the sale of what may be described as the by-products of the animals killed in their factories. In Chicago, for instance, the greatest pig-killing center in the world, the number of uses to which the various parts of the pig are put is remarkable. Buttons are made from the horny parts, glue and fertilizers from the skull and hoofs, etc., chessman, dice, tooth brushes and knife handles from the bones, while the other portions of the bones are ground up for manurial purposes. Extract of meat is made from some of the blood, and albumen is extracted from the rest and sold for sugar-refining purposes and for leather-dressing. Other uses to which the by-products of the pig factory are put include the manufacture of neat's-foot oil and gelatine, and the conversion of rough fats into grease and fertilizers.