

a splendid opportunity of investigating this point, as we were able to obtain milks varying in fat content from 3 to 4 per cent. On several occasions we put like quantities of the different grades of milk into different vats, and made them up separately. When the cheese were made, the yields differed so much that, when they were placed side by side they resembled a flight of stairs. Let us give an example, which could be multiplied many times if space afforded:

Lbs. Milk.	% Fat.	Lbs. Cheese.	% Fat in Whey.
325	3.0	27.0	.2
325	3.4	29.5	.2
325	3.8	35.5	.2

Furthermore, there was a marked difference in quality, the cheese from the richer milk being quite superior to that from the poorer. The lesson is obvious. We should certainly pay in cheese factories according to quality, and not by the pooling system.

This work was conducted by our instructor in cheesemaking, Mr. G. G. Publow, and, needless to say, was carefully and skillfully done.

A COMMON AND UNSUSPECTED CAUSE OF CREAM TESTING LOW IN THE FALL, WHEN THE MILK IS RICH.

One other investigation of considerable interest to creamerymen: While it is well known that changing the cream screw or the speed of feed, or a difference in the richness of the milk, will alter the richness of the cream, these do not furnish a reason for the cream supplied to our cream-gathering creameries so commonly testing lower during the fall of the year than during the summer, despite the fact that the milk has increased in richness.

Under the direction of our instructor in butter-making, Mr. Stonehouse, we made an investigation of this subject, with the result that we fully satisfied ourselves that this apparent anomaly is really due to the partial cooling of the milk, during the cool weather of this season of the year, before it is put through the hand separator. The following data will serve to illustrate this point:

Machine.	Temp. of Milk.	Test of Cream.	Test of Sk. Milk.
A.	80	27	.10
	95	31	.10
	80	25	.08
B.	95	28	.06
	85	40	.025
C.	95	43	.025

The different letters represent different makes of machines.

In all cases we took the same milk and divided it, separating one portion at the lower and one at the higher temperature, as indicated.

The explanation of the foregoing, no doubt, lies in the fact that as the milk cools it becomes more viscous or syrupy in its consistency, and, as a result, does not flow out of the skim-milk tubes so readily, thus causing a larger percentage to be taken as cream.

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POULTRY.

POULTRY IN MANY LANDS.

Editor "The Farmer's Advocate":

From Port Said to Yokohama, the broiler is the main and very often the only form of flesh-food obtainable by the traveller or white resident. This also applies to most parts of Africa and to the many islands scattered about the Indian and Pacific Oceans; in fact, to all that part of the world which lies within the region known as the tropics. Pork is usually plentiful, but is not considered wholesome in hot countries. Beef is scarce and nasty; raising beef especially for food is practically unknown, and it is only when an occasional cart bullock or mill bull has outlived his usefulness and threatens to become a dead loss to its owner that beef is killed for food. So the resident in a tropical country has to depend almost entirely on the broiler to supply his table, especially in emergencies.

The broiler in these countries is not the delicate, milk-fed article found in Canada or America, but generally a long-legged, very worldly-wise member of the chicken tribe, who has had to wrestle hard for his living, with one eye constantly on the watch for possible enemies, the other on the look-out for something to steal. When wanted for the table, he is chased by the entire family under whose protection he has been living, and is beaten to death with anything that comes handy. Although there is always a large and ready sale for poultry and eggs in the vicinity of the towns and seaports, very few whites seem to have made any serious attempt at poultry-raising as a business. This is mainly because most of the white residents in these countries are

engaged in enterprises which leave them very little time or energy for other work, and if the care of the poultry is left to native servants, the result is almost always disappointing, owing to the natives' unbounded faith in Providence as a labor-saving institution. The result is that poultry-raising is almost entirely left in the hands of the natives, who are generally too lazy to go in for it properly, each family keeping just enough hens to eat up their waste food.

Although lazy, the native is distinctly ingenious, and his method of brooding is worthy of notice. Where a number of hens are kept for raising broilers, a few capons of a large breed are always retained as well for brooding purposes. They are treated as pets by the family, so that they become accustomed to being handled. When a hen hatches, she is not allowed to waste her time brooding her own chicks. A few days before the chicks are hatched, the capon is placed in a coop, and when the chicks are ready he is lifted up carefully at night, and a quantity of strong tobacco smoke is blown into his face, which for the time being seems to make him quite intoxicated and silly. The chicks are then placed under him. In the morning, when he wakes and finds his new family, he seems to take them quite as a matter of course, and when let at large with them in the day time, he scratches and gives them as much if not more attention than the hen would. One of the advantages of this system is that chicks from various hens, and differing several days in age, can be placed in the care of one capon. A big capon will brood as many as fifty chicks, and the hens are turned loose after a few days, to lay and sit again. The tropical hen does not usually lay a great number of eggs. She nearly always lays away, and, if possible, hides her nest, sitting as soon as she has sufficient eggs, thus clearly showing her near descent from some sort of wild fowl.

The writer has used capons, as described above, for brooding incubator chicks, with marked success, and believes this system is worthy of more general adoption. The Chinese are said to use caponized geese for this purpose, and it is a well-known fact that a female goose, if from any cause her own eggs have failed to hatch, will adopt a brood of newly-hatched chicks or ducklings.

The great drawback to poultry-raising in the tropics is the abundance of pests. These vary in different countries, but are always there in one form or another, the most general thing being hawks and other birds of prey which abound nearly everywhere. In some of the islands of the Indian Ocean there is a creature known as the Tang Rat. It looks like a cross between a rat and a hedgehog, and smells like a skunk. This animal is very fond of eggs and young chicks, but is more dangerous after death than in life. There seems to be an irresistible attraction about a dead Tang to the fowl-mind. They devour them greedily when rotted, and invariably die within a few hours. Their death is said by the natives to be caused by swallowing the small spines which cover these animals.

The Iguana is a confirmed poacher, and is found pretty generally all over the tropical parts of Asia. However, he is very easily trapped, as he always follows the same run.

In the Malay Peninsula the local pest is the Python or boa-constrictor, who takes a regular toll from any fowl house in his vicinity. These snakes are easily shot, as the fowls generally give the alarm when one is around at night. They are sometimes trapped by making the sides of the fowls' house with wire netting. The snake enters easily enough through the mesh, but, on attempting to escape after having had his feed, that part of his length which contains the slaughtered fowls is unable to pass through the netting, and so prevents his escaping before the owner of the poultry arrives and dispatches him.

In spite of many disadvantages, provided sufficient care is taken, there is good money to be made at poultry-raising in most tropical countries. Land can be rented cheaply; poultry food, such as bananas, tapioca, yams, pomace, broken rice, etc., are easily grown or cheaply bought. Insect food, of course, exists in abundance. Bananas form an excellent shade in a poultry run. They cost very little to plant, and go on bearing for many years, with little or no attention. The fruit can be picked in nine months from the time of planting, and yields at the rate of about 20 tons per acre. The fruit can be dried in the sun and stored in a dry place for future use, and also makes an excellent flour. The breadfruit and jak fruit are also among the many trees bearing fruit suitable for poultry food. A large breadfruit tree bears from one to two thousand fruits each season. The fruit is round, and about the size of a Dutch cheese, weighing, as a rule, three pounds. There is plenty of scope for improving the present breed of tropical fowls by importing some heavy pure-bred poultry. The local fowl is generally a sort of game, and bears a strong resemblance to the wild or jungle fowl.

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FRUIT TREES IN THE POULTRY YARD.

Editor "The Farmer's Advocate":

The practice of planting fruit trees in the poultry yards is becoming quite general among poultrymen and farmers. It has much to recommend it, since it is good for both fowls and trees. The shade during the hot summer months is a very desirable feature. The loose soil under the trees (the top of the ground should always be kept loose about the trunk) affords excellent opportunities for exercise and dust baths; and the insects which are certain to be attracted to the trees furnish a wholesome change of diet. The destruction of these insects, of course, works to the benefit of both trees and hens, while the constant fertilization and tillage the trees will receive promotes a healthy and vigorous growth.

The favorite trees for this purpose seem to be the plum and pear. The latter is liked because of its sturdy, upright habit of growth; the other because the hens answer the hardest question of the plum-grower: how to get rid of the curculio. Apples, or the larger-growing varieties of cherries, may be equally satisfactory, and it would seem that the quince might be planted to great advantage in the poultry yard. This fruit does not ripen until late in the season, and is generally picked off before it gets ripe enough to fall, so that the problem of what to do with the hens while the fruit is ripening is solved with much less difficulty than if cherries, plums, apples or pears were used.

Any of the lighter breeds of chickens could easily learn to fly into an ordinary plum or cherry tree, and would play havoc while there, while most varieties of apples and pears have a habit of ripening gradually and falling one at a time. With any of these fruits, it is almost a necessity to have another lot into which the chickens can be turned while the fruit is ripening.

One caution may be given to the man who thinks of planting trees in his poultry runs. Do not plant too many trees. Shade is good for chickens in hot weather, but sunshine is a necessity. Do not have the trees so close together or so arranged that all the lot will be shaded by them at any time of the day. Be sure, especially, to give the early morning sun a chance to get in. Remember, too, the trees are liable to make a very vigorous growth if the soil is at all suitable, so care must be taken not to plant them too close together.

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GARDEN ORCHARD.

COLD STORAGE OF FRUIT NEAR ORCHARDS.

Increasing attention is being given by fruit-growers throughout Australia to the advantages of cold storage for holding over fruit in good condition when market prices are unsatisfactory. It is said that the cold stores erected several years ago by the Victorian government, as an experiment in storing fruit near the orchards, have proved so useful to local growers that additional storage capacity is to be provided to meet the demand for space. The rates charged at these stores near the orchards vary from two to three cents per bushel case per week. Experience has shown that it requires a minimum storage capacity of 10,000 cases to make a cold-storage plant pay, because in the winter months the stores are empty, and the earnings during 12 to 15 weeks in the summer are required to cover expenses for the year.

BEST TEMPERATURE FOR FRUITS IN COLD STORAGE.

The engineer in charge of the experimental cold stores for fruit states that the best temperature for all fruits is 33 degrees F. Peaches, if kept over two or three weeks, do well in a temperature of 32 degrees. Apples ought to be graded and wrapped before being placed in the cool room, or the skin wilts. Pears do better unwrapped. Peaches should also be wrapped if they are to remain in the cool chambers for several weeks. The humidity of the atmosphere in the cool-chamber is important. It is controlled by being passed through calcium chloride before entering the chamber. This removes impurities and regulates the degree of moisture. Pears keep better in a drier atmosphere than apples, which require a fair amount of humidity. William's Bon Christien pears have been kept in perfect condition in the cool-chamber for three months, so that, under proper conditions, this, the most profitable of all pears, should carry safely to London, although this has rarely been done. Soft fruits, as cherries, plums, apricots and peaches keep well for several weeks without loss of flavor. It is found that fruit, after being taken out of the cold chamber, should be placed in a cool room, where its temperature may be gradually adjusted to that of the atmosphere.