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Rearing orphan animals

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THE rearing of orphan young is commonly carried out on farms, either from choice as in the case of calves, or as a necessity with foals, lambs, kids, piglets or pups whose mothers have died or for some reason are unable to supply milk for the offspring.

Two methods of rearing orphans are available:—
1. Adoption by a foster-mother, and
2. Artificial rearing by hand-feeding.

It is well known that the young of any species thrives best on milk of its own kind. Therefore, having the orphan adopted by another mother of the same species which has just borne young is undoubtedly the best arrangement. This, however, is not always practicable as a foster-mother is not usually available, and if available, sometimes refuses to adopt the orphan young even after using all known methods of persuasion. In these cases, artificial rearing by hand-feeding should be adopted. If the general principles described in this article are carried out, then perfectly healthy normal animals can be raised.

ADOPTION BY A FOSTER-MOTHER

Providing an animal which has just borne young is available, adoption is usually fairly easy. In raising calves a foster-mother—usually one that is no longer a useful milker—is commonly used to raise one, two, three or even four calves from other cows. These foster-mothers do not usually object to a new-born calf being placed with them. Sometimes, however, it is necessary to make the young smell like the foster dam’s offspring. This is best done by rubbing the cow’s afterbirth, if available, over the orphan. This method is also helpful to persuade recently-farrowed sows to adopt young piglets.

However, in sows, often no afterbirth is available, and in this case the best method is to sprinkle the sow, her own offspring and the orphans with a material having a strong odour, such as disinfectant fluid. The sow should be removed for about 20 minutes, while the orphans and her own litter are allowed to mix, then allowed to return to the pen in which her litter and the orphans are running together.

In the older countries where shepherds tend the lambing ewes much more carefully than is the case in Australia, ewes which give birth to dead lambs are often persuaded to adopt orphan lambs by draping the dead lamb’s skin over the orphan until it has been “mothered.” Restraining the ewe until the adopted lamb has sucked is often effective, or the ewe’s muzzle and the lamb to be adopted may be lightly smeared with some strong-smelling substance such as Stockholm tar or even kerosene.

Newly-whelped bitches will often adopt another animal’s puppies without any special encouragement.
The problem is more difficult when a foster-mother is not available, but all domestic animals, as with human babies, can be raised with proper care and attention by nursing and artificial feeding. In cattle of course, it is commonplace to rear the calves artificially. As long as the calf is allowed the first milk (colostrum) and then fed regularly with the correct amounts of cow's milk, little difficulty is usually encountered. With most other farm animals only cow's milk is usually available and as the composition of milk from the various farm animals differs quite considerably, cow's milk often has to be altered before being fed.

VARIATIONS IN MILK COMPOSITION
Composition of Milk (Per Cent.) in Various Animals

<table>
<thead>
<tr>
<th>Animals</th>
<th>Water</th>
<th>Fat</th>
<th>Protein</th>
<th>Sugar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cow</td>
<td>86.2</td>
<td>4.4*</td>
<td>3.8</td>
<td>4.9</td>
</tr>
<tr>
<td>Ewe</td>
<td>83.9</td>
<td>5.2</td>
<td>5.4</td>
<td>4.3</td>
</tr>
<tr>
<td>Goat</td>
<td>87.1</td>
<td>4.1</td>
<td>3.7</td>
<td>4.2</td>
</tr>
<tr>
<td>Sow</td>
<td>83.0</td>
<td>7.0</td>
<td>6.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Dog</td>
<td>79.0</td>
<td>8.5</td>
<td>7.5</td>
<td>3.7</td>
</tr>
<tr>
<td>Horse</td>
<td>89.0</td>
<td>1.6</td>
<td>2.7</td>
<td>6.1</td>
</tr>
<tr>
<td>Human</td>
<td>87.4</td>
<td>3.8</td>
<td>1.6</td>
<td>7.0</td>
</tr>
</tbody>
</table>

* Average figure only. Varies from about 3 per cent. to 6 per cent.

From the table it can be seen that the milk of the ewe, the doe, and the cow are nearly similar in composition and thus cow's milk can be used unchanged for raising lambs and goat kids. The milk of the sow is much richer in fat than that of an average cow, but pigs can be raised successfully on cow's milk which is rich in fat. Orphan piglets are very difficult to rear on skim-milk.

Mare’s milk is lower in fat and higher in sugar than cow’s milk, but is quite similar to human milk. Foals, therefore, can be raised on cow’s milk which is low in butter-fat, and to which sugar has been added or formulas for human babies can be used. The baby mixtures are expensive, but usually better than cow’s milk which can cause a chronic diarrhoea if fed before the foal is three months of age. If cow’s milk is used, the mixture should be one pint of low-percentage-fat milk, one-quarter of a pint of lime water and a teaspoonful of sugar or glucodin. At two to three months of age, a change to skim-milk with sugar can be gradually made.

Puppies and kittens can be raised on cow’s milk or formulas for human babies. Should whole milk not be available, reconstituted dried butter-milk is an ideal substitute. As it has a high butter-fat content, it should not be used for foals. If one pound of dried butter-milk is mixed with one gallon of water, the resultant fluid differs very little from whole milk.

THE VALUE OF COLOSTRUM

The value of the first milk commonly called colostrum or “beastings” cannot be stressed too much. Colostrum differs from normal milk in that it is a thicker, more viscous, fluid and is yellow in colour. The main attributes of colostrum which make it preferable for new-born animals for the first few days of life are that it is:

1. A Rich Source of Vitamin A.—It contains 10 to 100 times as much Vitamin A as normal milk. Colostrum provides enough Vitamin A so that sufficient can be stored in the liver to provide for maximum growth until the young can obtain Vitamin A from other feed sources.

2. A Rich Source of Protein.—The protein mainly occurs in a form called globulin, which can be freely absorbed by the new-born, whereas other proteins cannot.

3. A Supplier of Antibodies.—These are protective substances from the mother which help protect the new-born young against bacterial diseases until such time as it is old enough and strong enough to overcome disease organisms to which it is subjected.

An orphan which has had colostrum during the first 24 to 48 hours of its life is always much easier to rear than one which has never had any colostrum.

METHODS OF FEEDING

All animals can be bottle-fed early in life using either calf, lamb, human or doll nipples. At a very early age most animals except lambs and foals can be taught to drink milk from a shallow pan or bucket. Calves can be taught to drink in the first few days of life, while with a little patience, even the youngest of piglets can be taught to drink from a shallow dish. The piglet’s mouth and nose should be pushed into the milk, care being taken not to suffocate the animal or to cause fluid...
to pass down the windpipe to the lungs. Puppies and kittens can be taught to drink at one to two weeks of age by a similar method.

It is essential that the milk be fresh and warmed to body heat (about 100° F.). Milk not drunk almost immediately should be removed and the implement of feeding sterilized with boiling water before the next feeding.

**QUANTITIES TO FEED AND FREQUENCY OF FEEDING**

A reliable standard for the quantity of milk to feed daily to young animals is a volume equal in weight to ten per cent. of the body weight of the animals to be fed. For example, a 150 lb. foal would require 15 lb. of milk per day. As one gallon of milk weighs approximately 10 lb., it would mean the foal would require 1.5 gallons of milk per day. A young foal should be fed six times a day so it means giving two pints at each feeding.

Judging the amount to feed smaller animals is more difficult. For new-born lambs, three to four tablespoons every four hours is ideal. For piglets and puppies, it is only a matter of one to two teaspoonsful at each feeding. It should be stressed here that it is hard to starve a young animal, but it is easy to overfeed it.

The new-born animal should be fed every three hours for the first week of life and about every six hours thereafter. This of course is quite time-consuming, and is difficult to carry out for the whole 24 hours of the day. It should, however, be kept in mind that little, and often at regular intervals is the ideal.

**SUPPLEMENTARY SOLID FOOD AND WEANING**

The orphan animal should be encouraged to eat solid food as early as possible so that the amount and frequency of milk feeding can be reduced. With grazing animals and pigs, a mixture of crushed wheat (or oats) and dried buttermilk makes an excellent feed. Bran, pollard and skim-milk powder can also be added to make an easily digested supplement to the milk.

Suggested mixtures are:

1. Crushed grain \( \ldots \) 80
Dried Buttermilk Powder or Dried Skim Milk Powder 20
Salt \( \ldots \) \( \frac{1}{2} \)
Bonemeal or bone flour 1

2. Crushed grain \( \ldots \) 60
Bran or Pollard \( \ldots \) 20
Dried Buttermilk Powder or Dried Skim Milk Powder 20
Salt \( \ldots \) \( \frac{1}{2} \)
Bonemeal or bone flour 1

Pigs will begin eating such a meal at about two weeks of age, especially if a little sugar is added at first. The meal should be made readily available to calves, foals, lambs and kids at about three weeks of age. As they gradually eat more meal, they can be weaned off milk completely. Piglets can be completely weaned on to special meals at one week of age, but on meals suggested they should be fed some milk until they are three to four weeks of age. The weaning of calves, lambs and kids depends on the availability of milk and willingness of the owner to devote time to feeding the orphans. They should be kept on some milk till at least they are four to six weeks old. Foals should not be weaned completely off milk until they are five to six months old if ideal growth is to be obtained.

Good quality hay or young short pasture should be available to all grazing animals during the weaning period, while with all animals it is essential to have readily accessible, cool drinking water always available.

Puppies and kittens should be started with minced, raw or cooked meat when about three weeks of age. As they gradually eat more meat, they can be weaned off milk completely at six weeks of age.

The important consideration during weaning is that all changes should be made slowly, gradually decreasing the amount of milk given as the intake of solid food increases.

**COMPLICATIONS OF ARTIFICIAL REARING**

In general, for the first one or two months of life, the orphan young on an artificial diet will not appear as well-nourished as animals which are reared.
naturally on their mothers. They may have digestive upsets resulting in diarrhoea and can contract pneumonia very easily if not housed in warm shelters out of the wind and rain.

**Diarrhoea.**

This is usually caused by overfeeding, feeding liquids at incorrect temperatures or feeding from contaminated feeding utensils.

If symptoms of diarrhoea develop, the amount of milk should be reduced markedly for 24 to 48 hours. Small quantities of boiled water or lime water should be given in which a drug such as Sulpha G, Terramycin, Animal Formula Powder, or Aureomycin Soluble Powder has been added to overcome any infection. The milk being fed previously should gradually replace the lime water until the animal is back on a normal feeding level.

The addition of vitamins, especially Vitamin A and Vitamin D, also often helps overcome the diarrhoea.

**Pneumonia.**

This is usually caused by fluids "going the wrong way" into the lungs or by the young being exposed to cold, wet conditions, allowing bacteria to cause an infection of the lungs.

The affected animal becomes dejected, will not drink or eat, breathes heavily, commonly coughs and has a nasal discharge.

Treatment consists of mainly good nursing. Keep the animal warm and try to tempt it to drink fluids. To overcome the infection, injections of sodium sulphamethazine 33½ per cent. solution should be given subcutaneously (under the skin). The dosage is 1 cc. for each 5 lb. live weight of the affected orphan. The treatment should be repeated every 24 hours for three days by which time the affected animal should be fully recovered.

It should be always remembered with orphans that the loss of the natural environment can only be made up by extra care and attention during the first few weeks, but provided this is given, then there is no reason why healthy animals should not be reared successfully.

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- NSB No. 17: Concrete Bricks and Blocks—Use

also

Building Research Station Digest No. 6: "Avoidance of Cracking in Masonry Construction of Concrete or Sand-Lime Bricks." (6d.)

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RAISIN FUDGE CAKE with ALMONDS

1/4 cup butter or substitute.
1 1/2 cups sifted brown sugar.
2 egg yolks.
1/2 cup brown sugar.
1 cup chopped raisins.
4 oz. melted chocolate.
1/2 cup hot water.
1/2 cup thick sour milk.
2 1/4 cups S.R. flour.
1/2 teaspoon cinnamon.
1/2 teaspoon powdered cloves.
2 egg whites.
1/2 cup blanched almonds.
2 tablespoons granulated sugar.

METHOD.

Beat the butter to a cream and gradually work in the first measure of sugar. Beat yolks of eggs, beat in second measure of sugar, raisins and melted chocolate. Sift together flour and spice, add to first mixture alternately with water and sour milk, lastly fold in egg whites, beaten very lightly. Turn into cake tin. Split almonds and press on edge each half nut in the top of the cake. Sift sugar over the almonds and top of cake. Bake 50 minutes in a moderate oven.