

work is of more importance. The early harrowing, before and after plowing, may make all the difference between success and failure if the season turns out to be a dry one.

### Cause of Sweet Silage

By J. H. Griedale.

**Q**UITE a number of farmers have written to the Central Experimental Farm this winter stating that their silage is not coming out right. Instead of being sour, it has a sickly sweet taste and is not relished by the cattle so well on this account.

The cause of this trouble is that the corn has been too dry when put into the silo. In one case that I investigated the fact was revealed that the corn has been allowed to lie for over a week before being ensiled. When corn is too dry at the time of being put into the silo, the wrong fermentation sets up, and instead of sour or acid silage we have a sweet silage of inferior quality. For this reason it is best not to stock corn in the field nor to leave it on the ground for more than 24 hours before putting into the silo. As a matter of practical farming, however, it is best to keep the binder about a day ahead of the ensilage cutter so that an accident in the harvest field will not tie up the whole operation of filling the silo.

Sweet silage may to some extent be avoided even when the corn is rather dry by cutting the corn very short so that it packs better. It is best always to cut it one-half inch or less. Corn cut longer than this is too long as it introduces the danger of setting up the wrong fermentation.

### A Cement Trough Costing \$2.20

By Raymond Norton, Prince Edward Co., Ont.

**I**T is during the winter months that farmers lay their plans for the season's operations in the growing of various crops, the care and management of the different herds and flocks of live stock, and the improvements on the farm and home.

Most improvements entail considerable expense,



Provision for Summer Comfort: Good Shade and Fresh Water.

The cement trough seen to the left was constructed by Raymond Norton on his farm in Prince Edward Co., Ont., at a total cost of \$2.20. Mr. Norton describes its construction in the article adjoining.

but there are things that can be built at a small cost during the time when work is least urgent that will increase the value of the farm and prove a convenience as well. Below is a description of a small cement trough, 8 ft. long, 16 ins. by 14 ins. deep, that we built.

For the outside form we used ordinary 2 in. planks, which, by the use of a spirit level, were placed in position, fastened securely. In the bottom of this was placed one foot of cement mixed 8 to 1, which was given one inch fall to an outlet in the end. This is used in cleaning the trough.

The inside form was made from a 14 inch board,

## FARM AND DAIRY.

and was made 6 inches smaller than the outside one, thereby making a 3 inch space. The corners were rounded, some old strips of tin were placed in the corners of outer form on a curve, thereby giving a rounded corner on the trough. The 3 inch space was filled with concrete made 2 to 1, with sifted gravel. When dry, the forms were re-

moved and the trough plastered inside and out. It also was given a coat of cement wash applied with a brush.

In making the trough we used four bags of cement at 50 cents each, and one load of gravel costing 20 cents, or \$2.20 for a trough that for durability will outlast several wooden ones.

## Contagious Abortion; Its Spread and Control

It Is Closely Associated With Garget and Sterility in Cows and With White Scours in Calves

BY PROFESSOR W. L. WILLIAMS, CORNELL UNIVERSITY, N.Y.

**N**UMEROUS inquiries are made regarding sterility, abortion and mammitis (garget) of cows, and white scours of calves. They are in some ways so closely associated that measures installed to prevent one may affect the others.

Each has been largely investigated, but in no case has the study been at all completed. In a popular circular, data cannot be related nor authorities quoted, but merely general statements and conclusions given.

Abortion in cattle is generally, if not always due to contagion. It is not in itself a disease, but merely one of numerous symptoms. The

phenomenon of abortion is due to an inflammation of the uterus, the fundamental cause of which is believed to be the abortion bacillus. The inflammation of the uterus may prevent conception (sterility), may destroy the life and cause the expulsion of the immature fetus (abortion), or

may cause the premature expulsion of the living fetus (premature birth). Pregnancy may continue for the normal period, a dead or living calf be expelled, and the inflammation of the uterus be recognized later by the discharges, frequently associated with retained afterbirth. Each of these symptoms ordinarily indicates the presence in the uterus of the same infection, which is designated "contagious" or "infectious" abortion.

Where the Bacillus is Found.

The abortion bacillus is found in the uteri of cows which have aborted, or have suffered from premature

birth, retained afterbirth or other disease. It has been found extensively in the milk of dairy cows, in the internal organs of aborted fetuses, in the lungs of living calves prematurely expelled, and in the joint cavities of calves born at full term. It appears to be the essential cause of some cases of this disease, though generally associated with other bacilli.

The diagnosis of contagious abortion in cattle may be made by:

(a) the occurrence of sterility, abortion, premature birth or inflammation of the uterus, with or without retained afterbirth (Measured by this

standard essentially all herds of size are involved).

(b) the recognition of the abortion bacillus in the uterus or in the milk (According to this standard, the disease has been recognized in most



Mother and Daughter: An Object Lesson in Inheritance.

These are Ayrshires of the dairy type—good constitution, good capacity and good teeth. The older cow has produced 3,500 lbs. of milk within three months of freshening. She is the kind to breed from, as her daughter, with money making, may be expected to do as well. Owned by W. E. Dryden.

dairies where search has been made).

(c) the agglutination and complement-fixation tests upon the blood (According to this standard, the infection exists generally. In single tests we find frequently an animal whose blood will not react, but if we repeat the test we find ultimately that the blood of so many individuals reacts, whether the animal be a cow, bull, heifer, or a young calf, that it is unsafe to assume that a given individual is wholly free).

So far as known, an animal once infected is always infected, though the infection may at times decrease until hardly or not at all recognizable. In many cattle the infection is so mild that it does not cause sterility, abortion, premature birth, retained afterbirth, or other recognizable disease. In adults it is only when the infection is severe in the genital organs that serious disease is observed.

### Signs of Infection.

According to the most recent researches, the two chief sources of the infection are the milk fed to the new-born calf and the infection within the genital organs. It has been shown that the abortion bacillus exists in the milk of so many apparently healthy dairy cows that the general contamination of milk with this organism may well be suspected, so far as determined, most calves are born free from infection. If a calf born sound is taken at once from the cow and fed exclusively upon boiled milk, the tuft of hairs at the lower part of the vulva of the heifer calf and that about the opening of the sheath of the bull calf remain separate, clean, and unstained; if left with the dam and permitted to suck or if fed raw milk, the sexual hair become matted together and stained a dirty brownish black by the time the calf is thirty to sixty days old. This condition then persists in both sexes throughout life. If grown upon boiled milk and later bred to an animal reared upon raw milk, the sexual

(Concluded on page 6.)