

In-breeding simply means the breeding together of closely related individuals. It refers to the breeding of daughter to sire, mother to son, and of sisters to brothers. Line breeding refers to breeding of nephew to aunt, niece to uncle, three-quarter sister to one-quarter brother, or of cousins. In my opinion, in-breeding is dangerous in the hands of the ordinary breeder. Good qualities may be intensified, but it is at the cost of constitution, capacity and ruggedness. Some in-breeding may be permissible in the hands of an expert, but if the ordinary dairy breeder wishes to maintain the constitution and vigor of his herd, he is much better to leave in-breeding alone. It is best not to take any chances. Line breeding does not intensify faults as in-breeding does, but it also has a considerable element of danger.

In the selection of a sire for grading up pur-

poses, it is important that his relatives should be very thoroughly investigated. This is especially so of his mother. See that the shape, size, placing and quality of her udder are desirable. The sire transmits his mother's udder qualities. He also transmits her other milk producing evidences. No matter how good an individual he may be, it pays therefore to examine his relatives and become satisfied as to their individual and producing qualities. By so doing, the chance of loss is greatly minimized. In one year it is possible to lose more in using a poor bull than in any other way except horse racing and gambling in stocks. A good bull, however, is a profitable proposition, and should be the first consideration in the grading up of a dairy herd in milk-producing and profit-yielding qualities.

I put a door in every second move, and put two or three heavy wires around in the cement as reinforcement. Over the doors I put in old iron, such as wagon tires, buggy tires, or any such material. For the doors I made a frame 24 x 30 inches of inch lumber, and have the lumber about two inches narrower than the wall. This is left right in the wall, set close to the outer curb. Another frame is made of two-inch scantling. It projects past the first frame two inches on each side, with the outer edge beveled. This frame is either just set in or tacked to stationary frame, and is taken off and used each time, and leaves a nice jam for the door to fit in to.

It might not be out of place to describe the mixer that I use. It is a home-made affair, too. I do not know whether the idea is patented or not, but there are several in use around here. The ends are made of mower wheels, drilled so as to bolt the cover on, which is made of about five-inch plank. It has ends made of inch lumber on the outside of the wheels, one plank being removable to serve as a lid. An axle runs through the wheels. The drum is perhaps five or six feet long, and is set on a strong wooden frame with a bearing at either end. The driving power is a rope, say 120 to 150 feet long. It is given one roll around the drum and a horse is hitched to the short end. He is let go out full length of the rope, just leaving the one complete roll on the drum. This mixes the batch dry. The lid is opened and the required amount of water thrown in. The horse is driven out again, which mixes the cement wet. To empty the lid is opened and the drum turned upside down.

Importance of Good Sires

R. R. Ness, Chateaugay Co., Que.

THE influence of the good pure-bred sire is the most important factor in the improvement of the herd. I consider that the sire is more than half of the herd, therefore the inferior sire should go to the butcher. Sires should be selected from families of good type and be backed up with good records of milk and fat. Often a few dollars difference in the prices of a good and of an inferior sire influences men from procuring the superior animal. This difference is often more than made up by the first crop of calves. I am an advocate of keeping the old bull until his usefulness is past. Often good bulls go to the butcher before their ability to produce heifers of high quality has become established.

In selecting a sire choose one that is strong and vigorous, and especially strong where the females of the herd are weak. Where the herd production had increased it was frequently due to the better sires used from time to time.

Rot As Affecting Seed Potatoes

By Prof. J. E. Howitt, O.A.C., Guelph, Ont.

LATE blight and rot of potatoes is a fungus disease which attacks both the leaves and the tubers. It causes a blighting of the tops and a rotting of the tubers. On the lower surfaces of the diseased leaves during wet weather large numbers of spores are produced. Some of these are washed down through the soil and infect the tubers. The disease is carried over from year to year by means of infected tubers. Many of these show some signs of rot and are thus readily recognized, but some of them appear sound and cannot be detected. It is thus clear that in a year following an epidemic of potato rot many of the seed potatoes will be infected. It will be a very difficult matter this spring to secure seed potatoes which are not infected with the potato rot fungus. This does not necessarily mean that we will have an epidemic of potato rot in 1916. This will depend upon climatic conditions; if we have a comparatively dry summer, there will be, it is safe to say, little or no potato rot; if, however, we have another wet summer,

the potato rot will than it was in 1915. In some localities of potato rot combination of infested seasons.

The question is, using infected seed, being inclined to use localities where the virus year. The with the potato present in a field any epidemic of rot fields which were the previous year infected, and that rise to an epidemic are favorable.

There is, however, seed potatoes cannot be secured. I potatoes which are



Mr. Trimble believes how well he has made.

rot. Varieties of potato regard to their susceptibility. Many excellent and such as Empire State 2, are decidedly susceptible. They are markedly rot resistant in experiments conducted.

Field Husbandry susceptibility of different varieties. In 1915 two varieties, each of rot resistant, were planted for five years, it has that those varieties from rot were the Extra Early Eureka, Hulbom's Abundance, subject to rot were variety of Hebron.

Those who are anxious from potato rot and which experiments have the least susceptible

After the plow comes after the roller the order of spring preparation. The closer together are, the easier is the greater is the culture. Particularly weeding and dragging rather than finishing any subsequent work.

Home-Made Appliances for Silo Building

Further Information Regarding the Forms and Cement Mixer With Which a Cement Silo Was Built for \$50—W. H. Hunter, Grey Co., Ont.

IN Farm and Dairy of Feb. 24 I gave information regarding how I built my silo, 12 x 34, for \$50, not counting labor. At that time I mentioned that the forms were made by using old wagon tires to which boards six inches wide were fastened by means of bolts. In response to your request I will give further information regarding the making of the curbs.

The sketch shows the manner in which the sections are held together. For holding the sections of the inner curb together bolts six inches by five-eighths inch are used. These are threaded all the way back. Each bolt has two nuts. The one on the end of the bolt is not moved after the forms are first placed. This keeps the silo the same size all the way up. The inner nut is screwed back to loosen the curb for moving and after raising is screwed out tight again. This tightens the curb on the wall. The form is allowed at least two inches catch on the top of the wall. After screwing the inner nuts out, a pair of braces (the end of one is shown in the sketch) are put across the silo, the ends coming opposite each of the four joints in the curb. These braces are put at the bottom of the curb, or nearly so, as the heavy weight of concrete is at the bottom. They also are better to have a wedge at one end, and if the wall is firm enough can be put in fairly tight. This holds the curb in its place for filling. After raising the platform we raise the inner curb, level it and tighten the nuts and brace it, and then raised the outside curb.

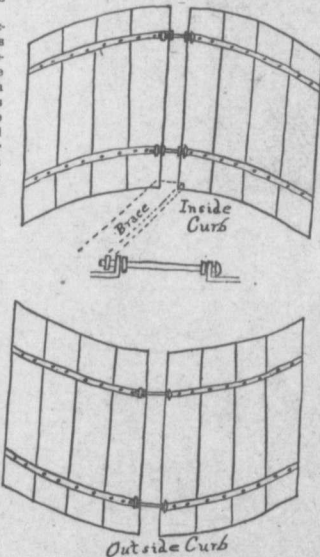
In building our own silo we raised the platform and chained it to the poles first thing when we started to move. Raise it high enough to be out of your way, and after getting the curbs all set it can be lowered if it is too high for convenient working. The braces are, of course, underneath the platform, and one has to nail boards across inside the silo for the double purpose of holding the poles solid, and on which to work to place the braces. We also kept the poles braced across the top as high up as we could reach.

The bolts for holding together the sections of the outer curb are about 12 x 5/8 inches. These are made this long so that the wall can be started at, say a foot or 11 inches wide, and taken in half an inch every move, or in building a very high silo, perhaps one-third of an inch might do. I explained in the previous article that sheets of galvanized iron, or any heavy sheet iron, are used to cover the spaces between the sections of curb. These are bent over on top, so that they hang on the top edge of curb.

When the outer curb is raised, short sticks the width of the wall are placed about three feet apart, between the outer and inner curb, and the nuts tightened up on the bolts. The ropes are kept on till each curb is so fastened, and when they are well tightened up the ropes can be taken

off, though we sometimes left them on till we had the circles partly filled.

The bands, as before stated, were old wagon tires, the bottom one six inches from the bottom, and the top one a foot from the top of the curb. This is because the heavy weight is at the bot-



How the Sections Are Fastened Together.

The upper part shows how the inside curb sections are held in place. In the centre is seen an enlarged drawing of the bolt. Note that the inside nuts are screwed outward to tighten the curb. The bolts for the outside curb are of the ordinary design, since they draw inward to tighten the curb on the wall.

tom, and for the same reason the bottom band on the inside circle should be fairly heavy, at least two inches wide. The others would do one and a half inches wide. I would suggest that anyone making these make the curb three feet three inches deep, allowing the three inches hold on the wall. If a good hold is allowed it is not so apt to break the corners off the wall and get out of place, and it would allow the full three feet to be built each time.