is more or less powerless to overcome individually. On the other hand, this is a time when it is not a question of the farmer's profit alone but of supplying the needs of a starving world as well, and it seems to me that while these economic questions can not be ignored we can well afford to overlook some of them at the present time in the interests of the Empire and humanity.

Norfolk Co., Ont. P. E. ANGLE.

Wood Ashes as a Fertilizer.

Editor "The Farmer's Advocate":

Owing to the, to be expected, shortage of potash from the stopping of the export from Germany, which especially in the light, sandy and gravelly loams of this part of the Province of Quebec, and many other sections, is necessary for the growing of potatoes and roots, the commercial phosphate which we are accustomed to purchase, will naturally, owing to the shortage, be very light in this chemical, perhaps reduced from 8% and 10% to 1% and 2%, or left out entirely. The question thus arises, what can we substitute for this product of the German mines? I understand that seaweed and wood ashes both have these properties. The latter is practically the only one available for our farms situated inland. As an old subscriber to the best farmer paper of the many I take, I would be greatly obliged if you would inform me, and I think there would be hundreds of others interested also, as to the value and probable result of wood ashes applied to, the land for potatoes and other roots. I would be glad also if you could give an estimate of what wood ashes should be worth to the farmer, per bushel, if he could procure them at his nearest village, and also how many bushels per acre should be broadcasted?

C. W. BUCHANAN. In our issue of Oct. 29th, 1914, Prof. R. Harcourt, of the O.A.C., Guelph, had a very interest ing and valuable article on this subject. Recognizing the increased interest in this subject we republish some of the statements made in that article. Good average wood ashes should contain at least 6 per cent. of potash and 1.5 to 2 per cent. phosphoric acid. They contain also considerable lime (carbonate of calcium and magnesium) which is very beneficial to some soils. Supposing ashes contain 6 per cent. potash and 2 per cent, phosphoric acid they would be worth, at the usual price of these materials in other fertilizers, about \$8.00 per ton, not allowing anything for the lime. But potash is now higher in price if procurable at all, and consequently the value placed on ashes will surely be greater. Ashes exposed to the weather and leached or partially leached are not so valuable. They may not contain more than 1.5 to 2 per cent, potash Leaching does not affect the phosphoric acid and lime content, however. Wood ashes are of gre est value on legumes and on root and corn crops. They are also valuable on muck or swamp soils because they increase the availability of nitrogen in the soil by hastening the decay of organic matter. They are valuable in correcting acidity in a sour soil; the lime which they contain tends to render insoluble potash salts already in a clay, soil more available; and the lime and phosphoric acid supplies light soils with two materials in which these soils are usually deficient. Lime as a a time, but it must not be fergotten that danger. Wood ashes as they come from the

A Solution of the Rural Porblem.

the second description of the second second

THE DAIRY.

Rearing Dairy Calves.

Editor "The Farmer's Advocate"

From now until spring many calves will arrive on dairy farms. As the future cow depends so largely on the present calf, and how it is reared, a few suggestions on this important topic may be in order.

In the first place, the calf should have been properly bred. Where pure-bred dairy stock are not kept it is necessary that calves to be reared should be from a pure-bred sire, preferably of one of the dairy breeds. A calf, properly bred, has an advantageous start over one bred from a common, or what is called "scrub" sire.

Practically all heifer calves dropped on the farm should be reared at the present time when live stock is likely to be in great demand in the near future, although we are airaid that some enthusiasts are over-optimistic on this point. It has been proved a number of times by figures which are indisputable that there is a great shortage of animals in practically all countries which produce live stock, but the farmers have not seen any great effect of this condition in causing prices to advance. If anything, live stock has tended downward in price lately, while feed of nearly all kinds has soared upward, a condition not favorable for farmers to increase their herds in number. In spite of this unfavorable condition it would seem to be wisdom on the part of dairy farmers to rear all the heifer calves possible to renew and maintain their present herds. On the average, a dairy herd needs to be renewed about every five years. There are always some cows which fail to breed, go wrong in one or more quarters of the udder, or which meet with some accident, so that the wise farmer will try to have heifers of his own breeding and rearing coming on to take the place of cows no longer profitable. To buy cows of unknown merit is always more or less unsatisfactory and expensive.

There is some difference of opinion as to the length of time a calf should remain with its dam. Some favor removing the calf at once; others leave the two together for a period of three days, while some allow the calf to suck for three to six weeks, then wean, or sell the calf for veal. For the remainder of the lactation period the cow is milked by hand. We do not think this latter plan a good one from a dairyman's viewpoint, as cows treated in this way are not likely to develop into good milkers. If the calf is to be reared for a place in the dairy herd, it would be better to remove it from the dam in from one to three days—the shorter time, if the calf is strong and healthy and the cow all right; the longer time, if the calf is weak or the cow's udder very much inflamed.

After the calf is removed, allow it to become, as farmers say, "good and hungry" before attempting to feed it out of the pail. There are calf feeders now on the market which are claimed to be an improvement over feeding calves from the pail. Those we have tried did not prove very satisfactory as they were too difficult to clean. One of the Experiment Stations recently reports favorably on these calf-feeders.

The young calf should have its own dam's milk for a few days, when it may be changed to whole milk from the herd for one to three weeks, and then be gradually changed to warm, sweet skim-milk. If fed skim-milk directly from the separator, the foam should be removed, as this causes indigestion.

Two points should be carefully borne in mind when feeding young calves on s'im-mil's—not to feed too much and to see that the poil is clean

As to the number of times a day which a call should be fed, this is largely determined by the national hours and times of separation. These which called freeding several three a day, especiall when young. Those who actually find calves of an ordinary dairy farm and that twee a day is all that the conditions of the property.

As an againstive of weight of milk to feed, this deponds upon of six and appetite or call, but when the feeder has a terround this, it is a feel trace to weigh each find for each call there a call such is consening, it is not much that it would the sain milk for each feeding a six of a call the sain milk for each feeding a six of milk at a call and this trive a directly of the triple at a feed and this trive a directly of the call and this trive a directly of the call and the feeder of the call and the peaks until the call at a full it may be an according to the call and the peaks until the call at the call and the peaks until the call at the call and the call

The same as a sail begin to update of the stage in the bay as a larger of the character bay one of in a convenient spot. Entire this will have a its directive apparatus and tend to make it the ideal cast we are aiming at.

Some ground eats, preferably with the hulls

removed, should be put in the milk at an early stage, but as soon as the calf will cut dry grain a small box of convenient height should contain a mixture of equal parts by weight of bran and ground oats, with a little oil meal, or ground flax seed added. We have not found a better grain combination for calves than the foregoing. Calves' stalls or pens should be kept dry. Wet stalls are very injurious to young calves, yet it is seldom we go into a stable and find the calf pen clean and dry. Extra care is needed in order to keep the calves dry and thrifty. When we consider that the treatment of the calf largely determines the character of the future cow, we see how important it is to give the calf a good start.

If calves can be kept in a separate stall or stable, and away from the cows, so much the better. This arrangement causes the air of the milking stable to be sweeter, and there is less fretting of cows and calves for each other. Calf music is not the best kind to have in a stable where there are cows milking.

Calves, like children, seem to do best when there are several in a family, therefore, it is a good plan to allow them to run together between meals, but at meal time and for a short time after, it is considered by many that the calf should be kept separate from her playmates to prevent sucking. We have seen very elaborate arrangements for this purpose, but somehow or other in the rush of work on the farm these special pens, stanchions, etc., are frequently not used, and the money spent on them is practically wasted.

Regarding the question of exercise lots, turning calves into orchards, paddocks, etc., my experience is that calves tend to go back, in appearance at least, from the day they are turned out. Theoretically calves should be turned out during the first summer to "bask in the suns'iino," breathe the "fresh, pure air of nature's breezes," etc., but it is doubtful if a dairy calf should be turned out of doors for any great length of time, under six months of age. need to bear in mind that the offspring of the modern dairy cow is more or less artificial-a hot-house plant, if you like, and has to be coddled and fussed with more or less until it gets a fair start in the world. After that, these artificial restrictions may be done away with to a certain extent, but the young dairy calf, like the young human needs a lot of extra attention or a time at least, but it should not be continued too

Let each farmer dairyman try to raise as many calves as possible, and the best calves that ever were reared, during the year 1915, which promises to be a good year for dairying, if we do our part.

O. A. C. H. H. DEAN.

Cheese Factory or Creamery, Which?

Editor "The Farmer's Advocate":

Farmer's Advocate" re changing creamery to cheesery, I wish to make a few observations. In one choese factory that I know they changed from cheese to butter. Before this the factory was going in debt every year, but now they are paying off some of their indebtedness each year. But the circumstances were peculiar. Very few of the patrons kept many cows and the few that were kept were poor, and it cost too much to. collect the small quantity of milk. In collecting cream they don't go so often, and a team can cover a much larger tract of country collecting cream than collecting milk. I think that these patrons by keeping better cows and more of them and by feeding silage could, in a short time, have ent four times as much milk. If each farmer would keep all the good cows that his farm would carry and feed them properly, I think & properly-conducted cheese factory is preferable to a creamery. In the first place it costs less to make cheese than butter. The creamery gets about three cents per pound for making the but-Now, the milk required to make one pound butter would generally make two pounds of cheese. We pay our cheese maker \$1.05 per 100 Ibs. for making cheese, so in that way for every 23 lbs, of milk it costs about 9-10 of a cent more to manufacture into butter than into

You ask what about the calves? We feed them whole milk for about a month, and then gradually change them onto separated milk and boiled linseed meal for another month, teaching them to eat out chop and bran, and then after that sterilized whey and good pasture, or, if kept in, silage and good hay, and they do very well. The best breeders say that heifer calves intended for milking cows should never be allowed to lay on much fat. I have tried two different brands of calf food, and have got better results from using linseed meal. If we have well-cured clover hay we have it run through the cutting box and put in the wash boiler and make beautiful hay tea, which the calves relish when they are used

a

facto the reaso prove feeding able not patre

acre

getti

FEE

to it,

troub

tempe

and

make

mont

out e

steril

farm most boug most get the his mak we recess

robl

all cowsinfer sma you no I take of (tive thar

Edit I a sh cow Ayr sent mad (wh an

ing to day cou con of oth ave

five one gra oil nig in

for or he er 9

bin by bu dr for wo

ha ar Aş