

LIQUID MANURE.

It has been suggested that as liquid manure is weak in phosphoric acid, the addition of "floats" or other phosphatic material would greatly help it. The addition of "floats" or bone meal to sawdust or some other good absorbent for use in the gutters is suggested. What is needed to hold the ammonia formed by fermenting manure, is either some strongly absorbent substance like vegetable mould (or humus) or some acid substance or salt capable of combining with the ammonia. The "floats" are neither absorbent nor acid and while they would even up the deficiency as regards phosphoric, they would have little retentive power. If you could get your floats into form of acid phosphate by cheap sulphuric acid, the material would do just what you want. Sulphuric acid (chamber acid) does not cost the manufacturer more than \$5 a ton, and could be sold with profit for \$7.50 a ton. If you could induce some manufacturer to make a simple acid phosphate and sell it for a low price, it would meet your case. Why not use sulphate of iron to fix your ammonia, and then add your floats to bring up the phosphates? The coppers would cost not more than \$20 a ton, and a few pounds would go a long way in arresting the loss of nitrogen from putrefying urine.

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Brown, or chamber acid, is sold in London for \$15 a ton. The duty charged here is something exorbitant, but there is the duty to be taken into account. The following from the R. N. Y., is the true way of preserving the liquid dejection. For our small Quebec stock, 7 feet square would be enough for a box.

A. R. J. F.

I keep my cows in box stalls 2 feet deep with tight floors. By keeping plenty of bedding under them and throwing in dry horse manure, I think I save most of the liquid manure.

Passaic Co., N.J.

P. H. L.

WASHING BUTTER.

One of the principal improvements—or what is considered by many an improvement—introduced of recent years into the manufacture of butter has been the process of washing it while in the granular stage, and before it has gathered into lumps in the churn. After temperature and "ripeness" of the cream had been looked after at the beginning, and the churn driven at the proper speed, the next thing attended to was to stop the operation as soon as the butter formed into granules as big as pin-heads or grain of wheat; run out the buttermilk from below, and fill up the churn with cold, clean water, a few turns given, the water changed, and the operation repeated until the water came away clear. The object was to remove all traces of the buttermilk, which contained the caseine, albumen, milk sugar, &c., originally in the milk. Pure butter-fat does not readily undergo decomposition or fermentation of any kind—in common with all other fats and oils—but the other ingredients of milk do rapidly change, producing rancidity and sourness. The more of these latter that were extracted from the butter, therefore, the longer it would keep, and washing did this. Old-fashioned dairymaids, however, held that the operation spoiled the butter, in that it removed or destroyed the fine flavour desired in a first-class product, and there are not wanting many of the best butter makers of to-day who are of the same opinion. Further, there is a good deal of scientific evidence against washing.

It is difficult to define exactly what the aroma and flavour of butter is, or to state what is the body or chemical product which is the cause of it. Some hold that it is simply the incipient stages of decay (in form of fermentation) of the albu-

minous substances present, and if this is so, it gives a very feasible explanation of the evil effects of washing. Its object is to remove, as far as possible, the fermentable substances, and if these are totally washed out, then nothing but a mixture of tasteless fats remains, incapable of generating a flavour. Of course, too much of these left in would overdo the matter and make the flavour objectionably strong, so that the proper course appears to be a happy medium between the two. At one time the butter milk was removed by pounding the lumps by hand, and now we have wooden beaters and butter-workers for the same purpose, when hand work is no longer admissible. It must be acknowledged, however, that these will not remove the objectionable matter from the butter if it has once got mixed the lumps, so that perhaps washing once with water would do what we require without spoiling flavour.

Some of the most noted butter-makers, however, do not wash at all, among whom we may mention Mr. Fitzgerald, Ireland. Some two or three years ago (1885) an utensil called the "Delaiteuse" was exhibited at the Dairy Show at Islington. It was constructed on the same principle as the cream separator, and its object was to remove the butter-milk from butter while in the granular stage by the centrifugal tendency generated when the butter was spun round at a great speed. It was illustrated and described in the *Agricultural Gazette* at the time, and the above-named gentleman was one of the first, if not the very first, to use one in this country. But before its introduction butter was not washed at his creamery, and it is one of the finest brands in the country, and easily commands a good price all the year round. The utensil mentioned, however, is only for use on a large scale, and in its absence we must fall on some other plan. It seems, therefore that while we cannot do without washing altogether, it should be done as little as possible, and pounding with beaters or manipulating in the butter-workers carried out as much as may be. The evidence is so strong in this direction that we advise this, notwithstanding all that has been said and done by lecturers and demonstrators of recent years in favour of thorough washing. Where salting is practised there is less need of the thorough removal of the buttermilk, because the action of salt is antiseptic, and prevents the decay which ends in rancidity, but as we do not want to prevent this absolutely—else there is no flavour—we must use means accordingly.

*Eng. Ag. Ga.***SINGLING TURNIPS.**

The productiveness of the land may be increased by two methods—by increase of costs and increase of care. As higher farming is not invariably a remedy for low prices, it does not necessarily follow that the former alternative augments profits, but the latter always does so. A few remarks on the careful hoeing of the turnip crop, and especially on "setting out," or singling the plants, may, therefore, prove acceptable; these operations having been delayed in many places by the wet weather.

We will assume that the seed of best strains of swedes and turnips was duly obtained from a painstaking seed merchant; that it was drilled at a proper distance from row to row, with bonedust and the best manures beneath it, and that the plants are now waiting for dry weather to be horse-hoed and singled. Our remarks on the former operation shall be general. We will only say with respect to horse-hoeing that we have used for years one of Garrett's two-horse hoes, covering the same space as the drill; that ten to twelve acres are a day's work, and the cost a shilling an acre. An accurate writer, who is, at the same time a painstaking farmer, has counted 140,000 seeds of the common turnip in 1 lb., and if 3 lb. per acre are drilled in rows 27 in. apart, the number of seeds is fourteen