ON ASCERTAINING THE WEIGHT OF CATTLE BY MEASUREMENT.

The importance of proceeding on correct principles in the rearing and feeding of live-stock, is now so generally admitted, as to require no illustration. With the feeder it is especially important that a disposition to arrive at early maturity should be encouraged and secured, so far as the acceleration of this desirable property is within his reach. In this respect much has been done of late, but much still remains to be done. Early maturity is not attainable without high feeding uninterruptedly, from the birth of the animals until they have attained to maturity, and this can only be attained where a superior system of cultivation is practised, as it is there only that a proper supply of food is available at every period of the season. In fertile districts the aid of cultivation is not necessary to produce the required supply during the summer season, as this is obtained from the pastures, but even in these cases it is by no means rare to find stunted animals, resulting from the winter treatment. The finest cattle are not by any means universally found in the most fertile districts, especially when early maturity—one of the best tests of excellence—is taken into account; so that improved cultivation is not only followed by superior crops, but also by a superior description of live-stock; and in the mixed system of husbandry of the United Kingdom, it must be recollected that by far the greater portion of the proceeds of the farm is obtained by natural products.

But, however desirable it may be to possess a proper knowledge of the correct principles on the state and treatment of live stock should be founded, it is also important to be able to ascertain their value when ready for market, or to ascertain their progress while feeding. Experience and accurate observation are obviously the essential requisites for obtaining this knowledge; but it is to be kept in view that the opportunities of the farmer in this repect do not bear a comparrison with those of the butcher, with whom he has to deal. The latter has a never falling test, by which he can try the accuracy of his calculations, in having the animals afterwards killed and weighed; and thus from time to time, he is enabled to modify his views, and correct his more imperfect estimates—opportunities which the farmer rarely or never possesses. Long experience, indeed, will enable the farmer to form a tolerably correct estimate as to the value of his cattle when slaughtered; but even with the aid of this, it is still important to be able to test the correctness of opinions thus founded. To the young and inexperienced farmer it is still more important to be able to do so. This knowledge may be obtained by measurement, and easy calculation; or from tables constructed for the purpose, for the use of which the length and girth of the animal only are required.

The ascertaining of the weight of cattle by measurement is not a recent invention, tables for that purpose having been long in use. It may not however, prove uninteresting to those who may not have turned their attention to the subject, to know on what data such calculations are founded. This will also, by explaining the whole process, enable the farmer to determine with more confidence the value which he should attach to the results thus obtained. Even in this case a certain amount of experience is necessary. It is necessary for instance, to know whether the animals are marketably fat or not, it is also necessary to be able to form an opinion as to the effects of any peculiarity of conformation in the animals, which might affect the results obtained by calculation. The kind of animals, too, must be taken into account, the formulæ on which the calculations are founded being strictly applicable to oxen merely; so that in the case of bulls, or cows which have had several calves, allowances are obviously to be made.

In calculating the net weight of cattle, it may be mentioned that the weight of the four quarters only is taken into consideration, the remainder being usually considered as offal, including the hide, tallow, and various other matters; and these, taken together, are computed to be equal in value to one of the quarters, or to one-fifth of that whole animal. The proportion between the live and dead weight, is the primary object to ascertain in our calculations. This was long calculated at one-half the live weight, but subsequent experiments on the more improved breeds of the country, showed that this was by much too mall a proportion, it being more currently represented by the fractional quantity '605, the weight of the entire animal being assumed as 1. Having this datum, then, no difficulty is experienced in ascertainng the net weight from the gross weight; the latter being multiplied by '605 will give the result, in the same denomination in which the gross weight is given. By these means the application of the steel yard or weighing-machine at once effects the object, and this apparatus is accordingly frequently employed by amateur feeders to ascertain the progress of the different animals while fattening, as well as their value before being sold. In the case of experiments being made with the different kinds of food, their effects are easily tested in this manner; and even when only one description of food is consumed, the progress of the different animals is seen, when such as are not making a suitable return should be disposed of without delay

This method of calculating the value of cattle is simple, and, were a weighing-machine found on every farm, it would be all that could be desired, but as these useful appendages are not always available, the same object may be obtained by measurement. The dimensions required are the length from the point of the shoulder to the hindermost point of the rump, and the girth or circumference taken immediately behind the fore-legs. That these dimensions may be taken accurately, the animal must be standing in a natural position, in which case they bring the body into the form of a cylinder, the capacity or solid content of which is easily ascertained, and as in the former case, a certain proportion is found, from experience, to exist between the capacity thus obtained and the net weight. Strictly speaking, the form of most animals is such as to cause the girth to be rather elliptical than circular, but this departure from the cylinder being for the most part constant in all animals is, of course, taken into account in the formulæ by which the calculations are made. The length and circumference being then given, the rule to find the solid content is, to multiply the square of the circumference by the decimal, 07958, the area of a circle whose circumference is unity, and this product again multiplied by the length, will give the solid content in the same denomination in which the dimensions were taken, and being usually in feet and inches, their result will be in cubic feet.

The capacity of the animal being ascertained, the next consideration is the estimation of the proportion between it and the nett weight; and this is only obtained by actual experiment, as in the case before under consideration, in reference to ascertaining the nett weight from the live weight, as obtained by the use of the weighing-machine. Suppose an Ox measures 7 feet in girth, and 6 feet in length, the capacity is found in the foregoing rule as follows:—

7×7× 07958×6=49×.07958×6=3 89942×6 =53 39652, which is the number of cubic feet in the animal.

Now let it be further supposed that the weight of this Ox, when slaughtered, was 70 stones, which after repeated trials, is found to be the weight consonant with these dimensions, then the weight per cubic foot is of course found by dividing the total weight by the product thus obtained. For example, 70 divided by 23·39652. the quotient will be 2 993.—the precise proportion by which such calculations are usually estimated, so that for every cubic foot in the animal, ascertained as before directed, there will be 2 993 stones in the quarters alone. The rule, therefore is to multiply the square of the girth by ·07958, and the product thus obtained by the length, which gives the capacity in cubic feet, which multiplied by 2 993. the number of stones to a cubic foot of the animal, gives the weight in imperial stones, as required. It will be observed however, that the numbers ·07958 and 2 993 are both constant multipliers in the operation, so that they may be multiplied together, and their product only used, which will materially shorten the operation. Thus, ·07958×2 993=·23818294, but the number ·238 only may be taken, without incurring an appreciable error. Hence the rule for ascertaining the weight of an animal by measurement is to multiply the square of the girth by the length, and this product again by the decimal ·238, which will give the weight of the quarters in imperial stones.

Such is the method of calculating the weight of cattle by measurement, and such are the data on which it is founded. He before observed, these calculations refer only to animals of the ordinary degree of fatness, so that in certain cases allowances must be made. In the case of animals very fat, perhaps one-eighteenth or one-twentieth should be added to the weight thus obtained; and when below the ordinary state of fatness the same proportion should be deducted. A bull from having more flesh upon the neck, should have probably one-twenty-fifth added; and in the case old milch cows, for obvious reasons, one-tenth or one twelfth may be deducted. It will be apparent, however, that the precise amount of these additions and deductions is not subject to rule. The weight of the quarters being ascertained, there yet remains the tallow, hide, and other offal, to be taken into consideration in estimating the entire value of the animal. These or a certain portion of them, are allowed the butcher for his profit; but this is chiefly regulated by the custom of the place—a circumstance which, of course, the farmer will not fail to take into account.

The preceding observations have occupied more space than I originally intended, but I hope the minuteness of detail will be excused, and that they will not altogether be uninteresting to those who have not hitherto directed their attention to the subject.—*J. Sproule.*

SPRING AND SUMMER BEER.

As yet I have seen nothing in your pages relative to making Beer. Therefore I will present a recipe, and if you think it worthy of a place in the Farmer, please insert:—

A handful of hops and some boughs of spruce boiled in 2 or 3 gallons of water. Put 3 quarts of molasses and ¼ lb. of ginger in a cask that will hold 15 gallons, and pour the liquid in and shake them well; then fill up with cold and warm water, so that when the cask is full it will be about blood warm. Then pour in one quart of good yeast, and shake it well together. It will be fit for use in about 12 hours.

Half of a small vial of essence of spruce may be used instead of bows, and should be put in with the molasses and ginger. I have made beer by this recipe for a number of years, and know it to be good.—*Michigan Farmer.*

YELLOW BUGS.

An intelligent friend, who declares that he has found out how to save his cucumbers, melons, squashes, &c., from the depredations of the yellow bugs, has described to us the following method, which he declares will be found effectual. It has reason to recommend it, and so we give it to our readers, and shall try it ourselves:—

For each hill cut, say a dozen alder sticks about a foot long, split one end and insert a tuft of sheep's wool finely spread out. Set these out around the hill so that the wool from one will just meet that from its next neighbor on the circle. The bugs will always alight on that before descending to the ground and the plant; the wool entangles their legs and then they are unable to go farther. He says this hedge will also keep off the little black fleas. Try it—the cost is nothing—the labor little.—*Dreio's Plough-boy.*