

to the judgment of the skilled workman, and at the end of about ten years the tree will be probably fully developed, and grown to the height of about 12 feet. Marketable crops will be obtained in five, and practically full crops in seven years. The advantages of growing trees in the manner I have attempted to describe will be self-evident. The time saved in pruning the trees and picking the fruit alone is an important item, these being effected without ladders, with their attendant damage. The natural vigour of the tree, which would otherwise make unnecessary wood, is thrown into the fruit, the latter gaining in size, flavour and appearance. The tree can also be examined and treated for moth and other diseases with greater ease."

**SALE OF CATTLE BY LIVE-WEIGHT.**—A valuable demonstration of the superiority of selling cattle by live weight to the usual guessing system has just been given by Mr. M'Jannet, of Over-Inzievar, Fifeshire. He invited a number of farmers to estimate the live and dead weight of some bullocks, and to see what the actual weight proved to be. The first experiment was with a calf of eight months old, the live-weight value of which was put at 3½d. per lb. Its value was estimated, before it was weighed, by five farmers chosen as expert judges of cattle, two of whom gave £7 as the value, two £7. 10s. and one £8. The weight of the calf was found to be 537 lbs. and its value therefore was taken at £7. 16s. 8d. Three cross-bred steers, eighteen to nineteen months old, were next shown, and the value was estimated by the farmers at £33 to £38 the three, whereas, reckoned at 31s. per cwt. live-weight, they were found to be worth £37. 10s. The last and most important test was with a Canadian bullock, fattened by Mr. M'Jannet, a shorthorn cross, nearly four years old. In this case ten farmers estimated the dead-weight, and their estimates were sealed up to await results. The live weight of the beast, after having been fasted for 24 hours was 11cwt. 20lb., 35 lb. having been lost by fasting. While the animal was being slaughtered the company inspected the farm stock and premises and had luncheon. On the carcass being put on the scales, when hot, its weight was found to be 6cwt. 3qr. 15lb. Subsequently, after cooling, the carcass weighed only 3lb. less than when hot, though this was not determined until after the lapse of 45 hours. After the hot carcass had been weighed the estimates were opened, and were found to range from 5cwt. 3qrs. to 7cwt. Two were 5cwt. 3qr. two 6cwt. 3qr. 14lb., one 6cwt. one 6cwt., and 20lb., two 6cwt. 1qr., and two 7cwt. Thus all but two farmers considerably underestimated the weight of the beast. Valuing the carcass at 61s. 6d. per cwt., the eight underestimates made it out to be from 36s. to 66s. less than the actual value. As few people have any idea of the value of the offal of a bullock, the details of the weights and total value of the several parts, as determined in the case under notice, are worth giving as follows.—Hide 83lb.; tallow, 73lb.; head, 27lb.; feet, 17lb.; intestines, 129lb.; paunch, 19½lb.; liver, 15lb.; heart, 5½lb.; tongue, 6lb.; blood, 40lb.; lungs, 9½.; total value, 58s. 6d. (*Gloster Chronicle*).

### FOOD RATIONS.

BY PROFESSOR WRIGHTSON.

Much attention is at the present time being given to the subject of scientific food rations, and no one can object to a rational system of feeding animals. If, by the aid of chemist-

ry, a scientific system of feeding could be devised, stock farmers would be truly thankful. This is no doubt the object of those who prescribe these formulated allowances of various kinds of food. There are, however, certain aspects of the question which must present themselves to practical men as tending strongly against the adoption of a prescribed ration. First, they may readily ask, is not the correct albuminoid ratio already pretty well embodied in the ordinary practice of farmers? If so, what particular advantage can there be in converting a simple question of diet into an intricate scientific problem? This question we have no hesitation in ourselves asking, because we have a lurking suspicion that in this talk about albuminoid ratios there is "much cry and little wool." We could wish it were otherwise. If these authorities could tell us how to apportion our meal, cake, hay, straw, and turnips so as to obtain the best results, well and good. If, on the other hand, they meddle in a matter upon which they have insufficient practical knowledge, they may not only be found guilty of meddling, but also of muddling. We wish it to be clearly understood that we regard the proper mingling of foods as an art, based on science. Excellent food rations are in constant use among graziers and dairymen, and it is probably little that we can do to better them. On the other hand, there are many farmers who do not act up to the traditions of good practice. It is not so much that they want to be enlightened scientifically as that they fail to follow the rational, common-sense systems which are practised in their neighbourhoods.

The farming world is not ignorant of the art of feeding cattle, but it includes a large number of persons who, from want of capital, or of personal interest, are far behind the middle and foremost ranks of their business. They are precisely the men whom scientific advice will not reach. There is yet another class, namely, the amateur farmers, who have money, but are ignorant of practice, and of such persons we say that they should first master the methods already in use, and then look into the question as to whether any improvement can be made. If their feeding is to be based upon scientific research into albuminoid ratios, we pity them. If, after mastering the methods of successful graziers, they patiently look into the chemistry of the subject we congratulate them.

### The Rational Feeding and care of Milch Cows.

Entered according to Act of the Parliament of Canada, in the year 1890, by Ed. A. BARNARD, at the Department of Agriculture.

An intelligent dairyman feeds with a view to the largest net returns from his cows. How to obtain the greatest quantity of rich milk, per annum, from each cow, at the lowest cost for food and care, is the subject of this paper.

It is admitted by the best practical men that a cow which gives ten times its weight of normal milk in the year is a superior cow. Exceptionally, however, cows are known to have given thirteen times their weight of normal milk, and even more, per annum. It is also admitted that such large returns are not to be expected from a whole herd, even from the best of cows: some will be farrow; some may be in worse health, at times, through the year &c.

It is also a well known fact that some breeders aim at obtaining the greatest quantity of milk, or the greatest yield of butter, no matter at what cost of production.