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Food Value of Beef.

In a recent number of the *Farmer's Advocate*, in an article on "Winter feeding of Stock," we spoke of the relative values of lean and fat stock, referring to the fact that in our Canadian markets well fattened beef sells readily at thirty to forty per cent higher price than it would if lean or even half fattened, and that the difference is still greater in the markets of Britain. In a paper recently published in the *Journal of the Chemical Society* shows from a carefully prepared statement of the analyses of a lean cow, a fat ox and a very fat cow, showing the real comparative value of beef in each of these conditions, and also the comparative value in each of the four classes into which the food is divided by the method observed in England.

The authors refer to the work, &c., which Lawes and Gilbert have done on this subject in showing the modifications which take place in the animal organism during the process of fattening, namely, that the quantity of dry material is notably increased, and that while in oxen in moderately poor condition the water is about two-thirds of its total weight, in a fat ox it is only a half; also, that the more nutritious character and superior taste of a fat animal are due to the increase of dry material. But of this increase two-thirds consist in fat; the increase of proteids is only from seven per cent. to eight per cent., and of inorganic materials, one and one-half per cent.

This relation between the assimilated materials first becomes perceptible in the last month of the fattening. At the commencement, the increase in fixed materials is only from thirty to forty per cent., and according to J. Ruhn, the production of a living kilogramme costs twice as much at the end of the fattening as it does at the beginning.

From a variety of analyses which are given, the flesh of the fat animal in every case is richer in fixed material than that of the lean animal; and though the flesh of a lean animal possesses a more uniform quality than that of a fat one, yet the poorest parts in the fat one possess higher nourishing value than the best in the lean animal.

COMPOSITION OF OX FLESH.

Fat Ox.			
Water.....	77.97	74.98	76.80
Fixed material.....	22.03	25.02	23.20
Fat.....	0.95	4.00	4.33
Muscle substance.....	20.08	20.02	17.87
Ash, calculated as 1 per cent.....	1.00	1.00	1.00
Very Fat Cow.			
Water.....	76.15	73.26	57.81
Fixed material.....	23.85	26.74	32.19
Fat.....	2.82	5.76	8.812
Muscle substance.....	20.03	19.98	22.378
Ash, calculated as 1 per cent.....	1.00	1.00	1.00

The animals experimented on were a lean ten-year-old cow, a fat five-year-old Flemish ox, and a very fat seven-year-old Glaner cow.

The authors noticed a great loss of weight during the transport of the meat from Brussels to Gembloux; parcels which weighed in Brussels 225.3 grains, weighed in Gembloux only 192.2 grains, indicating a loss of 16.65 per cent. of water.

The nitrogen was determined in average samples, and the figures given are the average of two determinations in each. Nitrogen: Lean cow, 14.0 per cent.; fat ox, 14.88 per cent.; very fat cow, 15.9 per cent.

What may be learned from the table is that the best piece (loin) in the fat ox and the very fat cow, contains from twenty-one per cent to twenty-eight per cent. more fixed materials than the corresponding piece in the lean one. The difference in the composition of the different pieces of the lean cow is but small; in the piece containing most water (paunch) and that containing least (neck) it is less than five per cent., and, curiously enough, the worst piece is richest in fixed material. The flesh of the neck improves but little in value by the fattening, but the flesh of the loin has increased in dried material to a noteworthy extent.

The authors consider the method in England of dividing the food into four classes of corresponding values, a good one. If the first be represented by 100, the second would be 74, the third 61, the fourth 42, and while the richer classes pay more highly for the better parts, the poor are enabled to obtain the others at a more reasonable rate.

Inoculating Arable Land.

The Duke of Manchester has tried experiments on his estate at Kimbolton, which are well worth consideration by all concerned in the breeding of live-stock. Desiring to convert arable land into pasture, he did not sow grass seeds, but with a machine, made by Messrs. Howard, of Bedford, he cut ropes of sod two inches wide out of an old pasture. These ropes were carted to the field that was to be converted, were broken into pieces about two inches square, and were then placed in regular rows on the surface of the ground by women and children, who gave each piece a slight squeeze with the foot after laying it. The rows are marked by the counters of an empty corn drill drawn over the land; and, after the inoculation is finished, the field may be rolled whenever necessary. It was in November, 1873, that the first field was thus treated. By the following autumn it was completely covered with grass, and "was nearly as level and as good as old grass land;" and in the second year was "fit for grazing." And as regards the pasture from which the ropes had been cut, we are told that "after the first year the gaps in the turf are scarcely perceptible."

Thus, the tendency of grass to spread and fill up bare places has been turned to profitable account. The subject is not new, nor is this the first time it has been mentioned in these pages; but the making use of such small pieces of sod to inoculate the land is new. The cost is about three pounds an acre, which, as we are informed, is less than the cost of sowing with grass-seeds; and "there is no falling off experienced in the third, fourth, or fifth year, at least to the same extent as when land is laid down to pasture with artificial grasses."—*Chambers' Journal*.

Co-operation in Farming.

W. F. J., in a communication to the *Country Gentleman*, on Co-operation in Farming, gives some good practical suggestions. Among our Canadian farmers much that he advocates is of every-day occurrence, especially so in places but lately colonized, where helping to bear one another's burdens is a good rule generally practised. Whether all the suggestions of the writer will be thought suitable, or on the whole judicious, is a question for every one or every family to decide for themselves, but they are to judge. We transfer the article to our columns:—

An important advantage of large farms is that they enable the farmer to employ more help and to do the work by groups of laborers rather than by solitary individuals. It is a well attested fact that two men working together can and generally will do more than twice as much as one; and three, four or more can work together with proportionate advantage. It was one of the compensations for unpaid labor in the old slavery times that the colored people almost always worked in gangs. When they did not it was considered an especial hardship. Colored people preferred to belong to a rich master owning many slaves rather than a poor man. Undoubtedly one reason for this was the advantage of being with and working with a larger number of companions. There is more to do on a large plantation as well as a large farm; but "many hands make light work." It is not only pleasanter but easier to work with others than to work alone. Every Northern farmer's boy knows how "lonesome" it seems to hoe or plant alone in a large corn field; how the work drags and how tired the worker becomes. A dozen men and boys making twenty-four rows in a "bout," changes everything; a much smaller number can work with nearly the same advantage. Work of this kind should never be done by isolated laborers. They cannot accomplish as much alone, and the fatigue is far greater.

Working in the same field with others is a stimulus, and decidedly advantageous. In a harvest field with a self-raking reaper the binders see each other only occasionally, but how the countenance brightens when the turns come together, and the driver of the reaper cheers and encourages all. Raking and binding after a cradle, as I remember it, was equally social work. There was a constant strife between cradler and binder to see which should excel. Under this stimulus some of the largest day's work on record have been performed, and sometimes by men who were not good for much else. They needed the stimulus of competition, and were good for little without it. There are many more such men than we think.

Our Northern farmers, owning small farms and mostly working them with little help, live too iso-

lated a life. The remedy is not altogether in farmers' clubs, Granges and meetings for social enjoyment during the season of rest. These are all good, but they do not reach the greater difficulty—the isolation of farmers in their fields and during the working season. "It is not good for man to be alone," not only as to the necessity of marriage, but this is nearly as applicable to the need for society and companionship in work. Thousands of farmers become insane—some more and some less, and in a great majority of instances this aberration is the direct result of a solitary life. Farmer's wives suffer from this cause more than the men, especially where children keep the housewife closely at home. Children are companions only in a partial sense. They stimulate the affections, but they are more or less duplications of their parents, and do not demand the mental activity required by association with intelligent adults.

Farm help is not usually so nearly on an equality in mental culture and intelligence as it was forty or fifty years ago. It is quite rare that farmers now-a-days seek, or seeking find, intelligent companions in their hired men. I know many exceptions to this, but what I have written is the general rule. Farmers mistake in this, for no matter how ignorant and thoughtless their help, they ought to make the most of it. This is not only a duty, but their decided interest. Any hired man will do more work, and do it better, for being treated as an intelligent being rather than as a slave whose only use was to dig and delve for his monthly wages. This consideration should be more thought of in hiring help. Any man whom you cannot afford to associate with you cannot afford to hire at any price. Intelligence and moral worth are as important on the farm as anywhere, and if they do not command as high a price it only shows that they are not fully appreciated by farmers.

After all, I suspect that the true remedy for the isolation of farmers is to be found in co-operation with each other. "Changing works" used to be common in all new settlements, and it is a great mistake that this custom has ever been left to die out. The farm help should so far as possible be domiciled in separate houses built for their use. This plan generally secures a better class of workmen, besides the further advantage of two distinct families on the same farm. If possible, neighbors should build their houses in clusters, and in all cases should live and act like neighbors. The German custom is to have small villages of farmers, whose land often lies one, two or more miles distant. Our practical Yankees scorn this way of doing things. "It is too unhandy for the work." So everything is sacrificed to convenience for work. We labor harder and accomplish more than the people of any other country, but the effect is seen in broken down constitutions and prematurely old men, and in our farming population the effects of an almost complete isolation from social life. By-and-by we shall learn that more is gained by co-operation than by isolation. Farmers will work together, and their wives will also. The baking for a dozen families may be done in the summer by a fire in one large stove or range, and a housewife will no more think of doing the week's washing by hand with the present slow processes than her husband would of reaping his grain with a sickle, or threshing his entire harvest with a flail.

Spare the Quails.

The following article, which we transcribe from the *Rural World*, takes up a subject of the greatest importance to farmers. While the vermin that prey upon every crop of the farm, garden, and orchard, are increasing daily, our feathered friends that aid us so effectually in our increasing warfare with the pests, are slaughtered on every hand by those whose effective allies they are. Spare the birds—spare the quails.

Now, I do not believe that birds can ever, under the most favorable circumstances, destroy the vast hordes of grasshoppers that infest our country, but I do believe that quails and other birds can be made numerous enough to clean up the chinch bugs and many other insects, which do us more harm in the aggregate, in a term of years, than grasshoppers. If quails had proper protection, they would almost always be found right where chinch bugs were at work in the wheat and corn fields.

Let us have a low protecting quails for five years. It will take at least two years to get a stock on hand sufficiently large to produce any marked effect. It will not do to let people kill them, even on their own lands. I might raise quails for all my neighbors, and in turn they might all raise bugs for me.