nation, that thousands upon thousands of them are, at this moment, in a state which may end in starvation, not so much because they are too *lazy* to earn their bread, as because they are too *proud*. And what are the consequences? Such a youth remains a burden to his parents, of whom he ought to be the support. Always aspiring to something higher than he can reach, his is a life of disappointment and of shame. If marriage befal him, it is a real affliction, involving others as well as himself. His lot is a thousand times worse than that of the common laboring person. Nineteen times out of twenty a premature death awaits him: and alas! how numerous are the cases in which that death is most miserable, not to say ignominious.—*Cultivator.*

PRIZE ESSAY
ON THE COMPARATIVE ADVANTAGES OF RAW AND BOILED GRAIN AS FOOD FOR HORSES.

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[TWENTY SOVEREIGNS.]

Before proceeding to the more practical part of the subject, I would observe, in regard to experiments generally, that they cannot be conducted on too extensive a scale, because, when unforeseen difficulties and inexplicable anomalies present themselves, which often happen in the circumstances, they may be regarded as probable casualties, which do not affect the general results. Acting on this impression, I put nearly the whole horses in my possession on the experimental feeding desired, viz. four on each of three farms I occupy. They were divided into three sets, in the following manner:—

First Set.

Two horses fed on *cut* barley and beans mixed.
Two do. on same quantity and quality *boiled*.
Ages of these were 4, 11; 11, 10, years.

Second Set.

Two horses fed on *raw* oats and beans.
Two do. on *boiled* do. do.
Ages of these were 8, 11; 11, 12, years.

Third Set.

Two horses fed on *raw* oats.
Two do. on *boiled* do.
Ages of these were 7, 9; 9, 10, years.

The barley and beans were given in the proportion of four of barley to one of beans. Having no bruising cylinders, I had the grain *cut* at a meal-mill. It was soaked, or steeped in water, for twelve hours, before being given to the horses; but no more water was applied than what was necessary simply to *damp* the mixture. Each horse received a peck, or about sixteen pounds of grain daily, with oat-straw. The weight of the barley was 50 lb and that of the oats 42 lb per bushel. The object of the Highland Society being to ascertain "the comparative merits of *raw* and *boiled* grain," I resolved, in selecting the particular kinds of grain for the experiment, to use those on which horses are usually fed, as more reliance on the results would probably then be placed by the generality of farmers.

It may not be improper here to remark, that, previous to the experiments, I was in the practice of giving my horses one feed each alternately of raw, cut, and boiled grain daily, so that none of them had the disadvantage of a sudden change of diet. In arranging the horses for experiment, I divided them according to their tendency to keep in good, or fall into bad condition when hard-worked, as carefully and impartially as I could. At the same time, I had reason to believe that, in making the selection, an advantage was given, from certain causes, in favour of those on the *boiled* grain. At each of the three farms I appointed a man to take charge of serving out the food for the horses, and I promised him, as well as the other horsemen, a gratuity, should my directions be scrupulously followed. Having satisfied myself with the preliminary arrangements, my greatest difficulty consisted in the *mode* by which the relative condition of the horses at the beginning and end of the experiments might be ascertained. To have judged from the appearance of the animals, however carefully observed, would have been, at best, but guess-work; and to have measured them would have been liable to error, from various causes. The difference between the first and second measurements might have been so trifling or so great, that no satisfactory deduction could have been drawn as to the amount of improvement, or extent of falling off, in the animal, during the course of the experiments; especially when we take into account the impossibility of thereby ascertaining the internal increase or decrease of the fatty and other matter.

To avoid all these sources of deception and miscalculation, I resolved upon having the horses *weighed*, as the best mode by which their condition, and consequently the precise effect of the different preparations of the grain, could be ascertained. For this purpose they were weighed in a public weighing-machine, about the first of March, when they were severally put upon the experimental feeding; and again, about the beginning of May, at which time they were taken off it; a period which, both in regard to length, and comprehending nearly all the season of hard work, afforded ample opportunity for a satisfactory test. Each set of horses on the three farms was kept at the same kind of work—one man working a pair fed differently, so that no favouritism should be purposely or unintentionally exercised by any party towards the horses, either in the food or their work.

TABLE OF EXPERIMENTS.

Horses fed on	Horses.	Weight on 1st March			Weight on 1st May			Loss of weight on *Boiled* Grain.		Loss of weight on *Raw* Grain *Unbruised.*	
		Cwt.	qr.	lb	Cwt.	qr.	lb	Qr.	lb	Qr.	lb
Boiled Grain.	1	11	1	12	10	2	0	3	12	...	
	2	10	0	14	9	1	4	3	10	...	
	3	11	1	14	10	3	14	2	0	...	
	4	10	3	0	10	1	19	1	9	...	
	5	11	3	0	11	0	0	3	0	...	
	6	11	1	24	11	0	0	1	24	...	
Raw Grain, unbruised.	7	10	3	5	10	0	9	...		2	24
	8	10	2	0	9	2	9	...		3	19
	9	10	2	9	10	0	14	...		1	25
	10	9	3	0	9	2	23	...		0	5
Raw Grain, bruised or cut.	11	12	1	4	12	1	14	...		...	
	12	10	0	0	10	0	0	...		...	

* Gain on *Raw* Grain *Bruised*

By this table, the results were as follows:—

Total loss of weight of 6 horses fed on *boiled* grain,					cwt.	qr.	lb.
					3	2	27
Total loss of weight on 4 horses fed on *raw* do.					2	0	15
	cwt.	qr.	lb.				
Deduct gain by one horse, -	0	0	10				
Same state 1 do. - - -	0	0	0				
				0	0	10	
Average loss on each horse fed on boiled grain,					2	0	5
Average loss on each horse fed on raw grain, bruised and unbruised, - - - - - -					0	2	14 *nearly*
					0	1	12 *nearly*

The girths of the horses were taken, but it is not deemed necessary to state them. One or two of the horses fed on boiled grain perspired rather more in their work than the others, and they drank less water. Their dung was a little softer in consistence, but there was no tendency "to purge or become washy." The four horses fed on barley were more severely worked than the others, and therefore required the heavier grain.

It will be seen that horse No. 10 lost only 5 lb, although fed the same as the other three. This is accounted for by the fact, that he usually keeps in better condition than any of the others. If he is left out of the calculation, it is found that the average weight lost on both sets of horses, the one fed on *unbruised raw*, and the other on *boiled* grain, is so strikingly near, that, were the one condition of food as easily and economically supplied as the other, it would not matter which was used. The expense, however, independent of the trouble of boiling the grain, amounting to about 1½*d.* on two feeds for each horse, is such as to render it unadvisable to employ other than raw grain. It is a fact, no doubt, that considerable quantities of grain given in a *raw unprepared state* pass undigested, which afterwards afford food to birds and fowls, or grow on being put into the ground, as I myself have experienced; but it is equally true, that much of what is *boiled* likewise passes undigested, though perhaps not in the same proportion. The moist and slippery condition of boiled grain makes it easily swallowed