## THE BEST STAGE FOR CUTTING WHEAT.

## EXPERIMENT UNDER THE STATISTICAL METHOD AT LINCOLN.\*

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IF wheat is cut too early it shrivels, and if cut too late there is a risk that grain will be lost by shaking. The question that has to be answered many times each harvest, therefore, is, "How soon can the wheat be cut without losing weight by shrivelling?"

To answer this question by a definite experiment had long been in mind, but it seemed difficult to arrange. If one were to take the yields of adjacent plots cut early and late, the mere removal of its neighbour would give the late-cut plot an advantage; and if the plots were taken large enough to obviate this difficulty they might run into different soils, and so would need numerous repetitions to correct the variations due to this cause. So the question was left as requiring more time than was then available.

Some time before last harvest, however, it occurred to one of us that it may confidently be taken for granted that no new grains of wheat can be formed during the last fortnight before maturity, and consequently that the weight of, say, 100 grains of the early and latecut crops would be an accurate reflex of their final yields. An experiment was therefore arranged on these lines. An even crop of Solidstraw Tuscan was taken, and a block 14 yards by 11 yards was marked out therein. Strings were run lengthwise and across the block at each yard, so that 154 plots, each 1 yard square, were marked out. Since it was designed to cut the wheat at five different stages, the plots were named AI, BI, CI, DI, EI; A2, B2, C2, &c., so that there were thirty or thirty-one plots bearing each naming letter, and each letter was distributed evenly over the block.

When it was judged that the crop was about a fortnight from maturity cutting commenced, twelve straws being cut from the middle of each of the square yards named AI, A2, A3, &c. The straws cut were always adjacent, they were cut without looking at their heads to see if large or small, and were all cut at ground-level. Just before cutting elaborate notes were taken as to the stage of ripeness that the crop had reached, and after cutting each bundle of twelve straws was tied and labelled and hung up indoors to harden and dry.

After three days new observations were taken, and twelve straws were similarly cut and tied from each of the thirty-one plots marked B; and so on at three-day intervals until plots E were cut, twelve days after the cutting of plots A. The first cutting was made while the

<sup>\*</sup> This article is of note as recording what is probably the first application of the "method of statistics" and the "theory of probability" to an agricultural experiment in New Zealand. The system has been increasingly adopted of late in experimental work in Britain.—EDITOR.