

23rd August, 1935

Dear Professor van Uven,

I have now had the great pleasure of examining your fine book on the Mathematical Treatment of the Results of Agriculture and Other Experiments. This will, I am sure, fill a quite special need in the literature of mathematical statistics. I am particularly glad to see how fully you treat the case of weighted means. The emphasis you give to functional transformations of the measurements, and especially to the use of the logarithm, will certainly add greatly to the value of your chapters to biological students. Certainly all such will be well advised to exercise the perseverance you recommend and to discover, by arithmetical experience, how simple and direct in reality are some of the arguments which will, perhaps, at first frighten them by the fullness of the algebraic expression. The English-speaking biologists are, I know, not easy to please in this matter. My own book on Statistical Methods, which is no more than an Arithmetic book of the subject, has been often thought to be too mathematical for them.

I am naturally very glad that you have found an honourable place for some of my own methods, and I am glad that you found useful the algebraic demonstrations of Irwin,

which have not elsewhere always been so well appreciated. There is one point, in connection with the analysis of variance, which I feel as an omission from the point of view from which I approach the subject; namely that you do not stress the importance of randomisation as necessary for a uniquely valid interpretation of the portions into which the sum of squares may always be subdivided. In connection with the Latin Square (p. 217) you do, indeed, warn the reader against the use of systematic arrangements, but I should go so far as to say, with all applications of this analysis, that the validity of our estimates of error requires that, subject to certain agreed restrictions, the assignment of treatment to the different subjects of experimentation shall have been carried out by a physical process of randomisation, capable of producing each of the acceptable arrangements with equal probability.

I know that this may properly be regarded rather as a point of experimental technique than as falling within your subject of the mathematical treatment of the results. It is, however, intimately involved in the logical justification of one method of treatment in contrast with others, and the experimenter is often desirous of theoretical guidance in the choice among the different procedures which are open to him, so that, even if one does not desire to broach the logical difficulties of inductive inference, it is still not out of place for the

mathematician to point out that the choice among alternative mathematical procedures must depend on what has actually been done in the field or in the laboratory.

With the heartiest congratulations, I remain,

Yours sincerely,