

LETTERS TO THE EDITOR

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A Note on the Analysis of a Special Complex-Experiment

SOMETIMES it happens that the number of different treatment-combinations of a manurial complex-experiment is  $[(p - 1)q + 1]$  and not  $pq$ . Thus, for example, taking the case of a manurial experiment which involves  $p$  manures (including no manure) and  $q$  times of application, the number of different treatment-combinations is  $[(p - 1)q + 1]$ . The analysis of such an experiment cannot be carried out in the usual way. This note indicates briefly the method of analysis of such an experiment.

The sums of squares for blocks, the treatment-combinations and the residual error are calculated in the usual way by fitting constants, as explained in a previous paper.<sup>1</sup> To get more information about the manures, the time of application and the interaction, the sum of squares for the treatment-combinations is split up as follows:—

Variance due to	Degrees of freedom
1. No manure versus all the other manures taken together	1
2. Between the different manures (excludes no manure)	$(p - 2)$

3. Between the times of application  $(q - 1)$
4. Interaction  $(p - 2)(q - 1)$

The sum of squares for the different items mentioned above can be calculated as noted below:—

1. Reduction in the s.s. by fitting constants for block effects, no manure and all the different combinations taken together—s.s. for blocks.
2. Reduction in the s.s. by fitting constants for block effects, no manure and the different manures—(s.s. for blocks + item 1).
3. Reduction in the s.s. by fitting constants for block effects, no manure and the different times of application—(s.s. for blocks + item 1).
4. S.s. for  $[(p - 1)q + 1]$  treatment-combinations—total of items 1, 2 and 3.

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November 29, 1940.

<sup>1</sup> Proc. Ind. Acad. Sci., 11, 369.