

21 March 1932.

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Dear Jackson:

I was glad to receive your letter of 2 March.  
If I understand the proposed arrangement aright, (two 5 x 5 squares with their columns alternating, testing different sets of 5 manurial treatments each), I do not think you would find it satisfactory.

In answer to your first question, indeed, it can be said that the comparisons (4 degrees of freedom) within each Latin square would be perfectly valid, but the 9th. degree of freedom, namely letters as a whole v. figures as a whole, would have a completely unknown estimate of error, so that no comparisons except between letters, or between numbers, would be possible.

If your problem is to compare 10 manures or manurial combinations with only 50 plots, I do not think you can do better than 5 randomised blocks, though, of course, 6 or more *blocks* would be better. However, we find we gain a great deal by a choice of manurial combinations, and especially by using all

combinations of the units tested. For example, where a few years ago it was quite popular to use a five combination test, of the type NPK, NP, NK, PK and O, it is now much more usual to use all eight combinations, i.e. adding N, P, and K *each* *alone* also, for then each single ingredient gets four-fold replication within each set of eight; the same is true of any interactions there may be, so that five-fold replication of the 8 component test, would give much more information than eight-fold replication of the 5 component test.

Yours sincerely,