Dear Sir,

I have examined the Citrus experiment with great interest, and think it may be worth while sending a number of preliminary observations sothat Dr Batchelor and I may get down to business at once when he visits Rothamsted, as I hope he will later in the year.

I ought to say that I have not succeeded in reproducing the figures cited under "Student's Method" perhaps because the "treatments" are supposed to be arranged in the several blocks in some system not fully specified in Chart III.

I agree that the check plots should be discarded in favour of increased replication.   This however, does not now entail the device of a single standard treatment for comparison, since "Student" and I have recently got out an extension of the original method of comparing pairs, which enables us to treat all treatments alike, and obviates much of the uncertainty due to limited replication.

There is evidently considerable large scale hetero-geneity over the area occupied by the 5 blocks.   In testing 5 correlative manurial treatments, I find that (using the 100 plots, omitting rows 24 and 34) if each set of 5 plots is assigned at random to the treatments, each treatment repeated 20 times, the accuracy is doubled compared to the system of distributing the 5 treatments wholly at random among the 100 plots.

With a larger number of treatments the gain will of course be less.   Using the same data for sets of 10 plots I get a gain of only about 60 or 70% in accuracy.

It greatly simplifies the theory of tests of signifi-
cance if each treatment is given the same number of plots, e.g.
if 108 plots will be available, we could test 9 or 12 treatments
without complication.   In connection with this I imagine that
the 14 treatments proposed are not all correlative, but rather that
they can be broken up into contrasted groups on three or four main
points of interest.   If this can be done much higher accuracy
can be obtained from a limited number of plots.

I have developed the extension of "Student's" method
in some detail under the heading of Analysis of variance, in my
book of Statistical Methods for Research Workers, which is I expect
now available in America; if not I can send a copy, as I expect
Dr Batchelor will want to examine the last two chapters before
discussing the detailed arrangement with me.

Yours   sincerely,

R A F