IN THE preceding paper, the results of the experiment made by White and Black to test the validity of the inverse yield-nitrogen law were put in proper perspective. Obviously, the inverse yield-nitrogen law has survived the test, and in so far as this law alone is concerned, the discipline of quantitative agrobiology has suffered no discredit. Invalidation of the inverse-yield nitrogen law would of course do away with the formula \( Q = \frac{318}{n} \), and with it the whole Mitscherlich–Baule–Willcox system of agrobiologic mathematics.

Having, as they mistakenly think, disposed of the inverse yield-nitrogen law, they might have stopped there, but they go on with an effort to show that the procedure used by Willcox to derive the agrobiologic nitrogen constant 318 does not make plant-biological sense. The reader will recall that the mathematical discipline of quantitative agrobiology is compounded from two general natural laws of the plant world: the inverse yield-nitrogen law and the law of diminishing increments of yield in agriculture. The first supplies the qualitative element which endows the plant having the smallest percentage of nitrogen with ability to produce the largest yield; the second supplies the quantitative element which fixes the actual quantity of yield and the quantity of nitrogen in the plant. The quantity of nitrogen is directly by:

\[
\log (100 - y) = \log 100 - 0.122 - s x
\]

where 0.122 is the effect factor of the growth factor nitrogen, 100 represents 100% of a perultimate yield, and \( x \) is the original content of nitrogen in the soil when the plants are producing their perultimate yields. This basic equation is used not only to calculate the yield to be expected from a given quantity of soil nitrogen, but also the quantity of this nitrogen that has been usefully absorbed by the plant.

### Distribution of Nitrogen between Plant and Soil

In making such calculations, it is desirable to have in mind what goes on in a series of plant cultural operations.