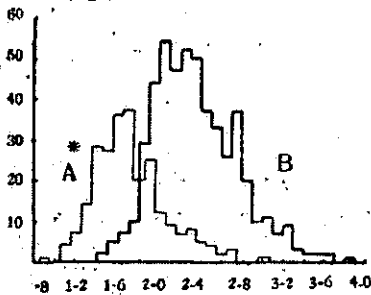


NOTE ON TEA SEED SIZE.

F. R. TUBBS.

The effect of tea seed size upon the size of the resultant plant has been examined. Specially selected small and large seed of the same strain were obtained. The large seed ran to about 15,000 seed to the maund and the small seed to about 80,000 seed to the maund. The number of plants resulting after 191 days, expressed as a percentage of the number of seed used, was higher in the case of the larger seed, being 91.4% and 66.0% respectively.

The larger seed was found to produce larger plants in the given time than the small seed, the mean dry weight of the plants being 1.033 grammes and 0.232 grammes respectively. It does not follow,



however, that the variation in seed size to be found in a commercial sample of seed is sufficiently large to exert a measurable influence upon the size of the resultant seedlings. The data accumulated in the experiment already described⁽¹⁾ were, therefore, examined from this view-point.

The diagram shows the distribution curve of the fresh weights of the 500 seeds, the height of the curve above each class value for weight being a measure of the number of seeds found in the sample whose weight places them in that particular class. The distribution curve of the fresh weights of 250 pairs of cotyledons is also given. It will be noticed that in both cases the greater part of the sample is found to occur in a small number of adjacent classes. For example 317 of the 500 seeds occur in the classes 1.95 to 2.55 inclusive, i.e., in seven of the total of twenty-five classes.

Neither of the two figures is symmetrical. This is attributable to the fact that in the process of collection, all very small seeds are neglected, whereas very large ones are taken. Thus the range of variation in seed size is artificially restricted in one direction.

The cotyledons, functioning as the food reserves of the seed, do not contribute a constant proportion of its weight, the percentage weight of the cotyledons being slightly greater in large seed than in small. The correlation coefficient is a measure of the extent to which the variation shown by two variables are

* A. Fresh weight of cotyledons.

B. Fresh weight of whole seeds.

associated. The correlation between the weight of the two cotyledons (expressed as a percentage of the weight of the whole seed) and the weight of the entire seed is small, but significant ($r=0.266$).

The relationship between seed size and plant size was also determined upon the plants resulting from the 250 shelled seed. The dry weight of the cotyledon were calculated in two ways, firstly from its wet weight and secondly by multiplying the total wet weight of the seed by the ratio $\frac{\text{Cotyledon dry weight}}{\text{total fresh seed weight}}$ derived from a sample. No significant difference in the correlations to be discussed was obtained by the use of data derived by the two methods, and the second method may, therefore, be used in future work of this nature. The total correlation coefficient between the dry weight of the cotyledons and the dry weight of the plant was 0.0840, the partial correlation eliminating time of sampling being 0.0936. Neither of these values can be considered to differ significantly from zero and we are, therefore, led to the conclusion that in a normal seed sample the variation in seed size is not sufficiently great to render further selection of the seed for size worth while.

SUMMARY.

1. Extra large seed give a larger percentage of successful germination and larger seedlings than very small seed.
2. The range of variation in seed size in a normal sample of seed is not sufficiently great to render further size selection necessary.

REFERENCE.

- (1) Tubbs, F. R.—*The Tea Quarterly*, 1932, 66-69.