As new varieties of flax are being developed to meet more specifically the demands of the grower and purchaser of flaxseed, it becomes apparent that more data are needed on the relationship between plant and seed characters and the composition of the seed. In recent years cross breeding has been used as a means of varietal improvement. Since an increase in the percentage and iodine number of the oil is desirable, a careful survey is needed of the existing varieties to find suitable parental material for crossing. The relation of plant and seed characters to the chemical composition of the seed should furnish a valuable criterion to aid in the selection of the better parents and their hybrid progeny. A knowledge of these relationships should facilitate selection of the most desirable progenies in segregating generations.

Relatively little is known regarding the extent of the statistical significance of relationships between plant or seed characters and the composition of flaxseed. The conclusions drawn from the early studies on this problem have been based on observation rather than on statistical methods. As early as 1907, Leather (4) concluded from an analysis of flaxseed secured from several provinces in India that there was no appreciable relation between seed size and oil content. Eyre and Fisher (2) observed that the large-seeded varieties usually have the highest oil content. This observation was later confirmed by Coleman and Fellows (1) who studied the relation between the physical factors influencing the commercial grade of flaxseed and the oil content of the seed. Coleman and Fellows studied the...