THE COMPARATIVE EFFICIENCY OF INDEXES OF DENSITY,
AND A NEW COEFFICIENT FOR MEASURING
SQUAREHEADEDNESS IN WHEAT.\textsuperscript{1}

S. BO\v{S}NAKIAN.

There are three types of compact wheats, the squarehead (*Triticum capitatum*, Schulz.), the club (*T. compactum*, Host.) and a third form, the squarehead-club, which will be referred to in this paper as *T. compacto-capitatum*. In figure 14 these three forms are represented by heads 4, 5, and 6, respectively. These are all classified generally as *T. compactum* and oftener called "club" in literature, but as they differ appreciably in form as well as in genetic behavior it is necessary to make distinctions between them. The object of this paper is first to analyze the comparative efficiency of the indexes of density in use at present; second, to suggest the use of a new coefficient to substitute for the present ways of measuring compactness, which do not bring out these differences; and third, to describe an instrument for measuring squareheadedness.

1. **The Indexes of Density.**

The index of compactness, known as the density coefficient, may be determined in several ways. The oldest in use in practical breeding was found by the formula

\[ D_1 = \frac{L}{S}. \]

(Formula 1a)

where \( D_1 \) = density according to formula 1;

\( L \) = length of spike measured from the base of the head to the tip of the terminal spikelet; and

\( S \) = number of spikelets.

The length of the head measured in this manner will vary according to the length of the terminal spikelet. When, for instance, density studies are to be made upon a population derived from a cross between a Polish and any of the club wheats, the use of this formula becomes anything but practicable, due to the length of the terminal spikelet of the Polish, which sometimes is as long as the

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