NOTE ON A METHOD OF APPRAISING MIXOGRAM DATA[1]

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The usual method for recording mixogram results as areas tends to obscure some of the relevant data on the quality of the doughs being studied. The rapid method for estimating mixogram areas described by Yamazaki (3) also has this shortcoming. Consequently, there must be actual comparison of mixograms in evaluating a series of doughs. To resolve this difficulty, we have adopted the following method of scoring mixograms.

A scale with cm. subdivisions, as shown in Fig. 1, is drawn on transparent plastic. To draw the parallel arcs in this scale, a radius equal to that of the pen arm of the mixograph is used. The protractor on this scale is used to measure the angle of the curve at the peak.

The scale is superimposed over a mixogram, and the following readings are taken (Fig. 2): A, angle of curve at peak; 1, number of cm. from starting point to the point of intersection on the base line by the arc which passes through peak of mixogram curve; 2, length in cm. of perpendicular from base to peak; 3, length in cm. of perpendicular from base line at t to curve.

Table I compares our scores with the areas for the group of mixograms shown in Fig. 3.

TABLE I

A COMPARISON OF THE AREAS AND SCORES FOR THE MIXOGRAMS OF FIG. 3

MIXOGRAM NUMBER	MIXOGRAM AREA	SCORES [a]			
		A	1	2	3
	cm^2				
1	45.6	60	2.0	6.0	3.1
2	45.4	90	2.2	5.8	3.0
3	45.5	120	3.8	4.8	3.3
4	45.5	170	4.0	4.3	3.2

[a] A recorded in degrees; 1, 2, and 3 recorded in cm., 3 measured at t (7 minutes).

The method of recording and reporting mixograph data presented here is rapid, and it makes visual comparison of mixograms unnecessary. In addition, it records some of the features of the mixogram which are assumed to represent specific quality characteristics of the dough as defined by Swanson and co-workers (1,2): a) the rate of dough development; b) the maximum extent of the dough's resistance to mechanical

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stress; and c) the resistance of the dough to stress after a specified time interval. We found this method expedient in assessing a series of over 300 soft wheat flours.

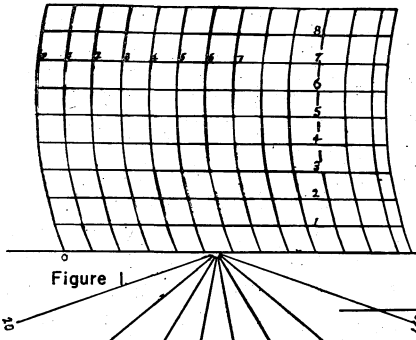

Figure 2.

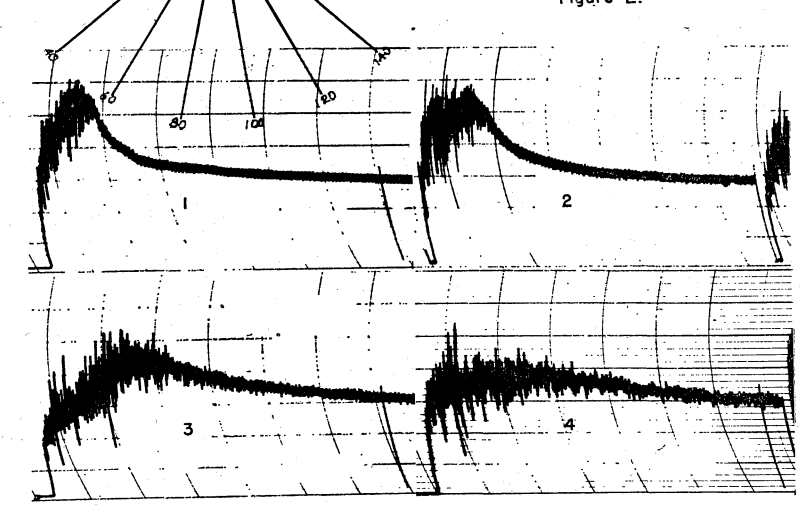

Figure 3.

Figs. 1, 2, and 3. Fig. 1: Scale drawn on transparent plastic. The lines are 1 cm. apart, and protractor divisions 20°. One minute = 1.8 cm. on the base line. Fig. 2: A, 1, 2, and 3 are the measurements recorded. Number 3 is measured at point t, in this case 7 minutes from the starting point. Fig. 3: A series of mixograms. Descriptions of these are given in Table I.

Literature Cited

1. JOHNSON, JOHN A., SWANSON, C. O., and BAYFIELD, E. G. The correlation of mixograms with baking results. Cereal Chem. **20:** 625–644 (1943).
2. SWANSON, C. O., and JOHNSON, JOHN A. Description of mixograms. Cereal Chem. **20:** 39–42 (1943).
3. YAMAZAKI, WILLIAM T. Note on a rapid method for estimation of mixogram area. Cereal Chem. **24:** 518–520 (1947).