seeded by May 16. This compares with 51 per cent at this date a year ago, and 80 per cent for the average, according to the "North Dakota Weekly Weather and Crop Report." The seeding of durum was considered almost complete by June 6. The growing conditions during June and July were cool and very dry. By about mid-July the durum crop looked very poor in the field and many producers considered the possibility of abandoning most of it. However, when harvesting began, it soon became apparent that the durum crop was of excellent physical quality. In addition, it was relatively free from diseased kernels, quite low in moisture, and a fairly high yield of bushels per acre was being obtained. By September 5, about 91 per cent was in the bin. This compares with 81 per cent for last year on this date, and 77 per cent for the average. By September 12, the combining of durum wheat was considered 99 per cent completed.

Subsequently, the latest official USDA estimates place the 1967 North Dakota crop at 56.9 million bushels which represents about 83 per cent of the entire United States durum crop. This is about 1.8 million bushels higher than last year and 9.3 million bushels over the 5 year average.

Summary

In 1967, North Dakota experienced the worst drought in a decade, but in spite of this, the farmers produced the third largest crop of durum wheat on record. In addition, the crop is relatively free from damaged kernels, low in moisture and is higher than any of the past 5 crops in test weight, vitreous kernel content, weight per 100 kernels and macaroni color. In addition, it possesses a lower wheat and semolina ash than any of the preceeding five durum harvests. It is expected, according to data presented in this report that 87 per cent of the crop should grade No. 2 Hard Amber Durum or better. The merchandised wheat (samples obtained from the elevators) showed an average dockage of 0.6 per cent. Only six samples of the entire series of merchandised wheat showed dockage figures greater than 2.5 per cent. For all samples tested the average moisture and protein contents were 10.6 and 13.2 respectively.

The wheat milled in a normal manner producing an acceptable yield of good colored semolina which was low in ash, with relatively few specks. The semolina - water mixing time was the same as last year. No processing problems were encountered and the resultant macaroni possessed excellent color.

In general, the 1967 crop is considerably better than the 5 year average in almost all of the quality characteristics reported.

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1967 DURUM WHEAT CROP

ABSTRACT

The 1967 durum wheat crop of 56.9 million bushels (1.6 million metric tons) is of excellent quality according to data presented in this report. The wheat is low in moisture, relatively free from damaged kernels and is of good physical appearance. The test weight (hectoliter weight), weight per 1000 kernels, falling number value, diastatic activity, semolina ash and color of the macaroni are all better than for the 1966 crop. All of the other qaulity factors listed are satisfactory.

In general, the overall quality of the 1967 durum crop is considerably better than that produced in 1966. In addition, technical details given in this report also indicate that this crop is better than the average for the past five years.

METHODS - DURUM

WHEAT

Test Weight per Bushel: Cereal Laboratory Methods (CLM)*; method 84-10.

Hectoliter Weight: Calculated from the test weight per bushel.

Thousand Kernel Weight: Ten grams of cleaned wheat (free from foreign material and broken kernels) are counted using an electronic seed counter. The calculated weight for 1,000 kernels is reported.

Kernel Size (0.064 x ⅜ sieve): A 0.064 x ⅜ sieve is a metal sieve 0.0319 inch thick perforated with oblong holes 0.064 inch by 0.0375 (⅜) inch which are ⅛ (0.1250) inch from center to center and with 0.0525 inch end bridges. The perforations are staggered in relation to the adjacent rows. One hundred grams of wheat are placed on the sieve, which is rotated 30 times. The material passing through the sieve is reported.

Kernel Size (2-10 x 20 sieve): This sieve, which is used extensively in Europe, is a metal sieve with slotted holes 2.1 mm wide by 20 mm long with 84 perforations per 10 sq. cm. One hundred grams of wheat are placed on the sieve which is rotated 30 times. The material passing through the sieve is reported.

Kernel Distribution: One hundred grams of cleaned wheat are placed in a unit similar to the one described in Cereal Science Today, Vol. 5, No. 3, 71-75 (1960). The operation time is 3 minutes. Wheat remaining on the top sieve (Tyler No. 7, with 2.92 mm. opening) is classified as "large"; material passing through the top sieve but remaining on the second sieve (Tyler No. 9, with 2.24 mm. opening) are the "medium" sized kernels; the kernels passing through the second sieve are classed as "small". The weighed fractions are reported.

Grade: The grade is determined by a United States licensed inspector using the Official Grain Standards of the United States (SRA-AMS-177) as revised May, 1964.

Vitreous Kernels (Vit. Kernels): The vitreous kernels from 50 grams of wheat are hand picked, weighed and reported.

Protein: CLM method 46-10, expressed on 14.0 per cent moisture basis.

SEMOLINA

Yield: CLM, method 26-30 (Long flow procedure)

Ash: CLM method 08-01 expressed on 14.0 per cent moisture basis.

Protein: CLM, method 46-10 expressed on 14.0 per cent moisture basis.

Wet Gluten: CLM, method 38-11 expressed on 14.0 per cent moisture basis.

Diastatic Activity: CLM, method 22-15. Results reported as milligrams maltose per 10 g. of flour.

Specks: An aliquot of experimentally milled and purified semolina is thoroughly mixed - a 1 inch square is marked on a 3 x 4 inch glass plate - the plate is pressed down on the semolina and the number of specks within the designated area are counted - the determination is replicated three times, and the average multiplied by 10. Expressed as specks per 10 square inches.

Falling Number: Flour is obtained by passing the wheat through a Brabender Quadramat Jr. mill and sifting the ground whole wheat through a No. 70 US standard sieve (200u). The procedure, described in Cereal Chem. 38, 202-203 (1961) requires 7.0 g. flour (15.0% M.B.) and 25 ml. distilled water. Results are expressed in units (seconds).

MACARONI

Processing: CLM, method 66-42, Micro Scale.

Processing Absorption: An indication of processing absorption is obtained from the farinogram absorption. Also 30 grams of semolina (14.0% M.B.) are mechanically mixed, kneaded and the dough extruded through a single hole die. The desired pressure (which is applied uniformly) of extrusion is 500 lbs. per square inch. Subsequent doughs are prepared until this pressue is obtained.

Color: Visual comparison with a standard, using a constant illumination source. Perfect score is 10.0.

FARINOGRAM

Procedure: Water-semolina farinograms are made using the settings on the Farinograph which are normally employed for hard red spring wheat flours. Fifty grams of semolina are mixed in a small stainless steel Farinograph bowl with sufficient distilled water to give a maximum dough consistency centered on the 460 Brabender Unit Line.

Absorption: Amount of water (ml.) required to center curve peak on the 460 Brabender Unit Line.

Mixing Time: Time in minutes for the center portion of the farinogram to reach the 460 Brabender Unit Line.

Classification: An overall empirical classification incorporating mixing time and general charactristics is assigned.

*American Association of Cereal Chemists, Cereal Laboratory Methods (7th Edition) St. Paul, Minn., 1962.