

COMMUNICATION TO THE EDITOR

Wet-Milling Characteristics of Class 8 Amylomaize

DEAR SIR:

Considerable work has been carried out at the Northern Laboratory on the wet-milling of high-amylose corn, commonly referred to as amylomaize. We have co-operated with plant breeders as they have developed amylomaize hybrids containing starches with apparent amylose contents ranging from 49 to 75% (1-3). These ranges are now designated as Class 5 for 50-60% amylose, Class 6 for 60-70%, and Class 7 for 70-80%. A single-cross amylomaize hybrid in the Class 8 range (80+%) with an apparent amylose content of 80% was grown in 1964, and we are reporting on certain of its wet-milling characteristics.

Analytical and wet-milling procedures have been discussed previously (1-3). The Class 8 amylomaize was bred and grown by the Bear Hybrid Corn Co., Inc., Decatur, Illinois, and provided to us by the American Maize-Products Company, Roby, Indiana, and the National Starch and Chemical Corporation, Plainfield, New Jersey. The analysis of the corn sample is as follows (moisture-free basis):

	%
Protein	13.7
Crude fat	5.92
Starch	57.9
Apparent amylose content of starch	80.0

As in the past, the starch content of this corn is lower than in ordinary corn, whereas the protein and oil contents are higher.

Table I compares certain milling characteristics of the Class 8 amylomaize, other amylomaizes, and ordinary corn. Over-all processing characteristics of the Class 8 amylomaize tested are similar to those obtained from the milling of the earlier high-amylose corns. Steeped kernels from the Class 8 amylomaize exhibited a 105% increase in volume over their dry state. This increase is considerably greater than the kernel expansion of ordinary corn but is in line when compared to the other commercial amylomaize samples.

Starch recovery from milling Class 8 amylomaize was 70.3%, and its protein content was 0.8%. The protein content of the starch is slightly high compared to the earlier commercial amylomaize hybrids processed. However, it is felt that further breeding of Class 8 amylo-

TABLE I
COMPARISON OF CERTAIN WET-MILLING CHARACTERISTICS OF
AMYLOMAIZE AND ORDINARY CORN

CHARACTERISTICS	ORDINARY DENT CORN	AMYLOMAIZE						
		Class 5 (50-60%)		Class 6 (60-70%)		Class 7 (70-80%)		Class 8 (80+%)
Crop year	1956 ^a	1958 ^a	1960 ^a	1963 ^a	1959 ^b	1960 ^b	1963 ^a	1964 ^b
Steeped kernel volume increase, %	63	128	110	96	105	125	110	105
Starch recovery, % of total starch in corn	87.3	71.4	71.8	73.0	82.7	71.6	71.4	70.3
Protein in starch, %	0.51	0.70	0.46	0.52	0.48	0.59	0.52	0.80

^a Commercial hybrids.

^b Experimental single-cross hybrids.

maize should produce a commercial hybrid possessing processing characteristics equal to those now available in other classes of high-amylose corns.

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