

1. Breeding for sugar in corn stalks.

Inbred lines that in 1951 had median refractometer readings of the stalk juice of 11.8%, 9.8%, 11.1%, 11.0%, 11.7%, 10.0%, 9.1%, 6.3% were selected for high-refractometer-reading individuals in 1951, 1952, and 1953. In 1954 these lines gave median readings of 14.4%, 14.4%, 13.3%, 18.5%, 15.8%, 16.4%, 16.1% and 14.4% respectively.

Chemical analysis of the grain of 29 ears, in lines selected for refractometer readings at maturity of less than 10% and over 12%, showed some association between refractometer readings and protein percentage of the kernel. This result encouraged us to pursue a systematic study of the subject in inbreds and hybrids.

	Flinty Median		Dent Median	
	Refract. reading	Protein %*	Refract. reading	Protein %
Inbreds with readings over 12%	14.9	14.8	14.3	14.8
Inbreds with readings below 10%	9.4	13.8	7.8	10.9

* = Protein content expressed as percentage of the dry matter of the kernel.

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