LETTERS

Sugar in Cornstalks

DEAR SIR:

Sometime ago you published a letter from Prof. E. V. McCollum (Nov. 11, 1953, page 1024) in which he discussed an early report (1834) by Prof. Croft on the high sucrose content of certain varieties of cornstalks and asked if there were later information on this subject. Since no one has yet replied I would like to comment on this interesting subject.

Naturally agriculturists are fundamentally interested in improving farm efficiency by producing a high yield per acre and in producing crops which may serve as foods as well as raw materials for industry.

All cornstalks develop during growth a definite sucrose (identical to cane sugar) content which increases until pollination at which time a rapid decrease occurs because most of the sugar is translocated to the ear where it is converted into starch and other seed and ear components. Certain varieties of corn can develop a high concentration of sucrose in the stalk. The latest publication of this subject is that of Robert Van Reed and W. Ralph Singleton, *Agronomy Journal*, **44,** 610–14 (1952). Here it is shown that certain unique varieties of cornstalks can develop a sugar concentration of about 15% which, of course, makes them about equivalent to sorghum (14–15% sugar content). One variety was reported with 18% sugar content. Just how high the sugar content can be raised by breeding is not known. The present sugar concentrations compare favorably with those of Cuban sugar cane (13–14%) and Louisiana cane (12%). Several factors mitigate against the use of corn for sugar production. One is that the sugar is not so pure as that from cane but contains other sugars which would require removal. A more important deterrent is one of economy. On good farm land there is more money to be obtained per acre for a crop of corn than from a crop of cornstalks of 15% sugar content; in addition it is possible to grow per acre a larger tonnage of cane than corn so that an acre of cane soil will produce more sugar per acre than an acre of corn soil will produce in the form of high sugar cornstalks.

Visionary people may hope that someday the geneticist may be able to produce a corn which will maintain its high sucrose content in the stalk until after an ear is produced. Such a miracle corn would, of course, find many people interested in producing it.

ROY L. WHISTLER
Biochemistry Department
Purdue University