Al58 maize derivatives in most of the tripsacoid features of the
pistillate spikelet, such as up-curved lower glume and inclined rachilla
(teosinte component 4 modification), elongated rachis internodes (teosinte
component 9 modification), whereas, the southern dents do not show many
of the obvious effects of the teosinte introgressed components mentioned
above. However, they do possess highly indurated and extremely thick
rachis segments—the tripsacoid characters which are probably imparted
to a certain extent by teosinte components 3 and probably 4+. Most of
the inbreds fall within the two extremes of flints and dents giving
further evidence that Corn Belt maize originated by the hybridization of
northern flints and southern dents. It is interesting that some of the
inbreds (C103, 099, 526, F14), although having different genetic back-
ground than the experimental teosinte introgressed Al58 derivatives pre-
viously reported (News Letter, 37), still compare closely for spikelet
characteristics with the Al58-derivatives modified by individual teosinte
components Florida 4+ and Nobogame 4B. Other inbreds, 095, 029, 291, and
Oh 43, for example, showed the dilute effects similar to those expected
from the introduction of more than one teosinte component. Still others,
like 334, appeared to be even more tripsacoid than any of the teosinte
introgressed derivatives of Al58 or the flint and dent varieties.

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2. Tripsacoid characters and combining ability.

If flints and dents have different types of introgressed components and
if these components are heterotic (Sehgal, 1963), it would be logical
to expect the inbreds with high combining ability to possess tripsacoid
components from both blint and dent varieties and therefore to be prob-
ably more tripsacoid than either flints or dents. Examination of
the internal cob morphology of a number of inbreds shows that this is true
for many of them (C103, 709, 336, 385) and especially so for inbred 334.
Inbred 334 possesses numerous tripsacoid features (strongly inclined,
short and thick rachilla; extremely horny and highly indurated rachis
segment) and appears to be more tripsacoid than the other inbreds
studied or the experimental introgressed types. This is also one of
the best general combiners in our cultures.

S. M. Sehgal
William L. Brown


If Corn Belt maize possesses various degrees of teosinte germ plasm in
its genetic constitution as most of the available evidence suggests,
then it should be possible to recover segregates comparable to the exper-
imentally introgressed teosinte derivatives by inbreeding the O.P.
varieties. Such segregates, although not very frequent, do sometimes
appear in F2 and subsequent generations and have been observed in in-
bred progeny of the varieties Krug, Lancaster, and Midland. Some of
the extreme segregates have many tripsacoid features of both plant and
ear, and a few even exhibited a tendency toward single spikelets.