K55 is a Kansas inbred out of Pride of Saline, a white variety widely
grown in the west central plains. NC77 is a very late white inbred
of a white southern prolific variety. IL53 is a short stalked early
yellow inbred out of a U.S. Department of Agriculture open pollinated
selection 133 of unknown origin. The slight reddish pericarp suggests
that it may have come from Northwestern Dent. There are several selections
of this old inbred, all with restoring ability, such as A344, A293,
W153R. NT16 out of Webber Dent is another early inbred that gives good
restoration with all T sterile inbreds and single crosses with which it
has been tested.

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2. Independence of cytoplasm and genes.

A sterile inbred, C106T, restored by Ky21 has been selfed for 8
generations. It has produced only fertile plants after it was reduced
to homozygosity for the restoring genes. When this fertile inbred, carry-
ing sterile cytoplasm, was crossed by normal C106 the F1 generation was
all fertile and the selfed F2 grown last year in three separate progenies
gave 37 normally fertile and 11 completely sterile plants where 36 and 12
were expected in a monofactorial segregation. For 8 generations the
sterile cytoplasm has persisted in fully fertile plants. Also C106T re-
stored by Ky21 was backcrossed on to C106T for 5 generations then selfed
2 generations to give an all fertile progeny. One of these restored
fertile plants was crossed by normal C106 and in the F2 generation self-
ed grown last year gave 19 fertile and 5 completely sterile plants. This
is clear evidence that different cytoplasms and genes can remain together
in the same organisms for many generations without altering each other.

D. F. Jones

3. Producing restored sterile hybrids.

There are several ways of producing hybrid corn seed without de-
tasseling now in commercial use. The method of producing two lots of
seed of the same genotype, one on a sterile seed parent and one on a
normally fertile seed parent by detasseling, and mixing these two lots
of seed in various proportions is being widely used. This is a temporary
measure and will be superseded by the use of restoring pollinators as
soon as these are available. Various ways of using restoring pollinators
are being tried.

The method that eliminates all detasseling in the production of the
foundation single crosses as well as the final double cross is to use
sterile inbreds as the seed parent of both single crosses. The pollinator
for the seed parent single cross must be an inbred that has been tested
for non-restoration. The pollinator for the pollen parent single cross
must be a good restorer. The formula for this type of double cross is: