

1958, p. 95). Following this a plan was set up using the following interchanges involving 4 chromosome pairs in corn: 1-6a, 1-7 (4405); 5-6c and 5-7 (5179). Of the four permanent rings needed, 1-6 + 5-6, 1-6 + 1-7, 1-7 + 5-7 and 5-6 + 5-7, the last two seem to be established and crossovers for the others will be searched for this summer in the progenies of crosses with standard normals. Of the three crosses that can be made to produce different 204 in F₁, one will have the two rings interdependent.

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4. Notes on "Breakage Points for Two Corn Translocation Series" by A. E. Longley, ARS - 34, 1958.

The following is submitted as additional information:

2-6a - this is the one in which I originally observed extensive non-homologous pairing at pachytene. The pachytene "cross" appears more often in the long arm of 6, but the break is in the short arm, not the long arm of 6 as listed.

5-6B - this is not the same as the 5-6b I list in Genetics 35:469. My 5-6b is 5S0.1 - 6 sat.

5-6c - my values for this are 5L.89 6S.00. Tests in the homozygote confirm this position in the short arm of 6, not in the long arm.

6-10b - (Genetics, Ibid. p. 461). This is not the same as the 6-10b listed in ARS-34-4.

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1. Conversion effects at B.

In 1953, two weak-colored plants were observed among approximately 140 plants in the otherwise uniform progeny of a single B pl individual one from each of two selfed ears of the parent plant. The exceptions were selfed and crossed onto intense. Selfs did not segregate, and

remained uniformly weak through 3 generations of selfing. Outcrosses to intense gave all weak, and have continued to give only weak throughout three generations of outcrossing as male and female to intense, as well as in selfs of these outcrosses. Intense lines of 4 widely different backgrounds (not necessarily different in the source of B) have been used in the crosses; all are consistent.

When weak plants (any of various individuals from selfed or outcrossed progenies) are crossed to b, the F_1 is weak, and segregates normally for weak:green in selfs and backcrosses. Crosses of the F_1 to intense segregate 1 intense:1 weak; these intense plants segregate for green (but not for weak) on selfing, while the weak plants fail to segregate for intense or green, giving only the monotonous weak type. Markers with b segregate normally in these progenies.

Using B' to designate the weak type, the pattern of this system is essentially as follows:

B B selfed gave 140 B + 2 B' exceptions; new B' individuals continue to arise occasionally in this B B line.
B' x B gives only B'; these selfed, or again crossed to B, give only B', et cetera.
B' x b gives weak.
B'/b selfed gives 3 B':lb, backcrossed gives 1:1.
B'/b x B gives 1 B:1B'; the B here selfed give 3B:1b, the B' give all B' in selfs and in recrosses to B.

Only 3 exceptions to the pattern have been seen so far. One exception was a barren, male-sterile, intense plant in a progeny from B' x B, and was presumably intensified in color through injury or barrenness; another exception, from B x B', had a long, narrow intense sector; the third exception consists of two intense plants out of 41 in a progeny from B x B' which has reduced pollen fertility in some plants, including one of the intense exceptions. The exceptions do not appear to negate the pattern, but rather to support it.

It is tentatively concluded that an allele at the B locus, B', regularly causes B in the same nucleus to be changed to B', at some time or times in the life cycle, and that b is not affected. A paper on this phenomenon is in preparation. I will be happy to send a xerox copy of a complete diagram of the sequence of pollinations, including data, to any cooperater who wants it.

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2. High-haploid line.

The capacity of stock 6 for induction of haploids in a gl₁ maternal