7. Linkage tests.

Another endosperm type which appeared in the Northrup King breeding plots usually has more soft starch on the cap with shrunken vitreous areas elsewhere. The original ear had typical brittle-1 kernels also. The latter gave all bt when crossed with bt_1. A *Ga* factor is also in the material, but tests suggest the new type may be closely linked with bt_1 or an allele which may mutate to bt.

A small F_2 population (135 plants) shows no evidence of linkage between na_2 and golden-1. These data, together with the value of about 40% between *Og* and na_2 reported by Lindstrom, indicate the order is probably na_2 – *Og* – *g*.

The polymitotic stock from the Coöp shows the expected linkage of *po* with *Y* (26.3% on a small population).

Several more new characters in addition to those listed last year are being tested for linkage: fired (only a few survive), dwarf with compact tassel.

Although cytologically *pa* (pollen abortion) in chromosome 1 shows no indication that it is a deficiency it may be too short to be detected easily. In a small test of het. *pa* x *het. as* there is no evidence that *pa* is deficient for the *as* locus. Both are at about the same region.

Attempts have been made to determine if *Y* is in the short or the long arm of chromosome 6. The ideal translocation for this is T5-6c in which the break in 6 is in the short arm adjacent to the centromere; the method planned being to test plants homozygous for the translocation but heterozygous for *Y* and *Pl*. Thus far no crossover has been identified which places *Y* in the translocated chromosomes. Three supposed crossovers were grown last summer but proved not to be.

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