

14. Behavior of an attenuated knob-10 chromosome.

In the 1955 Maize News Letter it was reported that an attenuated knob-10 chromosome occurred spontaneously in an R stock. The knob is rather slender and approximately twice as long as normal knob-10.

This knob (designated K_L) was tested for preferential segregation with a knobless and a normal knob-10 chromosome. The results are as follows:

Culture	Total Population	Number Colored Seeds	Number Colorless Seeds	% R
$R^r K_L/r^g k$	12,873	8,324	4,549	64
$R^r K_L/r^g K$	15,284	6,156	9,128	59 (normal K)
$R^r k/r^g K$ (control)	20,976	6,944	14,032	68

These data show that the attenuated knob segregates preferentially in the heterozygote. In the homozygote, however, there is evidence of megaspore competition between the modified knob and the normal knob, as is shown by the distorted 1:1 ratio. Apparently, the normal knob chromosome has a selective advantage over the attenuated knob.

Two additional modified knob-10 chromosomes, which occurred spontaneously, have been found recently; one resembles K_L and the other is smaller than normal K-10. These have not been tested for preferential segregation.