

13.  $R^r$  is stable in heterozygotes with  $r^r$  and  $r^g$  in the two cases thus far tested.

14. The differences in aleurone pigmentation resulting when pollen from  $R^rR^{rst}$ ,  $R^rR^{rstL}$ , and  $R^rR^{mb}$  plants is used in testcrosses on  $rr$  individuals shows that the changes induced in  $R^r$  in these respective heterozygotes not only are directed but are specific also.

15. The kernels on selfed  $R^rR^r$  ears (plants derived from  $R^rR^{rstL}$  by selfing) vary in pigmentation from self color to rather light mottling. Pollen from such  $R^rR^r$  plants used in matings both with 4Co63  $r^r r^r$  and W23  $r^g r^g$  results in a higher proportion of colorless kernels than is given by  $R^rR^r$  pollen ( $R^rR^r$  plants derived from  $R^rR^{rst}$  by selfing). This is further evidence for (a) transmission of the modified  $R^r$ 's through both male and female gametophytes and (b) specificity of the effects of  $R^{rst}$  and  $R^{rstL}$  in  $R^r$  heterozygotes.

16. A few self-colored mutants from  $R^{rst}$  either were not altered in pigment-producing potential, or only slightly, in heterozygotes with  $R^{rst}$ . This material has not yet been scored quantitatively.

17. Similarly, such self-colored mutants in heterozygotes with  $R^r$  have little, or possibly no, effect on the determinative action of  $R^r$ . In this case also detailed measurements of pigmentation have not yet been made.

18. The changes in  $R^r$  action arising in heterozygotes with  $R^{rst}$ ,  $R^{rstL}$ , and  $R^{mb}$  cannot be explained in terms of any of the known kinds of plasmids. The possibility has not yet been excluded, however, that a novel type of pollen-transmitted plasmid is involved.

R. A. Brink

UNIVERSITY OF ZAGREB  
Institute of Plant Breeding and Genetics  
Zagreb, Yugoslavia

1. Numbers of chromosomes and knobs in some inbred lines from native varieties of *Zea mays* var. *rostrata*.

From the native varieties of *Zea mays* *rostrata* which are cultivated at the coast of the northern part of the Yugoslav Adriatic Sea, some inbred lines have been developed and the number of chromosomes and of the knobs on the chromosomes studied, using typical *rostrata* lines. Although the varieties of *rostrata* type are grown by the farmers on small fields surrounded by flint maize  $\sqrt{n} = 10$  chromosomes and 2-3 knobs the mentioned inbreds have  $n = 10 + 1$  to  $10 + 3$  chromosomes and

11 to 20 knobs. From the cytogenetical analysis of the *Zea mays* rostrata x *Zea mays* indurata it can be concluded that there must be a linkage between rostrata type of kernels and a high number of knobs and perhaps also B chromosomes.

Inbred No.	Chromosome number	Knob number
318	10 + 1	12
332	10 + 2	18
335	10 + 2	16
336	10 + 2	16
341	10 + 1	14
343	10 + 2	16
351	10 + 2	14
353	10 + 1	12
354	10 + 3	20
355	10 + 3	18
356	10 + 2	16
358	10 + 3	18
360	10 + 2	15
364	10 + 1	13
366	10 + 2	17

There are variations between the inbreds as well as between the sporocytes of the same plant with respect to chromosomes and knob number.

## 2. Cytoplasmic male sterility due to grafting of embryos.

Hundreds of grafts of embryos from white kernels to embryos of yellow kernels have been made. For this purpose germinated kernels have been used. The upper part of the embryo of white kernels has been transplanted to the lower part of the embryo of yellow kernels. The latter embryo has been left in the endosperm. The grafts have been wrapped in paraffin. From some hundreds of grafts only two plants have developed and these were cytoplasmic male sterile.

A. Tavčar