Reversion toward the original R expression occurred at each generation and was consistent on the average, but the amount of reversion from one generation to the next within any one subline was irregular and unpredictable. The overall mean scores from all sublines in the first, second and third generations were 3.86, 4.28, and 4.72 respectively. Forty-eight sublines had been established by the third generation, and although expressions within sublines were relatively uniform, their mean scores ranged from 2.22 to 6.39. Thus in some lineages there had been essentially no reversion in three generations. In other lineages, however, reversion had progressed to the point that the reverted R' had a mean score higher than that of the parental R^gR^g stock. Further "reversion of R'" in this case could be described equally well as "enhancement of R". The phenomenon of R' reversion further reflects the innate metastability of paramutable alleles.

Derek Styles

4. Paramutation of standard R^r in $a_1a_1;R^rR^{st}$ and $c_1c_1;R^rR^{st}$ plants.

Evidence so far indicates that paramutation of standard R^r in R^rR^{st} heterozygotes occurs in somatic tissues, and that there is no direct correlation between the pigmenting action of paramutagenic alleles and their paramutagenicity. A small scale test has been conducted to determine whether the actions of other genes concerned with pigment production have any effect on the process of paramutation. Matings were of two types:

Mating	Class of interest	No. of Plants	Aleurone color score when testcrossed on W22 ACr^gr^g ♀♀
$A_1a_1;R^{st}r^r$	$A/-;R^rR^{st}$	7	3.21
X $A_1a_1R^rr^g$	$a\ a;R^rR^{st}$	6	3.00
$C_1c_1;R^{st}r^r$	$C/-;R^rR^{st}$	15	3.20
X $C_1c_1;R^rr^g$	$c\ c;R^rR^{st}$	8	3.28

There is no indication that overt function of the A_1 or the C_1 gene is a requirement for paramutation of standard R^r in R^rR^{st} heterozygotes.

Derek Styles