

INFLUENCE OF *st* ON THE REMAINING PARTS OF LEAF

Cardi, T. and L. M. Monti

Plant Breeding Institute  
University of Naples, Portici, Italy

Eight near-isogenic lines<sup>1</sup> from all eight possible combinations of alleles at *af*, *st*, *tl* were grown along wire trellises in order to evaluate actions and interactions of those genes. Plants were harvested at the dry seed stage and oven-dry leaf weight was measured.

Besides the well known reduction in stipules themselves, the *st* gene showed a pleiotropic effect on the weight of the remaining parts of the leaf. In fact, the leaves (without stipules) of *st st* plants always weighed less than *St/St* genotypes at the first flowering node. However, differences were not the same in the four leaf phenotypes (Table 1).

Because of heterogeneity of the error variances, statistical analysis was performed separately for each phenotype. Only in *afila* plants were there significant differences ( $P < 0.01$ ); in other cases the standard error of the difference between the means was too large and/or the difference between the means was too small to have statistical significance. Our data do not allow us to specify which part of the leaf (i.e. petioles, leaflets, or tendrils) is influenced by *st*.

The negative effect of *st* on yield and yield components we found in our experiments (1) seems related not only with the reduction of stipule size, but also with the weight (and, correspondingly, the area) of the remaining part of the leaf. Negative effects of *st* are particularly evident when it is associated with *af* in the "leafless" phenotype, in which reduced growth rate and net CO<sub>2</sub> uptake have already been shown (2,3).

1. Cardi, T. and L. Frusciante. 1984. Ann. Fac. Agraria, University of Naples, Serie IV, XVIII:163-179.
2. Pyke, K. A. and C. L. Hedley. 1983. Ann. Bot. 52:719-724.
3. Snoad, B. 1981. Sci. Hort. 14:9-18.

2,  
3.

-Provided by G, A. Marx.

Table 1. Mean weight (mg) of leaf without stipules in the eight genotypes. Number of plants analyzed indicated in brackets

	Leaf of phenotype						
	Leafed	(AfAfTlTl)	Afila	(afafTlTl)	Acacia	(AfAftltl)	Pleio afaf tltl phila
St St	192.6	(19)	198.1	(26)	251.0	(29)	560 (26)
st st	180.3	(29)	123.6	(22)	216.1	(23)	445 (22)

\*\*P &lt; 0.01