

A NEW GENE (1st) WHICH INFLUENCES STANDARD SHAPE IN PISUM SATIVUM

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A variant with lobed standards¹⁷ (Fig. 1) was first observed in our 1985 Reference Trial. Four variant plants were found in a population of approximately 100 plants of accession 69065 of the cultivar 'Alaska'. The lobing was consistently expressed for all flowers on each variant plant.

Variant and normal plants were tagged and seed harvested from them were sown in a greenhouse in February 1986. Lobed standards were clearly observed on the plants grown from seed isolated from variant plants. Variant and normal plants were reciprocally crossed. All the F1 progeny had normal flowers. Among 120 F2 seeds sown in the greenhouse in August 1986, 112 survived, and among these 23 had lobed and 89 had normal standards ($X^2(3:1)=1.19$). This suggests that the characteristic is determined by a monogenic recessively inherited gene.

I would like to propose a new gene symbol, 1st (for lobed standard), for this character.

Some variation was observed in the degree of standard lobing between plants and sowings. In the field each variant plant consistently produced flowers with lobed standards. This was not the case in greenhouse grown material. In the F2 population grown in August, lobing was well expressed on all variant plants up to the fourth flowering node but many variant plants produced flowers with normal standards above this node. Normal standards were also observed on variant plants of the February sowing, although where this occurred standards at subsequent nodes were lobed.

Generally lobing was more pronounced in the greenhouse than in the field.

Clearly some environmental factor may influence the expression of lobing. The change in expression observed in the August sowing coincided with a period of persistent cool weather (the plants were grown in an unheated greenhouse). However, it is early to say what the exact cause of this variation in expression might be.

¹⁷ - Standard = banner = sail = vexillum (Ed.)

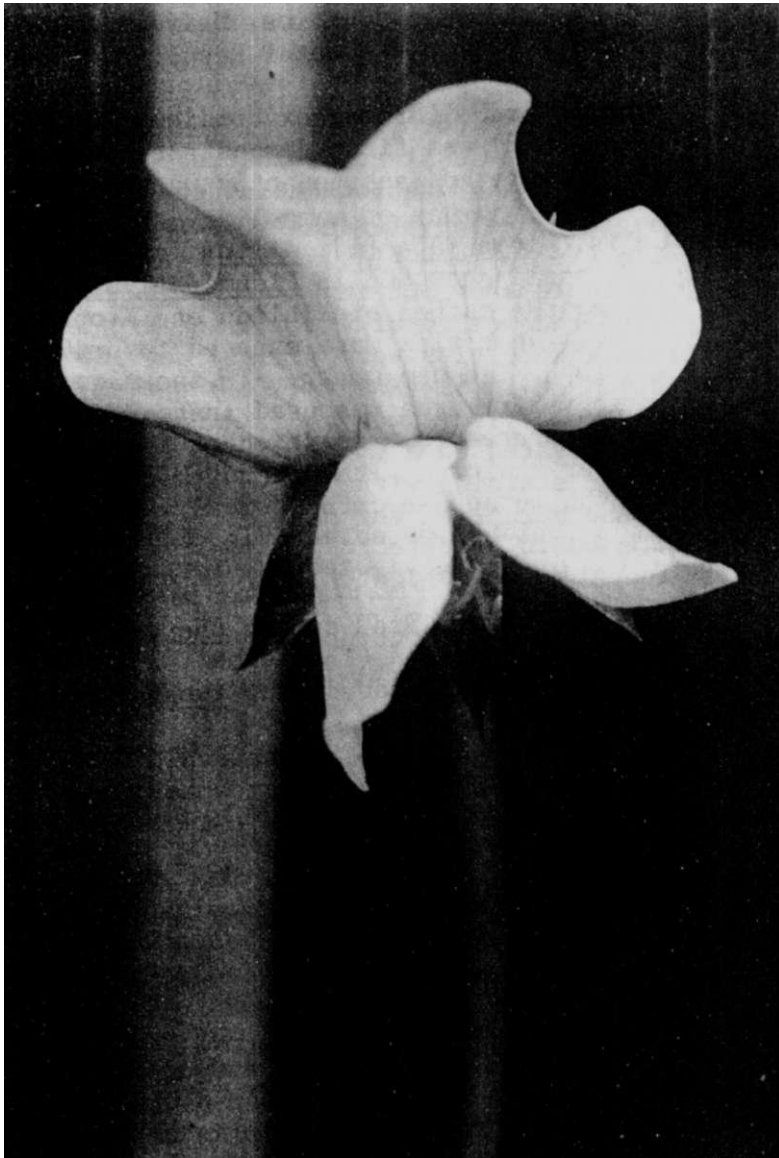


Fig. 1. Mutant phenotype of 1st (lobed standard).