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Epidermal Patterns in Haploid, Diploid and Tetraploid Tomatoes (Abstract)

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THE CRITICAL PERIOD FOR FLORAL INITIATION
IN TULIPA (ABSTRACT)

JOHN E. SASS

During June and most of July, the apical meristem in the tulip bulb lays down the primordia of foliage leaves. Toward the end of July, or early in August, perianth primordia are initiated, followed rapidly by stamen and pistil primordia. The late Darwins lag behind the early classes in the initiation of floral organs. In view of slight variations of stage of development in each variety tested, and in view of possible effect of seasonal conditions, August first is suggested as an approximate critical date for floral initiation.

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EPIDERMAL PATTERNS IN HAPLOID, DIPLOID AND
TETRAPLOID TOMATOES (ABSTRACT)

J. E. SASS AND E. W. LINDSTROM

Beginning with a sterile, dwarf tomato haploid of *Lycopersicon esculentum*, carrying 12 univalent chromosomes, a completely homozygous diploid strain with 12 pairs of chromosomes and highly fertile was produced by asexual doubling of chromosomes with the decapitation-callus technique. The latter was in turn doubled by the same method producing the relatively sterile homozygous autotetraploid form with 48 chromosomes (12 sets of quadrivalents). This $n-2n-4n$ series of tomatoes provides unique material to test the influence of the very same genes in different dosages.

The length of the guard cells along the median line affords a means of distinguishing between haploid, diploid and tetraploid plants. Stomatal length averages 15 microns in haploid, 24 microns in diploid, and 36 microns in tetraploid plants. Stomatal length in the three classes of plants is roughly in the ratio 5:8:12. Epidermal cells of haploid plants are approximately isodiametric, those of the tetraploid are considerably longer than wide, and those of the diploid are intermediate in proportions.

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