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Specific Tissue Responses of Some Weeds to 2-4 Dichlorophenoxyacetic Acid

J. E. SASS AND E. P. SYLWESTER

A survey of the specific responses of some common weeds to 2-4 D has revealed considerable diversity with respect to the tissues involved and the relative extent of hyperplasia and hypertrophy. The present report is confined to three weeds showing strikingly contrasting reactions.

In the stem of *Chenopodium album*, the pericycle is the principal center of hyperplasia, and a considerable mass of new tissue is produced in seven days. Bending of the stem is the result of unequal hyperplasia. The petiole of *Plantago major* undergoes strong curvature after treatment with 2-4 D. Two weeks after treatment, the tissues of the convoluted petiole show negligible evidence of cell division. The curvature is largely the result of unequal linear cell expansion on opposite sides of the petiole.

The stem of *Nepeta cataria*, a species highly sensitive to 2-4 D, exhibits a combination of the two foregoing two types of response. Considerable proliferation occurs in the phloem and pericycle, and the cortical parenchyma cells undergo much linear, radial and tangential enlargement.

The reactions of crop plants are of interest because of the accidental exposure of crop plants when weeds are sprayed. In treated seedlings of corn and cortical region of the mesocotyl near the coleoptile node undergoes hyperplasia and hypertrophy.

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