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Progress report and research accomplishments since June 1982

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I. Tissue cultures of leafy spurge

Plants have been regenerated from callus, cell suspension and isolated root cultures of leafy spurge. Cell suspension cultures of eight biotypes are maintained in liquid B5 medium with 1 mg/l 2,4-D. Some biotypes form very little callus with no red, green or brown pigments. These cultures are mostly single cells or are very small clumps. Other biotypes are very clumpy, form pigments much more readily, and some form organs quite readily. Whole plants have been regenerated from one biotype. The conditions for regeneration vary somewhat. The work is continuing to standardize conditions so that plants can be regenerated consistently. Once consistent regeneration and pigment formation can be duplicated at will, physiological and biochemical studies of plant processes will be carried out to determine targets for possible herbicidal regulation of growth and bud development.

II. Herbicide screening

Humerous compounds, mostly of natural origin, have been sprayed onto greenhouse grown plants to test their efficacy for control of leafy spurge. Emphasis is on compounds that will translocate to buds and prevent regrowth. To date the most successful compounds have been some herbicides which have not proved particularly successful in the field. It is hoped that analogs of these herbicides (DPX6376, Chlorsulfuron, and Oust, all from Dupont) may eventually prove useful. The compounds of natural origin occasionally have killed the tops of the spurge, but none so far has been shown to suppress root bud formation.