

PLANT DEVELOPMENT IN SOURSOB POPULATIONS  
AND SOME IMPLICATIONS FOR CONTROL

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*Abstract.* Soursob (*Oxalis pes-caprae*) plants grow from bulbs produced in the previous year. Under uniform conditions, most plants follow a strict timetable of development from emergence in March until senescence in late October. The long term control of soursob can only be achieved if the formation of new bulbs is prevented. Cultivation or the use of herbicides before the new bulbs have fully developed reduces soursob populations. However, a small number of bulbs are still produced. A series of pot trials was conducted to identify why these residual bulbs survived and to determine whether a higher level of control could be achieved.

Two aspects of the development of soursob and the production of new bulbs were investigated:

(1) the variations which occur in the rate of development and  
(2) the effects of cultivation and subsequent regrowth on bulb production. Variations between individual soursob plants was assessed by growing 150 plants in separate pots under uniform conditions. The time of emergence of these plants extended over four weeks. However, later development was quite uniform. Emergence of plants was delayed by up to 18 days by planting at 20 cm rather than at 5 cm and delays of three months were induced by withholding water.

Where 10 plants were grown in the same container, the effects of late emergence were compounded by competition. In late emerging plants leaf numbers were reduced and tuber production and bulb initiation were delayed by four to five weeks. This suppression of growth and development was probably due to shading from established plants.

To simulate the effects of cultivation, single plants were grown in pots, divided so that parts above or below the old bulb could be removed without disturbing the remaining parts of the plant. New topgrowth developed when plants were cut off above the parent bulb before its food reserves had been exhausted. The rhizome was able to produce new topgrowth after the bulb had exhausted. The tuber, which forms below the parent bulb, was not able to produce new topgrowth. However, its stored food reserves were able to continue the production of new bulbs.

The experiments indicated several origins for the residual bulbs. Plants with delayed development can regrow after treatment from reserves still in the parent bulb. Small (late developing) plants may be shielded from foliar absorbed herbicides. Plants may reshoot from severed rhizomes after cultivation and bulb production can be continued by severed tubers.

To improve the control of soursob by foliar absorbed herbicides, topgrowth should be kept down by mowing or grazing to reduce competition and shielding. Soil absorbed herbicides should be applied early and be sufficiently residual to control late developing plants. Late cultivation should be avoided since severed tubers will not absorb herbicides yet can continue bulb production.