

ECOLOGY OF DATURA

W.L. Felton

Department of Agriculture, New South Wales

*Datura* spp. are a widespread problem in summer crops in New South Wales. The species commonly found are *D. stramonium* (common thornapple) and *D. ferox* (fierce thornapple).

There appears to be a range of types within these species and the variation that exists is at present being examined. Of particular interest are the intermediate types. Whether these are extremes of either *D. ferox* or *D. stramonium* or crosses has not yet been clarified.

A collection of *Datura* samples is being made from most districts in New South Wales. When samples were requested, information was sought on the occurrence of *Datura* in each district.

The information received represents a wide cross section of New South Wales, and *Datura* occurs in every area. The information collected so far supports earlier reports that *Datura* is only a problem where summer crops are grown. These crops include grain sorghum, soybean, maize, sunflower, tomatoes, vegetable beans, cotton and millet. These are more widely grown in the northern half of the State and this probably accounts for the weed being a greater problem in the north than the south rather than the weed not being adapted to the south.

In pastures the weed was only reported where there was a cropping phase in the rotation, on alluvial soils, and on stock camp areas.

The longevity of *Datura* seed is considerable and several factors appear necessary to break dormancy. Included is the need for seed burial to break dormancy. Hence the occurrence of *Datura* in disturbed situations, the optimum sequence being burial of recently dispersed seed and then return to the surface the following season. Excised embryo studies by Monaghan and Felton support earlier work that the seed coat is important in rendering the seed dormant. The excised embryos were fully formed and germination of these indicated that they did have the necessary enzyme systems ready for activation.

In summary, *Datura* spp. are ideally adapted to fertile, cultivated soils such as summer crop areas, particularly those which are irrigated, and alluvial river flats. The prolific seeding and persistent seed viability pose a real problem in controlling *Datura* in these circumstances.