

REPRODUCTION OF *RUBUS PROCERUS*

R.L. Amor

Department of Crown Lands and Survey, Victoria*

Rubus procerus is the most widespread species of blackberry (*R. fruticosus* agg.) in Victoria. It is a pseudogamous apomict and usually reproduces asexually. It reproduces by seed, by rooting at the apices of positively geotropic canes, and by shoot production from roots.

SEEDS

Blackberry seed is dispersed several hundred metres by birds and possibly several kilometres by foxes. The effect of the digestive tracts of birds and foxes on seed germination is not known.

Canes of *R. procerus* live for 2-4 years, and seed is produced only on canes which are more than 1 year old. Seed production varies from year to year, depending on weather and other factors. Tagged thickets yielded 7,200 seeds per sq metre (6,000 per sq yard) in 1967-68 and 13,000 seeds per sq metre (11,000 per sq yard) in 1969-70. Germination varies mainly with the age of seed. In a three year field trial on 1967 seed 10% germinated - 1% in the first spring, 9% in the second spring, and none in the third.

The density of seedlings growing within 4 metres (4.4 yards) of the parent thickets is extremely low and variable. The maximum mean density recorded is 2.4 seedlings per sq metre (2.0 per sq yard) at Tecoma. First year seedlings grew slowly in the 1969-70 summer (producing stems 2.5 cm (1 in.) high and three leaves) and only 33% survived. It seems likely that the mean rate of establishment of *R. procerus* seedlings near thickets in Victoria is 0-0.81 seedlings per sq metre (0-0.68 per sq yard). Seedlings growing under dense thickets do not survive, and observations suggest that seedlings will not survive competition from dense pastures or forests.

VEGETATIVE REPRODUCTION

Canes are 2-7 metres (2.2-7.6 yards) long and in autumn they produce daughter plants by rooting at the cane apices. This resulted in a mean density of 0.81 daughter plants per sq metre (0.68 per sq yard) at Tecoma in 1970. Usually each daughter plant survives and produces a cane 30-80 cm (12-31 in.) long

*Present address: Botany Department, Monash University,
Clayton, Victoria, Australia.

in the next year.

Occasionally new plants originate as shoots from the pericycle of lateral roots. None was found at Tecoma in 1969-70. In a 7-year-old thicket at Flinders 33 plants per sq metre (28 per sq yard) originated from canes which rooted at their apices, and 3 plants per sq metre (2.5 per sq yard) from shoots on lateral roots. An adjacent thicket sprayed with 2,4,5-T the year before had a greater proportion of shoots from the roots. Eighteen plants per sq metre (15 per sq yard) originated from canes which rooted at their apices, and 10 plants per sq metre (8.4 per sq yard) from shoots on lateral roots. *R. procerus* is also able to grow from severed pieces of roots or canes.

IMPLICATIONS FOR BLACKBERRY CONTROL

Thickets sprayed with 2,4,5-T or mown in spring before flowering do not produce seed in the current season, but the regrowth forms daughter plants from the cane apices that autumn. The effects on seed production are therefore confined to the year of treatment. Thickets which are either sprayed, mown, burnt, or grazed heavily in late summer-autumn do not form daughter plants from cane apices in autumn. All these treatments, except grazing, kill the canes to near ground level, and prevent seed formation in the next year.

To prevent the spread of *R. procerus* it is necessary to stop seed production in summer and root production on canes in autumn; to eradicate it, the roots must be killed by regular cultivation or by application of a herbicide. Eradication is difficult because roots can produce shoots from a depth of at least 40 cm (16 in.). Once the roots have been killed, a dense cover of useful plants should be maintained to prevent the re-establishment of *R. procerus* seedlings.