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Germplasm Release of 'Lincoln Logan,' a Tissue Culture-derived Genetic Thornless 'Loganberry'

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Abstract

Using tissue culture a non chimeral variant of 'Thornless Logan' has been isolated. This clone 'Lincoln Logan' has potential for use both as a breeding parent, and as a cultivar in its own right. It may prove to be of particular value where occasional very cold winters kill plants to the ground. Unlike 'Thornless Logan,' Lincoln Logan' will regenerate from the roots with Thornless shoots.

Additional index words: *Rubus*, blackberry, *in vitro*, somaclonal variation, chimera, fruit breeding.

'Lincoln Logan' (*Rubus* sp) is a tissue culture-derived genetically thornless (non-chimeral) sport of 'Thornless Loganberry.' It is identical to its parental clone, 'Thornless Loganberry' (4), except that it breeds true for the thornless character. As germplasm, the principle value of 'Lincoln Logan' will be its ability to transmit the thornless character through the sexual cycle. Further evaluations may show that 'Lincoln Logan' has commercial potential in areas where 'Thornless Loganberry' is now grown.

Origin

'Lincoln Logan' originated *in vitro* from an adventitious shoot on meristem-derived callus of 'Thornless Loganberry' (L654). Details of the tissue culture procedures are specified elsewhere (2). 'Lincoln Logan' has produced full crops of fruits in New Zealand for 2 years and it has been used extensively for breeding (Fig. 1).

Description

'Lincoln Logan' is a vigorous and fruitful form of 'Loganberry' morphologically similar to 'Thornless Logan.' Primocanes are vigorous, green in color and leaves and stems are totally prickle-free. After chilling 'Lincoln Logan' has flowered and fruited in a manner similar to both thorny and thornless 'Loganberry' and produced numerous 4 to 5g fruits (Fig. 2). Color, flavor, and texture of fruits appears to be indistinguishable from those of 'Thornless Loganberry.'

Chimeral 'Thornless Loganberry' may produce thorny adventitious shoots from roots, whereas non-chimeral 'Lincoln Logan' is expected to produce only thornless shoots. This character may be of particular value in regions where shoot portions should be winter killed, since new growth should be thornless, not thorny. To date, no adventitious shoots have developed from isolated root segments of 'Lincoln Logan' (2).

Whereas 'Thornless Loganberry' produces only thorny offspring (Darrow, 1955), 'Lincoln Logan' breeds as a

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Figure 1. 'Lincoln Logan' plants which have been used for hybridisation (foreground) (Lincoln, New Zeeland)—1985.

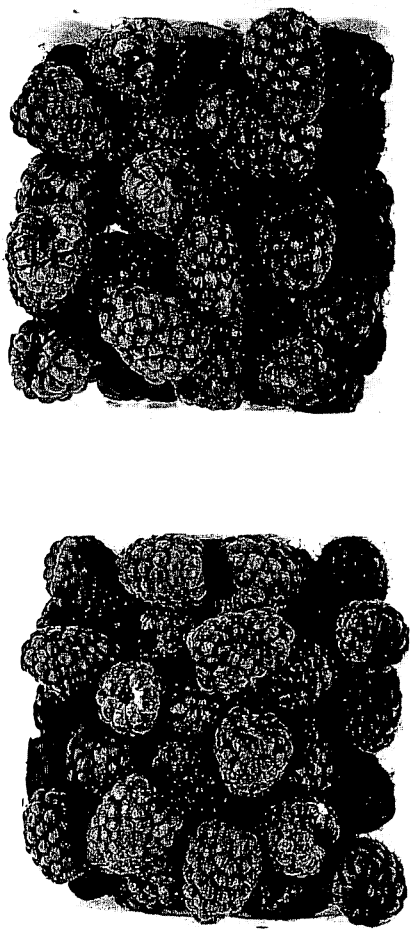

Figure 2. Baskets of fruit from chimeral 'Thornless Loganberry' (top) and non-chimeral 'LINCOLN Logan' showing their similarity.

thornless plant, producing both thornless and thorny offspring (2). Its breeding behaviour appears to be similar to that of tissue culture-derived genetically thornless 'Thornless Evergreen' blackberry used as a male parent (3).

Availability

Limited numbers of 'Lincoln Logan' plants will be available upon request to the senior author.

Literature Cited

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