

Processing tomatoes for machine harvesting

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The growing of tomatoes for processing changed dramatically in New South Wales during the 1970s with the rapid adoption of machine harvesting. Until 1975 cultivars of VF Napoli and Roma were grown extensively, but these were not suitable for mechanical harvesting due to the excessive vine growth, uneven fruit setting and fruit shattering.

A program was started during the 1974/75 season to find more suitable cultivars for machine harvesting examining tomato cultivars developed both overseas and in Australia (Sumeghy et al. 1976). Desirable agronomic attributes for mechanical harvesting of processing tomatoes are: compact bush and concentrated fruit setting, ready separation of the fruit from the calyx during harvest and resistance of the skin to cracking following rain (Sumeghy 1979).

Trials were conducted annually at three sites - Cowra, Trangie and Yanco which represent the environments in which processing tomatoes are grown in New South Wales. At all three sites a randomized block design with four replicates was used. At Cowra and Trangie large plots were grown and machine harvested to simulate commercial conditions. At Yanco the plots were hand harvested and the ripening pattern of each cultivar was determined by regular sampling during fruit ripening (Sumeghy et al. 1978). At harvest, 30 kg of fruit of each cultivar was selected at random and assessed for processing quality. Fruit grown at Cowra was tested by the Edgell Division of Petersville Ltd; at Trangie it was tested by Cerebos (Aust) Ltd; and at Yanco at Leeton Co-operative Cannery Ltd. Fruit samples were also tested by the School of Food Technology at the University of New South Wales. The processing industry, as a result of these trials, now has several cultivars suitable for machine harvesting. Some attributes of these cultivars are shown in Table I.

TABLE I. Attributes of selected cultures of processing tomatoes suitable for machine harvest.

Cultivars	Sol.solids	pH	Separation	Fruit Cracking	Transportability
Petomech II	5.0-6.1	4.40-4.50	Good	Nil	Good
UC 134	4.0-5.9	4.16-4.40	Slightly difficult	Nil	Excellent
UC 82A	4.0-6.1	4.25-4.45	Good	Nil	Excellent
K 10	4.9-6.5	4.21-4.53	Slightly shatter	Slight	Small damage
Napoli (check)	4.5-6.1	4.12-4.40	Shattering	Nil	Small damage

Although all the above cultivars are suitable for machine harvesting and acceptable for general purpose processing, the average fruit size is too large for whole-peeled canned tomatoes.

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