VINING PEA CULTIVARS IN MANAWATU 1980-81 TO 1982-83 SEASONS

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ABSTRACT

A total of 17 maincrop and 8 early maturing cultivars were compared with cv. Pania in five replicate trials during the 1980-81, 1981-82 and 1982-83 seasons. In 1981-82 only, using two replicate observation trials, a further thirteen maincrop and two late maturing cultivars were examined. The maincrop cultivar Combi yielded about 50% higher than Pania in 1982-83 and should be further evaluated as a replacement for Pania in the Manawatu district. Four other maincrop cultivars — AG365F, Aspiring, Kea and Skinado — had yields which approached those of Pania. CM073F was the best early maturing cultivar for "catch-up" sowings but it only yielded about 60% of that of Pania.

Additional Keywords: early maturing, maincrop, yield components.

INTRODUCTION

Vining pea cultivar trials have been carried out in the Manawatu district for the past six seasons. In the first three seasons, up to 1979-80, cv. Pania was the best yielding maincrop cultivar, but there was no satisfactory early maturing cultivar for early season production or for use in "catch-up" sowings when drilling is delayed by wet weather (Bussell, 1981). In the past three seasons, 1980-81 to 1982-83, the objective of the trials has been to find:

(a) Maincrop cultivars which yield as well, or better than, cv. Pania since it is widely appreciated that the use of a single cultivar is fraught with danger from disease.
(b) Satisfactory early maturing cultivars for "catch-up" sowings.

The results presented in this paper give information to assist processors in choosing the best cultivars for the district.

MATERIALS AND METHODS

All trials were carried out on the New Zealand Dairy Board property at Awahuri. The soil type was Te Arakura sandy loam and none of the area had previously been used for pea cropping. Rainfall in the 1980-81 season was about 40% above average from the beginning of September to the end of November and subsequently average. In the 1981-82 and 1982-83 seasons, rainfall was 10 to 20% below average throughout. Temperatures were very near average in 1980-81 and 1981-82 but about 2°C below average in 1982-83.

The main trials had five replicates of each cultivar in a randomised block design and were carried out in the 1980-81, 1981-82 and 1982-83 seasons at three separate sowing times. The sowings were in mid-September (early) mid-October (mid-season) and mid-November (late). Cultivars tested are given in Table 1. An observation trial, with two replicates of each cultivar, was carried out in 1981-82. Cultivars tested are given in Table 2. Pania was the control cultivar in all trials.

Plots 11 m long and 1.5 m wide with rows 150 mm apart were sown using a Stanhay drill. Seeds were spaced 57 mm apart in the rows. Plant populations at harvest were about 90 plants/m^2 in 1981-82 and 1982-83 but only about 60 plants/m^2 in 1980-81 following very wet spring weather. Methabenzthiazuron (1.5 kg/ha a.i) applied post-emergence was used for weed control.

At harvest, plants from the centre 10 m x 0.9 m of each plot were pulled by hand, and threshed in a continuous flow miniature viner. The vined peas were then cleaned, weighed, and tested for firmness on a tenderometer. Yield was corrected to tenderometer reading (TR) 105 as described by Wraight (1976). Most plots were harvested between TR 100 and 110.

RESULTS AND DISCUSSION

CM073F was the best yielding early maturing cultivar in the main trials (Table 1). It yielded only about 60% as well as Pania and less than half that of Combi. Its yields are lower than the best yielding early maturing cultivars in Hawkes Bay (Wraight, 1976; Rogers *et al.*, 1979), and so higher yielding early maturing cultivars for "catch-up" sowings in Manawatu still need to be found. The second-best early maturing cultivar Tere, unlike earlier tested cultivars in Manawatu (Bussell, 1981), had marked seasonal differences in yield. In the three years of these trials, Tere yielded much higher from mid-season sowings (av. 5.27 t/ha) than from early (3.52 t/ha) and late (3.20 t/ha) season sowings. It would, therefore, be useful only for a limited period, probably from late September to late October, for "catch-up" sowings.

Combi was the only maincrop cultivar to yield higher than Pania (Table 1). Four cultivars — AG365F, Aspiring, Kea and Skinado — had yields which approached those of Pania. The high yield from Combi compared with these five other cultivars is mainly due to higher seed numbers per pod. Combi averaged about 10 seeds per pod while the

TABLE 1: Mean yields (t/ha) of cultivars grown in main trials. Average number of days to maturity relative to cv. Pania.

Cultivar	Season 1980-81	1981-82	1982-83	Days to maturity
(a) Maincrop cultivars				
Pania	5.44	6.98	10.61	0
AG365F	--	6.88	8.96	+2
Aspiring	--	--	10.38	0
Dual	--	--	16.46	0
Kea (Ag2)	4.09	6.75	8.35	+2
Skinado (D9475)	4.76	7.19	9.17	−3
YR812	--	4.89	8.20	+2
Victory Freezer	4.20	--	--	−1
Patea	4.15	--	--	−3
Puke	4.37	--	--	−1
Kuru	4.67	--	--	−1
D9401 (Estado)	4.33	--	--	+1
Princess (WNMA707)	3.06	--	--	−2
Sela (Ceb 620)	4.86	--	--	0
New Victory	3.39	--	--	−2
Rigo	--	4.44	--	−2
Bolero	--	5.49	--	−1
Scout	--	5.48	--	−4
(b) Early Maturing Cultivars				
Tere	1.67	3.59	6.77	−8
CM073F	--	4.90	7.08	−11
Avola (Spring)	--	2.62	--	−14
Banff	--	1.97	--	−11
Fraser	--	3.11	--	−10
Sparkle	--	3.85	--	−6
CM076F	--	--	3.76	−10
CM0114F	--	--	3.69	−11
L.S.D.5%	0.56	0.53	1.25	--
C.V. %	10.8	15.3	20.4	--

other cultivars averaged about 7 seeds per pod. In the observation trial (Table 2), which comprised maincrop and two late maturing cultivars (Multistar and Melton), none yielded better than Pania and only Aspiring approached the yield of Pania.

Seed availability or cost may be a limiting factor in the choice of cultivars grown in Manawatu at present. Of the six highest yielding maincrop and two highest yielding early maturing cultivars (Table 1), only Pania, Aspiring, Kea and Tere are produced in New Zealand. Kea is unlikely to be used in the Manawatu because rights for it are owned by Unilever and seed is for use only by the company's growers. Seed of very high yielding overseas produced cultivars, e.g. Combi, could be imported or arrangements made for seed to be produced in New Zealand.

TABLE 2: Cultivars grown in 1981-82 observation trials.

Pania	Frila
Aspiring	Upton
Multistar	Melton
Princess	Wensum
New Victory	Eaton
C39	FP1
Mitre	FP2
Aorangi	FWV
Petila	S102P
Asterix	

Differences in relative yields of cultivars in Hawkes Bay and Manawatu have been noted previously (Bussell, 1981). This has continued here. In Hawkes Bay, the maincrop cultivars YR812, Rigo and Bolero yielded better than Pania, and Combi yielded worse (B.T. Rogers, pers. comm.). In Manawatu, however, the reverse occurred (Table 1).

CONCLUSION

This study had demonstrated that Combi, Aspiring and Pania are the best maincrop cultivars to grow in Manawatu at present. The best early-maturing cultivar is CM073F but better cultivars should be sought.

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