

Cultivar release

'Rex', a new white field pea (*Pisum sativum* L.) for Canterbury, New Zealand

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Abstract 'Rex' (*Pisum sativum* L.) is a new white field pea, bred by S. A. Nickerson of France, that has been released by Crop & Food Research for arable cropping farmers in Canterbury, New Zealand. 'Rex' has a conventional plant type with an upright growth habit. The dry seed of 'Rex' is white, with a yellow cotyledon, and a mean 1000 seed weight of 260 g. 'Rex' has produced high and stable seed yields in regional evaluation trials conducted over four successive seasons in Canterbury, New Zealand.

Keywords 'Rex'; white field pea; *Pisum sativum* L.; Canterbury

ORIGIN

'Rex' originates from the S. A. Nickerson company of Chartonvilliers, France, from a cross between two field pea (*Pisum sativum* L.) breeding lines—'7' and '56'. A single seed descent method was used

to produce lines until the F₆ generation was reached in 1981/82. In 1983, single plant progenies were tested in an un-replicated field trial where 'Rex', then known as 'NRPB 412', was selected. Purification commenced in 1984 as single plant progeny rows and is continued presently at Chartonvilliers, France.

Applications for Plant Variety Rights were lodged in the name of 'Rex' in England and Germany in 1986.

'Rex' was supplied to Crop & Food Research for trial in 1990 by S. A. Nickerson and has been tested in regional evaluation trials in Canterbury, New Zealand, between 1991 and 1994.

MORPHOLOGICAL DESCRIPTION

'Rex' has a conventional plant type, of medium vine length (mean of 53 cm) and semi-erect habit. White flowers normally appear at the 14th node and result in 1–2 (typically two) pods per inflorescence. Pods are a medium green, with blunt distal ends, mean pod length is 58 mm, and mean seed number is 5.2. 'Rex' is most similar in appearance to 'Bohatyr', a cultivar of Czechoslovakian origin currently grown commercially in New Zealand.

The dry seed of 'Rex' is smooth and spherical, with a white testa and yellow cotyledon. It has a mean 1000 seed weight of 260 g, which is very similar to 'Bohatyr' (261 g) and 'Birte' (255 g).

'Rex' matures 5 days later than 'Birte'. It has a more upright habit which allows for greater ease of harvest and improved seed quality in conditions where foliar pathogens such as those causing ascochyta blight (caused by *Mycosphaerella pinodes*) may be a problem.

Field data collected over 4 years indicate that 'Rex' has good tolerance to pea top yellows virus. Like all other white pea cultivars with Plant Variety Rights in New Zealand, 'Rex' is susceptible to powdery mildew (*Erysiphe pisi* DC.) and pea seed-borne mosaic virus.

Table 1 Summary of the performance of *Pisum sativum* cultivars and 'Bohatyr' and 'Rex' relative to the standard commercial cultivar 'Birte', in 13 regional evaluation trials conducted in Canterbury and Southland, New Zealand from 1990/91 to 1994/95.

Cultivar	Trials					
	Canterbury					Southland
	1990/91	1991/92	1992/93	1993/94	1994/95	1991-93
Rex	106	100	121	97	110	98
Bohatyr	104	99	108	101	106	102
Birte	100	100	100	100	100	100
CV%	6.93	7.39	10.0	7.32	5.68	11.9
No. of sites	4	4	1	1	1	2

PERFORMANCE

During 1990/91 'Rex' was included in four trials conducted in Canterbury. These trials were established to evaluate the potential of 23 cultivars and breeding lines for use as compounding peas for the animal feed industry in New Zealand.

Over the four locations 'Rex' produced the highest mean dry seed yield of 5.3 t/ha and was the only entry in the top three yielding cultivars at all locations. The performance of 'Rex', relative to the standard commercial cultivars 'Bohatyr' and 'Birte', is presented in Table 1.

Further trials were conducted with 'Rex' from 1991 to 1995 (Table 1). These trials indicate that 'Rex' can produce seed yields higher than 'Bohatyr' and 'Birte'. A significant advantage observed in trials has been the erect plant type of 'Rex' which allows the crop to remain more upright. The resulting crop is easier to harvest and may be less susceptible to infection from foliar diseases such as ascochyta blight (caused by *Mycosphaerella pinodes*). Pea crops which lodge tend to have restricted air movement through the crop, which can result in a

microclimate suitable for attack from foliar pathogens such as those causing ascochyta blight.

UTILISATION

'Rex' seed is suitable for human consumption in a split or whole form, or for use as a compounding pea for the animal feed industries. Regional trials have shown that 'Rex' has performed better in trials located in Canterbury than in Southland, New Zealand.

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