

Plant & Food Research Confidential Report  
Summary of potato regional trial results  
from the 2007-08 season  
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A report prepared for  
A report prepared for HortNZ



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# 1 Executive summary

This report provides the documentation to support the potato breeding programme underway at Plant & Food Research (previously known as Crop & Food Research) with the financial assistance from HortNZ.

A summary of results from all trials conducted during the 2007-08 season is presented with contacts for further information.

Brief descriptions of four new potato cultivars successfully tendered this season are included.

## 2 Trialling programme

Potato trials were conducted at 14 sites during the 2007-08 season.

Apart from the Pukekohe main trial all were successfully conducted. The Pukekohe maincrop trial produced low yields of poor quality tubers. This was attributed to the presence of Potato/Tomato Psyllid and/or the Liberibacter bacterium associated with this insect. Future trials at Pukekohe and possibly elsewhere will be sprayed to limit the problems experienced this season.

Full details of individual trials are available from John Anderson or Russell Genet.

Some of these trials were conducted on grower's properties and we acknowledge the assistance of the following:

- Michael Bayley      Birdlings Flat Early Trial
- Raymond Bowen      South Canterbury Crisp and French fry Trials
- COEL                  Waikato Late Trial
- Doug Whitfield      Ohakune
- COEL                  Waikato ground Store
- A S Wilcox            Waikato Early Trial

## 3 New releases

Four new potato lines were advertised for tender during the year and allocated to Merchant or grower groups. Two are mainstream cultivars while two may help expand the potato range; one purple fleshed and another suitable for salad use.

- **Crop 33** A fresh market potato with purple skin and flesh which could be promoted for its health benefits (anthocyanins/antioxidants) Agent - Eurogrow
- **Crop 34** A fresh market early-main with possibilities for early French frying. Agent – Pukekohe Grower Supplies.
- **Crop 35** A mid-season fresh market potato with attractive skin finish and good set of small medium sized tubers.
- **Crop 35** A salad type potato. Long oval small sized tubers with waxy texture under most conditions.

### 3.1 Advanced material

The programme has a pipeline of new material which is showing promise. Probably the line showing most promise from this season was 4353-3. It produced very good yields of bright, attractive tubers suitable for the fresh market.

## 4 Other activities

The potato/tomato psyllid is a potentially significant new pest for the New Zealand potato industry. It causes significant yield losses and crop damage in North America, particularly in the southern states of the USA. Tuber symptoms include zebra stripe (a condition similar to internal fleck, which in turn causes distinct dark stripes in crisps), misshapen tubers with reduced size, premature sprouting with weak hair sprouts, shorter stolons, and rough skin. Numbers of small tubers are often increased. Tops are generally smaller with yellowing or purpling and can develop a blackened scorched appearance before premature collapse.

New Zealand has ideal temperate conditions for the psyllid. It has caused considerable losses to the potato breeding programme at Pukekohe this year, with lower trial yields and quality and greatly reduced selection frequency from the seedling populations. It has the potential to be a serious problem for the wider potato industry.

Growers may have been protected from serious psyllid damage this year by regular applications of insecticide to control tuber moth but if early season psyllid infestations develop, an early start will be needed for control options, including insecticide applications.



## 5 Trial summaries

Site	No. lines	Control cultivars	Planting date	Harvest date	Yield of control t/ha	Promising lines
Bombay first early	16	Ilam Hardy	30 May	9 Nov	42	4268-6
Birdlings Flat early	24	Rocket	8 August	6 Dec	37	4200-2 4271-4355-5
Lincoln early	350	Ilam Hardy	12 Sept	3 Jan	43	Crop34 4217-1 4271-1 Crop35 4266-2
Pukekohe early	440	Ilam Hardy Driver	1 Sept	21 Dec	56 61	4271-1 Crop22 4332-4 4353-3
Pukekohe early-main	100	Moonlight Ilam Hardy	1 Nov	28 Feb	21 27	4217-1 4268-6 4217-1 4353-3 4355-6
Waikato early	20	Moonlight Nadine Rua	2 Nov	26 Mar	67 52 59	Crop22 Crop34 4266-2 4355-3
Lincoln main	390	Red Rascal Moonlight	17 Oct	2 Apr	86 87	Crop34 4200-2 4271-1 4353-3
Palmerston North main	150	Moonlight Rua	16 Oct	3 Apr	80 65	Crop22 Crop34 4355-3 4355-7
Pukekohe main	500	Rua Moonlight	15 Nov	29 May	10 17	Crop 22 4353-3 4266-2 4231-5 4217-1
South Canterbury crisp	32	Fraser Crop20 Golden Miracle	19 Nov	16 May	55 57 57	4355-3 4266-2 4353-3
South Canterbury French fry	20	Ranger Bondi Moonlight	19 Nov	17 May	80 107 121	Crop34 4355-6 4355-7
Waikato late	20	Fianna Moonlight Rua	19 Nov	15 July	51 63 52	4355-6 4355-7 Crop22 4353-3
Ohakune	16	Rua Nadine	7 Jan	19 June	27 46	4268-6 4355-3 4353-3