Vegetable Product Group Members' Tour

New Zealand

March 2003

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South Australian Delegates

Figure 1: Left to Right Brian Size - Processing, Derek Bade - Brassica, Craig Feutrill SA Vegetable IDO, Danny DeIeso - Export, Jim Kelly - Root and Lorry DeRuvo - Leafy

Executive Summary

Immediately following the 2003 Horticulture Australia Research & Development Product Group meeting, held in Wellington, New Zealand in March, the Australian delegates toured the horticultural regions between Wellington and Auckland.

The Australian delegates on the tour represented all states of Australia and the majority of Horticultural farming enterprises found in Australia.

The delegates visited horticultural producers in the Levin, Manawatu and Pukekohe regions looking at greens (leafy or bunchline vegetables), onions, potatoes, tomatoes and other hydroponic crops. Visits were made, generally to larger producers, the companies of which have been owned and operated by generations of the same family and more often than not, were still run by 3 to 7 brothers (e.g. Reynolds Brothers).

Horticulture in New Zealand is primarily export focused, thus highlighting the differences between Australia and New Zealand. New Zealand has a population of approximately 4.3 Million, Australia nearly 20 Million. New Zealand horticultural companies *have* to export to survive. Marketing of produce to export destinations is therefore very important to the sustainability and survival of the majority of companies visited.

Two of the South Australian delegates, together with John Said from the Export Committee travelled to the Gisborne region to investigate the LeaderBrand farm. The extent of the devastation caused by the Lettuce Aphid *Nasonovia ribis-nigri*, in a very short time, left the delegates in no illusion of the problems it will cause in Australia. See recommendations at the end of this report.

Craig Feutrill, South Australian Vegetable Industry Development Officer & Jim Kelly, ARRIS Business Development Manager, April 2003

Itinerary

Monday 24 March

8.00am Depart Wellington by bus

9.00am Visit Woodhaven Gardens, Joblins Road Levin
Contact: Emma du Fresne 021 498 156

10.00am Depart

10.30am Visit Tararua Onion Packers, Bryce Street Shannon
Contact: Terry O'Donnell 025428 282

11.30am Depart

12 Noon Visit Morgan Laurenson Ltd 19 Makomako Road Palmerston North
Contact: Stuart Robbie 06 358 7109 LUNCH

1.30pm Depart

3.30pm Visit Mountain Carrots Old Station Road Ohakune
Contact: Steve Ward 0274 490 790

6.30pm BBQ with local growers at Powderhorn Chateau

Overnight: Powderhorn Chateau, at end of Old Station Road Ohakune
Tel: 063858888

Tuesday 25 March

8.00am Depart Ohakune

1.00pm Arrive Pukekohe approx. Meet Keith Vallabh and
Glenys Pellow at BP Service Station, Bombay Contacts: Keith 027498871 Glenys 025 241 2978

Grower Visits

7.30pm BBQ with local growers at Vallabh's, Pollock Road

Overnight: Counties Motor Lodge
78 East Street, Pukekohe Tel: 09 238 5969

Wednesday 26 March

Morning - Grower Visits

Afternoon - In to Auckland Overnight: Sky City Hotel
Federal Street, Auckland Tel: 09 363 6000

Thursday 27 March
Depart from Auckland.

Day 1: Levin & Manawatu, New Zealand.

Monday 24th March.

Woodhaven Garden Co Ltd

Woodhaven Gardens LTD is a fresh vegetable production unit situated on approximately 200 acres and produces a variety of greens and salad crops. The property is based in the Horowhenua region, which allows supply to the Central North Island, Christchurch, Blenheim and Dunedin in the South Island, as well as markets north such as Hamilton and Auckland. No crops are grown for the export market.

Figure 2: Hand harvesting and bunching radishes at Woodhaven

Woodhaven was established 24 years ago, on a very limited acreage by the Clarke family, although some family members are no longer actively involved in the operation it is still very much a family based business. Woodhaven has experienced growth and changes during the last five years and will continue to as new family members become involved in both the growing and marketing.

The operation centers on value adding products, such as pre-packed spinach, silverbeet, parsley and spring onions. The range consists of 12 different types of vegetables including lettuce, cabbage, leeks, fennel, radishes and beetroot. They cater for the two supermarket suppliers; Foodstuffs and Progressive, and work with the central marketing systems to meet their customers' needs.

Woodhaven is committed to quality and maintain a quality assurance program that is run in conjunction with the New Zealand Vegetable and Potato Federation and audited by Agri Quality New Zealand. This is not only a vital tool for operating in a sustainable manner but is also a necessary marketing tool in today's environment where food safety is important.

Woodhaven employ around 34 full-time staff members and this number increases during the summer months. Some crops, such as the spring onions and red onions are contracted out with staff paid on a pack-out basis. They have a culturally diverse environment, which creates a very dynamic workplace.

<u>On-Farm costs</u>
Spring Onions (Shallots) 50 to 90 cents per bunch wholesale. $5 to $9 per Deck
Hourly rate – paid on piece rate however, this averages to approximately $300 NZ per 35 hour week.
Another cost is 17 cents per bunch for piece rate picking/bunching radishes (See Figure 1)
Furthermore this equated to 20 cents per bunch including supervisor and associated costs.
Woodhaven had only had Lettuce aphids on the property for 2 weeks and were using translocation pesticides applied during seedling transplanting for control.

Tararua Onion Packers Pty Ltd

Figure 3: Bin tipping of onions onto sorting plant at Tararua Onion Packers

On-Farm costs
Packing shed puts through about 50,000 t of onions per year, both red and brown.
They are involved in export to England & Japan as their primary markets - sending 5 charters to UK at 5,000 tonnes per ship.

Next shipment to UK on 20th of April 2003
The premium size is 67 to 75 mm for the UK market.
When they get to UK have a guaranteed 85% packout for the larger supermarket chains.

The onions are shipped in 1260Kg "English Coffins" bins (see Figure 4) – allow 5% loss during the voyage leaving 1200kg at arrival.
In the ships' hold the bins are stacked 6 high
The are pressure injected with air – the company tried containers but they were considered "bloody hopeless"

The wooden bins are $128 NZ per bin to construct and the majority of the costs are recouped by the sale of the bin in the UK
The grower receives $350/tonne guaranteed return.
The processing cost is $60/tonne
They were packing 16 tonnes an hour daytime and 10 tonne/hour nightshift

Red Onions
$1000 NZ/tonne return to the grower, producing an average of 18 tonnes/acre, and they are considered very difficult to grow. The onions are always shipped refrigerated.
Always find NZ red onions with reasonably major thrip damage

Figure 4: Delegates inspecting export "English Coffin" bins

Morgan Laurenson Ltd

Figure 5: German carrot packing plant

Pre-pack operation, Manawatu Region
Large potato producing region – 50,000 tonnes produced for McCains.

The company was formed in 1949 and named after its founder, Morgan Laurenson. Morgan Luarenson Ltd now occupies a huge 2200 square meter custom-built building in Makomako Road, which is large enough to strengthen and further develop a growing business.

The new location has been mainly to provide for an expansion in the company's pre-packing operation. Potatoes, carrots, onions, Brussels sprouts, kiwifruit, citrus and other crops are pre-packed for supermarkets and export markets.

Morgan Laurenson Ltd also have a merchandise operation and service potato, onion, carrot, squash, cereal and pastoral farmers with seed, chemical, fertiliser and advise on best cultivars, crop nutrition and plant protection.

The company is able to offer growers contracts for a range of crops including, potatoes, squash, carrots and onions. Contracts are available to local growers to satisfy a range of supply arrangements the company has with onshore and offshore buyers. Morgan Laurenson Ltd export potatoes and onions to South-East Asia and Europe and run a large squash program for export to Japan.

The new Makomako Road premises feature a state of the art merchandise store. The area has bunded floors to contain possible spillage and fully vented fireproof lock-up area for hazardous substances. The range of agricultural and horticultural chemicals carried by the company is probably second to none in the region.

Fertilisers, seeds, nutrition products and Solo Spray equipment are also available from the Makomako Road site.

In store and on farm service is provided by specialist horticulturalists who service a wide customer base ranging from commercial growers, nursery men, parks and reserves, bowling green, golf courses, ornamental and flower growers, farmers and garden enthusiasts.

Potatoes were a foundation crop for the company and remain an important part of its business. In addition to potatoes grown for fresh consumption, large volumes are produced in the region for McCains plant in Fielding, and crisping and french fry processors in New Zealand and overseas. Morgan Laurenson Ltd service many of these growers.

The company also specializes in seed potatoes and is able to offer, growers seed from both North and South Island production areas.

Morgan Laurenson Ltd has, in conjunction with a group of seed growers, obtained Plant Variety Right Licenses to four new potato cultivars. These are all varieties bred in New Zealand by Crop and Food Research. White delight, Dawn, Pacific and Moonlight all have different eating or cooking characteristics and are marketed by Morgan Laurenson Ltd throughout New Zealand.

A recent development to the Morgan Laurenson Ltd portfolio is the process vegetable division. This business, situated in a new purpose-built plant inside the main building produces a range of ready to use, processed vegetables and salads for both the food service and retail market.

On-Farm discussion points
Lift potatoes from April to Sept/Oct, and can ground store potatoes prior to October.
Post October they start to sprout, thus they are dug up and stored in the shed.
Potatoes are planted from January to September
Ground storage is an advantage for processing, but it also fine for exporting.

Most of the exports go to SE Asia and Malaysia. Irrigation is not a requirement in the region – they have 1000 mm of rain annually, they can and do irrigate green vegetable lines and Russet Burbank potatoes.
The region enjoys good summer rainfall – actually good year round – but during the wet period the crops can get large fungal disease problems.

Processing potatoes done at Feildings about 5 kms from the property.
The company services supermarkets such as Woolworths – 21 stores – part of the Progressive chain. The other supermarket supplier is the "Foodstuff Group" that represents 65% of the market.

Figure 6: Processed vegetable packs for institutional organisations

The company processes carrots, onions, Brussels sprouts, citrus, Kiwifruit, lettuce mix broccoli and cauliflower, potatoes are sliced and diced for institutional organizations (see Figure 6) – also processed are sweet potato (kumara) and pumpkins. They also process for pet food, which includes diced capsicum, bok choy, potato, carrots – as much vegetable as they can get in there – and to the same quality standards as food for human consumption.

They only process 'firsts' (even for dog food) because it costs too much to process seconds. This is due to the increased labour costs for processing seconds.

They purchase the crop, outright from the growers based on the market price of the day however, crisping potatoes are contracted. They are a 'margin' business therefore are not interested in depressing prices, as this affects their income as well as the producers.

In potatoes the 20Kg market was big 3 to 5 years ago, now most packaging is done in 5 to 10kg bags. They are in the business of seed potato production. Certified seed is grown at altitudes greater than 1000 feet and this reduces aphid and disease management problems.

In NZ off-label chemical applications can be used, as long as they do not exceed MRLs.

Peas are a local crop grown in the region for McCains for processing.

They produce 2 lines of potatoes, washed and brushed with the washed being packed in 2 kg, 2.5 kg, 3 kg and 4 kg packs. The washing is undertaken outside of town due to waste water management problems. Potatoes are desired to be between 48 and 75 mm with smaller potatoes going into the gourmet market. However, smaller brushed potatoes go to waste. There is a staff of 40 who work 7 days a week.

MORGAN LAURENSON LTD

Produce Packers - Exporters & Horticulture Suppliers

19-27 Makomako Rd, PO Box 464 Palmerston North
Phone: 06 358 7109 Fax: 06 356 7245
Email: morganlaurenson@clear.net.nz

PRICELIST

Prepared Vegetable Price List:

As at: 21-Oct-02

Code	Product	Price / kg
9371	Broccoli Florets	$5.50
9372	Brussel Sprouts	$4.40
9373	Cabbage/Silverbeet mix	$2.80
9374	Cabbage Green Sliced	$2.45
9375	Cabbage Red Sliced	$3.50
9376	Carrots Julienne	$2.50
9378	Carrots Rings	$2.40
9379	Carrots Grated	$2.40
9380	Carrots Jardiniere	$2.50
9381	Carrots Diced	$2.40
9382	Carrots Whole Peeled	$2.00
9385	Carrot/Swede Diced	$2.80
9386	Carrot/Parsnip Diced	$3.40
9388	Cauliflower Florets	$4.50
9389	Celery Sticks	$4.20
9390	Celery Diced	$3.30
9391	Celery Sliced	$3.30
9392	Coleslaw Basic	$3.05
9393	Courgette Diced	$4.60
9394	Courgette Rings	$4.65
9395	Courgette Jardiniere	$4.65
9397	Kumera Chateaus	$12.00
9398	Kumera Diced	$6.25
9399	Kumera Portions	$5.80
9400	Kumera Round Slices	$6.25
9402	Leeks Sliced	$2.95
9404	Mix Vegetables Diced	$3.00
9405	Mix Vegetables Julienne	$3.00
9387	Casserole Mix	$2.90
76	Mesclun Salad Mix	$12.00
	Salad Mix	$10.00

Code	Product	Price / kg
9407	Mushrooms Sliced	$6.95
9410	Onions - Whole Peeled	$1.90
9411	Onions Diced	$2.20
9412	Onions Sliced	$2.20
9413	Onions Red/White	$3.60
9415	Parsnips Diced	$6.80
9416	Parsnips Portions	$6.80
9417	Parsley Chopped	$5.00
9419	Potatoes Chateau	$6.50
9420	Potatoes Diced	$1.60
9421	Potatoes Shells	$4.60
9422	Potatoes Peeled	$1.45
9423	Potatoes Parisienne	$6.20
	Potato Rings 5ml, 10ml	$6.50
9426	Potatoes Sliced	$1.60
	Agria Potatoes Peeled	$1.70
9428	Pumpkin Peeled	$2.40
9429	Pumpkin Skin On	$2.15
9430	Pumpkin Diced	$2.70
9432	Silverbeet Sliced	$3.70
9005	Soup Mix	$2.80
9433	Spinach Whole	$5.60
9442	Singapore Mix	$5.30
9006	Stirfry Vegetables	$5.50
9436	Swede Portions	$1.85
9438	Swede Diced	$2.20
9443	Thai Mix	$5.30
9444	Vegetarian Mix	$5.30
9294	Vegetable Medley Green	$5.10
9440	Vegetable Medley Red	$5.10
9441	Vegetable Medley White	$5.10

All prices are G.S.T exclusive and freight inclusive.

Seasonal fluctuations may affect pricings, should this occur you will be notified upon ordering.

* Call for latest pricing - affected greatley by seasonal prices.

FOR ORDERS PLEASE PHONE 0800 111 800

Figure 7: Price list for Morgan Laurensen's processed range

Sunrise Coast Mountain Carrots

www.sunrisecoast.co.nz

They have a staff of 55, who undertake 24 hours washing of carrots 6 days a week. The packing and processing occurs for 11 hours a day in one shift. They have a brush washing system with a hydro cooler, but they hand pack. They are directly loaded onto a refrigerated truck (See Figure 8) for transport to cool storage at the port where they are containerized for export. They have labour problems – there is good local labour but can't get enough. They have previously used mainland China locals flown in (special arrangements between Governments) or now use backpacker labour.

Figure 8: Refrigerated trailer used for transport to shipping facility.

Return to grower is $250 NZ per tonne at the shed – this is $12,500 NZ per hectare. Average area grown is 40 Ha per grower.

They plant mid-October to mid December, they harvest mid Feb to mid May, 700 Ha of carrots are grown in the region of which 50% were Koyo carrots (similar to Kuroda in Australia). The Koyo growing period is 120 to 140 days and are top picked. Domestic market carrots have their tops removed for ground storage, ground temperatures are sufficiently low for quality not to deteriorate and these are dug rather than top pulled.
There is a 3 to 5 year break from the carrot rotation when entering a new carrot phase, they will grow a potato crop following the pasture, then grow carrots for as many years as they can (one crop per year) before quality becomes an issue and rotation is required again. There was one farm that produced quality export carrots for 15 years in succession before a drop off in . They have a 70% pack-out and in 2003 the market in Japan has been fairly strong.

Koyo produce 50 tonnes per Ha, and Nance (domestic market) produce 70 to 80 tonnes per Ha.

The Koyo are marketed for the supermarket trade in Japan – 3 carrots are packaged together to weigh 500 grams. As part of their agronomic management, they are into low chemical use. The shipment takes 3 to 4 weeks to Japan with cool chain being a very important part of the shipping process to maintain best quality.

Sunrise coast also has a business in China, to supply carrots into Japan for the NZ 'out of season' period.

Variety:	Koyo Type Nantes Type
Size:	Table: S / M / L Process: 2L / 3L
Packaging Style:	20 kg Carton Box 10 kg Carton Box
Specification:	Premium Export No. 1 Grade
Palletization:	20 kg - 56 cartons / pallet 10 kg - 110 cartons / pallet
Shipping:	**Reefer Container 40ft:** 20 kg - approx 1,344 / container 10 kg - approx 2,310 / container
Shipment Period:	Koyo: February - May Nantes: May - September
Brand/Mark:	Mountain Carrots NZ Ltd Alpine Produce NZ Ltd
Product Safety:	Reduced / Low Chemical Growing. No Post Harvest Chemical

Day 2: Pukekohe, New Zealand.

Reynolds Brothers

Property is the oldest in the area, managed by seven brothers – 5th generation farmers – farming the land in NZ since 1865.

They are farming 30 different blocks, lease a lot of land to spell their own country for best agronomic management including disease control.

They have 7 km of piping, 2 bores and 3 water cannons for irrigation. The irrigation required is described as supplementary as the very high rainfall limits the need for irrigation. The last couple of season there was no requirement for irrigation.

Figure 9: Trellised Kiwi Fruit ready for harvest

They may irrigate onions 6 to 7 times to assist with very tight specifications with respect to size.

They will irrigate potatoes 3 times and will have potatoes ready for harvest within 14 weeks of planting. If they over irrigate they have problems with disease as the climate is very humid.

The region has experience significant runoff and erosion, with significant soil loss in 3 of the last 5 years. This has seen the development of a joint project in between growers and the local government, called the "Doing it Right" project (See pages 15 and 16)

They cultivate now (March) for planting in winter, the cultivation is a rough cultivation to reduce the risk of erosion with final bed preparation just prior to planting. Following planting, they rip tractor wheel tracks to reduce erosion, they do this prior to June as June and July are seen as their critical period for erosion. When they rip tractor wheel marks they leave every 11th bed for spraying and fertilizer spreading (controlled traffic farming). Ripping reduced soil erosion from 20 tonnes lost to 1 tonne lost per acre of land in a 3 month period. Further to this they are leaving riparian strip to remove soil from surface water runoff prior entering streams. This property also uses contour drains to manage and minimize the speed and direction of water run off (See Figure 10)

Figure 10: Drainage channels are established to minimise erosion on farm.

As part of their soil conservation management they grow mustard in "fallow" time following onions and potatoes, this will grow to 9 feet tall and is mulched as a green manure crop to improve soil structure and further prevent erosion.

Reynolds Farms big three crops are Onions, Kiwi Fruit (See Figure 9) and Potatoes in order. Further to this they grow some pumpkin.

Their premier crop onions – the first crop of onions are drilled in May for early markets

For these early crops they start hand clipping in early December – the first 20 to 30 acres to allow harvesting to meet the lucrative Christmas market. Most fresh onions are sold into the Auckland market. Two thirds of the NZ population are in the northern region so Reynold Brothers feel they are well positioned to supply that market. They supply fresh onions to market pretty much 'every day'.

To enable them to meet this demand, they have erected storage of 3,500 square metres. They store onions in boxes. Following harvest the onions are brought into the stores at a core temperature of 35 degrees, but after 24 hours in the store, the temperature of the onions has dropped to the ambient temperature of 25 degrees. In the storage area they have under floor ducting for aerating the onions. They are only using a 5 hp fan for this task (5 to 6 air changes per hour).

This aeration system is not used to dry the onions but rather to maintain the ideal environmental conditions for the storage of onions. Overuse of aeration can dry the onions too far and cause the skins to dry, crack and fall off. (See Figure 11).

Their packing and storage shed handles 4,000 to 5,000 tonnes of onions and 3,000 to 4,000 tonnes of potatoes per annum.

Figure 11: Ducting being installed for underfloor ventilation of onions – primarily for humidity control

Onions are harvested into 800 kg boxes and they are producing 20 boxes (16 tonnes) per acre.

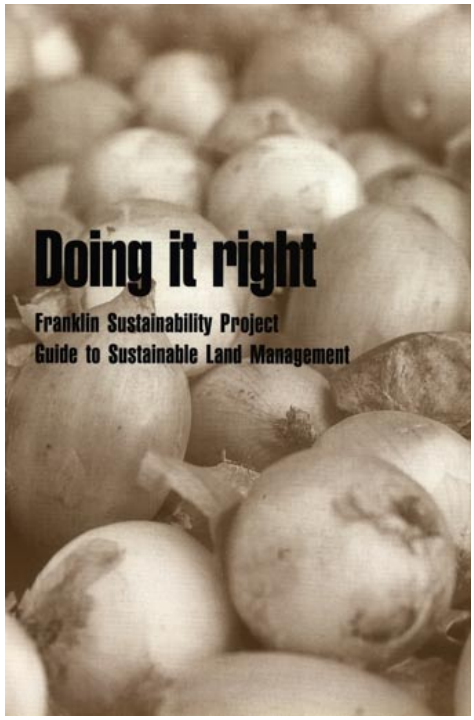
The Onion processing plant for sorting is 3 lane and can sort to any size requested. Some onions will go through the process twice. Reynolds may not want to sell all the onions that are processed via the grader (immediately). Reynolds are *very* market focused and will supply whatever the market requires, when it requires it.

The seven brothers involved in the farm all have specific tasks but know each others work well enough that the (infrequent) holidays taken represent no problem.

Franklin Sustainability Project

Severe storms, such as in May 1996, resulted in widespread damage to property and infrastructure from the loss of soil from cultivated land in the Pukekohe area, south of Auckland. Apart from the damage to property, the off-site movement of soil resulted in sedimentation and ecological damage to the Manukau Harbour and the streams feeding into it, and the irreversible loss of a precious soil resource. As a result, the Franklin Sustainability Project was born to address issues of sustainable management in cropping systems in the area. Tony Thompson of the Auckland Regional Council discusses the achievements of the project so far.

The three-year multi-stakeholder Franklin Sustainability Project was established in 1997 to identify and promote best management practices amongst Franklin vegetable growers to protect water and soil resources.



The project involved financial and in-kind contributions from the Auckland Regional Council (ARC), Environment Waikato, Franklin District Council, VegFed, MAF, AGMARDT and the Pukekohe Vegetable Growers' Association. The bulk of funding for the project came from the Ministry for the Environment's Sustainable Management Fund.

Over the course of the project, workshops, field days, trials and demonstrations have been held to promote good practice amongst growers on fertiliser use, surface water management, irrigation, integrated pest management, and soil health. Regular newsletters have also been produced for distribution amongst the approximately 350 growers.

A number of good practices have been identified and trialled over the past three years. These have now been compiled into a set of guidelines called Doing it Right, which was officially launched in October 2000.

The soils of the Pukekohe, Pukekawa and Bombay areas of the Franklin District are some of the best in the country and are intensively cultivated for food production. They are of high agricultural and horticultural value because of their drainage characteristics, suitable texture, natural fertility and structural integrity under repeated cultivation. Such intensive cultivation does however pose potential adverse environmental effects, including off-site movement of soil and subsequent adverse effects on surface water quality.

Soil Loss

Protection of the soil resource of the district is paramount for ensuring its continued availability and versatility for the future. While the soil remains well aggregated and settles out readily in a water column, high intensity storm events, such as in May 1996 and January 1999, resulted in thousands of tons of topsoil being eroded and mobilised, a large proportion of which was lost off-site. This highlighted to both growers and resource managers the importance of implementing and maintaining surface-water management works such as silt-traps, contour-drains, raised access-ways and cut-off drains. The benching and contouring of headlands is also important for reducing the energy of storm water and retaining soil within the paddock.

Trials conducted by Landcare Research indicate wheel-track ripping could be one of the most effective tools and operations growers could perform to minimise the risk of soil loss. Compacted wheel-tracks act as impermeable conduits for concentrating storm-water flows, which often scour out the sides of furrows and seed-beds, resulting in substantial sheet and rill erosion.

Another lesson learnt from these storm events is to be sure that storm-water engineering and works are investigated and carried out at the catchment level. In many cases, growers downstream have suffered severe damage and soil loss as a result of drain over-flows and blow-outs.

Nitrates in Ground Water

Regular monitoring of two artesian springs, which provide indicative nitrate levels of the aquifer, reveal that nitrate levels are currently around 85ppm, well above the World Health Organization recommended drinking water level of 50ppm. Whilst the ARC is concerned about potential adverse effects on human health, surface water ecology and long-term sustainability, the wider industry concerns are for sustained and improved market access.

This aquifer is an unconfined system, and with intensive cultivation activities above it, there is a high risk of nitrate impact. Various studies indicate that the nitrate is primarily originating from the mineralisation of soil organic matter, and, to a lesser degree, directly from fertiliser. The decreased soil carbon levels — a result of repeated cultivation — exacerbate the transport of nitrates through the soil profile.

An important message therefore, for the growers and the industry, is the judicious use of fertiliser, i.e. better targeted rates, placement and timing of fertiliser application, but also the use of cover crops. The growing and ploughing-in of cover crops, such as oats or mustard, have a beneficial role in improving soil carbon (organic matter) levels, improving soil structure and "mopping up" excess nitrate. One challenge facing us is to encourage growers to put in cover crops over the winter period and have them plough the crop back in just prior to re-planting. By doing this, nitrates released from re-incorporation of the cover crop residue will be available to the following crop, and soil will be protected from erosion through the wettest time of the year. This however presents an increased risk for the grower in terms of weather and soil water conditions for cultivation. Nitrate leaching trials conducted during the Franklin Sustainability Project indicated that pre-winter crop/cover-crop incorporation and fertiliser use on winter vegetables pose the greatest risks to nitrate leaching.

The Future

Growers and stakeholders involved with the Franklin Sustainability Project have been successful in securing funding from MAF's Sustainable Farming Fund to engage a field representative on behalf of the Pukekohe Vegetable Growers' Association. The field rep will promote and encourage adoption of practices outlined in the Doing it Right guidelines, and facilitate discussion and greater awareness of resource management issues amongst growers in the district and beyond.

Contact for more information:

Manager
MAF Information Bureau
ASB House
101-103 The Terrace
PO Box 2526, Wellington

Phone: +64 4 474 4100
Fax: +64 4 474 4111

Status Produce Limited

They have 14.5ha of glasshouses from Holland, these glasshouses are at three locations (4.5ha, 5.5ha with another 4.5ha owned by another groups). The glasshouses are built at a cost of $140 per square metre (See Figure 12).

The tomatoes are grown hydroponically, they are grown in rock wool (gro/dan® Master Rockwool). They are planted in 75 metre rows with 1.6 metre row spacing. Head density (canopy density) is very important for production management. To increase head density during periods of increased light they keep and train a lateral, the lateral are trained on orange string. During periods of low light they remove the extra laterals, the coloured string identifies the laterals for ease of identification and removal.

Vines have a life of 12 months; they grow at a rate of 22cm/week and are maintained at a maximum head height of 5 metres. They produce 50/60kg of tomatoes per square metre. These tomatoes are produced both loose and on a truss. For truss tomatoes they are they are thinned to five tomatoes per truss (See Figure 14). The vines are maintained so there are two trusses (the most mature) below the leaf line, with between 16-18 leaves per vine. Tomatoes are harvested 3 times per week.

Figure 12: Hydroponic tomatoes in Dutch style Glasshouse - note heating tubes between rows

At the site visited (4.5ha) there were 152,000 plants. At this site they employ 31 staff that work 7 days a week 24 hours a day. The glasshouse environment is managed using a computer, including such parameters as CO_2, O_2, humidity and temperature. During the last summer they lost significant production due to high temperature and excess light due to the unusually sunny conditions. As a consequence they are now looking at internal shading for the glasshouses. The glasshouses have heating through inter row pipes where hot water is pumped. These pipes serve a second function as rails for harvesting and management equipment.

As part of the management there are in house stations, which are connected to the central computer system. This records all of the activity in the glasshouse on a row by row basis including, harvest information, pruning, sprays and importantly who did the work.

Water for the houses is supplied from a bore. Through the Resource Management Act there are limitations to ground water, as a consequence they harvest rainfall from the glasshouse roof. All water is sterilized using UV treatment.

The glasshouses are using Integrated Pest Management to control pests and diseases. As part of this program Bumble Bees are used for pollination of tomatoes, they do not use hand. The bees are supplied commercially from Bio-Bees. So strict is the IPM management in the glasshouses that they have not used any chemicals for the last two years.

Bumble Bee hives are relatively short lived 2-3 months, they do not produce honey for harvest. In New Zealand over 70% of greenhouses use bumble bees for pollination. The short-tongued Bumble Bee was introduced from England in 1886 (See Figure 13)

They are managed to provide a consistent supply of tomatoes year round. Status Supplies most of its product to the Food Stuff supermarket group, but, also exports to Australia, Malaysia, South East Asia and the Polynesian Islands (See Figure 15).

Figure 13: Commercially available Bumble bee hives

Figure 14: Ripening truss tomatoes ready for harvest

Figure 15: Two lines of flow sealed trays for market

AS Wilcox & Sons Ltd

Trading as SoFresh New Zealand

The Wilcox Group of companies grow, pack and distribute fresh produce for domestic and export markets.

Growing activities are based in Pukekohe, Ohakune and the Waikato with packing and distribution facilities operating from Pukekohe, Levin and Rakaia in the South Island.

Specialised production of potatoes, onions, carrots and persimmons occupies more than 2500 acres throughout these regions.

Companies within the group are privately owned. The Wilcox family's association with vegetable growing in the Pukekohe region goes back to the early 1930's.

Figure 16: Onion sorting at Wilcox

Potatoes

Wilcox run an extensive crop improvement program to ensure popular and new varieties are available through the growing seasons for both fresh market supply and processing.

Varieties are continually evaluated to ensure consistent quality standards in taste, texture and keeping properties.

Onions

Wilcox onion production is centred around export requirements (See Figure 16). Types grown include brown storage, red and mild, with a wide range of varieties used. The crop is grown in the Pukekeohe and Waikato regions.

Carrots

Carrot varieties are selected for taste and consistency and grown in Pukekohe and Ohakune to ensure year round supply.

Lex Wilcox has operated on the principle that it is not sufficient just to be a good grower, you must be a good marketer.

> "Good growers are not necessarily good producers.
> Those who invest in marketing are good producers"

New Zealand produces 450,00 tonnes of potatoes annually with approximately ½ fresh and ½ processed potatoes.

So Fresh supply all of Foodstuffs (NZ) potatoes. They currently produce 1400 acres of potatoes, 1300 acres of onions, and 100 acres of carrots. 80% of the onions are for export markets in South East Asia.

The major issue for the company is consumers worry about food safety. So Fresh has adopted the stringent quality assurance program, EUREPGAP. QA is a very important part of the process with QA stations throughout the plant to randomly monitor the output of the packing lines.

Figure 17: Five a Day logo for vegetable promotion

All produce is coded to ensure trace-ability from the consumer all the way back to the field. This includes produced and agronomic management including spray diary, including chemicals used, timing and environmental conditions.

Potatoes are promoted buy use rather than variety (See Figure 18). There is some opportunity for value adding through pack size and use.

Labour: an 18 old line-worker gets $9.50 per hour.

Figure 18: Potatoes are marketed by use - Mashing on the left and Gourmet on the right

Day 3. Pukekohe, New Zealand.

EA & JP Nicholls

Hydroponics

Have been producing lettuces for 15 years hydroponically. They grow 12 different varieties of lettuce and are currently developing watercress under hydroponic production. All seedlings are purchased, earlier they propagated their own seedlings but it has become uneconomic to continue this practice. They prefer to divert their efforts into the production and management of their farm.

Three family members work the site, further to this two full time and one part time staff are employed It appears that labour is a major concern in New Zealand horticulture and is consequently an important consideration in planning systems and expansion.

They have gone into the watercress production under a franchise system. They feel this offers them significant benefits. Less of a hit and miss approach, they can learn from the franchisers, reducing the risks associated with learning a new system of production. Further to this it reduces the time and effort involved in establishment of the new crop. The watercress is expected to produce 2.5kg per square metre every six weeks (See Figures 19 and 20).

They have two independent hydroponic systems, although this seems like duplication of costs it has demonstrated to be beneficial in the control of diseases like pythium. Wastewater is discharged to a reservoir and then discharged to land by gravity feed.

Figure 19: Raised hydroponic beds of watercress

Figure 20: Close-up of watercress

Additional Tour – Gisborne Region.

LeaderBrand Lettuce

http://www.leaderbrand.co.nz/

LeaderBrand's philosophy is simple, "mould the knowledge and experience we gained yesterday with the realities of today. Combine the ingredients to produce what our customers will need tomorrow."

They have embraced technology and integrated it with the most modern growing and marketing techniques available thus ensuring the best possible service to their customers. Quote "Remember, excellence is never an accident".

More than 25 years ago the production and supply of potatoes throughout the East Coast of New Zealand supported the development of LeaderBrand and the introduction to Fresh produce crops. Today the Fresh produce enterprise accounts for approximately 70% of LeaderBrands annual cropping area and approximately 78% of the company's turnover.

The Fresh cropping enterprise comprises three major units:

1. A range of fresh produce crops including Broccoli and Iceberg Lettuce for supply to the domestic New Zealand market.
2. Buttercup Squash cropping programme for export to Japan, Korea and the USA
3. Apple orchard entity for the production of export quality apples for the international market.

In every aspect of LeaderBrands business their philosophy ensures they create a point of difference in their products and operating system to ensure they create competitive advantages over their competitors. This is particularly important in the Fresh produce enterprise where a focus on freshness, quality, taste, shelf life, health, nutrition, food safety and quality assurance are a prerequisite for success.

Crucial to the sustainability of LeaderBrand are the partnerships LeaderBrand have established with retail customers in New Zealand and abroad, export customers and marketing alliances. LeaderBrand are actively involved in marketing and brand management at trade and consumer level and work with their customers to improve the performance of the products to the benefit of the partnership.

They own 1200 acres and rent a further 3500 acres, they are the largest lettuce producer in New Zealand. They are producing Lettuce, fancy lettuce, baby spinach, broccoli, corn, grapes, apples, and pumpkins. The farm and processing operation employs 134 employees.

Planting 50M heads per annum, 1M per week. All the production is sold domestically with 90% being bagged individually. The lettuces are vacuumed cooled following harvest and are processed in a positive pressure processing area. They also process lettuce into salad mixes.

They have their own transport company, 30 refrigerated articulated trucks.

Once the crop is harvested the land is cultivated immediately. They use moldboard ploughs for post harvest cultivation. They have a five crop rotation.

Problem

A significant threat to their business is the newly introduced Lettuce Aphid (see New Zealand Herald articles below). The aphid has infested their site and are damaging and reducing lettuce quality. The aphid infests the lettuce prior to head formation and once the head closes the aphid is protected from any chemical control. The aphid can multiple 40 times per day and each lettuce can have populations of 3,000-4,000 per head.

In 4 weeks they have worked in 1M heads per week, 4M in total. Further to this aphid numbers are currently sufficiently low to enable harvesting, but because they do not meet the company's quality standards they are been sold as loose lettuce.

Figure 21: Left to Right: John Said – Export NSW, Marcus Griffith – Sales & Marketing Manager for LeaderBrand, Lorry DeRuvo – Leafy SA and Danny DeIeso – Export SA

Figure 22: Semi automated field harvesting lettuce at LeaderBrand

LETTUCE APHID

Scientific Name: *Nasonovia ribis-nigri*

Figure 23: Wingless adult Lettuce Aphid

DESCRIPTION OF THE PEST

Lettuce aphid has several color forms, ranging from green to orange to pink. Adult winged and wingless lettuce aphids have black markings on the joints of the legs and antennae. Some of the wingless aphids have many black markings on the top of the abdomen as well. The winged adults are browner in color than the wingless forms (see Figure 23), but also have various black markings.

Lettuce aphid is a relatively new pest of lettuce in California. It can be distinguished from green peach aphid by the fact that lettuce aphid does not have strongly converging antennal tubercles.

Lettuce aphid has a very short life cycle and populations can build rapidly. In Europe it migrates in fall to black currant and other members of the *Ribes* genus where eggs are laid for the winter. In California no eggs have been observed and it appears to pass the winter on lettuce, radicchio, *Nicotiana* spp., and some other composites.

DAMAGE

Lettuce aphid feeds deep inside the plant, toward the center on younger leaves. In head lettuce it is found almost exclusively under the cap leaf (See Figure 24). This aphid does not appear to be an important virus vector in California.

MANAGEMENT

Biological Control

Naturally occurring predators of the lettuce aphid include syrphid fly larvae and green lacewing larvae. (Lady beetles and parasites are not very important in lettuce aphid management.) Syrphid flies cannot be purchased from insectaries; they must migrate to an infested field from surrounding areas. Good plants to use near lettuce fields to attract syrphid flies are cilantro, anise, and buckwheat. Syrphid fly larvae are susceptible to many insecticides. Green lacewing eggs can be purchased from insectaries but timing their application can be problematic. First-instar lacewing larvae need a food source when they emerge from the egg, but if application is delayed until the lettuce aphid is established well enough to be that food source, the lacewings may not be able to control the aphid population.

Figure 24: Lettuce Aphids in the heart of a lettuce can be very difficult to control

Monitoring and Management Decisions

Monitoring requires care in order not to miss early infestations that are hidden within the lettuce. This aphid has a tendency to disperse in the plant rather than forming colonies as green peach aphid does. Control of this aphid is difficult because of its rapid population growth combined with its preferred locations deep within the head.

Biosecurity Issues

New Zealand Herald Articles

Aphid plays havoc on lettuce exports
19.08.2002

Australia has suspended the importation of some vegetables from New Zealand because of fears they may host the aphid that is tearing the heart out of the local lettuce industry.

The Ministry of Agriculture and Forestry's director of plant biosecurity, Richard Ivess, said Australia had taken "emergency action" to temporarily ban a range of vegetables, including lettuce, artichoke and endives.

"The suspensions will be withdrawn as soon as MAF provides reassurances the commodities are free of the lettuce aphids," Ivess said.

Russell Jordan, head of the Vegetable Federation's fresh vegetable sector, said the lettuce ban had been in place since July, but other industry officials said there had been little economic impact because few whole lettuces went to Australia.

Another MAF spokesman said the latest discussions with Australian officials had left "still under discussion" the issue of other produce considered a host risk.

The new pest, lettuce aphid (Nasonovia ribisnigri), was detected on lettuce at Marshlands, Christchurch, on April 2 and rapidly spread through the South Island.

On May 7, MAF was told it had also turned up at Pukekohe. There, growers said most of them had disposed of infected lettuces and replanted in new areas.

Some have waited to plough under affected lettuces, but have been prevented from moving tractors on the plots because weeks of rain have left the soil vulnerable to compaction.

Crop and Food scientist Dr Marlon Stufkens, who is testing the aphids for resistance to pesticides, said the aphid was not as prevalent in winter, but the real danger could come in spring.

If warm weather brought southerlies, the aphid would spread to South Canterbury - which had so far escaped infestation - and northerlies would put Kapiti and Gisborne at risk.

Gisborne company LeaderBrand Produce, whose East Coast crops have effectively been leapfrogged by the infestations, is one of the nation's main lettuce suppliers to supermarkets. It has spent millions in the past four years revolutionising the fresh vegetable industry with the field packaging of iceberg and romaine lettuces.

New Zealand has about 270 lettuce growers, who plant 1541ha in the crop each year, worth about $26 million.

Jordan said most of the vegetables blocked at the Australian border were exported as salad mixes, which were washed in chlorine and unlikely to contain the aphid.

Dr Stufkens has said work to get pesticides registered by MAF is on track, but is being hampered by problems caused by aphids succumbing to a natural fungal disease.

Washing off aphids way to keep lettuce prices down
11.03.2003
By ROSALEEN MacBRAYNE

Aphids on lettuces won't hurt you - just wash them off, says the Vegetable Growers' Federation.

The fresh lettuce industry has been fighting the invasion of the aphid Nasonovia ribisnigri since it was first discovered in New Zealand a year ago.

The pest was now prevalent in all of the major growing regions, in indoor and outdoor growing systems, VegFed chief executive Peter Silcock said yesterday.

He reassured consumers that the aphids were a presentation issue, not a health one.
They could be washed off the lettuce and any stained or speckled leaves easily removed, making the garden plant safe to eat.

"By taking these simple steps, consumers can avoid a situation that could lead to huge increases in the cost of lettuce," said Mr Silcock.

He appealed to the public for patience while the industry looked for long-term solutions. "Head lettuces", New Zealand's most popular type, were the most affected.

Most of the aphids were on the inside of the heads, making it impossible to selectively harvest only heads that had few or no insects.

"If growers decide not to market lettuces with some aphid presence, prices will go through the roof, and that is not a good result for anyone," Mr Silcock said.
"Simple washing of the lettuce will prevent this."

Stuart Johnston of Progressive Enterprises said lettuce prices had shown only a "minor lift" for this time of the year, despite the aphid problem.

Meanwhile, researchers, growers, chemical and seed companies and VegFed were working on strategies to eliminate the pest.

The $26 million lettuce industry was largely domestic, but exports to Australia had been suspended since the aphids' appearance.

Lettuce prices soar as aphids dine out
22.02.2003
By ANNE BESTON

The cost of a late-summer salad is about to rise dramatically thanks to a tiny lettuce-munching insect.

The lettuce aphid, discovered in Christchurch almost a year ago, has now infected up to 80 per cent of the lettuce crop at Auckland's "food bowl", Pukekohe.

"Growers are just rotary-hoeing them into the ground because we want to try and get rid of this thing," said Auckland Retail Fruiterers Association chief executive Ash Jeram.

At this time of year, the humble iceberg lettuce usually retails for around 95c but the price is rising rapidly, with $2.50 now common and more increases on the way.

The aphid, Nasonovia ribis-nigri, has now been found at Gisborne, Poverty Bay and Pukekohe, although Horowhenua is still free of the pest.

Retailers in Auckland are getting lettuces from Horowhenua but demand is outstripping supply.

Other growers, with help from Ministry of Agriculture and Forestry and Crop and Food scientists, are urgently searching for a pesticide cocktail that will work against the aphid but that would take time, said Mr Jeram.

Unlike a lot of other crop pests, the lettuce aphid feeds on the plant from the inside, making it difficult to reach with conventional sprays.

While the aphid has affected mainly iceberg lettuce, other varieties could also be affected, he said. And "fancy" lettuce varieties not susceptible to the aphid would likely become more expensive as demand increased.

Grower succumbs to aphid plague
19.03.2003

New Zealand's biggest lettuce-grower, Leaderbrand Produce, has surrendered to the aphid pest which has invaded all growing regions and pulled its wrapped iceberg lettuces from supermarket shelves.

It will plough tens of thousands of dollars worth of lettuces into the Poverty Bay flats because it cannot guarantee customers they will be free of aphids.

Leaderbrand's fresh produce business manager, Marcus Griffin, said the decision to recall its iceberg lettuces from supermarkets was solely in the interests of protecting the brand and the satisfaction of its customers.

Last week he predicted that if the aphid problem reduced the volumes of marketable lettuce, consumers would find "the price of a humble lettuce goes through the roof".

But as some of his company's fields of lettuces were mulched he said that Leaderbrand's would have to leave the market under-supplied for a period.

Before the aphid incursion 12 months ago, Leaderbrand Produce made a huge investment in providing supermarkets with lettuces chilled and wrapped in the fields. It imported a vacuum cooler from England at a cost of $500,000, and spent a similar amount on a new harvester from the United States specifically to field-pack 50,000 heads of lettuce a week.

Other growers have asked consumers to be tolerant of infested lettuces, and to simply wash off the aphids and discard damaged leaves.

Vegetable Growers' Federation chief executive Peter Silcock said infested lettuces were perfectly safe to eat.

Aphids destroy thousands of lettuces in Otago
13.03.2003

A Central Otago market gardening family are devastated at the loss of at least 45,000 lettuces to an aphid which is ravaging crops throughout New Zealand.

Hans and Angela Biemond and their eight children own about 17ha of land at Earnscleugh, near Alexandra, and sell a variety of fresh produce to the local market.

Since the arrival of the aphid in New Zealand about a year ago, thousands of affected crops have been ploughed under rather than harvested, costing growers an estimated $400,000.

Fresh tactics to combat bio-intruders
17.03.2003
By ANNE BESTON environment reporter

Border control is certain to be tightened after an extensive investigation into the number of alien organisms entering New Zealand.

Changes could include contracting private companies to carry out some of the Ministry of Agriculture and Forestry's work, which includes policing the 420,000 full and empty containers that arrive each year.

MAF biosecurity has been the subject of critical reports and an Auditor-General investigation over the past few months, all showing flaws in the sea container system.

Last year MAF inspected 24 per cent of high-risk containers and randomly selected a further 5-10 per cent for internal inspection, where an officer puts his head around the door and has a look inside.

In the survey, and for the first time, the ministry did a thorough re-check of containers already door-inspected and the results were predictably worrying.

Five live, alien spiders and three insects were discovered in the 1517 containers during door inspection.

In the re-check, the numbers shot up to 124 spiders and 71 insects.

For seeds and plant material, the figures were 19 and 179. Detection rates during door inspections were around 4 per cent for spiders and insects and 10 per cent for plant material.

"That is just way, way too low," said Forest and Bird biosecurity spokesman Geoff Keey. "MAF has been pussyfooting around the importing industry but it's time to get tough. The alternative is to send industry a bill for the eradication of painted apple moth."

MAF is currently battling to eradicate the moth from West Auckland in a $90 million aerial operation. Evidence points to it having arrived here on a shipping container.

But spokesman for the 300-member Importers Institute, Daniel Silva, said his organisation was a "convenient target" for those calling for tougher border control.

"Increased biosecurity means increased costs to the public."

As well as privatisation of inspections of low-risk containers, MAF is considering a new computer system with information and intelligence sharing between Customs, MAF and the shipping industry.

The ministry has also looked at a number of cleaning systems and visual technologies.

A spokeswoman for Biosecurity Minister Jim Sutton said the funding for biosecurity protection had increased at least $20 million since the election last year.

In 2001, the Government spent $123 million trying to protect the nation from pests and diseases, including screening aircraft and mail.

The estimated cost of screening all sea containers was $90 million.

The invaders

- 1930s Avondale Spider - Avondale
- 1930s Mosquito fish - Waikato
- 1983 Koi carp - Waikato
- 1989 Dutch elm disease - Auckland
- 1990 Argentine ant - Auckland
- 1993 Redback spider - Auckland
- 1997 Gum leaf skeletoniser (moth) - Mt Maunganui
- 1998 Varroa bee mite - North Island
- 1999 Painted apple moth - West Auckland
- 1999 Banjo frog - Auckland
- 2000 Yellow flower wasp - Northland
- 2001 Kentia palmseed borer - Auckland
- 2002 Southern saltmarsh mosquito - Kaipara Harbour
- 2002 Avian poxvirus - Auckland
- 2002 Lettuce aphid - Christchurch
- 2002 Eastern flower thrips - South Auckland
- 2002 Asian kelp - Auckland

Moth traps could get MAF out of flap
05.04.2003
By ANNE BESTON environment reporter

The day Hamilton's Asian gypsy moth (See Figure 25) discovery was announced was a bad day for biosecurity official Peter Thomson.

It might have been the worst in what has been a run of bad news stories for the Ministry of Agriculture and Forestry - gumleaf skeletoniser (another moth) spreading over South Auckland, fall webworm (also a moth) discovered in Mt Wellington, continued vociferous opposition to MAF's $90 million aerial blitz of painted apple moth in West Auckland, a major fruit-tree disease scare and crazy ants trapped at Mt Maunganui. But the ministry's director of forest biosecurity hoped that one live moth also brought with it a glimmer of good news.

Figure 25: Asian Gypsy Moth

"With the early-warning system in place, we hope we got it early," he said.
Proof its network of 1066 baited traps had caught the moth before it could get a wing-hold would be welcome to an agency whose job of policing New Zealand's borders against tiny invaders with strange names has become increasingly complex.

Meanwhile, Northland, Auckland, Waikato and Bay of Plenty security experts are monitoring the spread of guava moth, an Australian insect with an appetite for citrus fruit first discovered in a Kaitai mandarin orchard in 1999.

The latest run of unwelcome discoveries is probably just bad luck, but one statistic in the ministry's recent $1 million investigation into sea containers gives some idea of the scale of the problem: Container traffic has increased 180 per cent in just over a decade, to 420,000 containers landing here every year. Hitch-hiking a ride could be any number of nasties, from tiny soil-dwellers to poisonous snakes.

As MAF decides what changes to sea container inspections are needed, and then goes cap-in-hand to its political masters for money, wider changes are afoot.

The independent Biosecurity Council and the Auditor-General both issued report cards on NZ's biosecurity system late last year and made recommendations.

Chief among them are revamping biosecurity responsibilities between MAF and the ministries of Health and Conservation, with MAF taking a lead role; appointing a biosecurity advisory board to develop strategy, look at funding and suggest surveillance improvements; more rigorous performance criteria for all biosecurity programmes and injecting more science into decision-making.

Changes, being considered by an expert panel, are due to be announced on July 1.

The process is being watched carefully by a small army of independent scientists with their own views on MAF's abilities and failings.

Leading forestry expert Dr Gordon Hosking is one. He thinks a new, stand-alone biosecurity agency is the answer.

"Not some huge new bureaucracy but an over-arching agency that can bang heads together and get rid of all the baggage and inter-departmental competition that's gone on."

That option was not backed by the Biosecurity Council.

Throwing up the barriers against unwanted organisms costs the New Zealand taxpayer about $500 million a year. Bigger and better systems will cost more. Dr Hosking said if Asian gypsy moth was stopped this time, the way forward was clear. Where a sex-attractant or pheromone was commercially available, as it was for this moth, prevention was far better than response.

National Party agriculture spokesman David Carter called for the establishment of a cross-party committee of senior MPs, saying the threat was "too big to play politics".

United Future MP Larry Baldock said all sea containers had to be checked or biosecurity penny-pinching would impact on the economy.

"It seems today every creepy crawly known to man is reaching our shores, and in large measure that's because we won't spend enough on keeping these things out," he said.

A spokeswoman for Biosecurity Minister Jim Sutton said it would cost $90 million a year to check every sea container. Baseline biosecurity funding is $140 million a year.

"We're not ruling out looking at all containers but it will cost a lot," she said.

"Sea containers are a risk area . We've had a $1 million study into sea container risk and methods to counter that risk. A discussion document is currently out for public consultation. The minister intends to act on that by the end of the year, probably as part of the draft biosecurity strategy. We're in a constant process of improvement of biosecurity."

The Labour-led Government was spending about $50 million more a year in baseline biosecurity funding, she said. It had lifted screening of air passengers from 80 per cent to 100 per cent with soft tissue X-ray Machines at every international airport, and extra detection staff and detector dogs. All mail, other than from Antarctica, was now screened, she said.

Mr Carter said Prime Minister Helen Clark had to take a stand on the issue, because the Asian gypsy moth had the potential to devastate the $3 billion a year forestry industry.

"With our dependence on primary production, we can't afford to have these biosecurity breaches time and time again.

"This is not an area in which to play politics. Parliament already has a special cross-party committee to deal with issues of national security and intelligence. I believe there's a greater chance of being invaded by foot-and-mouth than a foreign power."

Call for Government to boost pest control
05.03.2001
By PHILIPPA STEVENSON Agricultural editor

The Parliamentary Commissioner for the Environment has stepped up his call for the Government to clamp down on alien pests and diseases after Britain's foot-and-mouth outbreak. Dr Morgan Williams told the Business Herald that he wanted to see biosecurity given the same priority as national defence.

The independent environmental watchdog first put the Government on notice over its priorities for biosecurity in a report, New Zealand Under Siege, in October.

Britain's foot-and-mouth disease outbreak has increased concerns about New Zealand's ability to detect and destroy economically damaging pests, and Dr Williams has suggested that the Biosecurity Minister hold a weekly briefing on strategic global biosecurity.

"The number one enemies are the things that get through the border, and they are not human," he said.

They were more likely to have six or more legs, be microscopic, green and below the radar screen.

The Ministry of Agriculture and Forestry has played down any threat from foot-and-mouth, noting that Britain is not the only country where outbreaks have occurred.

The disease is endemic in many parts of the world and recent outbreaks have occurred in Africa, South America, Japan, Greece, Taiwan and Korea.

"New Zealand has continual exposure to these countries and we have never had foot-and-mouth enter the country," said the national manager for surveillance and response, Allen Bryce.

"MAF has procedures in place at the border that mitigate foot-and-mouth being brought in and we are careful about what we allow to be imported."

But Sheep Research Foundation chairman Robin Campbell said farmers feared a special risk from Britain.

"When an outbreak occurs in a nation we believe to be safe and with which we exchange such a high flow of goods and people, there is a risk that we can be caught unprepared," he said.

Federated Farmers has taken the same view, with biosecurity spokesman Tom Lambie calling for a publicity campaign to heighten awareness of the risks New Zealand faces.

Dr Williams said New Zealand was probably as well equipped to deal with foot-and-mouth as with any potential biosecurity threat.

But the heightened level of awareness provided an opportunity to get people focusing back on how important biosecurity was to the country.

His study had found that of the $103 million to be spent on biosecurity in 2000-01, just $86,000 would be spent on public information and awareness campaigns - down from $500,000 in 1996-97. In contrast, Australia would spend $2.86 million.

"We try to get through very clearly that biosecurity has to be part of the national psyche, which means we've all got to understand it.

"It means you've got to invest a lot in publicity, empowering people - getting it in front of them." The commissioner would like to have permanent telephone hotlines, and rewards offered for information.

"It's children and gardeners and people mucking around clearing spiders who find all these things. In fact, all the recent finds of unwanted insects have been by keen-eyed observers, not by official agencies."

Dr Williams said the illegal introduction by South Island farmers of rabbit calicivirus, now known as rabbit haemorraghic disease, highlighted the fact that the effectiveness of biosecurity was about "the public acceptance of the rules, and the willingness of all citizens to say this is important."

"That is why you should spend a lot on publicity, teaching and education. Then everybody owns the problem, and you wouldn't get an illegal introduction of something, or people smuggling stuff through in their suitcases daily."

Airlines and the tourism industry could also play a part, he said.

The report noted that many in the travel industry believed that disseminating quarantine information was solely the responsibility of MAF Quarantine Service and the Government.

But a 1997 investigation by the commissioner on the environmental impacts of tourism showed that airlines were important in distributing information to people entering New Zealand.

Airlines had argued against installing the biological x-ray system at airports because it would slow passenger flow, but detection of high-risk fruit and other food rose dramatically when it was introduced.

Dr Williams said front-line quarantine staff were looking forward to their work being further helped by the introduction of $200 instant fines for import breaches from July 1.

Biosecurity services could also look at other ways of managing pests and diseases that made it past the border.

The likely success of control measures is assessed from existing knowledge about the species.

But Australia's experience of a fruit fly invasion in Queensland showed that research could help.

Australian officials initially estimated that $60 million was needed for a less than 20 per cent chance of eradicating the pest.

Dr Williams said the eradication plan went ahead but "they also threw a lot of science at it," and the pest was eradicated for $30 million.

"They beat the odds for half the price."

New Zealand biosecurity systems had no ready-reaction fighting fund.

"MAF has money only to find out what [the threat] is, not to immediately initiate smart control operations."

Next month, six months after the report was published, the commissioner will formally ask the Government what it has done in response to his recommendations.

He has also already indicated to Parliament, including to the primary production select committee, that there will be an annual biosecurity audit.

"It's a way of saying it is that important. We're going to keep the heat on."

Biosecurity report slams inconsistent response to foreign pests
28.11.2002
By ANNE BESTON

The response of biosecurity authorities to pest incursions has been inconsistent and there is no guarantee the resources are available to deal adequately with a major invasion, says a new report.

An audit by the Auditor-General's office of the response by the Ministry of Agriculture and Forestry to biosecurity said better co-ordination between Government departments was needed.

It also said there was not enough co-ordination between different biosecurity departments within the ministry and confusion over where funding would come from for new incursions.

The report also raised concerns over surveillance of shipping containers and bulk mail items.

The ministry gets most of the biosecurity funding, $130.1 million last year, while the Department of Conservation got $3.5 million, the Ministry of Fisheries the same and the Ministry of Health $2.4 million.

But the different ministries appeared confused over which of them should deal with a pest incursion such as the discovery of the exotic disease-carrying southern saltmarsh mosquito, the report said.

There was debate over whether that should have been dealt with by the Ministry of Agriculture and Forestry or the Ministry of Health.

The Health Ministry regarded the mosquito incursion as a biosecurity issue but it was assessed as a health issue.

The Auditor-General's report said animal, plants and forest biosecurity groups within the Ministry of Agriculture and Forestry "work in a relatively isolated way". That caused inconsistencies when responding to new alien species.

The report said that while the red fire ant scare this year was very well managed, the response to the painted apple moth had been poorly managed.

The Ministry of Agriculture and Forestry biosecurity also needed to set clear goals and performance targets, it said.

The ministry appeared unsure what a suitable level of inspection was for shipping containers coming into New Zealand, a likely pathway for pests ranging from mosquitoes to snakes.

Forest and Bird biosecurity officer Geoff Keey agreed and said a central response fund should be made available immediately for biosecurity.

He also agreed that the ministry should review its shipping container surveillance.

"We think inspecting a quarter of shipping containers is just irresponsible. They are a perfect way for pests to come into New Zealand and we think it should be closer to 100 per cent inspection."

Danger lurks as pest control found wanting
17.12.2002
By ANNE BESTON

New Zealand's ability to police its borders for potentially disastrous disease and pest incursions has again come under fire.

The Government-appointed biosecurity council yesterday released its verdict on New Zealand's biosecurity, echoing the same concerns the Auditor-General raised in his report last month.

In putting together a biosecurity strategy, the council found gaps in the system. It says Government agencies are not fully prepared for even a small outbreak of foot-and-mouth disease, potentially costing this country $4 billion.

That would reduce New Zealander's standard of living by 25 per cent.

The council's Guiding Pacific's Triple Star report says confusion and bickering between Government departments, lack of scientific knowledge about pest incursions and their potential impact and inconsistent checking of pest entry-points are hampering our ability to police our borders.

New Zealand could cope with "most small incursions of slow-moving organisms, but may not be able to handle large-scale outbreaks such as foot-and-mouth disease".

While risks were constantly changing "the capabilities to meet these new demands are stretched or missing".

Inconsistent funding decisions, erratic decision-making and lack of leadership put New Zealand at risk if a major biosecurity emergency occurred.

It questioned why MAF decided to screen all mail for plant and animal material but not courier packs and failed to review its fruit fly surveillance when a system had been put in that substantially reduced the likelihood of an incursion.

The council recommends the Ministry of Agriculture and Forestry and the Ministry of Fisheries should take over biosecurity, effectively cutting the Department of Conservation and the Ministry of Health out.

DoC had been "frustrated" by the emphasis placed on protecting New Zealand's agricultural sector when it wanted more emphasis on protecting New Zealand's native species. It would still have an advisory role under the council's strategy.

The council recommends more spending on passenger clearances, cargo and container clearances and ships, saying surveillance is inconsistent.

The "marginal" benefits of screening 100 per cent of airline passengers wasn't weighed against increasing container inspection - at present just 23 per cent of containers are inspected for exotic pests.

Yet an analysis of 35 incursions over the past 15 years found the main entry points for exotic pests and diseases in order of priority were: ships and aircraft, imported containers and Machinery, smuggling, undetected material in legal imports and, lastly, incoming passengers.

The council recommends a range of advisory committees to provide advice to MAF and MFish if they are given sole responsibility for biosecurity.

A science advisory board was urgently needed because the research base for pest incursions was at times "totally inadequate".

New Zealand will spend about $500 million on biosecurity over the next year.

The Biosecurity Council's Triple Star strategy is open for public submissions until February 28.

Editorial: Urgency needed to keep pests out
19.10.2001

It is hard to share Marian Hobbs' confidence that this country's biosecurity defences are working effectively. The Associate Biosecurity Minister might try putting that view to the unfortunate shoppers in Feilding and Kaitaia who, in the past three months, have found live black widow spiders in bunches of Californian table grapes.

She might also try telling it to grape growers, who fear catastrophic consequences if other insect pests enter the country via the Californian imports. And she might ponder the fact that hardly a week goes by without some unwanted mosquito, spider, ant or beetle being intercepted by the Ministry of Agriculture and Forestry's quarantine service.

In part, the proliferation is not surprising. More than ever, New Zealand is a trading nation. More tourists than ever travel through it. In part, the rate of detection is also a feather in the cap of quarantine officials. When, however, venomous insects repeatedly breach biosecurity and, in the case of black widow spiders, get as far as provincial shops, it suggests something is amiss.

Successive reports have said as much. A 1997 Ministry of Health report found that Auckland was at great risk from invasion by mosquitoes carrying deadly exotic diseases. It identified a lack of expertise in the likes of border inspection. Subsequently, the Parliamentary Commissioner for the Environment has declared the country "under siege" and suggested biosecurity be accorded the same priority and focus as national security. Failure, said Morgan Williams, would result in a multimillion-dollar threat to the economy, the environment and human and animal health.

The Government, to its credit, has recognised the danger. It wants an overarching biosecurity strategy in place by the end of next year. At the moment, a development team is holding workshops and public meetings. That awareness makes it all the more strange that the Government's short-term approach is so indecisive - and so ineffectual. To all intents, the importers of the black widow-harbouring Californian grapes were given one last, unequivocal warning two months ago.

Now, with the discovery of another black widow in Auckland, the third such find in as many months, essentially the same threat has been made. The system, said MAF, would be reviewed if

another exotic spider made it here. How can the public not view such statements as unconvincing, and be increasingly unconvinced about the country's biosecurity defences?

That general concern pales, however, beside the fears of those whose livelihood could be wiped out by insect pests. The expanding wine industry worries that defective fumigation of the Californian grapes in the US - as has happened previously - could allow another pest, glassy-winged sharpshooters, into New Zealand. The insects spread Pierce's disease, a devastating vine illness.

Already, it has ravaged parts of the Californian industry. Already, the threat has prompted Australia to ban imports of Californian grapes. Yet New Zealand seems prepared to take the risk, reckoning that the bug's size and the chilled storage of shipments make the threat minimal.

Even if such were the case, it hardly seems a risk worth taking, especially as horticultural industries are also endangered. There can be no middle ground. Increased fumigation of the grapes in the US is impossible; it would reduce the grapes to mush. A Government serious about biosecurity, therefore, has little option. It must ban the Californian grapes.

Quarantine services can never guarantee total protection. But if biosecurity is breached, the emphasis must be on preventing a repetition, not indulging importers in the last-chance saloon.

The repetitive discovery of black widows has spider experts reasoning that only luck will have prevented the establishment of colonies here. Relying on Dame Fortune is no way to safeguard important industries.

It is increasingly clear that MAF does not have the capacity to deal with the growing threat. The Government's new strategy will surely remedy that, and ensure a higher proportion of containers and other cargo is checked. Monitoring here, and possibly abroad, must also be stepped up. In particular, a tougher approach must be taken to health standards for imported used vehicles, the means of entry for many of the unwanted pests.

Above all, authorities must be more decisive when confronted with potentially devastating threats. The Government should take the first step in dealing with the problems, real and potential, posed by Californian grapes.

Recommendations

The primary recommendations arising from this report concern Biosecurity and the possible introduction of Lettuce Aphid to Australia.

1. That biosecurity methodology and protocols between Australia and New Zealand be reviewed immediately. New Zealand (as can be seen by the above articles under 'Biosecurity') has a number of pests that would be injurious to agriculture in Australia.
2. That research/review of Lettuce Aphid control be undertaken so that producers are well placed to combat this threat if and when it enters Australia. Horticulture Australia in conjunction with the Leafy Commodity Group to establish terms of reference for research and development.

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