

**IN THE ENVIRONMENT COURT AT WELLINGTON**

**IN THE MATTER** of the Resource Management Act 1991  
("the Act")

**AND**

**IN THE MATTER** of clause 14 of the First Schedule of the Act

**BETWEEN** **FEDERATED FARMERS OF NEW ZEALAND**  
ENV-2010-WLG-000148

**AND** **MINISTER OF CONSERVATION**  
ENV-2010-WLG-000150

**AND** **HORTICULTURE NEW ZEALAND**  
ENV-2010-WLG-000155

**AND** **WELLINGTON FISH & GAME COUNCIL**  
ENV-2010-WLG-000157

**Appellants**

**AND** **MANAWATU-WANGANUI REGIONAL  
COUNCIL**

**Respondent**

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**STATEMENT OF EVIDENCE OF STUART JOHN FORD FOR HORTICULTURE NEW  
ZEALAND IN RELATION TO THE APPEALS ON THE PROPOSED ONE PLAN  
FOR MANAWATU WANGANUI REGIONAL COUNCIL ON SURFACE  
WATER QUALITY**

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**14 MARCH 2012**

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## **QUALIFICATIONS AND EXPERIENCE**

- 1 My full name is Stuart John Ford.
- 2 I am a Director of The AgriBusiness Group and work as an agricultural and resource economist based in Christchurch. I have a Diploma in Agriculture and Bachelor of Agricultural Commerce from Lincoln University and have undertaken post graduate studies in Agricultural and Resource Economics at Massey University.
- 3 I am a member of the New Zealand Agriculture and Resource Economics Society and the Australian Agriculture and Resource Economics Society. I am also a member of the New Zealand Institute of Primary Industry Management.
- 4 I have spent over twenty five years as a consultant in the agricultural industry, with the last twelve years specialising in agricultural and resource economics and business analysis
- 5 I have undertaken a wide range of economic impact and cost benefit assessments of proposed statutory planning proposals.
- 6 I also have extensive experience working with the OVERSEER tool both in the Horticultural and Pastoral industries.
- 7 I have prepared evidence and presented it to Regional Council Hearings Panels as well as the District and Environment Courts and Special Hearing Panels on Conservation Orders.
- 8 I have been asked by Horticulture New Zealand to provide this evidence.
- 9 I have been provided with a copy of the Code of Conduct for Expert Witnesses contained in the Environment Court's Consolidated Practice Note dated 1 November 2011. I have read and agree to comply with that Code. This evidence is within my area of expertise, except where I state that I am relying upon the specified evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

## **CONTEXT AND SCOPE OF MY EVIDENCE**

- 10 My evidence is given in support of:
  - a The decision to remove "market gardening" (referred to as "Horticulture" in my evidence) from the NV POP from the rule framework for the reasons that :

*“Market gardening (commercial vegetable growing) is, like cropping undertaken on a mix of leased and farmer owned land and therefore it would be problematic to include in a regulatory framework.*

*The lack of evidence about the ability of commercial vegetable growers to meet the limits of the rule or the consequences of them.*

*Of the sub-zones within Table 13-1 only the Mangapapa (2%) and Lake Horowhenua (3.5%) contain Horticulture and these areas are small when compared to dairy<sup>1</sup>.”*

- 11 And in support of the proposals put forward by Claire Barton Planner for the Council on how to include Horticulture in the plan appropriately.
- 12 In the evidence that follows I consider the following matters:
  - a The nature of horticultural land in the region;
  - b The lack of evidence regarding the ability of the growers to meet the limits;
  - c The proposals in relation to the treatment of horticulture in the plan;
  - d My conclusions and recommendations.

### **THE NATURE OF HORTICULTURAL LAND IN THE REGION**

- 13 Horticulture New Zealand has over 380 grower members producing a range of vegetable crops over approximately 5,000 ha within the Council's boundaries.
- 14 Many of these crops such as potatoes and onions are not grown in the same ground year after year. There is a need to keep moving the crops to new ground which necessitates the renting of new ground off the existing land owners. Amongst some horticultural growers there is a continual movement to new ground.
- 15 In the original hearings the Council heard from a number of land owners that submitted details of their growing operations (in the form of case studies) that stretched from 200 Ha to 1650

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<sup>1</sup> Statement of planning evidence by Clare Barton on the topic of surface water quality.

Ha. They stressed that because of the need to rest land between crops that they leased between 20% and 100% of the land which they were going to use on an annual basis.

- 16 This could mean that if the NV POP was adopted that there would be a need to consent the provisions for land use on an ongoing basis. This would in turn necessitate a range of costs for the growers on a continuing basis. I can use as an example the case study of Ian Corbett who in the 2009 to 2010 year operated on 20 farms (40 paddocks) over a combined acreage of 312 acres. This case study is attached as Appendix A to this evidence.
- 17 In terms of the analysis that follows I have used, as an estimate of consent application fees being at the rate of Council's general application fee of \$920 per consent, noting that this estimate does not include the applicant's personal costs of preparing the application and filing it with the Council and dealing with any associated queries from the Council.
- 18 We can then assume ongoing compliance monitoring costs of \$313 / annum. This assumes that this cost accurately portrays the true costs of the Council monitoring these consents. Compliance monitoring costs are set at a standard rate for all consents so the true costs to the Council of monitoring these consents could be much higher. If that were the case the cost of monitoring these consents would be subsidised by other consents or by ratepayers in general.
- 19 The largest of the growers in the case studies presented to the first instance hearing estimated that the cost of gaining consent for their operation, including the requirement to carry out a FARM strategy, would be approximately \$100,000 per year. This is because this grower is constantly moving land areas. Even without the need to carry out a FARM strategy the cost would be above \$30,000 per year.
- 20 This would support the contention that the cost of complying with the requirements of the NV POP would by fair outweigh any advantages that could be achieved.

#### **THE LACK OF EVIDENCE ABOUT THE ABILITY OF GROWERS TO MEET THE LIMITS**

- 21 There is much confusion created by the various pieces of evidence given by Dr Clothier and Mr Roygard to the Council as to the amount of Nitrogen (N) leaching created by

Horticultural operations. For example the figure of 300 kg N/ Ha is given at one point as the result of a single crop calculation whilst in calculating the amount leached Dr Clothier uses 80 kg N / Ha as a rule of thumb for both Horticulture and Cropping.<sup>2</sup> I note that oral evidence provided by Chris Keenan to the Surface Water Quality Chapter hearings at first instance records the exceptional factors that led to the high rates of leaching caused on the surveyed farm in the study referred to.

- 22 I believe that the total N leaching is on average much less than the amount used by Dr Clothier and Mr Roygard. This contention is based on the fact that Horticultural operations are generally carried out on the best land. This is land unit class I and II (and sometimes on class III). By its very nature this land is deep in its soil profile and has the ability to hold a large amount of N in the profile and therefore stopping it from leaching.
- 23 In order to demonstrate this fact I will refer you to Table 1 which reports the results of the calculation of the mean Nitrogen leached across three soils in the Manawatu. This work was carried out by Horticulture NZ as part of a national trial in 2009. It is my understanding that Horizons Regional Council was involved in the study.

**Table 1: Average Nitrogen leaching in the Manawatu (kg /Ha /yr)**

	<b>Potatoes</b>	<b>Carrot</b>	<b>Maize</b>	<b>Pea / Bean</b>	<b>Wheat</b>	<b>Barley</b>
<b>Light Soil</b>	44.5	53.9	80.8	83.9	92.5	127.7
<b>Medium Soil</b>	22.7	28.3	65.2	10.2	36.9	65.2
<b>Heavy Soil</b>	4.4	8.8	16.1	10.2	8.4	24

- 24 In Table 1 the first two columns show the N leaching performance of the Horticultural crops of Potatoes and Carrots with the remainder of the columns being for arable crops. What we can take from the Table is that the N leaching performance of the crops is very strongly influenced by the quality of the soil on which it is carried out with the results for the heavy soils

<sup>2</sup> Supplementary statement by Jon Roygard and Mare Clark on Nutrient load scenarios and methodology.

being a small percentage of the N leaching performance on the light soils.

- 25 Having done a considerable amount of calculating N leaching performance I know that the variability can be quite large between management treatments and between years (rainfall). However the above figures represent an average of performance in one year. They do not come anywhere near the figures suggested by some of the experts.
- 26 If we then consider that the land is only used once and then is returned to pasture for 5 to 10 years then the average N leaching performance is further minimised.
- 27 In an exercise to test this LandVision carried out a modelling exercise on the performance of a Horticultural property in Ohakune on class III land. It is my understanding that the study, known as the "fictitious farm strategy" was produced by Horizons Regional Council and submitted as evidence as part of the Council water quality hearings. The property farmed a total of 1,000 Ha with 400 Ha in garden at any one time. For the remainder of the time the land was in pasture. A range of crops was grown.
- 28 The garden area had an N leakage figure of 31 kg N / Ha / yr while the pasture had a leakage of 10 kg N / Ha / yr with an overall property leakage of 18 kg N / Ha /yr.
- 29 This sort of data proves that there is considerable confusion over the N leaching performance of Horticultural land and supports the decision of the hearings panel to remove it from the regulatory frame work until it can be better modelled and assessed as a whole farm system.
- 30 The hearing panel correctly recognised that even in the target catchments that there is a small area of land under Horticulture. Even if the leaching performance was as high as it was potentially reported that there was little chance of any change in the performance influencing the result on water quality in the catchment. This did not justify the inclusion of Horticulture in the regulatory framework.

#### **PROPOSALS TO INCLUDE HORTICULTURE IN THE PLAN.**

- 31 In her evidence Ms Barton reports to you that the hearing panel decided that voluntary or industry led nutrient leaching methods would apply to Horticulture (amongst others). She

correctly notes that these methods may not gain traction, take time to develop or even fall short because of a lack of momentum. She therefore sets out a policy solution to cover these outcomes. She points out that this is done whilst recognising the current limitations in data and methodology to manage nutrient loss for these activities.

- 32 I would like to point out that Horticulture New Zealand has produced a Code of Practice for Commercial Vegetable Growing in the Horizons Region. This document includes a draft section on Best Management Practices for Nutrient Management.
- 33 This part of the document specifies that the activity shall demonstrate through a New Zealand GAP audit that the operation is compliant with the New Zealand GAP nutrient management plan requirements by either :
- a Meeting the standards set in the One Plan; or
  - b On average over the crop rotation (excluding the pasture phase) no more than 115 kg N / Ha / year will be applied and no more than 250 kg N / Ha / yr shall be applied in any one year;
  - c The total amount of Nitrogen applied shall not exceed 200 kg / Ha / yr and that single application shall not exceed 120 kg N / ha.
- 34 If that Code of Practice was adhered to by all growers there would be no chance of there being a crop that achieved the sorts of high N leaching figures reported in the reports of Dr Clothier and Mr Roygard.
- 35 In fact I understand that Horticulture New Zealand offered this Code of Practice to the Council for it to adopt in its Plan. I think it is material to note that Commissioners rejected the proposal in the hearings as being beyond requirements given the nature and scale of the industry.
- 36 Therefore Horticulture New Zealand supports the policy approach of Ms Barton which seeks to require the management of other land uses where there is potential for contribution to elevated levels in surface water quality.

## **CONCLUSIONS AND RECOMENDATIONS**

- 37 I support the decision of the hearings panel to exclude Horticulture from the planning framework because the cost of complying with the requirements of the NV POP would by far outweigh any advantages that could be achieved.
- 38 In my opinion the information that I have presented proves that there is considerable confusion over the N leaching performance of Horticultural land and supports the decision of the hearings panel to remove it from the regulatory frame work until it can be sorted out.
- 39 Horticulture has a code of practice which supports the adoption of a nutrient management plan which achieves New Zealand GAP registration and would keep the level of N leaching well below the requirements of the Council.
- 40 Therefore Horticulture New Zealand supports the policy approach of Ms Barton which seeks to require the management of other land uses where there is potential for contribution to elevated levels in surface water quality.

**Stuart Ford**

**14 March 2012**



## **APPENDIX A – GROWER CASE STUDY – IAN CORBETT**

### **IAN CORBETT – RANGITIKEI POTATO GROWER CASE STUDY**

#### History

Family 3<sup>rd</sup> generation - going on 4<sup>th</sup>

Grandad started growing in Ohingaiti in the 1920's

Father expanded grower operations mostly around Apiti and Kimbolton

Currently growing across a wide area of the Manawatu and Rangitikei, from Rangiwahia and Apiti in the North to Halcombe / Fielding in the South.

Used to be 6 other growers and used to be extensively cropped – about 250 acres each.

- Potato cropping in these districts have been one of the traditional farming activities
- Mostly, we are seed growers with some table production
- Certification of seedgrowers requires 5 yrs with no return to the same paddock.

#### Employment:

We employ 10 people:

- 3 seasonal Mar-Dec
- 7 fulltime

#### Leasing arrangements

Because of the requirements to not return to a paddock I use lease land.

Leasing is done by handshake

Long term relationships have been established.

#### Cropped area:

2007-2008: 380 total acres

2008-2009: 438 acres, 56 paddocks

2009-2010: 312 acres, 40 paddocks on 20 farms.

In the last 5 years only 1 paddock of all the 96 used had been cropped for potatoes less than 10 years prior.

On a 500 acre farm, as a maximum we would have 10-15 acres in cultivation at the most. On one 1000 acre farm we are currently cropping 60 acres and this is an exception to the rule.

#### Cropping and cultivation practices:

2 crop types with differing yields:

- Seed potatoes 2/3 of production area - 20 tonne/ha
- Table potatoes 1/3 of production area - 50 tonne/ha
- Mostly dug by end of May before winter hits

Cultivation practices are:

- chip grass
- plough
- 1 swipe with row tier
- plant
- 3 ½ months is the average period for early rotation
- Other method is to start in November and go for 8-9-10 months using the ground as a fridge to keep the spuds in good condition.

November: rip wheel tracks

February to November: dig

September: start planting

December: sorting

Where we grow on slight hills (maybe 10 degrees slope) we cultivate rows across the contour because the rows can hold the water, not like permanently cropped soils. The organic matter provides more soil strength.

#### Rotation:

Rotation - 1 yr in potatoes

Maybe 1 yr barley

Back to grass, until grass depleted 5-10 years or longer.

There is a significant difference in cropping from other rotational methods in other areas:

- organic matter is a key difference – soils have a lot of “guts” from the pasture root mass
- no irrigation used.

Rotation depends on number of growers – 1 at the moment, 6 in the past.

The seed certification does give some guarantee there will be a minimum of 5 years gap to comply with seed potato certification requirements.

#### Fertiliser use

- We do soil test history for each paddock – all the result we get are similar.
- We work on the basis that we don't “mine the existing NPK” from the landowner – could be considered as “stealing”
- So a set formula is used, based on plant requirements and yield:
- Initially 7 bags of 12N:10P:10K per acre
- Small amounts are applied often after that
  - 2 bags Nitrophoska blue TE once
  - small doses of urea with spray returns.

Farmers leasing off would have little to no idea of fertiliser input history over 10 years; usually grass for at least 5. Grow mostly on sheep and beef pasture that has either runout or been cropped. A little bit of dairy land is also leased.

#### General information about paddocks cropped:

- Often do get pugged paddocks – so we get under the compacted layer and free it up. Often a crop has been in, such as chow or kale.
- The paddocks are not the best paddocks on the farm but they are usually flat
- Part of the deal for the farmer is that the paddock is improved and damage is repaired by the cultivation
- It provides a direct benefit to their farm.
- Sometimes the paddocks we are cropping are paddocks that farmers had used to overwinter cattle to avoid destroying the rest of the farm, so it suits for me to follow on and cultivate the paddock.

Know where the good land is, plenty of scope and area at the moment. Some change in land use is changing the available area, but still lots of available capacity for growth.

#### Results for other farmers

- Increase structure of soil and fertility, reduce compaction.
- Increase capacity to farm well for future by increasing the nutrient retention capacity and decreasing surface runoff

#### Other key issues

Last year we suffered \$1.3 - \$1.5 million loss for our tiny business alone from a new potato psyllid that affected our crop. Growing has its challenges.

#### Fundraising activities

Our business grows potatoes for school charity every year:

- Kiwitea
- Kimbolton
- Waituna West
- Apiti
- Rangawahia

Every year a 2-3 acre paddock potatoes is provided for the community to access at Christmas.

#### What the Proposed One Plan means for me:

I am not growing in any target water management zones but because I am changing land use on a range of properties every year I am concerned about needing resource consent every year. And if the farmers then have to get consents for the rest of the property they are not going to want to lease me any land.