

**BEFORE THE HEARING COMMISSIONERS  
AT WHANGAREI**

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

**AND**

**IN THE MATTER** of the hearing of submissions on  
Proposed Plan Changes 85 and  
85A-D to the Whangarei District Plan

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**STATEMENT OF EVIDENCE BY JEROME HARDY  
FOR HORTICULTURE NEW ZEALAND**

**29 June 2017**

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## SUMMARY STATEMENT

1. This evidence addresses the following matters:
  - a) The suitability of the Whangarei district for avocado and kiwifruit production
  - b) Nature and sensitivity of avocado and kiwifruit growing systems
  - c) Value of Whangarei district avocado and kiwifruit production

## BACKGROUND AND EXPERIENCE

2. After graduating from the University of Natal with a B.Sc. Agriculture (majoring in Horticultural Science) in 1991 I worked in the South African and Zimbabwean horticultural industries for 10 years. I immigrated to NZ in 2002 to take a role with a NZ avocado packer and since then I have been working as a NZ-based horticultural consultant with a specific focus on avocados. From my arrival in NZ in 2002, a large part of my work has involved advising growers in the Whangarei area including Maungatapere and Glenbervie, and I have owned and leased avocado orchards in Northland during that time.
3. 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 December 2014. 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.

## THE SUITABILITY OF THE WHANGAREI DISTRICT FOR AVOCADO AND KIWIFRUIT PRODUCTION

4. **Soils:** Horticulture is limited to (and concentrated in) the areas of well-drained clay loam soils of volcanic origin around Glenbervie, Maungakaramea, Maunu and Maungatapere (including Whatitiri mountain, Kara Rd, Otaika Valley Rd). Volcanic soils around Whangarei are described as either:
  - i) Red loam: Scoria base eg Maunu
  - ii) Brown loam: Basalt base eg Whatitiri

These soils are well-drained and suited to avocado and kiwifruit production as well as persimmon, tamarillo and passion-fruit production.

5. **Water:** Horticultural growers in the Whangarei district have good access to the required volumes of excellent-quality irrigation water either through river-supplied water schemes (eg Maungatapere Water Company, Kiteroa Water Scheme), or their own bores or river consents.
6. **Climate:** The cool subtropical, generally frost-free climate of the Whangarei district is ideal for the production of avocados and kiwifruit, persimmon, tamarillo and passion-fruit.
7. **Contour:** Avocados and kiwifruit reach maximum productive potential on elevated, well-drained land, of flat to gently rolling contour. The gently sloping hillsides around the major volcanic cones of the Whangarei district satisfy these criteria.
8. **Access to labour markets:** Intensive horticultural production in the district employs, and is reliant on, the high-quality labour available in Whangarei for pruning and harvesting. There are also locally-available specialist contractors available for spraying, chipping and mulching, as well as fertiliser spreading.
9. **Constraints:** It is my considered opinion that the major constraint to development of horticulture in the Whangarei district is the availability of suitable land, as defined by soil type. The availability of high-quality, well-drained volcanic soils of suitable contour for the use of horticultural production is limited.

## **NATURE AND SENSITIVITY OF AVOCADO AND KIWIFRUIT GROWING SYSTEMS IN THE WHANGAREI DISTRICT**

### **A. CROP**

10. **Avocado:** The Hass scion is the dominant variety of avocado produced. A significant technological development for the Whangarei avocado industry has been the introduction of high-performance clonal rootstock cultivars which have tolerance to Phytophthora cinnamomi (a fungal root-rot disease). Hass is grafted onto the new DUSA, Bounty and Latas rootstocks and this allows growers to replant old, declining orchards. It was previously not possible to replant old orchards with traditional (Zutano seedling) rootstocks due to the sensitivity of Zutano rootstock to disease pressure in the soil. However, the new rootstocks, in particular Bounty, are performing extremely well in Whangarei.
11. So the new rootstocks have presented Whangarei growers with a new, unique opportunity for renewal. As a result, there has been substantial investment by Whangarei growers in conversion of older orchards to new rootstock material. It should be noted that

much (if not all) of the orcharding land converted to new rootstocks is not yet in commercial production.

12. There are only two nurseries in the country who specialise in the supply of new clonal rootstocks. They are: Lynwood Nurseries in Maunu, Whangarei, and Riversun Nursery in Gisborne, both of whom have invested heavily in specialised facilities required to produce these disease-tolerant trees and meet high regional and national demand.
13. **Kiwifruit:** Both Green (Hayward) and Gold (Hort16A and Gold 3) kiwifruit are produced in the Whangarei district. The new Gold 3 cultivar is currently replacing the older Hort16A (which is prone to bacterial disease) as the dominant gold variety in Whangarei and Gold 3 has proven to be particularly well-suited to the volcanic soils and climate of the Whangarei district. This new cultivar (Gold 3) is yielding an Orchard Gate Return of around \$120,000 per hectare and arguably holds the position as the most profitable field-horticulture activity in NZ. The volcanic soils and mild climate of the Whangarei district suit both Gold 3 and Hayward very well.

## **B. SIZE AND AREA OF ORCHARDS IN WHANGAREI**

14. Commercial avocado orchards in this area vary in size from 1 canopy ha to around 35 canopy ha, with the majority of orchards being in the 2-6 ha range. The total productive area of avocados in the Whangarei district is approximately 811 hectares.
15. Commercial kiwifruit orchards in this area vary in size from 0.5 canopy ha to around 14 canopy ha, with the majority of orchards being in the 1-6 ha range. The total productive area of kiwifruit in the Whangarei district is 419 hectares, of which 303 hectares is Gold.

## **C. SPRAYING HIGHLY SENSITIVE**

16. To be commercially viable both avocados and kiwifruit require a minimum of 8 but up to 14 sprays a year to apply plant growth regulators (eg Hi-Cane, Sunny), insecticides, miticides, fungicides, bactericides (kiwifruit only), foliar nutrition and phosphonate for root health (avocados only). Mixing of products occurs where compatibility allows to reduce spraying time.
17. Managing sprays on boundary blocks is always difficult as the avocado or kiwifruit orchardist seeks to always spray a boundary block with an 'on-shore' wind. Multiple residential or lifestyle neighbours who have a low tolerance for sprays make this 'juggling act' almost impossible. Most pesticides include stenching agents and the smell of a spray combined with the noise and the

perception of a health risk make this the most sensitive of all orcharding activities.

#### D. POLLINATION BY BEES SENSITIVE

18. During flowering (October-November) avocado and kiwifruit orchardists arrange for beehives to be placed on their orchards. Beehive requirements for adequate pollination:
  - Avocado orchards require 4-10 hives per hectare
  - Gold kiwifruit orchards require 10-15 hives per hectare
  - Green kiwifruit orchards require 8-12 hives per hectare
19. Beehives can present a concern for some members of the community due to allergies, and yellow splashes of bee droppings on cars, washing, windows etc.

#### E. SHELTERBELTS SENSITIVE

20. Shelter (both natural and artificial) can be a sensitive issue for neighbours due to the impact on views and the shading effect on the South side of the shelter row.
21. Shelter from wind is a critical necessity to successful avocado and kiwifruit orcharding in the Whangarei district. Whangarei avocado growers typically use *Cryptomeria japonica* (Japanese cedar) or *Pinus radiata* (Radiata pine) as trimmed, natural shelter hedging to protect their orchards (trees and fruit) from wind damage. Other species are also used. These shelter rows also offer separation from other orchards and therefore protection from spray drift.
22. They are trimmed to be kept dense and are typically topped at a height of between 8 and 12 metres, or left un-topped on windward boundaries.
23. The use of artificial structures is used occasionally on avocado orchards and more commonly used on kiwifruit orchards in Whangarei to offer protection from wind. The aesthetic impact can be a sensitive issue for neighbours.

#### F. NOISE SENSITIVE

24. **Frost fans:** Mobile and fixed frost fans are used by a small number of avocado, kiwifruit and tamarillo growers in frost-prone areas of the Whangarei district. 'Run-time' is very infrequent, coinciding only with severe early morning frosts. However, when there is a severe frost, fans are an essential, disaster-prevention strategy for these growers.
25. **Sprayers:** Regular spraying by tractor-driven airblast sprayers is a normal part of avocado and kiwifruit orchard management. When a crop-sprayer is in use the high-pitched noise of the fan

can be heard for 2km+ and this can be an issue for neighbours particularly if spraying is being done at night. The greater **sensitivities with spraying relate to drift, smell and health concerns** covered above.

26. **Other:** Bird-scarers are not typically used on avocado and kiwifruit orchards, however they are used on persimmon orchards. Some orchardists use firearms to control rabbits, possums and feral cats.

## VALUE OF WHANGAREI DISTRICT AVOCADO AND KIWIFRUIT PRODUCTION

### A: ANNUAL VALUE TO THE REGIONAL AND NATIONAL ECONOMY

Crop	Productive Area in Whangarei District (Ha) <sup>1</sup>	Annual OGR /ha (2016/17 Season) <sup>2</sup>	Potential Gross Value to the Whangarei economy by 2020 <sup>3</sup>	Comment
Avocado	811	\$53,020.00	\$43,000,000.00	
Hayward Kiwifruit	116	\$53,555.00	\$6,212,380.00	Well-managed orchards in Maungatapere are achieving \$60,000/ha OGR
Gold Kiwifruit	303	\$99,547.00	\$30,162,741.00	Well-managed orchards in Maungatapere are achieving \$120,000/ha OGR
TOTAL			\$79,375,121.00	

### B. STRATEGIC VALUE: SUPPLY RISK AND CONTINUITY OF SUPPLY

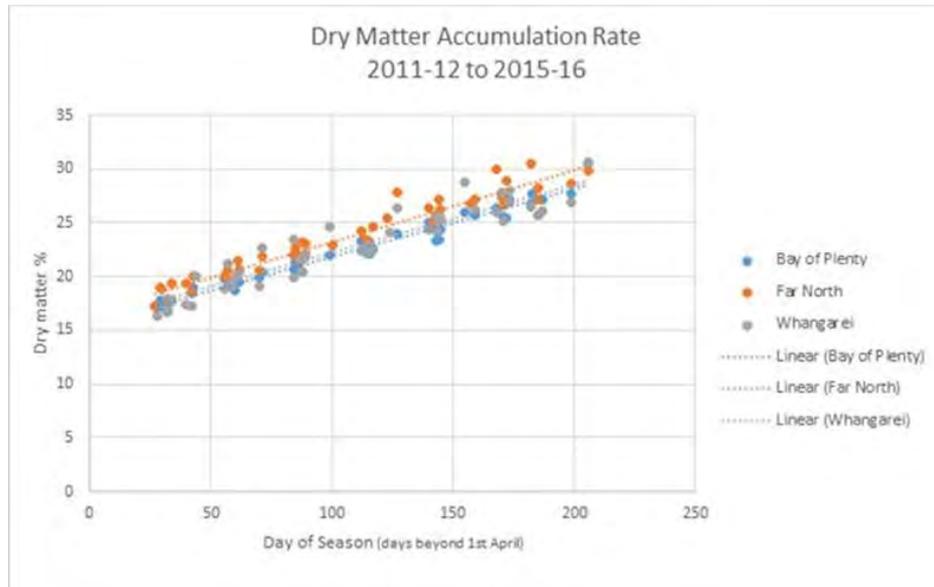
27. **Risk Mitigation:** The Whangarei district is an independent production region for both avocado and kiwifruit. In the event of adverse weather events in other regions this gives the Whangarei region an important strategic value.

<sup>1</sup> Supplied by Avocado Industry Council and KGI (NZ Kiwifruit Growers Inc.).

<sup>2</sup> Annual Orchard Gate Return (OGR).

<sup>3</sup> Note that due to recent kiwifruit conversions to Gold 3, the productive potential of Gold 3 in Whangarei is expected to reach full potential in 2020 or 2021.

28. **Supply Continuity:** In years when the Bay of Plenty avocado growers have experienced an off-year the Whangarei area has played a critical role in meeting avocado export supply programs.
29. **Unique Maturity profile:** Due to higher mean temperatures and earlier flowering, the Whangarei fruit maturity profile tends to be slightly more advanced than the Bay of Plenty crop. This has potential strategic implications for a national supply program. See AIC graph below



30. Note : First Avocado Maturity tests for the 2017-18 season were taken by the Avocado Industry Council (AIC) in early June across the avocado producing regions. Noted as follows:  
 2/6/17 BOP Mean Dry Matter: 20.02% . Range: 19.16-21.17%  
 6/6/17 WHG Mean Dry Matter: 21.23% . Range: 19.72-22.63%

### C. VALUE TO THE LOCAL ECONOMY

31. It should be clearly noted that nurseries, packers, marketers, spray contractors, fencing/trellising contractors, pruning contractors, chipping and mulching contractors in the Whangarei district are all direct beneficiaries of the horticultural industry.

**Jerome Hardy**

**29 June 2017**