

**BEFORE THE HEARING COMMISSIONERS  
DUNEDIN**

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

AND

**IN THE MATTER** of Proposed Otago Regional Policy  
Statement 2021 (Freshwater Planning  
Instruments)

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**STATEMENT OF EVIDENCE OF EARNSCY WEAVER ON BEHALF OF  
HORTICULTURE NEW ZEALAND**

**28 JUNE 2023**

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**ATKINS | HOLM | MAJUREY**

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## **INTRODUCTION**

1. My name is Earnscy Weaver. I am a Director of Leaning Rock Cherries in Otago.
2. I hold a Diploma in Horticulture from Lincoln College granted in 1971.
3. I am a member of the International Society of Horticultural Science (ISHS) and the NZ Institute of Agricultural and Horticultural Science (NZIAHS) and was awarded the NZIAHS Agmardt Technology Transfer Award in 2011 for my technology transfer work in the Summerfruit industry.
4. I have attended ISHS Cherry Symposiums in USA (2001), Turkey (2005) Chile (2009), Spain (2013), Japan (2017) and China (2023) and have attended ISHS Apricot Symposiums in Italy (2007) and Armenia (2011). I have attended International Fruit Tree Association (IFTA) workshops in USA, Canada and Australia. The symposiums covered research on all facets of the crop identified.
5. I have previously been an elected board member of Summerfruit New Zealand representing all Summerfruit growers, and was chair of the research committee for ~18 years, relinquishing the position in June 2018. The industry's research programme covers pests, diseases, crop nutrition, crop physiology and growing systems.
6. The Leaning Rock Cherries growing operation includes a variety of stone and summer fruit:
  - (a) 34 hectares of cherries;
  - (b) 7 hectares of organic apples;
  - (c) 3.5 hectares of apricots;
  - (d) 5 hectares of nectarines; and
  - (e) 5 hectares of peaches.
7. There is a a further 5 hectares of undeveloped land.

## **LEANING ROCK CHERRIES**

8. Leaning Rock Cherries grows sustainable and healthy fruit to export for consumption. We produce approximately 18 to 20 tonnes of cherries per hectare, 57 tonnes each of peaches and nectarines, 30 tonnes of apricots and 70 tonnes of applies

per hectare. The operation is a total of 64 hectares, most of which is irrigated.

9. For the past 35 years we have been operating Leaning Rock Cherries supported by a Water Supply Agreement signed originally with the Crown, then with the Manuherikia Irrigation Co-operative Society Ltd (**MICS**) (Permit DP2001.505.V1) (**Supply Agreement**). Our association with the irrigation scheme and access to a defined water quota has become the norm for us. We have improved our operating systems in that time and grow all of our fruit in accordance with best practice.
10. We are continually learning and developing our management practices to improve our sustainability as much as we can. This includes:
  - (a) tensiometer readings;
  - (b) soil moisture readings;
  - (c) soil and leaf testing; and
  - (d) using data from weather stations to inform our irrigation decisions.

We also conduct fruit diameter testing and only irrigate what we have to.

### **Irrigation system**

11. Our irrigation is made up of 15 hectares of dripline irrigation and then further irrigation is delivered through overhead sprinklers and under tree rotor irrigation systems. The rates of application range from 2.2mm an hour up to 4.4mm an hour.
12. We store water through two reservoirs which are fed from the Manuherikia irrigation scheme that hold the permitted maximum amount of water allowed. One of the storage reservoirs was installed in 1980, the other 2008 when we expanded our operation.
13. Our Supply Agreement allows a maximum take of 5.8mm per day per hectare. However, our average take ranges from 0.8 to 1.2 of the evapotranspiration of each fruit, depending on the growth stage and time of year. To maintain a tree in good health would require a minimum of 0.8 of the evapotranspiration rate to be irrigated.

14. From late August through to December, water is used for frost protection and tree health maintenance. Starting in September through to April, we then use water to maintain health of the soil and trees and to produce and fatten fruit. From mid-April to mid- September, we do not use any water.
15. We have water tensiometers and moisture readers, which are connected to weather stations to help inform our irrigation decisions. We have a metering system for irrigation installed and have been recording our water usage since we started the orchard 35 years ago.
16. From 2017 through to 2019 we were developing and installing irrigation on an additional 5 hectares of land each year, showing how the irrigation dates of 2017/2018 (being applied in retrospective to a cap on irrigated area) are not easily applicable nor acceptable to the current operation. We have no plans to further upgrade our systems (as installed) as it would detrimentally affect the area of rootzone that is productive and therefore affect our trees and fruit.

#### **Development of the operation**

17. We have developed by tripling the size of the operation in the last nine years because we thought we had a secure water supply. But knowing what we know now, I'm not sure we made the right decision. This development has resulted in us needing to employ three to four times as many people as we did nine years ago, but the development is still coming together as plantings continue to mature.
18. The costs of the development in the last four years have included \$2.5 million spent on land and a further \$3 million spent on the development of that land. As noted above, we have 5 hectares of undeveloped land that we had previously been going to develop into orchard. Recent regulatory uncertainty caused by processes such as PC7 caused us to adapt and slow our development plan.

#### **THE REQUIREMENTS FOR ENABLING GROWING IN CENTRAL OTAGO**

19. The key requirement for fruit production is the availability of a secure and sufficient irrigation supply. There is insufficient rainfall to maintain fruit trees and crops in the Alexandra and wider central Otago growing areas.
20. Access to both a seasonal and permanent labour force is an essential requirement. All fruit crops require significant extra

staff for harvest. One employee will harvest ~150kg/day of cherries. A yield of 15tonne/ha to be harvested over 5 days requires 20 employees (ie 20 pickers/ha). At peak Leaning Rock Cherries employs 200 seasonal employees

21. The locality is important to enable staff access to personal supplies and social activities. Properties far from a service centre are less attractive to seasonal workers.
22. Spring frosts necessitate the use of frost protection measures. The selection of less frost prone sites is an advantage in operating costs and may be an advantage in an extreme frost event which exceeds the capacity of the chosen frost protection system and therefore leads to crop losses.
23. Low rainfall sites are preferred. Cherries in particular require a low rainfall site to limit the damage from rain induced fruit cracking. The Cromwell and Alexandra basins have similar rainfall patterns however the Teviot Valley has significantly greater rainfall.
24. Higher rainfall sites develop greater bacterial and fungal disease pressure as moisture is fundamental to most fungal and bacterial pathogen development. Both summerfruit crops and pipfruit crops are prone to fungal and bacterial pathogens. Summerfruit fungal pathogens include Peach leaf curl (*Taphrina deformans*), Brown rot (*Monilinia fructicola*), Botrytis (*Botrytis cinerea*). Summerfruit bacterial pathogens include bacterial blast (*Pseudomonas syringae syringae*), Bacterial spot (*Xanthomonas campestris*)
25. Sites with excess wind induce slow development of young trees as the wind leads to higher evapotranspiration levels and leaf damage. Excess wind results in fruit rub leading to blemishes which results in export quality fruit being downgraded. Netting structures and tree support structures require greater strength in high wind areas.
26. The site needs to meet winter chill requirements. Central Otago does not lack for winter chill. A period of winter chill is required to break dormancy and initiate growth and flowering in the spring. Insufficient hours of chilling results in reduced bud burst, and uneven bud burst at flowering. Chill hours are not a limiting factor in Central Otago.
27. Sufficient accumulated heat units measured as Growing Degree Days (GDD) are required to ensure that the crop fully

matures. GDDs are not a limiting factor for growing fruit crops in the Central Otago areas where fruit is produced.

#### **A DESCRIPTION OF THE CHARACTERISTICS OF SOIL THAT ARE SOUGHT FOR FRUIT PRODUCTION**

28. The soil must have the capacity to be manipulated by the withdrawal of irrigation. Withdrawing irrigation enables the trees, post-harvest, to be moved into dormancy to harden the tree tissue prior to the advent of autumn frosts. Soft tissue when damaged by frost events becomes vulnerable to infection with bacterial blast (Pss). Regulated Deficit Irrigation (**TDI**) is practiced within the season or at the conclusion of harvest to reduce excess tree vigour to manage the tree volume and the quality of fruiting wood.
29. Soils are required to be free draining to remove the risk of trees experiencing “wet feet”.
30. Heavy soils are difficult soils for stone fruit production as they can waterlog, leading to tree losses.

#### **KEY CONCERNS WITH THE PROPOSED OTAGO REGIONAL POLICY STATEMENT**

31. It is important that growers are able to have access to reliable and secure supplies of water.
32. This extends to enabling water storage for growers to plan and store water for use throughout the year.
33. Uncertainty of water supply can have the following impacts on our orcharding operation:
  - (a) Not being able to use water for irrigation or frost fighting;
  - (b) Not being able to keep the trees and soil at their optimum to produce export or New Zealand grade quality crops;
  - (c) Significant loss of profits;
  - (d) Staff would lose their jobs; and
  - (e) We would be forced to cease operation and sell up.
34. I am concerned that pORPS will impact our ability to take the amount of water that we need, when we need it, to be able to sustainably operate our horticulture business. This would be

hugely detrimental to the trees, plants, environment, and people that make up the fruit growing business producing quality healthy food.

35. We would like to see growing operations recognised for their low environmental impact and long-term nature of investment. Water security and certainty of supply means we have confidence developing sites further. We have become hesitant to develop land because we do not know whether we can get access to enough water to operate an orchard on the land, or for that land to be planted sustainably. In addition, obtaining development finance is becoming a problem due to banks and investors being nervous of lack of security with short term consents. Orchard developments take around 4 years to reach production and a further 3-4 years to mature through to full production.
36. Our orchards are efficient with water use, and this should be recognised through better consent conditions to give us more certainty and confidence to develop, expand, or improve our growing systems.
37. Unlike other farming operations we are unable to “destock” or import feed supplements to maintain our productive capacity. Any underwatering of the crop will adversely affect fruit development by reducing fruit size and fruit firmness, stems on cherries will become dry, and in apples starch levels will be reduced. All leading to downgrading of the crop and resulting in financial losses.

#### **Community consultation – FMU visions**

38. I am aware that local growers actively took part in the vision and values workshops held by ORC with the community last year.
39. We and our community provided feedback that we wish to have food production included as a value for our local FMU.
40. I would like to see the original notified values for FMU's and rohe retained.

#### **Earnscy Weaver**

28 June 2023