

BEFORE THE HEARING COMMISSIONERS APPOINTED BY THE TIMARU DISTRICT COUNCIL

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

AND

IN THE MATTER of hearing of submissions on the Timaru District Plan,
Hearing F: Hazards and Risks (Natural Hazards only) -
Other District-wide Matters

**INDUSTRY STATEMENT OF CHARLOTTE WRIGHT FOR HORTICULTURE NEW
ZEALAND**

15 April 2025

INTRODUCTION

1. My name is Charlotte Wright. I am a Senior Environmental Policy Advisor at Horticulture New Zealand (HortNZ). I work within the Environmental Policy Team on national, regional, and district planning processes across New Zealand. I have been in this role since 25 November 2024.
2. I hold a Master of Science in Resource Management from Lincoln University.
3. I have worked for over 20 years within the primary sector on issues concerning the Resource Management Act.
4. Since beginning my role at HortNZ, I have met with growers across New Zealand to better understand their horticultural operations and how resource management issues impact them. I am familiar with the Timaru Region.

Involvement in the proceedings

5. I have been involved in these proceedings since January 2025. I have met with HortNZ policy staff and planners to understand the background context for the Timaru District Plan proceedings and to seek information to support my evidence.
6. In preparing my evidence, I have read:
 - a) The Proposed Timaru District Plan and Section 32 reports
 - b) HortNZ submission and further submissions
 - c) The Section 42a report and appendices
 - d) Relevant provisions of the Resource Management Act 1991

PURPOSE AND SCOPE OF EVIDENCE

7. This statement responds to the Section 42A report recommendations regarding HortNZ's submission and further submissions on the Timaru District Plan, referred to in this evidence as the District Plan, specifically on the Hearing Topic F of General District Wide Matters: Hazards and Risks (Natural Hazards only) - Other District-wide Matters.
8. Specific areas covered in this evidence include:
 - a) The importance of frost fans in horticultural operations, and to growers in the Timaru District.
 - b) Operational needs for frost fans.
 - c) Hours of operation for Audible Bird Scarer Devices.

OVERVIEW OF HORTICULTURE NZ

9. HortNZ is the industry body for the horticulture sector, representing growers who pay levies on fruit and vegetables sold either directly or through a post-harvest operator, as set out in the Commodity Levies (Vegetables and Fruit) Order 2013.
10. On behalf of growers, HortNZ takes a detailed involvement in resource management planning processes as part of its national and regional environmental policy response.

RESPONSE TO SECTION 42A REPORTS – TOPIC: Hazards and Risks (Natural Hazards only) - Other District-wide Matters

Horticulture in Timaru

11. I understand that HortNZ has previously set out the nature and scale of existing horticultural activity in Timaru and the wider region in evidence previously presented to the Hearings Panel at Hearing Stream A.
12. I do not repeat that here but for the Panels benefit highlight that there are approximately 30 existing commercial growing operations in the Timaru District. These include a variety of both fruit and vegetable crops. Crops grown include strawberries, potatoes, carrots, peas, onions, blackcurrants, redcurrants, brassica, cherries, pumpkin, lettuce, corn, garlic, apples, pears, stone fruit, raspberries, and asparagus.
13. Most of the growing in the Timaru District is located within or close to the townships of Pleasant Point, Temuka, Arundel, Seadown, Pareora, Geraldine, Orari, Winchester, Clandeboye, Rangitata, and Levels.
14. Attractive environmental conditions are encouraging significant change and expansion in growing systems in the district which is likely to lead to an increase in the growing footprint, changes in crop type, jobs and economic growth.

Frost fans

15. Frost fans are used on horticultural properties to prevent potentially devastating frost damage to crops, mainly fruit crops such as kiwifruit, summerfruit, and apples (which is of particular relevance in Timaru).
16. Frost damage to crops, particularly at bud burst, can cause reduced crop yield, reduced revenue and affect the food supply system both in terms of domestic supply and exports. Growers use frost fans as one mechanism to mitigate frost damage to crops as they move air to manipulate the temperatures within an orchard and protect a crop from frost damage. Other mechanisms used for frost protection are using crop covers, helicopters, frost irrigation or heaters.

17. The potential for frost arises when heat from the sun warms the ground which is then released into the colder atmosphere at night. The heat loss is greatest just before dawn and this is usually when the maximum danger of frosts and frost damage occurs. This release of heat creates an 'inversion layer' of warmer air, which can be found from 10-50 metres above the ground.
18. The frost fan moves the air by drawing down the warmer air in the inversion layer by angling the blades slightly downwards to pull the inversion layer down to ground level to prevent frost damage and blow warmer air into the orchard.
19. Typically frost fans are turned on before a frost occurs. Industry sources note that, *'to use big fans for frost protection, the fans are typically turned on before the temperature drops below freezing, when the colder air is still mixing with warmer air higher in the atmosphere.'*¹ Additionally, *'Because of the supercooling that takes place when the wind dies, we recommend starting the frost fan 2.2° C (4° F) above the critical temperature for the crop being protected.'*² *'Critical temperature is the temperature expected to inflict at least 10% mortality in the buds, fruits, canes, or woods, depending on the crop.'*³
20. Multiple temperature sensors are typically used on an orchard and are connected to wireless remotes to cover frost-prone areas of the property. If any of these sensors drop below the frost alarm thresholds, alarms and updates will be triggered.⁴ The sensors are placed throughout the orchard from those on the frost fan units themselves (where data can be recorded and available via telemetry), to sensors above and within the canopy of trees through to those on the ground.
21. Flexibility is needed to account for the potential variation in temperature across sensors for any one operation, and the management response to these temperature readings.
22. Statements of evidence are provided from Mr Morten Tonder, General Manager of MA Orchards and from Mr Mike Annand, of FrostBoss Limited. Both Mr Tonder and Mr Annand's evidence explains that frost fans may be turned on at temperatures higher than 2.0 degrees C, and potentially up to 4 to 5.0 degrees C. Mr Tonder and Mr Annand both also both point out that frost fans are only used when necessary for frost protection purposes, given their cost to run.

¹ [Frost Protection - Irrigation Express](#)

² [FAQs – frostfans](#)

³ [FAQs – frostfans](#)

⁴ [Frost Protection - Irrigation Express](#)

23. This allows for maximum for efficiency and effectiveness and flexibility of use, depending on local conditions, crop type and manufacturer recommendations.
24. It is essential that growers can use these devices at critical times.

Audible Bird Scaring Devices

25. Audible Bird Scaring Devices (ABSD) are used on orchards and vegetable crops at different times of the growing and crop cycle. In fruit orchards they can be used to scare birds during bud break. In commercial vegetable growing operations, ABSD can be used to avoid birds damaging certain crops.
26. Birds can destroy an entire crop if not managed. This [video](#) shows a bird decimating buds on a kiwifruit vine.
27. Bird activity on orchards can differ depending on the bird species, the crop type, season, weather and the food sources available nearby.
28. Given the significant variables, it has been our experience that more recent plan reviews have determined a regulatory response that typically applies operational times for ABSD that are set at half an hour before sunrise to half an hour after sunset. Mr Hodgson provides examples in his evidence, and I also reference these as follows:
- 29.

District	Time
Western Bay of Plenty District Council	Half an hour before sunrise to half an hour after sunset
Whangarei District Council	Half an hour before sunrise to half an hour after sunset
Central Hawkes Bay District Council	Half an hour before sunrise to half an hour after sunset
Central Otago District Council	Half an hour before sunrise to half an hour after sunset
Whakatane District Council	Half an hour before sunrise to half an hour after sunset
Opotiki District Plan	Half an hour before sunrise to half an hour after sunset
Selwyn District Council	Half an hour before sunrise to half an hour after sunset

Hastings District Council	Half an hour before sunrise to half an hour after sunset
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30. I am also aware that the s42a recommendation (6 December 2024)⁵ on the same matter in the proposed Far North District Plan proceedings that HortNZ is involved in, is to change the timing of when bird scaring devices can be used to half an hour before sunrise and half an hour after sunlight. The s42a recommendation supported by evidence of Mr Peter Ibbotson of Marshall Day Acoustics⁶.
31. Applying set hours of use such as a 7.00am start time does not relate to the feeding pattern of birds nor account for other variables like seasons, crop type, daylight savings. This can limit the effectiveness of a orchards bird management regime.
32. For example, in Timaru, sunrise can be earlier than 7am at certain times of year. Sunrise will occur as early as 6:17am in October 2025, 5:45am in November and December, 5:54am to 6:31am in January 2026 and 6:32-7:10am in February 2026.
33. I note that apple varieties reaching maturity in late January early February would be less affected by a 7am start time. On the other hand, leafy greens would be more vulnerable to bird damage before 7am given continuous harvesting from Spring. Some berries would be vulnerable given potential bird damage from December onwards.
34. It is critical that the plan allows for flexibility in use of ABSDs, given potential damage before 7am for certain crops at certain times of year.
35. I acknowledge that noise effects from these devices should be managed where there might be significant adverse effects on a sensitive activity. I therefore support the PDP approach of applying limits as they relate to sensitive interfaces.
36. HortNZ has also sought advice from Mr William Reeve, acoustic engineer in regard to the effectiveness of the s42a recommended 500m orientation control.
37. Mr Reeve's view is the selection of a specific device, in combination with allowances for screening could achieve similar outcomes in terms of noise effect, to what is currently proposed by the rule. This can be achieved

⁵ Paragraph 155-161. [Microsoft Word - Written Right of Reply - Noise and Light](#)

⁶ Paragraph 60. [b8451311ebd33a830a1be08bc9e9126bfe7f7812.pdf](#)

without a specific distance setback, and orientation control, allowing flexibility for growers.

Conclusion

- 38. I support the evidence of Mr Hodgson.
- 39. HortNZ continues to support a rule framework that enables the following:
 - a) The operation of frost fans within a range of temperatures up to five degrees to allow efficient and effective use.
 - b) The operation of ABSD half an hour before sunrise to half an hour after sunset, subject to specified noise standards.

Charlotte Wright

7 April 2025