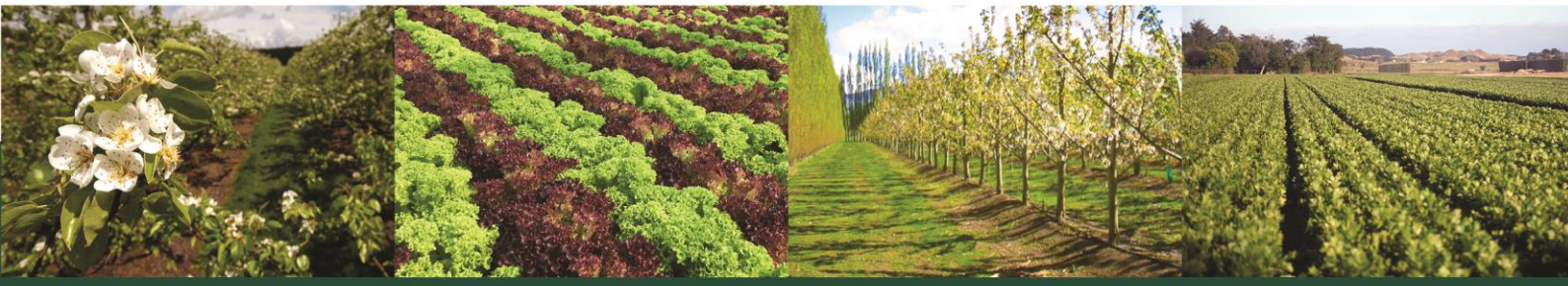
SUBMISSION ON

Proposed amendments to the National Environmental Standards for Air Quality

31 July 2020

TO: Ministry for the Environment
NAME OF SUBMITTER: Horticulture New Zealand



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Introduction

Horticulture New Zealand (HortNZ) thanks the Ministry for the Environment for the opportunity to submit on the proposed amendments to the National Environmental Standards for Air Quality (NESAQ) and welcomes any opportunity to discuss our submission.

This submission is supported by Tomatoes New Zealand, Vegetables New Zealand, New Zealand Kiwifruit Growers Association Incorporated, Pukekohe Vegetable Growers Association and Te Awanui Huka Pak Limited.

Submission structure

- Part A: Introduction and Overall comments
- Part B: Consultation questions
- Appendix 1: Overview of Covered Crop Sector

Background to HortNZ

HortNZ was established on 1 December 2005, combining the New Zealand Vegetable and Potato Growers' and New Zealand Fruitgrowers' and New Zealand Berryfruit Growers Federations.

HortNZ advocates for and represents the interests of 6000 commercial fruit and vegetable growers in New Zealand, who grow around 100 different crop types and employ over 60,000 workers. Land under horticultural crop cultivation in New Zealand is calculated to be approximately 120,000 hectares.

The horticulture industry value is $6.39 billion and is broken down as follows:

Industry value	**$6.39bn**
Fruit exports	$3.53bn
Vegetable exports	$0.70bn
Total exports	**$4.2bn**
Fruit domestic	$0.88bn
Vegetable domestic	$1.28bn
Total domestic	**$2.15bn**

For the first time New Zealand's total horticultural produce exports in 2017 exceeded $3.44bn Free On Board value, 83% higher than a decade before.

It should also be acknowledged that it is not just the economic benefits associated with horticultural production that are important. The rural economy supports rural communities and rural production defines much of the rural landscape. Food production values provide a platform for long term sustainability of communities, through the provision of food security.

HortNZ's mission is to create an enduring environment where growers thrive.

HortNZ's Resource Management Act 1991 Involvement

On behalf of its grower members HortNZ takes a detailed involvement in resource management planning processes around New Zealand. HortNZ works to raise growers' awareness of the Resource Management Act 1991 (RMA) to ensure effective grower involvement under the Act.

The principles that HortNZ considers in assessing the implementation of the RMA include:

- The effects based purpose of the RMA;
- Non-regulatory methods should be employed by councils;
- Regulation should impact fairly on the whole community, make sense in practice, and be developed in full consultation with those affected by it;
- Early consultation of land users in plan preparation;
- Ensuring that RMA plans work in the growers interests both in an environmental and sustainable economic production sense.

Introduction and overall comments

There is a general assumption that New Zealand is the land of plenty and we will always have enough locally-grown food to feed our population, supplemented by imported food where there is demand. However, there are a number of factors putting pressure on, and creating competition for, the natural resources and infrastructure critical for growing fruit and vegetables. This is coupled with population growth, which will increase our food demands.

Central to all policy positions should be the potential direct (and indirect) impacts on New Zealand's food security and ability to produce food.

HortNZ recognises the need to manage air quality to protect human health and supports best practice to achieve this. This submission highlights the potential impacts of the proposed amendments to the NESAQ on the horticulture sector, specifically on covered (greenhouse) crops and activities such as outdoor burning.

Covered Cropping (Greenhouses)

Role of covered cropping in New Zealand's food system

Covered cropping is vital to ensuring New Zealander's are able to access freshly grown vegetables from a local supplier throughout the year, provides resilience within the domestic food system and is important for risk management at a national level.

Geographically (based on 2017 data), there is approximately 220ha of covered/indoor crops in the North Island (predominately located in the Auckland and Waikato regions) and approximately 36ha of covered/indoor crops in the South Island (predominately located in Tasman, Marlborough and Canterbury[1].

The covered crop industry plays an important role in levelling out market supply in shoulder and off seasons. This is particularly important when there are adverse weather events that impact on the few areas in the country where there is winter production of certain vegetables. It is important that New Zealand retains the ability to provide our own fresh fruit and vegetables, across a number of locations.

There is also an international move towards more covered cropping in response to climatic variability. This move will be essential to adapt the food production system to the changing, more volatile world climate while still producing enough food in a way that also uses less water and nutrients.

Process heat for covered crops

Process heat in the covered crop (greenhouse) industry is required to maintain controlled temperature necessary for efficient crop production. While the sector is a relatively small user of process heat at a national scale [2]– it plays an important part of domestic food supply. Consequently, process heat is an important part of our domestic food supply, as well as related economic activity and employment.

[1] Agricultural Production Statistics Additional Tables – June 2017 (Statistics New Zealand).

[2] An MBIE factsheet on indoor cropping from 2016 stated that indoor cropping in New Zealand is a relatively small user of process heat compared to other sectors such as wood processing or dairy manufacturing – using 3.4 petajolues (PJ) of fuel for process heat (or 1.7% of New Zealand's total process heat demand).

Greenhouses use boilers to generate heat for the growing system – heat sources include gas, coal, diesel, electricity, oil, wood pellets/biomass. Crops are grown close to markets throughout NZ, including some places where low carbon fuels are not readily available.

- In the North Island gas is the predominant fuel source used in greenhouses.
- In the South Island coal is one of the primary sources of heating for greenhouses (due to no access to natural gas and cost efficiency). Most of these businesses are small to medium-sized enterprises (SME).
    - Some operations are undertaking air quality monitoring/ particulate testing (e.g. to satisfy resource consent conditions, which require the operator to demonstrate that their particulate emissions are within consented amounts)
    - There is a large degree of variation in boiler size (ranging from 0.4 MW to 6MW amongst the growers we spoke to). Depending on greenhouse size many operations would need a 2MW boiler or above for heating. The energy demand is approximately 1MJ/ha (although this varies depending on location, greenhouse infrastructure, time of year etc.).
    - The age of coal boilers and the cleaning regime is likely to impact on particulate emissions. Newer boilers will likely have scrubbers.
    - Of the growers we spoke to, coal blend reports did not include any information on mercury.
    - We are aware of growers who have moved regions in response to being located within a gazetted airshed.
- Other sources of fuel that are used include diesel, oil and a small proportion who have converted to biomass.

Transition to a low carbon economy

Indoor growers of fresh tomatoes, capsicums and cucumbers are currently captured in the Emissions Trading Scheme (ETS) via NZ units charged by energy providers (coal and gas) for greenhouse heating fuel. Growers of these crops have access to free allocations via the Emissions Intensive Trade Exposed (EITE) scheme, that offset the cost to varying degrees depending on location. There are other covered crop growers (e.g. eggplant, herbs, lettuce) who may also use heating (and are therefore captured by ETS costs) but do receive free allocation. Since December last year, HortNZ has submitted on consultation documents released on:

- Accelerating renewable energy and energy efficiency (MBIE – March 2020)
- New Zealand Emissions Trading Scheme: Proposed Settings (MfE – Feb 2020)
- Climate Change Response (Emissions Trading Reform) Amendment Bill (Environment Committee – Jan 2020)
- New Zealand Emissions Trading Scheme: Rules for auctioning (MfE – Dec 2020)

These policy signals, to meet New Zealand's emissions targets, are creating a driver to phase out/impacting on the viability of existing coal boilers for space heating of greenhouses.

A recent New Zealand Institute of Economic Research (NZIER) report[3] which assessed the likely impact of a rising ETS price on indoor vegetable growers' businesses found that at a carbon price of $50/tonne would see most South Island covered crop growers going out of business. However, in the current setting (with limited alternatives and degree of capital

[3] NZIER (March 2020) – The potential impact of the Emissions Trading Scheme on covered crops.

investment required) further increases to ETS price will be devastating to indoor vegetable crop production, and therefore vegetable supply, particularly in the South Island.

There is still a lot of work to be done in determining the feasibility of alternatives in a New Zealand context (from a practical and technical perspective), and an investment pathway that would make transition possible from a financial perspective.

Alternative fuels to coal

We are concerned about the potential impact of amendments to the NESAQ on constraining the use of alternative fuels – specifically the use of biomass (in addition to the continued use of coal).

While the use of biomass still has significant feasibility challenges (particularly at a regional scale in terms of reliable and consistent supply), this is one of the options that is being discussed at a policy level – e.g. in MBIE's consultation *'Accelerating renewable energy and energy efficiency'* earlier this year, and in options for meeting the 2050 provisional emissions budget (one pathway includes 25% of process heat currently using coal or gas switching to biomass/electricity).

The role biomass might play in transition to a low carbon economy is uncertain at this stage. However, at present there are limited additional options that can be pursued in the short-term.

There is an urgent need for more investment into the feasibility of 'clean' alternatives that meet climate change and environmental (including health) outcomes, to enable the uptake of suitable technologies in New Zealand. For example:

- There is more work required to investigate whether there are some small-scale geothermal systems that could work in New Zealand for process heat.
- Some growers have investigated electricity as an alternative, but being rurally located and needing significant energy (particularly during Winter) there are limitations/feasibility challenges. Electricity currently does not compare well with other fuel options on a cost per GJ basis for heating greenhouses, with peak period electricity prices too high to be cost effective. There are also infrastructure limitations (in regard to transmission lines, age, etc.).
- Other new technologies such as Ground to Air Heat Transfer Systems (GAHT), Dutch Thermal Aquifer, photovoltaic glass, wind and solar (in some cases in combination with other measures e.g. energy screens) may be viable options, but they have not been investigated in a New Zealand context.
- There are overseas examples of investment into renewable infrastructure - e.g.in the UK, closed loop heat pumps being used to transfer the heat from water recycling centres to greenhouses[4] – but this is at a large scale (requiring significant investment and expertise) and will not work in all settings.

We do not have the technical information available to quantify the particulate emissions of biomass (or other alternatives to coal), as compared with coal, and in relation to the NESAQ standards. However, we wish to flag the potential risk of policy pushing in two different directions (e.g. making the use of coal uneconomic from a climate change adaptation perspective, while also limiting the use of alternatives). What is needed is a collaborative

[4] https://www.hortidaily.com/article/9149975/uk-29-hectares-of-new-tomato-greenhouses-to-use-waste-heat/

approach between industry and cross-government (e.g. MBIE, MPI, MfE) to work towards solutions with multiple benefits.

Significant investment and coordinated effort among businesses, governments and researchers is required to identify or develop, in a New Zealand context, low-emissions clean technologies (that also fit within other priorities, such as human health outcomes). While in some cases the technology is available, the necessary infrastructure and capital is lacking (particularly when there are concurrently high ETS costs).

To maintain a viable covered crops industry will require a transition strategy with government and industry working together. In previous submissions, we have called for support for indoor growers to access energy saving technology and assistance with capital for conversions and energy saving measures from Government (e.g. a grant based on previous 5 years ETS payments for retrospective capital investment). This is vital and requires a stepped transition pathway. The right policy settings are also essential.

Outdoor burning in Horticulture

Outdoor burning

Outdoor (or open) burning is used by the horticulture sector across a variety of applications. It is also an activity that can in some cases have adverse effects on crops (due to residues).

Outdoor burning could be used for the following:

- As part of orchard development/redevelopment (e.g. apples, kiwifruit - sectors which are continuing to grow)
- To manage disposal of vegetation, such as pruning and shelterbelt trimmings. Many growers will mulch, rather than burn vegetation however there are times when burning is the most appropriate method.
- Outdoor (open) burning is also an important tool for disposing of infected material in response to a biosecurity incursion.

Typically, outdoor burning would only occur in rural areas, subject to permitted activity conditions of regional rules for outdoor burning. Due to the nature of the land used for horticulture, these areas are often peri-urban or located close to urban areas. This is also compounded by the urban development trends in many locations throughout the country where development is occurring on and close to growing land.

Generally regional plans have included permitted activity rules for outdoor burning – this is an approach we support, however there is potential that changes to the NESAQ could impact regional plan rules in the future in some areas, through changes to the gazetted airsheds, especially where horticulture is located near urban areas, such as Central Otago, Richmond, Hawkes Bay, and Canterbury.

Onion burning

Onion growers burn their onion skins through a burner system during the onion grading season (e.g. from the months of December through to April – although this time period may vary slightly through the country). In some systems, diesel can be injected to get cleaner burning. One of the reasons that the onion skins/ tops cannot be put back into the field is that could spread disease through paddocks.

CONSULTATION QUESTIONS

Introduce $PM_{2.5}$ as the primary regulatory tool to manage particulate matter pollution

Q1. Do you agree the proposed PM2.5 standards should replace the PM10 standard as the primary standard for managing particulate matter?

Yes, in principle it seems advantageous and more effects-based to manage PM2.5, as opposed to PM10, based on the information detailed in the consultation document. Specifically, that PM2.5 has a higher health risk and includes less naturally-sourced particles.

Q2. Do you agreed we should include both a daily and an annual standard for PM2.5?

We have a preference for a annual standard.

We note that concerns have been raised about the technical work and methodology supporting the estimates for an annual average or daily standard; we emphasise that there needs to be a robust methodology in place.

There should be a permissive capability for exceedances to be different than the standard in some localities with specific airshed characteristics.

Q3. Do you agree the standards should reflect the WHO guidelines?

In principle, this seems like a sensible approach in the absence of any more specific information or guidelines. However we support the use of the WHO guidelines being verified in a New Zealand context.

Q4. Do you consider that your airshed would meet the proposed PM2.5 standards? If not, what emissions sources do you expect to be most problematic?

Greenhouse growers are concerned that the changes to the NESAQ may result in regional plan rules which make it even tougher for growers – particularly in winter.

Indirectly, the amendments (through changes to the standards applicable to domestic heating) may have a positive impact on the industry through reduced particulate concentrations (as home heating is the largest source of PM2.5).

Gazetted airsheds currently exist near horticulture activities including those in Canterbury (e.g. Rangiora), Tasman (Richmond), Central Otago (Cromwell), and Hawkes Bay (Napier and Hastings). It is unclear how the change to the PM standard will affect these airsheds with consequent effects on horticulture operations.

Retain the PM10 standard with reduced mitigation requirements

Q5. Do you agree councils should be required to keep monitoring PM10?

There would appear to be value in continuing to monitor PM10 to get a complete picture of emissions – including the ability to determine relative contributions from different sources.

[Q6 – N/a]

Polluted airsheds

Q7. Do you agree an airshed should be deemed polluted if it exceeds either the annual or the daily PM2.5 standard?

As above (in our response to Q2) we prefer an annual standard. Regardless of the approach taken, a robust methodology is necessary.

Q8. If all new resource consent application to discharge PM2.5 into a polluted airshed must be offset or declined, how would this affect your activities, or activities in your region?

Existing coal boilers

Yes, this would affect covered crop growers, either:

- Through a reduction in permitted activity rules, or more stringent rules in regional plans, in response to the changes.

- If their operation is located within an area which becomes a polluted airshed under the NESAQ, limitations on granting consent apply. In this instance this could have significant impact on the ability to be able to obtain (or renew) a resource consent – as we anticipate that these might contribute more than 2.5 µg/m3 (or equivalent determined appropriate for PM2.5) and therefore required to be declined, unless they can offset the discharge by a corresponding reduction in discharge elsewhere in the same airshed, which is likely to be very difficult or not feasible.

We see this particularly as being a risk in peri-urban areas (airsheds typically being associated with urban areas, and with urban development expanding these footprints).

Geographically the greatest risk is likely to be in Tasman and Canterbury.

We are aware of an operation which moved from Christchurch to Tasman region, in response to a similar scenario. This would not be desirable if this were to occur across the country. This could push growers out of business or lead to a very concentrated disruption of growing operations which may have other negative adverse effects on domestic food supply and resilience, impacts such as carbon leakage from importing produce, and higher prices for fresh produce.

We seek that this restriction on granting resource consent applies only to new discharge activities.

The threshold level should be set at a level which does not unreasonably impact small-scale activities with only very localised effects.

Biomass/other alternative fuels

We would be concerned if this standard limited the ability to transition to alternative fuels (e.g. biomass) - the cost of removing coal boilers without a cost-effective heating alternative will be devastating for individual growers, even though they account for a small proportion of NZ's emissions, and they are providing healthy, locally produced, food for New Zealanders.

Outdoor burning

Generally outdoor burning (excluding prohibited materials) in rural areas is provided for by a permitted activity rule in regional plans – however these rules are getting more onerous, or difficult to retain in some plans.

There would be a negative impact on the sector if changes to air sheds resulted in a reduction in permitted activity rules – we support requirements around best practice, but this method needs to remain available when other alternatives are not suitable.

[Q9 – N/a]

Q10. Do you agree that if councils do not have adequate PM2.5 data, the airshed's classification under the PM10 standards should apply?

Yes – decisions should be based on complete and accurate information and recognise that incomplete information may unfairly penalise some users.

[Q11 – 14 – N/a]

Mercury emissions

Q15. Do you support the proposed amendments to the NESAQ to support ratification of the Minamata Convention on Mercury?

In principle we agree that New Zealand has international obligations under the Minamata Convention on Mercury and that the NESAQ is a tool to deliver on these.

Q16. Do you agree with how these amendments will affect industry?

The consultation document states that in New Zealand, "*current best practice is unlikely to result in significantly stricter controls than the RMA and resource consents require*".

We note that these proposals (to meet international best practice guidelines) apply only to new (or substantially modified) coal boilers greater than 2MW.

Existing operations with coal boilers – this amendment as proposed would not impact on existing coal boiler operation (unless undertaking a substantial modification).

New (or substantially modified) coal boilers >2MW – we would not expect a large number of new coal boilers due to ETS settings. However, any new boilers are likely to be subject to a higher consenting cost associated with assessing compliance with best practice requirements.

At present the consultation document assumes that there will be limited impact - the extent of 'best available techniques and best environmental practices' are not clear from the consultation document and therefore it is hard to quantify the potential impact for our industry. Consultation with growers indicates that current data on the coal they receive generally does not include information on mercury.

The proposed amendments are likely to result in additional compliance costs for industry.

Q17. What guidance do you think will be needed to support implementation of the proposed amendments? Will industry need help to interpret the best practice guidance for the New Zealand context?

Yes – guidance should be provided to clearly outline the best practice guidance. This will be important for both industry and Councils who have to assess this as part of an applicable consent application. Clear guidance will assist in achieving positive outcomes in a cost-effective manner.

Q18. Do you use any of the manufacturing processes listed in Proposal 9? If so, does this process use mercury?

N/a

Q19. Do you agree with the Government's proposed approach to regulate the source categories in Proposal 10? If not, why not?

Proposal 10 includes regulation of coal-fired industrial boilers (consistent with Annex D of the Minamata Convention).

The consultation document states that there will be no impact on small boilers (under 2MW) and no change required for existing activities. Therefore, this impacts on new (or substantially modified) coal-fired industrial boilers, who would be required to demonstrate consideration of international best practice. The consultation document states that this will require a facility using one or more of the measures in the guidance for each source category.

We support the approach of targeting new or substantially modified facilities over a defined threshold, rather than existing and small operators.

It is not clear within the consultation what substantially modified would capture. In the situation where a full coal boiler was modified to be able to burn alternative fuels (e.g. biomass or coal) –we could not want to disincentivise this change, which would ultimately reduce the use of coal.

Q20. What air pollution control technologies are currently required for existing source categories listed in Proposal 10?

As mentioned above, growers whose boilers require consent are generally undertaking air quality monitoring – of those we have spoken to the matters generally included are concentration of particulate matter, conditions around avoiding obstruction of the stack, burning rates during peak operating times, sulphur content of the coal, opacity of the emissions.

We are not aware of any mercury specific control measures.

Timing, implementation and transitional provisions

Q21. Do you agree that lead-in times are required for starting to monitor PM2.5 and for burners that will no longer be compliant? What lead-in times do you suggest and why?

Yes – we suggest a lead in of 10 years. From an operator perspective (who may be impacted by the amendments) this would allow utilisation of their current assets for its useful life whilst undertaking the necessary planning for a change in fuel.

Q22. Are there any matters you think would require transitional provisions? If so, what?

Refer above.

PM2.5 data should be collected for a minimum time period and analysis of the implications at an air shed level should be undertaken of an air shed is considered polluted– with a transition time built in for those impacted.

Other comments

Q23. Do you have any other comments you wish to make?

The impact of the amendments needs to be considered in terms of climate change policy, and policy decisions need to be balanced in that context. There is a need to prepare for a more carbon constrained future, while maintaining domestic food security.

There is a need for government investment/support in this area of alternatives to the use of coal for process heat.

Should the implementation of the NESAQ lead to undesirable constraints on the sector (particularly greenhouse growing, as detailed) there should be the ability to provide a specific response which would ensure that there was not an impact on food security disproportionate to the emissions potentially reduced.

APPENDIX 1: Overview of covered Crop (greenhouse vegetable) industry

Tomatoes New Zealand Incorporated (TomatoesNZ) is the national organisation representing New Zealand's 125 fresh tomato growers, almost all of whom grow in greenhouses. The fresh tomato industry has an annual farm gate value of $124m (March 2019), including export sales of about $10m per year.

Vegetables New Zealand Incorporated (VNZI) is the national organisation representing 550 fresh vegetable growers with a total gate sale value of over $420m, including approximately $40m in export sales. This includes approximately 120 greenhouse growers of crops including capsicums, eggplants, cucumbers, lettuces, chilies and herbs.

A 2018 report by NZIER evaluating the contribution of the covered (greenhouse) vegetable crop industries to New Zealand , using a Computable General Equilibrium (CGE) model found:

- Gross output (or turnover) of $295 million
- Contribution to GDP of $120 million
- 2,400 jobs
- Exports of $35-$40 million per year
- Spending of $34.3 million on heating (including electricity, coal, gas)
- This is an important industry for New Zealand, attracting stable jobs and skills in a growing market for covered crop products. It makes important contributions to GDP and general wellbeing through the employment it provides, exports it makes, and an increased use of technology
- It is a stable and growing industry which provides a significant contribution towards diversifying the New Zealand economy
- Helps to diversify the revenue sources for companies involved in agriculture and horticultural industries.