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Subject: Plan Change 7 to the LWRP Submission
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Attachments: [Potatoes NZ Canterbury PC 7 Final 13 Sept 2019.pdf](#)

Good afternoon

Please find attached a submission to Plan Change 7 (LWRP) from Potatoes NZ. Please note the address for service is different to this email address.

Kind regards

Chris Keenan
027 668 0142

SUBMISSION ON
Canterbury Land and Water Plan PC7
Friday 13th September, 2019

TO: Canterbury Regional Council

NAME OF SUBMITTER: Potatoes New Zealand



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Introduction and background to this submission

Potato production in Canterbury supports all significant NZ processing facilities, provides seed potato production for other regions within New Zealand, and is a significant component of the table potato offering for New Zealand communities. Canterbury is home to a large processing industry focussed around Watties and Mr Chips in Christchurch; Talleys in Ashburton; McCains and Heartland Crisps in Timaru and Makihiki Fries in Waimate.

74% of potato production is currently utilised locally in domestic food chains. Potato production in Canterbury is a very significant contributor to the New Zealand potato sector with between six and seven thousand hectares of potatoes grown on land across Canterbury¹ every year; out of a national total of around 10,300ha. Demand estimates for new potato production land estimate a national total of land required by 2025 will be increased by about 9,500 ha in total across NZ. A significant proportion of this would be required to locate in Canterbury to supply local processing facilities and to produce product at the right time of year in the required volumes.

While the area of Canterbury farmland being utilised is significant in terms of the potato sector and consumers; the activity is not a major contributor to the total footprint of land used for primary production activities and is a very small component (less than 4%) of the primary sector's water quality impacts². When we examine the Nutrient Allocation Zones (NAZ) which are most suitable for potato production of Selwyn-Waihora and Ashburton-Rakaia the nutrient contribution to the losses at the root zone are <4% and <10% respectively.

Growers are continuing to improve environmental practices through applied science and agronomy. Agronomy is critical to the industry remaining competitive. The potato sector has well organised technical support that has driven a more comprehensive approach to environmental management. The sector has initiated a direct measurement programme for Nitrogen and is developing more sophisticated environmental management tools to support better grower performance on discharges and emissions over time.

Potatoes grown in Canterbury support growing activities in many other regions, and provide a critical element of production for many other NZ processing businesses.

The annual economic value of the New Zealand potato industry is calculated for the year ended 2018 at just over a Billion NZ dollars. (See fig1 &2). The domestic value of the industry is calculated at \$911 million. The export value of industry is calculated at \$130 million.

Potatoes grown in Canterbury are processed by potato processing plants in both the North Island and South Island. Canterbury potato growing underpins the entire industry through seed production. The constraining of potato production and growth in the Canterbury region would severely constrain the ability of the industry to produce potatoes and potatoes process products for domestic demand and export.

Growers producing potatoes in Canterbury utilise many different rotational structures. Potato production occurs alongside other commercial vegetable production activities; as well as within arable and animal-based farming systems. As the data from the Matrix of Good Management program demonstrates; there is limited commonality between individual grower production systems.

¹ This states approx. 9000Ha in root vegetable rotation where the total Commercial veg is 11,400, where Ashburton (ca.3,800Ha) and Selwyn (ca.3000Ha) are the largest single areas with OTOP (1400Ha) third.

² as demonstrated by the technical documents supporting PC7

Industry Value Charts

2018 NZ Potato Industry by Volume and Value

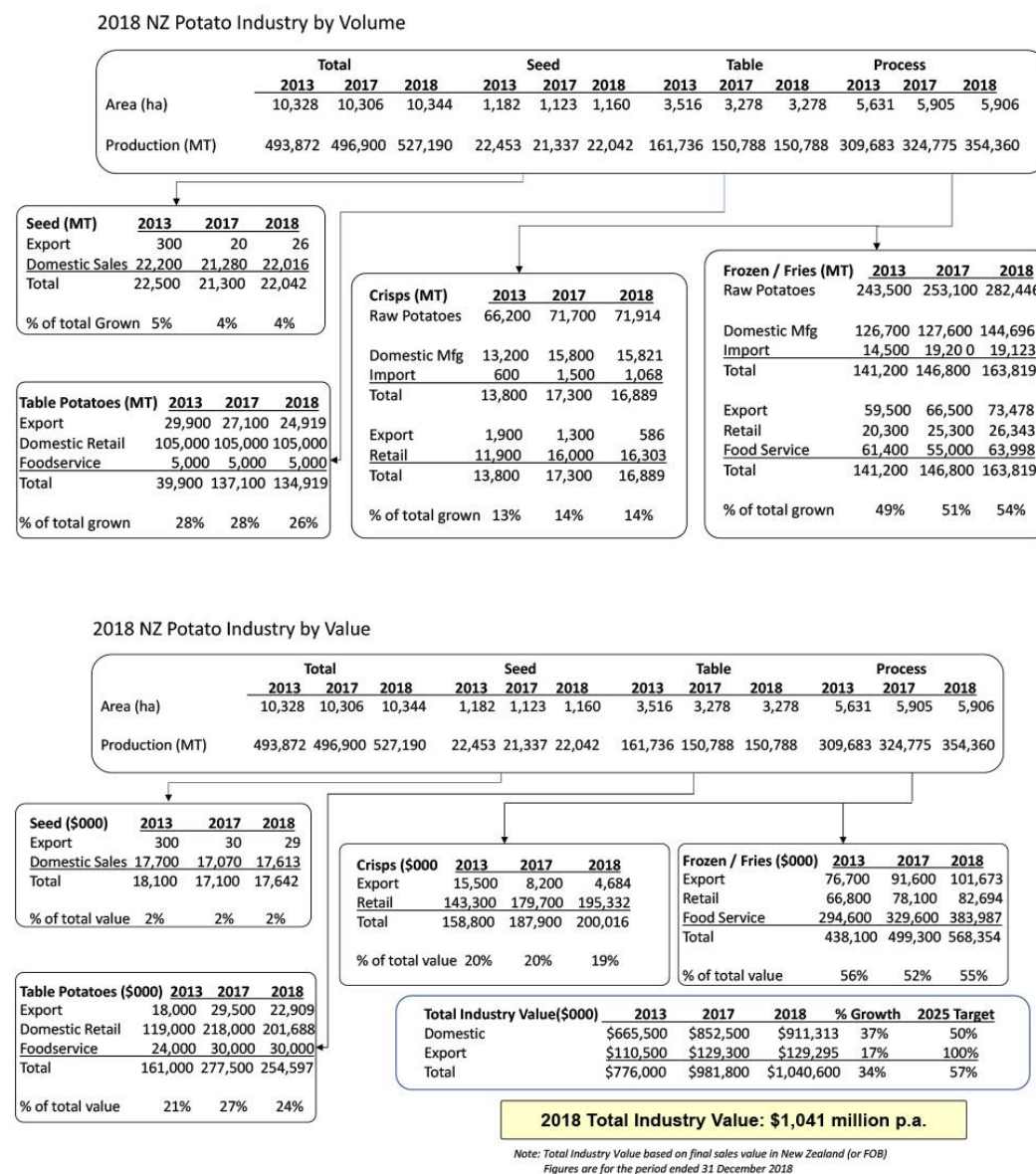


Fig 1: 2018 NZ Potato Industry by Volume and Value

Rotation has been at the heart of sustainable land use for potato production. The results of eliminating rotation were brutally experienced in the Irish potato famine where leasing was frozen to enable conversion to pastoral farming by British absentee land lords. Potato rotation was effectively frozen allowing a buildup of disease. The crop then failed between 1845 and 1850. Millions died or emigrated. This will help explain why potato farmers and other vegetable growers strictly observe rotational practice. Commonly production can occur for 1 or 2 years out of 5; with some soils requiring longer gaps to maintain soil health and structure.

For this reason, grower operations have tended to incorporate a significant amount of lease land into farming operations. There is significant pressure on lease land; and often growers are required to take advantage of leasing opportunities at short notice. There is no guarantee that land can be found within an existing catchment at the right time to facilitate a growers' needs for production.

Potatoes NZ recognises the need for; and supports the objective of improved water quality in Canterbury. The reasoning for the setting of strict environmental limits is not being challenged. It is our position however that PC 7 needs to provide some allowance that could be reserved to ensure that production activities critical to New Zealand food chains does not result in adverse consequences that were unintended. Vegetable supply from the Canterbury region, including potato production is one of these critical activities. Currently 94% of vegetable supply nationally is consumed locally. Export activities often bolster value; and in return offset the costs of supporting domestic markets.

Practically speaking; the deeper Canterbury soils in LUC Class I or II would suit potato production more; from an environmental and production perspective. These deeper soils are more capable of absorbing the short-term impacts of rotation and cultivation. The highly productive Class I and II soils are sought after and generally there is a competition to obtain the ideal land.³ We understand that about 0.51% of land in Canterbury is LUC I: Class II is nearly 6% and Class III is just over 12%.⁴ Our view is that incentivising potato cultivation to move into Classes I and II is an effective mitigation and this has informed the production of our submission.

Nationally the Government has recognised that It is critical to maintain access to scarce Class I,II and III land has recently been recognised by Government. The recently launched discussion document has proposed a National Policy Statement focussed on protection of these "highly productive" to preserve food production potential and domestic food security. While the main threat to land availability is urban encroachment; the discussion document also recognises the need to appropriately enable other factors of production to ensure this land can be utilised in the manner it has been protected for without risking these essential land parcels becoming stranded assets for the New Zealand public. Part of the discussion document is focussed on water related needs and there is at least the potential currently for national direction on matters covered within this plan change.

The proposed Plan Change 7 has the potential to significantly impair commercial vegetable production including potato production. There is substantive evidence for our assessment this impact. In summary the key problems relate to:

1. Inadequate objectives and policies to support the activity. The objectives and policies do not appropriately differentiate between activities that directly affect community wellbeing and other primary production activities.
2. Complex and seemingly ad hoc methods to control discharges across differing water management zones; not allowing movement between zones further restricting the already scarce land options available.

³ Although it appears the majority of production is on Classes I, II, and III.

⁴ Of a total of 4.5million hectares. Obviously not all of this is farming land; or is available for primary production. Source: <https://www.mpi.govt.nz/dmsdocument/23056-analysis-of-drivers-and-barriers-to-land-use-change>.

3. Effects on the leasing process for commercial vegetable production as a result of benchmark nitrogen losses being allocated to land use parcels; with the benefit accruing to the land owner.⁵
4. Ineffective methods to consent production across the region at a global or enterprise level; to allow for collective management of land in potato production changing over time.
5. No certainty being provided in respect to growth needs. The lack of certainty means there is an unwillingness to invest in infrastructure; and threatens existing processing investments. Many processing facilities are relatively mobile and may choose to relocate or other regions; potentially offshore.⁶

What relief is Potatoes NZ seeking?

1. Potatoes NZ seeks changes to the policy related to Commercial Vegetable Production (4.36A) and consequential amendments. Our requested changes are detailed further in The changes would be to provide for and enable commercial vegetable production on certain land; in the interest of communities more broadly across NZ. The policy should recognise that unimpeded growth would be unsustainable; but allow for some growth within the environmental limits that currently exist.
2. Potato production is complex and in general the sector would agree that the land use should be managed through regulatory tools. Within this proviso; we consider the discharges and transfer of discharges associated with fertiliser use and cultivation can be expressly permitted (generally, across the region) within some reserved limits without having an environmental impact. In our view the following land use controls could be adopted across the region:
 - a. Permitted activity for use of land to cultivate potatoes up to 4 ha.
 - b. Controlled activity for any activity at the current intensity and scale.
 - c. Restricted discretionary activity for any activity increasing intensity and scale on Classes I and II land; if it can be accommodated within a regionally reserved nitrogen account.
 - d. Full discretionary or non-complying for any other application.
3. The sector is actively developing collectivised approaches to regulatory compliance; along the lines of an irrigation scheme pathway. Accompanying this the sector is investing in direct measurement tools and better farm environment plan support. We seek the ability to collectivise grower efforts to improve water quality by enabling a consent pathway for enterprises across water management zones; as a discretionary activity.
4. Rely on the grower's individualised farm plan for demonstration of environmental improvements. The grower needs a systematic approach to discharge management on any land they are leasing or managing that does not negatively impact on the farm plans held by other users of the same land. The use of the nitrogen reference point or benchmark is

⁵ In effect the grower is often losing the ability to utilise a footprint that was allocated to that land parcel based on the presence of the vegetable production activity during the period of benchmarking.

⁶ Significant processing capacity is owned and operated by overseas investors, including McCains, Heinz - Watties, PepsiCo. (Bluebird) and others.

problematic for potato production, due to technical issues with the estimation tools. Canterbury Regional Council has historically recognised this by allowing the use of proxies for vegetable production systems (N-Check) and this approach is to be commended. The main problem with the benchmark is that it seems to be a poor estimate of good or poor environmental performance. In our view the best indicator of environmental improvement is evidence of the actions within farm plans being implemented.

5. Providing an industry specific allocation based on suitable land and best practice.
6. All other changes requested relate to the relief sought above and are consequential amendments. These are detailed in the attached Schedule 1 below. Included are changes to policies, rules, numeric tables and definitions. Some deletions are also proposed.

SCHEDULE 1 – Changes requested

1. General relief sought:

There is some concern that while Policy 4.36A is certainly seeking to enable commercial vegetable growing activities; there is not an appropriate link back to Objectives to support the policy.

Decision sought: Ensure there is an appropriate link back to the Objectives of the plan; with the purpose of ensuring the new policy is supported by the appropriate Objectives. An appropriate way to do this may be an advisory note linking Policy 4.36A to the appropriate Objectives. Appropriate Objectives might include 3.1, 3.2, 3.5, 3.10, 3.21 and 3.23.

We also note that Horticulture New Zealand is submitting on similar matters. PNZ supports the general thrust of the Horticulture NZ submission. Where there is an opportunity to provide relief that satisfies the general thrust of both submissions, PNZ is open to relief that varies from the methods set out in specific relief sought below.

Decision sought: Make consequential amendments that give effect to the intent and relief sought in this submission; or consider alternative methods, policies and objectives that achieve the same.

2. Policy 4.36A

Policy 4.36A seeks to provide for commercial vegetable growing operations at a regional scale and in particular tackle some of the existing barriers raised in this submission. We applaud this recognition of the issues facing the potato industry and support the need for a directing policy. The policy (as drafted) needs to be focused specifically on the unique barriers for the industry; and also provide direction for decision makers to address these constraints.

Decision sought: We recommend relief to improve the policy below:

Nutrient Management
<p>Recognise the particular constraints that apply to commercial vegetable growing operations (including the need to rotate crops to avoid soil-borne diseases and for growing locations in close proximity to processing facilities) and provide a nutrient management framework that appropriately responds to and accommodates these constraints while improving or maintaining water quality by:</p> <ol style="list-style-type: none">requiring commercial vegetable growing operations to operate at good management practice;avoiding the establishment of a new commercial vegetable growing operation, or any expansion of an existing commercial vegetable growing operation beyond <u>is limited to</u> the baseline commercial vegetable growing area, unless the nitrogen losses from the operation can be accommodated within the lawful nitrogen loss rate applicable to the new location;requiring commercial vegetable growing operations to demonstrate, at the time of application for resource consent and at the time of any Farm Environment Plan audit, how any relevant nutrient loss reduction set out in Sections 6 to 15 of this Plan will be achieved;constraining, as far as practicable <u>unless a farming enterprise</u>, commercial vegetable growing operations to a single nutrient allocation zone or sub-region; andrequiring a Farm Environment Plan as part of any application for resource consent, and requiring that Farm Environment Plan to be prepared in accordance with Schedule 7(b)

of this Plan.

3. **Commercial Vegetable Growing Operations Rules 5.42CA – 5.42CE**

The proposed Plan Change 7 has responded to industry concerns regarding the operational requirements for potato production as a use of land in the Canterbury region. The methods proposed to manage vegetable growing are outlined in a rule structure which seeks to control the use of land through either area or a limitation based on the existing effects from the precedent land use.

This is a well-intentioned approach to managing and constraining the overall intensity of vegetable production and the effects on land; and those which are transmitted to the wider catchment.

Potato's New Zealand supports methods and an associated rule structure which provides these key elements:

- *Permitted activity status for a minimum area of 4.1Ha.*
- *Amendment of the Schedule 7 to produce an FEP more appropriate to the structure of the rotation across the range of commercial vegetable growing businesses including potatoes.*
- *The approval of an FEP for Vegetable Production under new amended Schedule 7(b) is a controlled activity*
- *Where an FEP is approved consistent with new amended Schedule 7(b), the operational growing area within the rotation cycle on LUC 1 and LUC 2 is a permitted activity.*
- *The permitted activity status is conditional on the vegetable growing operation in rotation across all locations is not exceeding the precedent nitrogen loss rate for the baseline vegetable growing area locations.*
- *Where an FEP is approved and consistent with new amended Schedule 7(b) and the vegetable growing operation in rotation within a sub-region the activity status is restricted discretionary.*
- *Where an FEP isn't consistent with new amended Schedule 7(b), the commercial vegetable growing operation is discretionary.*
- *Where the precedent nitrogen loss rate for the operational growing area within the rotation cycle is exceeded the activity status is non-complying.*

Decision sought: *We recommend relief to improve the rules below:*

Rule	Rule provision
5.42CA	The discharge of nutrients from a commercial vegetable growing operation on a property 0.5 <u>4.1</u> hectares or less in area is a permitted activity.
5.42CB	The discharge of nutrients from a commercial vegetable growing operation that does not meet Rule 5.42CA is a restricted-discretionary <u>controlled</u> activity, provided the following conditions are met: 1. A Farm Environment Plan has been prepared for the activity in accordance with Schedule 7(<u>b</u>) and is submitted with the application for resource consent; and

Rule	Rule provision
	<ol style="list-style-type: none"> 2. The aggregated area of land used for the commercial vegetable growing operation is no greater than the baseline commercial vegetable growing area <u>within the Nutrient Allocation Zone</u>; and 3. All land that forms part of the commercial vegetable growing operation is located within the same sub-region and Nutrient Allocation Zone. <p>The exercise of control is restricted to the following matters:</p> <ol style="list-style-type: none"> 1. The timing of any actions or good management practices proposed to achieve the objectives and targets described in Schedule 7(b); and 2. Methods to avoid or mitigate adverse effects of the activity on surface and groundwater quality and sources of drinking water; and 3. The commencement date for the first audit of the Farm Environment Plan and methods to address any non-compliance identified as a result of a Farm Environment Plan audit, including the timing of any subsequent audits; and 4. Methods that demonstrate how any nutrient loss reductions required by Sections 6 to 15 of the Plan will be achieved; and 5. Reporting of progress made towards any nutrient loss reductions required by Sections 6 to 15 of the Plan, and any actions implemented to remedy issues identified in any audit of the Farm Environment Plan; and 6. Methods to prevent an exceedance of any relevant nutrient load limit set out in Sections 6 to 15 of the Plan if the region-wide rules continue to apply in the sub-region.
5.42CC	<p>The discharge of nutrients from a commercial vegetable growing operation that <u>forms a farming enterprise</u> does not comply with condition 2 or 3 of Rule 5.42CB is a <u>restricted</u> discretionary activity provided the following conditions are met:</p> <ol style="list-style-type: none"> 1. A Farm Environment Plan has been prepared for the activity in accordance with Schedule 7(b) and is submitted with the application for resource consent; and 2. The nitrogen loss rate from the new or expanded commercial vegetable growing operation does not exceed the lawful nitrogen loss rate applicable <u>to the</u> baseline commercial vegetable growing area <u>to within the proposed location sub-region(s)</u>.
5.42CD	<p>The discharge of nutrients from a commercial vegetable growing operation that does not comply with condition 1 of Rule 5.42CB or condition 1 of Rule 5.42CC, is a non-complying <u>discretionary</u> activity.</p>

Rule	Rule provision
5.42CE	The discharge of nutrients from a commercial vegetable growing operation that does not comply with condition 2 of Rule 5.42CC is a prohibited <u>non-complying</u> activity.
5.42CF	<u>The discharge of nutrients from a commercial vegetable growing operation that does not comply with Rule 5.42CC or Rule 5.42CD is a prohibited activity.</u>

Notes

1 – The rules applicable to farming activities (Rules 5.42 to 5.42C and Rules 5.43 to 5.59) do not apply to commercial vegetable growing operations. These rules restrict land use in the red, orange, lake and blue zones.

2 – If a commercial vegetable growing operation is irrigated with water from an irrigation scheme or principal water supplier that does not hold a discharge permit under Rule 5.62 or is not a permitted activity under Rule 5.615.41, then it is assessed under Rules 5.42CA to 5.42CE.

4. Water Transfers

The current rule framework for the transfer of water is focused on the sustainable use of water and improved flows within the regional river catchments. Potato's New Zealand supports the policy requirement to reduce inefficient uses of water and in particular reduce overallocation as required by the existing and the proposed NPS FM.

We are also concerned that the efficient use of water is considered on the basis of allocative and economic efficiency and can provide opportunities to utilise water for commercial vegetable growing operations where appropriate.

Our recommendations relate to the preservation of the productive potential of the region's best soils as a function of allocation efficiency. This requires new transfer provisions for both policies and rules.

Decision sought: We recommend relief to improve the policy and rules below:

Policy	Policy provisions
4.71	<p>Enable the <u>temporary</u> transfer of water permits to take or use water, provided:</p> <ul style="list-style-type: none"> a. the transfer of water is occurring within the same surface water catchment or sub-catchment, or the same groundwater zone, as defined in this Plan; <u>aa. the transfer is to land included in the baseline commercial vegetable growing area; for the use of growing vegetables.</u> b. the same or a lesser amount of water is being taken or used; ba. the transferee's water take is reasonable for their proposed use as determined under the provisions of this Plan including Schedule 10 for irrigation uses; c. the adverse effects of the take and use of water are not more than minor; and d. that in an over-allocated surface water catchment or groundwater zone, a proportion of the allocated water is surrendered and is not re-allocated, unless there is a method and defined timeframe to phase out over-allocation set out in an applicable sub-region Section of this Plan; <u>or the the water is utilised for the purpose outlined in Policy 4.71 aa.</u>

<i>Policy</i>	<i>Policy provisions</i>
8.4.18 – Waimakariri	<p>Assist with phasing out over-allocation of freshwater resources in the Ashley River/Rakahuri, Taranaki Creek, Waikuku Stream, Saltwater Creek, Cust River, Cust Main Drain and Courtenay Stream Surface Water Allocation Zones by 2032, through implementing region-wide Policy 4.50 to address over-allocation, and in addition:</p> <ul style="list-style-type: none"> a. only granting a permit to transfer water from one site to another where the permit has been exercised and records of past use are provided which demonstrate the water to be transferred has been used in the preceding 5 years; and b. requiring, in over-allocated Surface Water Allocation Zones and except where the water is to be used for community supply, <u>baseline commercial vegetable growing areas</u> or stock drinking water, that 50 percent of the water proposed to be transferred is surrendered and not re-allocated.
11.4.25 – Selwyn – Te Waihora	<p>Restrict the transfer of water permits within the Rakaia-Selwyn and Selwyn-Waimakariri water allocation zones to minimise the cumulative effects on flows in hill-fed and spring-fed plains rivers from the use of allocated but unused water, by requiring that:</p> <ul style="list-style-type: none"> a. irrigation scheme shareholders within the Irrigation Scheme Area shown on the planning maps do not transfer their permits to take and use groundwater; and b. fifty percent of any transferred water is surrendered except where: <ul style="list-style-type: none"> I. the transferred water is to be used for a community water supply, or II. <u>the transferred water is to be used for commercial vegetable growing in a baseline area, or</u> III. the transferred water is or will, following transfer, be used for an industrial or trade process and result in a neutral or positive water balance.
14.4.13 – Orari – Opihi –	<p>Assist with phasing out over-allocation of freshwater resources by implementing region-wide Policy 4.50 and in addition:</p>

<i>Policy</i>	<i>Policy provisions</i>
<i>Pareora</i>	<ul style="list-style-type: none"> a. by only granting a permit to transfer water from one site to another where the water permit has previously been exercised and the maximum rate and/or volume to be transferred is determined as efficient based on records of past use; and b. requiring in over-allocated surface water catchments and groundwater allocation zones and except where the water is to be used for community supply <u>or is to be used for commercial vegetable growing in a baseline area</u> or stock drinking water, that a portion of water to be transferred is surrendered that is proportionate to the status of over-allocation in the catchment, up to a maximum of 75%; and c. not granting any application to transfer a water permit from the Temuka Freshwater Management Unit.

5. **Definitions – Baseline commercial vegetable growing area**

The definition for the baseline is problematic for a sector which has traditionally responded to market needs and a production cycle which is mobile for practical and commercial reasons.

We note that the evidence provided in the sector analysis from Agri-base shows a net static area, it also shows a reduction between the period prior to the baseline period.

Potato's New Zealand strongly supports a baseline based on the unique soils which are inherently limited in Canterbury and which fundamentally restrict the industry outside this footprint.

Our recommendation is that the baseline area for vegetable production is based on the presence of LUC Class I and Class II.

WORD	DEFINITION
<u>Baseline commercial vegetable growing area</u>	<u>means the aggregated area of land utilised for commercial vegetable production at the day of notification and the land defined by the Land Use Capability index as Class I and/or Class II</u> used for a commercial vegetable growing operation in any 12 month consecutive period within the period of 1 January 2009 to 31 December 2013 and under the control (owned or leased) of a single grower or enterprise.

APPENDIX AA

Proposed New Schedule 7 (b) – Farm Environment Plan

Potato's New Zealand recognises the absence within the primary sector of an effective modelling framework to predict nutrient losses and production efficiencies across differing cultivars, climates and soils. To provide growers with a solution PNZ has invested in a performance framework to enhance the Farm Environment Plan approach to sustainable management of the valuable resources including water, soils and people.

We consider that the performance based approach is at a stage where it can be introduced into the plan provisions for the LAWP as part of the proposed Plan Change 2.

Our recommendation is to provide a separate Schedule 7(b) – Farm Environment Plan for Potato Growing to enable the technology to assist both growers and CRC to obtain the best management outcomes for the environment and commercial vegetable production areas.

Decision Sought: Insert the proposed Schedule 7B into Schedule 7 as set out below:

Schedule 7B - Rotation (Commercial Vegetable Production) Management Plan

1. A Farm Environment Plan shall be prepared in accordance with the requirements of Schedule 7. The Farm Environment Plan shall be certified as meeting the requirements of Schedule 7 by a Certified Farm Environment Planner (commercial vegetable production).
2. The Rotation Plan does not require duplication of material within an existing Farm Environment Plan that is considered sufficient for purpose by a Certified Farm Environment Planner (commercial vegetable production).
3. Rotation Plans are not required to duplicate material provided to Canterbury Regional Council for the purpose of complying with other rules in the plan.
4. Rotation Plans will not be incorporated into consent conditions as a whole; but matters of control or discretion will include relevant actions committed to by the consent holder. The relevant consent holder can alter the farm plan to include new land without altering the consent; if the actions undertaken at the new locations to mitigate environmental effects have the equivalent outcome anticipated within the FEP.
5. The Rotation (Commercial Vegetable Production) Plan shall identify key risk areas for the discharge of sediment, nitrogen, phosphorus and microbial pathogens, and identify actions, and timeframes for those actions to be completed, in order to reduce the diffuse discharges of these contaminants where practicable.

Part A – Requirements for Rotation (Commercial Vegetable Production) Management Plan

1. The Rotation Plan must clearly identify how any specified consent condition will be complied with; and shall contain as a minimum:
 - a. The name of the commercial vegetable production (enterprise) as the legal entity registered with the Canterbury Regional Council.
 - b. A description of the enterprise, detailing the general rotational cropping system, properties owned, leased and otherwise farmed on over time within the domain of the rotation.
2. A legal description for each parcel of land included in the rotation domain for the enterprise:

- a. A notification process to Council for changes to the parcels of land in the rotation.
- b. The land use capability assessment for each of the parcels in the rotation.

Part B – Requirements for a risk assessment for commercial vegetable rotation

- 3. An assessment of the risk for diffuse discharges of sediment, nitrogen and phosphorus associated with the commercial vegetable production activities on the aggregated area of land used for commercial vegetable production, and the priority of those identified risks, having regard to the freshwater outcomes for Canterbury Rivers and Lakes in Tables 1a and 1b and the Region-wide Water Quality limits in Schedule 8.
- 4. As a minimum, the risk assessment shall include:
 - a. A risk assessment for the precedent nitrogen losses for each of the land parcels in the rotational domain of the Rotational Management Plan;
 - b. A nutrient management plan with demonstrates how any relevant nutrient loss reduction set out in Sections 6 to 15 will be achieved;
 - c. The risk assessment should be equivalent to the process outlined in Section 4 of the Horticulture New Zealand Code of Practice for Nutrient Management Version 1.0 August 2014;
 - d. A risk assessment for soil conservation, that is approved by a Certified Farm Environment Planner (commercial vegetable crops) and is equivalent to the process outlined in Section 1 of the Horticulture New Zealand Erosion & Sediment Control Guidelines for Vegetable Production Version 1.1 June 2014;
 - e. Undertake a microbiological discharge risk assessment if animal or animal products are used on the rotation land parcels.
- 5. If stock are present on land managed within the enterprise, provisions of Schedule 1 relating to the farming of animals apply. If stock are present a risk assessment for stock related discharges must be undertaken.
- 6. A schedule of mitigation actions and target completion dates derived from the risk assessments undertaken in 4 and 5 above.
- 7. The risk assessment data management, reporting and auditing will be consistent with the NZGAP requirements for vegetable production.

Part C Vegetable Growing Minimum Standards

- 8. Rotation Plans required under Commercial Vegetable Growing Operations Rules shall, in addition to the matters set out above, ensure the following matters are addressed.

No	Contaminant	Vegetable growing minimum standards
1	Nitrogen, Phosphorus	Annual soil testing regime, fertiliser recommendations by block and by crop
2	Nitrogen, Phosphorus	Tailored fertiliser plans by block and by crop
3	Nitrogen, Phosphorus	Both (1) and (2) prepared by an appropriately qualified person
4	Nitrogen, Phosphorus	Annual calibration of fertiliser delivering systems through an approved programme such as Spreadmark/Fertspread
5	Soil / Phosphorus	As a minimum by block: an approved erosion and sediment control plan constructed in accordance with the Erosion and Sediment Control Guidelines for Vegetable Production June 2014
6	Nitrogen, Phosphorus	Documentation available for proof of fertiliser placement according to recommended instruction
7	Nitrogen, Phosphorus	Adoption and use of improved fertiliser products proved effective and available such as formulated prills, coatings and slow release mechanisms
8	Nitrogen, Phosphorus	Evidence available to demonstrate split applications by block/crop following expert approved practice relating to: <ul style="list-style-type: none"> • form of fertiliser applied • rate of application • placement of fertiliser • timing of application
9	Nitrogen	Maintain efficient irrigation to ensure yields and the export of nitrogen in crop are maximised.

Part D - Requirements for a Rotation Management Plan applying to Rule 5.42XX - Restricted Discretionary Activity Rule – The management of contaminants from Commercial Vegetable Growing Operations activities across sub-regions and Nutrient Allocation Zones.

A Rotation plan (RMP) shall be prepared in accordance with the requirements below.

- 1) The RMP must be approved by the Regional Council Chief Executive before an application under Rule 5.42XX can be granted by the Council.
- 2) The RMP must demonstrate for each sub-region and Nutrient Allocation Zone how the expected reduction in nutrient discharges to freshwater can be achieved through completing and implementing a farm environment plan action in accordance with Schedule 7. The achievement in reduction of discharges must be comparable when considered over all the properties and parcels managed by the RMP.
- 3) The RMP must be the responsibility of a legal entity that is accountable for achieving compliance with the conditions of resource consent issued under Rule 5.42X.
- 4) The RMP must be supported by a decision support tool that is able to be utilised as the accounting framework for the relevant enterprise. The decision support tool must:
 - a) Provide measured and predicted data for adaptive management;
 - b) Prioritise actions and review the performance of the commercial vegetable production rotation to meet targets and limits for nutrient management;
 - c) Be capable of integrating with other sub-region, nutrient allocation zone and catchment scale accounting systems;
 - d) Be able to measure mitigations for microbial, sediment, nitrogen and phosphorus discharges at all scales within the domain of the Rotation Management Plan to a standard approved by a peer review agent approved by the Chief Executive of the Regional Council;
 - e) Provide data to Council for use in assessing compliance with the nutrient loss targets for the relevant nutrient allocation zones in Sections 6 to 15 of the Land and Water Regional Plan.
- 5) The RMP must clearly identify how any specified consent conditions will be complied with.