

# Submission on Freshwater Farm Plan Regulations - Discussion Document



## Submitter:

## **New Zealand Good Agricultural Practice (NZGAP)**

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## **1 Executive Summary**

This New Zealand Good Agricultural Practice (NZGAP) submission is in support of the Horticulture New Zealand (HortNZ) submission to enable growers to develop and implement Freshwater Farm Plans using industry assurance schemes like NZGAP and GLOBALG.A.P.

NZGAP is an example of integrated farm planning, incorporating food safety, social practice and environmental management within a single assurance system. NZGAP's farm assurance process, like that of GLOBALG.A.P., has adopted established definitions for accreditation, conformance, certification, and auditing. The NZGAP programmes are structured in manner to align with internationally accepted assurance principles.

Over 90% of all commercial fresh fruit and vegetable growers are certified to either NZGAP or GLOBALG.A.P. as it is requirement for most domestic markets and all export markets. Many growers are small family operations, so NZGAP proposes that FWFP requirements must be practical and fit for purpose for growers of all sizes and of all crops, including mixed farming systems.

Many cropping growers produce multiple crops in rotation with other land uses (e.g. pasture), therefore consideration needs to be given to how the FWFP will be audited and certified if a grower is a member of multiple IAPs as required for their mixed farming system. Options include:

- IAPs expand scopes to cover multiple land uses and farming systems
- IAPs continue to focus on specialist area (e.g. horticulture) but integrate with other IAPs which the grower/farmer uses
- Grower/farmer attains audited and certified FWFP via default pathway using council systems and processes

NZGAP considers the assurance structure of the Freshwater Farm Plan (FWFP), as it is articulated within the FWFP discussion document, as incompatible with the NZGAP scheme. The FWFP discussion document envisages that industry programme will adapt to meet the FWFP framework. This cannot occur for NZGAP as changing it will conflict with the framework required for market assurance and other regulatory requirements (e.g. Food Act 2014). Therefore, NZGAP supports an alternative approach within the proposed FWFP system, supporting a grower-led approach and using robust and comprehensive industry assurance programmes to deliver audited and certified FWFPs.

NZGAP considers that the current proposed approach to the certification step for FWFPs is aligned with the process established in Plan Change 6 to the Hawke's Bay Regional Plan (Tukituki River Catchment). This approach was also incompatible with GAP as it relied on Farm Environment Plan (FEP) approval and submission by a council accredited individual farm advisor. This meant that NZGAP EMS was not promoted or implemented as a pathway for growers in that catchment leading to duplication, confusion and increased costs for growers. NZGAP proposes that both the default approach (similar to that proposed in the discussion document), and an alternative approach via IAPs (including GAP schemes) are enabled in FWFP regulations.

NZGAP proposes that a default approach via councils is needed for growers who may not be members of a GAP scheme, and for those who have not met the requirements of the GAP scheme therefore have had their certification cancelled. If they are not members of the GAP scheme, then they would need a default option to comply which could also be enforced by the council.

NZGAP proposes that ideally Industry Approved Programmes (IAPs) would operate alongside regulators like regional councils, performing separate but complementary functions with the FWFP system to achieve the desired outcomes. IAPs would audit and certify FWFPs and report key information i.e. audit and certification outcomes, while regulators would perform oversight and enforcement functions.

NZGAP considers that the FWFP discussion document is missing clarity on the content and outcomes, and overly prescriptive on a novel approach to how FWFPs might be developed and implemented. A more principled-based approach would provide clarity on 'what' is to be done by 'when', while providing the necessary flexibility around 'how' this is achieved so requirements can be integrated into existing industry programmes. NZGAP proposes that the regulator establishes an alternative certification pathway, to the default proposal prescribed in the discussion document, including criteria for recognising credible industry programmes which demonstrate that they can act as a pathway for farmer and growers to meet FWFP outcomes.

NZGAP programmes, like the Environment Management System add-on for Freshwater Farm Plans (FWFPs), can adapt to implement new and updated standards (e.g. to extend scope or adopt new best practice guidelines). However, the NZGAP assurance framework operates within a global framework which cannot be altered. The FWFP will only be able to be delivered in an integrated manner if it recognises an assurance process common to other elements of farm planning. The minor risk is that farmers and growers will have to manage and implement two separate systems for market and regulatory requirements for FWFPs, and face the costs associated with this. The major risk is that the system content or processes conflict each other, with duplication, complexity and confusion greatly

impacting on the farmer/grower's ability to make progress on important environmental issues thus undermining the fundamental intent of FWFP regulations.

NZGAP proposes that the Grower Group model is recognised in the FWFP regulations to align with the GAP framework for audit and certification. Grower Groups are a critically important certification pathway in horticulture with a large proportion of growers approved via one of 8 grower groups (e.g. Zespri who owns and manages a GLOBALG.A.P. Grower Group).

FWFP delivered through NZGAP can deliver on the key elements proposed within the FWFP discussion document, for example: outcomes, catchment context, Te Mana o Te Wai, risk assessments and mitigations, audit and certification. The way NZGAP would deliver on these aspects is through the development of FWFP standards and robust assurance. Examples of how these could work through NZGAP standards and process is explained in this submission.

NZGAP FWFP standards would be benchmarked against national and regional requirements, and also includes industry specific requirements. These standards would be approved by the regulator.

NZGAP is confident that it can provide the outcomes sought by the FWFP regulations. This submission provides case study examples of how the NZGAP EMS works for growers now, how the EMS will be reviewed to reflect new FWFP regulations, and what a prototype FWFP would look like if the regulations were to reflect a standards-based approach to certification based on the outcome of audit against the standards.

The standards-based approach is aligned with the existing GAP assurance framework, which already serves over 90% of growers in New Zealand. If Part 9A regulations support the use of the GAP programmes, like NZGAP, then we anticipate the vast majority of growers will meet their RMA Part 9A requirements via a GAP scheme.

Summary of outcomes sought:

- Establishment of alternative pathway for certification and audit via approved IAPs which is parallel to the default council process outlined in the discussion document and complimentary to council enforcement responsibilities
- Whole system approach to recognition of GAP framework and processes for audit and certification of FWFPs
- Recognition of the comprehensive, responsive and accessible standards-based approach adopted by GAP schemes
- Recognition of the Grower Group model for certification via approved IAPs
- Establishment of clear criteria for reporting
- Appropriate lead-in time to develop GAP scheme standards to meet FWFP requirements before commencing implementation
- National recognition of the GAP framework, certification processes, audit processes and people (auditors/inspectors/advisors) with regional recognition of catchment specific standards
- Adoption of International Organisation for Standardization (ISO) definitions for certification and audit, plus accreditation processes for appointing certifiers and auditors

- NZGAP invites MfE officials to have a comprehensive look at the GAP framework and the EMS via a presentation and review of all documentation. This should include the review of our proposed approach to meeting FWFP requirements, review of a case study FWFP, and a visit to the property of the case study grower.
- NZGAP would like to see a working prototype of the proposed FWFP in the discussion document including the certifier and certification process. A working prototype should be available before any regulations are drafted.

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## 2 NZGAP Overview

NZGAP’s vision is to be a world leader in integrated, pre-farm gate, food assurance systems. The programme was established over 20 years ago by growers and industry groups who were committed to enhancing food safety, worker welfare and sustainability practices in the industry. NZGAP is owned by Horticulture New Zealand on behalf of New Zealand growers.

NZGAP is grower led to ensure that their needs remain the core focus. NZGAP strives to be the one-stop-shop for growers to meet their compliance obligations in an integrated and effective way.

The purpose of NZGAP certification is to provide assurance to customers and regulators that fresh fruit and vegetables produced in New Zealand are grown safely and sustainably. The scope of NZGAP certification standards is food safety, social practice and environment (including fresh water and climate change).

NZGAP has proactively developed the Environment Management System (EMS) add-on primarily to meet regional regulatory requirements for audited and certified Farm Environment Plans. The EMS provides a comprehensive system and proven pathway for growers, to which new national and regional Freshwater Farm Plan (FWFP) requirements can be added.

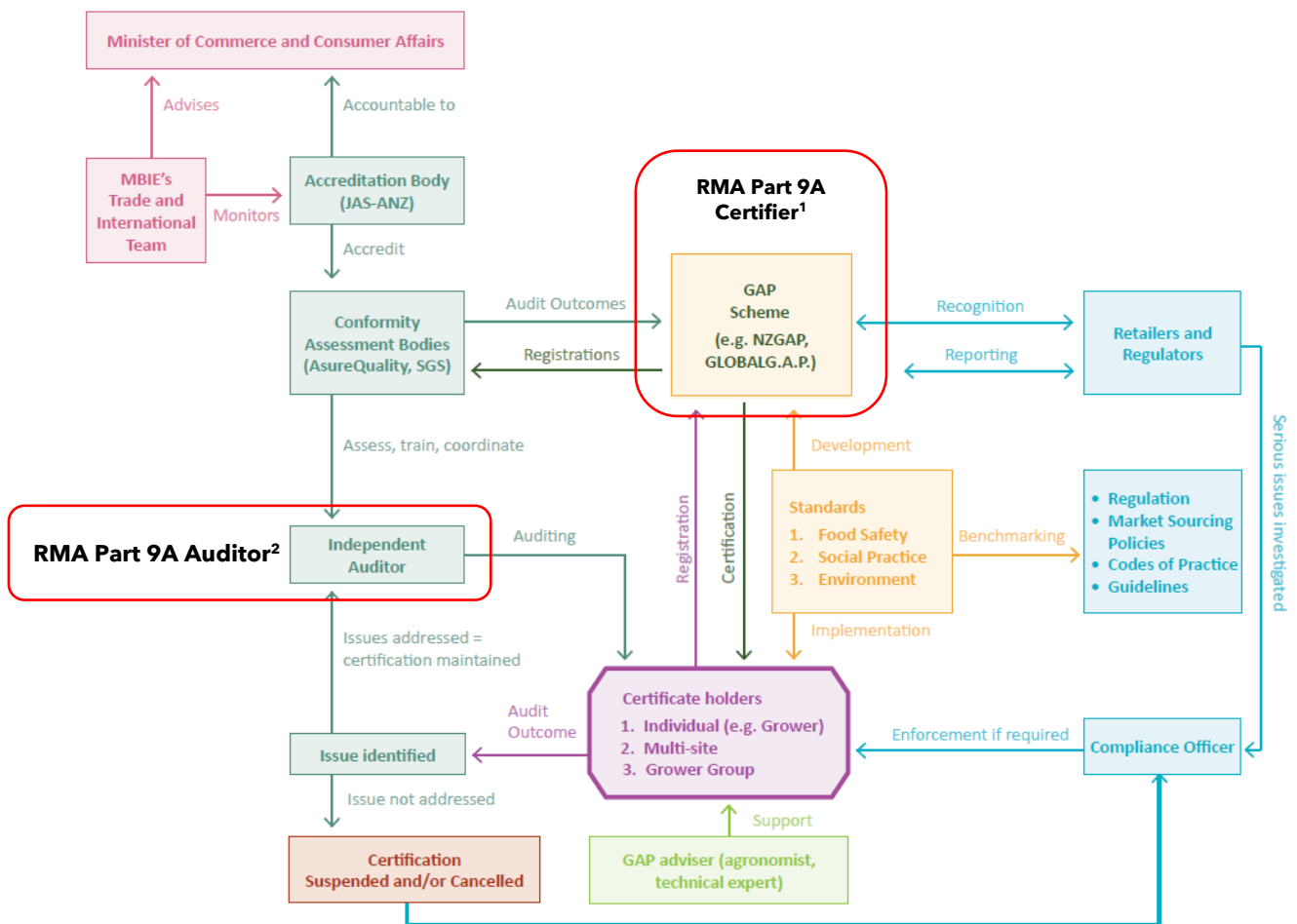
NZGAP certifies 1,600 growers to its core food safety standard, 400 of which are in grower groups. 126 growers have registered for the EMS to date representing almost 29,000ha of area used for horticulture production. The ability of industry schemes like NZGAP to achieve outcomes, at scale, across the horticulture sector cannot be overestimated.

## 2.1 NZGAP ASSURANCE FRAMEWORK

NZGAP is an independently audited, self-management assurance scheme. Growers who are NZGAP certified meet NZGAP standards and can demonstrate that the necessary practices are in place to meet regulatory and market requirements.

Certification of a FWFP via the Environment Management System Add-on (EMS) means that growers have met the requirements of the programme via an independent audit. The diagram below illustrates the proposed NZGAP Assurance Framework for FWFPs, highlighting the existing audit and certification roles within the system.

A standard may or may not be fully accredited depending on market and regulatory requirements, but GAP schemes can still require Conformity Assessment Bodies to be accredited under certain ISO standards (e.g. ISO 17021 - Conformity Assessment) before approving them to audit against that standard.



- 1 **RMA Part9A Certifier:** Can be either the Scheme Owner or the Conformity Assessment Body
- 2 **RMA Part9A Auditor:** Can be an independent auditor employed by a Conformity Assessment Body or an internal auditor/inspector employed by a Grower Group

Figure 1: GAP assurance framework

There are two key documents which operationalise this framework and they are:

1. Scheme rules, and
2. Standards

The scheme rules determine the requirements for growers to attain and maintain certification including certification processes, self-assessment, audit, corrective actions (including timing - e.g. 28 days) and sanctions. The scheme rules also determine requirements for Conformity Assessment Bodies (e.g. SGS NZ Ltd or AsureQuality Ltd) including audit, auditor competency and escalation. To attain recognition, NZGAP benchmarks the scheme rules against criteria established by the recognition body (e.g. GLOBALG.A.P., MPI for Food Act, Environment Canterbury for EMS) to demonstrate equivalence (see section on recognition for more information).

The standards establish the requirements growers must meet on-farm. NZGAP standards are relevant to horticulture and underpinned by science and evidence-based guidelines and codes of practice (see section on standards for more information).

NZGAP standards in New Zealand horticulture are benchmarked to internationally recognised standards including GLOBALG.A.P. Integrated Farm Assurance (IFA) while also being recognised by regulators (e.g. Ministry for Primary Industries for Food Act 2014, and Environment Canterbury for Plan Change 7 to the Land and Water Regional Plan).

NZGAP standards are flexible and can change over time as new research and guidelines are developed, or requirements change. Review of the standards at least every 5 years or as needed, and is currently being reviewed after just 2 years to incorporate He Waka Eka Noa requirements. Other examples include the incorporation of the catchment context into the standards or developing a more comprehensive biodiversity management area.

NZGAP seeks a whole-system approach to recognition which is common in international recognition processes (e.g. GLOBALG.A.P. benchmarked schemes and Global Food Safety Initiative recognised schemes) where the scheme must demonstrate equivalence of outcome with the default standards and processes.

Food Safety is the core focus of NZGAP due to market (domestic, export) and regulatory (Food Act 2014) requirements. NZGAP's assurance framework cannot be compromised for other scopes of certification (e.g. environment). The FWFP discussion document aligns with the GAP framework for audit of individuals but does not align for audit of grower groups. The FWFP discussion document does not align with GAP certification processes.

NZGAP considers the assurance structure of the FWFP, as it is articulated within the FWFP discussion document, as incompatible with the NZGAP scheme. The FWFP discussion document envisages that industry programmes will adapt to meet the FWFP framework. While standards can adapt, the framework cannot for NZGAP as changing it will conflict with the framework required for market assurance and other regulatory requirements (e.g. Food Act 2014). Therefore, NZGAP supports an alternative approach within the proposed FWFP system, supporting a grower-led approach and using robust and comprehensive industry assurance programmes to deliver audited and certified FWFPs. In summary the standards can adapt, but the assurance framework cannot.

## 2.2 CERTIFICATION PROCESSES

The certification process outlined in the FWFP discussion document is the fundamental difference between the NZGAP process and the assurance process envisaged in the discussion document.

In Year 1 growers develop their first FWFP, which captures a baseline of risks and practices. Year 2 onwards, growers focus on implementation of actions, and updating their farm plan to reflect relevant operational changes.

- Year 1:
  1. Develop FEP
    - Maps
    - Catchment, property, paddock risk assessment
    - Current practices
  2. Develop FEP Action Plan
    - Timeline for Good Management Practice (GMP)/Best Management Practice (BMP) actions is business or council/catchment driven
  3. Complete EMS self-assessment
  4. Get audited and make corrective actions
  5. Attain certification based on audit outcome
- Year 2 onwards:
  1. Make progress towards GMP/BMP in Action Plan
  2. Review FEP minimum annually
  3. Add and remove properties as applicable
  4. Re-assess risk as necessary depending on change in footprint i.e. change in magnitude or type of environmental risk as a result of the change
  5. Adopt new guidelines and Codes of Practice (COP) as they become available
  6. Audit alongside future NZGAP audits (unless high level of non-compliances or other issues triggering annual or target audits)
- All years
  1. Council monitors compliance and undertakes enforcement action against those who do not meet EMS certification requirements (e.g. notification from IAP that critical issue has been found during audit or certification has been cancelled).

The in-built flexibility within the EMS standards and industry COP, allow growers to tailor their FWFP to the catchment and property visions and risks.

The FWFP discussion document places a large degree of responsibility on individual professional certifiers. In the discussion document there is less emphasis on agreed standards and more emphasis on the discretion of certifiers. This is different to the role of certifiers within NZGAP (and is inconsistent with the accepted definition of certification in existing NZ law). Under the GAP schemes certifiers have no discretion regarding the standard to be met. They are bodies that certify on the recommendation of independent audit that the accepted standard is met. The certification body has the overall management responsibility for the scheme. NZGAP, as the certifier, does not have a compliance (or enforcement) role, but can report particular (e.g. critical) non-compliances to the regulator.



## **2.3 BUSINESS TYPES / CERTIFICATION UNIT**

NZGAP certification is applied to a management unit (i.e. a business or legal entity) of owned and leased land under the following management categories:

- (a) Individual – a single legal entity with centrally managed production practices.
- (b) Multi-site (enterprise) – a single legal entity with centrally managed production practices of multiple business units or other legal entities.
- (c) Grower Group – a single legal entity with centrally managed assurance systems of multiple legal entities which operate under a central Quality Management System.

It is imperative that the recognition of IAPs enables GAP schemes to certify each of these business types, otherwise it simply will not align with the GAP system and therefore will not be pursued. Grower Groups are especially important in the horticulture industry with the very large fruit crops especially (e.g. kiwifruit and avocados) almost exclusively certified via grower groups.

## **2.4 GROWER GROUPS - CREDIBILITY AND IMPORTANCE**

Grower Groups are an important certification pathway in horticulture with over 60% of growers approved via one of 8 grower groups (e.g. Zespri who owns and manages a GLOBALG.A.P. grower group).

Grower Groups are collectives where one entity owns and manages compliance for a number of growers under a common Quality management System (QMS). The certificate holder (i.e. grower group owner) is responsible for managing each grower's compliance against standards and QMS within the group, while all produce must be sold via the one certificate holder (i.e. growers cannot sell directly to a market themselves). The primary benefit of grower groups is that they minimise costs by managing compliance at a collective level. This means that processes and procedures are established at a group level to minimise costs but are implemented at a farm/orchard level to attain equivalent outcomes.

The QMS is of critical importance to the group as it establishes the requirements of the group and its members. Sections include structure management, membership, document control, record keeping, complaints, competency and training, internal inspections, internal audit, non-compliance and corrective actions.

The credibility in grower groups comes with multiple layers of compliance checking which is quite different to the 'one farm, one audit' approach that is generally accepted by regulators for individuals. The layers of checking include:

1. Internal (second party) inspection of all growers annually
2. Internal (second party) audit review of all internal inspections annually
3. 3rd party surveillance inspection of square root of all growers annually
4. 3rd part audit of Quality Management System annually

While growers are not all independently audited by a third party annually, they operate in a system which has multiple levels of checks and reviews by competent second-party and third-party inspectors and auditors. The requirements for establishing and operating a

Grower Group are specified in the scheme rules of the GAP scheme, which must be followed to attain and maintain certification.

NZGAP proposes that the Grower Group model is recognised via the system level recognition of IAPs.

## **2.5 AUDIT**

For the most part NZGAP agrees with the process for audit of FWFP as described in the FWFP discussion document. NZGAP auditors visit farms to sight records and physical mitigations.

The main difference between the NZGAP process and the process outlined in the discussion document, is the certification audit that occurs within the NZGAP framework. This is the first audit that checks that the FWFP has been developed in a manner consistent with the accepted FWFP standard. The FWFP is certified on the basis of a grower demonstrating compliance via this audit. The certification audit is undertaken by competent auditors rather than professional farm advisors. Subsequent audits are undertaken to check that actions are being implemented in accordance with the standards and within the planned timeframes.

The credibility and trust in the system, and in the horticulture sector, is underpinned by the benchmarking and acceptance of its scheme rules and standards by regulators and markets. The scheme can also demonstrate implementation and progress towards objectives using independent and robust audits of members.

NZGAP certified businesses (individual growers, multisite growers, and grower groups) operate in an assurance framework which requires independent audits by Joint Accreditation System of Australia and New Zealand (JAS-ANZ) accredited Conformity Assessment Bodies. For existing Farm Environment Plans (and future Freshwater Farm Plans), NZGAP independent auditors are employed byASUREQuality and SGS NZ Ltd.

Growers must show the auditor that proper systems and processes are in place to meet regulatory and market requirements. The first audit, the certification audit, is an assessment of the FWFP against the standard, to determine if the FWFP is complete and if the processes have been followed. From year one onwards, growers must continuously meet requirements of NZGAP standards to maintain certification.

NZGAP auditors use triangulation techniques to assess grower compliance including the grower interview, records/documentation checks and observation of implementation/actions and progress towards objectives.

Certified growers must provide a significant amount of evidence of their practices during the audit process, including records, certificates, documentation and observations, to demonstrate that they are implementing standards as required. The auditor visits the farm and reports on what they have seen, e.g. physical elements such as riparian margins and documentation, e.g. fertiliser records.

There is greater regulatory oversight of certification with NZGAP system because the certification is based on standards, and standards are approved by the regulator.

Processes within the standard support some discretion, for example there may be options and combinations of GMPs that could be selected. The auditor does not review the appropriateness of the actions versus alternatives but assesses documentation of the process that was followed to select the actions. This includes the risk assessment, and those elements that the standard stipulates requires sign-off by a suitably qualified person, such as an Erosion and Sediment Control Plan or fertiliser application rates. The auditor would also raise a non-compliance if anything was missing (e.g. element of risk assessment), or if there were no proposed mitigations to manage an identified risk.

Any issues found during audit must be resolved within a certain time (generally 28 days), otherwise certification can be suspended or cancelled. Critical issues must be resolved immediately to maintain certification. Serious issues can be escalated to the relevant regulatory body if required.

Ideally, approved IAPs, like NZGAP, would operate alongside regulators like regional councils, performing separate but complementary functions with the FWFP system to achieve the desired outcomes. IAPs would audit and certify FWFPs and report key information i.e. audit and certification outcomes.

### **3 Environment Management System add-on**

NZGAP developed the Environment Management System (EMS) add-on primarily as a pathway for growers to meet environmental requirements for freshwater and FEPs in regional plans (Appendix A). The EMS standard covers the management of environmental risks on farm, including soil health, erosion and sediment control, nutrients, irrigation, mahinga kai, biodiversity and waterways. It is intended to enable fruit and vegetable growers to reduce the environmental impacts of farming, and to provide evidence of good practice to regulators, customers, and the public. The modular approach integrates these additional requirements into the existing NZGAP framework, utilising the processes, methods and competence that has been built into the programme over the years. The EMS add-on is available to all NZGAP and GLOBALG.A.P. certified growers.

The EMS enables growers to systemise complex environmental issues by mitigating identified risks with appropriate control measures found in industry guidelines and codes of practice. The EMS add-on empowers growers to meet environmental obligations of the market and regulator alongside their usual NZGAP audit. The EMS add-on is based on New Zealand horticulture growing systems and refers to relevant industry guidance and codes of practice.

The EMS will be updated to reflect additional requirements of Part 9A FWFPs.

### **4 Recognition of NZGAP EMS add-on by councils**

NZGAP is already recognised by New Zealand regulators as meeting equivalent compliance outcomes. The primary example is Food Act 2014 where the Ministry for Primary Industries has approved the NZGAP standards and auditors so that growers can demonstrate compliance with that Act in an effective way via their NZGAP audit and

existing food safety system. Though NZGAP has attained regulatory recognition, issues have arisen because a 'whole-system' approach to recognition was not available in the regulations.

Elements of NZGAP were formally recognised under the Food Act (e.g. checklist and auditors), however the rules and certification processes were not fully recognised as equivalent. This was reflective of the incomplete recognition framework and process rather than a reflection on the GAP rules and standards which are already internationally recognised. The lack of full equivalency led to unintended consequences such as auditors being treated as independent food act verifiers rather than elements of a comprehensive GAP system where they are employed by approved Conformity Assessment Bodies.

NZGAP proposes that a whole system approach to recognition is pursued as equivalent to the 'default' approach outlined in the FWFP discussion document.

The following three examples of regional council equivalence approval of the NZGAP EMS add-on for growers to meeting FEP / FWFP requirement and outcomes.

#### 4.1 CANTERBURY - EQUIVALENCE APPROVAL



The EMS add-on was officially recognised by Environment Canterbury (ECan) in April 2019, when the Chief Executive of Canterbury Regional Council, Bill Bayfield, announced the recognition of the NZGAP scheme under Plan Change 5 to the Land and Water Regional Plan:

On 18 December 2019, Mr Bayfield also approved the NZGAP FEP template as meeting the requirements for Farm Environment Plans in Schedule 7 of Plan Change 7 of the Land and Water Regional Plan. ECan have recognised the NZGAP independent auditors employed by AsureQuality and SGS NZ Ltd as FEP auditors though, similar to the Food

Act, there are issues with requirements and processes for GAP auditors versus individual FEP auditors employed directly by the council.

NZGAP and the EMS add-on is now recognised as a pathway for growers to demonstrate compliance with ECan's requirements for an independently audited FEP. The approval of the EMS add-on in Canterbury empowers growers to demonstrate that they are operating at GMP to minimise their environmental impact. NZGAP and Synlait Lead with Pride are the only programmes which have been approved by the council as ISO accredited audit programmes.

A regional guide for PC7 has been developed for the EMS to align with and incorporate regional and catchment specific requirements. Alignment with regional and catchment specific objectives and requirements has been challenging due to the lack of a standard template for regional councils to use, or national direction regarding FEP content.

Equivalence of the whole EMS system in Canterbury has provided a simple and accessible system for growers and auditors to interact. The varying regional requirements can be confusing and convoluted and difficult for both for growers (some multi-site growers and group scheme owners operate across multiple catchments/regions) and industry assurance programmes to digest and understand.

This highlights the need for national standards, to provide consistency and simplicity for 80-90% of the requirements, and for regional Te Mana o Te Wai and catchment standards to sit underneath linked to catchment outcomes and limits.

#### **4.2 GISBORNE - EQUIVALENCE APPROVAL**

On 24th February 2021, Nedine Thatcher Swann (Chief Executive of Gisborne District Council) approved the EMS as a pathway for growers to meet the Tairāwhiti Resource Management Plan requirements for FEPs in Appendix H20.

A regional guide had been developed by NZGAP to align the EMS with the Tairāwhiti Resource Management Plan requirements for FEPs, similar to what has been developed for other regions. This was provided as evidence to council of the EMS equivalence.

The EMS is being used by vegetable and annual cropping growers in Gisborne to meet the 1 May 2021 requirements to develop and implement an FEP, plus the 1 July 2021 requirements for cultivation setbacks from waterways. NZGAP and GDC continue to work together on this solution. NZGAP has arranged for GDC to shadow a grower audit to provide confidence and trust in the system before attaining approval and embarking on audits across the region. NZGAP is confident that following the shadow audit, GDC's approval of the EMS system to include cultivation setbacks to waterways will be given. This would mean the EMS system would be an approved 'certifier' for these specific council rules.

#### **4.3 TUKITUKI - NO PATHWAY FOR EQUIVALENCE APPROVAL**

The requirements for development and implementation of FEPs in Plan Change 6 to the Hawke's Bay Regional Plan - Tukituki River Catchment, were not in alignment with the

NZGAP assurance framework, therefore the EMS could not be approved as a pathway for growers to develop and implement their FWFP.

The FEP development, implementation and reporting processes of PC6 were centred on the utilisation of advisors ('a person with the appropriate professional qualifications') who would liaise directly with the council rather than the approval of an entire industry scheme like NZGAP which delivers on the outcomes with different processes.

The associated system development, costs, and complexities with the Industry Programme pathway mean that NZGAP would not be able to provide value to members, therefore NZGAP did not pursue recognition of the EMS for PC6.

PC6 needed to recognise the robust assurance framework of industry schemes like NZGAP as equivalent (or exceeding) council criteria, so that programmes like the EMS add-on could be used by growers to deliver on the objectives and outcomes in the regional plan.

This meant that industry was not able to provide a pathway for growers to meet farm planning requirements, or work with council on implementation which would have been an efficient outcome.

NZGAP submits that the current certification process as outlined in the FWFP discussion document is similar to the approach in TukiTuki; therefore, if an alternative pathway is not established for recognition of IAPs, NZGAP will not be able to provide a compliance pathway for growers.

## **5 Data Management and Reporting**

NZGAP acts as a conduit between growers, auditors, regulators, markets and other organisations for the secure storage and disclosure of certification data where it assists the goals of NZGAP and benefits grower interests.

NZGAP benchmarks the EMS to reporting criteria and transforms data into the required format. An example of this benchmarking is the conversion of NZGAP audit results to Environment Canterbury audit grade as outlined in the EMS scheme rules.

NZGAP establishes agreements with the organisations and individuals that it shares data with and requires all users of data provided by NZGAP to acknowledge the source of the data and to abide by the terms and conditions under which the data is provided.

NZGAP advocates for outcomes-based reporting, meaning high level reporting of assurance outcomes, rather than detailed operational farm data. Operational farm level data is sighted during the EMS audit, so regulators can have confidence that relevant outcomes are being achieved.

NZGAP proposes that only high-level tier 1 data is reported to regulators to demonstrate progress on implementation. This can be done regionally if necessary (though national is preferable), but the requirements and standards must be established nationally in the regulations. Grower data is also commercially sensitive, therefore reporting needs to be at

a level which demonstrates that outcomes are being achieved without compromising privacy.

NZGAP proposes that regional councils are responsible for environmental modelling and using macro level models to assess links between FWFP implementation and environmental outcomes at a catchment level.

NZGAP has observed numerous issues regarding FEP reporting to date including scope creep, inconsistent approaches between councils, lacking agreed standards, and increasing levels of detail. One of the primary challenges with reporting is that it can end up driving the content of standards and certification processes because reporting has not been considered properly at the policy stage and is not linked to outcomes. In many ways this can be seen as 'the tail wagging the dog' where prescriptive reporting is driving everything rather than improved environmental outcomes being the primary objective. Reporting is not a productive use of time for highly qualified individuals who are in desperate short supply for the audit of FWFPs.

For IAPs like NZGAP this means that a very effective system for improving environmental performance could be greatly compromised because it is required to either retrofit or duplicate to meet prescriptive reporting requirements.

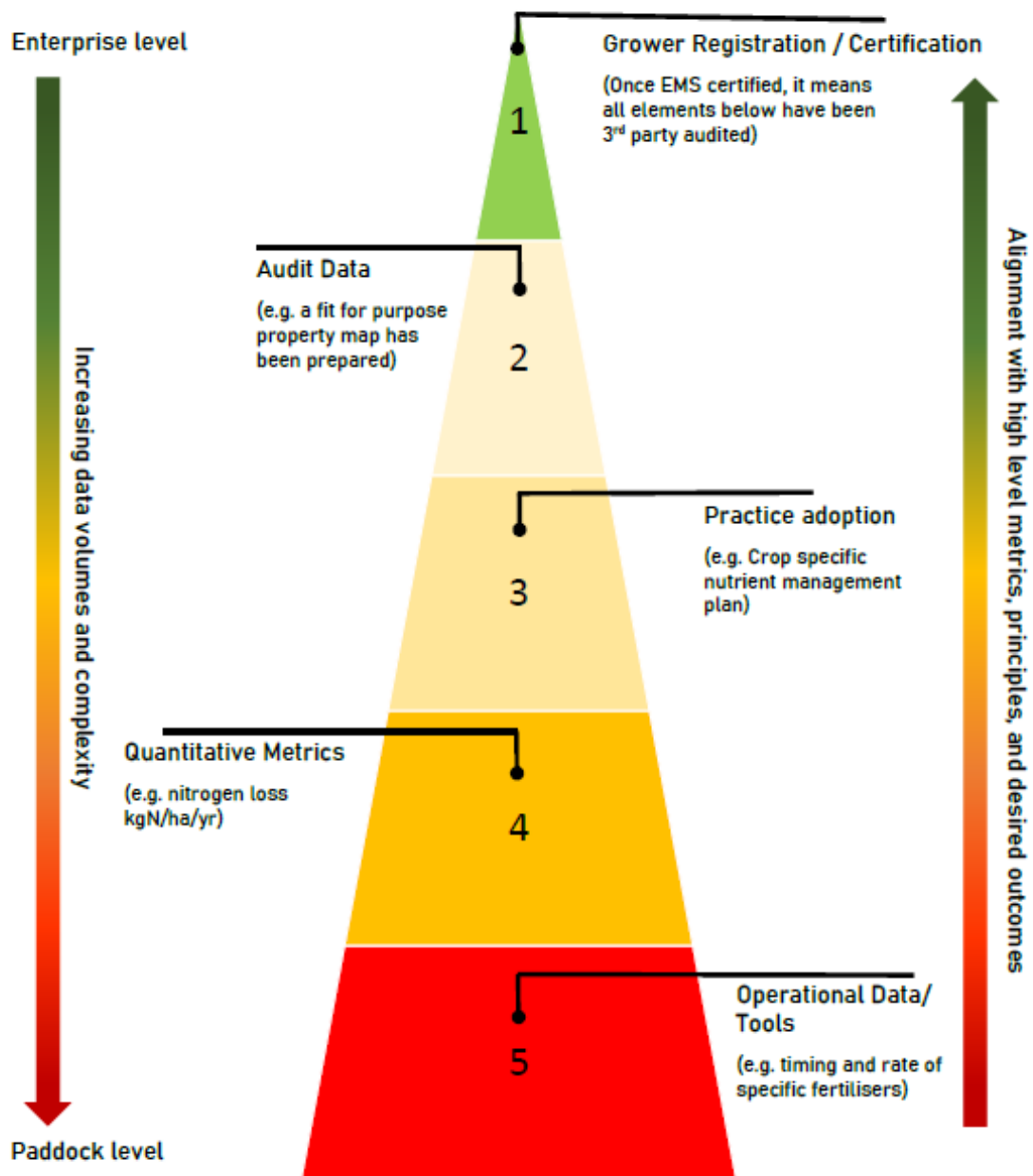


# Data Tiers

for NZGAP



Environment Management System (EMS) and  
Farm Environment Plan (FEP)







## **6 Competency, Training and Support**

### **6.1 GROWER WORKSHOPS**

NZGAP supports FWFPs being grower led to empower them to achieve environmental outcomes on their farm. Growers are the experts in horticulture production, they know their farm better than anyone, and they are the custodians of the land. The grower led initiatives build institutional knowledge of the risk and mitigations, as well as a sustainability culture within the business. They also empower growers to develop innovative solutions beyond good practice. It is generally accepted in horticulture that this approach has a much better chance of success than a consultant developed FWFP that may simply end up on the shelf. The need for a consultant fundamentally indicates that the requirements are too complicated and selected mitigations are less likely to be implemented.

Conversely the EMS has simplified the complexity of FEPs with multiple templates and supporting guidelines to help growers navigate the development of their FEP step by step. In addition, the horticulture industry has worked with regional councils to run grower workshops to bring templates, checklists, and guidelines to life with interactive, practical sessions and worked examples.

To date, industry led grower training in the EMS add-on and FWFP development and implementation has result in 29,000 hectares of land (including other types of agriculture) being registered with the EMS, capturing ~23% of vegetable growers over 5 ha.

Industry has offered the following workshop series for commercial vegetable growers:

- Levin (2019-2020)
- Auckland/Waikato (2020-2021)
- Asparagus sector (2020-2021)
- Gisborne (2021)
- Northland (2021)
- Tasman/Nelson (planned for late 2021)

Andrew Barber, Director of Agrilink, is an experienced advisor, and is the main facilitator for the regional workshops. Andrew steps growers through the detail of the EMS add-on, how to develop a FWFP, and how to implement it to demonstrate progress and continuous improvement over time.

In these interactive workshops, growers learn from experienced advisors and each other. Workshops are accompanied by a site visit to a local growing operation, to discuss examples of environmental management, such as evaluating what is a well-constructed and maintained erosion and sediment control device (sediment retention pond or vegetated buffer strip) or the use of the Quick Nitrate Test to inform nutrient budgets and fertiliser applications.



The workshops cover the EMS standard and templates in detail, and local site visits are used to demonstrate best practice mitigations implemented by exemplar growers. For example, in Pukekohe, vegetable growers visited a farm to look at sediment retention ponds (SRPs). The ponds were designed to engineering and industry specifications, to capture runoff from a specific cultivated catchment area.

In Pukekohe, vegetables are grown on sloping land, requiring a different management approach to flatter land, for example in Horowhenua. The most common sediment control mitigation for flatter land is a vegetated buffer strip. In Pukekohe, runoff volumes are greater, and a more engineered approach is required.



Growers learned the key criteria for a successful SRP design which includes catchment area, volume, shape, decanting device, spillways, forebay and keeping discharged water clean.



Using Don't Muddy the Water's app, growers can calculate their mitigated and unmitigated erosion and sediment loss rates by applying various mitigation practices. The calculator considers practices alongside location, soil type, and slope. As an example, a grower on gently rolling hills of Pukekohe, implementing a suite of practices, can expect the following reduction in erosion rates:

Average <b>unmitigated</b> erosion rate	Practices	Average <b>mitigated</b> erosion rate
33 tonnes sediment/ha/yr or 3 mm soil /ha/yr	<ul style="list-style-type: none"> <li>- minimise cultivation passes</li> <li>- wheel track ripping</li> <li>- planting catch crops</li> <li>- interception drains at the top of cultivated paddock</li> <li>- collection drain to catch and direction runoff before it entered the ponds</li> <li>- Correctly sized sediment retention ponds</li> </ul>	0.3 tonnes sediment/ha/yr or 0.03 mm soil /ha/yr or 90% reduction in sediment loss

## **6.2 AUDITOR AND INTERNAL INSPECTOR COMPETENCY**

Auditors are employed by conformity assessment bodies. SGS and AsureQuality are conformity assessment bodies with individual auditors trained for NZGAP audits across the areas of food safety, social practice, and environmental management. Internal inspectors are employed by Grower Groups. There is oversight of the internal inspector training and competency via the annual Quality Management System audit.

Competency requirements of each programme are established in their scheme rules which have been established and agreed with the market and regulators through the recognition process. Auditors/inspectors must have a tertiary qualification or at least 2 years of experience relevant to the industry they are auditing (e.g. horticulture). They must have completed auditor training relevant to the level required (e.g. inspector versus auditor). They are required to have basic technical knowledge on the scope they are auditing (e.g. introduction to Farm Environment Planning) and must engage in continual professional development (e.g. internal or industry workshops and forums). Auditors must complete an advanced auditor training course, which inspectors do not.

Auditors/inspectors are not required to have advanced technical knowledge in all areas because they are not providing advice to growers. GAP standards are prescriptive, meaning that detailed requirements are built into the standards leaving little room for professional judgement. While prescription is not always optimal, it enables an accessible and easy to understand system for growers and auditors without the need for highly qualified, scarce, and expensive consultants and advanced auditors.

Ongoing professional development involves attending workshops or online training sessions on the relevant management module. NZGAP also holds regular technical meetings with the conformity assessment bodies and trained auditors, to hear and provide feedback on audits completed.

### **6.3 FARM ADVISORS**

Industry supports a grower-led approach to freshwater farm planning. Growers may choose to engage an advisor, or a team of advisors, for parts or all of their FEP development. However, it is not a requirement of NZGAP that growers engage an advisor.

Some requirements within the NZGAP standards recommend or require sign-off by a suitably qualified person. For example, fertiliser recommendations should be made by a suitably qualified person. Another example is if BMP sediment control is required (either in response to catchment risks, e.g., estuary, or farm risks e.g., slope), an erosion and sediment control plan needs to be developed by a suitably qualified person. The auditor will check that there is proof these elements of the standard have been signed off by a suitably qualified person.

In respect of 'suitability qualified and experienced practitioners', it is likely that many professions may be required to support farmers/growers to develop FWFP that meet Part9A requirements, e.g. planner for interpreting policy, engineer for sediment ponds, agronomist for plant nutrition, ecologist for native plantings, matauranga for restoration. In NZGAP's experience, no single farm advisor is likely to have all these skills to the level of competency required.

Currently, horticulture advisors and agronomists working with growers are encouraged to attend the regional FEP workshops to gain a more in-depth understand and appreciation for the EMS add-on and what is expected of growers.

More formal training and forums are planned in future for horticulture FEP advisors. NZGAP intends to launch its Endorsed Advisor Programme in 2022. The purpose of the NZGAP Endorsed Advisor Programme is to establish a network of competent individuals to support growers and other horticulture businesses to implement NZGAP certification for their business.

As part of this programme, NZGAP intends to run training for advisors on the EMS standards benchmarked to national and regional FWFP regulation. This training will build familiarity with the EMS standards, guidelines, templates and processes rather than being a formal qualification.

## 7 What NZGAP needs from FWFP regulation

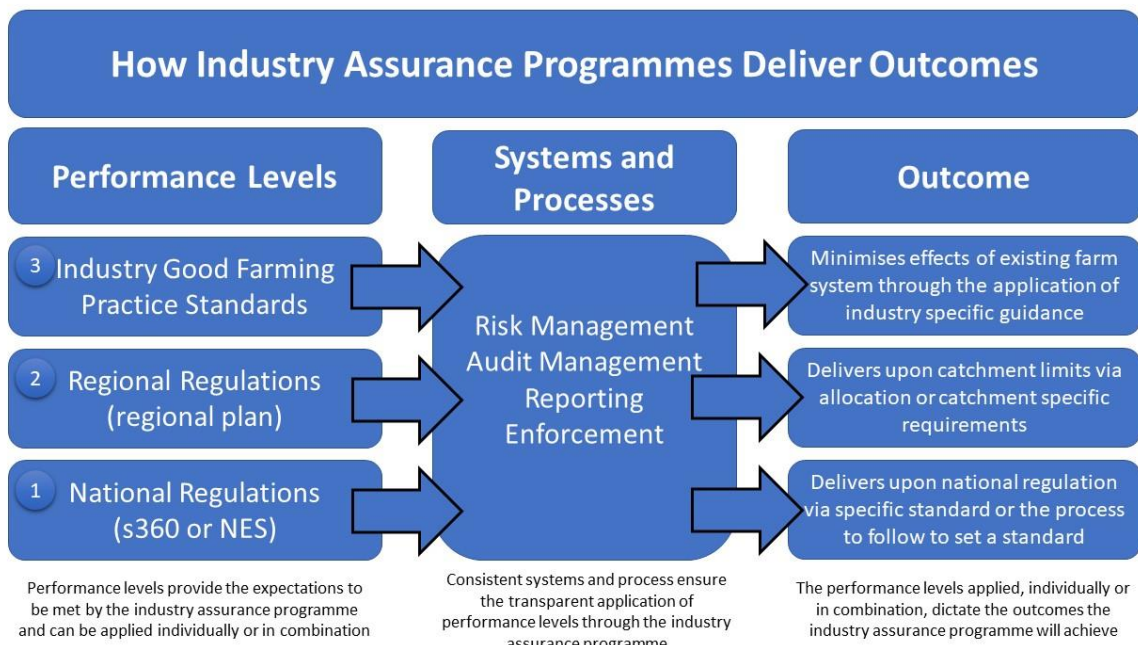
### 7.1 NATIONAL CRITERIA FOR RECOGNITION OF IAPs

NZGAP considers that the FWFP discussion document is missing clarity on the content and outcomes, and overly prescriptive on a novel approach to how FWFPs might be developed and implemented. A more principled-based approach would provide clarity on 'what' is to be done by 'when', while providing the necessary flexibility around 'how' this is achieved so requirements can be integrated into existing industry programmes. NZGAP proposes that the regulator establishes an alternative pathway, to the default proposed as prescribed in the discussion document, including criteria for recognising credible industry programmes which demonstrate that they can act as a pathway for farmers and growers to meet FWFP outcomes.

### 7.2 NATIONAL AND CATCHMENT STANDARDS

NZGAP supports a clear, standards-based approach to the proposed FWFP system. This is important to:

- improve freshwater and achieve regulated outcomes,
- provide clarity on the requirements and expectations,
- rolling out flexible and adaptable FWFPs so that they are successful and credible (known performance), and
- Build on what growers are already doing to manage risks and impacts of growing activities on freshwater.



National standards are needed to create consistency and an 'even playing field' for users (farmers and growers) in the system, that will cover 80-90% of regulated outcomes.

Regional and Te Mana o Te Wai catchment standards would be based on outcomes, values and limits set. Flexibility in the standards (e.g. toolbox of good and best

management practices) allows for farm/orchard level outcomes to be achieved based on level of ambition. The long-term catchment vision would give a clear indication of the percentage reductions needed, and options for businesses to either reduce or diversify/transition out.

Catchment standards would be reviewed every ten years, to reflect changes/progress based on water quality monitoring and FWFP reporting. This approach mimics the design of the proposed Natural and Build Environment Act Bill, to create national consistency and simplify processes to achieve the outcomes sought.



Industry assurance programmes like NZGAP would benchmark their standards to the national and regional/catchment standards (e.g. Regional Guide for Canterbury PC7) and would also perform periodic reviews.

Growers who meet the standards would become certified by NZGAP, based on the outcome of an independent audit against those standards.

## 8 Appendix A: NZGAP Environment Management System add-on

This section describes the EMS add-on for FWFPs. The terms Farm Environment Plan (FEP) and FWFP are used to reflect existing (FEP) and future (FWFP) states.

The EMS is designed to empower growers to systemise complex environmental issues by mitigating identified risks with appropriate control measures. This section discusses the development of the EMS, system components, implementation and rollout, data management and reporting, and industry’s approach to audited good and best management practice, called Joining the Dots.



## 8.1 EMS DEVELOPMENT

NZGAP developed an Environment Management System (EMS) add-on for horticulture growing systems in New Zealand in 2017. The EMS is available to all NZGAP and GLOBALG.A.P. certified growers.

The EMS add-on was primarily developed to respond to regional council requirements for Farm Environment Plans in regional plans. NZGAP has also developed regional guides to show how the EMS meets additional region or catchment specific requirements. The core management areas of the EMS are soil health, erosion and sediment control, nutrient use, irrigation use, mahinga kai, waterways and biodiversity.

The EMS FEP Template has been developed and refined over the past few years. One of the biggest benefits is that it documents the timeline for the implementation of good management practices (GMPs) and best management practices (BMPs). It collates the suite of practices and if a practice is not being used, justification is required or a timeframe for its implementation. Likewise, where practices are being used the grower must provide evidence of those practices taking place.

### 6A SOIL: Soil Quality, Health and Fertility – Assessment

Ref	Good/Best Management Practices	Complete? (Yes, Partial, No, n/a)				Date to be completed? (if Partial or No)	Comment/Agreed Action (if 'Partial' or 'No'. Justify if 'n/a')	Evidence (e.g. record, photo, observation)	Level
		Y	P	N	n/a				
1	Soil type, structure, texture and profile is assessed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>					GMP
2	Soil drainage is assessed (poor/moderate/well drained)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>					GMP
3	Soil nutrient testing is conducted on each paddock every 3 –	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>					

Figure 1: Example of the NZGAP EMS Template

To date, 20 grower case studies have been completed across a range of crop types and regions, including one catchment collective case study (see Section 5.1). These case studies demonstrate how the EMS can be used consistently across a range of growing systems to mitigate environmental risks on property, and audited FEP data can be aggregated and reported to tell a crop or catchment story of progress.

These grower case studies will provide useful evidence and feedback for the upcoming review of the EMS to align with the new national Part 9A FWFP regulations.

## 8.2 EMS ASSURANCE SYSTEM

The EMS add-on has an in-built risk and outcomes-based system, providing a pathway for growers from FWFP development to audit, certification, and implementation.

The EMS has a number of system components<sup>1</sup> that work together to deliver the programme:

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<sup>1</sup> NZGAP: [www.nzgap.co.nz/EMS](http://www.nzgap.co.nz/EMS)

- (a) EMS add-on scheme rules: includes requirements to become certified, audit process, auditor competency, reporting to regulators (e.g. regional councils).
- (b) EMS audit and self-assessment checklist: the requirements that must be met in order to attain certification.
- (c) EMS Implementation Guideline: provides guidance for growers, auditors and advisors on expectations and how to meet the requirements in the EMS audit and self-assessment checklist including links with other guidelines and codes of practice.
- (d) EMS Farm Environment Plan Template: includes environmental risk assessments, a toolbox of GMPs and BMPs, and an environmental action plan.
- (e) EMS Regional Guide: a guideline for growers, auditors and advisors which includes benchmarking of EMS to region and catchment specific requirements for FWFPs.

### 8.3 INDUSTRY ENVIRONMENTAL CODES OF PRACTICE

The good and best management practices (GMPs / BMPs) in the EMS are based on industry environmental Codes of Practice. The Codes of Practice are based on research and trials in response to identified environmental risks posed by commercial horticulture production. For horticulture, the key freshwater contaminants of concern are sediment, nitrogen and phosphorus. *E.coli* is relevant to growers who have mixed systems with livestock.

Current Guidelines and Codes of Practice include<sup>2</sup>:

- Erosion & Sediment Control Guidelines for Vegetable Production
- Soil and Drainage Management Guide
- Code of Practice for Nutrient Management
- Nutrient Management for Vegetable Crops in NZ
- Vegetable Washwater Discharge Code of Practice
- N-Quick Test Guideline and Tool
- Guideline for Greenhouse Nutrient Solution Discharge
- Vegetated Buffer Strips Code of Practice

Industry Guidelines and Codes of Practice are periodically updated with new approaches, information, practices, and mitigations based on the latest science and research.

The range of good and best management practices available to growers in the EMS are linked to Codes of Practice. For example, the nutrient management area of the EMS is based on the HortNZ Code of Practice for Nutrient Management.

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<sup>2</sup> NZGAP: [www.nzgap.co.nz/EMS](http://www.nzgap.co.nz/EMS)

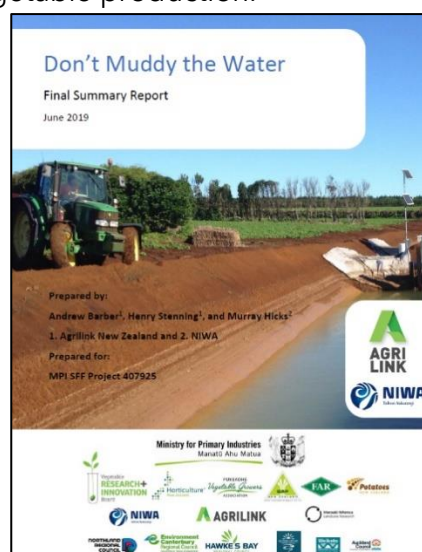
Below are examples of research developed over the last two decades relating to erosion and sediment control and nutrient management for vegetable production.

Erosion and Sediment Control Research projects:

- (a) Franklin Sustainability Project
- (b) Don't Muddy The Water Report and App

Nutrient Management research projects:

- (a) Rootzone Reality
- (b) Measure it and Manage it
- (c) Future Proofing Vegetable Production
- (d) Sustainable Vegetable Systems



Tools have been developed from these research projects to support on-farm decision making. For example, Don't Muddy the Waters App calculates erosion and sediment loss rates, pre- and post-mitigation for a given paddock based on slope, location, ground cover, crop row lengths and selected mitigation measures. The app uses research results from the MPI SFF project Don't Muddy the Water as well as factors from the Revised Universal Soil Loss Equation (RUSLE) to model erosion and sediment loss rates. The Nitrate Quick Test strip is another example of a grower facing tool developed by industry. Quick N tests strips can be used at any point in the rotation to give a real-time snapshot of the mineral N levels in the soil. This tool can be used before planting, before split side dressing applications, and after harvest to understand nitrate balances in the soil at each stage of a crop.

Not all practices offered in the EMS are right for all situations and all land uses. The EMS enables growers to select appropriate practices from a 'toolbox' of GMPs and BMPs to mitigate the environmental risks of their operation. Enabling growers to adopt a tailored combination of practices is a highly effective and practical way to make progress on the ground and achieve the desired environmental outcomes.

The EMS standards, based on the Codes of Practice, are very clear and include options. For example, there are a range of options that can be selected and some options could include, for example needing a nutrient budget or erosion and sediment control plan developed by a suitably qualified person.

The Nutrient Management area of the EMS has been developed based on the HortNZ Code of Practice for Nutrient Management.

This Code of Practice is a risk-based approach to nutrient management which is designed for growers to understand and implement good and best management practices for nutrient use with a particular focus on nitrogen.

The code is based on a risk assessment approach with five steps:

- (a) Understanding how loss of nutrients occurs and the potential risks,
- (b) Having appropriate information on which to base decisions to address the risks,

- (c) Assessing the risks within a specific situation,
- (d) Identifying and implementing appropriate management practices to address the identified risks, and
- (e) Maintaining records to verify how the management practices have been implemented and maintained.

The figure below is a snapshot of the nutrient management risk assessment growers are required to complete, to determine their baseline/unmitigated level of risk, and re-assess the risk level based on GMPs / BMPs identified in subsequent checklists.

**7B. NUTRIENTS: Assessing the risk of Nutrient Loss**

Ref	Contributing factor	Assessing extent of risk	Level of risk		
			High	Med	Low
1	Soil moisture	Applications of N when soils that are saturated - high risk. Applications when soils are not saturated – lower risk Note: It is important to assess the soil moisture status before an application to ensure that the potential for leaching is minimised. Use of foliar applications can reduce the risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	Irrigation	Use of irrigation – high risk Note: Risk can be reduced by ensuring that irrigation is used to maintain soil moisture at target levels and applications of N timed accordingly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	Soil type	Light soils – High risk. Medium soils – Medium risk. Heavy soils – Low risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	Paddock history	Quantities of N applied not based on fertiliser recommendations or assessment of crop residues – high risk. Applications take into account fertiliser recommendations and crop residues to ensure that appropriate levels of N are applied - lower risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	Previous crop planted and residual N in the soil	High residue crop – high risk. Crop failure or lower than anticipated yield – high risk. Removal of previous residue – lower risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	Crops being grown	Shallow root vegetables – higher risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	Crop yield and quality	Nitrogen is used to achieve desired yield and quality. Inappropriate or excessive use can create quality issues and increase the risk of leaching – high risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	Intensity of cropping	Repeated cropping – higher risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	Topography	Sloped ground – higher risk of run off	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10	Plant uptake of nitrogen	Low plant uptake - high risk High plant uptake - lower risk Note: There are a range of factors that contribute to the plant uptake of nitrogen and hence reduce the N in the soil able to be leached – e.g time of years, growth stage, type and form of nitrogen, rooting depth. The combination of factors need to be assessed to determine uptake for each crop.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11	Timing of nitrogen application	High level of base dressing at planting – high risk Applications split and matched to crop needs – lower risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12	Fertiliser application methods	Broadcast application – higher risk Application only to the row – reduced risk . Foliar applications – low risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13	Applications of organic manures	Organic manures applied; but not taken into account for N balance – High risk, Taken into account for N balance – Lower risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14	Pest and disease	Crop failure or lower than anticipated yield due to pest and disease – high risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15	Animals in the rotation	Animals included in the rotation – higher risk. No animals – lower risk.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16	Ground preparation and planting methods	Direct drilling and reduced tillage – lower risk Presence of fines post cultivation – higher risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17	Compaction	Compacted soil will prevent roots being able to penetrate and access nitrogen. Compacted soil presents a higher risk.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Baseline / Unmitigated Risk Level (i.e. without any GMPs in place):</b>			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Risk Level with current practices in place (Template 7C):</b>			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Risk level with GMP in place (Template 7C):</b>			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Other identified risks:</b>			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The good and best management practices are grouped according to the stage of the crop cycle for annual crops:

- (a) Pre planting
- (b) Planting
- (c) Post planting
- (d) Harvesting and Post-harvest

The Nutrient Management area is divided into two sections:

- (a) Practices: undertaking a risk assessment, maximising nutrient uptake, minimising nutrient loss, adoption of GMPs/BMPs, development of action plan.
- (b) Nutrient Budget: assessment of nutrient budget robustness, baseline nutrient loss rate, target nutrient loss rate, compliance of nutrient budget with regulatory requirements.

The GMPs and BMPs in the EMS templates relate to planning nutrient requirements to match relative plant predicted uptake, managing timing of applications, using side dressing, and avoiding water bodies (i.e., the right product, in the right place, at the right rate, and at the right time).

The EMS requires nutrient applications to be informed by available information on fertiliser recommendations (e.g. 'Nutrient Management for Vegetable Crops in New Zealand') so growers plan fertiliser inputs in line with scientifically proven crop demand.

Nutrient Management is highly dependent on Good Soil Management, so the EMS also includes a section on assessing and improving soil quality, health and fertility.

EMS Nutrient Budget:

- (a) The EMS can link with any nutrient budget used by growers.
- (b) The EMS audit process assesses the robustness of the nutrient budget (e.g. checks of data inputs and assumptions).
- (c) The EMS collects output data from nutrient budgets (e.g. current loss rate, baseline loss rate, target loss rate).
- (d) The EMS assesses the nutrient budget against regulatory requirements (e.g. consent limit, farm limit).

Using the EMS, growers can demonstrate nutrient management by, calculating current and target nitrogen and phosphorus surplus for each crop using a nutrient budget, identifying appropriate mitigation measures through the FEP template, and recording and reporting on progress using the EMS audit and self-assessment checklist.

#### **8.4 NUTRIENT BUDGETS**

NZGAP supports the use of practical tools which assist growers to make good decisions, and to demonstrate that they are managing nutrients sustainability. NZGAP does not support a one size fits all approach to nutrient management where all growers and farmers are required to use one particular tool.

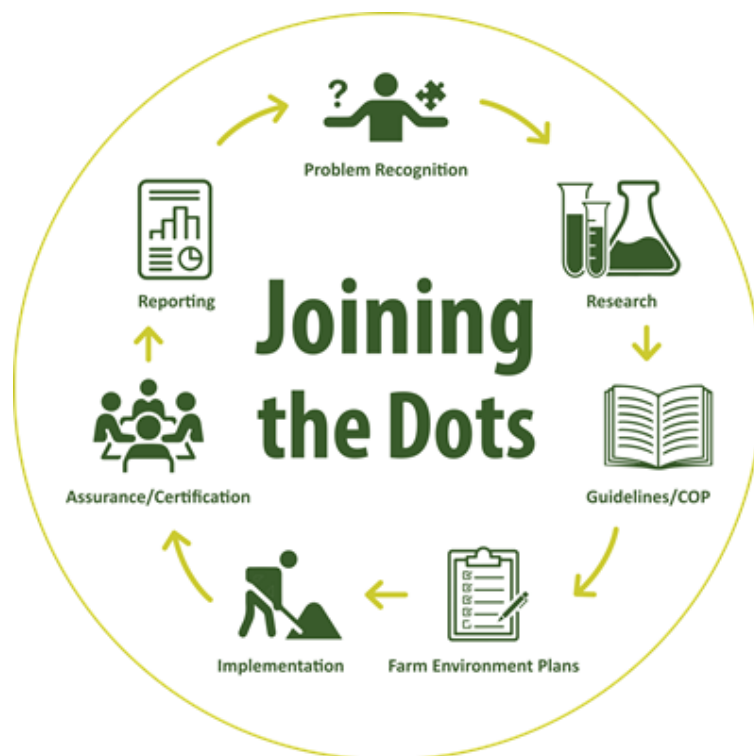
The EMS can link with any nutrient budget used by growers including OverseerFM, APSIM, NCheck, and LandWISE nutrient budgets. The EMS audit process assesses if the tool used is approved by the regional council (if required) and assesses the robustness of the nutrient budget (e.g. checks of data inputs and assumptions). The EMS also collects output from nutrient budgets (e.g. current loss rate, baseline loss rate, target loss rate), and checks if this complies with consented or regulatory limits.

NZGAP supports a practice-based approach to good nutrient management including understanding the risk of nutrient loss, following nutrient recommendations, undertaking soil tests and managing nutrient loss (e.g. by planning a cover crop to absorb excess nutrients).

## 8.5 JOINING THE DOTS

Joining the Dots is a structured approach to making progress on key issues, from problem recognition, through research and guideline development, implementation, audited mitigations, and benchmarked sustainability reporting.

FWFPs do not occur in isolation. They are a critical element of a whole system approach. FWFPs are underpinned by research, development of solutions, Codes of Practice, and dissemination. Crucially they provide a structured process to plan, document, and implement good and best practice which is verified via independent audits.



In late 2018, NZGAP engaged Agrilink to scope out a project which was subsequently co-funded by the Vegetable Research and Innovation Board (VR&I) and Potatoes NZ.

The initial project aimed to establish the framework and system for development, implementation, and reporting to demonstrate FEP implementation and effectiveness in horticulture, with a focus on soil erosion and sediment control.

The project explored the potential for collection, aggregation, analysis and presentation of national and regional scale metrics via the EMS add-on. Individualised benchmarking reports were also generated for growers to inform future decision making and prioritise action planning. Aggregated environmental metrics have been analysed to report on the industry's sustainability progress over time, using vegetable growers in the Lake Horowhenua catchment as a case study.

This resulted in the generation of individualised benchmarking reports for growers to inform future decision making and prioritisation of action planning. Aggregated environmental metrics were analysed to report on the industry's sustainability progress over time.

Key findings from the Joining the Dots case study include:

- (a) 90% of short rotation cropland area in Hokiia 1a catchment (Lake Horowhenua) has an FEP developed via the EMS.
- (b) 82% of growers currently at GMP, with 100% at GMP by 2025.
- (c) 48% of growers currently at BMP.
- (d) Current practice is reducing soil loss by 720 tonnes/year compared to unmitigated loss rates across 1090 hectares of vegetable cropping land.
- (e) Enhanced practices (at GMP) will reduce soil loss by a further 400 tonnes/year across the same 1090 hectares.
- (f) Unmitigated sediment loss would average 0.8 tonnes/hectare/year, with enhanced practice reducing this to 0.2 tonnes/hectare/year.
- (g) All growers are conducting soil tests at least every 3-5 years and almost a third are testing annually.
- (h) Reductions in N leaching by 2025, from 7 percent to 46 percent depending on the crop rotation, and the application of GMP, BMP and systems change.

NZGAP supports the need for industry to demonstrate progress on environmental issues via IAPs, but does not support central collection and collation of detailed FWFP data (see Section 6: Data, Management and Reporting)

## **9 Appendix B: Proposal for how EMS could meet Part 9a FWFP regulations**

This section contains example FWFPs for two growing operations and discusses how the risk assessment and Te Mana o Te Wai vision could work, and how the standards and processes within the NZGAP EMS could be updated to reflect Part 9A.

The example reports in this section are prototypes created for a case study fruit grower. The report summarises the key information from the more detailed FWFP created for the businesses who have current EMS certification for existing freshwater regulatory standards. The prototype report is designed to align with the Part 9A Freshwater Farm Plan requirements.

NZGAP is confident that it can provide the outcomes sought by the FWFP process, and a more robust and lower-cost method than envisaged by the discussion document, and this is because:

- There is greater emphasis on the upfront approval of the FWFP standards. This approval could be attained:
  - At a national level for the majority of the default content of FWFPs
  - At a regional council level to ensure the standards reflects the Region's Te Mana o te Wai vision, the catchment outcomes, target attribute states and limits.

- Because the implementation is to an approved standard, there is less discretion in the implementation of the standard. Therefore, FWFP can be implemented by growers and a range of advisors, and then checked by independent inspectors/auditors. This is a highly effective and lower cost model.
- The standards-based approach is aligned with the existing NZGAP assurance framework. It can be added as an additional module to an existing system, that already serves over 90% of growers in New Zealand.

## **9.1 TE MANA O TE WAI VISION**

Long term visions for freshwater catchments across the country have not been set. To give effect to Te Mana o Te Wai, regional councils need to develop this vision with communities and tangata whenua, and a timeframe to achieve it. Long term visions for catchments will take several years to develop. As part of their FWFP, these growers have set farm/orchard level Te Mana o Te Wai visions and actions. This will eventually link into the catchment visions set in the future. The Te Mana o Te Wai vision statements in the prototype reports have been set by those growing organisations for the next 1, 5, 10 and 50 years.

## **9.2 ASSESSMENT OF EFFECTS**

Catchment scale AEE (risk assessment) is informed by catchment limit setting and allocation process, and codified into the standards, which would be approved by the regulator. Farm scale AEE (risk assessment) is codified in the standards, informed by research and codes of practice. These standards would be approved by the regulator.

## **9.3 CATCHMENT SCREENING ASSESSMENT**

The catchment screening assessment is an important step that links the farm to the catchment. The screening assessment considers the catchment context of the activity. It takes into account the nature of the farming activity and the suitability of that activity to the land, and the current receiving water quality.

The land use suitability assessment considers the nature of the activity, in this case horticulture, and the Land Use Capability (LUC) class that the activity occurs on. For horticulture, the most suitable land is LUC classes 1 to 4.

The outcome of the land use suitability assessment links back to the 10-year Te Mana o te Wai vision and actions. That is, to identify opportunities to better align the activity with the Te Mana o Te Wai vision for the catchment(s), the natural resources (soil, climate, water), and include consideration of opportunities to change land use, change leased land location, and/or systems change.

Growers want to appropriately manage risks from their growing operation on freshwater environments. To do that, growers need to know the current state of freshwater quality.

Land, Air, Water Aotearoa (LAWA) evaluates conditions at sites nationwide against the National Objectives Framework (NOF) described in the NPSFM 2020, where expectations of each indicator's values are defined as achievement bands, from A (good) to D or E



(poor). These water quality scores are compared to long term averages for nitrogen, phosphorus, and *E.coli*.

Using NOF Band scores for key contaminants, growers can undertake an overall risk assessment taking into account the vulnerability of the receiving freshwater environments and the magnitude of their discharge(s).

The outcome of the catchment screening assessment will set the level of ambition in the FWFP. In other words, where and when they need to be operating at GMP or BMP and develop a hierarchy of management priorities and timeframes in their action plan to achieve this.

This provides a means of reflecting catchment visions and context, as is discussed in the FWFP discussion document as one of the regulated outcomes being consulted on.

In future, once regional councils set long-term visions and target water quality attribute states for catchments under the NPSFM 2020, growers can adjust their priorities as required to align with catchment visions.

#### **9.4 ENVIRONMENTAL VULNERABILITY ASSESSMENT**

In order to determine the level of ambition in their FWFP, growers must assess the overall risk of their activity to freshwater and freshwater ecosystems based on the vulnerability of their receiving environment, and the magnitude of their discharge(s).

The level of vulnerability of the receiving environment is the degree to which the system is susceptible to, or unable to cope with, adverse effects of farming activities. The level of vulnerability is based on the NOF Band scores for water quality in the screening assessment.

The magnitude of the discharge from farming activities on freshwater receiving environment(s) is determined through the FWFP farm scale risk assessment.

Magnitude \* Vulnerability = Consequence (level of ambition)

	Catchment Vulnerability		
Magnitude of Discharge(s)	Low	Medium	High
Low	GMP	GMP	GMP
Medium	GMP	GMP	BMP
High	BMP	BMP	BMP

Growers can set the level of ambition in their farm plan for each management area using the risk matrix.

This approach is based on the RMA concepts of 'maintain' or 'improve'. If GMP is required, growers need to work towards and maintain it. If BMP is required, growers need to improve and operate at BMP as a priority.

Some growers may manage multiple, non-contiguous land parcels across an FMU. Multiple LAWA monitoring sites might need to be considered. For example, commercial vegetable growers who rotate on a collection of land parcels would need to consider the management of their full rotations within the context of changing water quality priorities. The farm plan can be a useful management tool to achieve this.

### 9.5 RISK MANAGEMENT AND ACTION PLANS

Once key environmental impacts and issues of importance to decision making are identified, resources can be allocated efficiently and effectively.

Annual updates to FWFPs need to take into account changes in growing footprint and therefore management regime, and changes in catchment vision.

The FWFP documents all management activities, whether they are implemented fully, partially, or not at all. The Action Plan documents the areas of improvement that are required.

Ref.	Management area and risk addressed (e.g. soil erosion)	Action to be completed	Location	Person responsible	Expected Date of Completion	Actual Date of Completion	Evidence to be Provided (e.g. records, photo)

Figure 2: Action plan headings in EMS template

## **9.6 CERTIFICATION AUDIT**

The audit outcome determines if a grower becomes certified as meeting the requirements. If a grower receives non-compliances in the audit, they must rectify these within the specified timeframes otherwise they do not attain certification and must re-apply. Auditors/inspectors from AsureQuality, SGS and Grower Groups undertake certification audits.

The first audit would verify that the FWFP meets the standard, and certification would be issued on that recommendation. Subsequent audits would track progress and compliance would be required to retain certification.

## **9.7 CERTIFICATION**

A FWFP that meets the standard(s), (e.g. an approved EMS standard that reflects industry, Part 9A and council requirements) would attain certification by an accredited certification body or scheme owner like NZGAP, on the advice of an independent audit of the FWFP compared with the standard. NZGAP is the certification body for the EMS.

## **9.8 MAINTAINING CERTIFICATION**

In order to maintain certification, growers would need to review their FWFP at least annually, complete an annual self-assessment, and demonstrate compliance via surveillance audits.

In GAP schemes, certification is renewed annually and growers must meet all requirements to maintain certification. If requirements are not met then certification can be temporarily suspended, and if efforts are not made to resolve then that leads to suspension then certification may be cancelled. Cancellations can be reported to the regulator to notify that the grower is no longer using the NZGAP pathway for their FWFP.

## **9.9 COMPLIANCE AND ENFORCEMENT**

NZGAP is the pathway, not the police for all growers. Growers are not obliged to use the EMS pathway, so regional councils will still be required to carry out enforcement duties. NZGAP only monitors compliance of those who have registered to use the EMS as their FWFP pathway and cannot enforce beyond the internal sanctions such as suspensions, and cancellations. Once certification is cancelled (and reported to the regional council), NZGAP cannot apportion further enforcement action as the grower would no longer be a member of the scheme. Enforcement duties would therefore need to be carried out by councils to complement the heavy lifting being done by via IAP audit and certification of growers.

# Freshwater Farm Plan - Summary Report

Business name:  
**Case Study 1**

Year:  
**2020**

Farm planning module:  
**Environment Management System (EMS) add-on v1.6**

Assurance Programme:  
**NZGAP**

NZGAP number:  
**1234**

Audit result:  
**Compliant**



Certification status:  
**Certified**  
(Expires 15/09/2021)



## Orchard information

Growing region(s)	<b>Hawkes Bay</b>
Orchard area (total)	<b>81ha</b>
Orchard area (production)	<b>81ha</b>
% leased versus owned land for production	<b>46% owned 54% leased</b>
List crops currently grown	<b>Fruit</b>
List other land uses and area, e.g. arable, dairy, dry stock	<b>None</b>



## Catchment screening outcome

Practice level adoption required based on receiving water status:

Nitrogen & irrigation management	Low risk	<b>Good Management Practices</b>
Phosphorous & sediment management	Low risk	<b>Good Management Practices</b>
E.coli management	N/A	<b>N/A (no animals)</b>

## Environmental action plan

Ref.	Management area and risk addressed (e.g. soil erosion)	Action to be completed	Location	Person responsible	Expected Date of Completion	Actual Date of Completion	Evidence to be Provided (e.g. records, photo)
BB.2	Develop long-term irrigation plan.	Document irrigation practices and long-term irrigation management in a written plan.	Home Block	Orchard Manager	December 2021		Copy of management plan on file.

Valid until

January 2022



# Certificate

This is to certify that

## Case Study 1

Has met the assessment requirements  
of NZGAP and is certified as a:

**Environment Management System  
(EMS) add-on**



NZGAP Signatory

NZGAP Number: 1234

Date of Issue: 09/03/2021

This certificate is valid until: 18/01/2022

*Unless otherwise stated at [www.nzgap.co.nz/checkregister](http://www.nzgap.co.nz/checkregister)*

**New Zealand Good Agricultural Practice**  
[www.nzgap.co.nz](http://www.nzgap.co.nz)

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