

# Environmental Compliance Frequently Asked Questions May 2022

Sustainable solutions for our community,  
now and into the future





## Understanding MHV's Environmental Requirements

MHV was issued with a renewed Discharge Consent, CRC185857, on 13 May 2021. To help understand the terminology, processes and policies and what they mean for you, we have created this resource, including a section on frequently asked questions.

### Terms Explained

#### Advanced Mitigations

Go beyond the expectations of the *Industry Agreed Good Management Practice relating to water quality*. The practices relate to farm systems typical in the Mid Canterbury catchment and are to address water quality issues specific to this area. Nutrient losses from Advanced Mitigation properties are reported by the Mid Canterbury schemes through the Matrix in accordance with their Environmental Management Strategies.

#### Authorised Land Use (ALU)

Identifies the activities on farm that are at high risk of having effects on the environment, and the limits you can operate up to for your farm system. If you want to expand beyond your authorised land use parameters or change them, you need to seek permission from MHV Water through the Farm Activity Variation Application (FAVA) process. In some instances, you may also require resource consent from Environment Canterbury. The ALU is determined using the information you have provided through your FEP updates and Overseer nutrient budgets over the 2014-2020 period. The period that defines the ALU aligns with the Reference Period in the Government's Essential Freshwater Package and our proposed resource consent conditions.

#### Baseline Maps:

Instead of preparing nutrient budgets for the Baseline Period (2009-2013) farm systems, MHV shareholders need to confirm their irrigation and farm system for the Baseline Period based on the Matrix. This information is then inputted into the Matrix to calculate a Representative Baseline Load. ECan have approved this method as equivalent to Nutrient Budgets for the Mid Canterbury Schemes. It is a high level calculation that has been calibrated with actual nutrient budgets and works at scale.

#### Baseline Period

Is the period of 01 July 2009 to 30 June 2013. This period was defined by ECan under their Regional Planning Framework for the Land and Water Regional Plan. The activities undertaken during this period are used to calculate the Representative Baseline Load, the load to which the reduction within the Hekeao Hinds Plains PC2 (36% by 2035) are applied. PC2 has been distorted by subsequent policies which means there are other considerations beyond just the rules of PC2 that must be taken into account within our operations.

#### Farm Activity Variation Application (FAVA)

As part of the MHV scheme you must apply for a Farm Activity Variation Application (FAVA) if you wish to make a permanent change to your farm system. This doesn't include a change that is influenced by uncontrollable circumstances such as weather, harvest, works availability, M. bovis or any other uncontrollable influence resulting in a one off seasonal change, ie the farm having to keep more cows on or changing your timings and thus increasing your relative stocking units, or due to climate conditions harvest being late, or planned crop unable to be planted resulting in a larger area of autumn oats being planted for grazing.

#### Matrix

The Matrix is a catchment nitrogen load calculation tool used by MHV Water and other Mid Canterbury irrigation schemes to set and determine compliance with consented nitrogen load limits. The Matrix uses a set of Overseer files which represent the generic land uses, soils, irrigation, and level of farm management. This means that two properties with the same land use, soil type, irrigation type and audit grade will contribute the same N kg/ha to the wider scheme load.

## Matrix Farm Systems

Farm System	Description	Measured By
<b>Dairy 1</b> Greater than 3.7 cows/ha	Where the majority use of land is used to graze lactating dairy cows.	Annual feed demand on land dominated by lactating dairy cows.
<b>Dairy 2</b> Less than 3.7 cows/ha	Where the majority use of land is used to graze lactating dairy cows.	Annual feed demand on land dominated by lactating dairy cows.
<b>Dairy Support</b>	Where the majority of land is used to graze animals which are farmed for milk production but are not lactating. For avoidance of doubt this classification includes bulls farmed for mating a dairy herd.	Area of land (ha) predominantly used to feed non-lactating dairy animals exceeds other land uses (e.g. arable); or Annual feed demand on land dominated by non-lactating dairy animals.
<b>Arable / Cropping</b>	Where the majority of land is used in a crop rotation for seed crops or process crops. Arable may include the grazing of livestock and rotational horticultural crops.	Area of land (ha) used to rotational seed or process crop exceeds area of land dedicated to other uses.
<b>Sheep and Beef</b>	Where the majority use of land is for either sheep or beef, dependent on market demand (includes beef, sheep, deer, goats, pigs, lifestyle or other land uses).	As defined by stock class which dominated annual feed demand (includes beef, sheep, deer, goats, pigs, lifestyle or other land uses).
<b>Wintering<sup>1</sup></b>	Area of land used to break-feed cattle on brassica or root crops between 1st May and 30th September.	Area (ha) of land planted in brassica or root crop to winter graze cattle.

<sup>1</sup> Note, Wintering is the only farm system classification which can be applied on the same area of land as another farm system classification, excluding dairy support.

## Nitrogen Discharge Allowance (NDA)

When an ALU is prepared for the purpose of a Farm Activity Variation Application (FAVA), property sale or lease, your ALU will include a Nitrogen Discharge Allowance (NDA). This number is not relevant to your day-to-day farming, and NDA is only used in the FAVA process as a second check to ensure the changes in farm system result in an overall net improvement in water quality outcomes from your property, as modelled in Overseer.

## Nitrogen Surplus

The nitrogen surplus tells us how efficiently a farm is turning imported nitrogen like feed and fertiliser, into milk. The lower the nitrogen surplus, the lower the risk that we're losing those valuable nutrients into our waterways, or the atmosphere. The Nitrogen Surplus is calculated by

$$\begin{array}{rcl}
 \text{Sum of Inputs} & \text{Minus} & \text{Sum of Outputs} \\
 (\text{Fertiliser N} + & & (\text{Produce} + \\
 \text{Supplements} + & & \text{Effluent exported} + \\
 \text{Imported Effluent}) & & \text{Supplements/Residues})
 \end{array}$$

### **Permitted Land Use (PLU)**

Recognises the land use that is authorised following an approved Farm Activity Variation Application.

### **Reference Period**

May also be referred to as reference years, is the time between 2014-2020 in which information relative to farm system(s) is gathered to establish details for an ALU. This period (1 July 2014- 30 June 2019) was specified in the National Environmental Standards for Freshwater 2020 as the period under which changes to land use would be assessed against (similar to the baseline period in PC2).

### **Representative Baseline Load**

The Representative Baseline Load is the discharge of nitrogen below the root zone averaged over the period of 01 July 2009 - 30 June 2013 expressed in kg per hectare per annum for the scheme. We calculate our Representative Baseline Load using the Matrix at a scheme level, (outside the scheme each farm would have nutrient budgets for each of the years of the Baseline Period).

### **Sensitive Receptors**

Are defined in our consent as areas of wetland, surface water bodies and riparian areas, sites of cultural significance (as may be further defined in consultation with Te Rūnanga o Arowhenua) and, in the case of any land located within a Community Drinking Water Protection Zone, the Community Drinking Water Supply. Where farming activities will have an effect on a sensitive receptor we are required to avoid, remedy or mitigate those effects. This is managed through the Farm Environment Plan and we are aiming to have identified all Sensitive Receptors in the 22/23 season. Any Significant Change that could effect a Sensitive Receptor requires consultation with Te Rūnanga o Arowhenua.

### **Significant Change**

Significant Change is defined in our consent as;

- an increase in the area irrigated by more than 10 hectares
- an increase in the area used for dairy farming (being the use of land by milking dairy cows) (whether irrigated or not) by more than 10 hectares
- any increase in the area used for intensive winter grazing (being the grazing of livestock on annual forage crop at any time in the period 1 May to the following 30 September); and
- any increase in the area on a property of dairy support land (being the farming of non-milking dairy cows, including heifers)

as compared to the maximum area used on that Property in any year (being the period of 1 July to 30 June) in the period 1 July 2014 to 30 June 2019. For clarity, any increase in irrigation area, and the area of land used for Dairy Farm Land and Dairy Support Land for the purpose of assessing if a change is “significant” will be defined based on the land use mapped for the property in the MHV QGIS mapping system at the commencement date of resource consent CRC185857 (13th May 2021).

### **Winter Grazing (NES)**

Under the National Environmental Standards Freshwater 20 (NES-F 20), intensive winter grazing is grazing livestock (including sheep) on an annual forage crop at any time in the period that begins on 1 May and ends on 30 September of the same year. This definition is for when you are measuring if you need a consent under the NES-F 20 for an increase in the area of Winter Grazing.

### **Winter Grazing (LWRP)**

Under Environment Canterbury’s Land and Water Regional Plan, intensive winter grazing is grazing of cattle on a brassica or forage crop at any time in the period that begins on 1 May and ends on 30 September of the same year. This definition is included in our consent, so is how land use is defined under the Matrix.

## Representative Baseline

### **How will the baseline information be used?**

Plan Change 2 was operative when our consent was granted. Under Plan Change 2 the way in which the nutrient load and reductions are calculated for Properties is very prescriptive.

The Representative Baseline Load is calculated using the Baseline Maps and the representative files from the Matrix for each Property which is then aggregated to our total load. Individual Property maps must be made available to ECan if land or a Property leaves the scheme (this is a consent condition).

Each Property has a NDA calculated with their Baseline Maps and the NDA is assessed when a Property applies for a FAVA to make sure we do not increase our overall load with any farm system changes.

### **Do I need to sign off my baseline?**

No, we can apply the conservative mapping that was initially undertaken, however, this may lead to a Representative Baseline Load that isn't representative, ie a lower load than it would have otherwise been.

Both ECan and MHV want to be confident that the Property mapping is as accurate as possible. Where a shareholder has intensified or increased their irrigation area since 2009, ECan also want to ensure we are only applying for the additional nitrogen allowed for in the Regional Plan.

### **Can the Baseline Maps for a property be changed?**

Yes, up until 31 March 2022. If you provide supporting information we can update the maps. We are liable to provide the supporting information to Regional Leaders – Monitoring and Compliance, Canterbury Regional Council and any assessment undertaken are provided to the Canterbury Regional Council on request.

Suitable supporting information includes, actual 2009-13 baseline nutrient budgets, prospectus information if property or land was purchased since the baseline, irrigation installation invoices, irrigation installation maps, compliance monitoring reports, stock records, seed invoices (e.g. to demonstrate wintering crop was on the property), aerial photos other property record and other scheme records.

### **What's the difference between Baseline Representative Load and Baseline Maps? Why do we need both?**

The Baseline Maps (irrigation and farm system) for the Baseline Period, feed into the Baseline Representative Load for the whole scheme in the matrix.

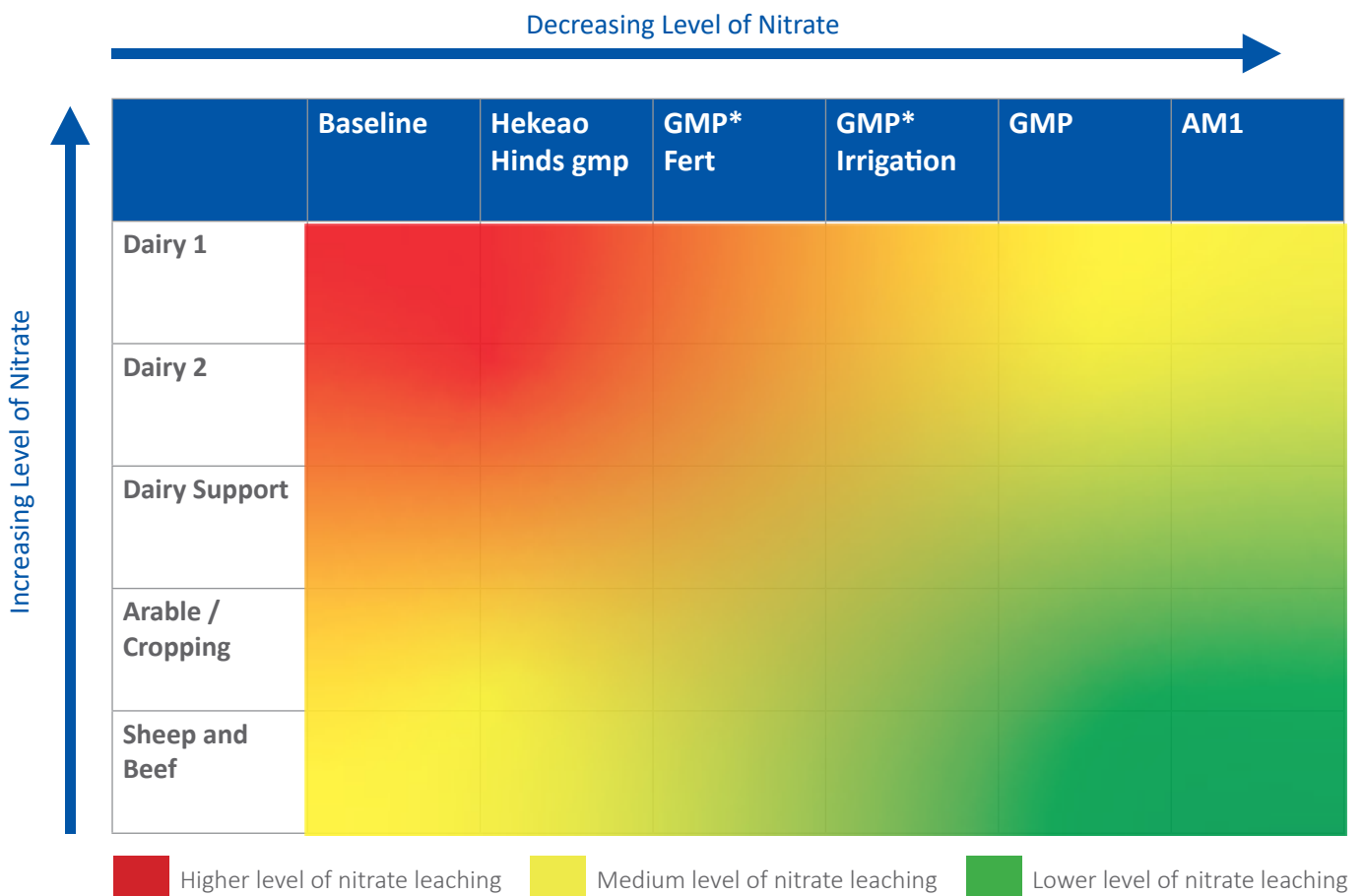
## How does the Matrix work?

The Matrix Method is a spatial tool that relies on the same key principles to calculate the Representative Baseline load, and compliance to the load, as the methodology used by ECan to calculate the nitrogen load for sub-regional catchments. The Matrix uses 192 representative Overseer scenarios to provide nitrogen loss values for a nitrogen loss matrix. The Matrix isn't necessarily farm specific – it uses a number of properties (the whole MHV scheme) to calculate the sub-regional nitrogen load.

The representative Overseer scenarios model nutrient losses using the Matrix Parameters (eight different farm system types over four different soil types).

There are eight farm system scenarios modelled over four soil types with six different audit grades to give a total of 192 base scenarios.

The farm systems are: Arable, Dairy 1, Dairy 2, Dairy Support, Sheep & Beef (refer to page 2 for to understand which farm system you are).



Using the Matrix allows us to model how we can achieve our reduction targets based on different land use. We know we can achieve our 2025 targets if everyone in MHV is an A audit grade with our existing land use. If land use intensifies, we will need the whole scheme to make further reductions ie move to Advanced Mitigation practices. This is why we have a FAVA process to ensure all farmers are fairly and equitably treated.

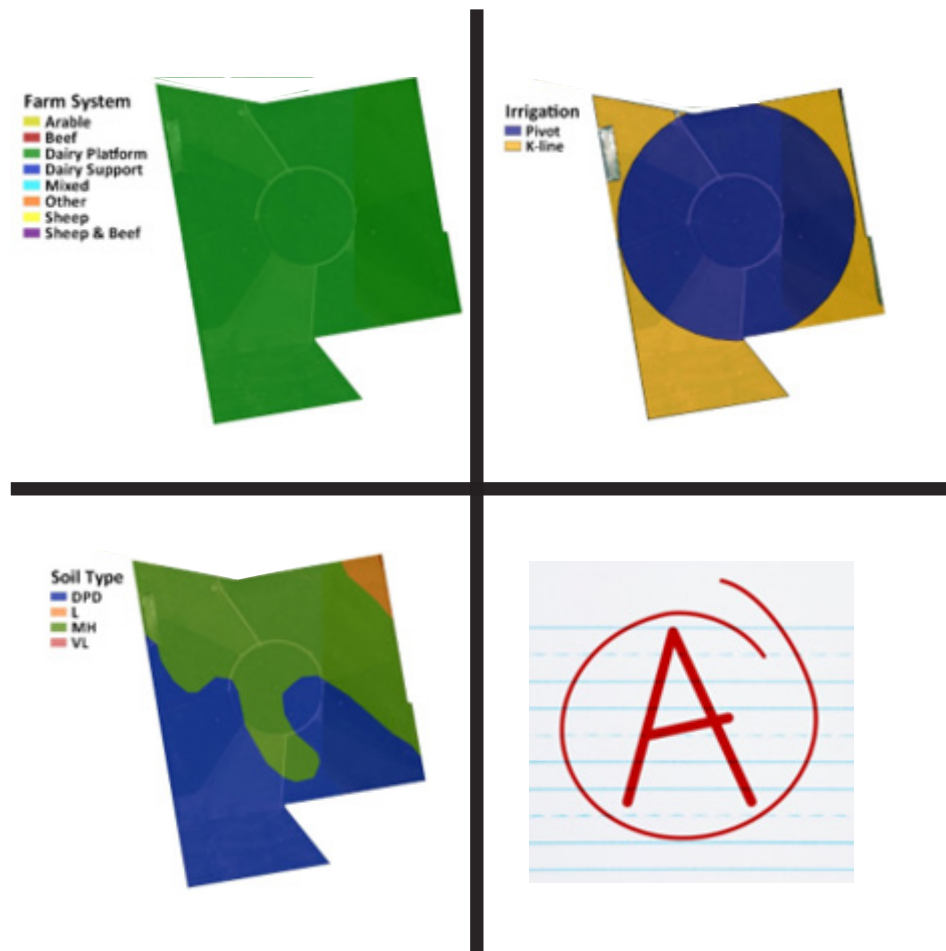
In general, Matrix N Losses increase with farm system intensity, decrease with improved irrigation efficiency, and decrease with improved management.

For example, to achieve the nitrate reductions for 2030 as part of Plan Change 2:

Today's Farm System + 100% A Grade + 10% Advanced Mitigation OR

More Intensive Farm System + 100% A Grade + More Advanced Mitigation OR

Less Intensive Farm System +100% A Grade



Where the standardised numbers become thorny is when the scheme needs to consider the implications of a change in land use on the scheme load.

The N kg/ha are fixed for the land use type and some land uses contribute more N kg/ha to the scheme load than others. The scheme is aware of this limitation within the model and has worked hard to develop a reasoned and equitable process for the consideration of applications for land use change.

The model gives flexibility for the management of a property within the classified land use. It also allows our compliance to focus on Good Management Practices on farm rather than a number.

The model gives flexibility for the management of a property within the classified land use.



## Frequently Asked Questions

### Why do we need the Matrix if the Representative Baseline already calculates N loss?

In addition to calculating the Representative Baseline, the Matrix is used to calculate the ongoing load to measure our compliance. This means we are using the same methodology to calculate our load and compliance to load, removing considerable risks associated with changes to external methodologies.

### Why is MHV using the Matrix? Does it mean Overseer doesn't apply to MHV?

Overseer is used by MHV to calculate the representative scenarios within the Matrix. Overseer remains a well respected Farm System tool and useful comparison against your Authorised Land Use, and the Government continues to invest in Overseer to address some of the gaps where it is used for compliance in isolation.

### Why do I need an Authorised Land Use (ALU)?

The ALU describes the farm system you can operate within, without seeking permission from MHV Water. The peak numbers for each parameter during the Reference Period are captured in the ALU.

### Why doesn't the ALU include a Nutrient Discharge Allowance (NDA) number? We always used to have a number.

With every version change of Overseer, the Nutrient Discharge Allowance (NDA) would change. This means that it is very difficult for farmers to compare farm systems on a like for like basis, ie with one of the changed versions of Overseer, a 27kg N/ha NDA increased to 69kg N/ha, with no other changes..

We want farmers to focus on the Authorised Land Use, as opposed to an arbitrary number that changes with such frequency. We only calculate the NDA for property sales, leases or FAVA. If you want to intensify your existing farm system, then we will look to make sure the change you make will not put the scheme at risk of breaching our consent conditions, or other farmers at risk of having to reduce their nutrient discharge by more to subsidise other farmers' increases.

### Can I change my ALU?

If there is something incorrect on an ALU, you do have an opportunity to rectify any issues identified and/or provide further information to support the change you would like to make.

*If your ALU is correct and you want to change your Authorised Land Use, you need to apply for a FAVA.*

#### FAVA Assessment Criteria

All FAVA applications will consider the following:

- If the change results in an increase in N losses greater than the Nitrogen Discharge Allowance (NDA) or risks non-compliance with scheme N load limit
- The Property is able to meet reduction targets
- The Property does not rely on an unauthorised intensification on another property (e.g. move winter grazing somewhere else)
- Regulatory requirements are complied with
- The variation does not have a negative impact on a sensitive receptor
- Environmental performance history of the applicant
- The proposed variation aligns with the schemes overall objectives, including promotion of continuous improvement and catchment outcomes being met
- Sufficiency of proposed mitigations to ensure the overall catchment outcomes are met

Variations in land use which are deemed "**Significant Change**" or "**High Risk**" must also be able to demonstrate the following:

- The activity will not result in an increase in catchment contaminant loads or concentrations relative to that which was authorised at September 2020
- Adverse effects on sensitive receptors are avoided, remedied or mitigated

**I am considering dropping my stocking rate, and focusing on increasing milk production of each animal. What if it doesn't work? Can I increase my stocking rate back to my current rate?**

Yes. The ALU provides you with a limit – you are free to operate within that limit however you choose. Regardless of the changes to your farm system, you should be at least an A grade audit and maintain that.

**How is winter grazing defined for us in the Authorised Land Use when the ECan definition differs from the National Environmental Standards definition?**

Your Authorised Land Use details both the NES Winter Grazing (ha) and the LWRP Winter Grazing (ha)

- Under Environment Canterbury's Land and Water Regional Plan, intensive winter grazing is grazing of cattle on a brassica or forage crop at any time in the period that begins on 1 May and ends on 30 September of the same year. This definition is included in our consent, so is how land use is defined under the Matrix.
- Under the National Environmental Standards Freshwater 2020 (NES-F), intensive winter grazing is grazing livestock (including sheep) on an annual forage crop (including oats) at any time in the period that begins on 1 May and ends on 30 September of the same year.

If you want to increase the intensive winter grazing area above the area included in your Authorised Land Use, a consent from Environment Canterbury may be required in the first instance as well as a Farm Activity Variation Application with MHV.

**Why are there seasons with missing information in the Authorised Land Use or NDA?**

In these circumstances where information is incorrect or impacted by an event, the information is excluded from inclusion in the ALU or NDA. An example where we might exclude information is when a FAVA was approved and changed the farm system, or the year a property was impacted by M.bovis.

**What is the difference between Representative Baseline Load and Authorised Land Use (ALU)?**

The Baseline Period is the 2009 – 2013 period, as prescribed by ECan in the Land and Water Regional Plan as the period to which land use is assessed and reductions to nutrient leaching are calculated. It is only used if shareholders are looking to apply for a FAVA or looking to leave the scheme as a secondary assessment to confirm consent compliance. Otherwise this information does not effect the day-to-day running of the property. Authorised Land Use is based on the 2014 to 2020 period, this is used to establish the permitted farm system parameters for each Property whose nutrients are managed by the scheme based on information provided to the scheme (FEP & NB). Shareholders will be audited against the Authorised Land Use document to ensure they are compliant with scheme policies.

**When do you have to do a FAVA?**

An increase in any of the following parameters compared to what was permitted by MHV Water between 2014-2020 trigger a FAVA.

- change in land use (e.g. sheep and beef grazing to dairy support),
- any new or increased area of winter grazing of cattle,
- any increase in irrigated area,
- any increase in stocking rate, and,
- any intensification of current system (e.g. system 3 dairy to system 4).

You need to make the applications **before** the change is made. Consideration of FAVA applications take time, we advise shareholders looking to alter their land use or sell their property to talk to the scheme early and allow time for the FAVA planning. For example: if you are moving dairy land to dairy support land with a change to winter grazing on the property.

### **Why do we need to do a FAVA ?**

We know that if we continue to operate with the existing land use, with A audits we will achieve our 2025 reduction targets.

If any of our properties change land use and intensify, without improving their practices, then the whole of MHV will need to reduce our nutrient leaching by a greater quantum. We do not want to put restrictive covenants on properties, however, as a co-operative we need to act fairly and equitably for all shareholders and we believe the FAVA provides that balance.

We also have to stop any further deterioration of surface water quality. We have five years to establish a baseline and if we see any deterioration from that baseline, we may see the 36% reductions currently required, increase. Any increases in effects on the environment are also going to make further nitrogen discharge consent applications more difficult to get approved.

### **Are ECan involved in the FAVA process ?**

No – however, prior approval or consent may be required from ECan if the FAVA proposes an increase in intensive winter grazing, dairy support, dairy or irrigated dairy above the area specified in the Authorised Land Use, which would breach the NES-F20 rules.

If the FAVA includes impact to a Sensitive Receptor then consultation with Te Runanga o Arowhenua will also be required.

### **If we have to make reductions – how come my neighbour has been able to go from milking 800 cows to 1000?**

As part of the FAVA assessment criteria the property must demonstrate it is able to meet reduction targets and does not increase the NO<sub>3</sub>-N concentration.

Some options to meet reductions include development of more efficient irrigation, reduced winter grazing areas, planting catch crops, reduced live weight/ha (smaller animals), reducing/changing supplements, feed/wintering pad, grazing milking cows off farm, grazing replacements off farm, reducing fertiliser inputs and reducing nitrogen surplus.

Properties outside of the MHV scheme, are able to make changes but will still need to be within their Baseline Nitrogen loss and meet future reductions in 2025, 2030 and 2035.

