Consideration of dairy support in the allocation of NDAs

Decision required

Staff are seeking advice from the Stakeholder Advisory Group on their preference for either:

OPTION 1: Retain the sectors and NDAs agreed by BOPRC and RTALSG:

a. Dairy = 35kg N/ha
b. Drystock = 13kg N/ha

OR

OPTION 2: Include "dairy support" as a sector in the rules framework, and amend the NDAs as:

a. Dairy = 35kg N/ha
b. Drystock = 12kg N/ha
c. Dairy support = 18kg N/ha

OR

OPTION 3: Include a "dairy support" increment with the dairy sector that shifts with the stock, and amend the NDAs as:

a. Dairy = 38kg N/ha
b. Drystock = 12kg N/ha

Issue

In the framework for allocation and incentives that was approved by Regional Council on 17 September 2013, the following nitrogen discharge allowances (NDAs) were proposed:

- Dairy NDA = 35kg N/ha
- Drystock NDA = 13kg N/ha

It was noted however that these sector averages:

a) Were subject to confirmation by StAG, and
b) May be adjusted as ranges to recognise geophysical or farm system characteristics, provided the aggregate for each sector is not exceeded.

Part of the sector confirmation that is required ((a) above) is a decision on whether or not to include "dairy support" as a separate sector, with a specific NDA.

This paper addresses the consideration of a dairy support NDA.

Background

Dairy support is essentially heifer grazing or the wintering off of cows. Some dairy support occurs directly on dairy farms, and is generally referred to as "runoff". Most dairy support is provided by drystock farmers leasing parts of their land (or arranging access by contract) as a way to increase

farm profits. The Farmers Solutions Project indicates this is becoming increasingly attractive to drystock farmers as sheep and beef prices are so low.

Throughout the development of the allocation and incentives framework, "dairy support" was aggregated within the generic "drystock" sector. Although dairy support has higher nitrogen discharges associated with it than the average drystock discharge, it was included as a part of the drystock sector because:

- ROTAN, the model we are using to support policy development, included dairy support as drystock when estimating nitrogen loss from land use in the catchment
- It is inherently hard to identify where dairy support occurs in the catchment as it is not a permanent land use
- There is likely to be a lot of dairy support on properties <40ha. These properties have not been specifically benchmarked so it might be difficult to determine who would be entitled to a dairy support allocation (particularly as the land use reference years are 2001-04)
- Dairy support is a common practice on drystock farms across the country and most analysis in other regions has dealt with them as a single sector.

It was acknowledged that drystock NDAs issued across properties would not be high enough to cover specific dairy support blocks. Farm changes would be required such as changing land use on some parts of the property (e.g to forest) in order to lower property-scale discharges. There may also need to be a change in the way leasing or contracting occurs, with the herd owner (dairy farmer) providing a nitrogen allowance to the land owner (drystock farmer) to cover the higher discharge rates over the grazing or wintering off period.

Advantages of including dairy support in the drystock sector

Ultimately, having two sectors is simple and straightforward. As discussed, there are a variety of uncertainties associated with dairy support and incorporating the land use with the drystock sector reduces allocation complexities.

The main rationale for the proposed sectors in the original framework was recognising existing capital investment, and retaining viable farming in the catchment. The two proposed sectors – dairy and drystock – best meet this rationale, particularly as infrastructure requirements for dairy support do not differ significantly from that available on most drystock properties.

This approach is seen as the fairest approach for drystock farmers that aren't providing dairy support. There are many intensive land uses that aren't dairy support (such as intensive beef) and are having to make significant reductions. Making allowances only for those associated with the dairy industry isn't seen as equitable.

Disadvantages of including dairy support in the drystock sector

Under the current framework, any runoff blocks on dairy farms would receive the drystock NDA of 13kg N/ha/yr. All dairy support on drystock farms would also come under the 13kg N/ha/yr.

Benchmarking information shows dairy support losses are, on average, 25 kgN/ha. This is almost double the NDA proposed to cover the land use and may require some landowners to make large scale farm system changes or cease dairy support.

There are approximately 58 blocks currently defined in the groundwater catchment as "dairy support" and these make up approximately 2750ha of the groundwater catchment. 19 of these blocks are >40ha.

Ten of the 58 blocks are runoff blocks on dairy farms, ranging in losses from 10 – 52kg N/ha. The average loss on these 10 blocks is 29kg N/ha. Most of these run off blocks are relatively small, but three are >40ha.

Given the scale of dairy support in the catchment, both in terms of total ha as well as large blocks, it is likely that an allocation of 13kg N/ha will be difficult to meet for both dairy and drystock farmers.

Options to more explicitly recognise dairy support

Option: provide a specific allocation for dairy support

An alternative to the current dairy and drystock NDA proposal could be to include an additional NDA for dairy support. The framework approved by Regional Council requires that the allocation of NDAs result in a 140t reduction in nitrogen loss in the catchment. This means that any allowance for dairy support will have to be made at the expense of other allowances.

The current losses for each sector, and expected losses following implementation of NDAs are:

Sector	ROTAN area (ha)	average N loss (kg/ha)	total N loss (t/yr)	proposed NDA (kg/ha)	expected N loss (t/yr)	% decrease in N loss
Dairy	5050	54.1	273.2	35	176.8	35.3
Drystock (including dairy support)	16125	15.7	253.2	13	209.6	17.2
TOTAL	**21175**		**526.4**		**386.4**	

Although the proposed NDAs represent a 17% decrease from the current average for the drystock sector, they are a 48% reduction from the current average for dairy support (25kg/ha).

In order to provide a specific dairy support NDA, dairy support would need to be separated out from the total drystock area. This is difficult to do because the information isn't included in the ROTAN model and we need to extrapolate information based on the most recent estimates from BOPRCs catchment data:

Sector	Estimated Area (ha)	Estimated average N loss (kg/ha)	Estimated total N loss (t/ha)
Dairy support	2750[1]	25.2[2]	69.3
Drystock (no dairy support)	13375[3]	13.7	183.9
TOTAL	**16125**		**253.2**

It is noted that the estimated average loss for drystock resulting from this breakdown is lower than the average loss derived from benchmarking data (14.5kg N/ha).

There are a number of different ways that NDAs could be distributed to the drystock and dairy support sectors. All are on the basis that the total combined loss does not exceed the 209.6 tN/yr originally agreed by Regional Council (see first table).

Potential NDAs are:

Sector	Ex 1	Ex 2	Ex 3	Ex 4
Drystock NDA (kg/ha)	11.4	12	13	12.5
Dairy support NDA (kg/ha)	21	17.7	13	15.4
% reduction ratio (drystock: dairy support)	17:17	12:30	5:48	9:39

It is proposed that a pragmatic solution would be to allocate 12kg N/ha to the drystock sector and 18kg N/ha to the dairy support sector. This would result in a total combined loss of 210 tN/yr.

Feasibility

NZIER have done some preliminary analysis on the ability of farmers to meet the 35 and 13 NDAs, as well as the feasibility of achieving the 100t reduction required from the incentives fund.

The preliminary analysis has shown that if dairy support farms adopt a series of mitigation options, they could reduce leaching from the current average down to 16.7kg N/ha.

It is noted that these mitigation options are expensive and involve capital investment. They are also based on generic information developed by AgResearch, rather than catchment specific information. It is not expected that all dairy support farms could be expected to operate at 16.7. However, the information suggests that NDAs of 18 for dairy support and 12 for drystock are not only feasible but are more likely to achieve the targets than an NDA of 13 for both.

Advantages and disadvantages

The *advantages* of allocating an NDA to the dairy support sector include:

- It makes a specific provision for a recognised land use

[1] Area based on BOPRCs catchment data
[2] Actual average for dairy support derived from benchmarking
[3] ROTAN drystock area minus dairy support area defined in BOPRCs catchment data

- Although the proposed NDA at 18kg N/ha is 30% lower than current average losses, it provides better opportunity for landowners
- Suits both dairy farmers operating runoff blocks, as well as drystock farmers providing dairy support

The *disadvantages* of allocating an NDA to the dairy support sector include:

- There is uncertainty in the amount of dairy support undertaken in the catchment, particularly on smaller properties – there is a risk that total N loss for this land use will be higher than expected if an NDA of 18kg N/ha is allocated.
- Given dairy support is not a fixed land use, it may be difficult to allocate to individual landowners and may result in disputes around what is/isn't eligible
- Could complicate the allocation process where properties have multiple land uses
- Sets precedent for other land uses, such as intensive beef, to have specific sector NDAs
- It may be difficult to deal with different dairy support systems (e.g. some properties may provide dairy support for only 1-2 months over winter; others might be 12 month contract graziers)
- Could be seen as drystock farms subsidising the dairy industry as a dairy support sector (proposed at 2,750ha) would be differentially treated from the 13,375ha of other drystock, despite similarities in basic infrastructure
- There is uncertainty in the viability of 12kg N/ha for drystock farms

Option: provide a higher allocation to the dairy sector to cover dairy support

Another alternative to the current dairy and drystock NDA proposal could be to provide a higher allocation for the dairy sector to cover associated runoff/support activities. This additional allowance would effectively "stay with the herd" so if a dairy farmer winters off cows, his dairy NDA would transfer to the landowner providing the support.

Following the basic land use area and discharge information provided in the tables above, the NDA allocation under this approach would be:

- 38kg N/ha for dairy (derived as 35kgN/ha for the main herd, plus 3kgN/ha as a young stock increment) ; and
- 12kg N/ha for drystock (derived as 13kgN/ha base, less 1kgN/ha deduction for the dairy support increment)

In practice this option would mean:

- NDAs would shift with the stock. So that within catchment graziers are not disadvantaged, additional provision could also be made that NDAs would shift with stock irrespective of whether grazier is inside or outside the catchment
- Where young stock is grazed other than on the 'milking platform' the milking platform would be restricted to 35kg N/ha
- Landowners would be able to accept stock from inside the catchment, but would be discouraged from grazing stock from outside the catchment

Feasibility

Allocating an additional 3kg N/ha to the total dairy area of 5050ha will result in a total dairy support allocation of 15,150kgN. This would provide for a total of 2,525ha dairy support at 18kg N/ha. This is close to the current estimate of dairy support land use in the catchment (2750ha) so the technical feasibility of this option is likely to be similar to the feasibility of the second option described above.

There will be additional issues to consider however, including the complexity of administering this approach. Exactly how a specified NDA could "stay with the herd" needs to be assessed and transaction costs need to be understood.

Advantages and disadvantages

The *advantages* of providing a higher NDA to dairy to cover dairy support include:

- With fewer sectors it is less complex
- Avoids difficulties with identification of dairy support properties
- Offers flexibility to deal with different dairy support systems, and enables NDAs to shift with cows and/or younger stock, and for variable time periods
- Avoids the inequity of a higher NDA allocation to 2,750 ha (18 NDA) relative to the 13,375ha remaining drystock (12 NDA)
- Discourages dairy support provided to cows from outside the catchment
- Side-steps the 'small holdings' issue. Properties ≤ 40ha could be allocated a 12 NDA (perhaps administered via 'look-up' tables rather than require Overseer modelling) but also be eligible to accept an additional NDA increment when grazing dairy support stock from within the catchment.

The *disadvantages* of providing a higher NDA to dairy to cover dairy support include:

- Uncertainties in how the approach can be administered – how do we make sure the NDAs balance according to land use? How do you track the "dairy support" component of the dairy NDA?
- Could be complicated for landowners to understand, particularly once trading is established
- Again, the option could be seen as drystock subsidising the dairy industry
- The ability to bring in cows from other catchments allows dairy support providers to negotiate prices and ensure they can make choices in the market. Restricting dairy support to in catchment cows may drive prices down.