

SUSTAINABLE DAIRYING –

WATER ACCORD

A commitment to New Zealand
by the dairy sector

THREE YEARS ON...

Progress report for the 2015/16 season



Sustainable Dairying: Water Accord

The Sustainable Dairying: Water Accord (the Accord) has been developed under the oversight of the Dairy Environment Leadership Group (DELG). DELG includes representatives from farmers, dairy companies, central government, regional councils and the Federation of Māori Authorities.

Accountable Partners

In accordance with this Accord, the following parties have specific responsibilities and are accountable for delivering the commitments and monitoring and reporting as specified. They undertake to carry out those responsibilities in good faith and to the best of their abilities.



Barry Harris
Acting Chair



Dairy for life

John Wilson
Chairman



Laurie Margrain
Chairman



Kingi Smiler
Chairman



Graeme Milne
Chairman



Stephen Allen
Chairman



Malcolm Bailey
Chairman



Roger Usmar
General Manager

Supporting Partners

Supporting Partners make commitments to the outcomes of this Accord in support of the Accountable Partners.



Friends of the Accord

Friends of the Accord are supportive of the purpose of this Accord and commit to contribute to its success in the spirit of collaboration.

- Westland Milk Products
- Regional/Unitary Councils: Northland Regional Council; Auckland Council; Waikato Regional Council; Bay of Plenty Regional Council; Hawke's Bay Regional Council; Gisborne District Council; Taranaki Regional Council; Horizons Regional Council; Greater Wellington Regional Council; Environment Canterbury; West Coast Regional Council; Marlborough District Council; Tasman District Council; Otago Regional Council; Environment Southland
- The Federation of Māori Authorities
- Ministry for Primary Industries
- Ministry for the Environment

Contents

<i>Foreword</i>	2
<i>Introduction</i>	4
<i>Summary/Highlights</i>	6
<i>Three years on</i>	8
<i>Riparian Management</i>	12
<i>Nutrient Management</i>	16
<i>Effluent Management</i>	22
<i>Water Use Management</i>	26
<i>Conversions</i>	28
<i>Appendix</i>	30
<i>Auditors' Statement</i>	35

The Dairy Companies Association of New Zealand (DCANZ) is the umbrella body of companies processing milk in New Zealand.
www.dcanz.com

DairyNZ is the industry organisation representing New Zealand's dairy farmers, funded by farmers through a levy on milksolids.
www.dairynz.co.nz or www.dairyatwork.co.nz



Foreword

This is the third annual progress report for the Sustainable Dairying: Water Accord. We have made some real and meaningful progress during the 2015/16 dairy season.



We are very pleased to present the third annual progress report for the Sustainable Dairying: Water Accord. Turning commitment into action is always a challenge, but real and meaningful progress has been made during this third dairy Accord season, especially considering the financial challenges faced by dairy farmers during the 2015/16 year.

Since the launch of the Sustainable Dairying: Water Accord in 2013, farmers have made significant progress towards lifting environmental performance on dairy farms. While the negative impacts of farming on water quality and the environment continue to attract media attention, farmers around the country are responding by taking action to tackle water quality issues head on.

We recognise and applaud the efforts of farmers, dairy companies, DairyNZ and our supporting partners and friends for their efforts to date on this massive undertaking, and urge everyone to continue good management practices on-farm that will result in improvements in the quality of waterways over time.

We continue to work closely with regional councils to assist them with implementation of the National Policy Statement for Freshwater Management (2014). This involves being part of community collaborative processes that are setting water quality and quantity limits for different waterways throughout New Zealand. We are committed as an industry to farming within environmental limits to maintain and enhance the land and resources that our industry relies upon.

Further information on all our industry initiatives can be found at www.dairyatwork.co.nz.



Barry Harris
Acting Chair
DairyNZ



Malcolm Bailey
Chairman
Dairy Companies Association of New Zealand





The Sustainable Dairying: Water Accord

Launched in 2013, the Sustainable Dairying: Water Accord is a set of national good management practice benchmarks aimed at lifting environmental performance on dairy farms.

This third annual progress report aims to set out what the Accord has achieved in its third year of operation for the dairy season June 2015 to May 2016.

This Accord involves many industry participants including DairyNZ, most of New Zealand's dairy companies, and supporting partners. It has commitments and targets for these five key areas:

- riparian management
- nutrient management
- effluent management
- water use management
- conversions.

The purpose of the Accord is to enhance the overall performance of dairy farming as it affects freshwater by:

- committing to good management practices expected of all dairy farmers in New Zealand and
- recording pledges by the dairy sector, with the support of others, to assist and encourage dairy farmers to adopt those good management practices and to monitor and report progress.

Collating the Accord report

The total number of farms covered by the Accord is approximately 11,400.

This includes farms supplying the dairy companies Fonterra, Miraka, Open Country, Synlait, Tatua and for the first time Oceania, but excludes farms supplying other dairy companies. The contributions from each dairy company are collated for this report.

Several of the Accord commitments are defined in terms of percentage of farms achieving a certain standard. In these cases, we have added the number of farms reported by each dairy company as meeting the standard, and have then divided that total by 11,400 to estimate overall national achievements.

Accountable and supporting partners have developed, and are implementing, diverse programmes to achieve environmental commitments outlined in the Accord. We have summarised these where relevant in the different reporting areas.

Verification of data and figures

An independent audit has been undertaken on the data used in the preparation of this report. The full auditor's report will be made available on completion of the audit.

To read the independent audit report, please go to www.dairyatwork.co.nz

Responses to recommendations from previous audit report

Three recommendations from 2014/15 audit report have been addressed.

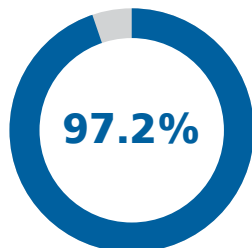
1. Wetlands have been discussed in previous audits and there is recognition of the issues at hand. Most progress has been made at national level through engagement with the Land and Water Forum. More information is in the wetland section of this report.
2. Supporting partners were contacted early in the season with commitments outlined and when a request for data was initiated by DairyNZ, they all provided the required information and remain committed to the aims of the Accord.
3. Clarification on technical points related to Accord obligations were resolved with Accord dairy company staff and DairyNZ prior to season end to ensure reliable, consistent data was available for this report.

As recommended by the auditor, we will explore methods to assess the uncertainty in the data as we head towards 100% of requirements. Farms are dynamic and there may be further actions taken on farm between dairy company assessments.

Summary and highlights

**THREE
YEARS ON**

WHAT WE'VE ACHIEVED SO FAR...



of waterways have dairy cattle excluded.

Dairy companies have reported stock exclusion from 26,197 km of measured Accord waterways.



99.4%

of 44,386 regular stock crossing points on dairy farms now have bridges or culverts to protect local water quality.

A new Riparian Planner tool

has been developed by DairyNZ and Landcare Research and 194 rural professionals have been trained to use it.



13 riparian guides

have been produced by DairyNZ, in partnership with regional councils, to assist with practical advice.

Over 10 million dollars



has been spent on environmental stewardship and farmer support programmes covering research, development, and farmer extension.

5,701 dairy farms have installed water meters

This is well on track for the 85% industry target by 2020 and a significant increase from 30% reported last season.



9,517 nutrient budgets were processed and nitrogen information provided to farmers.



This represents 83% of the industry and is a significant gain from the 56% reported in the first year of the Accord.

5.2%



Significant non-compliance for dairy effluent has dropped to 5.2% of farms assessed (lowest on record).

DairyNZ published several regional Land Management Guides which assist farmers in reducing phosphorus loss.



133 RURAL PROFESSIONALS are now Certified Nutrient Management Advisors (accumulating total).



WE'RE STILL PROGRESSING WITH...



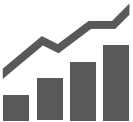
Achieving 100% on several targets

(e.g. stock exclusion and crossings) is still the goal with many of the targets close to being achieved.



Getting riparian plans completed in all farms with an Accord waterway

Getting riparian plans completed in all farms with an Accord waterway remains the next hurdle for the dairy companies to implement to reach desired targets. The release of the 'Riparian Planner' tool will assist greatly with this target.



Collecting nutrient management data and performance benchmarking

The collection of nutrient management information is still one of the Accord's biggest obstacles, due to the level of information required and the individual processing through OVERSEER® to produce a reliable N loss estimate for each farm. Achieved 83% so far.

COMMITMENT TO GETTING IT RIGHT

Engagement by farmers and the rural professional community that works alongside them to meet Accord requirements is very high, as evidenced by the commitment to training, assessment, and implementation on farm.





Three Years On...

How are we doing?

In the following sections, we report back on the key commitments of the Sustainable Dairying: Water Accord and what has been achieved in its first three years of operation.

We have made good progress from last year on verifying our data and systems and achieving key targets. We have also worked on getting better and more consistent data collection/aggregation across all dairy companies.

A new edition of the Sustainable Dairying: Water Accord was published in December 2015 with minor updates and revisions as part of a reprint of the original version. Minor changes were made to ensure consistent annual reporting of obligations and to include Oceania Dairy as a new Accountable Partner to the Accord. Oceania Dairy is based at Glenavy in Canterbury.

Looking ahead – first review

In 2016/17 we are reviewing the Accord, to meet our commitment to complete a first review before 1 June 2017. As well as looking at progress towards targets and commitments, the review will also consider the contribution all the parties involved have made to the purpose, vision and approach section of the Accord.

You can view the updated version of the full Sustainable Dairying: Water Accord at www.dairynz.co.nz/wateraccord or www.dairyatwork.co.nz







Key to target status symbols






Three years on – quick summary

TARGET	STATUS	
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RIPARIAN MANAGEMENT



90% stock exclusion of the length of waterways present on dairy farms by 31 May 2014; 100% by 30 May 2017		ACHIEVED
100% of regular stock crossing points are either bridged or culverted by 31 May 2018		IN PROGRESS AND ON TRACK (99.4% crossings with bridges/culverts)
100% stock exclusion of all wetlands identified by a regional council as at 31 May 2012 by 31 May 2014		NOT YET ACHIEVED; STILL IN PROGRESS
50% of dairy farms with waterways will have a riparian management plan by 31 May 2016		NOT YET ACHIEVED; STILL IN PROGRESS – 27% achieved
All of these farms will have completed half of their riparian plan commitments by 31 May 2020		IN PROGRESS AND ON TRACK
Riparian guidelines completed for all regions by 31 May 2016		ACHIEVED

NUTRIENT MANAGEMENT

Nutrient management data collected from 85% of dairy farms by 31 May 2014 and 100% by 31 May 2015		NOT YET FULLY ACHIEVED; STILL IN PROGRESS – 83% achieved
Nitrogen loss and Nitrogen conversion efficiency performance information reported back to 85% of dairy farms by 30 November 2014		NOT YET FULLY ACHIEVED; STILL IN PROGRESS – 83% achieved
50% of Fertiliser Association of New Zealand member company nutrient management advisers are certified by 31 May 2014		ACHIEVED

TARGET	STATUS	
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EFFLUENT MANAGEMENT

100% of farms are being assessed by 31 May 2014		ACHIEVED
A farm dairy effluent Warrant of Fitness scheme available as a tool for farmers by 31 May 2014		ACHIEVED

WATER USE MANAGEMENT

85% of all dairy farms to install water meters by 2020		IN PROGRESS AND ON TRACK 49.8% farms with water meters
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CONVERSIONS

For 2015/16 season, all new dairy farm conversions comply with environmental standards before milk supply commences		ACHIEVED
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A photograph of a riparian area with various plants, including a large green plant on the left and a body of water in the background. A blue semi-transparent overlay covers the middle of the image, containing text.

Riparian Management

EXPECTATIONS:

- Dairy farms will exclude dairy cattle from significant waterways and significant wetlands
- Riparian planting will occur where it would provide a water quality benefit
- The crossing of waterways by dairy cows will not result in degradation of those waterways.

STOCK EXCLUSION & CROSSINGS

Dairy companies have reported 26,953 km of measured Accord waterways, with 26,197 km of permanent stock exclusion (97.2%) from 8,291 dairy farms which have an Accord waterway. Just 96 farms were given a dispensation from permanent fencing (often due to repeated flooding) but must still exclude stock from waterways with temporary fencing (usually a hot wire).

TARGET

90% exclusion of the length present on dairy farms by 31 May 2014; 100% by 31 May 2017



ACHIEVED

97.2% as at 31 May 2016

Dairy companies have identified more than 44,671 stock crossings on dairy farms with 44,386 of regular crossing points identified having bridges or culverts as at 31 May 2015 (99.4%).

TARGET

100% of regular stock crossing points are either bridged or culverted by 31 May 2018



IN PROGRESS AND ON TRACK

(99.4% crossings with bridges/culverts) as at 31 May 2016

SIGNIFICANT WETLANDS

As described in previous Accord reports, this is one area where the nature of this obligation is problematic due to the variability of regional council regulations and an increasing national as well as regional interest. Many dairy companies have not always separated waterway fencing and wetland fencing, so when faced with assessing the need to permanently exclude stock, demarcation is not always clear. The Land and Water Forum (www.landandwater.org.nz) has included wetlands as an area of interest, especially in the context of catchment scale mitigations (which involve dairy representatives). There are a range of dairy industry-led programmes underway, including the Living Waters Programme (www.livingwater.net.nz) and wetland research studies by DairyNZ (www.dairynz.co.nz). DairyNZ has also initiated support for a Wetlands Dairy Strategy through an industry workshop with relevant experts in science and policy. It is planned that the wetland obligations will be included in the review of the Accord currently in progress.

TARGET

100% stock exclusion of all wetlands identified by a regional council as at 31 May 2012 by 31 May 2014



NOT YET ACHIEVED; STILL IN PROGRESS

(Still an area of ongoing engagement with regional councils and central government)

Riparian planting

Progress is being made in implementing riparian management plans to enhance water quality on farms. In this last season DairyNZ and Landcare Research have produced an online tool (Riparian Planner) to assist farmers and rural professionals to develop riparian management plans. This was only completed in the early part of the dairy season after extensive beta testing and will be rolled out at some scale over the next one-three years.

The Riparian Planner was recognised last year with an Outstanding Contribution Award from the NZ Association of Resource Management.



TARGET

50% of dairy farms with waterways will have a riparian management plan by 31 May 2016



NOT YET ACHIEVED; STILL IN PROGRESS (27% achieved)

TARGET

All of these farms will have completed half of their riparian plan commitments by 31 May 2020



IN PROGRESS AND ON TRACK

DairyNZ, in partnership with regional councils, has produced 13 regionally-tailored riparian guides for Waikato, Southland, Otago, Wellington, Northland, Westland, Canterbury, Bay of Plenty and Manawatu-Wanganui regions with four more completed in this dairy season (Top of the South, Taranaki, Auckland, and Hawkes Bay/Gisborne). The guides include information on recommended set-back distances, planting density and appropriate plant species for specific objectives. The guides are available from: www.dairynz.co.nz/planting-guides



TARGET

Riparian guidelines completed for all regions by 31 May 2016



ACHIEVED



Nutrient Management

EXPECTATIONS:

- Dairy farmers will manage Nitrogen (N) and Phosphorus (P) loss from dairy farming systems, acknowledge the need to manage within nutrient loss limits, and pursue continuous improvement in nutrient use efficiency

NUTRIENT MANAGEMENT DATA COLLECTION

Every dairy company has developed programmes to collect nutrient management data from their dairy farmers and model these using agreed protocols (OVERSEER® Best Practice Data Input Standards). Data collection and verification systems for the 2015/16 season have improved considerably, with all Accord dairy companies reporting nitrogen information from their suppliers, although there was considerable variation in % reporting between companies.

Several companies have included provision of nutrient management data in their conditions of supply but not all farmers could provide the required data within the requested timeframes.

During the 2015/16 season, 9,517 nutrient budgets were processed and nitrogen information provided back to farmers. This represents 83% of the Accord dairy farms and is a significant gain from the 56% achieved for year one Accord reporting.

Collection and reporting nutrient management information is one of the Accord's most challenging targets. The industry is committed to monitoring and reporting nutrient management performance on-farm and driving continual improvements in the quality of data from farmers.

TARGET

Nutrient management data collected from 85% of dairy farms by 31 May 2014
(100% by 31 May 2015)



NOT YET FULLY
ACHIEVED; STILL
IN PROGRESS
83% achieved

TARGET

Nitrogen loss and Nitrogen conversion efficiency performance information reported back to 85% of dairy farms by 30 November 2014



NOT YET FULLY
ACHIEVED; STILL
IN PROGRESS
83% achieved

AVERAGE NITROGEN LOSS BY REGION

Modelling of collected farm information in OVERSEER® was undertaken to provide feedback to farmers on their performance relative to appropriate peer groups. Over time, the dairy industry will generate a comprehensive and robust dataset on N-loss and nitrogen use efficiency that will be of national significance in managing natural resources.

The OVERSEER® Nutrient Budget model is an agricultural management tool which assists farmers and their advisers to examine nutrient use and movements within a farm to optimise production and environmental outcomes. The computer model calculates and estimates the nutrient flows in a productive farming system and identifies risk for environmental impacts through nutrient loss, including run-off and leaching, and greenhouse gas emissions. For more information on OVERSEER® see www.overseer.org.nz.

The national average N-loss, based on 2015/16 data in Table 1, was 39 kg N/ha/yr (this is the same as reported for last year).

Table 1. Regional average N leaching loss (kg N/ha/yr) and sample size across 13 regions (based on 2015/16 season data).

	Average N-loss (kg N/ha/yr)	Sample size (number of farms)	Rolling average (2013/14 and 2014/15 season data)
Northland	23	687	23
Auckland	20	237	21
Waikato	34	3446	34
Bay of Plenty	42	571	41
Gisborne/Hawke's Bay	36	86	35
Taranaki	51	1329	51
Manawatu	28	696	28
Wellington	33	154	32
Tasman	69	125	68
Nelson/Marlborough	42	51	40
Canterbury	64	1073	50
Otago	39	362	33
Southland	32	699	36

*The Westland region had only one farm reported this season so we have not reported the average N loss to protect the anonymity of the farmer's information and because it is a very low sample size.

The observed variance in N-loss between regions is a function of many factors including soil type, drainage characteristics (including rainfall and/or irrigation) and farming practices for that season.

OVERSEER® version 6.2.2 was used for this reporting and an updated version was recently released (November 2016). Interestingly, each region has been relatively stable in N loss as a collective, although there are likely to have been shifts between years for individual farms. The exceptions are for Canterbury and Otago where the N-loss number increased but this is because more irrigation data is now used in OVERSEER® processing, which has raised the estimated N-loss through the model as both regions have farms which use fresh water irrigation for pasture management.

Published by DairyNZ in 2014, "*Reducing nitrogen loss: A guide to good management practices*" provides farmers with guidance on evaluating if the farm system is performing well. It then assesses key factors influencing nitrogen loss and describes the likely effects on the farm system if changes are made. It can be found on the DairyNZ website www.dairynz.co.nz.



MANAGING PHOSPHORUS LOSS RISK

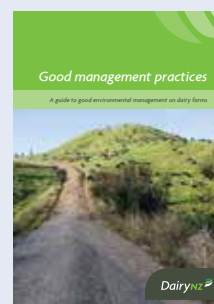
Stock exclusion from waterways, ensuring crossings are bridged/culverted, effective riparian management, and good practice effluent management are all important in mitigating phosphorus (P) loss risks on farm. These areas are all covered under separate Accord commitments. Other farm practices that can influence P loss risk include management of tracks and races and wintering practices (including cropping).

DairyNZ is investing in several research programmes that seek to improve environmental performance during the critical winter period such as the Southern Wintering Programme and Good Management Plans (GMPs) delivered through the Sustainable Milk Plan programme. The Guide to Good Management Practices was released in 2015 to assist farmers in the Canterbury region but has broad applicability in other regions.

DairyNZ has also released several regional Land Management Guides which assist farmers in reducing P loss. Examples are the Southland/South Otago guide which focuses on providing solutions to minimise the environmental impacts of wintering and includes tips on managing the following: paddock selection, overland flow, cultivation, and strategic crop grazing.

Successful wintering will:

- help achieve body condition score targets
- be cost-effective
- complement the overall dairy farm system
- be sustainable for people, cows, and the environment
- help minimise contaminant loss to the environment and comply with local regulations
- protect valuable topsoil.

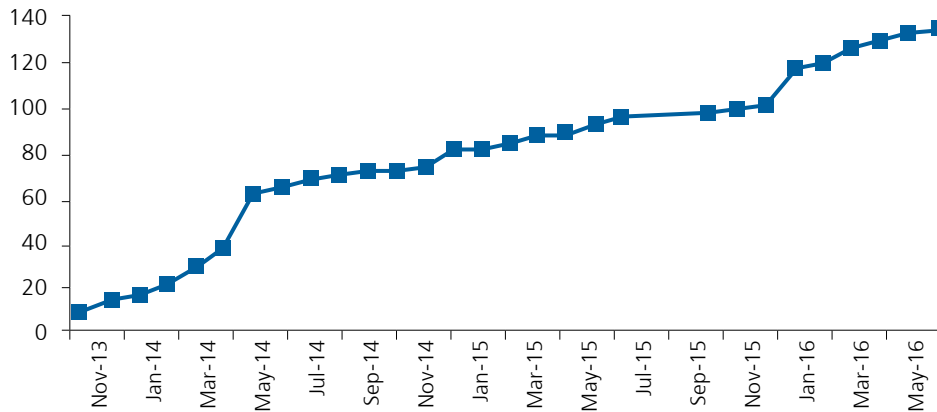


NUTRIENT MANAGEMENT ADVISER CERTIFICATION

Nutrient management advisor certification continues to grow with 133 rural professionals certified (www.nmacertification.org.nz) with significant assistance from supporting partners the Fertiliser Association, Ballance, and Ravensdown where 100 of the 133 certified advisers are from Ballance and Ravensdown.



Total number of Certified Advisers



TARGET

50% of Fertiliser Association of New Zealand member company nutrient management advisers are certified by 31 May 2014



ACHIEVED



NUTRIENT MANAGEMENT TRAINING

Massey University’s Fertiliser and Lime Research Centre runs two Sustainable Nutrient Management (SNM) courses with 232 rural professionals attending in this last 2015/16 season (156 for the Intermediate and 76 for the Advanced).



The Intermediate SNM course provides participants with a working knowledge of the assessment of nutrient requirements of a range of agricultural systems, including a consideration of best practices for environmental protection. The Advanced SNM course provides an advanced knowledge of nutrient cycling and loss pathways in New Zealand’s farming systems, allowing people to develop solutions for systems that have unacceptable nutrient loss to the environment.

FARMER EXTENSION ACTIVITIES

During the 2015/16 season the dairy industry (along with industry partners) was involved in farmer events across the country where nutrient management was a key topic and farmers were keen to engage and learn. Increasingly, the loss of the main nutrients; nitrogen, phosphorus, sediment, and E. coli are discussed. Participants at events totalled 4,700 farmers and 3,257 rural professionals supporting the significant interest in this area across the dairy sector. Some examples are shown below:

Table 2. Examples of DairyNZ run extension events during 2015/16

Event	Farmers attending	Rural professionals attending
Environmental education extension (Fielddays and events)	N/A	1,037 (school and university)
General sustainability workshops including nutrient management	908	152
Policy/Plan change workshops (DairyNZ)	2,634	834
Land Management Workshops	2,634	834




Effluent Management

EXPECTATIONS:

- Dairy farms will comply with regional council effluent management rules and/or resource consent conditions
- Effluent systems installed on dairy farms will be fit for purpose and able to achieve 365-day compliance with applicable rules

EFFLUENT SYSTEM ASSESSMENT & GUIDANCE

All dairy companies have programmes in place to assess the effluent systems of suppliers on a three-yearly basis, with several companies assessing every farm every year. The programmes are all designed to identify risks of non-compliance with regulatory requirements. All Accord dairy companies have reported on the farms assessed in the three-year period to 31 May 2015 and follow up assessments have been the focus in the 2015/16 season.

<p>TARGET</p> <p>100% of farms are being assessed by 31 May 2014</p>		<p>ACHIEVED</p> <p>(This was achieved by May 2015)</p>
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DairyNZ, along with industry partners (e.g. IPENZ) has developed a suite of standards, guides, and tools with the aim of increasing capability within the farm dairy effluent (FDE) industry and providing greater certainty and security for farmers investing in effluent system upgrades. These systems include the FDE Design Standards and Code of Practice (Version 3 published in 2015), IPENZ Practice Note 21: FDE Pond Design and Construction (Version 2 published 2013) and the Dairy Effluent Storage Calculator (Massey University).

See www.dairynz.co.nz/effluent for more details on systems and resources and their promotion.

ACCREDITATION OF EFFLUENT SYSTEM DESIGNERS

There are now 22 companies accredited, with all regions having access to an accredited company. Interest and awareness of the programme is high, with other stakeholders such as dairy companies and regional councils increasingly recommending accredited companies. The list of accredited companies can be found at www.effluentaccreditation.co.nz.



PROFESSIONAL TRAINING PROVIDED

There are several training courses on offer to the effluent services industry and other rural professionals (Table 3). As of 31 May 2016, 781 effluent industry professionals had attended the training courses provided by several institutions which includes an additional 66 professionals this season.

Table 3. Training courses on offer to the effluent services industry and other rural professionals.

Training	Date first offered	No of courses run*	Attendees* (Cumulative from course start dates)
Massey Farm Dairy Effluent Systems Design and Management	2011	8	202
Opus Pond Design and Construction	2012	17	197
MPTA FDE Hydraulic Design	2012	20	120
QCONZ Dairy Effluent WOF	2014	7	76
Dairy Effluent Storage Calculator Training (run by DairyNZ)	2012	10	187
Total 31 May 2016			782

*Information provided to DairyNZ from course providers.

ON FARM TRAINING

The Primary Industry Training Organisation (PITO) runs two industry-designed effluent management courses for farm staff (Dealing with Dairy Effluent and Effluent Management Programme). They report 445 course completions in the 2015/16 year. This level of support for specialist training is encouraging, considering the financial issues faced on many farms and is only a small drop from the 508 reported last season.



EFFLUENT WARRANT OF FITNESS

The Dairy Effluent 'Warrant of Fitness' (WOF) has been developed by DairyNZ as a voluntary programme to help farmers assess if they have a fit for purpose effluent system that can be compliant 365 days a year. The WOF process uses a consistent methodology across the whole country and is available as a commercial service for farmers.



There are currently 21 certified 'WOF' Assessors available to run through the assessment with farmers.

TARGET

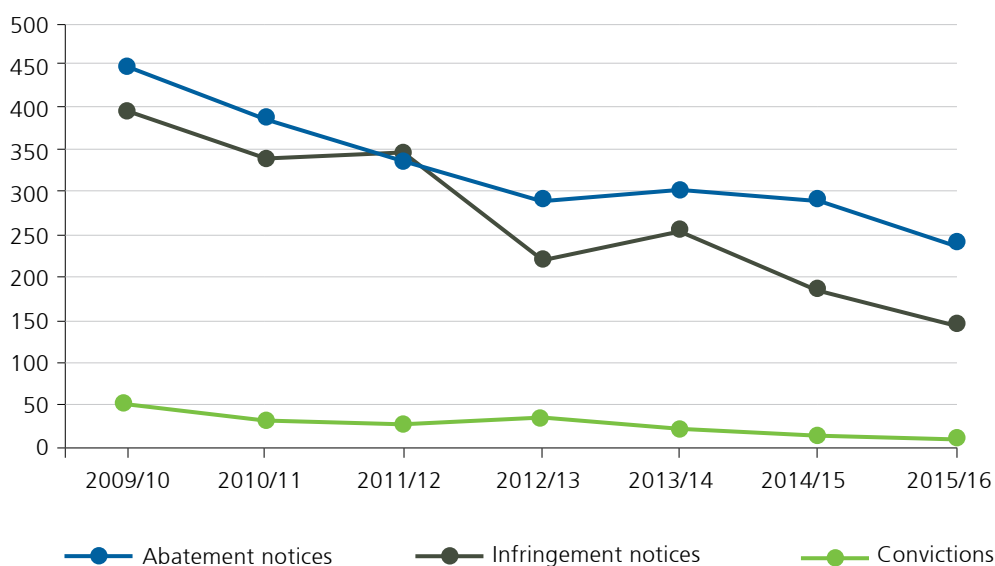
A farm dairy effluent Warrant of Fitness scheme available as a tool for farmers by 31 May 2014

ACHIEVED

Details on the Warrant of Fitness can be found at www.effluentwof.co.nz.

COUNCIL ENFORCEMENT ACTIONS

Recently, the Dominion Post published data sourced from regional councils showing the reduction in enforcement actions needed to be taken from regional councils with abatement notices dropping from 445 to 239; infringement notices from 394 to 144 and convictions from 49 to nine over the seven-year period.



RATES OF SIGNIFICANT NON-COMPLIANCE

Every regional council undertakes annual monitoring of farm dairy effluent systems and management practices in relation to a range of permitted activity rules and consent conditions.

In the 2015/16 season the rate of significant non-compliance (SNC) on monitored farms at the national scale is 5.2% (a drop from 5.8% for last season and 7% for the 13/14 season).

Rates of SNC vary widely between regions as described fully in Appendix 1 of this report and comparison between regions is challenging, due to different rules and different monitoring programmes. Based on three years of detailed Accord reporting, we have analysed the trends in each region rather than focus on the percentages. Percentages can be misleading due to council pre-selection systems prior to the on-farm monitoring. A high percentage may reflect only a few farms that are of concern.

Table 4. Trends in dairy effluent SNC for three Accord years across regions

Region	Trends*	Comments
Northland	Improving	Traditionally been quite high but significant drop this year (7% improvement) but still 14% for last season
Auckland	Stable	Trending up slightly but on average very high; dairy industry actively working with Auckland Council to address concerns
Bay of Plenty	Improving	Good improvement over last three years dropping from 13 to 5%
Waikato	Variable	Some variation in monitoring means difficult to assess trends
Hawke's Bay	Stable	Around 1% on average with minor increase this year with 3 farms affected and management issues addressed
Taranaki	Stable	Around 1% on average with all farms inspected each year
Horizons	Stable	Around 1% on average
Greater Wellington	Stable	Around 1% on average
Tasman	Stable	Around 1% on average with all farms inspected each year
Marlborough	Worsening	Major percentage increase in last two years but small dairying region and 10 farms with issues raised, some of these have been resolved
West Coast	Improving	Good improvement over last three years dropping from 5.6 to 2.5%
Canterbury	Improving	Good improvement over last three years dropping from 8.8 to 5.5%
Otago	Stable	Around 3% on average
Southland	Improving	Good improvement over last three years dropping from 6 to 1.5%

* Definition of trends: 'Improving' more than 3% shift in SNC; 'Stable' no more than 3% shift between accord years; 'Worsening' more than 3% shift and trend in same direction, 'Variable' shifts of greater than 3% each year (up & down).



Water Use Management

EXPECTATIONS:

- Dairy sheds will use no more water for wash down and milk cooling than that necessary to produce hygienic and safe milk
- Irrigation systems will be designed and operated to minimise the amount of water needed to meet production objectives

WATER METERING ON DAIRY FARMS

In 2015/16, 11,451 dairy farms were assessed for water meters on farm. Dairy companies reported that 5,701 farms (over 49.8% of total farms) have installed a water meter which means we are well on track to achieve the industry target by 2020.

TARGET

85% of all dairy farms to install water meters by 2020



ON TRACK
49.8% farms
with water
meters

WATER VOLUME STUDY

Water use was measured on over 100 dairy farms in the Waikato, Manawatu, and Canterbury regions. Water measured included stock drinking water, dairy shed water use, and irrigation water use. From this, regional patterns of water use were calculated and modelled to predict water use on irrigated and non-irrigated dairy farms. A journal article entitled “Water use on non-irrigated pasture-based dairy farms: Combining detailed monitoring and modelling to set benchmarks” was accepted for publication into the Journal of Dairy Science. Another journal article will be submitted on water use on irrigated dairy farms.

One interesting finding is an estimation of the amount of water that is lost from the water distribution systems delivering water to troughs for stock drinking water. In the Waikato region ~26% of water was estimated to be lost. This leakage can be through background low level leakage which is hard to detect, and through big leakage events, which although generally short in timeframe, can cause substantial water loss.

A water budget for the last five seasons has been estimated for all major dairying regions in New Zealand, and estimates of expected stock drinking water and dairy shed water requirements, with a range of possible climate change scenarios, is being undertaken.

TRAINING, CERTIFICATION AND ACCREDITATION

IrrigationNZ Training and Accreditation

IrrigationNZ is a Supporting Partner under the Accord. It coordinates training and development activities within the irrigation service sector, with details on their website irrigationaccreditation.co.nz.



Irrigation New Zealand held 22 Operator Training workshops from June 2015 to May 2016 with 279 attendees. A new qualification for Irrigation System Designer started in January 2016 with 15 attendees from seven companies. There are also seven certified Irrigation Designers. Readership of the IrrigationNZ magazine has increased from 4,000 to 9,000 through arrangement with some regional councils which sees the magazine going to all water consent holders enabling good practice information to reach a wider audience.

DairyNZ Extension

DairyNZ continues to support and promote smart water use with extension events in several regions (Bay of Plenty, Canterbury, Taranaki, and Horizons) and provides technical information on the website and addresses technical queries from farmers and industry stakeholders.

Conversions

EXPECTATIONS:

- New dairy farms establish and operate using good practice at the outset to minimise potential negative consequences on water values and interests
- New dairy conversions will comply with all relevant regional plan rules and/or hold all necessary resource consents

Dairy companies have recently introduced programmes to assess new conversions, which outline a range of requirements to be met before milk supply commences. The process would usually include a trained company assessor visiting the farm and running through a check list to ensure all requirements are met. These requirements focus on environmental good practice around effluent, waterways, nutrient management and meeting regulatory conditions. Since 2013, dairy companies identified 253 conversions with 78 in the 2015/16 season, with all farms now fully compliant with these standards.

Dairy farms must have systems in place to manage all sources of effluent to ensure compliance with relevant regulatory obligations 365 days a year.

- All animal races are to have bridges or culverts when crossing all waterways and drains
- Animals are to be excluded from waterways and drains that are at any point within the boundary of the dairy farm wider than one metre and deeper than 30 cm
- Dairy farms must have a nutrient management plan in place
- All required regulatory consents have been sought (including consents for water take and use/irrigation)
- From 31 May 2015 ensure that all new dairy farm conversions have a riparian management plan in place before milk collection commences.

TARGET

For 2015/16 season, all new dairy farm conversions comply with environmental standards before milk supply commences



ACHIEVED
100 % new conversions comply with required standards*

*Note for last year's Accord report not all farms had all the requirements list above before milk collection commenced, but this has now been rectified and all new conversions have been checked.

DairyNZ's *Guide to Responsible Dairy Conversions* has been downloaded 190 times in 2015/2016, with 1,452 page views. It is available at www.dairynz.co.nz. The guide also links farmers and their advisors to a wide range of other useful tools and resources developed by DairyNZ.



Appendix 1: Effluent significant non-compliance data supplied by Regional Councils and Unitary Authorities for the 2015-16 season

Region	Total farms in region	No. of farms monitored	Description of monitoring programme (please describe if all farms monitored, random monitoring or have some pre-screening process)	Significant Non-Compliance Number of farms and %	Main reasons for significant non-compliance
Northland	944	944	<ul style="list-style-type: none"> All farms inspected at least once annually All routine compliance visits done between mid-August and 20 December Routine compliance visits are non-notified All SNC farms have follow-ups 100 farms were surveyed in April 2016 to check pond levels and storm water diversions 	134 (14%)	<ul style="list-style-type: none"> Water quality test results outside consent limits – consented farms Untreated effluent discharged to water e.g. feed pad; underpass; entry/exit race; via storm water bypass Discharge from irrigator to water Excessive ponding and overland flow Inadequate management - e.g. broken pipes, sump overflow¹
Auckland	289	221	<p>All farms are inspected at a frequency no less than once every 2 years. In addition, there is a targeted inspection programme is used to select farms for inspection each year based on specific risk factors that include:</p> <ul style="list-style-type: none"> Whether the discharge is to water or land Compliance history Storage capacity (sump only vs ponds) Year-round milking Whether contract application occurs or a farm has equipment for irrigation 	47 (21%)	<ul style="list-style-type: none"> Pond overflows/inadequate freeboard in ponds Sump/stone trap overflows Discharges from uncapped or damaged pipes Silage leachate not being contained and allowing discharges to occur Discharges via stormwater diversions Race ponding and run-off Discharges from feed pads Over application from irrigator(hydraulic/nitrogen)

Bay of Plenty	~690	330	Unannounced visits. All sites are inspected between one and three yearly, depending on previous compliance history and type/risk of storage and disposal system	17 (5%)	<ul style="list-style-type: none"> • Irrigating too close to a waterway • Feed pad discharge not authorised by consent • Overflowing storage pond(s) • Significant ponding at irrigation site
Waikato	4520	742	Prior phone contact – 24–48 hours Monitored in location blocks Unannounced monitoring on previously SNC historic sites.	71 (10%)	<ul style="list-style-type: none"> • Effluent over application and runoff • Effluent overflow from sumps/ponds • Underpass – no containment of effluent • Unauthorised discharge from effluent ponds (breach of consent conditions)
Hawke's Bay	80	80	Visit every farm every year with follow up visit for non-compliance if required.	3 (3.75%)	<ul style="list-style-type: none"> • 1 x irrigator left running when at the end of the run (ponding and run off). • 1 x ponding and run off from poor setup of irrigator. • 1 x significant lack of storage & irrigator non-operational.
Taranaki	1737	1737	We visit every farm every year and all dairy effluent discharges (land and/or water) are consented activities.	14 (0.8%)	<ul style="list-style-type: none"> • Significant ponding of dairy effluent from irrigation • Unauthorised discharges to water (holding pond overflows, overland flow from irrigators, sump overflows and first oxidation pond overflow).
Horizons	881	658	Aim is to monitor all dairy farms annually between mid-September and mid-April. Last three years up to 9 days' notice has been given prior to inspections. To be in line with other Councils this has been reduced to 24-48hrs notice.	6 (1%)	<ul style="list-style-type: none"> • 2 x Large increases in cow numbers • 2 x No storage as required by consent • 1 x Large area of ponding • 1 x Discharge to land where it may enter water
Greater Wellington	175	175	All farms are monitored every year between late August and September.	3 (1.7%)	<ul style="list-style-type: none"> • Ponding of effluent from irrigator and overflow of storage system.

Region	Total farms in region	No. of farms monitored	Description of monitoring programme (please describe if all farms monitored, random monitoring or have some pre-screening process)	Significant Non-Compliance Number of farms and %	Main reasons for significant non-compliance
Tasman	146	146	All farms monitored at least once every year. Every month a random sample is pulled from the database. Farmer contacted on the morning of the inspection requesting that they be present – due to the wording of the permitted activity rules the farmer is they needed on site to answer questions.	3 (2%)	<ul style="list-style-type: none"> 1 x Large storage pond overflowing in circumstances where the discharge could have entered water 1 x Discharge of effluent over a surface waterbody 1 x Ponding and effluent run-off where it entered water
Marlborough	56	56	All farms monitored once per milking year.	10 (18%)	<ul style="list-style-type: none"> Collection, containment system or effluent application within 20m of a waterway. No effluent storage on site in high rainfall area. 2 farms storage was within 20m of the waterway and the pond was full. 3 farms storage was within 20m of the waterway. 3 farms applied effluent to land within 20m of the nearest waterway and over application/ponding had occurred 2 farms had no storage at all on a farm in a high rainfall area³
West Coast	391	293 (75% of all farms)	We visit 215 consented farms annually and the remaining 176 permitted activity farms on a bi-annual basis. Farmers are given at least 24 hours' notice that an inspection will be carried out. In addition, helicopter flights are undertaken 3 days during the year as a means of doing some random unannounced monitoring.	7 (2.5%)	<ul style="list-style-type: none"> Effluent in stormwater drain Over application of effluent to land Underpass effluent not contained.

Canterbury	1369	823	All dairy farm consents were assessed against five risk criteria. ² All high and medium risk farms were monitored at least once. Some high risk farms were monitored more than once regardless of whether they were compliant on the first inspection. Some low risk farms were also monitored. However, low risk farms will not be monitored every year.	45 (5.5%)	<ul style="list-style-type: none"> • Ponding • Over application of effluent, exceeding water holding capacity of soil. • Storage overflow.
Otago	465	373	We normally monitor all farms annually however, velvetleaf biosecurity response limited our ability to complete all our monitoring.	10 (2.7%)	<ul style="list-style-type: none"> • Ponding • Discharges on saturated soils and • Discharges to rivers are the main issues
Southland	919	919	All farms are inspected on foot every season at least once. Any farm that has more than one inspection also gets an aerial inspection.	23 (1.7%)	<ul style="list-style-type: none"> • Ponded effluent • Overland flow of effluent • Discharges of effluent to waterways
TOTALS		7497 farms monitored		393 SNC (5.2%)	

¹ Northland SNC other issues raised on farm were insufficient contingency storage; unauthorised discharge of treated effluent to water (permitted activity) farms; required upgrade not completed by due date and discharge to water when should be irrigating

² Risk criteria: scale – the number of cows or nitrogen loading rate; affected environment – the depth to ground water, topography of the site, presence of waterways, artificial drainage etc., mechanism of damage – the toxicity or persistence of the effluent (this is defaulted to medium for dairy effluent); compliance history – whether there was any previous occurrences of significant non-compliance or enforcement action, quality management – whether they are farming to good management practices or have a Farm Environment Plan (Canterbury).

³ Although a high percentage of SNC has been reported in Marlborough, there has been significant work done by farmers and the milk supply company which has included four new effluent systems. Other issues of a technical nature are being worked on to be resolved (Marlborough)



Auditors' statement

Telarc SAI Ltd carried out an independent audit of the Sustainable Dairying: Water Accord (SDWA) data collected for the 2015/16 season. The assessment was performed in accordance with the Telarc SAI Ltd standard operational procedures which comply with the requirements of ISO 17021-1:2015.

Telarc SAI Ltd was engaged to perform a review of the systems and practices used for data collection by the Accord partners, and to perform a check of the reliability of a sample of farm-level information (through on the ground verification of reported information). The assessment programme included review of DairyNZ specific SDWA objectives, dairy company specific SDWA objectives, as well as the dairy company data collection and consolidation processes at six dairy companies, and the on-farm verification of 80 data sets. The assessments were performed during the period January to March 2017. In line with previous years, the scope of the assessment was focused on data from the 2015/16 season only, and the review was performed against expectations and commitments defined in the following standards:

- The 2015 version of the Sustainable Dairying: Water Accord.
- Sustainable Dairying: Water Accord Audit standard (DairyNZ requirements) v6 December 2015.
- Sustainable Dairying: Water Accord Audit standard (Dairy Company Requirements) v8 December 2015.

The assessment also reviewed the reporting of Sustainable Dairying: Water Accord information as detailed in:

- The DairyNZ report Sustainable Dairying: Water Accord "Three Years on progress report for the 2015/2016 Season, Version Proof 4"
- Audit_Accord_Reporting_DairyNZ_datacollection_14December2016.xlsx
- Accord_Reporting_Dairy companies_AllData_27 March 2017.xlsm

Note: Statements in the DairyNZ progress report not assessed by Telarc SAI Ltd. include; financial data, case studies and regional council data (e.g. Non Compliance and riparian management plan development data).

The assessment found that, except where noted in this statement, Accord requirements previously achieved in 2014/2015 continued to be met, and significant progress has been made by DairyNZ to meet and report the remaining requirements of the Accord for the 2015/2016 season. DairyNZ has collated and published benchmarked nitrogen management data from all participating dairy companies and verified information received from supporting partners such as fertiliser companies, Irrigation NZ, Federated Farmers and NZIPIM regarding their SDWA commitments.

A new accountable partner (Oceania Dairy Company) has signed to the Accord. As in previous years, DairyNZ again used a structured approach to collect and consolidate dairy company data for around 11500 farms. This process is working well. At the Dairy Companies, processes are becoming more robust for the collection, management and verification of the supplied data. The accountable partners of the Accord have made progress in meeting Accord requirements, and report an increase in the number of installed water meters; that some 97% of waterway fencing has been progressed, and a total of 97% of all farms have been assessed for effluent compliance; and that 100% of all 2015/2016 conversions meet Accord requirements prior to supply.

However, it was observed that two accord targets have not been met; that is, the requirements for:

- 50% of dairy farms with waterways to have a riparian management plan by 31 May 2016, and;
- The provision of data to, and reporting of N loss, N conversion efficiency, and performance benchmarking data by, Dairy Companies, for the 2015/16 season for 100% of supplying farms.

Source data was again reviewed at a small sample of supplier farms; Data discrepancies at farm level were communicated to the individual dairy companies. It was observed that many of these discrepancies were associated with the identification and classification of riparian features and water meters on farm (e.g. stock excluded waterways, significant wetlands, regular stock crossings that have bridges or culverts, and farms with water meters). Reports have been provided to DairyNZ and the Dairy Companies that identify improvement opportunities and also performance against the respective audit standards. The findings from these individual reports have been consolidated in an overarching report.

To read a full copy of the Auditor's Report for 2015/16, go to www.dairynz.co.nz/wateraccord

Telarc.
The Mark of Success



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