



# Canterbury Region Dairy Report 2009-2010 Season

Report  
Resource Management Act  
Compliance and Enforcement  
Section

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## Executive Summary

This is a report on Environment Canterbury's monitoring of the disposal of dairy shed effluent in the Canterbury Region for the 2009-2010 season. Dairy effluent has the potential to cause a significant, negative environmental effect if not properly managed. Our streams and groundwater can become polluted with bacteria and nutrients. It is important to protect Canterbury fresh water, which possesses significant cultural value to Ngāi Tahu, as well community and recreational value. Clean and plentiful water is critical to support farming in Canterbury. Our waters are also vital for other industries such as tourism and are used for numerous recreational activities.

The disposal of dairy shed effluent to land in Canterbury is required to be undertaken in accordance with either a resource consent or the permitted activity rule contained in the Transitional Regional Plan. There are 905 dairy farms in Canterbury and 861 were site inspected. Of those farms inspected a total of 737 properties were operating under resource consents and 124 operating as permitted activities during the season. In total there has been a 6% increase in the number of dairy farms in Canterbury in comparison with the 2008-2009 season (851 dairy farms).

These authorisations are scheduled to be monitored at least once a season to ensure that all requirements are being complied with. Monitoring for compliance is both a legal obligation upon Environment Canterbury under Section 35(2) of the Resource Management Act 1991, and also necessary to ensure that Environment Canterbury delivers upon the community outcomes identified in its Long Term Council Community Plan 2009-2019<sup>1</sup>.

Of the 861 farms monitored, 58.7% were graded fully compliant (compared with 43.2% in the 2008-2009 season). The percentage of farms with significant or major issues of non-compliance has dropped compared with 2008-2009 levels. A total of 8.4% of properties (73 farms) were graded as significantly or majorly non-compliant in the 2009-2010 season compared with 19.3% the previous season. This improvement has occurred during a relatively dry dairy season in which only 79% of average rainfall was received.

Environmental Protection Officers conducted compliance monitoring site inspections between July 2009 and May 2010. Compliance monitoring site inspections were conducted in accordance with nationally agreed standards. During the visit, every effort was made to talk to the resource consent holder or farm manager. Following the compliance monitoring site visit, a compliance monitoring report was prepared and mailed to the resource consent holder outlining any non-compliance. Formal warnings, abatement notices, infringement notices, and recommendations for prosecution were issued where necessary.

Compliance by territorial authority was also conducted. The majority of dairy farms in Canterbury (485 farms, 53.6%) are located centrally in the Ashburton and Selwyn districts. The 25 farms in the Kaikoura district had the highest levels of compliance at 83% while the 17 farms in the Waitaki district had the lowest at just 23.5%. Farm size, years since establishment, soil type, terrain, rainfall and other factors are all possible reasons for this variance.

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<sup>1</sup> <http://www.ecan.govt.nz/Plans+and+Reports/annualPlansReports/>

Most dairy farms actively worked to ensure full compliance with resource consent and permitted activity conditions, ensuring dairy effluent disposal systems were properly maintained, farm employees were well educated, and allocating extra resources for dairy effluent management. There were also several common non-compliance issues identified, with dairy effluent ponding still a prevalent issue, despite the dry year. Exceedence of undiluted effluent limits and nitrogen loading were also identified on several dairy farms. To a lesser extent discharges of dairy effluent within buffer zones, or effluent discharged directly to water were also identified.

A total of 28 infringement notices were issued along with 21 abatement notices and charges were laid in three occasions. Of the charges laid, two have been successfully prosecuted. While the charges laid were about the same as in previous years, both infringement notices and abatement notices had reduced. During the previous dairy season, 43 infringement notices and 64 abatement notices were issued.

Following re-inspection of significant and major non-compliances, 71.7% of significant non-compliances became fully compliant within the monitoring season. Of major non-compliances, 88.2% became fully compliant when re-inspected.

Environment Canterbury staff have been involved in a number of initiatives aimed at improving compliance and managing environmental effects. These include developing a national audit process that ensures consistency of monitoring across all regional councils. Environment Canterbury has been audited and been found to be consistently following nationally agreed guidelines. A joint initiative between the dairy industry and Environment Canterbury was established in the 2008-2009 season and this group has continued to implement a number of programmes. These include reviewing consent conditions to ensure that they are fit-for-purpose and developing a series of "Let's get it right" farmer to farmer cards that highlight good management practices.

Dairy industry groups have continued to implement initiatives to reduce the environmental effects from dairy farming, including the Farm EnviroWalk self-assessment checklist, the Dairying and Clean Streams Accord and the provision of technical support to dairy farmers in relation to effluent storage and disposal.

Looking forward to the 2010-2011 dairy season, Environment Canterbury will use a similar monitoring strategy to the 2009-2010 season. Environment Canterbury encourages Canterbury dairy farmers to contact us if they have any questions relating to attaining or maintaining compliance with the conditions of their resource consent or permitted activity. In this way we can continue to improve the compliance of resource consent and permitted conditions relating to disposal of dairy effluent.

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# 1 INTRODUCTION: A COMBINED APPROACH TO COMPLIANCE

Environment Canterbury recognises the significant economic benefits provided by dairy farming, while also being responsible for managing the environmental and other effects of consented activities. Therefore, we are working collaboratively with the dairy industry to improve dairy effluent compliance. Farmers have a direct and personal interest in ensuring the quality of their ground water is protected, as most household water on farm is provided from within the farm boundary

The Canterbury Dairy Effluent Group was formed in October 2008 – comprising Environment Canterbury, DairyNZ, Federated Farmers, South Island Dairying Development Centre (SIDDC), Fonterra, NZ Dairies, and Synlait – to study the various causes of non-compliance and instigate solutions.

The group has a range of ongoing initiatives including working more closely with effluent system suppliers, improved training for dairy farm staff, attending farmer events and direct communication to farmers about compliance issues and how to implement best practice, an advertising campaign promoting good dairy effluent practice, as well as Environment Canterbury reviewing consenting requirements and compliance methods.

## 1.1 Environmental effects

Dairy effluent can provide an economic benefit to dairy farmers as it contains nitrogen (N), phosphorus (P), and potassium (K). Dairy effluent also contains high levels of organic matter, and faecal bacteria. When dairy effluent is properly applied, faecal bacteria are limited by absorption into the soil and the nutrients are taken up by plants. Thus, proper application of dairy effluent to paddocks promotes improved pasture production.

The consent conditions for individual dairy effluent discharges are designed to ensure that environmental effects are less than minor, as required by the Resource Management Act 1991. Non-compliance with dairy effluent consent conditions can cause significant adverse environmental effects and must be dealt with appropriately.

For instance, when dairy effluent is over-applied, and allowed to cause ponding in paddocks, soil moisture levels are elevated and a moist, nutrient rich environment is created which may allow faecal bacteria to grow. Soil saturation also allows dairy effluent to travel through the topsoil and potentially reach and contaminate groundwater.

## 1.2 Iwi and water

For Ngāi Tahu, water is a taonga and has an inherent value that must be recognised. Taonga value refers to the values associated with the water itself, the resources living in the water, as well as other life and resources that are sustained by water.

Each water body has its own mauri (life force) and mana. The exercise of kaitiakitanga is the active protection and responsibility for natural and physical resources by tangata whenua.

Values associated with specific water bodies include a role in unique tribal creation stories, a role in historical accounts, proximity to wahi tapu, settlement or other historical sites in, or adjacent to, specific waterways, use as access routes or transport courses, value as

traditional sources of mahinga kai and other cultural materials, and continued capacity for future generations to access, use and protect the resource.

## 2 SCOPE OF THIS REPORT

This report covers the level of consent compliance for the storage and discharge to land of dairy effluent collected in the milking shed in Canterbury in 2009-2010.

Effluent collected in the milking shed typically makes up around 10% of dairy effluent<sup>2</sup>. The remaining 90% of dairy effluent on farms is deposited directly on pasture by the herd as they graze in paddocks.

When on the farm carrying out routine monitoring inspections, Environmental Protection Officers also check other areas, not included in the resource consent or permitted activity rules, which may have the potential to result in effluent discharges into water, such as stock in waterways and track run-off. These areas are not covered in this report. Environmental Protection Officers also respond to complaints about such activities received through Environment Canterbury's pollution hotline (0800 765588).

### 2.1 Environment Canterbury's responsibilities

#### 2.1.1 Resource Management Act

Environment Canterbury is responsible for administering the requirements of the Resource Management Act, 1991. This act states that no person may discharge any contaminant onto or into land in circumstances which may result in that contaminant entering water, unless the discharge is expressly allowed by a rule in regional plan (and in any relevant proposed regional plan), a resource consent, or in regulations. Section 35 (2) of the Resource Management Act, 1991, states that:

*Every local authority shall monitor –*

- (b) The efficiency and effectiveness of policies, rules, or other methods in its policy statement or plans; and ....*
- (d) The exercise of the resource consents that have effect in its region and take appropriate action where this is shown to be necessary*

Dairy effluent is considered a contaminant under the Resource Management Act, 1991.

NB: Dairy farms milking fewer than 370 cows prior to the notification of the Proposed Natural Resources Regional Plan in 2004 continue to be regulated by the permitted activity rule under the Transitional Regional Plan. This will continue until the Proposed Natural Resources Regional Plan becomes operative (expected later in 2010) and thereafter these farms will also require resource consents. Dairy farms regulated by the permitted activity rule also receive compliance monitoring visits.

#### 2.1.2 Funding of compliance monitoring

It is the policy of Environment Canterbury to fund the cost of carrying out many of its Resource Management Act 1991 functions, including consent monitoring, by way of charges to consent holders. Section 36(1) (c) of the Resource Management Act 1991 allows the regional council to fix these charges. Holders of resource consents are charged an hourly rate of \$74.25 inclusive of GST, for the work of the Environmental Protection Officers. Where

<sup>2</sup> Cameron & Trenouth, (1999), "Resource Management Act – Practice and Performance: A case Study of Farm Dairy Effluent Management"

possible these charges are kept to a minimum, but where non-compliance is identified, all follow up work is also charged at the same hourly rate. Monitoring of dairies regulated by the permitted activity rules are charged to the user, with a fixed fee of \$290 per year. Both these charges are set out in the Environment Canterbury Annual Plan 2009-2010<sup>3</sup>.

### **2.1.3 Desired community outcomes**

Environment Canterbury, in conjunction with other stakeholders and organisations, has identified a set of community outcomes<sup>4</sup>. These are outcomes that the community has decided are a priority for the Canterbury region. Our compliance monitoring work for dairy effluents also contributes to achieving the following community outcomes:

- Water is in a healthy condition, clean and plentiful enough to support life
- Business and farming activities do not harm the environment
- The environment, in general, is to be looked after

## **2.2 Summary**

Environment Canterbury undertakes monitoring of the disposal of dairy effluent within the Canterbury region in order to satisfy the statutory obligations imposed under Section 35(2) of the Resource Management Act, 1991, and to ensure that the disposal of dairy effluent does not jeopardise the achievement of relevant community outcomes.

Regulation of dairy effluent will not deliver improved water quality in isolation. Therefore, Environment Canterbury also undertakes additional work in identified activity areas in an effort to ensure that water quality is protected. This work includes scientific investigations to obtain a better understanding of the environment, preparing policy and planning documents in consultation with the community to enable sustainable development of water resources, and environmental monitoring to measure the effectiveness of Environment Canterbury's activities and identify any trends in water quality.

Additionally, during compliance monitoring site inspections and inquiries by consent holders, Environmental Protection Officers offer advice on dairy farm best management practices relating to dairy effluent storage and discharge.

Environment Canterbury also provides support and education to the community through our Resource Care section. The Resource Care section has a number of rural initiatives in place, including the practice of offering on-farm visits to discuss and offer suggestions on proposals that benefit both the business and the environment prior to conversion, working with individuals within the Living Streams program and involvement with the Canterbury Dairy Action Team.

## **3 COMPLIANCE MONITORING METHODS**

During 2009-2010, 861 of 905 dairy farms in Canterbury were monitored for compliance with the conditions of their relevant resource consents and permitted activities.

Of the 905 dairy farms, 775 held resource consents authorising the disposal of dairy effluent to land, while 130 dairy farms disposed of dairy effluent under the Transitional Regional Plan.

<sup>3</sup> <http://www.ecan.govt.nz/Plans+and+Reports/annualPlansReports/>

<sup>4</sup> Report available at : <http://ecan.govt.nz/publications/Plans/LTCCP200919CommunityOutcomes.pdf>

Thirty-eight resource consents and six permitted activities were not monitored this season (see Section 5.1.1).

Actions taken by Environmental Protection Officers relating to compliance monitoring of dairy effluent resource consents and permitted activities comprise: pre-visit activities; a compliance monitoring site visit; and post-visit activities.

### **3.1 Pre-visit**

Dairy farms were divided into geographical blocks to improve efficiency and reduce compliance monitoring costs to resource consent holders. Dairy farms were then assigned to an Environmental Protection Officer to conduct the compliance monitoring site inspections. Prior to each site visit, the Environmental Protection Officer reviewed the history of the dairy farm compliance. This review included details of any previous non-compliance, information on the dairy effluent disposal area, sensitive areas on the property, as well as the number of cows being milked.

### **3.2 Compliance monitoring site inspections**

All inspections were carried out without prior warning, in line with nationally agreed procedures. Some dairy farms hold more than one consent to store and to discharge dairy effluent. In these cases all resource consents were monitored during the same inspection. Dairy farms with previous non-compliance issues had compliance monitoring site visits earlier in the dairy season.

At the time of compliance monitoring site inspections, efforts were made to contact the senior person on site, such as the farm manager or consent holder. When no one was present on site, a notice of inspection was left in a prominent position with the Environmental Protection Officer's contact details and the reason for the visit. Environmental Protection Officers then contacted the consent holder to arrange a compliance monitoring site inspection at a later date.

While on site, information was collected on the peak number of cows milked during the dairy season, the number of hectares used for dairy effluent disposal, whether the dairy effluent storage pond was sealed, and how regularly the travelling irrigator was relocated.

The inspection of the dairy effluent disposal system included, but was not limited to:

- Inspection of the dairy yard and associated channels to ensure that dairy effluent was not being washed into unlined areas or surface water bodies;
- Inspection of the dairy effluent storage system for evidence of sump overflows (recent and historical) and for sealing;
- Inspection of the dairy effluent disposal area to assess the dairy effluent application rate (by walking the dairy effluent disposal area);
- Inspection for any dairy effluent ponding on the soil surface;
- Inspection to ensure that the appropriate buffer distances were being maintained between bores, soak holes and waterways;
- Inspection of the dairy effluent pipeline for any obvious breaks or leaks.

Resource consent compliance was assessed by the Environmental Protection Officer while onsite and each resource consent condition was graded according to the level of compliance.

The main compliance grades are as follows:

- Grade 1 – Fully compliant
- Grade 2 – Minor non-compliance
- Grade 3 – Significant non-compliance
- Grade 4 – Major non-compliance

Figures 1-4 are examples of Grade 1 to Grade 4 compliance for ponding.



**Figure 1, Grade 1, fully compliant.**



**Figure 2, Grade 2, minor non-compliance.**



**Figure 3, Grade 3, significant non-compliance.**



**Figure 4, Grade 4, major non-compliance.**

Appendix 1 shows standardised grades used by Environmental Protection Officers when non-compliance is encountered. When non-compliance with resource consent conditions is identified during a compliance monitoring site inspection, where possible Environmental Protection Officers report this to the person in charge. Environmental Protection Officers then give verbal instruction to remedy the situation. A notice of alleged offence is issued, as applicable, to the consent holder or farm employee.

### **3.3 Post-visit**

Following all compliance monitoring site inspections, a compliance monitoring report was produced and sent to the respective consent holder. The compliance monitoring report outlined the dairy farm's compliance with the conditions of the respective resource consent or permitted activity. The compliance monitoring report summarised any issues that were encountered during the compliance monitoring site visit. Additionally, the compliance monitoring report also detailed any remedial actions that were required and the timeframe within which they were to be completed.

Where non-compliance was identified a range of enforcement options were used, ranging from a warning written in a compliance monitoring report, to the issuing of an abatement notice and/or an infringement notice fine. On three occasions, legal action was taken in the form of a prosecution cases in the District Court. All enforcement action was taken in accordance with the Compliance Monitoring and Enforcement Policy 2006.

For dairy farms with major or significant non-compliance with resource consent or permitted activity conditions, follow-up visits were conducted to assess corrective actions taken by resource consent holders and/or farm managers.

## **4 DATA ANALYSIS**

For the purpose of this report, two methods were used to interpret the results of Environment Canterbury's 2009-2010 dairy season compliance monitoring results. The two methods are consent-based compliance and condition-based compliance

### **4.1 Consent-based compliance**

The overall compliance grade is derived from the consent or permitted activity condition that has the most significant non-compliance grade. For example, where one condition is graded as having minor non-compliance (grade 2) and another is graded as having significant non-compliance (grade 3), the overall compliance grade becomes grade 3, significant non-compliance. For properties with separate consents to store and to discharge effluent, the overall grade is the most significant non-compliance grade of the two consents. The overall compliance statistics are provided in Table 1.

### **4.2 Condition-based compliance**

These statistics shows the total number of conditions monitored on all dairy effluent consents and permitted activities in the Canterbury Region over the 2009/2010 season, and identifies the compliance grade for each individual condition. The condition compliance statistics are provided in Table 3.

## 4.3 Rationale for this dual analysis

Neither method of displaying the compliance statistics gives a truly accurate picture of the level of compliance when considered in isolation. For example, a property graded 2 on one condition will lower the overall compliance figure, despite being fully compliant on all other conditions on the consent. On the other hand, with the total condition compliance figure alone, it is not possible to know whether the majority of farms are failing to comply with a couple of conditions, or a small number of farms are failing to comply with the majority of their conditions.

## 5 RESULTS

This section includes a summary of the initial results, best practices, common non-compliance issues, enforcement action, and follow-up inspections.

### 5.1 Statistical results

905 farms were authorised to discharge dairy effluent during the 2009-2010 season. Resource consent authorisation accounted for 737 of these authorisations and 124 were covered by the permitted activity rule for the discharge of effluent to land in the Transitional Regional Plan. Of the 905 farms that were authorised to discharge dairy effluent, 861 were monitored (see 5.1.1 below).

#### 5.1.1 *Regional consent-based compliance results*

Of the 861 farms that were monitored, 58.7% (505 dairy farms) were fully compliant with their resource consents or permitted activities. Minor non-compliance was recorded at 32.9% (283 dairy farms) and significant or major non-compliance was 8.4% (73 farms).

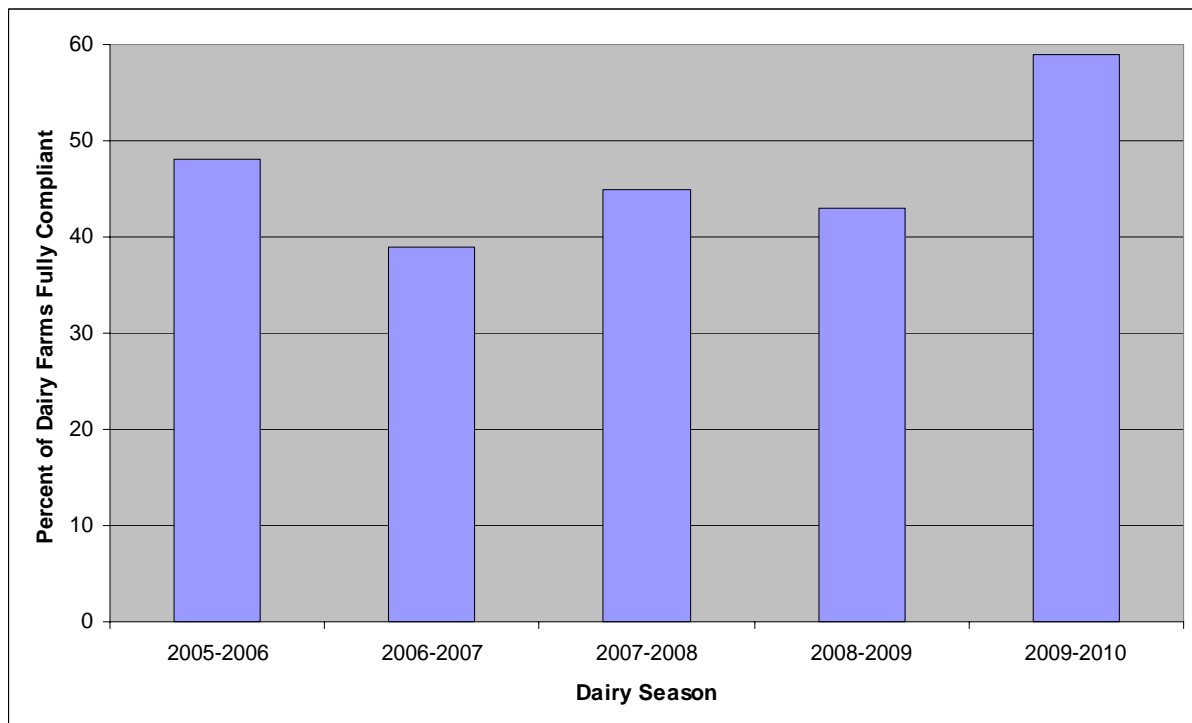
The percentage of significant and major non-compliance was marginally lower for dairy farms operating as permitted activities (6.5%) than for those operating under resource consents (8.8%).

Some dairy farms were not monitored if they were not in operation during the 2009-2010 dairy season. The Environment Canterbury RMA database separates out all dairy farms into sub-catchment groups and then assigns these to an Environmental Protection Officer to monitor. Due to a combination of a change in the way our database assigned the consents to sub-catchments and a change in the Environmental Protection Officer's monitoring areas, there were 44 operational farms that were not visited.

**Table 1, Initial inspection resource consent-based compliance results 2009-2010.**

Resource Consent Based Compliance						
Grade	Total		Permitted activity		Resource consent	
Number of dairy farms monitored	861		124		737	
Overall Grade 1, full compliance	505	58.7%	97	78.2%	408	55.4%
Overall Grade 2, minor non-compliance	283	32.9%	19	15.3%	264	38.8%
Overall Grade 3 or 4, significant/major non-compliance	73	8.4%	8	6.5%	65	8.8%

Figure 5 shows the percentage of consents and permitted activities that have achieved full compliance over the past five dairy seasons.



**Figure 5, Fully compliant dairy farms 2005-2010.**<sup>5</sup>

### 5.1.2 Geographical consent-based compliance results

The consent-based compliance results were analysed by territorial authority area for informative purposes only (no conclusions are drawn). During future monitoring seasons this analysis may be expanded if trends can be established. There are several reasons for these variances. These include differences in soil type, depth to groundwater, annual rainfall, terrain, and farm management. Average farm size and years in operation also varies significantly between some of these territorial authorities.

<sup>5</sup> In 2005-2006 farms that had been fully compliant in previous seasons were not monitored.

Table 2 shows consent-based compliance results by territorial authority. More than half of Canterbury's dairy farms are located in Ashburton District (33%) and Selwyn District (20.6%). Eighty percent of dairy farms in the Kaikoura district were fully compliant whereas Waitaki district farms managed 23.5% full compliance. Both of these districts, however, account for only a small number of the resource consents and permitted activities within the Canterbury region. The very small number of dairy farms in Kaikoura and Waitaki mean any comparisons of compliance levels with other districts, should be treated with caution. More than half of Canterbury's dairy farms are located in Ashburton District (33%) and Selwyn District (20.6%).

**Table 2, Initial consent compliance inspection by geographical area**

Resource Consent and Permitted Activity Compliance by Territorial Authority								
Territorial Authority	TA Resource Consents and Permitted Activities	Regional Percent of Resource Consents and Permitted Activities	Overall Grade 1, Full Compliance	Percent within TA Grade 1, Full Compliance	Overall Grade 2 10, Non Compliant	Percent within TA Grade 2 10, Non Compliant	Not Monitored	Percent Not Monitored
Ashburton District	299	33.0%	132	51.2%	126	42.1%	41	13.7%
Christchurch City	12	1.3%	9	75.0%	3	25.0%	0	0.0%
Hurunui District	62	6.9%	44	71.0%	18	29.0%	0	0.0%
Kaikoura District	25	2.8%	20	83.3%	4	16.0%	1	4.0%
Mackenzie District	13	1.4%	9	69.2%	4	30.8%	0	0.0%
Selwyn District	186	20.6%	105	57.1%	79	42.5%	2	1.1%
Timaru District	110	12.2%	66	60.0%	44	40.0%	0	0.0%
Waimakariri District	82	9.1%	61	74.4%	21	25.6%	0	0.0%
Waimate District	99	10.9%	55	55.6%	44	44.4%	0	0.0%
Waitaki District	17	1.9%	4	23.5%	13	76.5%	0	0.0%

### 5.1.3 Condition-based compliance results

In total, 94.1% of all conditions were being fully complied with based on the results of the initial compliance monitoring site inspections. In comparison, 72.7% of conditions were fully complied with during the 2008-2009 dairy season. During the relatively dry 2007-2008 dairy season, 89.5% of conditions were fully compliant.

A number of resource consent and permitted activity conditions could not be monitored. This is often the case for administrative consent conditions that cease to be relevant (for example, once an effluent management plan has been submitted).

Conditions that were not monitored are not included in these percentages. Condition-based compliance data are shown in Table 3.

**Table 3, Initial inspection condition-based compliance results 2009-2010.**

Condition based compliance			
Conditions	Total	Permitted activity	Resource consent
Total number monitored	9,108	813	8,295
Number graded fully Compliant	8,573	765	7,808
Percentage graded fully compliant	94.1%	94.1%	94.1%
Number graded non-compliant	535	48	487
Percentage graded non-compliant	5.9%	5.9%	5.9%

## 5.2 Best practices

Actions to improve dairy effluent compliance, as noted by Environmental Protection Officers during compliance visits, included the following.

### 5.2.1 In the shed

- Stormwater was diverted from the dairy effluent disposal system;
- The yard was wetted down prior to milking and scrapers were used prior to hosing down to reduce the volume of washdown water required;
- All concreted areas were sufficiently bunded to contain dairy effluent.

### 5.2.2 Sumps and storage systems

- All channels, sumps, pipes and storage facilities were sealed and well maintained;
- The stone trap was cleaned out regularly, the solids were placed on a concrete pad to dry and any liquid was able to run back into the stone trap. Alternatively the material was spread to land while complying with the buffer distances between waterways, bores and soakholes;
- Adequate storage capacity was available to allow for dairy effluent irrigation to be deferred at times when soil moisture levels were too high to irrigate;
- Storage facilities were maintained with sufficient freeboard to ensure storage was available when required.

### **5.2.3 Dairy effluent disposal**

- Dairy effluent irrigators were set up correctly and applied dairy effluent at the lowest rate possible, taking into consideration soil type, topography and soil moisture, to ensure that ponding, dairy effluent runoff and pasture damage did not occur;
- The irrigator was checked regularly to ensure that it was operating correctly and would not come to the end of a run while discharging;
- Disposal occurred only when soil conditions were suitable. This required adequate on-site storage;
- Where a travelling irrigator was used, the hose was laid out properly to minimise drag on the irrigator;
- Sensitive areas such as bores, waterways and soak holes were identified and the appropriate buffer distances were maintained;
- The dairy effluent application rate was measured routinely to ensure that the application rate did not exceed the maximum holding capacity specified by the resource consent;
- The dairy effluent application area was sufficient to maintain nitrogen application rates from effluent below 200 kg/ha/year and dairy effluent was applied evenly over this area. (Note that the area may need to be larger to keep potassium levels within the optimum range);
- A nutrient budget was prepared and adhered to.

### **5.2.4 Management**

- A management plan was developed and implemented. It was displayed in a prominent place in the dairy shed, along with a copy of the resource consent;
- Staff responsibilities were clearly defined and staff were adequately trained in how systems operated;
- The equipment was maintained regularly as recommended by the manufacturer;
- Contingency measures were in place in the event of equipment failure such as a spare pump and contact details for a vacuum tanker operator;
- A pre-season check was undertaken to ensure that the dairy effluent disposal system was adequate for the coming dairy season's herd size and that all consent requirements were being complied with;
- Where dairy effluent was injected into irrigation water that was connected to a ground or surface water source, either a reduced pressure zone backflow preventer or an air gap was installed to avoid backflow of dairy effluent into the water source.

### **5.2.5 Further information**

For further guidance on dairy effluent disposal best practice, refer to '*A Guide to Managing Farm Dairy effluent – Canterbury*'. This provides detailed information on best practice management techniques and is available from Environment Canterbury's Customer Services (phone 0800 EC INFO), or can be downloaded from [www.dairynz.co.nz](http://www.dairynz.co.nz).

## **5.3 Common non-compliance issues**

Non-compliance grades were the result of several common issues (Appendix 1 presents how each non-compliance was graded in a standardised guideline used in previous dairy seasons for assessing and responding to non-compliance issues).

### **5.3.1 Dairy effluent ponding**

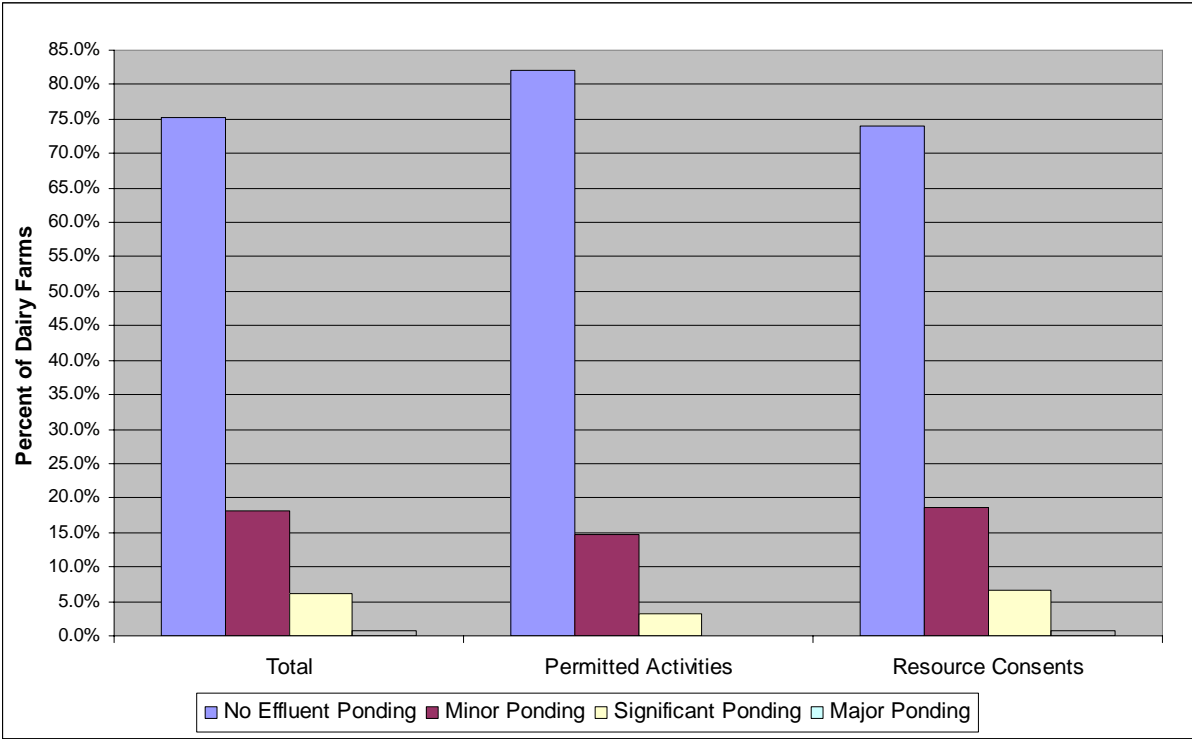
Most dairy farms (98%) use spray irrigation to dispose of dairy effluent. As in previous dairy seasons, the main problem with this method of disposal is the over-application of dairy effluent, causing ponding on the soil surface.

This can be caused by a variety of factors including failure to shift the irrigator regularly, insufficient area being used for disposal, equipment failure such as pipe breakages or pump failure, inadequate system capacity or lack of sufficient dairy effluent storage, which results in dairy effluent disposal occurring when soil moisture levels are already high.

The incidence of dairy effluent ponding in the 2009-2010 dairy season is set out in Table 4. The overall level of dairy effluent ponding decreased from 38% to 31% farms showing some level of ponding during the 2009-2010 dairy season. Significant or major ponding decreased from 15% (128 farms) to 6% (56 farms). There are several possible explanations for this decrease. It may be due in part to a dry dairy season, but also due to increased efforts by the dairy industry and dairy farmers to meet compliance with their resource consent or permitted activity conditions. Figure 6 illustrates the data.

**Table 4, Initial inspection of disposal area dairy effluent ponding.**

Dairy effluent ponding			
Level of ponding	Total	Permitted activity	Resource consent
No ponding	624	101	523
Minor ponding	150	18	132
Significant ponding	50	4	46
Major ponding	6	0	6
Unable to be assessed	75 <sup>6</sup>	7	68



**Figure 6, Ponding of dairy effluent 2009-2010.**

<sup>6</sup> Where observed ponding was minor, and consent conditions allowed ponding for between 3 and 12 hours, these were not assessed, as any risk was deemed minor and the cost to consent holder to stay on site was not considered fair and reasonable. Other consents which were unable to be assessed were those which had not discharged at the time of the site inspection.

### 5.3.2 Undiluted dairy effluent limits

Dairy effluent resource consents specify a limit on the daily undiluted volume that can be spread.

Any volume of dairy effluent discharged in excess of resource consent limits is a non-compliance.

In a number of cases non-compliance was caused by an increase in the size of the herd and the consent holder not applying to change the resource consent. Another cause of non-compliance was due to the knock on effects of the increased herd size, resulting in the failure of the dairy effluent systems to cope with increased cow numbers.

A total of 28 (3.6%) dairy farms exceeded the maximum undiluted dairy effluent limits specified on their dairy effluent disposal resource consent in the 2009-2010 dairy season. This compares with 64 (7.5%) dairy farms exceeding undiluted dairy effluent limits during the 2008-2009 dairy season. Dairy farms found to be in exceedence of their undiluted dairy effluent limits were required to apply for a change in their consent. Applicants were encouraged to allow for potential herd expansion in the coming years to reduce the need for frequent changes to resource consents.

### 5.3.3 Nitrogen loading

Dairy effluent contains a high level of nitrogen and over-application can increase the risks of nitrate-nitrogen leaching through the soil profile, causing both contamination of groundwater and a loss of nutrients.

In order to limit the loss of nitrate-nitrogen to groundwater there is a limit of 200 kg of nitrogen from dairy effluent per hectare per year. This requires a disposal area of approximately 3.25 hectares for every 100 cows that are being milked.

There is a high level of compliance with this requirement: the majority of dairy farms applied dairy effluent at a rate less than 100 kg of nitrogen per hectare per year. Nitrogen application rates have continued to fall during the 2009-2010 dairy season, indicating that dairy farmers are making better use of this resource. Table 5 illustrates the respective nitrogen loading category of dairy farms inspected.

**Table 5, Initial inspection of dairy effluent disposal nitrogen application rates.**

Nitrogen application rates			
Application rate	Total	Permitted activity	Resource consent
0-100 kg/ha/yr	567	70	497
100-150 kg/ha/yr	225	40	185
150-200 kg/ha/yr	54	12	42
200+ kg/ha/yr	10	1	9
Not assessed	49	7	42

Where the nitrogen loading limit was exceeded, the nitrogen loading can be reduced by either milking fewer cows or increasing the available dairy effluent disposal area.

Figure 7 illustrates trends in nitrogen loading rates since 2005.

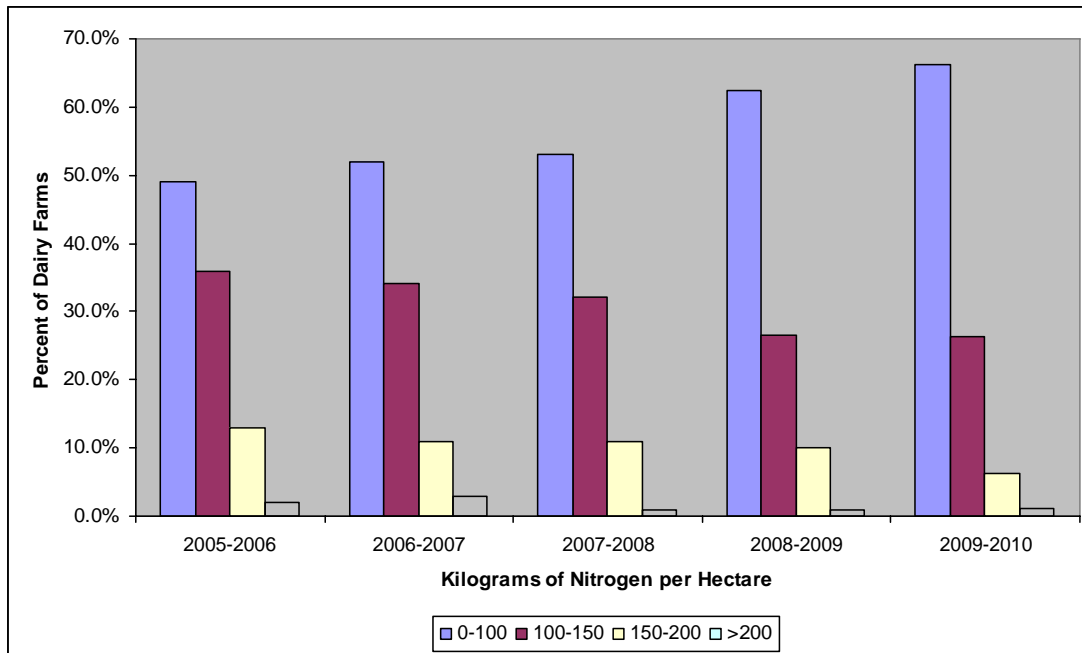


Figure 7, Nitrogen application rates 2005-2010.

### Buffer zone discharges

Dairy effluent is not to be applied within 20 metres of any surface water body, bore, or soakhole, in order to reduce the risk of dairy effluent runoff. This requirement was found to have been breached on nine occasions in the 2009-2010 dairy season. This compares with 14 observed breaches during the 2008-2009 dairy season and 11 observed breaches during the 2007/08 dairy season.

Properties where the incident was deemed as a significant non-compliance were given a warning to take corrective action and re-visited. On one property an abatement notice and infringement notice were issued for discharge directly to a soakhole. A formal warning was issued to another dairy farm for discharge within five metres of a soakhole. On re-inspection these dairy farms were found to be fully compliant.

All other instances of non-compliance with this condition were graded as minor non-compliance and generally were just inside the 20-metre buffer zone. Compliance monitoring reports reflected this and directed consent holders and farm managers to ensure the discharge was at least 20 metres from waterways, bores, and soakholes.

### 5.3.4 Discharges directly to water

A discharge of dairy effluent directly into water can cause significant adverse environmental effects. Two inspections found dairy effluent being discharged directly to water in 2009-2010 compared with six instances during 2008-2009 and three instances in the 2007-2008 season.

Both incidents resulted from over-application of dairy effluent. This resulted in heavy ponding and ultimately runoff of dairy effluent to drains. An abatement notice and infringement notice were issued in both cases. On re-inspection both dairy farms were found to be fully compliant.

## 5.4 Enforcement Action

All enforcement action is undertaken in accordance with Environment Canterbury's Compliance Monitoring and Enforcement Policy 2006<sup>7</sup>. This policy is designed to ensure that the use of enforcement tools is transparent and that people are treated in a consistent and equitable manner.

The enforcement methods most commonly used are: infringement notices (a \$750 fine, prescribed in the Resource Management (Infringement Offences) Regulations 1999); abatement notices (requiring an action to be undertaken or an activity to cease); or court prosecution (if the offence occurred after 1<sup>st</sup> October 2009, the maximum fine for a company of \$600,000 and 2 years imprisonment for any one offence and a maximum fine for an individual of \$300,000 and 2 years imprisonment for any one offence).

Enforcement action taken by Environment Canterbury over the past four dairy seasons is shown in Table 6.

**Table 6, Enforcement action 2006-2010**

Enforcement action				
Method	2006 2007	2007 2008	2008 2009	2009 2010
Infringement notices	22	30	43	28
Abatement notices	26	33 <sup>1</sup>	64	21
Charges laid	0	3	2 <sup>3</sup>	4 <sup>5</sup>
Awaiting court Appearance	0	0	1	0
Prosecution	0	3 <sup>2</sup>	1 <sup>4</sup>	2 <sup>6</sup>

<sup>1</sup> Two abatement notices were subsequently withdrawn.

<sup>2</sup> Two cases were for discharges of dairy effluent into surface water, resulting in a total of \$13,500 in fines. One prosecution was for repeated significant non-compliance and failure to comply with an abatement notice, resulting in \$10,000 in fines. All three cases appeared in court in the 2008-2009 dairy season.

<sup>3</sup> In one case charges were laid in the 2008-2009 season and subsequently withdrawn in 2009-2010 on the basis of an agreement with Environment Canterbury to undertake remedial works and hold a field day on site to promote sustainable dairying.

<sup>4</sup> This prosecution was an obstruction case where a farmer refused monitoring staff entry onto the property to carry out a routine inspection.

<sup>5</sup> Charges were withdrawn by Crown Prosecutor.

<sup>6</sup> Both prosecutions resulted in \$8,000 in fines. One for discharging effluent to water course. One for ponding effluent.

The collaboration with industry groups (see Section 6.2.6) has meant that there are now more consistent messages to dairy farmers in relation to consent compliance and farm dairy effluent. This has resulted in a reduced reliance on abatement notices to achieve outcomes. This has had the knock on effect of reduced infringement notices, as a proportion of the infringement notices are for failure to comply with abatement notices.

## 5.5 Follow-up inspection results

When non-compliance is graded as significant (grade 3) or major (grade 4) by an Environmental Protection Officer, a follow up inspection is carried out to ensure the matter has been resolved.

Nearly 72% of conditions assessed as significantly non-compliant at the first inspection were fully compliant at the follow-up inspection. Just over 10% showed an improvement between

<sup>7</sup> A copy of this policy is available from Environment Canterbury upon request

the first and follow-up inspections and 16.2% were unchanged. Only 2% of conditions were worse at the follow-up inspection than at the first inspection.

71.7%	10.1%	16.2%	2%
1	2	3	4
Fully compliant	Improved	No change	Worse

**Figure 8, Significant non compliance follow-up grade.**

The proportion of farms achieving full compliance, following an initial non-compliant assessment, has improved over the past three seasons.

In the 2008-2009 season 61.5% of farms achieved full compliance following an initial non-compliant assessment, and in 2007/08 this figure was 51.9%.

Some conditions rated as 'no change' were because the initial inspection was carried out near the end of the season and there was not enough time for a follow-up inspection. In these cases the sites were identified as priority for early inspection at the beginning of the 2010/11 dairy season.

Just over 88% of conditions assessed as a major non-compliance were found to be fully compliant at the follow-up inspection. The remaining 11.8% of farms with a major non-compliance showed an improvement between the initial and follow-up visits, with no farms unchanged or having a worse outcome.

88.2%	11.8%	
1	2	3
Became fully compliant	Improved	

**Figure 9, Major non-compliance follow-up grade.**

## 5.6 Dairy effluent: storage and rainfall

The average rainfall in Canterbury during the 2009-2010 dairy season was 513.1 mm (the source is NIWA data from <http://cliflo.niwa.co.nz/>). Three weather stations were used: Kaikoura AWS (North Canterbury); Christchurch Aero (mid-Canterbury); and Timaru AWS (South Canterbury).

It is recognised that rainfall totals further inland were likely to be different from those measured at the stations. The rainfall data does however provide a trend and an assessment of conditions compared with the average.

Rainfall for 2009-2010 was 393 mm or 79% of average for most of the season, apart from a large storm in May that occurred after compliance monitoring had been completed. If the May storm is included, the rainfall for the whole season is 103% of average, but this is not considered a fair representation of the season, which was characterised by numerous water-take restrictions.

The relatively low rainfall for the 2009-2010 dairy season provided the benefit of increased absorption of dairy effluent into the ground. Rainfall can have a negative impact upon effective management of farm dairy effluent. Adequate effluent storage provides increased options in the event of prolonged wet weather or mechanical failure.

A combination of the weather factors, increased efforts by dairy farmers, and ongoing dairy industry initiatives, resulted in a reduction of ponding non-compliances classified as significant or major during the 2009-2010 dairy season.

## 5.7 Comparison with previous monitoring seasons

The results for the 2009-2010 dairy season showed an improvement over the previous four monitoring seasons.

One reason for the improvement was likely to be the relatively dry season which caused dry soils, able to better absorb dairy effluent discharge, and a corresponding reduction in the amount of ponding non-compliance.

Part of the improvement can also be attributed to the increased efforts by the dairy industry and Environment Canterbury to improve compliance (see Section 6).

Both resource consent-based compliance and condition-based compliance showed marked improvements over the previous monitoring season. Condition-based compliance results indicated an improvement to 94.1% of conditions being fully complied with, compared to 72.7% during the previous dairy season. The low rate of condition compliance during the 2008-2009 dairy season can be at least partially attributed to a wetter than normal year.

A comparison of average annual rainfall versus dairy effluent ponding non-compliance showed a trend of higher non-compliance in wet years than in average or drier years. At least some of the difference between the 2009-2010 and 2008-2009 dairy seasons may be attributed to rainfall received.

There has been a steady decrease in farm nitrogen loadings. This may indicate that dairy effluent disposal areas are being expanded at a rate greater than the growth in dairy effluent volumes. If this is the case it indicates an increased investment in infrastructure enabling application at lower rates, lessening the risk of nutrient loss to the environment through runoff into surface waterways or by leaching into the groundwater system.

Environment Canterbury will continue its monitoring programme, and will continue to work with the dairy industry to improve understanding of the importance of effective dairy effluent storage.

## 6 INITIATIVES

Environment Canterbury and the dairy industry have developed a series of initiatives to improve consent compliance and manage environmental effects.

### 6.1 Environment Canterbury initiatives

#### 6.1.1 *National audit of compliance monitoring*

National reporting on the Dairy and Clean Streams Accord, highlighted variability in reporting compliance rates in farm dairy effluent rules between regions in New Zealand. Compliance and regulatory managers from around the country developed a set of standardised compliance reporting grades, consistent with those shown in this report, with set criteria outlining what constituted minor non-compliance and significant non-compliance. These criteria and grades were used from the 2007-2008 season onwards. Environment Canterbury was one of the six regional councils that developed an audit process in December 2008, to check the effectiveness of the standardised grading system. In June 2010 the second audit was undertaken of the 14 regional councils and unitary authorities undertaking dairy effluent inspections. Environment Canterbury was found to be following the guidelines consistently.

Possibly the most important Environment Canterbury initiative has been its involvement in the joint task force, set up with industry to implement initiatives aimed at improving awareness of dairy effluent management and compliance with resource consent requirements (see 6.2.6 below)

## 6.2 Dairy industry initiatives

The dairy industry has been active on a number of fronts in its efforts to reduce the environmental effects from dairy farming.

### 6.2.1 DairyNZ

DairyNZ, (formerly Dexcel) continued to promote the Farm EnviroWalk self-assessment checklist to help farmers identify practices on their farms that may lead to contamination of waterways<sup>8</sup>. This self-assessment is accompanied by a technical support manual that provides information about effluent, nutrient and land management issues.

DairyNZ has also taken a lead role in the group of industry representatives and Environment Canterbury, who have established a plan of action to raise levels of dairy effluent compliance in the Canterbury region. This group was established during the 2008-2009 season and has continued to implement its action plan throughout the 2009-2010 season. The key outcomes from the formation of this group are:

- Increased farmers action to ensure they comply with the conditions of their resource consents;
- Increased farmer awareness that Environment Canterbury and the dairy industry are united in their efforts to improve performance in this area;
- Farmers having better information on what Environment Canterbury will be checking for during compliance visits;
- Environment Canterbury and industry reviewing consent conditions to ensure they are fit for purpose.

Throughout 2009-2010 and beyond, a number of other programme components have been developed including:

- The release of a series of 'Let's get it right' farmer to farmer cards with examples of what farmers are doing to 'get it right.' These will be distributed to all dairy farmers in the region;
- Staff training programmes;
- Initiatives to reduce system failures and improve maintenance levels including discussions with suppliers and designers.

### 6.2.2 Dairying and Clean Streams Accord

The Dairying and Clean Streams Accord<sup>9</sup> is a voluntary agreement between Fonterra, the Ministry for the Environment, the Ministry of Agriculture and Forestry and regional councils. This was established in May 2003 and is essentially an industry initiative to achieve positive environmental outcomes.

The Accord aims to minimise the impact of dairying on New Zealand's streams, rivers, lakes and wetlands so that they are suitable, where appropriate, for fish, for drinking by stock and for swimming. The Accord specifies targets to keep dairy cattle out of streams, lakes and wetlands, to treat farm effluent, and to manage the use of fertilisers and other nutrients.

Environment Canterbury remains supportive of the Accord as one of the tools available to assist in maintaining and enhancing water quality in the region. It also needs to be

<sup>8</sup> [www.dairynz.co.nz/farmenviowalk](http://www.dairynz.co.nz/farmenviowalk)

<sup>9</sup> <http://www.mfe.govt.nz/issues/land/rural/dairying-accord-may03.pdf>

acknowledged that the water quality issues being faced today are often the results of decades of land use, and improvements in water quality may take longer to achieve.

### **6.2.3 Fonterra**

Fonterra's main focus in the area of effluent management is to provide support and advice to farmers to achieve ongoing compliance and best practice with farm dairy effluent. From the start of the 2010-2011 season there will be additional initiatives commencing that will provide for financial deductions or the non-collection of milk under certain circumstances.

Fonterra's Canterbury Sustainable Dairying Team has additional staff available in the 2010/11 season to provide one-on-one support to farmers. This team help farmers address environmental issues on farm, while also supporting a range of initiatives to continuously reduce the industries environmental footprint.

These initiatives include:

- Continuing with the program to deliver the Farm EnviroWalk to all farmers. This is a self assessment checklist to determine any areas of risk in a farm's environmental performance;
- 'Every Farm, Every Year' is a new initiative announced in April 2010, that will result in the effluent system on every farm that supplies Fonterra being checked on an annual basis, during the annual shed inspection;
- The Effluent Improvement System imposes financial deductions on farmers where the regional council issues an infringement notice or prosecutes a farmer for a significant or major breach of their effluent disposal requirements. A deduction of \$1500 or \$3000 respectively will be made from the farmer's milk payments. The farmer can apply to put this money towards advice, training or upgrades to the effluent disposal system instead of paying it to Fonterra;
- The Sustainable Dairying Team follow-up with all farmers who are either found to have significant or major non-compliance in regard to effluent disposal, or who are identified as being at risk through the 'every-farm every-year' check. This will usually involve a site visit and in most cases the development of an effluent improvement plan;
- In cases of serious or persistent non-compliance where the farmer is unwilling to address the issue, the collection of milk from the farm may be suspended until the issue is addressed;
- Fonterra also requires full compliance with the Clean Streams Accord requirements for all new suppliers.

### **6.2.4 Synlait**

Synlait Milk has implemented or is planning to implement the following initiatives.

For the 2009-2010 season the following programmes have been implemented:

- A penalty scheme which sees non-compliance penalised financially. Where there is repeated non-compliance the farmer will develop a work programme in consultation with Synlait. If after two years it is not met and/or there is still non-compliance, then the contract will be terminated. Any fines will be put into training and education programmes;
- Completion of on-farm, farm by farm, training programme, including effluent training days for all staff on farms;
- Farm Operational Plans and Guidelines prepared and implemented for all farms;
- Farmers were strongly encouraged to complete the Farm EnviroWalk;
- Lincoln University students and Synlait worked together to develop on-farm reporting and environmental accreditation programme.

For the 2010-2011 season the following programmes will be implemented:

- Completing the Farm EnviroWalk becomes a compulsory term of supply;
- Compliance with the Clean Streams Accord will be a compulsory term of supply;
- Reporting and monitoring requirements under Synlait Farm Dairy Quality Manual;
- Environmental Awards for Synlait Suppliers;
- Progress towards environmental accreditation for the factory and Synlait Farms.

### **6.2.5 New Zealand Dairies Limited**

NZ Dairies Ltd. has implemented or is planning to implement the following initiatives:

- A program to deliver the Farm EnviroWalk program to all suppliers by the end of the 2010-2011 season;
- Checks of effluent systems and consents during farm visits to gauge compliance;
- All non-complying farms contacted and supported to achieving full compliance  
Environmental performance considered in contract negotiation.

### **6.2.6 Primary sector water partnership**

The Primary Sector Water Partnership is a group of major primary sector organisations, including Federated Farmers, Fonterra, DairyNZ and Irrigation New Zealand.

The main goal of the Primary Sector Water Partnership plan in the agricultural sector is to improve water quality and quantity within 5 years. This is to be achieved through working in partnership with central and local government to develop sustainable water strategies and implement nutrient management budgets.

## **6.3 Joint Initiatives**

The 2007-2008 dairy report was discussed at length with the dairy industry, to formulate initiatives to improve compliance levels. This meeting was held in conjunction with representatives of Fish and Game and Forest and Bird, in recognition of the fact that all stakeholders have a strong interest in achieving a sustainable dairy sector, which can deliver on the key environmental outcomes.

The Canterbury Dairy Effluent Group was set up with representatives from DairyNZ, Federated Farmers, NZ Dairies Ltd., Synlait, Fonterra, South Island Dairying Development Centre (SIDDC) and Environment Canterbury. This group has progressively implemented initiatives that are aimed at improving awareness of dairy effluent management and compliance with resource consent requirements (see Section 6.2.1). Environment Canterbury has supported and actively been involved in these initiatives, providing technical support and regional dairying data where appropriate. In addition Environment Canterbury is undertaking a review of all consent conditions on farm dairy effluent consents to ensure that they are fit for purpose.

Environment Canterbury's work in assessing compliance over several seasons has resulted in a clarification of what are the common issues facing dairy farmers with respect to complying with resource consent conditions, and what are the typical obstacles to achieving full compliance. The task force has adopted an industry-wide approach to developing practical solutions to the issues and overcoming the obstacles. This has resulted in industry and Environment Canterbury establishing clear and consistent messages when communicating the nature of the issues and the options available to resolve them. This has resulted in farmers knowing clearly what is required and both industry representatives and Environment Canterbury officers giving consistent and practical advice. Following on from

this, industry has committed additional resources to help farmers implement the right solutions on site.

## 7 2010-2011 DAIRY SEASON STRATEGY

Environment Canterbury will continue to support industry initiatives to educate and assist dairy farmers to dispose of dairy effluent appropriately and will be working closely with dairy industry representatives to address individual significant and major issues of non-compliance.

Table 7 shows the type of response likely to be recommended by an Environmental Protection Officer. Where non-compliance is not rectified by the end of the dairy season (see Section 5.5), and this non-compliance is repeated in the 2010-2011 dairy season, there is likely to be an increase in the use of prosecution as the most appropriate enforcement option.

When the Natural Resources Regional Plan becomes operative, all dairy farm effluent discharges, currently authorised by the permitted activity rules, will be required to be authorised by a resource consent, within six months of the plan becoming operative. An operative Natural Resources Regional Plan will also allow the storage of dairy effluent as a permitted activity, as long as the storage facility can accommodate a minimum of three days effluent. Storage ponds smaller than this will require a resource consent (see Section 5.6). Both these issues will require Environment Canterbury and the Canterbury Dairy Effluent Group to undertake educational and advisory initiatives to help the dairy farming community with the transition to an operative plan.

**Table 7, Probable enforcement action.**

<b>Probable enforcement action</b>	
<b>Non compliance</b>	<b>Probable response</b>
Significant or major non-compliance where there is no history of similar breaches in the past.	<ul style="list-style-type: none"> <li>• Formal warning; or</li> <li>• Abatement and/or infringement notices in severe cases; and</li> <li>• Re-inspection to ensure compliance achieved.</li> </ul>
Repeated significant or major non-compliance.	<ul style="list-style-type: none"> <li>• Abatement and infringement notices; or</li> <li>• Prosecution; and</li> <li>• Re-inspections with repeated infringement notices until compliance is achieved.</li> </ul>
Ongoing significant or major non-compliance where multiple infringement notices have not resulted in compliance being achieved.	<ul style="list-style-type: none"> <li>• Prosecution; and</li> <li>• Continued increased monitoring frequency in coming seasons until such time as history of compliance is established.</li> </ul>
Discharge which results in a direct discharge to a surface water body or to groundwater (i.e. via a soak hole)	<ul style="list-style-type: none"> <li>• Prosecution; and</li> <li>• Continued increased monitoring frequency in coming seasons until such time as history of compliance is established.</li> </ul>

The approaches that Environment Canterbury will take to address the different levels of non-compliance are detailed below.

### **7.1.1 Minor non-compliance**

The majority of non-compliance identified by Environment Canterbury Environmental Protection Officers falls into the minor category. These minor breaches, however, can often be an indicator of actions, which in time, may lead to a more significant breach of resource consent conditions. Addressing minor non-compliance is extremely important. By proactively addressing minor non-compliances, resource consent holders can reduce the risk of a significant or major non-compliance in upcoming dairy seasons. Environment Canterbury will therefore be providing clear guidance to dairy farmers on what is required to rectify minor non-compliances, and where appropriate undertaking an increased level of follow-up inspections to ensure that they are rectified.

A letter and copy of the farms consent(s) has also been sent to all dairy farmers reminding them to check that they are complying with all the conditions on their consent(s) at the start of the 2010-2011 dairy season to ensure that any issues are dealt with early.

### **7.1.2 Significant and major non-compliance**

The use of the enforcement tools available to Environment Canterbury will be continued in the 2010-2011 dairy season to address significant and major non-compliances.

During the 2010-2011 dairy season, dairy farms that are assessed as having significant or major issues of non-compliance will be monitored with increasing frequency until there is confidence that a level of compliance can be maintained. Where compliance is not achieved, Environment Canterbury will take enforcement action against farm employees, owners, companies and directors. Abatement notices will continue to be issued where it is appropriate to do so. Environment Canterbury will issue infringement notices for breaches of abatement notices.

Environment Canterbury will also recommend prosecutions if applicable. Recommendations to prosecute will be made in extreme cases of non-compliance. An example includes, but is not limited to, non-compliances such as direct discharges to water. However, these incidents remain relatively infrequent in Canterbury.

## **8 CONCLUSION**

Monitoring of 861 dairy effluent resource consents and permitted activities, conducted by Environment Canterbury during the 2009-2010 dairy season, showed an improvement in compliance with resource consent and permitted activity conditions. Both methods of analysis used in this report, resource consent-based compliance and condition-based compliance, showed improvements in comparison with the previous four monitoring seasons.

Forty four resource consents and permitted activities were not monitored during the 2009-2010 dairy season, but these made up only 5% of the total.

An analysis of rainfall versus dairy effluent ponding compliance indicated that there is a trend between rainfall and dairy effluent ponding. Years with higher than average rainfall appear to result in higher than average non-compliance with dairy effluent ponding.

An analysis of compliance by territorial authority showed the majority of Canterbury's dairy farms (53.6%) are in either the Ashburton or Selwyn districts. This breakdown by geographical area will help to focus and refine education and outreach efforts to improve dairy effluent resource consent and permitted activity compliance.

There were still several common issues found during compliance monitoring site inspections. Exceedence of undiluted dairy effluent limits, nitrogen loading, and dairy effluent ponding were among the most common reasons for non-compliance, although these were lower than

in previous seasons. Discharge of dairy effluent within buffer zones and directly to water were found to a lesser extent.

Environmental Protection Officers also recognised many good practices on dairy farms during the monitoring season. Many farm owners or managers go beyond their consented conditions to improve their environmental performance. Environment Canterbury appreciates the ongoing efforts and cooperation of these dairy farms.

The number of abatement notices and infringement notices issued was below last years levels. The higher level of full compliance contributed to achieving this, as well as the combined Environment Canterbury / Industry Group initiatives to increase awareness of the importance of good farm dairy effluent management. Prosecutions for serious offences remained static in comparison to previous seasons.

Where there was significant or major non-compliance and/or enforcement action taken, a re-inspection was conducted. Following re-inspection, a majority of dairy farms attained full compliance. Again, this level of successful resolution was an improvement on previous years. Those that did not will be a priority for the 2010-2011 dairy season. Due to the seasonality of the industry, no action can be taken until the next dairy season.

Environment Canterbury and the dairy industry both continue initiatives and working together to improve compliance within Canterbury. Efforts will continue into and beyond the 2010-2011 dairy season.

## **9 ACKNOWLEDGEMENTS**

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## Appendix 1, Standard Compliance Grades

Non compliance issue	Typical grade	Typical causes	Resolution advice	Likely Environment Canterbury follow up
Minor ponding identified	2	<ul style="list-style-type: none"> <li>Travelling irrigator speed setting too low.</li> <li>Failure to shift travelling irrigator.</li> </ul>	Reduce rate of application. Assess system for faults. If fault found repair.	Advice given in Compliance Monitoring Report (CMR). Possible re-inspection.
Significant ponding identified	3	<ul style="list-style-type: none"> <li>Travelling irrigator malfunction.</li> <li>Hose breakages.</li> </ul>		Advice given in CMR. Farm will be re-inspected. Possible infringement and/or abatement notices issued.
Severe ponding identified	4	<ul style="list-style-type: none"> <li>Poor equipment maintenance.</li> <li>Storage facility overflow</li> </ul>		Possible major system fault. Have system assessed by qualified advisor.
Nitrogen overload	2, 3 or 4 depending on severity	Insufficient disposal area used for the number of cows being milked.	Extend the disposal area to ensure that nitrogen application does not exceed 200 kg/ha/yr. (approximately 3.3 ha/100 cows), <u>or</u> reduce number of cows being milked.	Advice given in CMR. Date given before which the disposal area is to be extended or herd size reduced. The size of the disposal area will be fully assessed the following season to ensure that it has been extended.
Undiluted effluent exceeded (applies to resource consents only, not permitted activities).	2, 3 or 4 depending on severity	Failure to apply for a change in consent conditions when increasing herd size.	Application to be made to change the relevant consent condition. This will require an assessment to ensure that the environmental effects of the increase are nil or minor.	Advice given in CMR that undiluted effluent volume has been exceeded. An application to change the relevant condition of the resource consent, or a new consent, is required to be made prior to a specified date.
Any increase in effluent volume where the disposal is being carried out as a permitted activity.	2, 3 or 4 depending on severity	Failure to apply for resource consent when increasing herd size.	Apply for a resource consent to discharge effluent onto land.	Advice given in CMR that a resource consent is now required. An application is required to be made prior to a specified date.
Effluent discharge to water (including where effluent is running off into surface or ground water).	4	<ul style="list-style-type: none"> <li>Effluent application rate on disposal area too high, resulting in runoff to surface water or soak-hole.</li> <li>Storage facility overflow</li> <li>Pipe breakage</li> </ul>	Cease discharge immediately.	Enforcement action will be taken, likely to result in prosecution.
Effluent disposal within buffer distance around a watercourse, groundwater bore or soak-hole.	3	Failure to identify location of waterway, bore or soak hole when setting up travelling irrigator.	Move irrigator to outside the restricted area.	Advice given in CMR. Likely to be re-inspected. Enforcement action may be taken such as abatement notice.
Failure to provide evidence that effluent storage facility is sealed.	2	Failure to provide evidence that effluent storage facility is sealed.	Either: <ul style="list-style-type: none"> <li>Provide documentation showing that the storage facility is appropriately lined; or</li> <li>Test the storage facility to show that it is sealed to the required standard; or</li> <li>Have the storage facility lined and provide evidence that it has been completed.</li> </ul>	Advice given in CMR that evidence needs to be provided. Continued failure to provide information may result in enforcement action. Continued non-compliance may result in higher severity of non-compliance.
Failure to install adequate backflow prevention where effluent is being injected into irrigation water.	3	Failure to identify the requirement on the resource consent for a backflow prevention device to be installed.	Install an appropriate backflow prevention mechanism recognised as acceptable by Environment Canterbury.	Advice provided in CMR that an appropriate backflow prevention system is to be fitted to the bore. Failure to have a system fitted within a specified timeframe may result in enforcement action.