

Winery Wastewater & Grape Marc Monitoring Report

(Clr Barsanti) (Report prepared by Jane Robertson)

E330-002-004

Purpose

1. The purpose of this report is to inform Council of the Compliance Group's ongoing monitoring of the discharge of winery wastewater and grape marc to land for the period 1 June 2014 – 31 May 2015.
2. **Jane Robertson will provide a short presentation on winery wastewater and grape marc monitoring (15 minutes).**

Background

3. Council has been monitoring the land application of winery wastewater annually since 1999 with reports being produced since 2005.
4. The 2015 New Zealand Winegrowers Annual Report indicates that nationally the 2015 harvest of 326,000 tonnes was down 27% on the 445,000 tonnes crushed in 2014. The value of New Zealand wine exports grew a further 7% to reach a new record of \$1.42 billion this year. This pushed wine to become New Zealand's sixth largest export by value. Sauvignon blanc was an 86.5% share of total export volume. In terms of future supply there has been a strong trend towards new plants over the last two years and an increase of 700 hectares of producing area is forecast over the next two years.
5. In 2015 Marlborough had a 71.5% proportion of the grapes harvested in New Zealand (down from 76.7% last year); with 23,203 producing hectares (up from 22,903 producing hectares last year) and 233,182 tonnes processed (down from the record 329,572 tonnes processed in 2014 and the 252,000 tonnes processed in 2013).
6. Liquid waste from the winemaking process predominantly consists of water used for cleaning floors, equipment, fermentation tanks and barrels. Liquid waste is typically seasonal in nature, with the greatest volume generated at vintage time.
7. Winery wastewater can contain some constituents that are of environmental concern. Poor management of the land application of winery wastewater can lead to contamination of surface and ground water and adversely affect soil and plant health.
8. Grape marc is the solid end product once grapes have been pressed for juice. It contains seeds, stems, skins and pulp. In 2015 an estimated 35,000 tonnes of grape marc was produced by Marlborough wineries (down from an estimated 50,000 tonnes last year).

Where monitoring was undertaken

9. There are thirty-seven wineries in Marlborough that discharge winery wastewater to land. Thirty-one wineries are located in the Wairau Plains, one is located north of Blenheim and five are located in the Awatere area. For the 2014/2015 monitoring period thirty-six wineries were inspected.
10. The eleven wineries in the Riverlands and Cloudy Bay industrial zones that discharge directly to trade waste and three wineries in the rural zone that have their wastewater taken off site were not monitored for this monitoring period. No complaints were received for these wineries so they are not discussed further in this report.

How monitoring was undertaken

11. The thirty-seven wineries that discharge wastewater to land were monitored according to resource consent conditions and/or the permitted activities provisions under the Wairau/Awatere Resource Management Plan (WARMP). Inspection templates were forwarded to wineries prior to

vintage highlighting what information and records are required from them to demonstrate compliance with resource consent conditions and/or WARMP permitted activity standards.

12. Resource consent conditions for discharge of winery wastewater to land are imposed based on the individual wastewater systems and local environments; therefore, conditions vary for each winery. Only twelve wineries are required to undertake annual soil sampling as part of their resource consent conditions (two wineries undertaken sampling every two years) to assess what effect wastewater application is having on soil properties.
13. The WARMP permitted activity standards for discharge of winery wastewater include: annual wastewater sampling (parameters of biological oxygen demand, faecal coliforms, pH); odour; nitrogen loading to the land; discharge rate; buffer zones to boundaries and water bodies; and no discharges into surface water bodies.
14. The grape marc storage at the wineries was inspected. Additional monitoring was also undertaken for the wineries that compost and/or spread grape marc directly to land to ensure appropriate location, leachate collection and compliance with the WARMP standards.
15. Meetings and discussions were held with some wineries and consultants to discuss areas of non-compliance and expectations for the 2015 vintage. These wineries responded positively to the requirement to undertake corrective actions identified and have demonstrated a willingness to undertake improvements to their operations and/or recording systems. There have been pleasing improvements in the compliance levels of these wineries.
16. A traffic light system was used for the third year to determine the compliance with consent conditions or plan rule permitted activity standards. The feedback from wineries is that this is a positive, useful and welcome approach to monitoring. Conditions or rules assessed as;
 - **Green** are compliant and no action is required;
 - **Amber** are assigned for relatively minor breaches requiring some corrective action;
 - **Red** are non-compliant and remedial actions may be required; and
 - **Yellow** are technically non-compliant for minor breaches with no-adverse environmental effects.

Monitoring results

17. Thirty seven wineries submitted information (e.g., annual reports, wastewater and/or soil sample results) and data (e.g., records of daily wastewater volumes, discharge dates, disposal area sizes, pH) to demonstrate compliance. Follow up was needed with some wineries to clarify the information and/or data provided.
18. For the 2015 vintage there were only two wineries which processed more than the previous year, three had a similar production level and the remaining thirty-three wineries had a decrease in the volume of grapes crushed. Eleven of the wineries monitored had significantly less grapes crushed when compared to the previous year.
19. There was a large range in processing capacity from the smallest rural winery which crushed 50 tonnes to the largest two rural wineries processed just over 20,000 tonnes. This is substantially less than one of the wineries which crushed over 29,000 tonnes last year.
20. As a result of the smaller 2015 harvest, less wastewater was produced. For this monitoring period it had been also been extremely dry prior to vintage and there was no heavy rain over vintage time like in the previous year. There were no issues of ponding wastewater observed during the vintage inspections. There was one instance of ponding reported to Council which occurred over the long Easter break due to a pipe failure and the discharge was then stopped to this disposal area.
21. Most wineries have taken on board the comments and recommendation from the previous 2013/2014 compliance reports. In general record keeping is improving.

22. In the last year, eight wineries have increased their wastewater disposal area, five wineries had replanted or ripped there disposal areas and four wineries have upgraded their wastewater systems.
23. This year nine (24.3%) wineries (up from six (18%) wineries in 2014 & two (5%) wineries in 2013) were fully compliant with all conditions or rules and were assessed as **green**. A **technical non-compliance** rating was introduced this year and 5 (13.5%) wineries received this rating. Four (10.8%) wineries (up from two wineries in 2014) were assessed as **amber** with one or more conditions. Twelve wineries (32.4%) (up from 6 wineries (18%) in 2014) had only one condition or rule assessed as **red**. Seven wineries (19%) (down from twenty (59%) in 2014) had two or more conditions or rules assessed as **red** and/or **amber**.
24. The most common areas of non-compliance for this monitoring period were for exceeding the permitted ranges on one or more occasions for faecal coliforms (12 wineries down from 17 wineries last year), discharge volumes and /or discharge rates (5 wineries), pH (2 wineries down from 8 wineries last year) and biological oxygen demand (BOD₅) (2 wineries down from 4 wineries last year). Some other breaches included exceeding total nitrogen loadings (2 wineries) and not including all parameters in wastewater or soil sampling. These breaches were not considered significant enough to warrant enforcement action and no adverse environmental effects were observed at the time of the site inspections
25. This vintage there were no significant issues with grape marc as the volume was down and the grape marc was much drier than last year. Inspections at the wineries did not identify significant discharge issues, problems with leachate collection and/or odour. Four wineries had made improvements to their grape marc pads on site. Thirteen wineries compost their grape marc on site and then spread it under vines as a soil conditioner. Eight wineries spread their grape marc directly to land. Seven wineries had their grape marc taken off site for stock feed. The rest of the rural wineries and all of wineries located in the industrial zone have their grape marc transported offsite for compost, stockpiling and/or stock feed by farmers

Future activities

26. The 2015/2016 season will continue to focus on education about the criteria required for consent conditions and plan rule standards. This is to ensure accurate data and records are provided to Council to demonstrate compliance.
27. For the 2016 vintage there will be continued focus on checking the sites where grape marc is composted, stored and/or discharged directly to land to ensure that any adverse environmental effects are minimised or averted.
28. Due to potential issues of concern about excessive concentrations of potassium [K+], sodium [Na+] and higher soil pH a Scoping Report on Winery Wastewater Discharges has been prepared for the Council by AgResearch Ltd in August 2015. This was to ascertain the impact winery wastewater disposal is having on soil health and water quality. This review highlighted a number of potential gaps in data that should be addressed to enable the Council to be better placed to assess the effects of winery wastewater on soil health and water quality.

Comments

29. Industry has responded positively to the traffic light rating system as it allows wineries the opportunity to remediate inadvertent breaches and improve operations and management of the wastewater systems.
30. Based on the information provided for Council's compliance reports for the 2014/2015 season, the Compliance Group considers that some wineries still need improved record keeping for the entire reporting period.
31. It is anticipated that the ongoing communication with wineries will continue to lead to greater understanding of the requirements for the discharge of wastewater to land, which should result in more wineries being fully compliant. More importantly, environmental impacts will be identified and remediation actions can be implemented early.

32. Wastewater and grape marc are industry issues which need careful management to ensure that there are no adverse environmental effects.

Summary

33. The Compliance Group is continuing to take a proactive and constructive partnership approach to monitoring the discharge of winery wastewater and grape marc with education and relationship building being key objectives. Consequently, good co-operation is received from the industry. The emphasis is on continuous improvement to ensure that environmental impacts are minimised or averted and compliance costs to both the Council and wine companies are minimised. However, if there is significant non-compliance and adverse environmental effects Council will take the necessary enforcement action.

RECOMMENDED

That the information be received.