

## Memo

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Date	14 November 2017
To	OTOP Zone Committee
CC	
From	Lyn Carmichael

### Managing the risk to water quality posed by deer farming on sloping land

#### Background

Research has indicated that the fence-pacing and wallowing of deer causes soil compaction and is a significant source of soil loss and overland flow of contaminants in catchments containing deer, particularly on sloping land (McDowell, R. W. 2009). Overland flow from deer grazing on winter forage crops is also considered an important source of contaminants that have the potential to adversely impact water quality (McDowell, R. W., & Stevens, D. R. 2008).

Many of the farms that include deer in the OTOP zone occur on sloping land and have either a direct connection to surface waterbodies or have potential for overland flow to surface water. In previous workshops the Zone Committee has raised the risk that deer farming can pose as a major contributor of sediment to waterways and has asked for some analysis of where the deer farms are occurring on sloping land and how many of these are likely to require consent under PC5.

#### Purpose

The purpose of this paper is to:

- a. Revisit the decision area on managing deer farms and provide an assessment of the farms likely to be carrying deer and where they occur in the catchments
- b. Provide options for managing the risk of run off from deer farms utilising Farm Environment Plans and Management Plans

#### Analysis of Deer Farms on High Risk Soils

The areas where deer farms have been identified in Agribase data for the OTOP zone from the 2016 year are shown on the attached map (Appendix 1). The map also identifies the farms that are above and below 50ha in total area and shows the area mapped as a High Runoff Risk Phosphorus Zone (HRRPZ) in Plan Change 5. The HRRPZ identifies soils that are likely to result in runoff when under pressure from stock, high rainfall, cultivation and other management. Most of the deer farms above 50ha in size have at least some of the farm property within the HRRPZ. Of those farms above 50ha that are not within the HRRPZ, the majority are on irrigated land that will require a consent and a Farm Environment Plan under PC5 (Table 1).

The farms identified as deer farms that are between 20ha and 50ha in size are equally divided between those that have area covered by the HRRPZ and those which occur outside these zones. The deer farms smaller than 50ha are predominantly in the Levels Plain and the Temuka catchments.

*Table 1 Deer farms in the OTOP zone that are either within or outside the High Runoff Risk Phosphorus Zone and are either likely or unlikely to require resource consent under PC5*

Farm area	In HRRPZ unconsented under PC5	In HRRPZ consented under PC5	Total in HRRPZ	Outside HRRPZ unconsented under PC5	Outside HRRPZ consented under PC5	Total outside HRRPZ	Total Deer Farms in OTOP
<20 ha	7	0	7	12	0	12	19
20-50 ha	12	1	13	13	0	13	26
>50 ha	44	22	66	6	9	15	81

## Consent Options for Managing Deer Farms

The amendments to the LWRP in Part A of Plan Change 5 include policies and rules on the management of nutrients which will require all farming activities on more than 10 ha to implement either a Management Plan or a Farm Environment Plan. Permitted farming activities will be required to prepare a Management Plan, which will include the mapping of critical source areas for overland flow of contaminants to surface water. The higher risk farming activities with irrigation over 50ha and/or the intensive winter grazing of cattle will require a resource consent that directs them to prepare and implement a Farm Environment Plan that is audited to ensure farming in accordance with good management practice (GMP) and the effective management of critical source areas. The consented pathway for these properties will also require the preparation of an OVERSEER (or approved equivalent) modelled nutrient budget that will be registered with the farm portal.

An additional option exists for high risk farming activities that do not reach the thresholds for requiring resource consent under Plan Change 5, but are farming activities which pose a risk for the runoff of contaminants. These properties could be required to hold a resource consent that directs them to prepare and implement a Farm Environment Plan that is audited, but does not require them to prepare a nutrient budget. This would ensure the effective management of critical source areas for overland flow of contaminants, while reducing the cost associated with preparing and submitting a nutrient budget.

### Key Decision Area: Regulate High Risk Deer Farming Operations

**Option 1:** The Zone Committee recommends that for deer farms over 10ha in size in the High Runoff Risk Phosphorus Zones, this activity be subject to a resource consent requiring a Farm Environment Plan

**Option 2:** The Zone Committee recommends that for deer farms over 20ha in size in the High Runoff Risk Phosphorus Zones, this activity be subject to a resource consent requiring a Farm Environment Plan

**Option 3:** The Zone Committee recommends that for deer farms over 50ha in size in the High Runoff Risk Phosphorus Zones, this activity be subject to a resource consent requiring a Farm Environment Plan

**Option 4:** The Zone Committee recommends that for deer farms over 50ha in size in the High Runoff Risk Phosphorus Zones, this activity be subject to a Farm Environment Plan and that provision be made for the monitoring of Management Plans for deer farms under 50ha in size as permitted activities in high risk and priority areas

**Option 5: The Zone Committee recommends to council that provision be made for the monitoring of Management Plans for deer farms as permitted activities in high risk and priority areas**

**References**

- McDowell, R. W. (2009a). Maintaining good water and soil quality in catchments containing deer farms. [Article]. *International Journal of River Basin Management*, 7(3), 187-195. doi: 10.1080/15715124.2009.9635382
- McDowell, R. W., & Stevens, D. R. (2008). Potential waterway contamination associated with wintering deer on pastures and forage crops. [Article]. *New Zealand Journal of Agricultural Research*, 51(3), 287-290.

Appendix 1: Properties farming deer in 2016 shown over the High Runoff Risk Phosphorus Zone

