

# Eruption's agricultural risk analysed

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Massey post-doctoral fellows Dr Anke Zernack and Natalia Pardo test ash from the Mt Tongariro eruption

(Phys.org) -- Massey University researchers say ash from this week's Mt Tongariro eruption poses no great human health or agricultural threat.

Massey University's Volcanic Risk Solutions and the Fertiliser and Lime Research Centre, together with University of Canterbury researchers, tested [ash](#) samples collected beside state highways 46 and 1, near the volcano, along with one sample collected from Gisborne.

Professor Shane Cronin says initial tests show moderate levels of soluble Fluorine. “Concentrations between 20 and 70mgF/kg of ash were measured, which is in a similar range to the widespread volcanic ash produced during the 1995 and 1996 eruptions of Ruapehu,” he says. “Due to the restricted distribution and very thin ash fall, this currently poses no current human health or agricultural threat beyond the immediate vicinity of the volcano. In addition, heavy rainfall since the [eruption](#) has removed much of the ash and associated contaminants.”

If future, larger eruptions of Mt Tongariro also produce ash with similar concentrations of Fluorine, a significant agricultural hazard can be anticipated. “Ashfall can impact pastoral grazing systems by covering pasture, meaning that it is ingested by grazing sheep, cattle and deer,” Professor Cronin says. “Further, livestock drinking water in open troughs may be contaminated. Additionally, rural dwellers with roof-catchment drinking water sources should be vigilant in avoiding ash runoff into water tanks. During and immediately following ashfall the intake pipe to water tanks should be disconnected until ash has washed off the roof with rain.”

In grazed pastoral systems, following ash cover, some livestock will be put off grazing by the high levels of acidic and abrasive ash, while others will continue to graze. If supplementary feed is unavailable, this may lead to starvation of stock, especially pregnant or lambing/calving stock that face high energy demands at this time of year.

Professor Cronin says if significant ash is ingested along with pasture, livestock are also at risk of the disease Fluorosis. “Experience from the 1995-96 eruptions has shown that ash coverings greater than two millimetres, low-grazed pastures, and low rainfall following ash deposition are critical factors increasing hazard.”

Deaths of stock normally begin 4-10 days after ashfall if no

supplementary feed is available. Heavy or persistent rainfall quickly disperses levels of ash and also rapidly leaches the fluorine, reducing the hazard considerably.

Professor Cronin says deer are likely to be the most susceptible to Fluorosis, followed by cattle, with sheep being the most resistant. Fluoride is absorbed rapidly by grazing animals from ingested ash or contaminated water – but in moderate levels it does not pass into milk.

In the event of future ashfalls he has the following advice for farmers:

- If ash fall exceeds 2mm or coats more than 50 per cent of pasture/feed crops, either move stock to less affected areas of the farm or supply supplementary feed.
- In these situations also refill stock drinking troughs from bore or river supplies.
- If ash has not washed off pastures after 2-3 days, raise the quantity of supplementary feed and monitor stock condition closely.
- In general, to reduce impacts from ashfall, maintain pasture length by regular rotation rather than close cropping. Longer pastures are less likely to be completely covered.

For rural residents with roof-fed tank water supplies:

- Temporarily remove downpipe connections to water tanks during and following ashfalls to protect stored water.
- If possible, wait until rainfall clears ash from roofs before reconnecting intake.
- Water affected by ash will appear turbid (cloudy) and may have a bitter taste. If this is the case, avoid drinking this water and seek

alternative supplies.

Provided by Massey University

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