



Information sheet: Cut and Carry Operations on Clay Target Shooting Ranges

Purpose: This information sheet provides guidance on the required management and testing for any cut and carry operations undertaken on clay target shooting ranges. This information sheet should be read in conjunction with the 'Food Safety & Animal Welfare Code of Practice for Clay Target Shooting Ranges'.

Provided the management and testing requirements outlined in this information sheet are met, cut-and-carry operations are permitted activities on clay target shooting ranges. In this case, the risk of livestock poisoning or contamination of milk or meat products arising from the deposition of spent lead shot on this land is considered to be minor.

Recommended management practices for cut-and-carry operations: Cut-and-carry operations are permitted on land covered by the Code of Practice, only for grass and provided that appropriate management and testing procedures are followed. Cut grass must be removed within four days, and no shooting is allowed while cut grass is on the ground. At minimum one composite sample is required from grass harvested from the area of greatest shot-fall and one composite sample from grass harvested from the area 0-100m and 140-250m from the trap. Samples should undergo visual inspection for any lead shot particles, and analysis of the total lead and dry matter content using qualified laboratories. If no lead shot particles are visible, and lead concentrations are less than 30 mg/kg (20% moisture, 37.5 mg/kg (dry weight)), harvested material is suitable for livestock feed. Records of results should be retained for 6 months after consumption of harvested grass.

Management

The risk of livestock poisoning or contamination of milk or meat products is mainly associated with the ingestion of lead shot debris, which may be captured in vegetative materials. As such, only grass is permitted for cut-and-carry operations.

To minimise the inclusion of soil particles with elevated lead or deposited lead shot in the harvested material, grass must be cut at 100 mm above the ground, and removed from the field within four days. No shooting is allowed until the cut grass is removed from the field.

Testing

Testing for lead is required on the harvested material. The main purpose is to verify, as far as practicable, that lead shot debris are unlikely to be present in baleage or silage produced from the harvested material. In addition, lead associated with plant uptake of soil lead and adhered soil particles will be assessed, although this is expected to be negligible (<5 mg/kg dry matter, most typically <2 mg/kg dry matter). Samples should be collected just prior to the removal of cut grass, with the primary focus being on grass harvested from the area 100-140m from the trap (or 80-100m from the trap if skeet shooting) as this is typically the area of greatest shot-fall. To provide a representative sample for analysis, ten sub-samples are used to form a single composite sample. This provides greater coverage of the area of potential shot-fall while minimising sample numbers for analysis. Samples should be placed in large paper bags immediately after collection. At minimum one composite sample is required from grass harvested from the area of greatest shot-fall and one composite sample from grass harvested from the area 0-100m and 140-250m from the trap. Samples of grass harvested in two areas (100-140m from the trap, and combined 0-100m and 140-250m from the trap) should be taken at a rate of 1 sample per two traps.

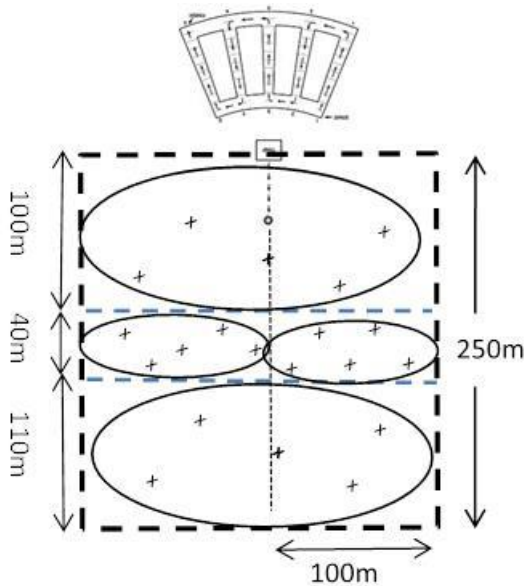


Figure 1. Generalised sample collection layout for assessing grass cut and carry operations at clay target shooting ranges. Ten sub-samples (x) should be collected in a rough zig-zag manner, and are used to form a single composite sample (oval). At minimum one composite samples are required from grass harvested from the area of greatest shot-fall (sub-samples within oval with the solid line) and one composite from grass harvested from the area 0-100m and 140-250m from the trap (sub-samples encompassed in ovals with dashed line).

Samples should be visually inspected for any lead shot debris by sample collector (by spreading collected sub-samples on a plastic tray and visually assessing) and results recorded. Verification of results is required by at least one independent party (e.g. environmental consultant) if sample is collected by gun club members. Samples should then be sent for analysis of lead and dry matter content by a qualified laboratory. Harvested material should not be fed to livestock until the results of analysis have been obtained and determined to meet the criteria specified below. The location of harvested material should be tracked and recorded, and records of results must be retained for 6 months after consumption of harvested grass.

Lead concentrations in the harvested material must be below 30 mg/kg (at 20% moisture, or 37.5 mg/kg dry matter) as specified in *European Commission DIRECTIVE 2002/32/EC on undesirable substances in animal feed*, for this material to be fed to livestock. As lead is a naturally occurring element in soil, low concentrations of lead are to be expected in the harvested grass. Laboratory results for lead concentrations will typically be provided on an “as received” (fresh weight basis). Dry matter lead concentrations can be determined from as received lead concentrations and dry matter content following:

$$\frac{\text{Lead (mg)}}{\text{kg (dry matter)}} = \frac{\text{lead mg/kg (as received, fresh weight)}}{[\text{dry matter content (g dry matter/100 g fresh weight)}]/100}$$

If no lead shot particles are visible, and lead concentrations are less than 30 mg/kg (20% moisture, 37.5 mg/kg (dry weight)), harvested material is suitable for livestock feed.

This Information Sheet is endorsed by:



Acknowledgement: The New Zealand Clay Target Association would like to acknowledge Dr Jo Cavanagh from Landcare Research who they commissioned to develop this Information Sheet.