HGCA

Topic Sheet No. 83

Summer 2005

Sampling grain during outloading

The challenge

Quality assurance schemes require farmers to collect and retain a representative sample from each lorry load before the grain leaves the farm.

However, no guidance is given on how to take a representative sample. The obvious methods (sampling the bulk before loading, manually collecting a sample from each bucket as it is loaded or sampling the loaded lorry) are either time consuming, not practical or unsafe. Considerable feedback shows a strong demand from farmers for a practical alternative.

Recently, a farmer has developed a novel device (see over) to collect a sample of about 150g each time a front loader bucket is filled. The sampler is robust and simple with no moving parts. All the individual bucket samples collected as the lorry is loaded are mixed in the sampler to form a composite sample. All the operator has to do is empty the sampler after each lorry has been loaded.

Test results

Sampling methods for lorries loaded with wheat or barley were compared at five sites. An automatic bucket sampler took samples as lorries were loaded. Then, the loaded lorries were sampled according to the agreed lorry sampling protocol (8 full depth spear dips/lorry). This protocol has been studied in depth (Project Report 339) and the samples were shown to be representative.

Samples collected by both methods were analysed with the same equipment and the results compared (Table 1). Both sampling techniques gave very similar results. Therefore, it can be concluded that the new automatic bucket sampler gives a representative sample of a lorry load of grain.

Action:

- **Consider fitting an automatic bucket sampler to your front loader as a safe, simple, effective way to gather a grain sample from each lorry loaded.**
- **Empty the bucket sampler into a suitable container once the lorry has been loaded.**
- **Mix thoroughly and divide the composite sample into two equal parts of at least 1kg each: give one to the buyer.**
- **Keep the retained farm half-sample in a sealed container for later analysis if necessary.**

Table 1. Mean values from several different assessments at different sites

Crop	Sample source	Nitrogen %/ (Protein %*)	Moisture %	Specific weight kg/hl	Screenings %
Malting barley	Front loader	1.79	12.6	71.5	1.7
	Lorry	1.78	12.7	70.8	1.6
Feed barley	Front loader	1.91	13.6	71.1	6.5
	Lorry	1.91	13.6	71.4	6.7
Feed wheat	Front loader	10.3*	14.1	77.8	2.4
	Lorry	10.3*	14.1	77.4	2.8

If you are unsure about any of the suggested actions, or want them interpreted for your local conditions, consult a professional adviser.

Sampling grain during outloading

A new sampler available

The front loader bucket sampler collected representative samples, suitable for quality testing.

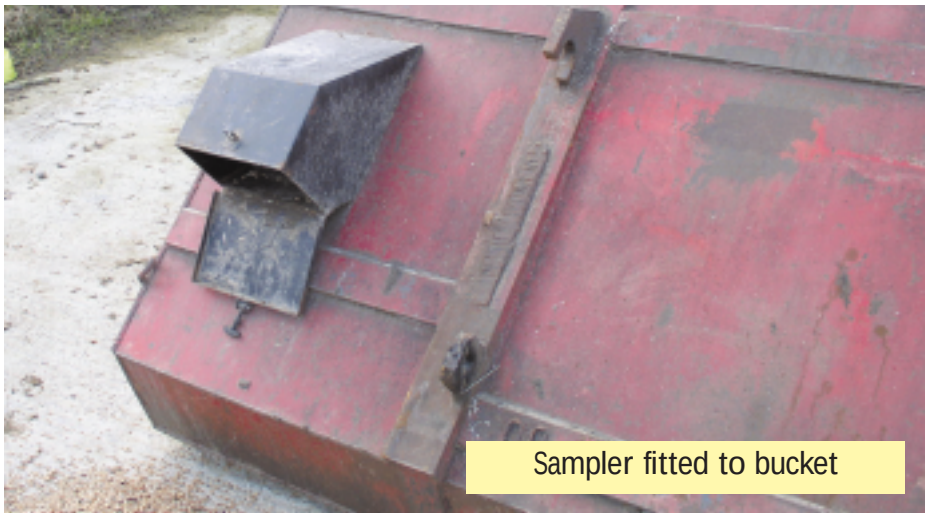
This new sampling technique proved easy to use. It did not delay loading, nor did it compromise operator safety.

The test results of 'bucket' samples agreed well with samples collected from lorries when 'best practice' recommendations were followed.

Samples were always large enough to sub-divide for both buyer and seller.

In future, routine use of a bucket sampler could provide a way to sample grain that meets the needs of both buyers and sellers.

Rear view showing inlet pipe



Sampler fitted to bucket

The sampler tested in this study was provided by Claydon Yield-O-Meter Ltd, Tel: 01440 820327, Fax: 01440 820642. A sampler is also available from Foxberry Farm, Tel: 01325 718792, but this one was not tested and any available from other suppliers also have not been tested.

Summary

To comply with assurance scheme requirements, grain must be sampled as it leaves the farm.

A project, managed by HGCA and funded by HM Treasury 'Invest to Save' through the 'Grain Sampling and Analysis Project', tested a new automatic bucket sampler. This proved to be an easy way to collect samples representative of the load for moisture content, specific weight, protein/nitrogen and screenings. Results compared closely with samples collected by end-users from the lorry.

Further information:

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Grain sampling – a farmers guide, HGCA (free)

Grain sampling from field to buyer – understanding variation, HGCA (free)

Project Reports 301,325, 339, 349, 362

Topic sheets are free

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