Grain Sampling Procedures

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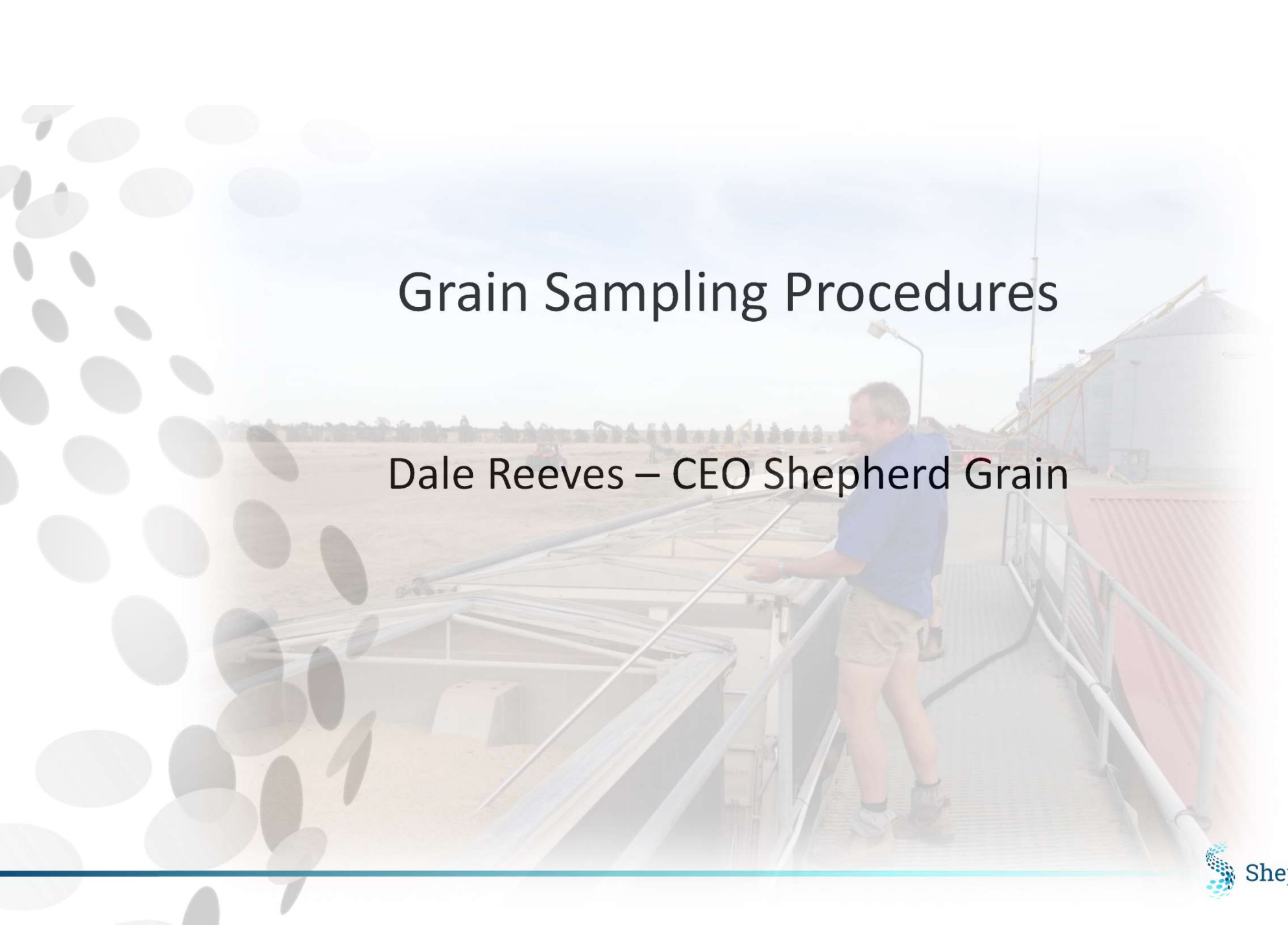


Shepherd Grain
www.shepherdgrain.com.au

What is Sampling?

- Obtaining grain from a nominated vessel for the purpose of assessment

Why a Receival Sample?

- To assess grains for grade and determine the results for quality that can then be used for contract compliance, segregation and any other purpose that defines execution by analysis.

What Standards Govern Sampling?

- There are no direct regulatory standards that govern sampling. The current guideline is an industry standard implemented to provide protocols for collection of samples for the purpose of determining grain quality for Trading Standards provided by Grain Trade Australia (GTA).

Types of Sampling Equipment

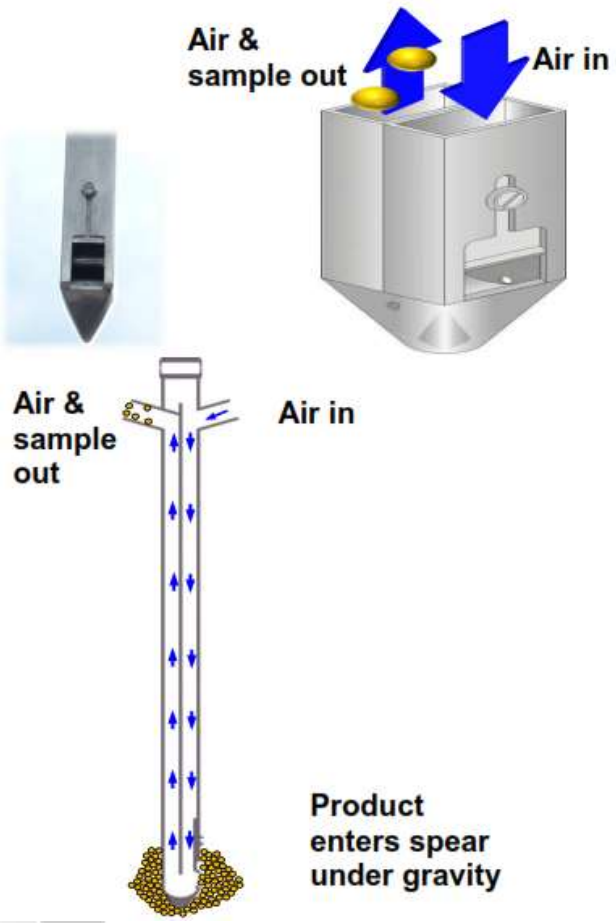
Manual Probes

- Still used for sample collection but least preferred method
- Difficult to retrieve sample without standing in the load (WHS issues)
- Grain capture is via an inner tube opening holes to allow grain to gravity into the collection tube
- Very hard to use with pulse commodities

Vacuum Probes

- The most preferred manual sampling device
- Easily retrieves grain from vessels without WHS issues
- Grain is collect by vacuum probe that suck grain and other contaminates into a central collection chamber with out damage
- Allows for even an sample collection over entire vessel (probe depth and angle)

Pneumatic and Hydraulic Driven Probes



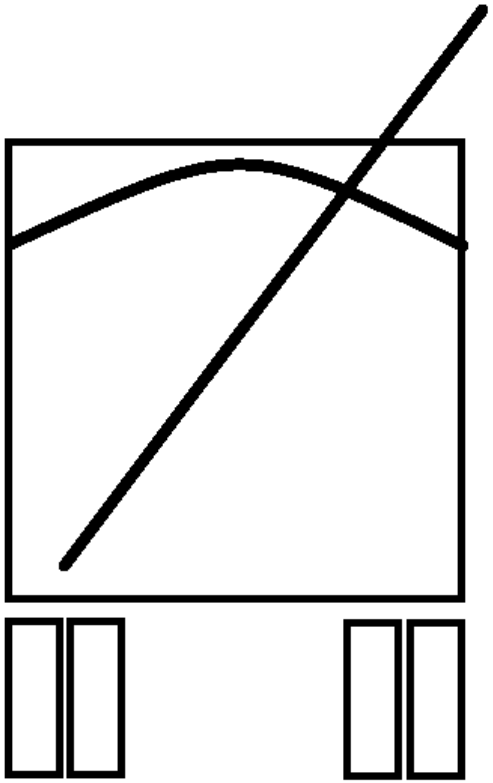
- The Pneumatic Probes that are Hydraulic driven are the most automated
- Hydraulics allow for a consistent sample depth and speed to obtain the most even sample of grain
- The air flow also conveys the grain gently to avoid any further damage to the sample
- Often Remotely operated, they offer the least amount of user fatigue
- Can be configured to sample vessels in the same position each time creating consistent results
- These are the highest cost to implement and are normally limited to sites that have high sample frequencies

Sample Collection Techniques

Other than manual probes, each vacuum device should follow simple guidelines for the collection of a sample

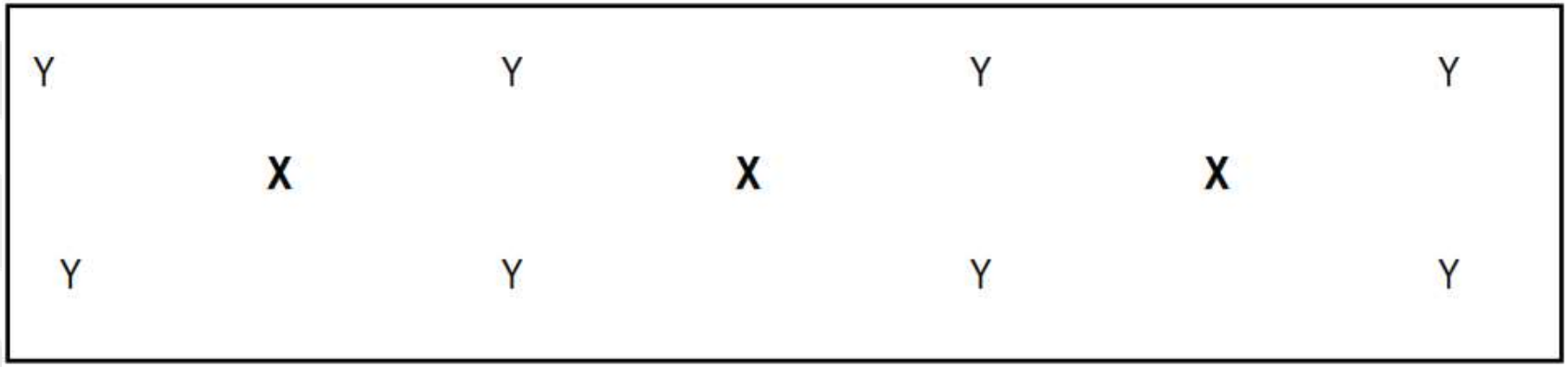
- Ensure that the probe is clean from any previous grain to reduce contamination
- The probe should enter the grain and be removed in one smooth action
- Only operate the probe when pushing the probe into the grain, never take a sample on the withdrawal
- Do not stop whilst drawing a sample, must be a consistent speed at all times
- Do not probe down walls or draw samples from one location (top or bottom of vessel)

Sample Probe Angles



Sample Collection Location

The below diagram shows typical sample collection locations



The X locations are the primary and minimum that must be drawn for any sized vessel
The Y locations are secondary locations when the vessel requires further sample to be collected to meet minimum volumes

Sample Collection Volume

Sample Volume is determined by the size of the load being presented
The table below shows the increase in sample collection of volume by the increase in sample sites in the load

10 tonnes or less	3 L / 3 probes
Over 10 tonnes and up to 20 tonnes	4 L / 4 probes
Over 20 tonnes and up to 30 tonnes	5 L / 5 probes
Over 30 tonnes and up to 40 tonnes	6 L / 6 probes
Over 40 tonnes and up to 50 tonnes	7 L / 7 probes
Over 50 tonnes and up to 60 tonnes	8 L / 8 probes
Over 60 tonnes and up to 70 tonnes	9 L / 9 probes
Over 70 tonnes and up to 80 tonnes	10 L / 10 probes

In this table it is depicted that each sample will draw a 1 litre volume of grain. The reality of sample probes is that it will not be an even scale so the final collection volume should equate to the above quota even if further probes are required
The more sample sites the better the representation of the load

Load Sampling vs Unit Sampling

There are many various methods of sample presentation

- Most common accepted is by presentation of a load. This is normally determined as the truck load which may consist of 1 (Single) up to 3 trailers (Type 1 Road Train)
    - In this instance samples are drawn from each trailer and combined into 1 sample before dividing for analysis.
- Loads can be sampled as individual vessels if it is deemed to be of varying grades and needs to be segregated
- A supplier of the grain may request truck vessels to be sampled individually and assessed separately

Further Resource

Grain Trade Australia
No.5 Static Grain Sampling – Road Truck
www.graintrade.org.au

Dale Reeves – 0427 922 744
Grain Trading / Export Logistics

John Shepherd – 0499 303 303
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