

# Grain Stirring for Bulk Stores

## Introduction

Grain stirring for on-floor and in-bin bulk drying systems has received a certain amount of attention from farmers over the last couple of seasons with several new systems on offer from UK and overseas manufacturers.

## How Grain Stirring Works

A number of vertical open pitched rotating augers suspended from a moving gantry traverse the store. The action of the augers causes a slow movement of grain from the bottom of the heap to the top. The gantry moves at a low speed (around 6in per minute) and in some instances the augers are arranged to move sideways down the length of the gantry. Some systems detect any undue resistance to the progress of the augers through the grain and halt the sideways and forward movement until the resistance is overcome.

Installations involve fitting into the store, a substantial steel rail or rails to carry the weight of the gantry and augers.

## Benefits of Stirring

In traditional bulk grain stores drying is carried out by blowing air through the deep bed of grain. This bed imposes a resistance to airflow which has to be overcome by the fan. Drying progresses from the bottom to the top of the heap and is characterised by an identifiable drying front, below which is the dry grain and above which is the grain to be dried.

The action of the stirring augers is to alter the conventional drying process in a number of ways.

The augers disturb the tendency of the grain to settle, resulting in less pressure for the fan to push against. Consequently, for a given fan, the drop in pressure causes the fan to deliver a greater volume of air. This additional volume helps to make drying quicker.

There is no longer a defined 'drying front' within the grain. The grain moisture content within the bed falls uniformly throughout the drying period. Therefore, overdrying of the bottom layers of grain, an expensive problem so commonly encountered with conventional systems, is avoided. The avoidance of overdrying is of greatest importance when heat is being used.

In conventional driers heat has to be used very sparingly to avoid crusting of the surface of the bed of grain. Stirring overcomes this problem and allows heat to be used for a longer period and a higher rate than would normally be feasible.

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