Martin Lishman

HOT SPOTS?

Trouble-Dry Aeration Spears and Fans

- a simple solution to a common problem

4 *Step four in a professional crop storage system*

Hot spot spears and fans have an important part to play in a professional crop storage system. For small quantities of grain, urgent spot drying, unexpected insect infestations and many more uses - Martin Lishman Trouble-Dry Hot Spot Spears and Fans are the ideal tool for the job.

Not all hot spears and fans are the same - turn over to find out why the Martin Lishman Trouble-Dry System is the best.

Martin Lishman Professional Crop Storage Systems

Trouble-Dry Hot Spot Spears

The Importance of Crop Monitoring

What to monitor

Crop monitoring gives early warning of possible hot spots and gives you the time to take action before the situation gets worse.

Changes in temperature are the best indicator of grain quality, so temperature measurement is essential.

Ambient air humidity measurement will indicate the suitability of air for drying grain.

Testing for insect presence will confirm if monitoring and control has been effective.

Temperature

Safe long-term storage requires regular monitoring and control of crop temperature. Ideally, temperatures should reach 5°C to reduce the viability of disease, insects and moulds.

Measuring temperature shows if the cooling system is effective and gives early warning of problems - a rise in temperature can indicate insect activity.

Humidity

Knowing the humidity of the air that will be used for drying grain is essential to ensure that drying targets are reached as quickly and energy-efficiently as possible.

Damp air will not increase grain moisture, but it will reduce the efficiency of drying systems if damp air is allowed to enter the grain bulk.

Insects

If you monitor stored grain for insect activity corrective action can be taken and costly rejections avoided.

Low temperatures suppress insect breeding and prevent activity. Cooling below 15°C prevents saw-toothed grain beetles developing; below 10°C stops grain weevils; below 5°C prevents storage mite activity.

Choosing the right Trouble-Dry for your store

How fast do you want to cool your crop?

The faster you cool the crop the sooner quality problems are solved. The Trouble-Dry Standard and the Trouble-Dry Extra are the most commonly used for cooling. The Trouble-Dry Standard is cheaper but the fan is smaller so is slower to cool, covers a smaller area and will need to be moved more frequently. The Trouble-Dry Extra has a stronger fan so cools more grain faster and needs to be moved less often.

Trouble-Dry Standard

An efficient budget price fan

Spear: 2.3m (7'6") long, 10cm (4") diameter
Handle: one piece, 70cm (2'2") long
Fan: 1ph, 130W, 470m^3/h (275cfm), 1¾" wg/436PA, 10cm (4") inlet

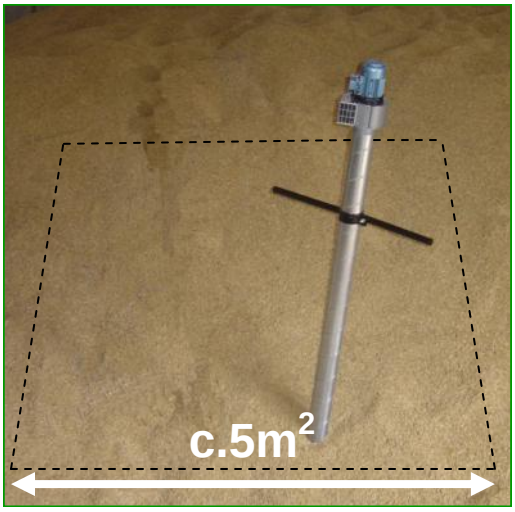
- **Spear, handle and the *Standard* single phase fan**
- **Fan max airflow 470m^3/h (275cfm)**
- **Cools up to 15 tonnes of grain at a time, in an area 3m (10ft) square**
- **Cures hot spots in 24 hours, depending on ambient conditions**
- **Fan supplied with 2m cable**

Trouble-Dry Extra

Stronger fan, faster results

Spear: 2.3m (7'6") long, 10cm (4") diameter
Handle: one piece, 70cm (2'2") long
Fan: 1ph, 130W, 680m^3/h (400cfm), 2"wg/500PA, 10cm (4") inlet

- **Spear, handle and the *Extra* single phase fan**
- **Fan max airflow 680m^3/h (400cfm)**
- **Cools up to 35 tonnes of grain at a time, in an area 5m (15ft) square**
- **Cures hot spots in 12 hours, depending on ambient conditions**
- **Fan supplied with 2m cable and plug**



Why is it so important to cool grain quickly with a hot spot spear ?

- **Hot grain quickly deteriorates**
- **Cool grain keeps safely, with less chance of insect infestation**
- **Unventilated grain may seem OK, but it can heat up without warning**
- **Trouble-Dry aeration spears and fans cure the problem before it gets serious**
- **Simply screw the spear into the affected area and suck the heat out**
- **Next harvest - consider whether your store ventilation system is adequate**

Portable and Economic Cooling

Additional options for a wider range of uses

Oil Seed Rape and Small Seeds

The Trouble-Dry Spear is available in two perforated versions - standard 3mm perforations to suit most grain types or smaller 1.5 mm perforations to suit use with oil seed rape and prevent rape seeds falling through the holes. Smaller holes mean less overall air space in the perforated section so we always recommend that the Trouble-Dry Extra fan is used with oil seed rape. The rape spear is perfectly suited for use with larger grains.

RAPE or GRAIN?

Trouble-Dry Aeration spears are available with two perforation sizes - standard size to suit grain cooling or extra small to suit cooling in oilseed rape.

We have also developed a special version of the Trouble-Dry Spear for use with even smaller seeds such as poppy seeds, which tend to be stored in smaller bulks. This is made to order, so please enquire for further details.

Spot Drying with the Trouble-Dry Ultra

The Trouble-Dry Spear is frequently used to carry out urgent spot drying in small heaps of beans, peas and even grains. This can be achieved using the Standard or Extra fans, but with the Trouble-Dry Ultra it is also possible to add one of our Pile-Dry Pedestal Fans to the spear and increase the drying possibilities even further.

Using larger fans is not particularly energy-efficient since a lot of the energy of the fan is wasted trying to force the much higher airflow through the same perforated area of the spear - but if you need urgent drying or extra-fast cooling, this may be your only option. Remember that ambient air cannot be guaranteed to dry grain and speed of drying will vary according to ambient conditions.

Trouble-Dry Ultra

Pile-Dry Fan - spot drying, extra-fast cooling

Spear: 2.3m (7'6") long, 10cm (4") diameter
Fan adapter: 150mm (6") to 100mm (4") reducer
Handle: one piece, 70cm (2'2") long
Fan: 1ph/3ph, 1.1kW, 2380m^3/h (1400cfm), 6¼"wg/1550PA, 150mm (6") inlet

- **Spear, handle, fan adapter and the *Ultra* single or 3 phase fan**
- **Fan max airflow 2380m^3/h (1400cfm)**
- **Helps achieve even faster cooling**
- **Can achieve very effective spot drying in a small heap**
- **When used with a Pile-Dry Heater, drying ability can significantly improve in higher RH conditions**
- **Fan supplied with c.2m cable**

Advantages and Benefits of the Martin Lishman Hot Spot System

- **Choice of spears - *to deal with all hot spot problems***
- **Strong, extra-long single piece handle - *easier to screw the spear in to hot grain***
- **Choice of fans - *to provide faster cooling of more grain and spot drying***

Are all hot spears and fans the same?

No they aren't. Alternative spears are often sold with cheap handles that can bend or are too short to give enough leverage when screwing the spear into grain. Many fans sold have much lower airflows that will take much longer to cool the grain and will ventilate a smaller area. Just because a product seems cheaper, it doesn't mean it will do the job!

Crop Temperature Monitoring in Bulk Stores

When?

Record the crop temperature readings once per week until the stored grain has been cooled to 5°C (which should be achievable by December); and then every two weeks thereafter.

Where?

Take one temperature reading for every 100 tons stored 3 to 5 m deep. Use an imaginary 6m x 6m grid over the grain surface and take a reading in the centre of each grid square.

This helps to always take readings in the same place and shows actual changes rather than location differences. In deeper grain, take readings using a 10m x 10m grid.

If Pile-Dry Pedestals and Fans are used to ventilate grain, measure the temperature at the mid point between groups of 4 Pedestals since this is the last point to cool.

How deep?

Measure crop temperature within the top 1.5-2 m of grain depth. This is where any change in temperature will be seen.

Professional Crop Storage Systems

Professional Crop Storage Systems

Four steps to improving your crop storage

1 Pile-Dry Pedestals & Fans

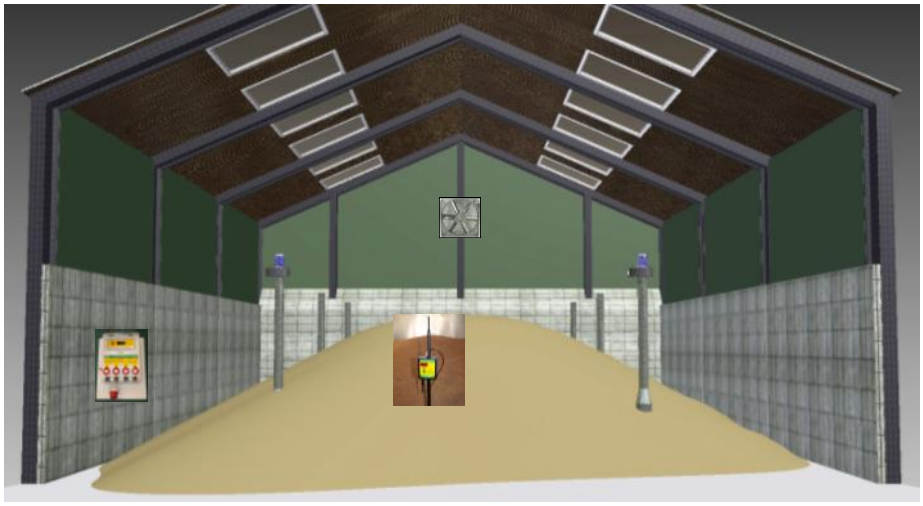
- ***The highest grain quality with the fastest cooling system***
- ***The only low volume system able to dry grain***
- ***Backed by research and 40 years experience***

- see the Martin Lishman Pile-Dry Pedestals and Fans brochure for further details.

2 StoreVent **Crop Store Air Extraction System**

- ***Building ventilation to maximise the efficiency of all crop cooling and drying systems - ensures sufficient air exchange to maintain cool, fresh air in the crop store at all times.***
- ***Can be linked to Martin Lishman automatic fan controllers.***

- see the Martin Lishman StoreVent brochure for further details.



3 Automatic Fan Control & Crop Monitoring

- ***Portable and Static Automatic fan controllers for energy efficient crop cooling and drying***
- ***Cost effective crop monitoring equipment to ensure the highest crop quality***

- see the Martin Lishman Fan Control and Crop Monitoring brochure for further details.

Temperature Differential Fan Control

Fast, energy-efficient crop cooling

Thermo-humidistat Fan Control

Simple control for crop cooling and drying

Barn Owl Temperature & Humidity Fan Control

Comprehen-sive control for crop cooling and drying

Barn Owl Wireless Control & Monitoring System

Complete crop store management

4 Trouble-Dry Hot Spot Spears & Fans

- ***Portable and economic cooling - a simple solution to a common problem***
- ***An emergency solution to hot spots where Pile-Dry Pedestals are not in use***

SPECIFICATIONS

Martin Lishman Trouble-Dry Spears and Fans are available to suit different storage situations. Talk to your local dealer or contact Martin Lishman to discuss the best system to meet your requirements.

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Your Trouble-Dry Spear and Fan Stockist: