MILL AND GRAIN DIVISION

GRAIN CONDITIONING

PROCESSING BENEFITS

REPORT HIGHLIGHTS

Adesco Conditioned Rolled Barley versus dry rolled barley

- improved yield by 5.5%
- lost 1% less weight in rolling
- increased roller throughput by 10%
- reduced roller energy consumption by 11.6%

adesco
competitive by nature

REAL MEASUREABLE BENEFITS FOR THE GRAIN PROCESSOR

In the face of increasingly volatile raw material and energy costs, all feed manufacturers need to ensure that every element of their feed production process is optimised. This is especially true with regard to the rolling process where the Adesco Conditioning Programme can differentiate your product while bringing substantial economic benefits.

• Additional yield via sale of product at the higher optimal moisture content.	=	MORE YIELD
• Reduction in dust generation and dust loss. Increasing the moisture content by only 4.5% results in an 84% reduction in dust (particles < 1.18).	=	LESS LOSS
• An average 11% less energy is required to roll Adesco Conditioned Barley vs. dry barley while throughput is increased.	=	LESS ENERGY / MORE THROUGHPUT
• Conditioning has the effect of softening the seed coat, producing a robust and stable product with a long shelf life.	=	QUALITY PRODUCT

THE ADESCO GRAIN CONDITIONING PROGRAM

Adequately conditioned and subsequent rolled barley and maize grain using the Adesco Grain Conditioning program consistently produces a superior physical product and insures that feed hygiene and shelf life is preserved. Critical to achieving the required physical quality are the following factors:

The initial grain moisture should be measured accurately and when this is known the amount of moisture to be added can be calculated to reach the target moisture of 20-21%

Knowledge of the initial moisture content is critical to achieve the target consistently.

No more than 5% moisture should be added at any one time.

This should be allowed to soak in for a minimum of 6 hours, ideally overnight.

If aerated grain or farm supplied grain is to be used it needs to be analysed for moisture and mould count prior to conditioning.

Mould levels in these grains are higher than in Adesco Treated or dried grains.

Records should be kept of the Conditioning/ Rolling process.

Grain temperature will increase by 4-8°C in the rolling process.

Aeration/cooling of the rolled grain may be necessary/ beneficial when ambient temperatures are high.

The liquid application system should be calibrated at least twice per year.

This is to ensure the dosage levels are correct.

Samples should be taken and moisture content checked.

This should be done at different stages in the process to establish moisture retention rates. Samples should be retained for reference.

MEASURING PROCESS BENEFITS UNDER IRISH CONDITIONS

A process evaluation trial was conducted in 2011 with the cooperation of a leading Irish Feed Manufacturer. The objective of the trial was to quantify the evidence based data to support the process benefits for the rolled grain producer.

Overview of Trial Procedure

Dried barley (14% moisture) was divided into two lots. One of these lots was conditioned, the other was not. The Adesco Conditioned Barley received an average of 5% moisture addition during the process. Grain was allowed to rest overnight before rolling.

Key Process Benefits

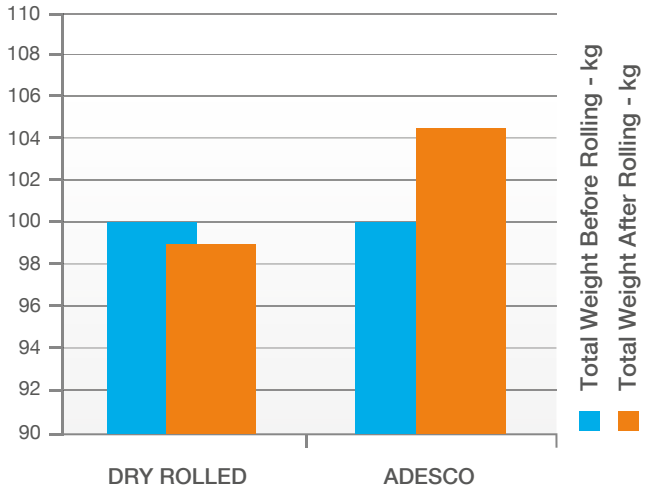
- 84% less dust particles as compared to dry rolled barley.
- Roller throughput increased by 10% over that of dry rolled barley.
- Roller energy consumption reduced by 11.6% compared to that used when rolling dried barley.

Key Quality and Economic Benefits

- Adesco Conditioned Barley retained 4.5% of the 5% added moisture.
- There was a 1% loss when rolling dried barley while there was no loss when rolling Adesco Conditioned Barley.
- Product hygiene (as defined by mould count) preserved as compared to dry rolled barley.

TABLE 1

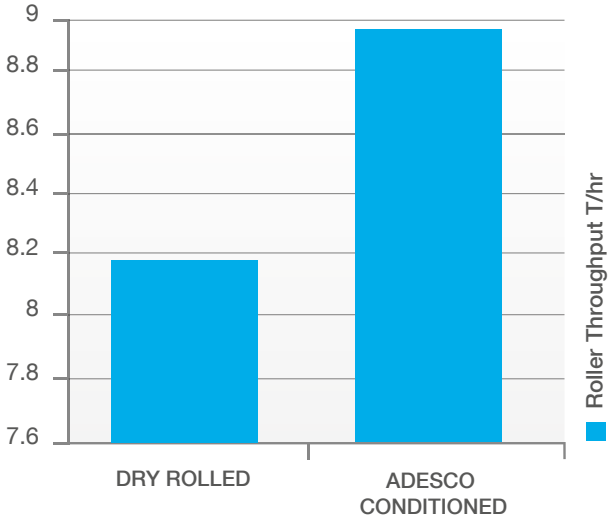
Relative product yield



As a result of the conditioning process there was a 4.5% gain in yield. By contrast there was a 1% loss in yield due to loss from the dried barley at rolling.

TABLE 2

Roller throughput t/hr.



Roller throughput was increased by 10% as compared to dry rolled barley thereby reducing the running hours and capital cost/ton for the roller.

TABLE 3

Quantity of finished product passing through a 1.18mm screen

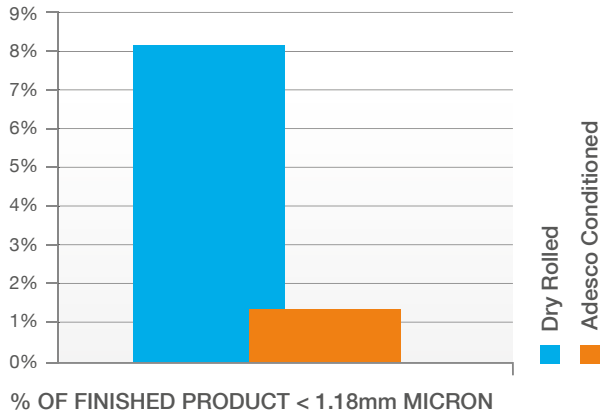
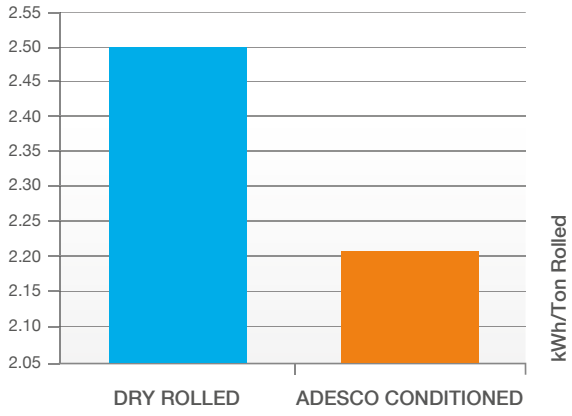


TABLE 4

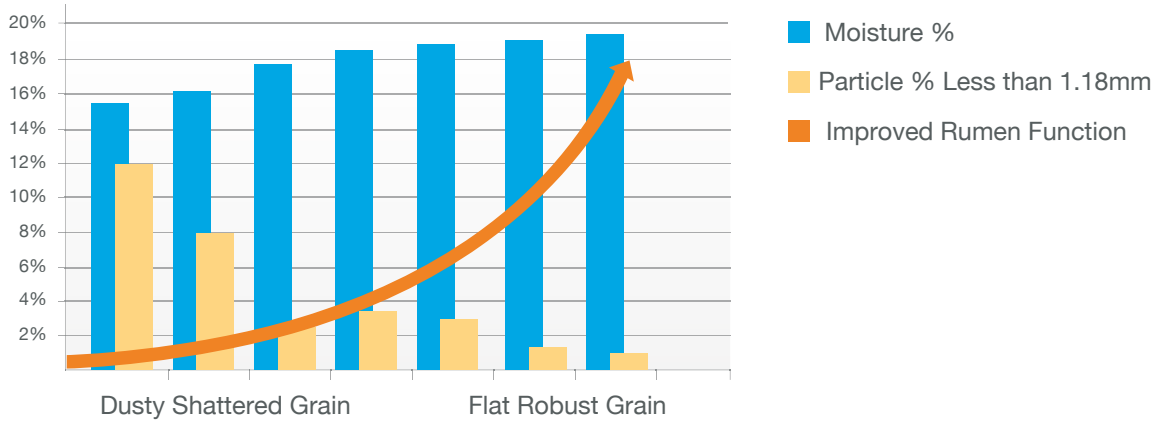
kWh/ton rolled



In the case of the Adesco Conditoned Barley the finished product was a flat, well rolled and dust free product with only 1.3% of the product passing through the 1.18mm screen. Critically the moisture content of the dry rolled barley was 14% as compared to 18.5% for Adesco Conditioned Rolled Barley.

TABLE 5

Relationship between moisture, physical quality and rumen function



Economic Benefits

Adesco has developed a user specific economic evaluation model which accurately calculates the commercial benefits specific to each customer's needs. Please speak to your Adesco team member for more information.

Product Quality Benefits

Physical Product Quality and appearance was significantly improved following Adesco Grain Conditioning. As the assessment of the physical quality of rolled barley is subjective we set about providing real numbers based on the total percentage of particles passing through a 1.18mm screen. From our experience and customer surveys, where the percentage of particles passing through this screen size exceeds 4%, the product is deemed to be of poor physical appearance.

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