

## No 171: Cereal Harvest 2012

### Cereal Harvest 2012 – Potential for Low Bushel Weight Deliveries

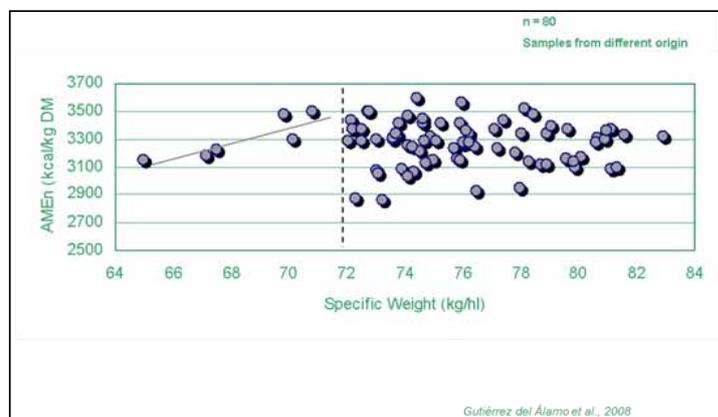
Early reports suggest that the barley and wheat quality is highly variable with some very low bushel weight barley (<55kg/hl) and wheat (<65kg/hl) already evident. This coupled with the very wet growing conditions and concerns on mycotoxins in the harvested grains mean that nutritionists will have to make some important decisions on how best to use these grains in the coming months.

The prolonged period of cool wet weather during May, June and July was not ideal for cereal crops (wheat in particular) and resulted in poor grain fill. Some of the earliest harvested wheat will have been the most affected as there will have been no time to recover before harvest. This is evident in the very low bushel weights in barley and wheat already reported.

Some early work suggested that there was a close relationship between wheat bushel weight and AME<sub>n</sub> for poultry below 72kg/hl. Bushel weight below this value would result in lower AME<sub>n</sub> and this has been widely accepted by poultry industry. In fact feed grain buyers will buy wheat at discounted prices at bushel weights below 72kg/hl. Hitherto, it has not been clear whether any adjustment to AME<sub>n</sub> is valid at these lower bushel weights nor to what degree energy level should be adjusted.

However, animal studies undertaken at Nutreco Poultry Research Centre by Gutierrez del Alamo would suggest that there is a relationship between AME<sub>n</sub> below 72kg/hl, accepting that there are only a very limited number of samples in this range (see Chart 1).

**Chart 1. Relationship between AME<sub>n</sub> and Wheat Bushel Weight**



It is noteworthy that the range of energy values found in these low bushel weight wheat samples was less than that seen in a larger number of samples above 72kg/hl. However, the starch content of low bushel weight wheat samples was also reduced and this will directly impact AME<sub>n</sub> value.

Similarly for barley, there is a concern on low bushel weight below 62.5kg/hl. This is the industry standard and below this feed mill grain buyers will discount prices of barley. Once again the validity of any reduction in energy value of these low bushel weight barley samples is questionable. However the starch content of the barley is directly related to the energy value of the barley.

In pigs work by Zijlstra et al. (2011) found no correlation between bushel weight and energy value (DE) in barley. It was concluded the best measure of grain quality was to perform analysis by NIR to check nutrient value. DE and NE may then be calculated through prediction equations. This conclusion is backed by the work of Kim (2005) which found a limited capacity to predict DE with physical grain measurements.

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It should be noted that the variation in energy content of barley in particular is very high and related to fibre content of the grain. It is thus prudent and good routine practice to analyse grain through a reputable laboratory to monitor changes in nutrient composition.

### Application in Practice

The energy value of wheat and barley can be estimated from bushel weight on the basis that the energy content of the cereal will reduce by around 1.5% per unit reduction in bushel weight when bushel weight is less than 65kg/hl in wheat and 55kg/hl in barley. In the absence of better alternatives, this approach could apply to monogastrics and ruminants alike. This can only ever be considered an approximation because of the limited data available for these low bushel weight grains.

The starch and other nutrient content of wheat and barley can be used to more accurately predict the

energy value of the cereal grain for poultry and pigs with confidence and offers a reliable alternative to evaluation of low bushel weight grains. The Frank Wright Laboratory has the facility to quickly and cheaply evaluate the starch content of wheat and barley using NIR technology. This data can then form the basis for monthly evaluation of cereal energy value to be used in formulation runs where appropriate.

Further information can be obtained from the Frank Wright Trow Nutrition technical department on 01335 341102. Receive these technical publications directly via e-mail link. Contact Sarah Brandrick to register your interest on 01335 341128 or at [sarah.brandrick@frankwright.com](mailto:sarah.brandrick@frankwright.com). You can also access this and past CONTACT and URGENT NEWS publications by registering on our website: [www.frankwrighttrow.com](http://www.frankwrighttrow.com)