Wheat-based dried distillers’ grains are variable in chemical composition

F. Piron 1, D. Bruyer 2, A. Thévis 1, Y. Beckers 1

1 Gembloux Agricultural University, Passage des Déportés 2, B-5030 Gembloux, Belgium; 2 Beldem SA, Rue Bourrie 12, B-5300 Andenne, Belgium; e-mail: piron.f@fsagx.ac.be

1: The message

• Fuel ethanol production from grains generates high quantity of by-products (distillers’ grains).
• Distillers’ grains have potential as an ingredient in livestock feed.
• However distillers’ grains are highly variable.

2: Introduction and objectives

• Initial reports show that maize distillers’ grains are highly variable.
• In Western Europe, wheat is the main grain for ethanol production (rye, barley or combinations of grains are also used).
• Uncertainties and variability are currently responsible for relatively low inclusion rates of distillers’ grains in livestock feed.
• Better knowledge of chemical composition of wheat based distillers’ grains is required.
• 11 batches of wheat-based dried distillers’ grains (purchased in Western Europe) were chemically characterized.

3: Results

• Lysine varied among batches of distillers’ grains.
• Lysine and crude protein were not correlated \( (r = -0.18, p > 0.05, n = 11) \).
• Lysine is particularly sensitive to heat treatments (Maillard’s reactions) used during the process (drying).
• On the other hand, methionine (not implicated in Maillard’s reactions) and crude protein were correlated \( (r = 0.84, p < 0.01, n = 11) \).

4: Conclusions

• Chemical composition of wheat-based dried distillers’ grains is variable.
• More information is needed about digestibility and availability of nutrients in wheat-based dried distillers’ grains.
• Particularly, lysine concentration and availability are probably one of the main concern for nutritive value of wheat-based dried distillers’ grains.