

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

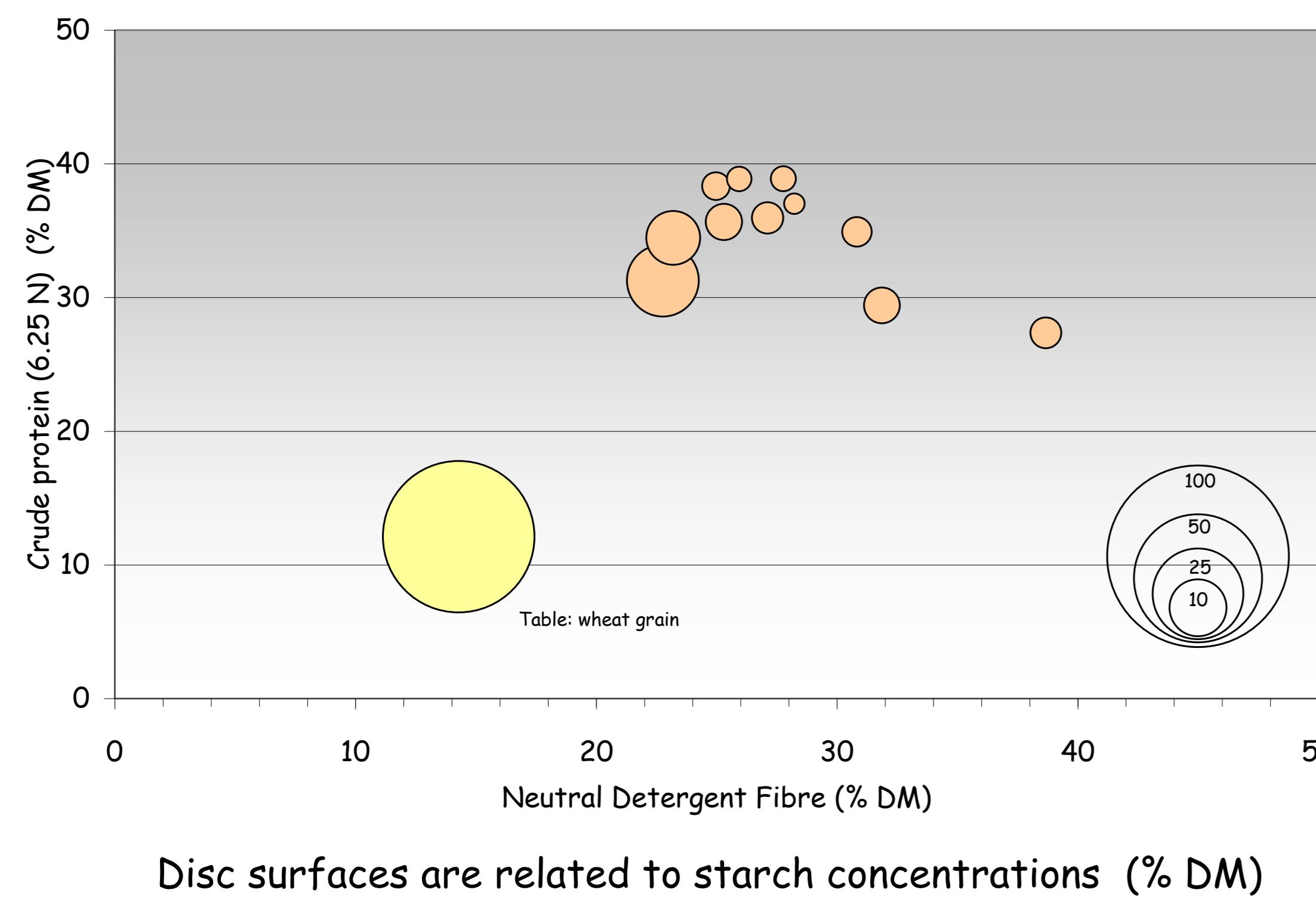
1 The message

- 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.

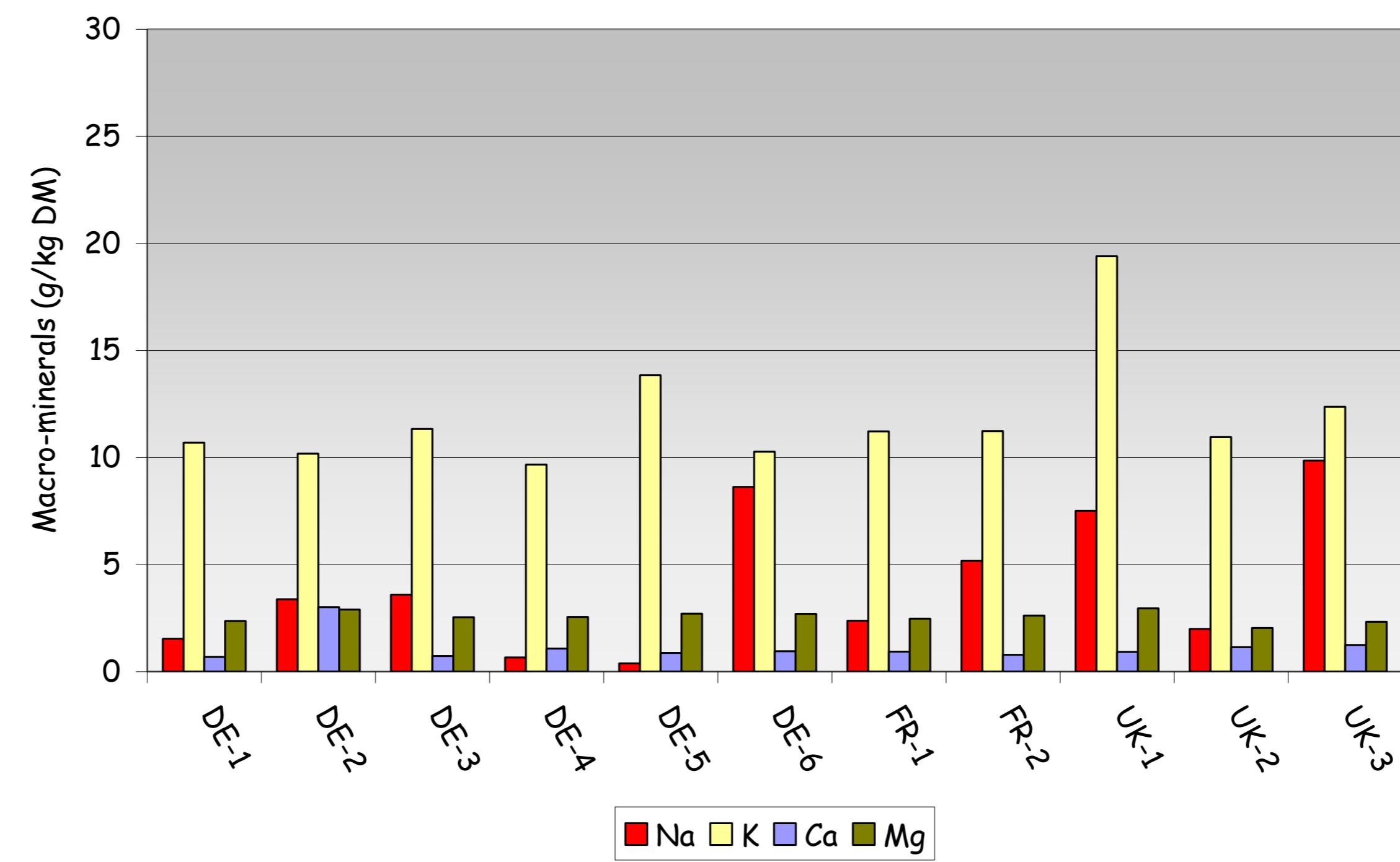
3 Results



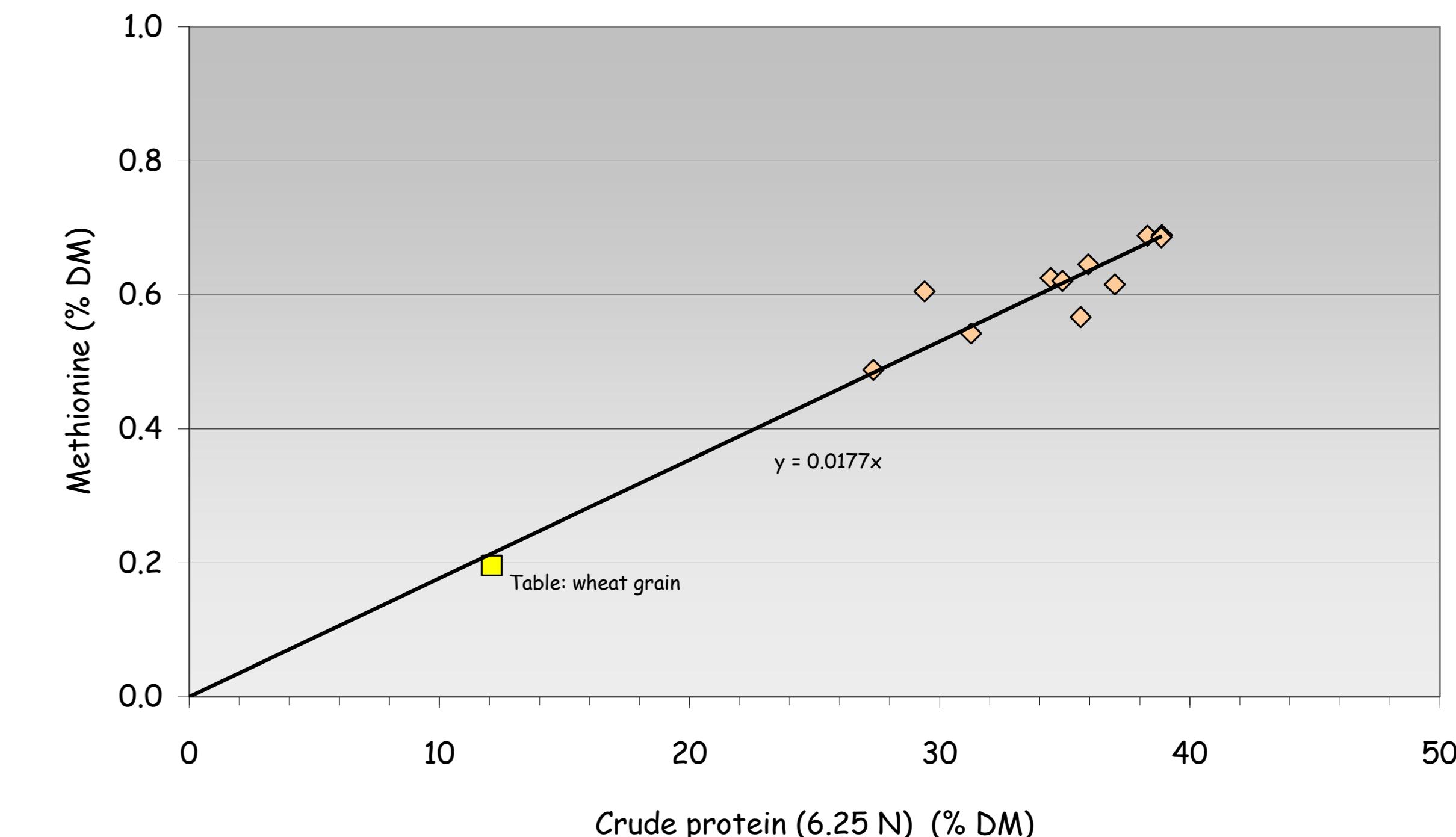
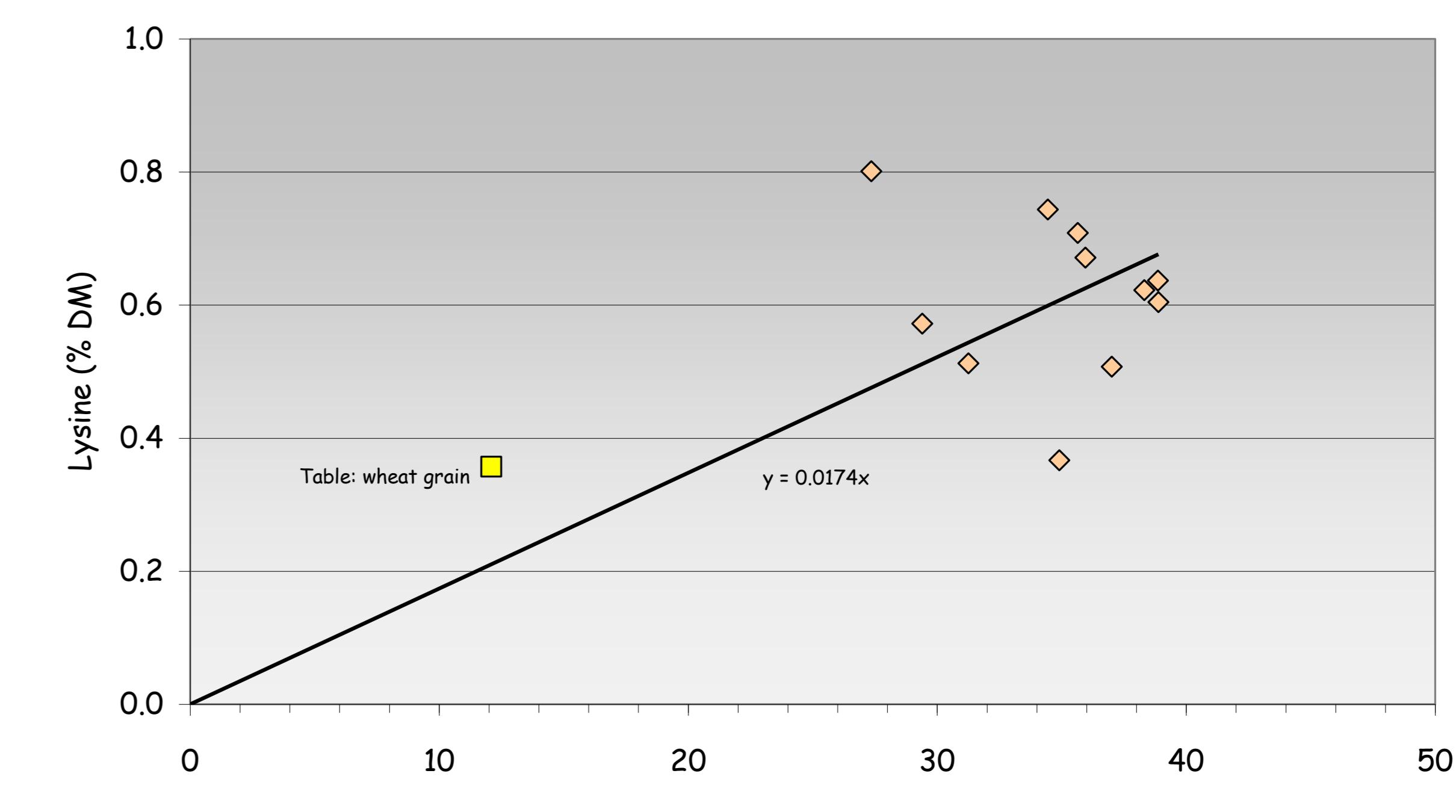
- **Starch** was partly removed by ethanol production process.
- Consequently, **crude protein** and **fibre** were more concentrated in distillers' grains with regard to tabular values of wheat grain.
- However, these nutriments are variable among batches of distillers' grains.

• **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 ($r = 0.84$, $p < 0.01$, $n = 11$).



- Production process (use of buffers) could cause differences in **minerals** contents.



4 Conclusions

- Chemical composition of wheat-based dried distillers' grains is variable.
- More information is needed about digestibility and availability of nutriments 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.

Plants implicated in sample providing are kindly acknowledged.

The research was funded by Beldem SA, Rue Bourrie 12, B-5300 Andenne, Belgium.