THE IMPACT OF EXPANSION PROCESS ON NUTRITIONAL QUALITY OF RAPESEED CAKE FOR TURKEY NUTRITION

A. Drażbo[1], K. Kozłowski[1], F. Goodarzi Boroojeni[2], and J. Zentek[2]

[1]Department of Poultry Science, University of Warmia and Mazury, Olsztyn, Poland,
[2]Department of Veterinary Medicine, Free University in Berlin, Germany

RAPESEED CAKE

Rapeseed cake

- Could be a valuable source of dietary protein rich in sulphur amino acids and lysine
- Is a more desirable feed ingredient than rapeseed meal due to its higher metabolizable energy content
- The use of rapeseed products in poultry nutrition is limited due to the presence of anti-nutritional factors

EXPANSION PROCESS

- **Expansion process** is an effective technology to improve the nutritional quality of poultry feed:
  - improves hygiene status
  - reduces heat-labile anti-nutritional factors
- **Expansion process:**
  - high pressure and temperature (100-130°C) in a short time (3-5 seconds)
- **This study investigated the impact of expansion on nutritional value of rapeseed cake (RC) for turkey nutrition.**

RAPESEED

Rapeseed variety:

- Raffiness, a 00-Winter rapeseed with a stable low glucosinulate

In vitro digestibility method

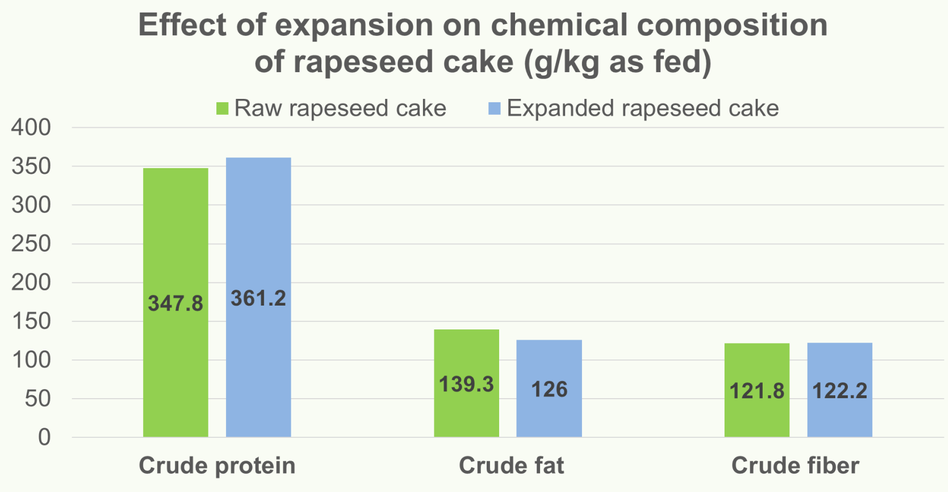
- For the *in vitro* digestibility analysis, the modified pepsin method (Mertz et al., 1984; Hamaker et al., 1986), using pepsin and trypsin was used.

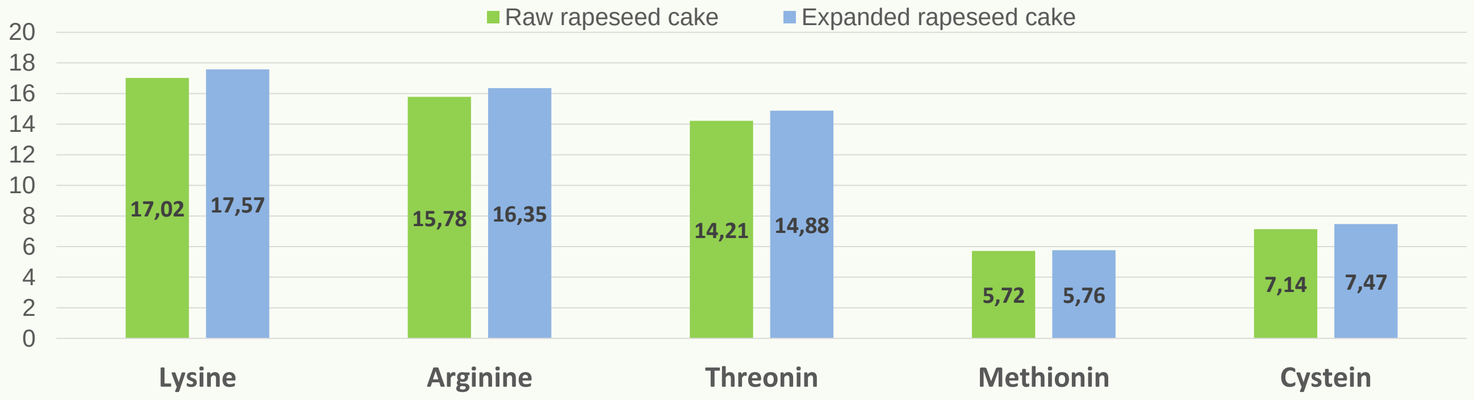
***In vitro* digestibility** = [(mg protein in control container with no pepsin and no trypsin) - (mg protein in each 4 containers with pepsin and trypsin)] / (mg protein in control container with no pepsin and no trypsin)

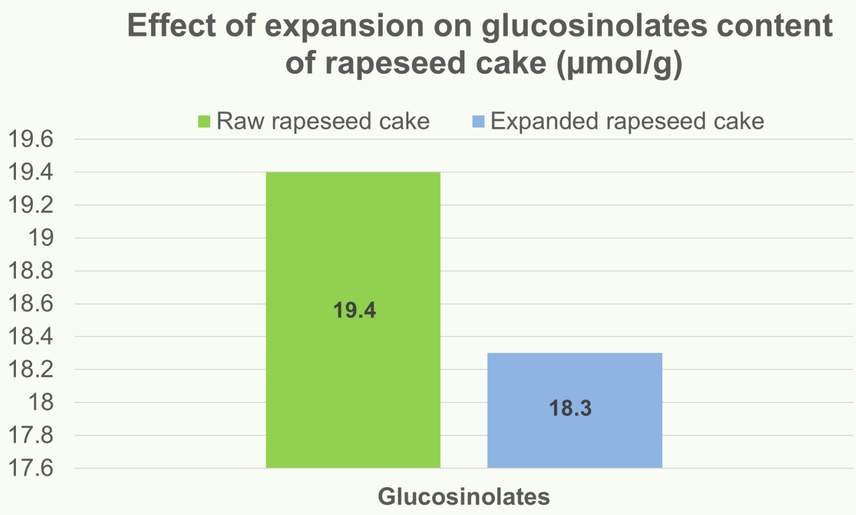
ANIMAL TRIAL

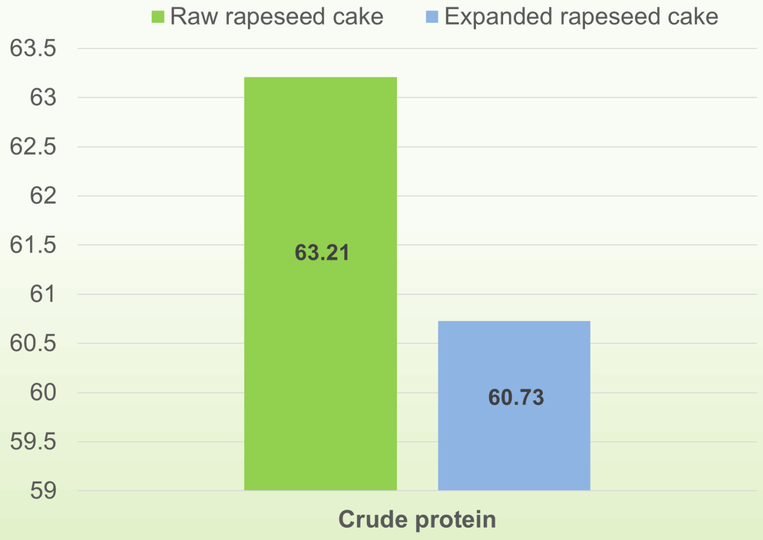
- 120 three-week-old Hybrid Converter female turkeys assigned to 24 cages
- Three diets including:
  - untreated rapeseed cake
  - expanded rapeseed cake
  - N-free diet
- 8 replicate pens - 7 days trial - 5 bird per replicate
- Ileal content of turkeys was analyzed for CP and gross energy content.
- Apparent (AIDC) and standardized ileal digestibility coefficients (SIDC) as well as AME_n were calculated.

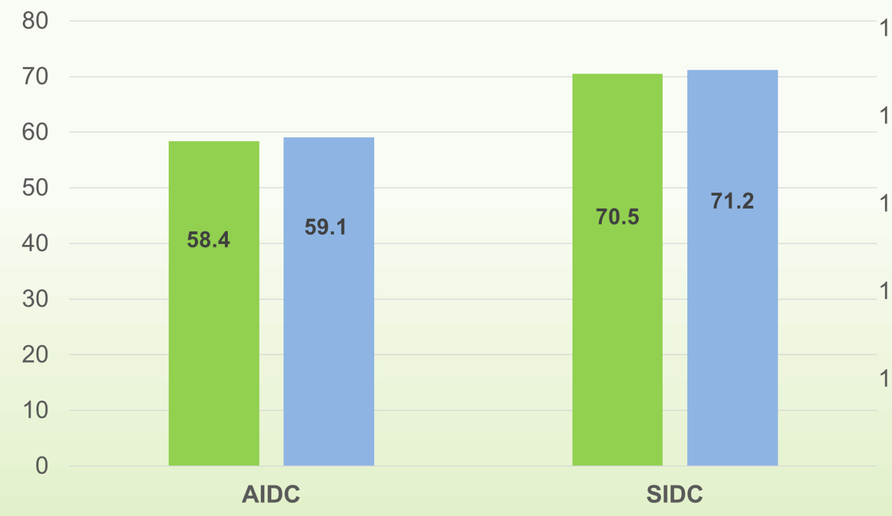
RESULTS

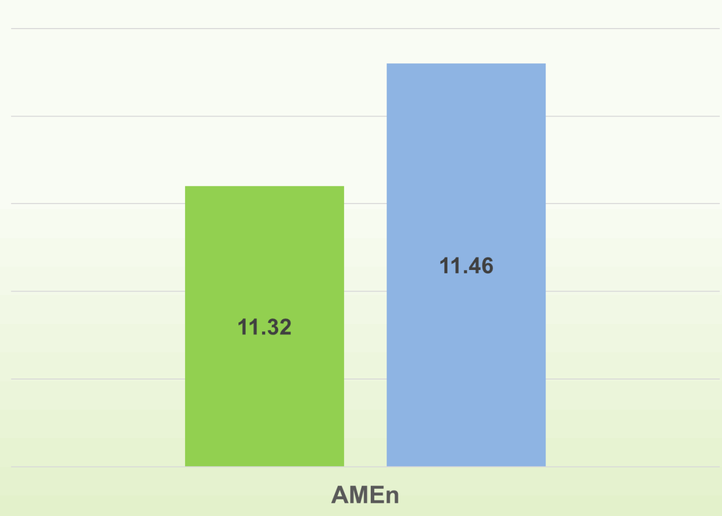












CONCLUSION

Given the impact of expansion on *in vitro* CP digestibility of RC, it can be speculated that the slight increases in AIDC, SIDC and AME_n of expanded RC were due to the reduction of anti-nutrients. In conclusion, expansion might be able to slightly improve nutritional value of RC for turkey nutrition by reduction in anti-nutritional factors.