

## The effects of XTRACT® 6930 are intensified in heat stress situations

### INTRODUCTION AND OBJECTIVES

Visually, heat stress is expressed as distress and discomfort suffered by an animal because the environment is too hot. In response to these conditions, farm animals have to optimize heat dissipation (through an increase of water metabolism and panting), and limit digestive and metabolic processes. At the physiologic level, blood flow is reoriented from the gut to the external parts of the animal, digestion, absorption, cell metabolism and immune function are reduced, and oxidative stress and lipid oxidation are increased.

As a result, the impairment of gut integrity and of its function combined to altered immune modulation and anti-oxidant capacity lead to leaky gut, higher maintenance requirements and a drop in zootechnical performance of farm animals. In broilers, XTRACT® 6930 has a validated effect on digestion, immune-modulation and oxidative status, and is therefore known to positively affect gut integrity and energy required for maintenance. Therefore the objective of this trial was to evaluate the ability of XTRACT® 6930 to limit performance reduction of broilers submitted to heat stress conditions.

### MATERIALS AND METHODS

#### Experimental Design

- Experimental facilities of Harper Adams University, United Kingdom, in collaboration with Dr. Pirgozliev
- Total of 36 male Ross 308 broiler chicken, reared from hatch until 20 days of age in a common floor pen at 21°C and fed a standard starter feed void of coccidiostat, enzyme of similar additive.
- At trial start at 21 days of age, broilers randomly allocated according to body weight to 12 pens and 3 treatments (4 replications/treatment; 3 birds per replication)
  - Normal: rearing temperature maintained at 21°C, standard feed
  - Hot: rearing temperature set at 35°C, standard feed
  - Hot + XTRACT®: rearing temperature set at 35°C, standard feed + 100 g/t XTRACT® 6930
- During whole trial duration of 14 days (from d21 to d35), *ad libitum* access to water and to a diet based on wheat and soybean meal (18.6% CP, 13.3 MJ/kg ME)

#### Measurements, per pen

- Feed intake, water intake, weight gain, feed conversion ratio (FCR)

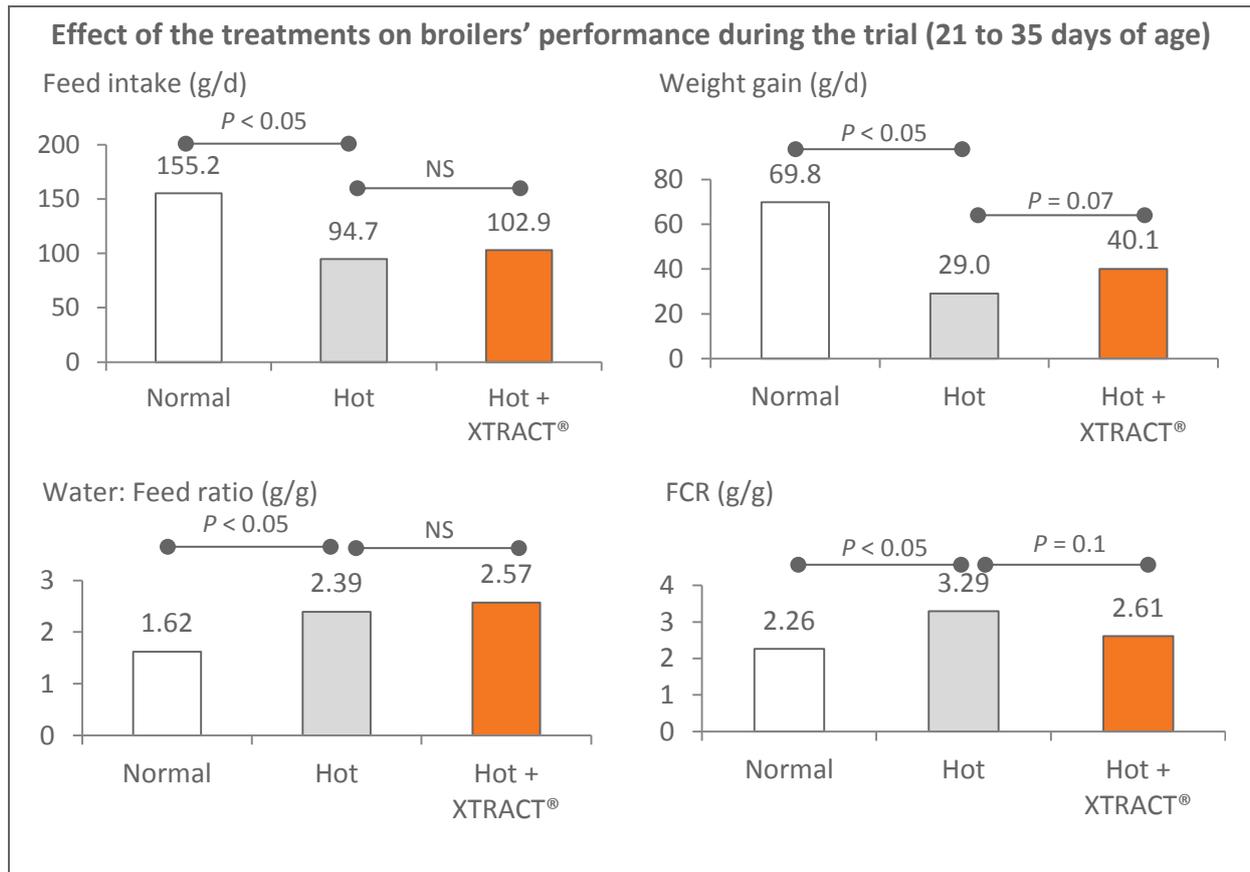
#### Statistical analysis

- By analysis of variance.

# TECHNICAL BULLETIN

**RESULTS AND CONCLUSION**

The increased environmental temperature from 21 to 35°C reduced feed intake by 10.4% and weight gain by 58.5%, and enhanced water to feed and feed conversion ratios by respectively 47.5% and 45.6% ( $P < 0.05$ ; see figure). These figures are fully in line with the effects of heat stress on broilers' performance reported in the literature and on farms, and confirm therefore the validity of the experimental design applied.



In heat stressed broilers, XTRACT® 6930 did not affect feed intake and water to feed ratio ( $P > 0.3$ ). The reduction of intake is part of broilers' physiological adaptation to heat stress, as it limits excessive heat production generated by nutrients' metabolism. These results suggest that XTRACT® 6930 does not contradict this physiological adaptation to heat stress.

However, XTRACT® 6930 improved body weight gain by 38.1% and reduced feed conversion ratio by 20.7% ( $P \leq 0.1$ ). The beneficial effects of XTRACT® 6930 on digestion, immune-modulation and oxidative status are converted into a better gut protection, nutrients utilization and feed efficiency leading to greater body weight gain.

**In case of heat stress conditions, XTRACT® 6930 improves broilers' performance through enhanced feed efficiency and weight gain.**