

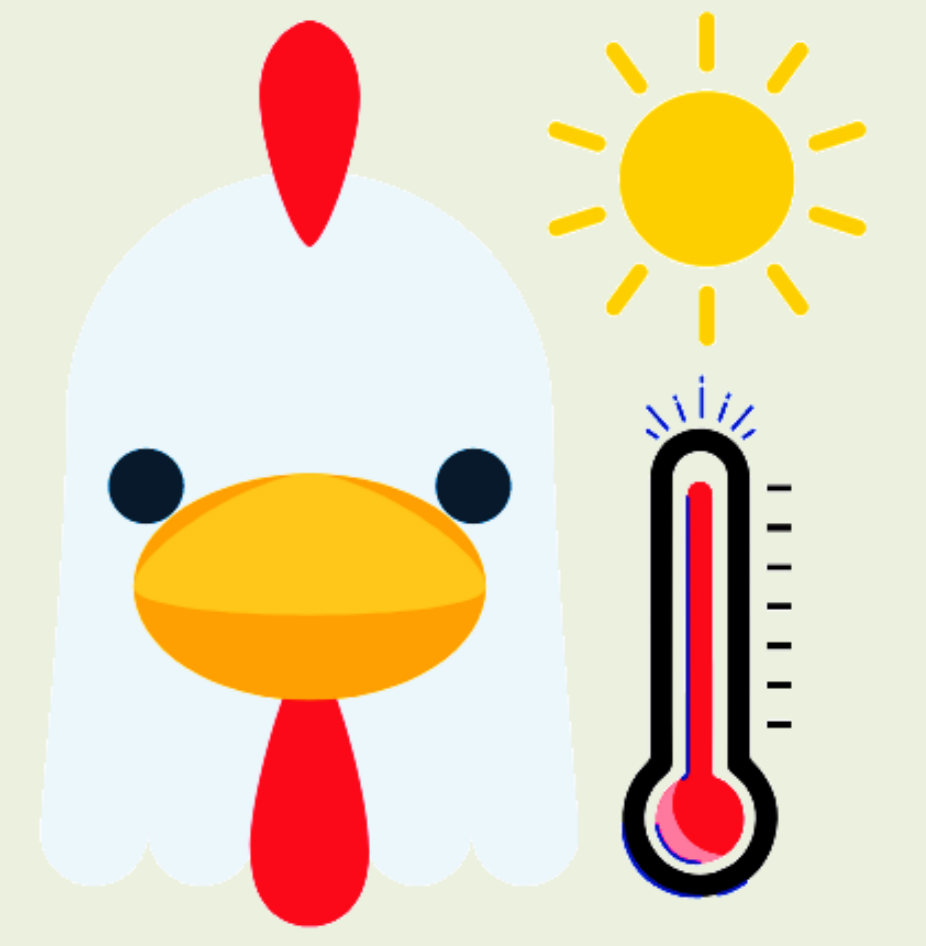
Productive responses of broilers fed diets with different feed compositions during heat stress

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Introduction

Heat stress can adversely affect broiler performance and meat quality. However, dietary composition could potentially mitigate those negative effects. Diet-induced thermogenesis is mainly determined by the protein fraction and, on the other hand, increasing dietary fat can stimulate nutrient absorption and provide extra metabolizable energy (ME).

Therefore, we studied the effects of reduced protein and/or increased dietary fat on broiler performance and meat quality during heat stress.

Material & methods

1920 male, Ross 308 broilers were divided in 8 treatments (8 replicates/treatment, 30 birds/replicate) according to a 4 x 2 factorial design – 4 dietary treatments and 2 climate conditions

Thermoneutral				Heat stress			
Control	LCP	LCPHCF	HCF	Control	LCP	LCPHCF	HCF

Heat stress: 32°C ± 2°C and RH 55–65% for 6h daily, d29-43

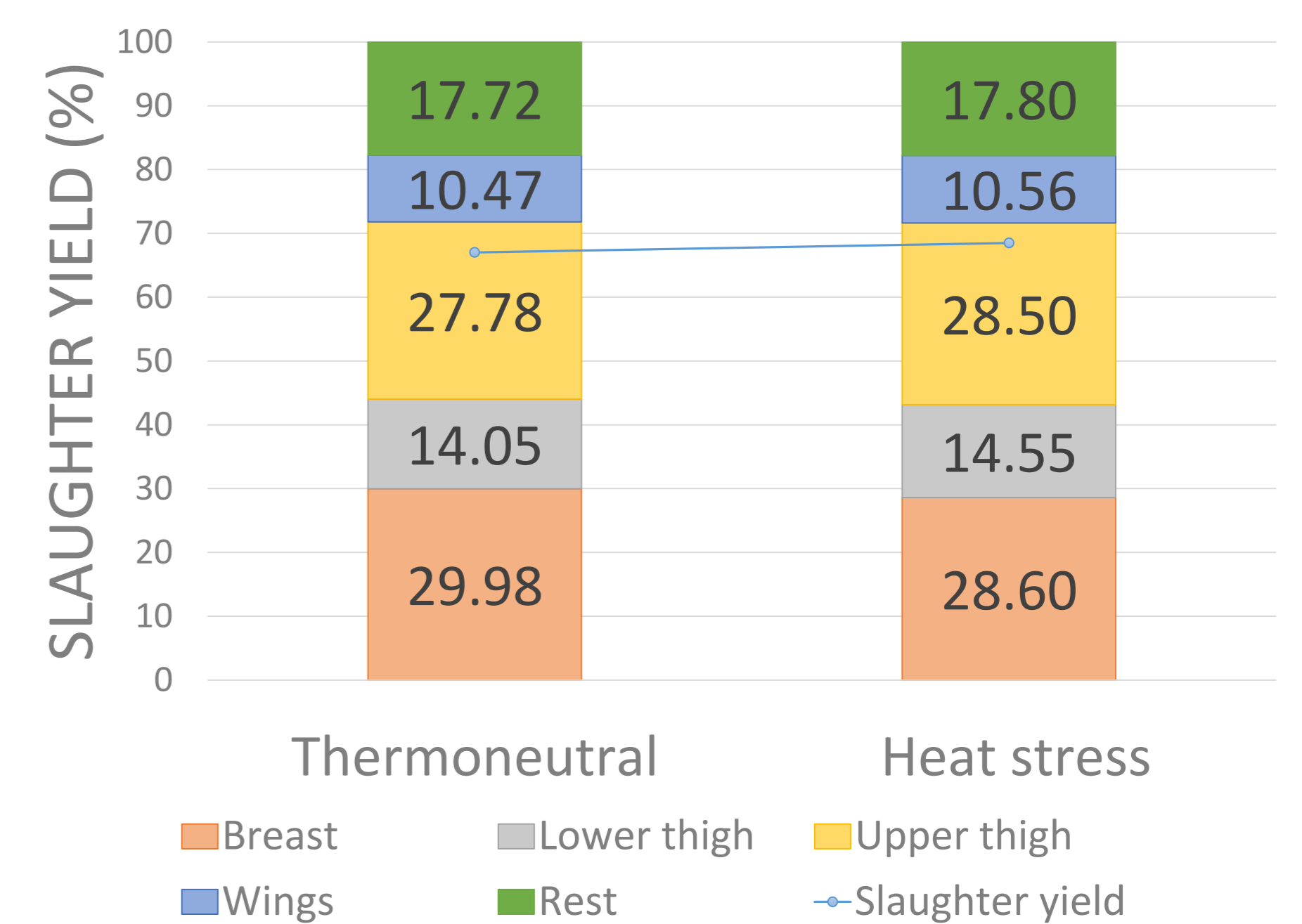
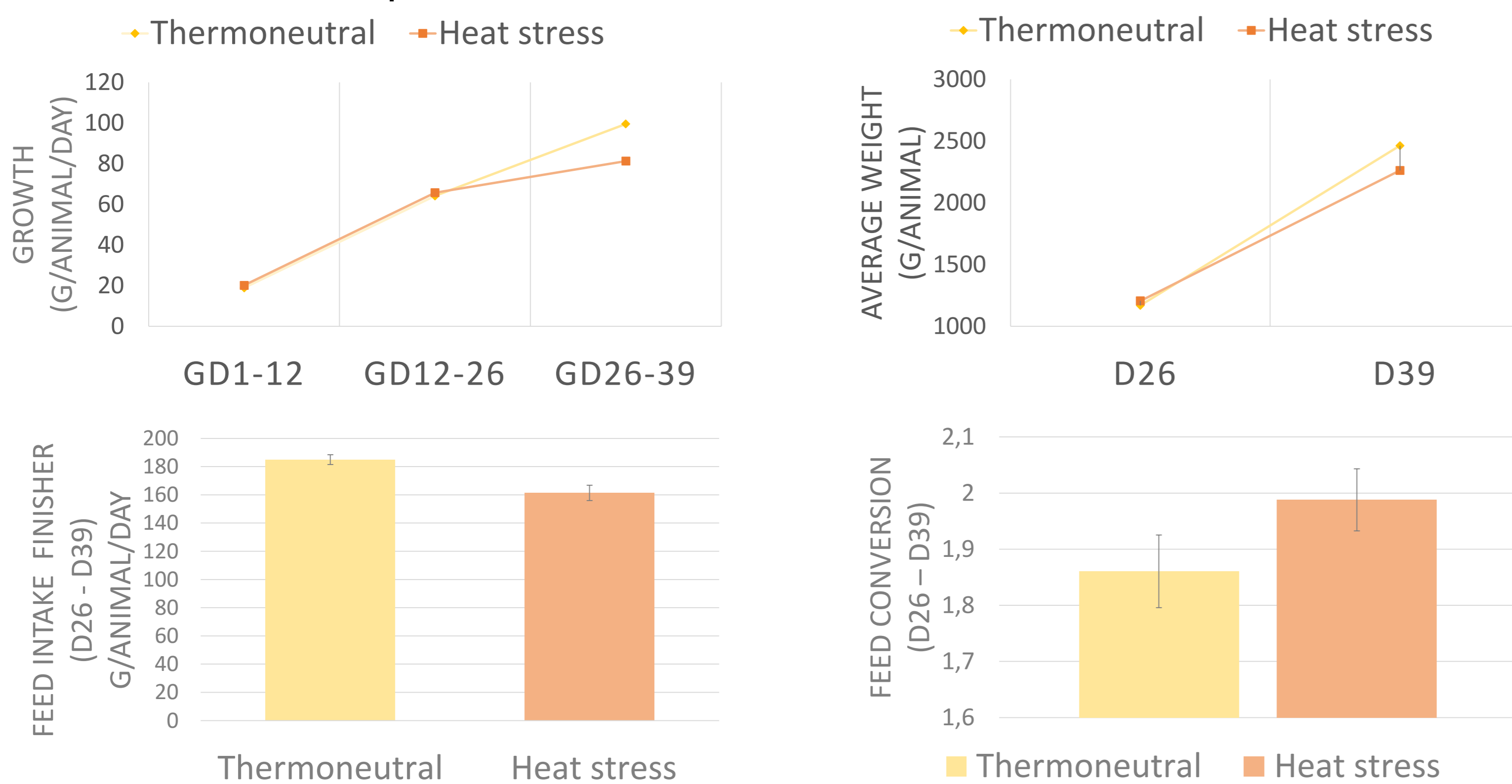
4 finisher diets (d26-39):

	ME (MJ/kg)	CP (%)	CF (%)
Control	1.2	18.2	8.0
LCP	12.2	17.3	7.8
LCPHCF	12.6	17.3	9.7
HCF	12.5	18.2	9.6

LCP = low crude protein (CP); LCPHCF = low crude protein and high crude fat (CF); HCF = high crude fat

Results

The dietary treatments did not improve broiler performance or meat quality during heat stress. However, we observed significant negative effects on broiler performance due to heat stress.



Broilers in heat stress had significantly higher slaughter yield ($p < 0.01$), upper thigh% ($p < 0.01$), drumstick% ($p < 0.01$), and breast muscle% ($p < 0.01$).

Conclusion

- Different feed compositions did not significantly improve broilers' performance during heat stress
- Heat stress negatively affects broiler performance
- Lower feed intake during heat stress could interfere with dietary treatments