

## Background

Broodiness in birds is controlled by the interaction of various hormones. The brood patch plays an important role in mediating a positive feedback between the incubation behavior and hormonal secretion, and its development advances through increased hormonal secretion.

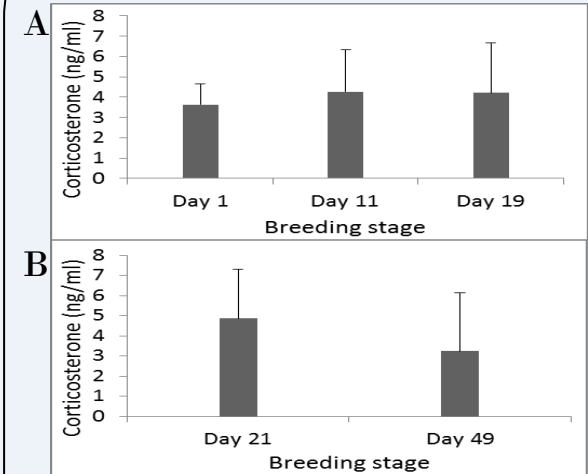
## Aim of the study

- ⇒ To characterize the progression of brood patch modification during the breeding cycle
- ⇒ Correlate the onset of broodiness with brood patch development
- ⇒ To determine the stress levels at different stages of the breeding cycle

## Methods

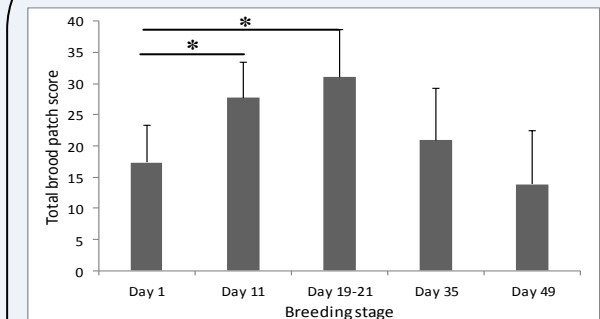
- ⇒ Blood sampling plan
  - Day 0 → Control
  - Day 1 → Start of incubation
  - Day 11 → Mid-incubation
  - Day 19 → 2 days before hatch
  - Day 21 → Day of hatching
  - Day 35 → 2 weeks post hatch
  - Day 49 → 4 weeks post hatch
- ⇒ Brood patch scoring
  - Individual traits considered: De-feathering, Vascularization, Edema and contour feathers
  - Scoring: on a scale of 0 to 4
- ⇒ Radioimmunoassay
  - To determine the corticosterone concentration
- ⇒ Sandwich ELISA
  - To determine the prolactin concentration

## Corticosterone



**Fig. 1A.** Stress levels during the incubation period. N=8 **Fig. 1B.** Stress levels during the chick rearing period. N=7

## Brood patch



Absolute score showing the brood patch modification of 8 hens during the breeding cycle

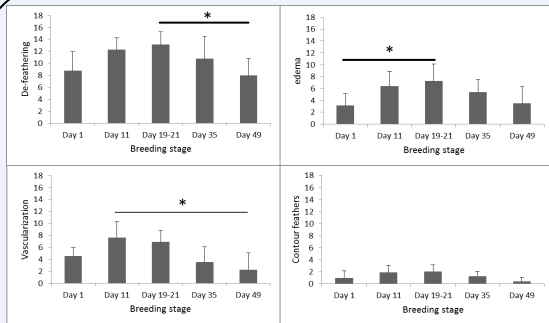


Fig. 2B. Development and regression of the individual traits considered for measuring brood patch modification. N=8

## Conclusion

- ⇒ De-feathering shows the initial signs of brood patch development
- ⇒ Significant development of the brood patch occurs during the mid-incubation period in *Galliforms*
- ⇒ No significance in stress levels for successful breeders throughout the incubation period

## Acknowledgements

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## Contribution of hormones towards broodiness and brood patch modification in Red Jungle-fowls

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