Application of Quality Of Life approach to evaluate the behavior of four slow growing chicken genotypes reared in free range

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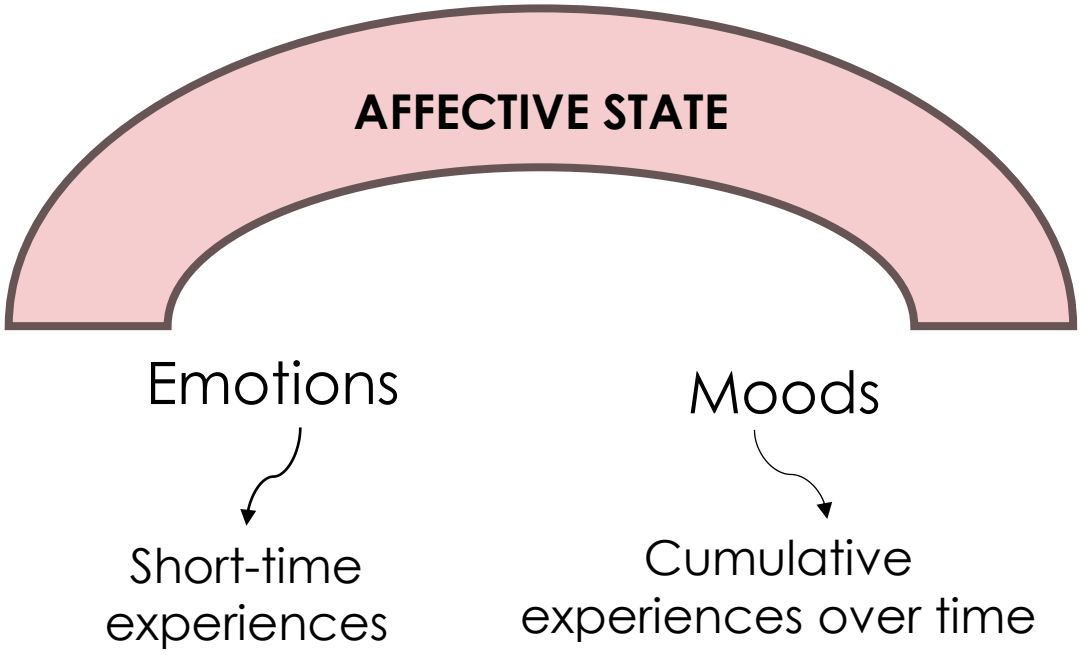
INTRODUCTION

"Quality Of Life" (QOL) is a broad concept by which the impact of the events that occur during the animals' life is evaluated by animal affective states



«THE FIVE FREEDOMS»

- Freedom from hunger and thirst
- Freedom from discomfort
- Freedom from pain, injury and disease
- Freedom to express normal behavior
- Freedom from fear and distress

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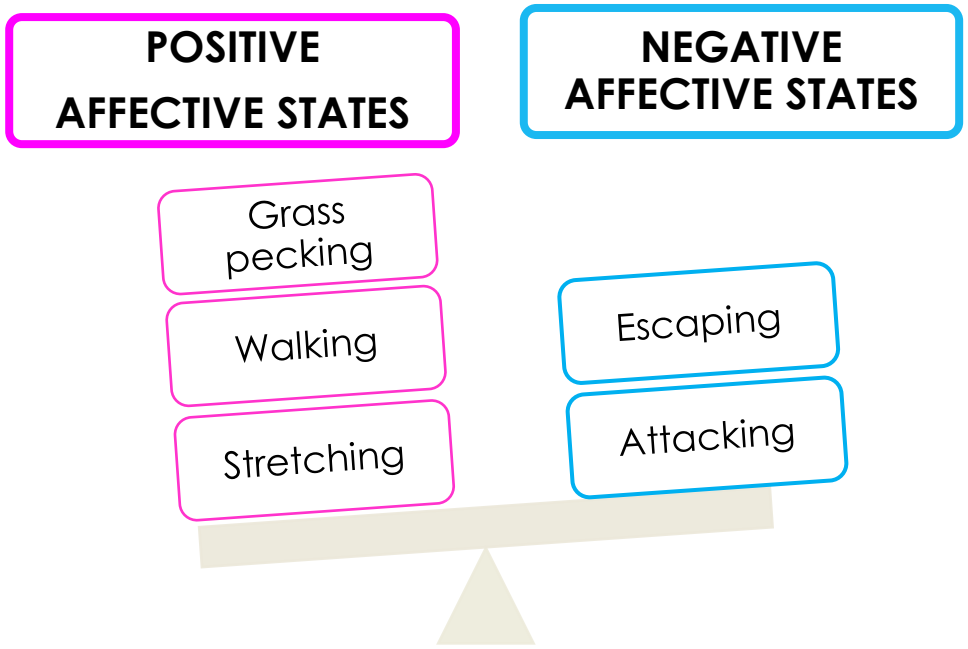
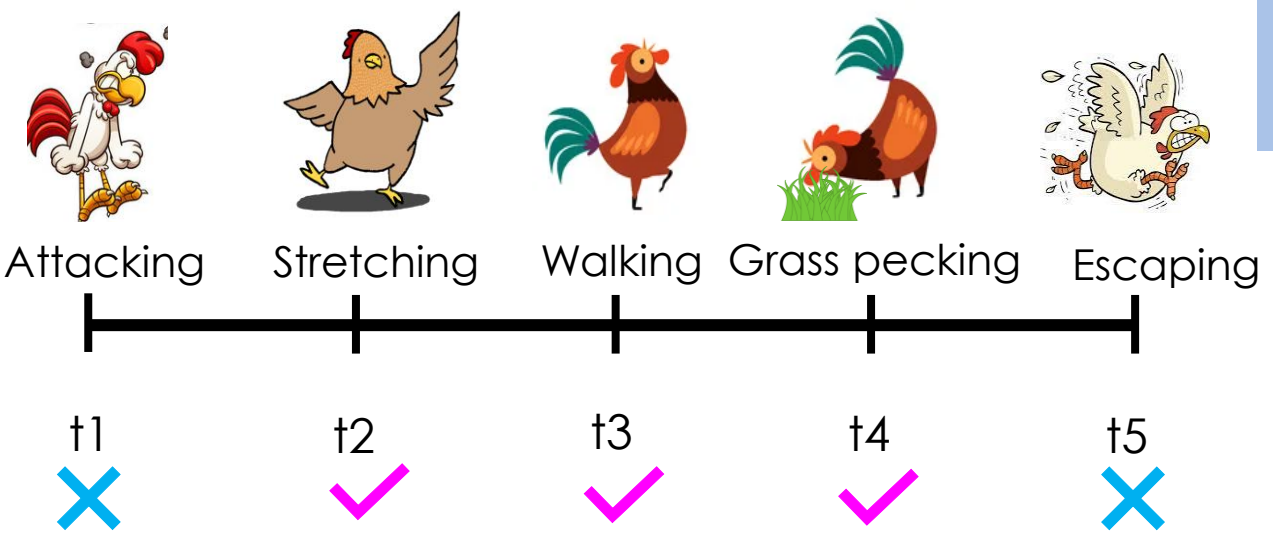
INTRODUCTION

QOL→ is a balance of all experiences within a specific period

"Welfare over time"



CLASSIC WELFARE ASSESSMENT → a point-by-point evaluation attributing a good or bad welfare status in each observation time is given



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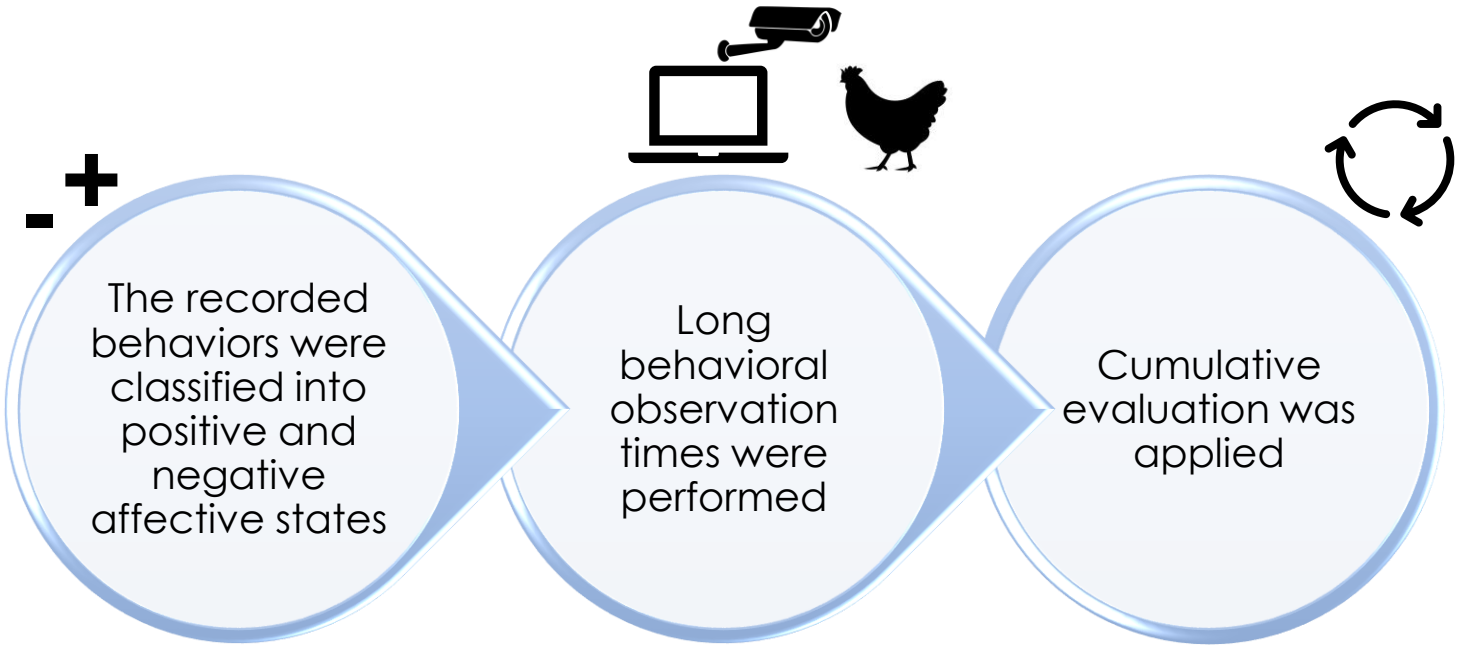
AIM

The aim of this study was to compare the behaviors of four different Slow-Growing chicken genotypes reared in free-range conditions by applying the QOL approach



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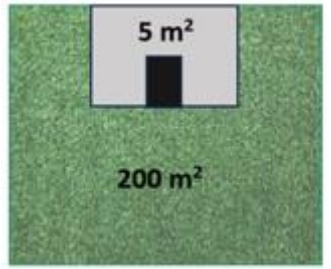
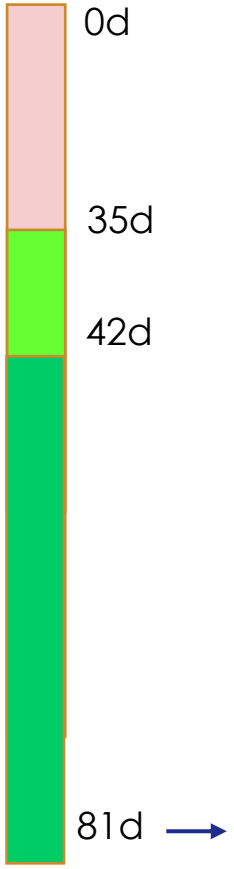
MATERIAL AND METHODS



100 chicks/genotype
(50 male and 50 females)

- **A** — Meat-type chicken
- **NN** — Meat-type chicken
- **LD** — Dual-purpose chicken
- **CB** — Italian local breed x commercial meat type hybrid

2 pens/genotype (25 males and 25 females)
0.10 m² indoor/bird and 4 m² outdoor/bird



BROODING PERIOD
Reared indoor under controlled environmental conditions

ADAPTATIONS PERIOD
Chickens were free to access to the outdoor area

BEHAVIORAL OBSERVATIONS
For each pen, 2 videos/week of two hours (9.00-11.00 am)

81d → **SLAUGHTER AGE**

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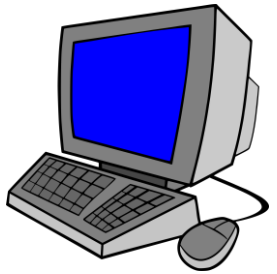
MATERIAL AND METHODS



- All the videos were analyzed by two experienced observers using 10-minute scan sampling intervals and 10 seconds were observed at each scan
- Data were expressed as the percentage of animals expressing the behavior out of the total number of visible animals at each scan

CHICKEN ETHOGRAM

ACTIVE


Walking


Running


Sheltering

INGESTIVE


Grass pecking Feeding Drinking Other pecking

INTERACTION


Allo-grooming


Attacking


Escaping

STATIC


Resting

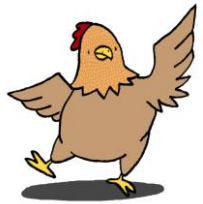

Roosting


Sleeping

COMFORT


Self-grooming


Flapping wings


Stretching


Dust bathing


Scratching

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MATERIAL AND METHODS

The average percentage of animals engaging in each behavior

- Descriptive statistics

Behaviors classification in positive or in negative affective states

- Available literature
- Binning technique
  - Low-, Medium- or High-occurrence
  - Scale of intensity/duration
  - Identify the anomalous repetition (i.e. stereotypies)

Association between genotype and frequency categories

- Chi-square or Fisher's exact
- Z-tests

Percentage of Positive Affective states (PPA) Index =

$$\frac{\text{Positive affects}}{\text{Positive affects+Negative affects}}$$

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RESULTS

Figure 1. Classification of behaviors into positive and negative affective states

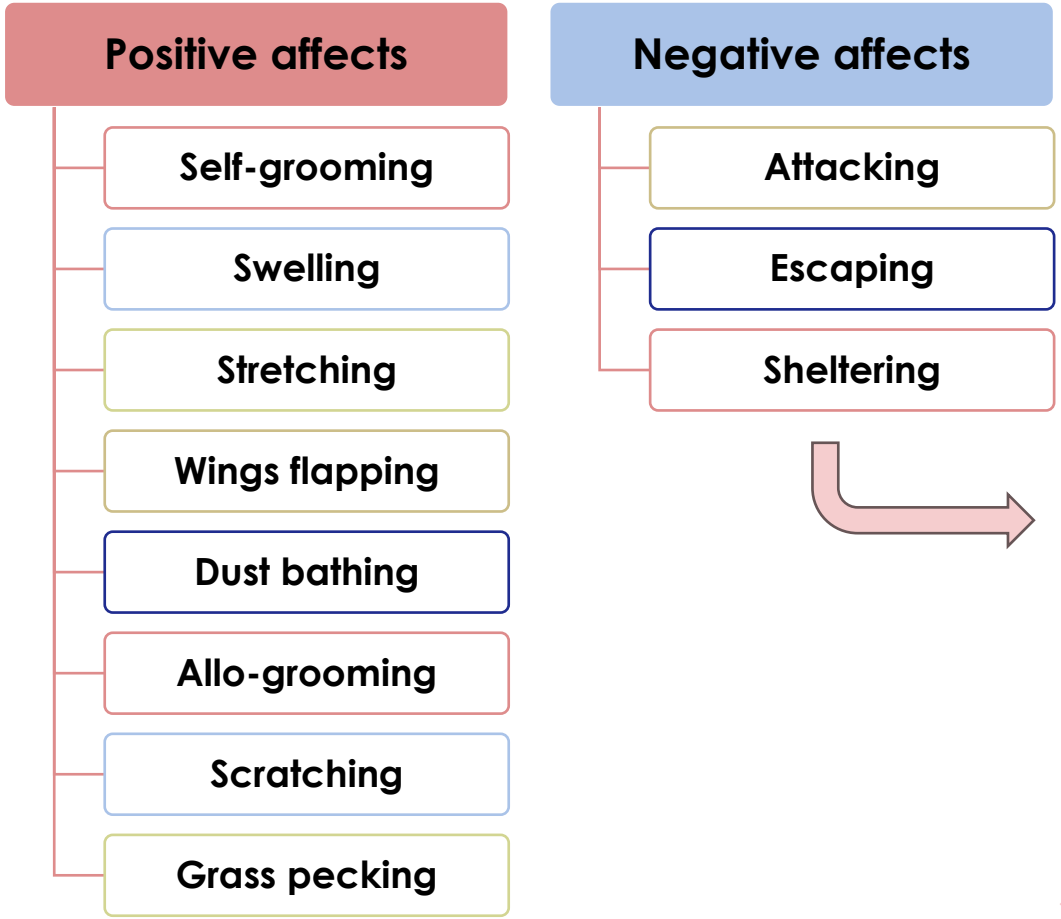
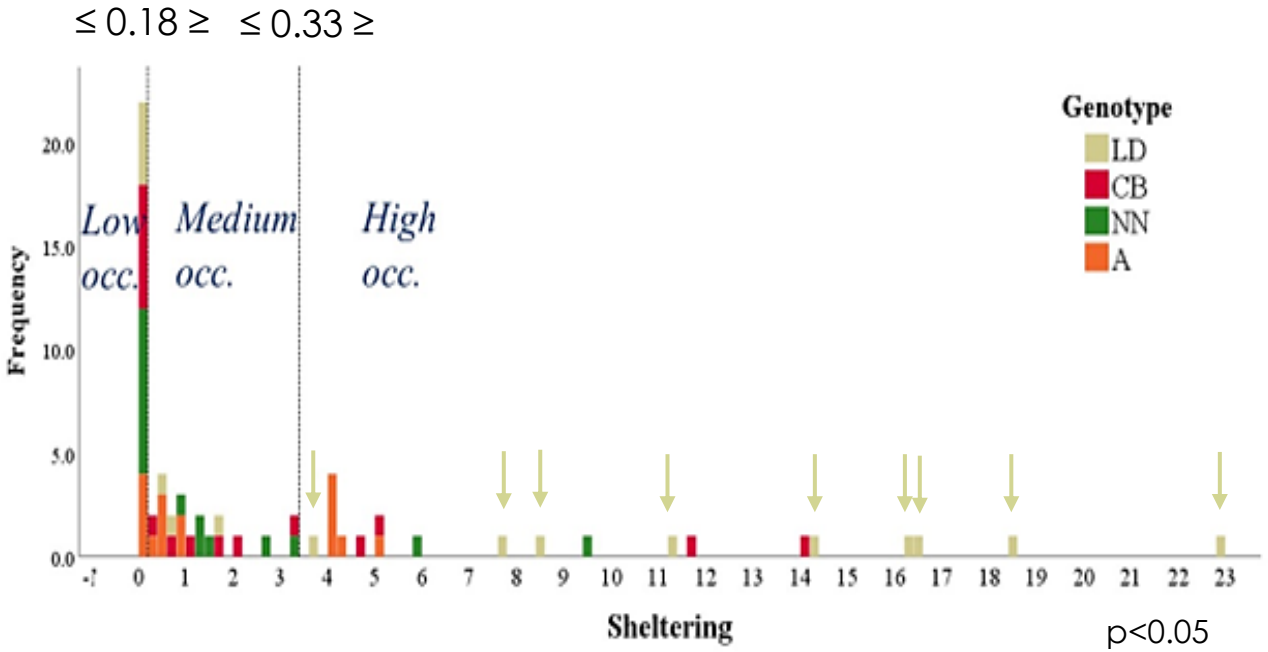


Figure 2. Histograms showing the distribution of occurrences for sheltering behavior



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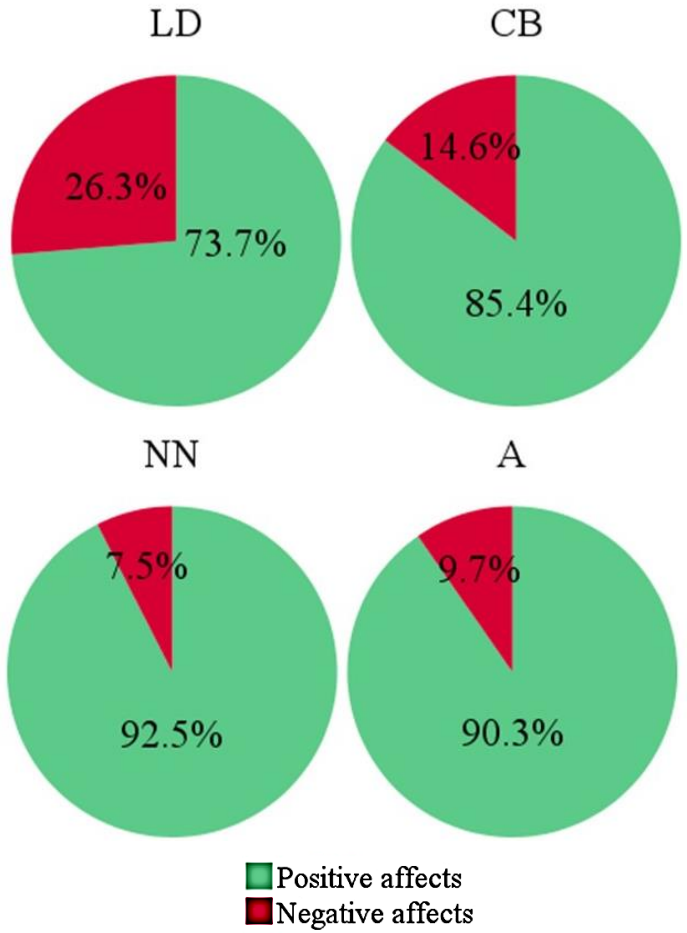
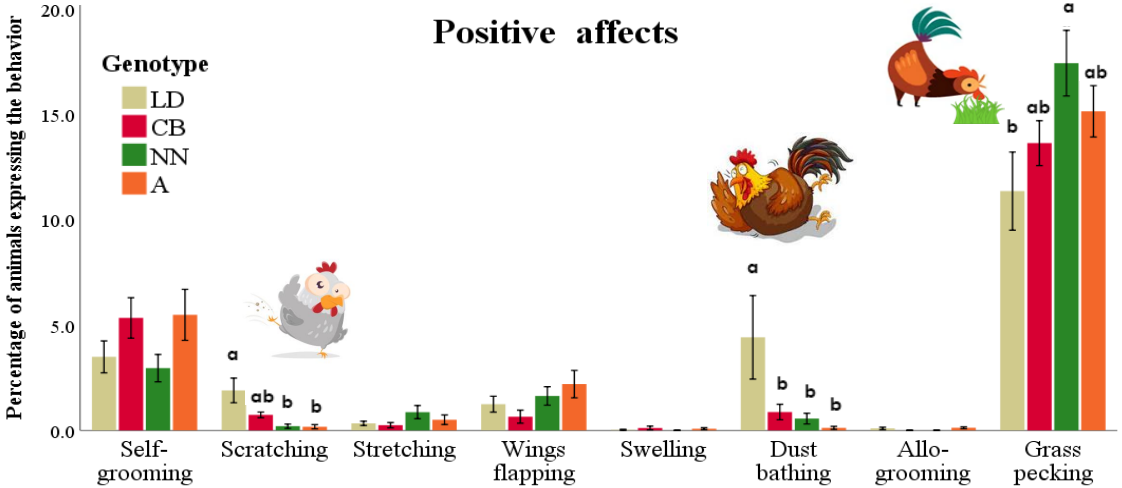
RESULTS

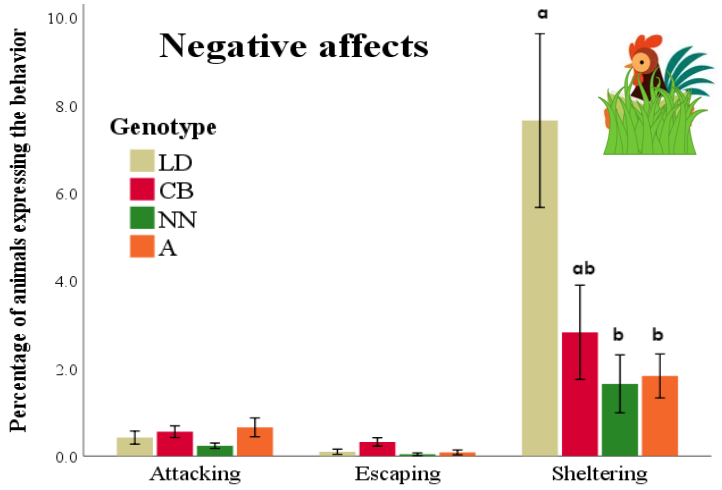
Figure 3. Pie charts showing percentage of positive and negative affects engaged by the genotypes studied



p<0.05

Figure 4. Percentage of animals expressing the different behaviors classified in Positive and Negative affects





p<0.05

Average of sheltering in all sections
LD → 8%
CB, NN, A < 3%

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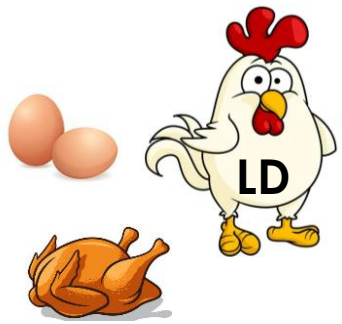
CONCLUSIONS

1) The **highest frequency of dust bathing and scratching** in LD genotype **had offset** its highest **frequency of sheltering behavior**



Sheltering
>20%

>81 d of age

Aggressive behaviors

Attacking
<2%

Scarce confidence with the outdoor area

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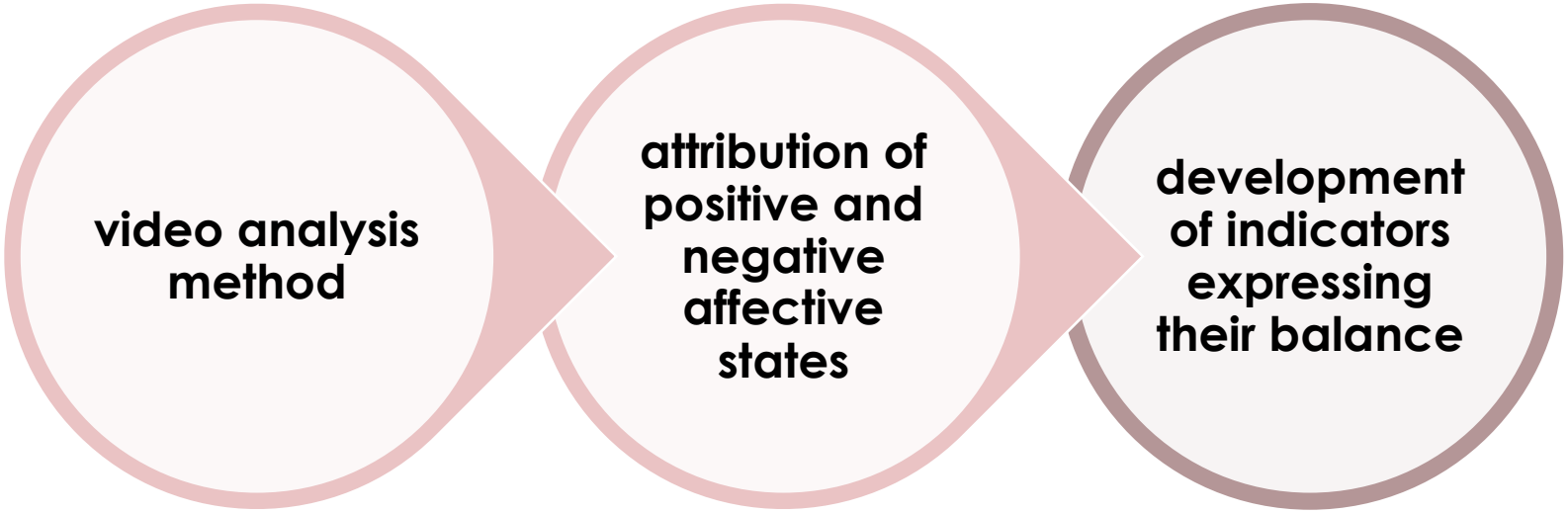
CONCLUSIONS

2) **NN genotype** showed a clear **predominance of positive affects**, confirming its adaptability to the free range

3**) QOL is a promising tool** to evaluate the characteristics of the genotype and its interaction with the environment, even though **it needs some improvements**



4) The repertoire could be influenced by the **productive purpose** (dual-purpose or meat-type), making **the classification of individual behaviors** into positive or negative affects **difficult**

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Thank you

PPILOW

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