Behaviour and broiler signals

Broiler management training, DIFS-Live Indonesia

31 May, 1 or 2 June, Rick van Emous

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DIFSLIVE
INDONESIAN – DUTCH PROGRAMME ON FOOD SECURITY, POULTRY & DAIRY SECTOR

Outline of the presentation

- Behaviour
- Senses of broilers
- Broiler signals

Behaviour

Natural behaviour (social)

- Wild chickens live in small groups (1 male + several females)
- Laying eggs (8-10) and than brooding
- Average territory is 50-75 m diameter
- Between birds:
  - Linear hierarchy (pecking order)
- Recognising by the head (colour, size and form of the comb)

Pecking order

- In very large flocks, less aggression
  - Birds can no longer recognize each other (>100)
  - Largest bird with largest comb is dominant

Fig. 9.2. Social hierarchies in poultry are maintained through aggressive and submissive interactions. The bird on the left is adopting a confident and aggressive posture, while the bird on the right is showing submission.

Nature (young chicks)

- Warmth
- Draught free environment
- Safe, warm, not light place for protection
- Well-lit area for activity
- Behaviour learned from the mother

Source: Broiler Signals®

Natural behaviour (group)

- Behaviour of some chickens will be followed by other others chickens:
  - Eating, drinking, pecking litter
  - Resting / sleeping
- Behavioural synchrony:
  - Many activities are performed together
- Form groups for protection against predators

Protection

- First weeks under the mother
- In nature:
  - Day: under trees and bushes
  - Night:
    - 1st 7-8 wks: under trees and bushes
    - Onwards: in trees (perching)

Communications

- Communication between birds:
  - Looking
  - Hearing
- Communication mainly through visual and vocal signals

Source: Broiler Signals®

Vocalisations

- Most poultry species have extensive vocal repertoire:
  - Warning calls
  - Contact calls
  - Signalling threat or submission
  - Food calls
  - Pain calls
  - Males: territorial defence: long distance (crowing)
  - Social dominance: quality + rate

Foraging behaviour

- Omnivores (seeds, herbs, worms and insects)
- In nature:
  - Energy low feed
  - 60-90% of the day foraging
- Can compose their own diet
- Preference:
  - 2-3 mm particles size
  - Red and yellow particles
  - Bright light (200 lux)

Behaviour ancestor and current breed (lay)

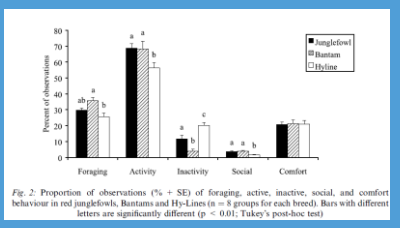


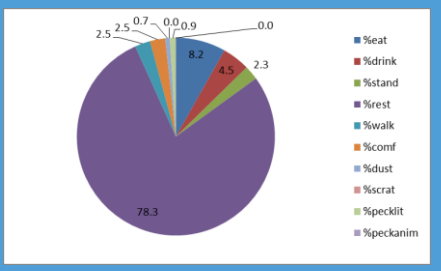
Fig. 2: Proportion of observations (% + SE) of foraging, active, inactive, social, and comfort behaviour in red junglefowls, Bantams and Hy-Lines (n = 8 groups for each breed). Bars with different letters are significantly different ($p < 0.01$; Tukey's post-hoc test)

- Domestication:
  - Activity cost energy (production)
  - Same behaviour: time budget changed

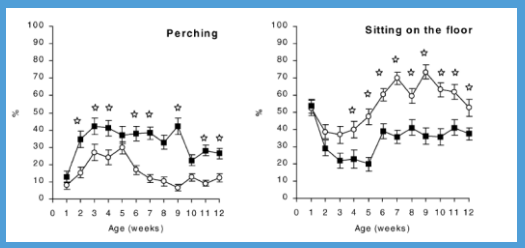
Broiler behaviour

- Fast growing broilers: low activity levels
- Inactive:
  - Sitting / lying (sleeping)
  - Standing (still)
- Active:
  - Drinking / eating
  - Walking (running)
  - Foraging
  - Comfort

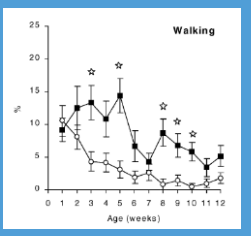
Broiler behaviour

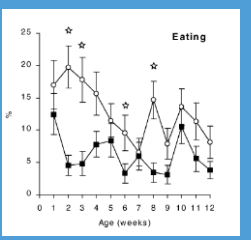


Inactive



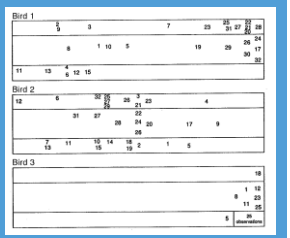
Active (walking / foraging)





Natural behaviour (movement)

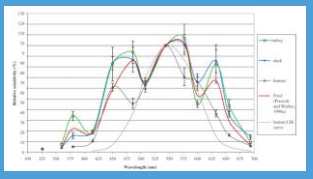
- Nature:
  - Flying (trees)
  - Walking: up to 30 K



Senses

Eyes

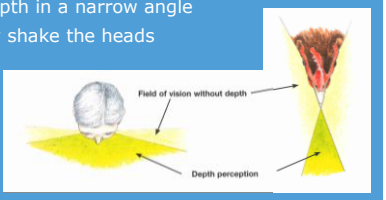
- Chickens vs. human:
  - More details (close)
  - More colours (UV)
  - More observations/second



Source: Broiler Signals®

Eyes

- Chickens vs. human:
  - Panoramic vision of about 300°
  - The overlap between the two eyes is minimal
  - Only see depth in a narrow angle
  - Birds briefly shake the heads



Source: Broiler Signals®

Ears and nose

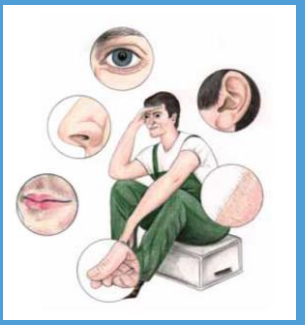
- Ears:
  - Can hear sounds between 15 to 10,000 Hz (human up to 20,000 Hz)
- Nose:
  - Good sense of smell (less sensitive as mammals)
  - Search for food and recognise other birds

Beak and tongue

- Beak:
  - Sensitive (tip): distinguish different products
  - No hands: pecking to explore
- Tongue:
  - 250 vs. 9,000 (humans): sweet, salty, sour, bitter

Broiler signals

Use all your senses



Using the signals

1. What am I seeing, hearing, smelling, or feeling?
   - What is the signal?
2. Why is this happening?
   - What is the explanation?
3. What should I do?
   - Can I leave it or should I take action?

LOOK

THINK

ACT ?!

Look from flock to individual

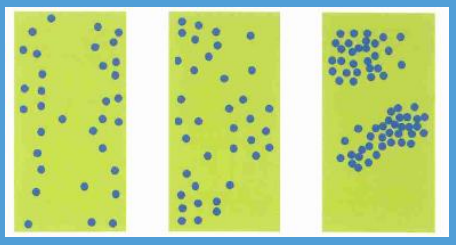
- The whole flock:
  - How are they spread?
  - Avoiding certain spots?
  - Differences between birds (BW, colour, etc.)
  - Whistle to check reaction
- Individual birds:
  - Pick up random 10 birds
  - Check legs, footpad, etc
  - Feel the breast, legs, etc
  - Listening

Examples

Example: flock

Example: flock

Chick distribution in the house



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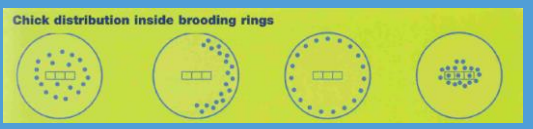
Chick distribution in the house



Source: Broiler Signals®

Example: individuals in flock

Example: individuals in flock

Example: individual bird

Example: Footpad dermatitis

- Contact dermatitis
- Starts at young age (1st week)
- Fully developed lesions at 3 wks

- Implications:
  - Leg problems (mobility)
  - Pain and hunger (severe problem)
  - Retarded BW gain and uniformity, downgrading in slaughter plant, unsalable foot pads – legs

Example: individual bird

Example: individual bird

Source: Broiler Signals®

Example: individual (dead) bird

Source: Broiler Signals®

Characteristics of dead birds

Dead bird	Possible cause
On stomach or back	Metabolic disorder
On back with wings splayed (+ one foot in the air)	Sudden death syndrome (flip-over)
Well developed with full crop	Sudden death (older age, excessive strain on heart an poor blood circulation Slow down growth slightly
Moderate to poor condition (stomach full or liquid)	Ascites: from 3 weeks
On stomach, neck forward and feet back	Choking (virus infection or vaccination reaction) Fungal infection

Source: Broiler Signals®

Tips for structured observing

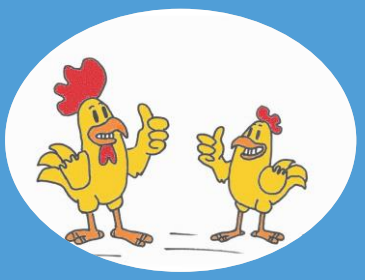
- Look to the birds with and without doing other things
- Look at the whole flock, individual ones and flock again
- Look for averages and extremes
- Look in the front, middle and back (also water and feed system)
- Look at different times and different circumstances
- Look at bird level
- Look with colleagues and discuss (1+1 = 3)

Key factors behaviour and broiler signals

- Natural behaviour of wild chickens give us valuable information about behaviour
- Broilers: same behaviour -> different time budget
- Chickens: good view
- Signals: **LOOK – THINK – ACT ?!**

End

Questions ??



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