



On-farm hatching can improve welfare, chicks quality, breast yield and daily body weight gain

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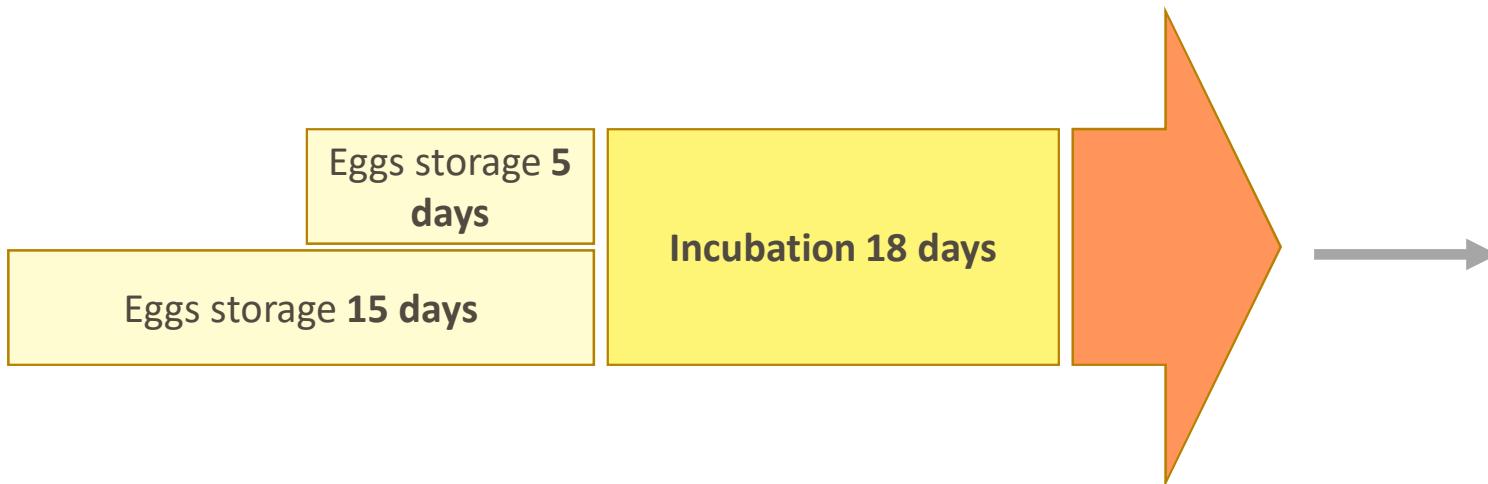
Context and objectives

- Significantly growing in many European countries
- Beneficial for broilers welfare
 - Hatched in broiler house (no transportation, less stress)
 - Direct access to food and water
- A multi-criteria evaluation
 - Two different heating systems compared with conventional hatching
 - Two pre-incubation storage durations for eggs
- Long-term impacts on zootechnical criteria and meat quality needs to be investigate



Hatching set up (hatchery - control)

Same parental herd (52 weeks old) – Ross 308

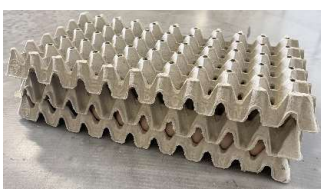


- 700 eggs 5 days storage
- 700 eggs 15 days storage

- Temperature : 37,6°C
- Humidity : 75%



Hatching set up (gas fan heater)



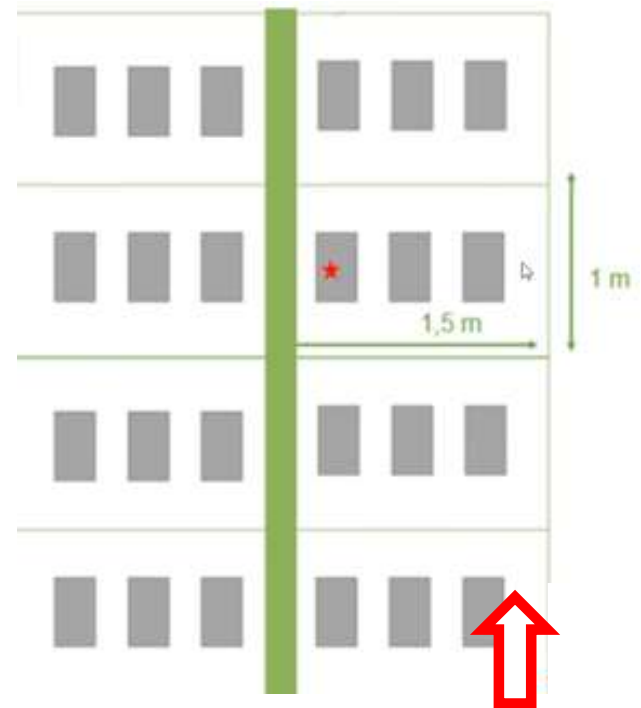
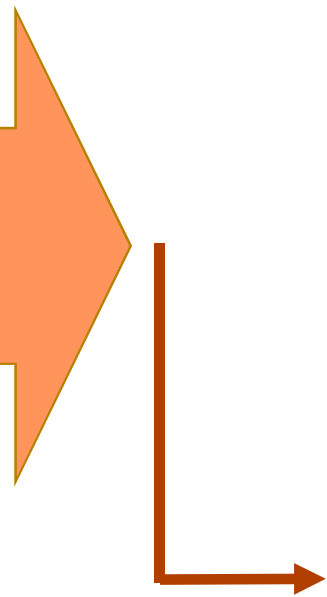
- 600 eggs 5 days storage
- 600 eggs 15 days storage

- 34°C as set temperature

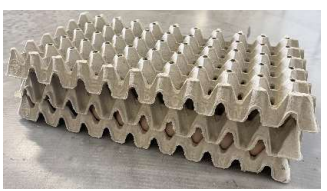
Eggs storage 5 days

Eggs storage 15 days

Incubation 18 days



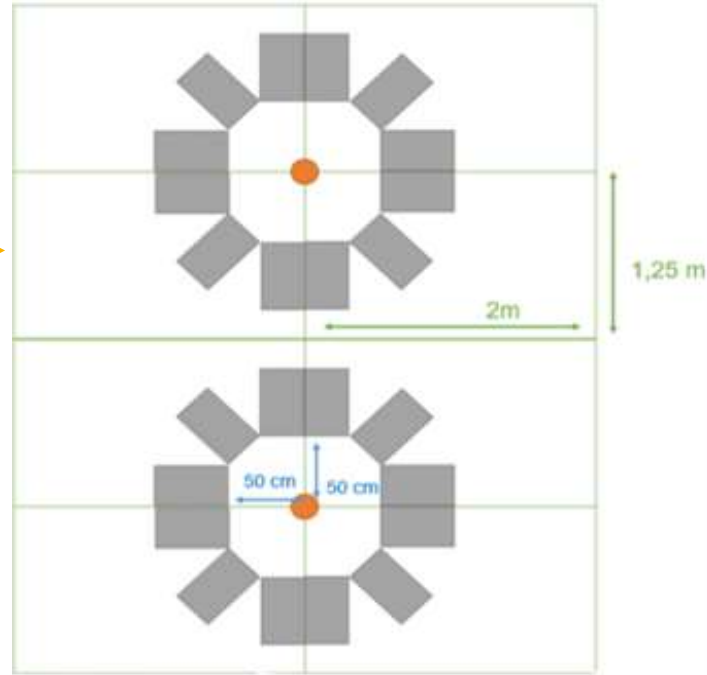
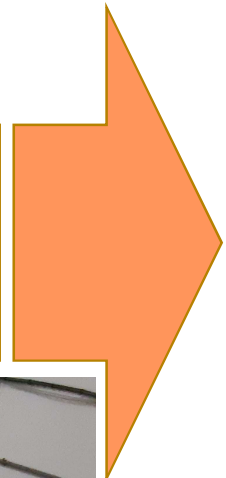
Hatching set up (gas brooder)



Eggs storage 5 days

Eggs storage 15 days

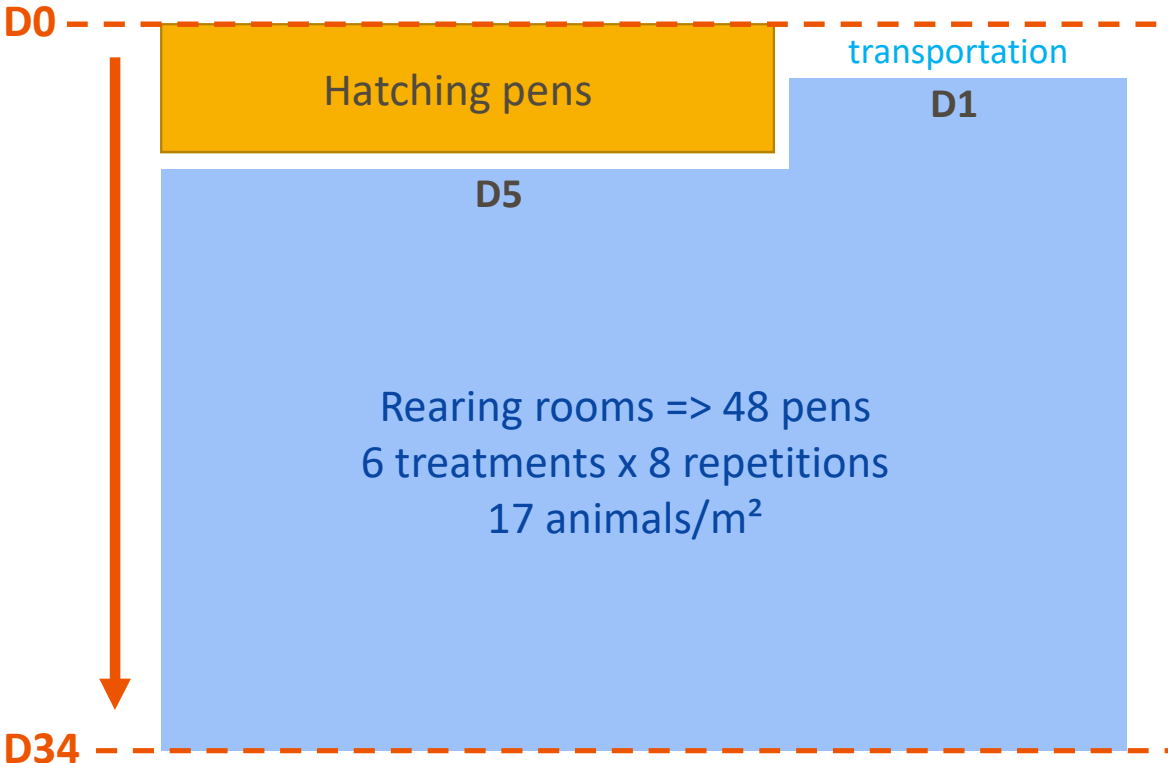
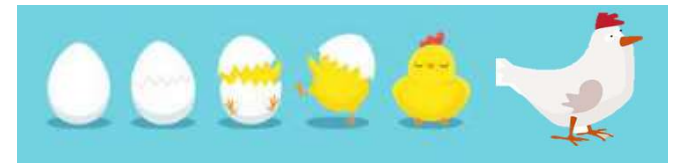
Incubation 18 days



- 600 eggs 5 days storage
- 600 eggs 15 days storage
- brooder height = 2.20 m
- 34°C as set temperature



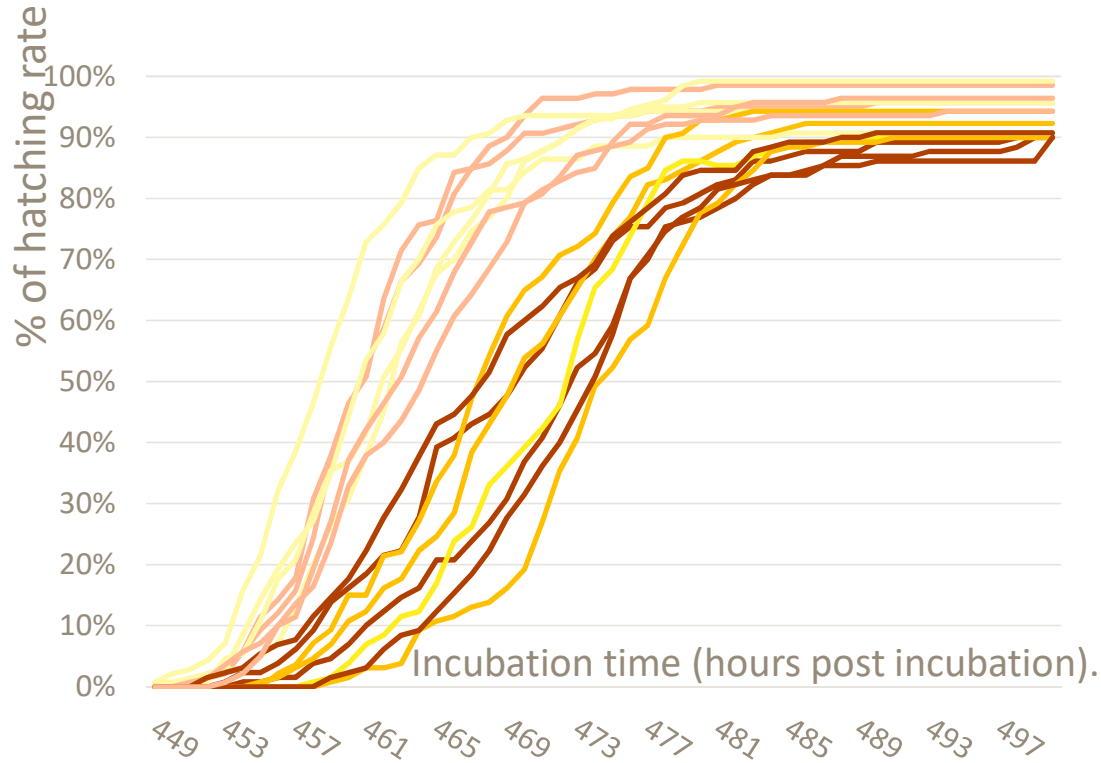
Rearing set up



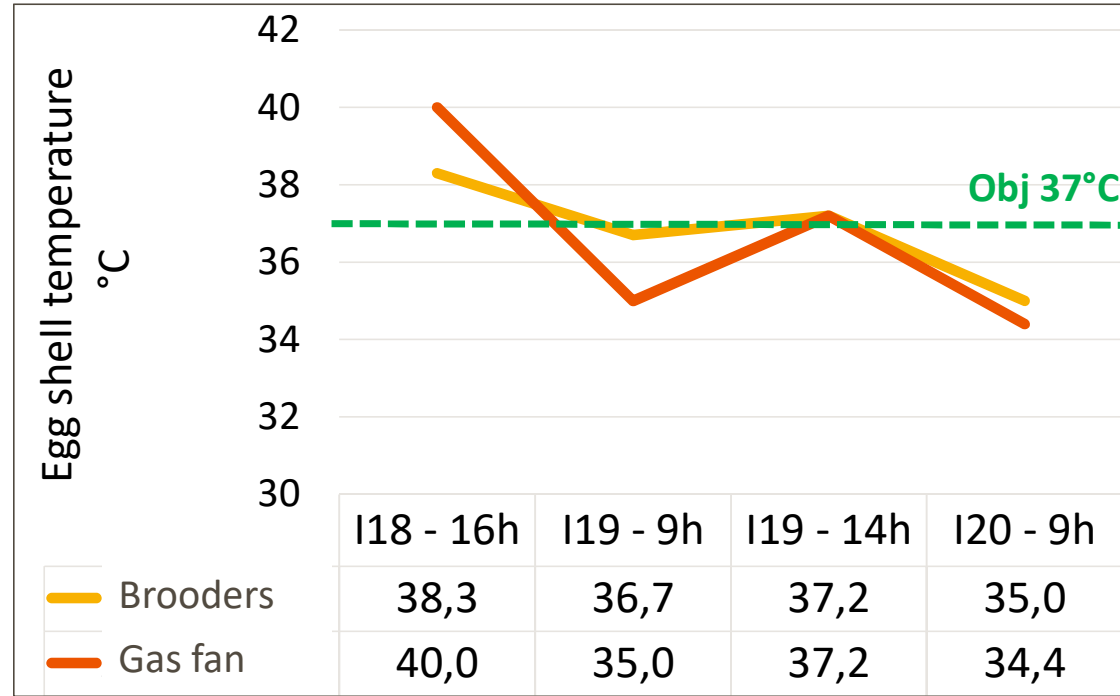
- Room and egg shell temperature
- Hatching rate (except for hatchery)
- Chicks quality and weight
- Animal weight and feed consumption
- Chicks autopsies
- Behavioural and sanitary indicators
- Breast yields



Hatching dynamics



A15 A5
R15 R5

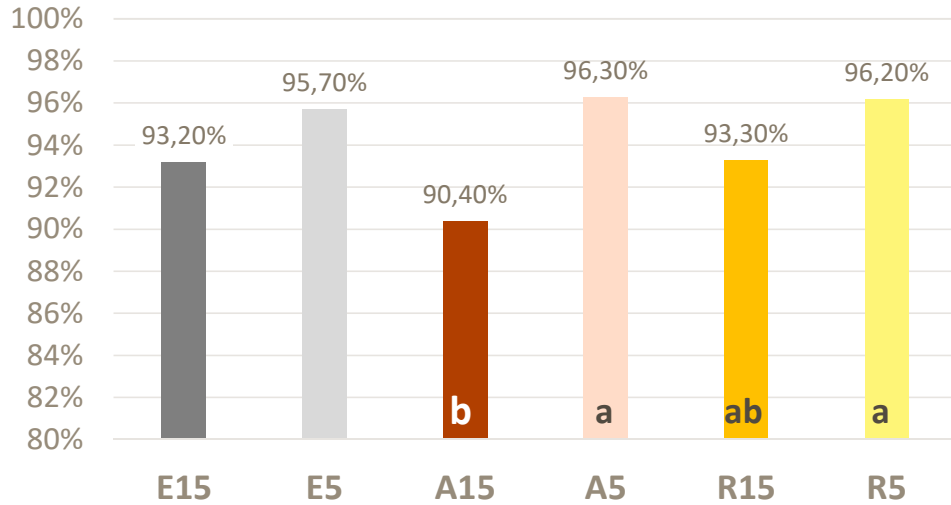


	Hatching window (h)
A15	40,0 ± 3,2
R15	29,0 ± 5,6
A5	35,5 ± 1,7
R5	29,5 ± 3,7



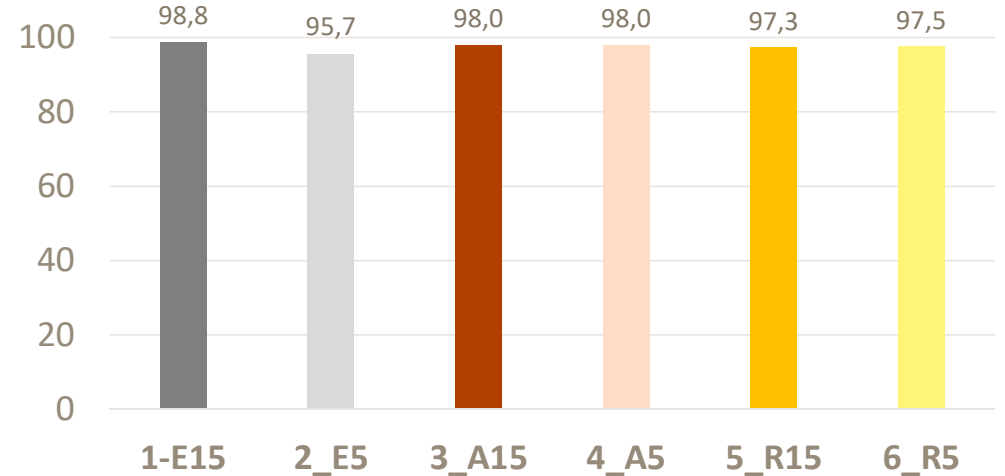
Hatching performance and chicks quality

Hatchability



Quality score (Tona)

NS



- **Short storage > long storage** indep. form hatching site
- Hatchery ≈ On farm hatching
- A15 worst performance

- Very good chicks quality
- However, the proportion of mediocre chicks is higher from hatchery
 ⇒ Dirty (waiting time in hatchery)
 ⇒ dehydrated (23% hatchery vs 4% on-farm)



Autopsies

⇒ Kidneys of chicks hatched in gas fan room have higher frequency and intensity of discoloration => dehydrated ? Hottest room

⇒ Yolk sac better resorbed in on-farm chicks (90%) VS hatchery (40%)



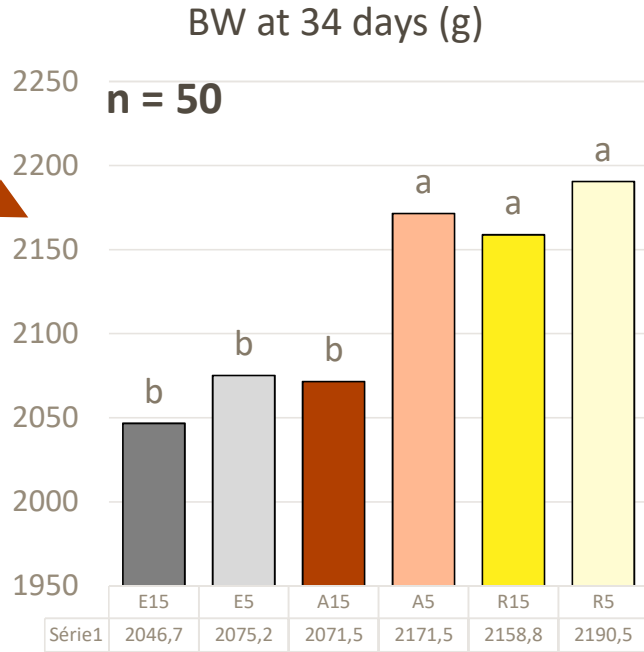
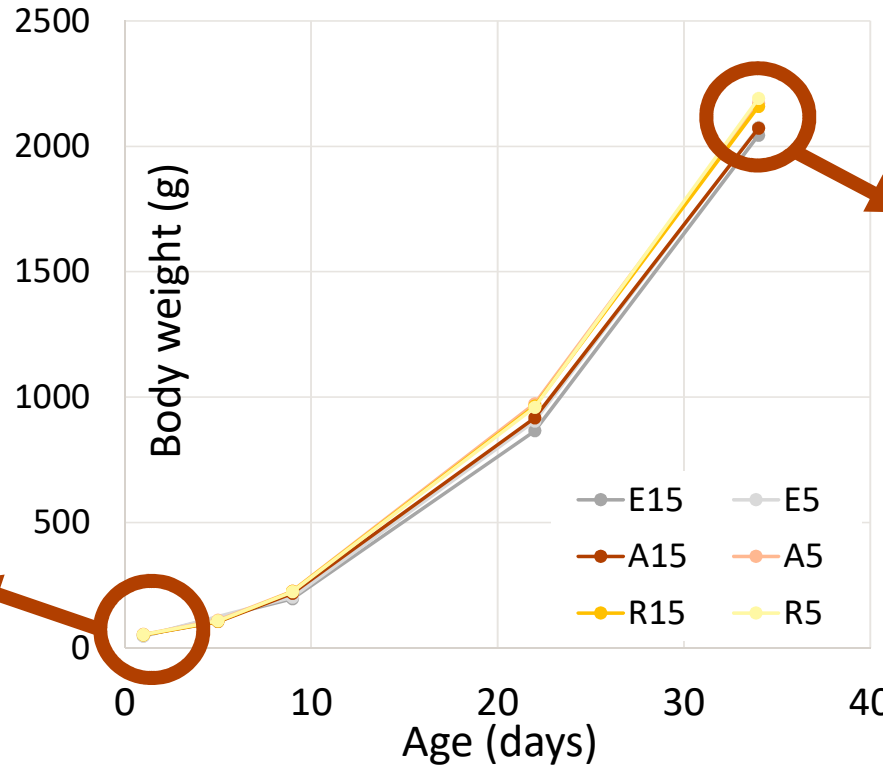
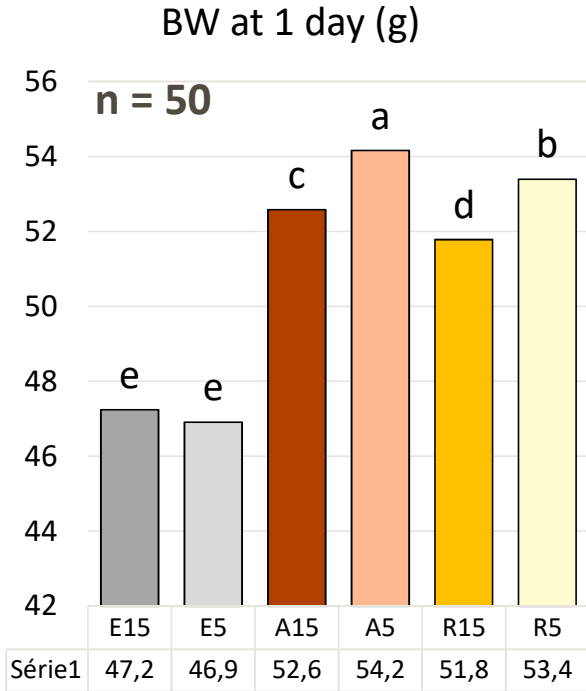
Behavioural and sanitary indicators

No impact of heating system or pre-incubation storage duration on the occurrence or severity of footpad dermatitis, on the number of lame, dirty and nervous broilers, or on pecking, grooming, exploring and resting behaviour

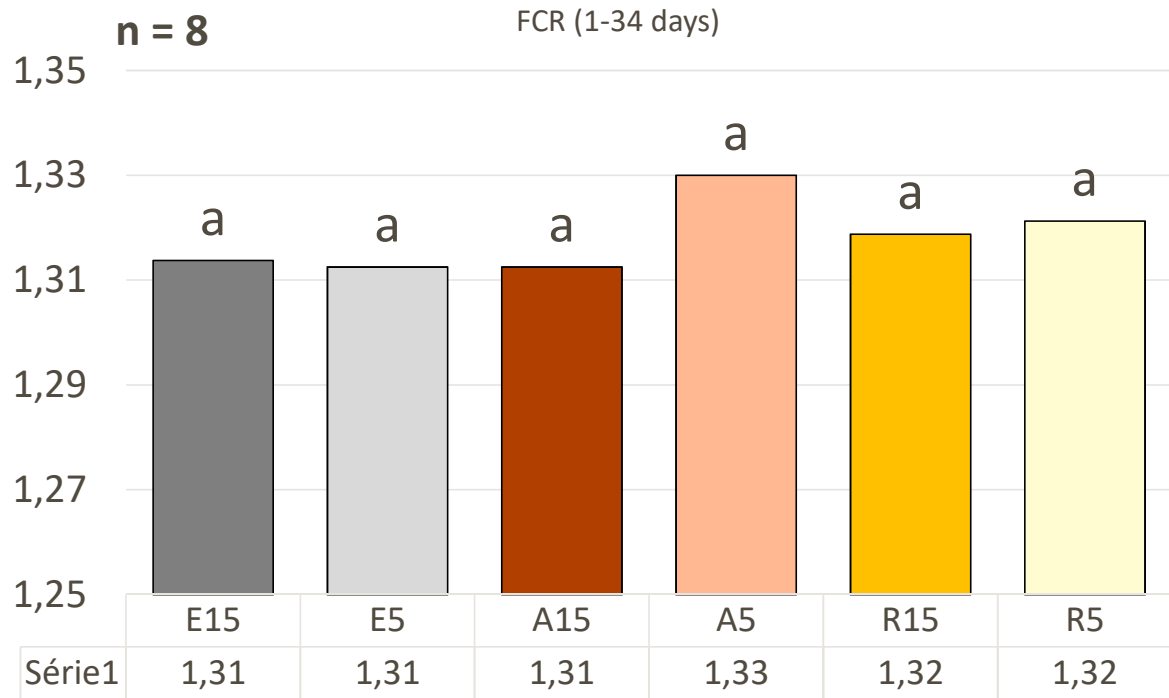


Growth performances

Growth from 1 to 34 days



Feed conversion ratio (FCR)



No effect from storage duration or hatching condition on FCR



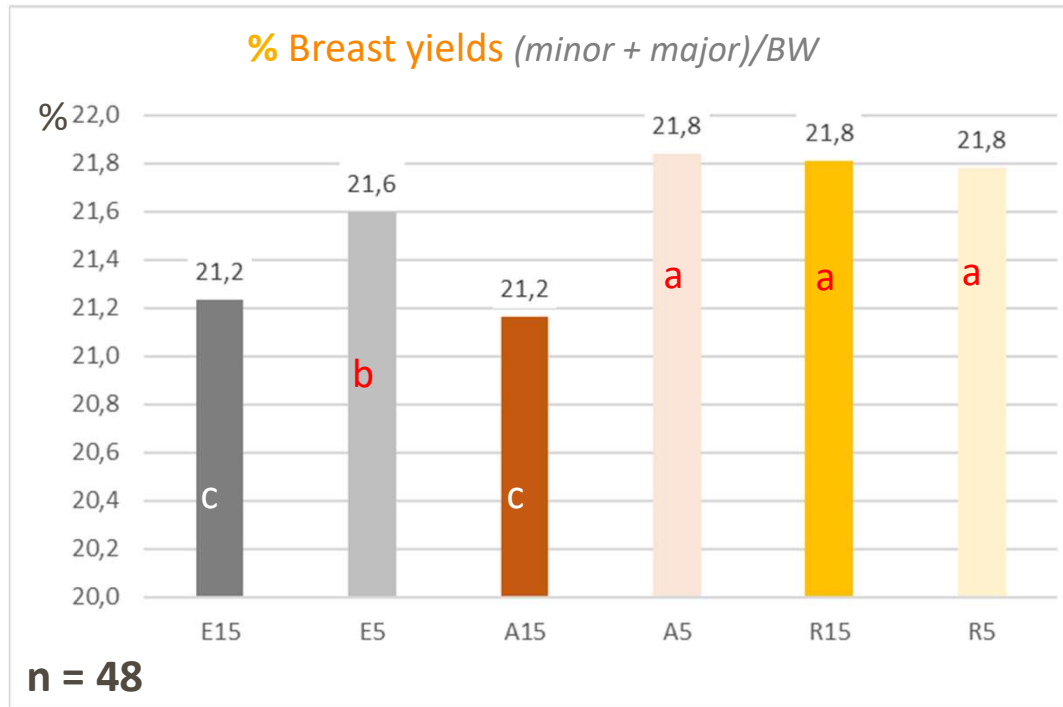
A15 A5
R15 R5



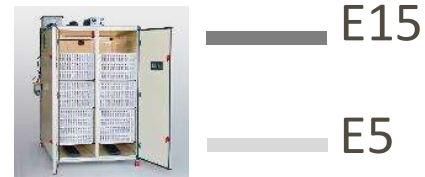
E15
E5



Breast yields (males, representative body weight)



- On farm hatching > hatchery (except A15)
- Short storage > Long storage
- ➔ Follows growth performances
- No effect from storage duration or hatching condition on :
 - Abdominal fat/BW
 - Meat colour
 - Muscular defects



Take home message

- On-farm hatchability is similar with hatchery
- Chicks less dehydrated, yolk sac better resorbed
- Body weight at day 1 and slaughter age increased but FCR equivalent
- Enhanced breast yields

- **Independently of heating systems, effects are equivalent, the most important is to manage egg shell temperature (spatial and temporal homogeneity)**
- **Long stored eggs are more sensitive to high temperature and fluctuations**



Thank you for your attention

