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Development of an ecologic chicken breeding programm in Germany

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ÖKOLOGISCHE TIERZUCHT GEMEINNÜTZIGE GMBH

Background

Genetic improvement of chicken

- private companies
- main objective: maximizing of market share
- non-disclosure of breeding process
- only hybrid chicks accessible
- impaired welfare (breeding animals, male layer chicks)
- conventional management
- excellent performance

Backyard chicken

- smallholders, hobby breeders
- limited or no genetic improvement
- animal genetic resources
- (semi-)ecologic management
- poor performance

Demand

Market oriented ecological farms

economic viability to make a living

→ performance oriented

- **Egg production**
- **Meat and eggs**
- **Adaptation to ecologic conditions**

Hobby farmers

alternative supply of eggs and meat

→ Performance not in the fore

Ecologic Breeding gGmbH

- Founded in 2015 by Bioland and Demeter, director Inga Günther
- 3 purebred lines with breeding history under ecologic conditions
- 3rd generation of individual performance testing

Premises

- Breeding – transparent, accessible and free cultural asset of common welfare
- Ecologic feeding, e.g. no synthetic amino acids
- Ecologic management conditions, e.g. group housing, natural light, also for nucleus chicks
- No artificial insemination
- Raising of male layer chicks (brother “roo”)
- No preventive use of antibiotics
- No manipulation of beaks, combs and wings
- Breeding maintaining intact animals, e.g. ability to fly, mate naturally

Breeds

White Rock (WR)

New Hampshire (NH)

Bresse Gauloise (BR)

Crosses

Emphasis on egg performance

WR♂ x NH♀

Silver

NH♂ x WR♀

Gold

Crosses

Emphasis on egg performance

WR♂ x NH♀

Silver

NH♂ x WR♀

Gold

Dual purpose

BR♂ x WR♀, WR♂ x BR♀

Cream

BR♂ x NH♀, NH♂ x BR♀

Coffee

Performance recording

- Individual identification

  - wing numbers at hatch

  - leg ring numbers at wk 16

  - transponder numbers at wk 16
    (from generation 2 on)

- Trap nest control

  - assign egg to the correct hen without caging

- Traits
  - Egg performance and quality
  - Body weight
  - exterior / defect traits

- Online sql-database (generation 2)

Breeding process

Age, wk

1 Hatch, ~2500 chicks

6 Body weight, 1st selection (males)

16 Exterior rating, 2nd selection

35 Exterior rating, 3rd selection

43 Mating, 40 mating departments with trap nests (1♂ x 15♀), 4th selection

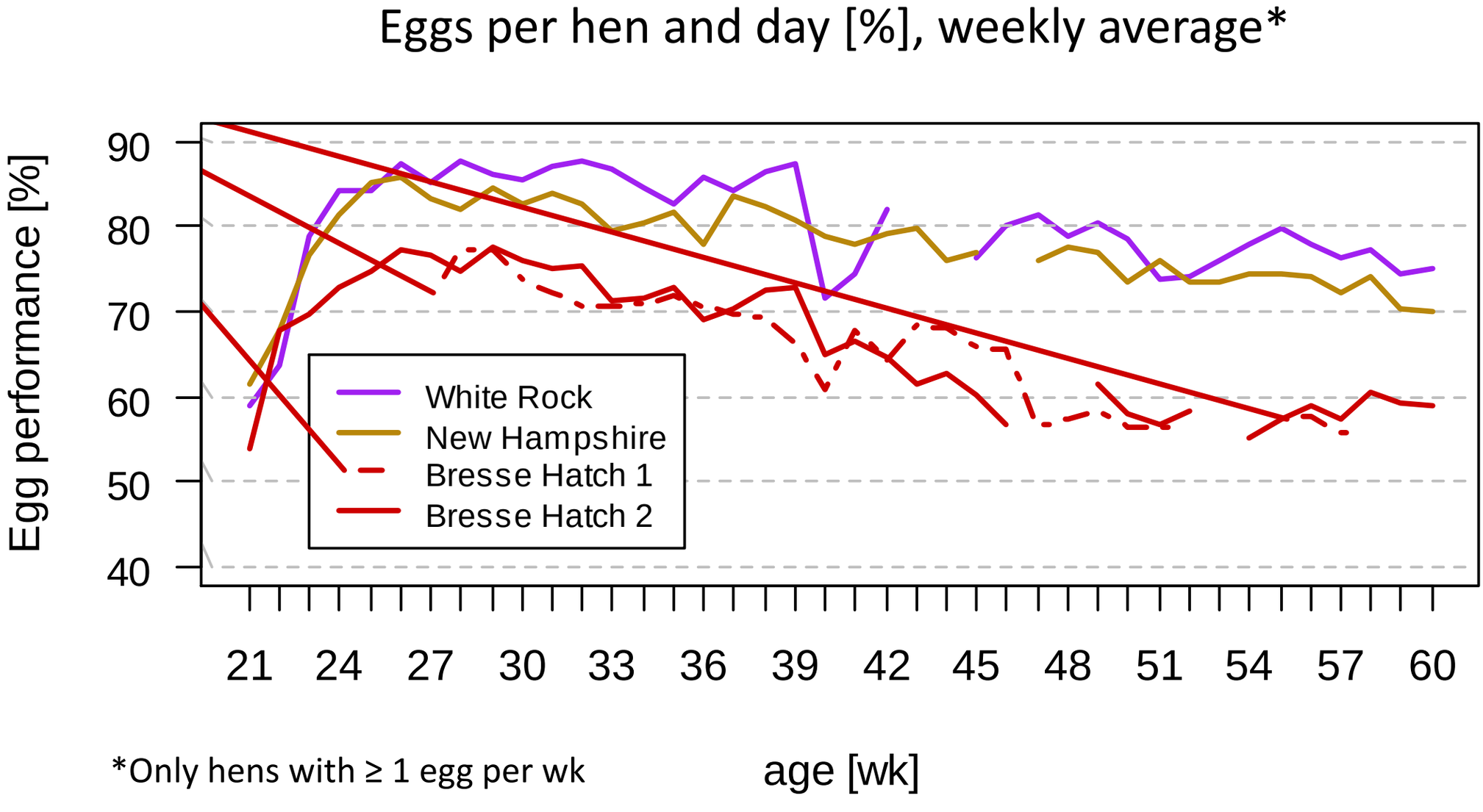
60 End of regular performance test

80 End of long-term performance test

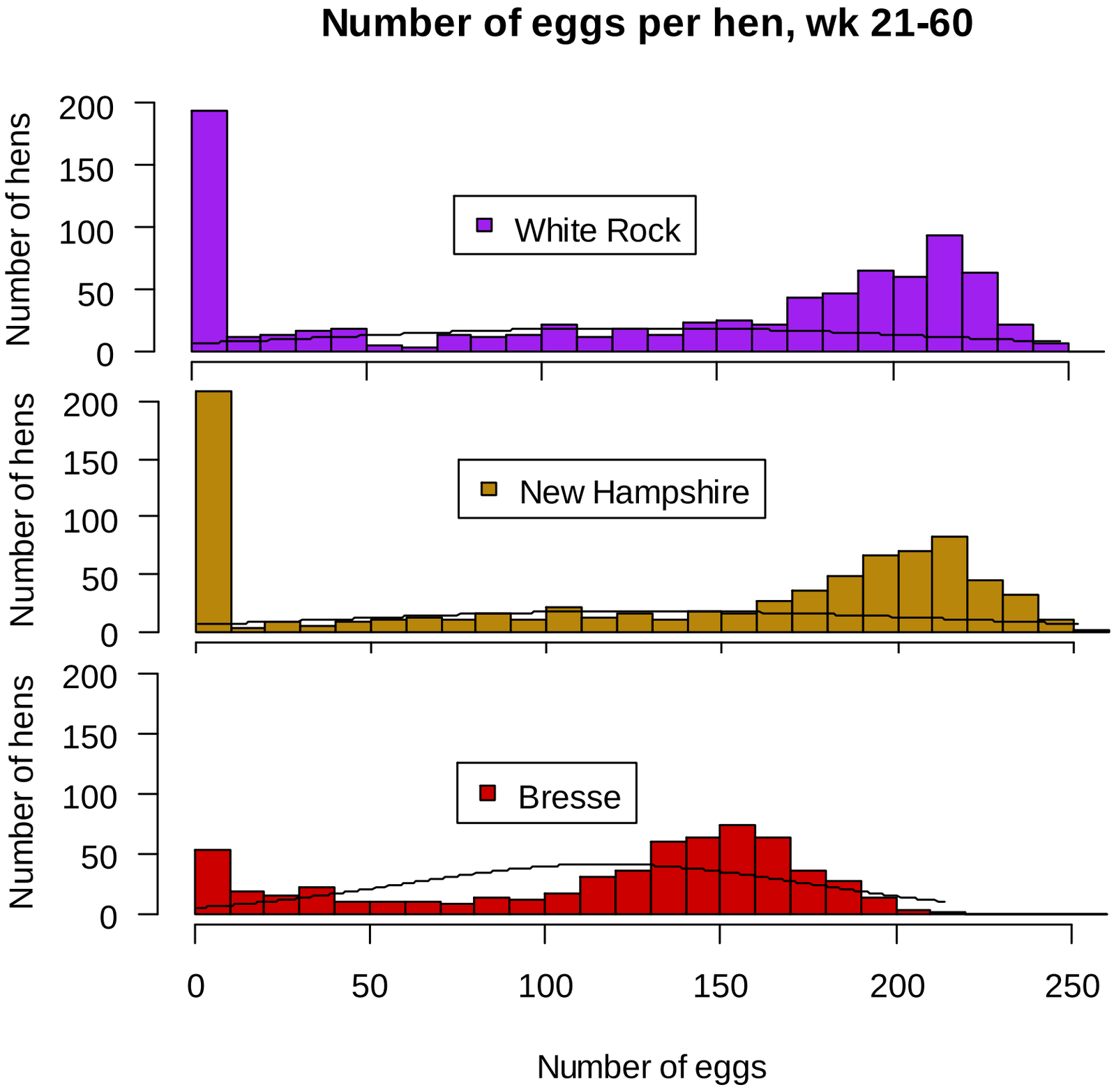
BLUP
Breeding value
Estimation

Results Generation 1

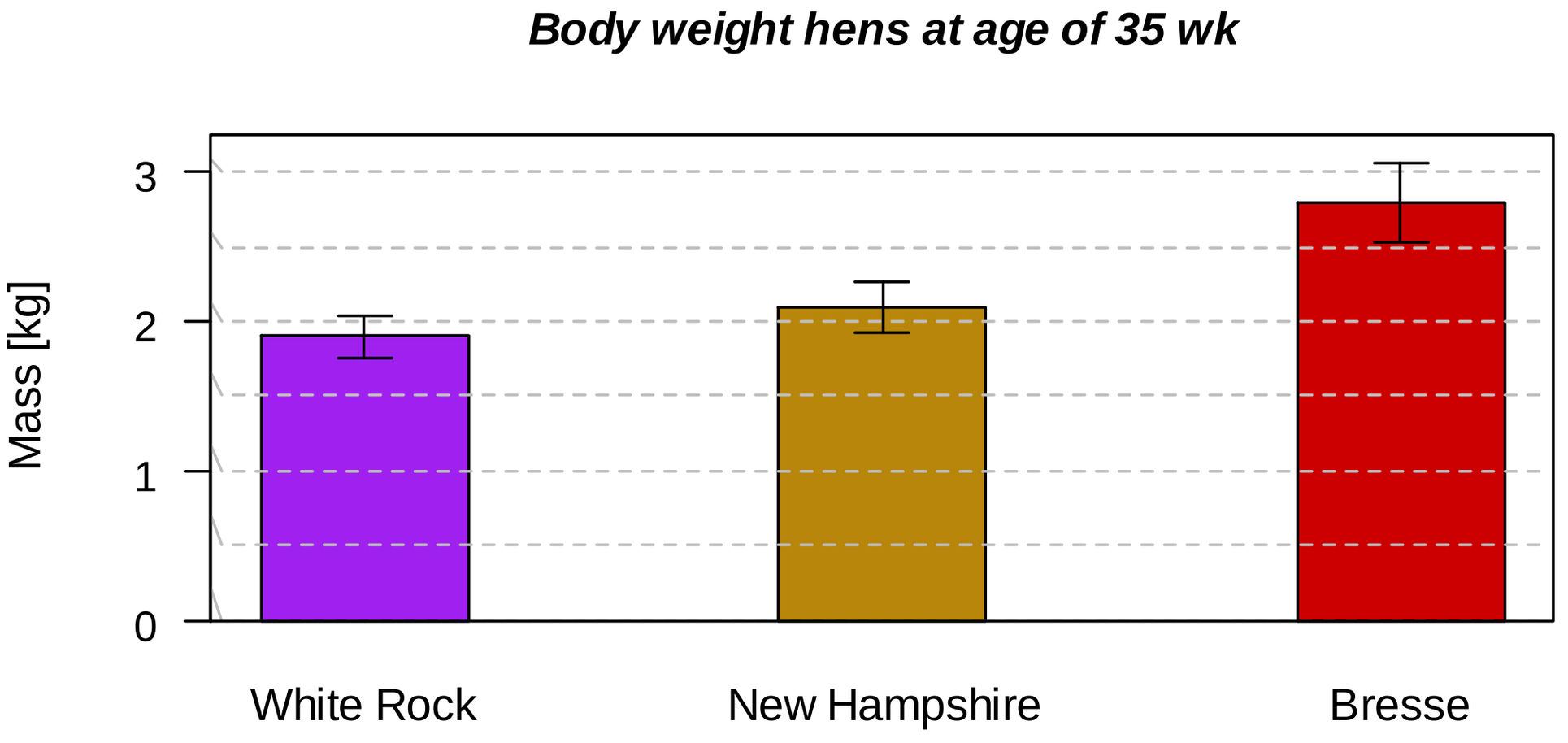
Egg performance



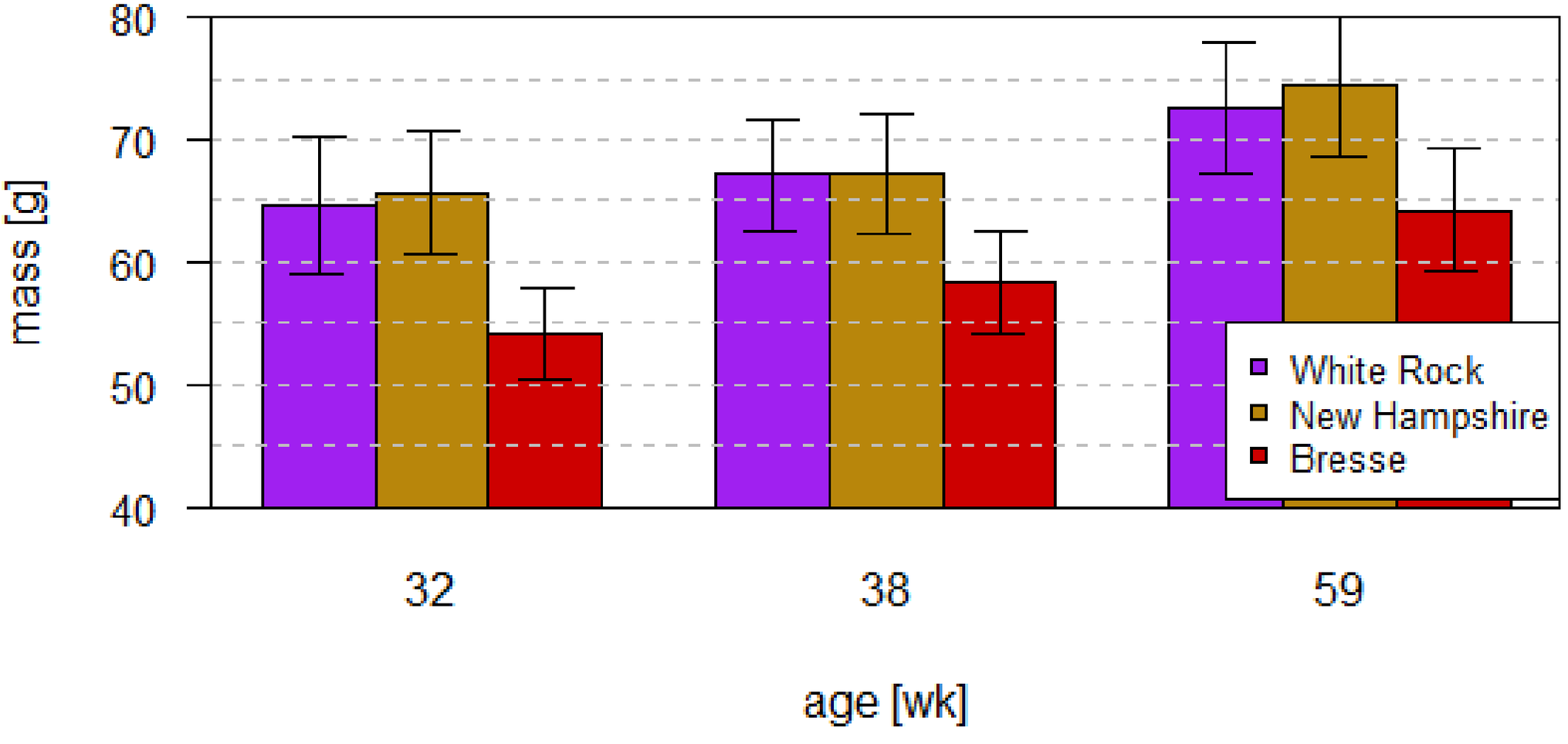
*Only hens with ≥ 1 egg per wk


Number of eggs per hen, wk 21-60
Number of hens
200
150
100
50
0
White Rock
Number of hens
200
150
100
50
0
New Hampshire
Number of hens
200
150
100
50
0
Bresse
0
50
100
150
200
250
Number of eggs

Body weight of adult hens



Egg weight


80
70
60
50
40
mass [g]
32
38
59
age [wk]
White Rock
New Hampshire
Bresse

Conclusions

- An ecologic breeding programme is in place
- Initial difficulties are overcome
- Further improvements in following generations

Thanks to all our colleagues!

Jens and Andrea Bodden,
Annett Grün,
Manuel Bruns

Thank you for your attention!

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