

Effects of Three Lighting Programs During Grow on the Performance of Commercial Egg Laying Varieties. 2. Laying Period Egg Production

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Management:

- **Birds were wing banded at hatch.**
- **Pullets were reared in floor pens during the growing period and transferred to the layer house at 17wk of age.**
- **Hen were housed individually in 25.4 x 35.6 x 40.6 cm cages for individual egg recording.**
- **Each cage was equipped with one drip nipple.**
- **A phase feeding program was used according to Hy-Line Commercial Management Guides.**
- **Corn-Soybean meal based crumbled diets were fed during growing and mash diet were fed during laying.**

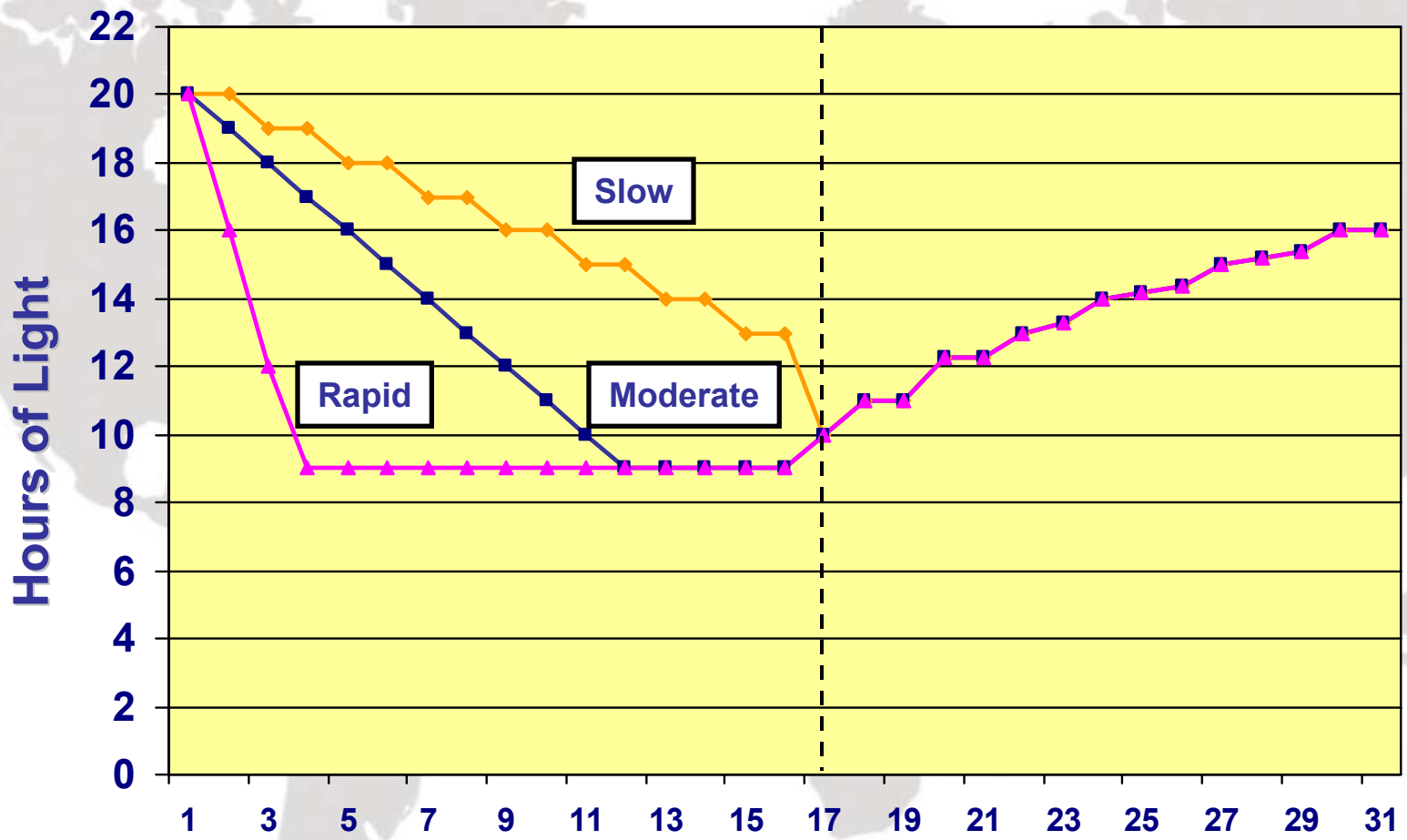
Lighting – Laying:

Beginning at 17wk of age, all pullets are subjected to an identical photoperiod of 10h with gradual increases in the photoperiod at weekly intervals until 16h photoperiod at 30 wk of age.

The 16h photoperiod was maintained for all hens until the end of experiment.



Three Rearing Light Programs



Lighting:

Light intensity was the same for the three lighting regimes.

1st week; all chicks were exposed to 30 lux light intensity

2nd-5th weeks; intensity decreased 5 lux/week

6th-17th weeks; all pullets received 7 lux of light intensity

After 17th week; light intensity was increased to 30 lux

Traits (individual):

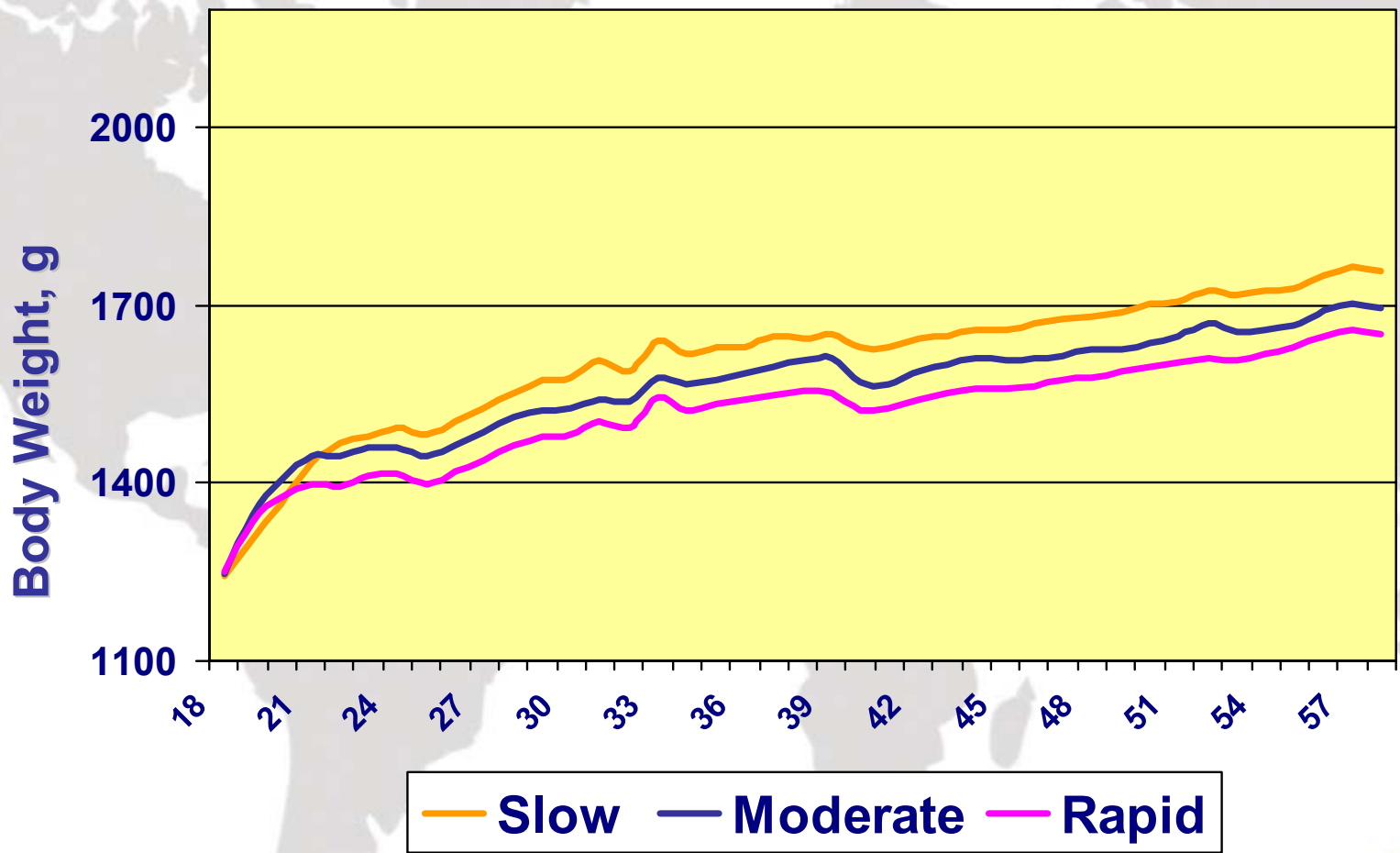
- **Weekly body weight**
- **Age at sexual maturity**
- **Daily egg production**
- **Egg weight (first-3 and 26, 36, 46, 56 and 66 wk)**



RESULTS

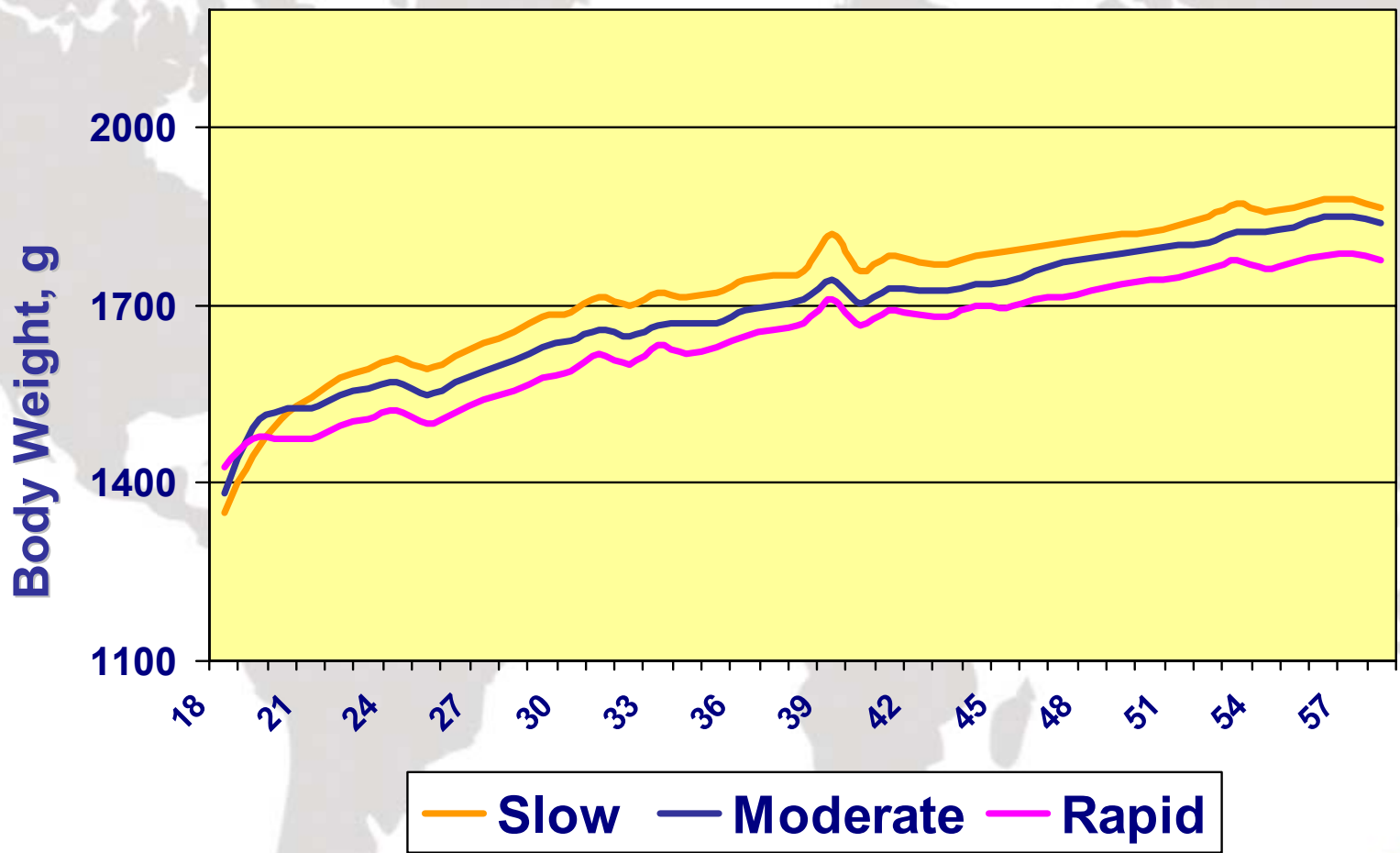


Light Test #1, W36 Body Weight 18-58wks



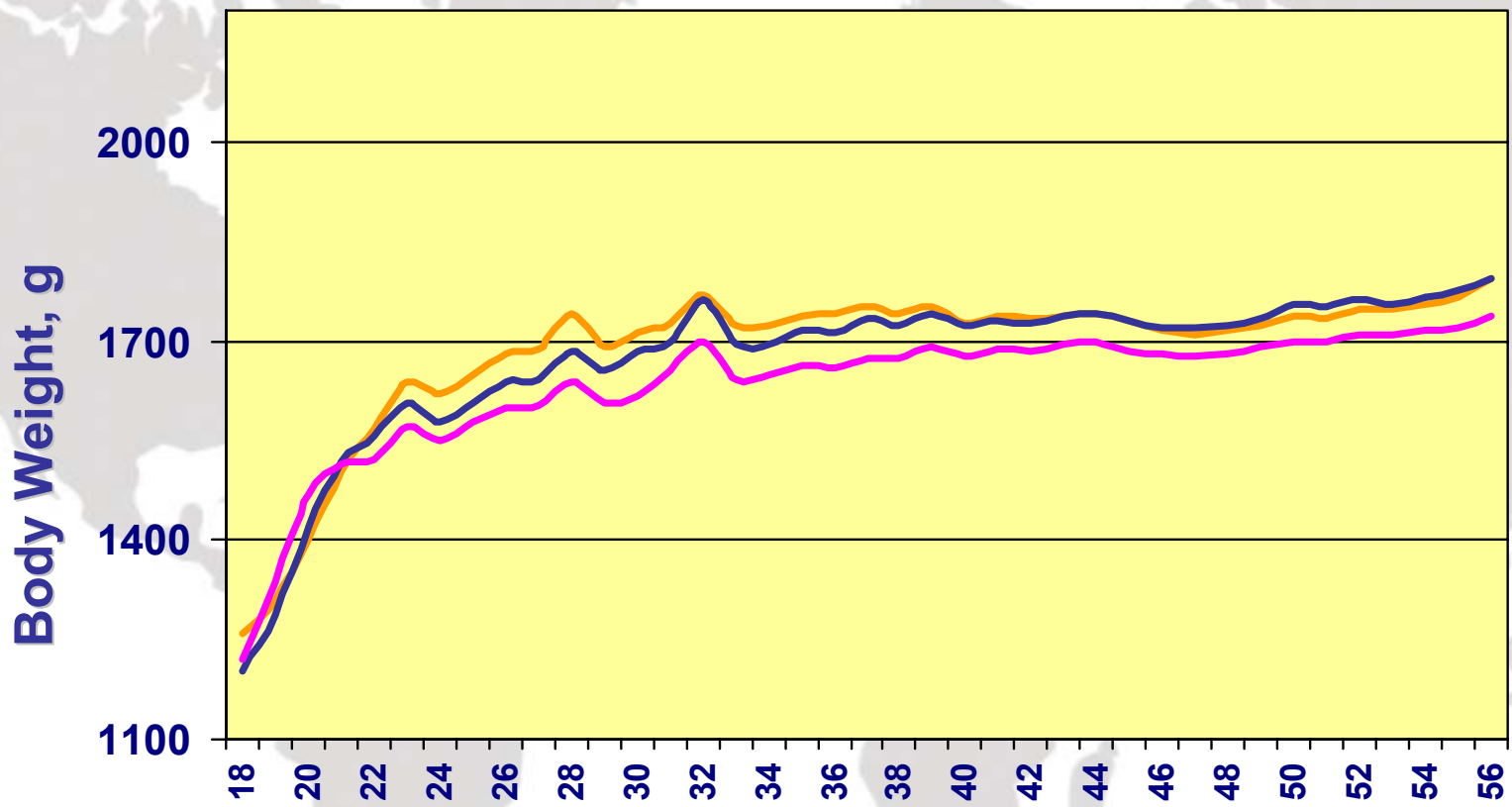
— Slow — Moderate — Rapid

Light Test #1, W98 Body Weight 18-58wks



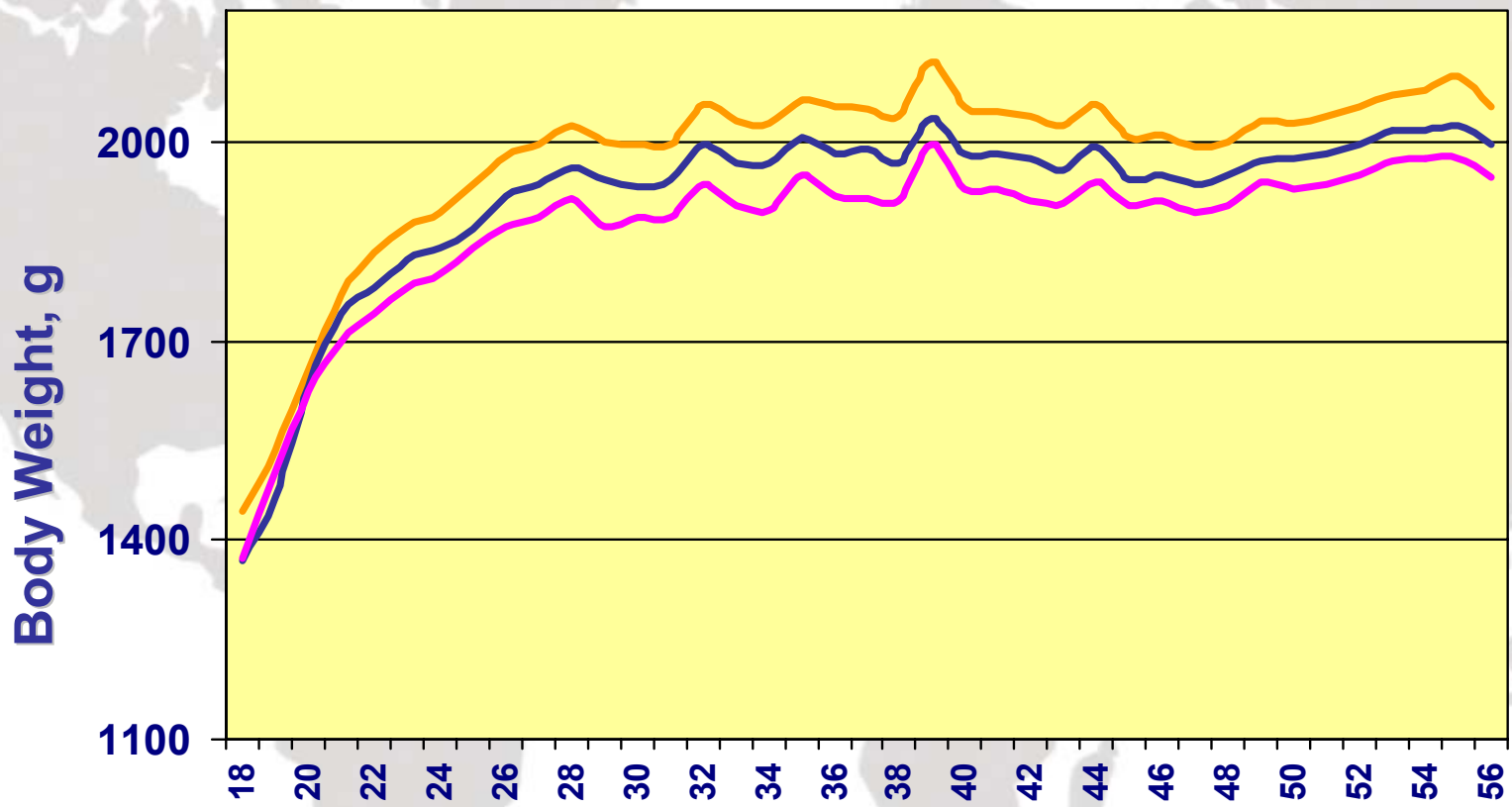
— Slow — Moderate — Rapid

Light Test #2, W98 Body Weight 18-58wks



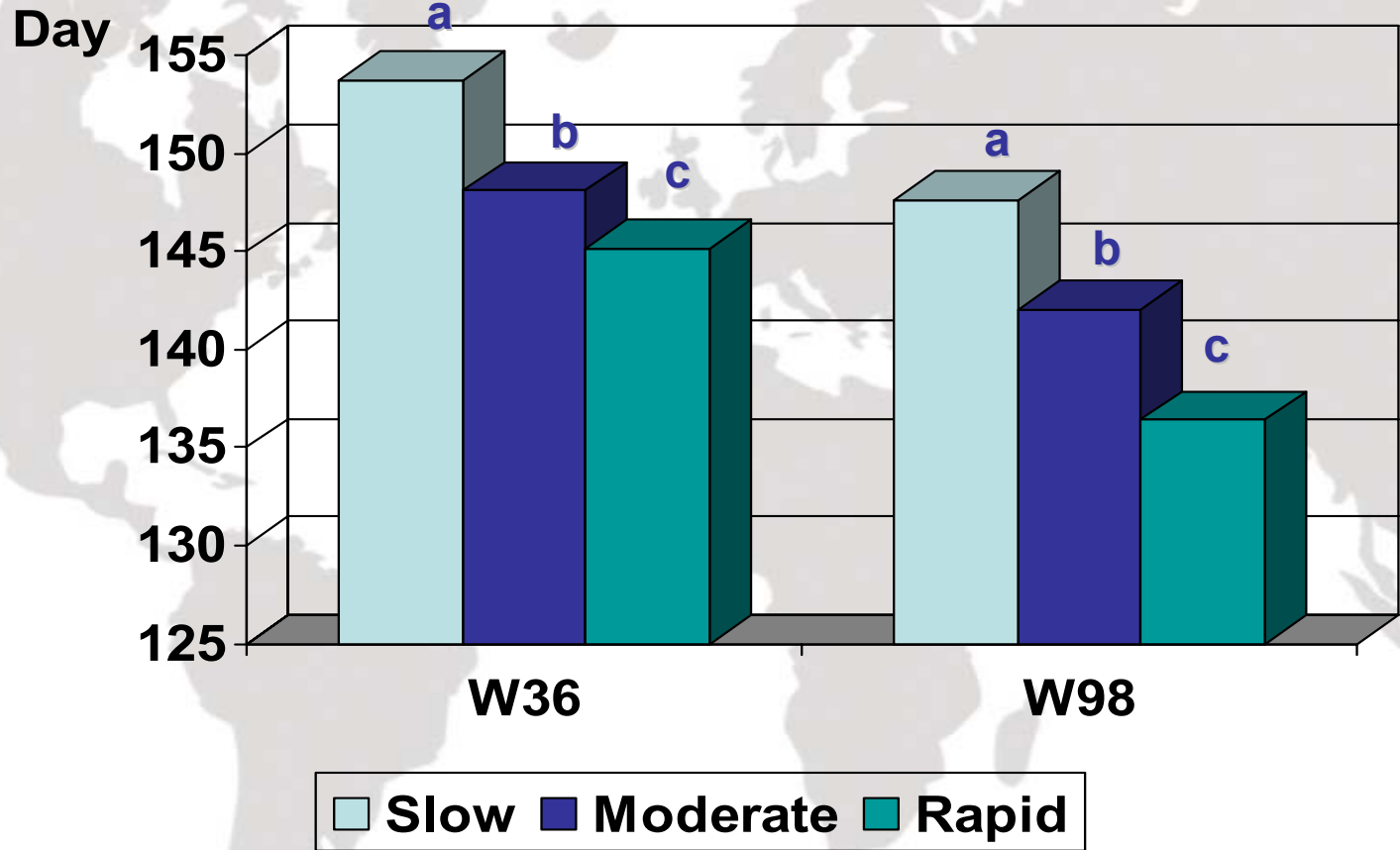
— Slow — Moderate — Rapid

Light Test #2, HYB Body Weight 18-58wks

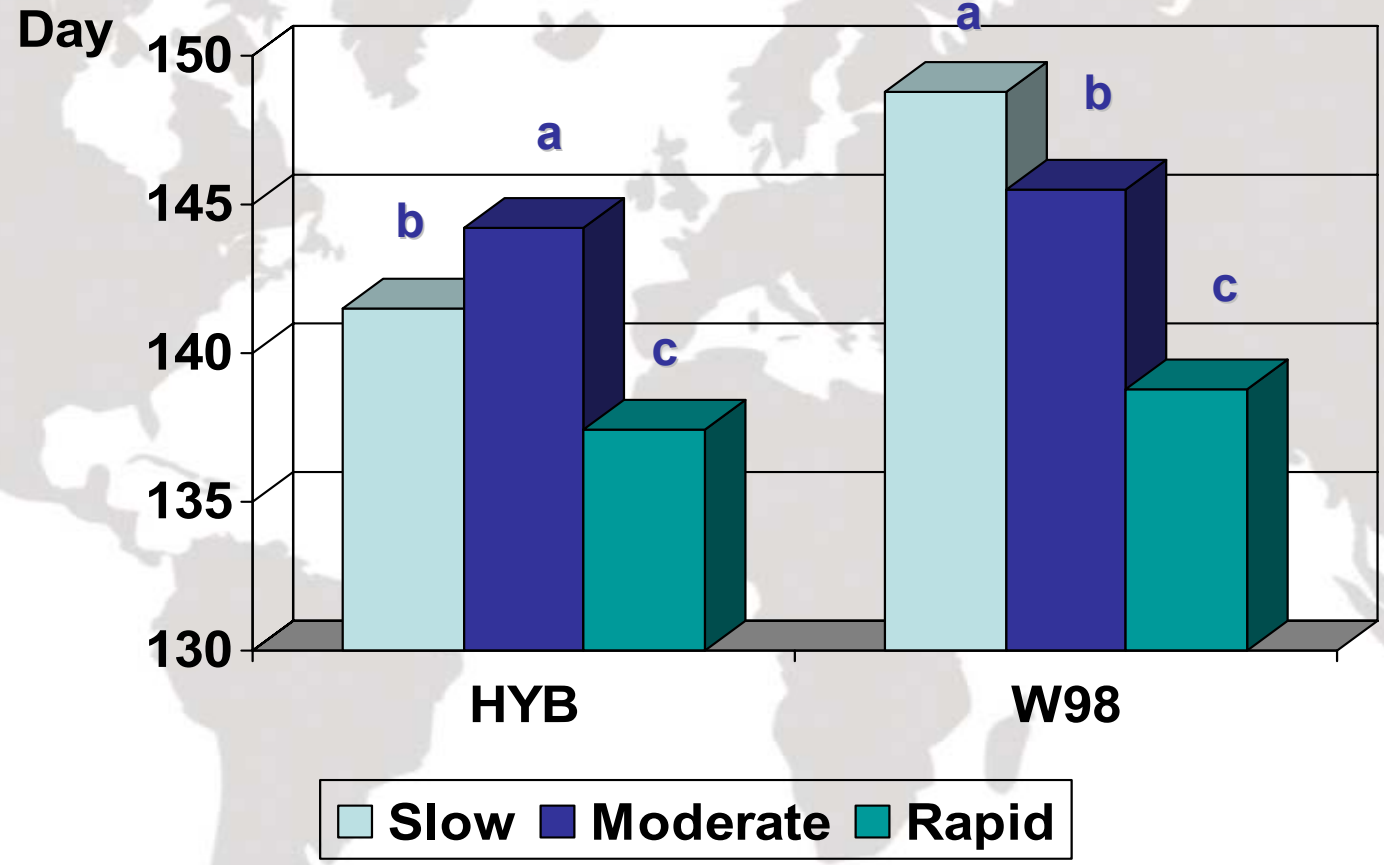


— Slow — Moderate — Rapid

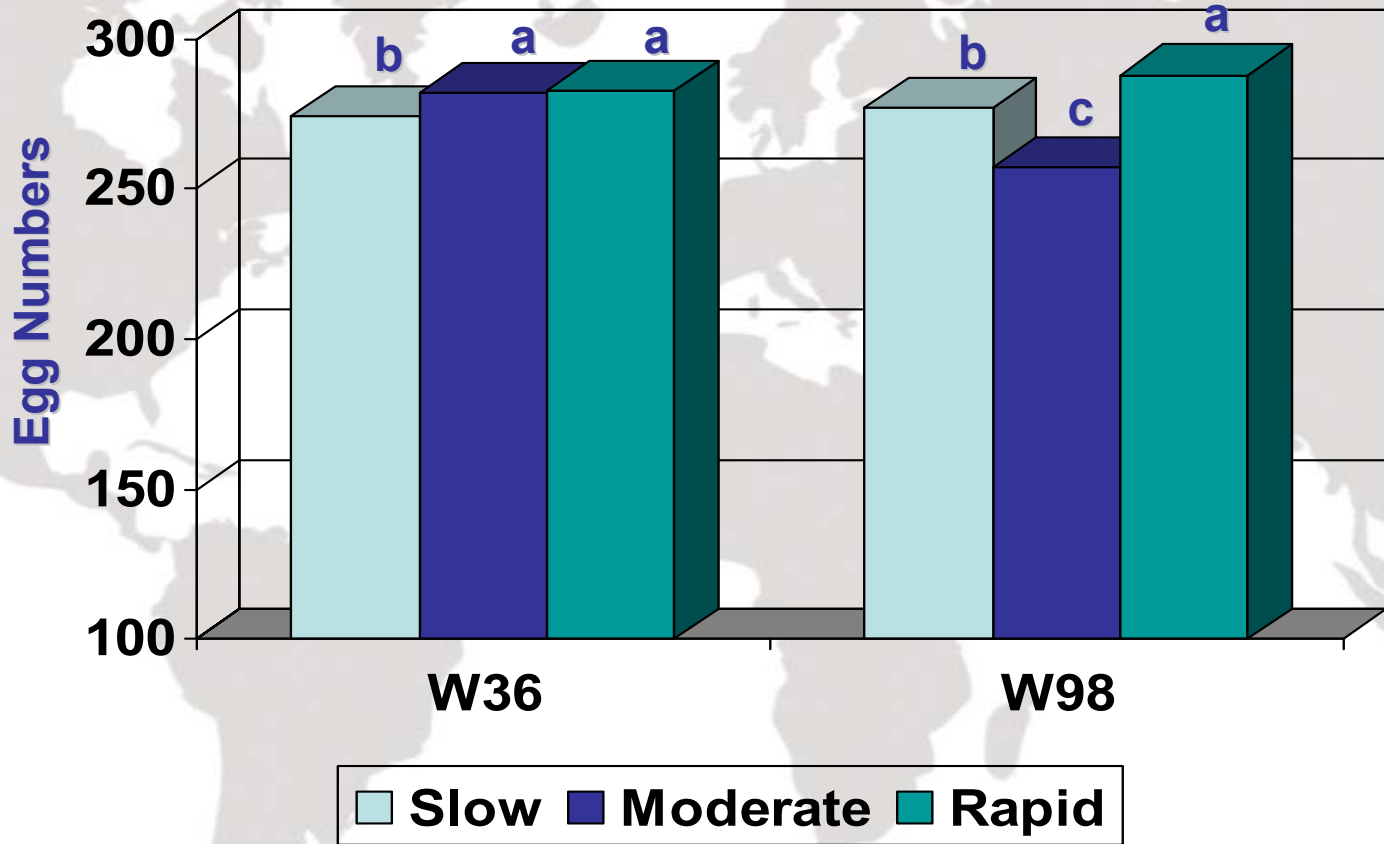
Trial #1: Sexual Maturity by Line and Lighting Program



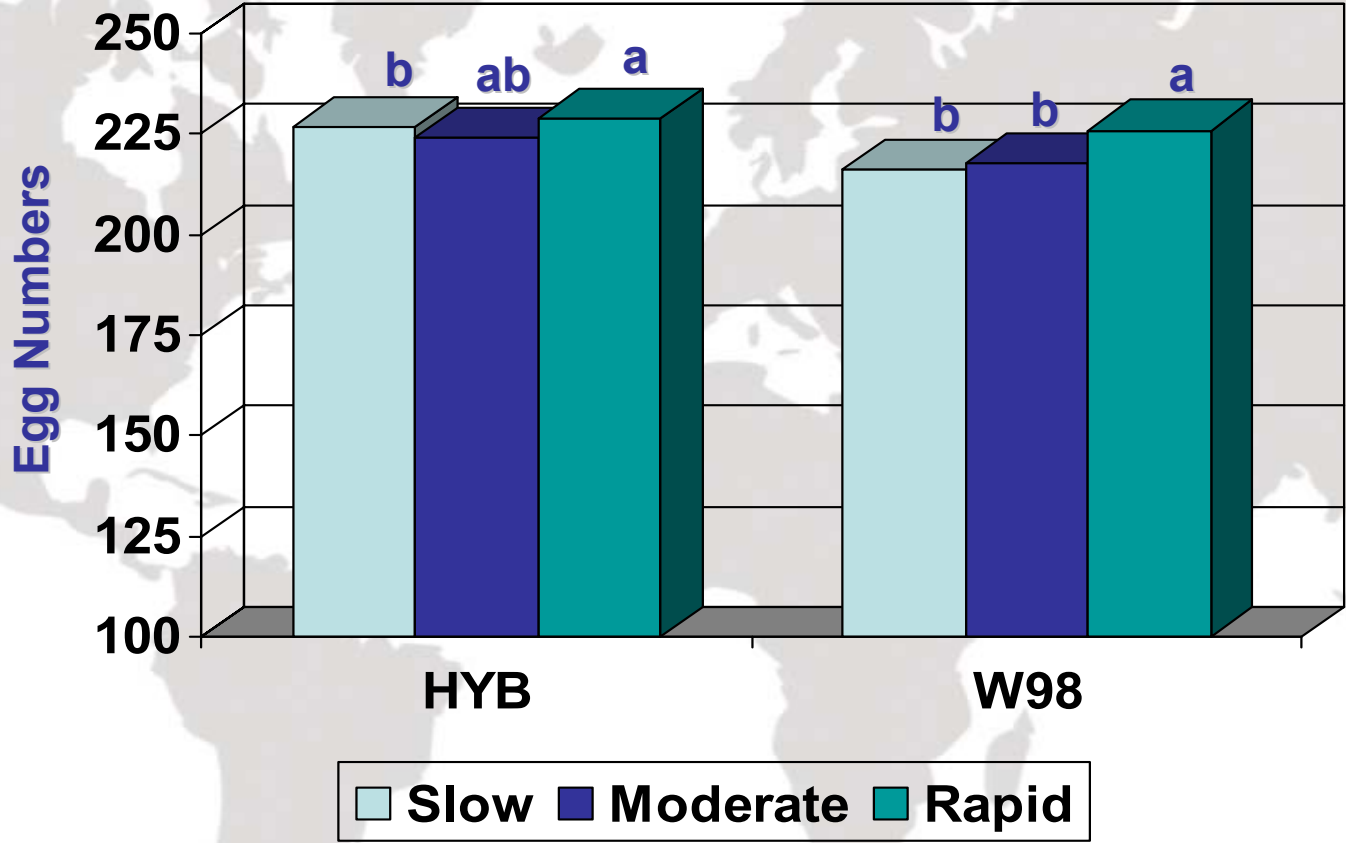
Trial #2: Sexual Maturity by Line and Lighting Program



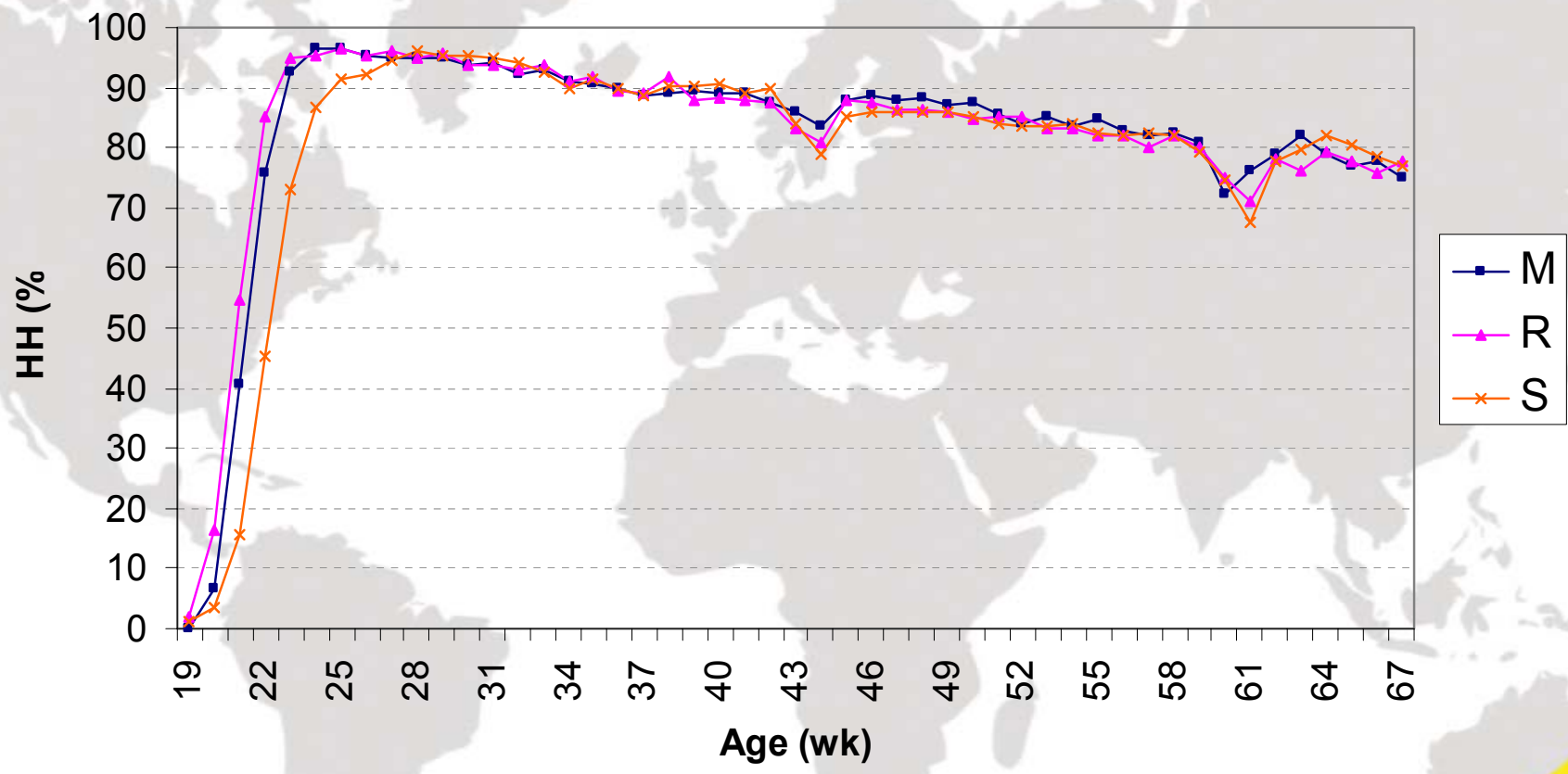
Trial #1: Egg Numbers by Line and Lighting Program



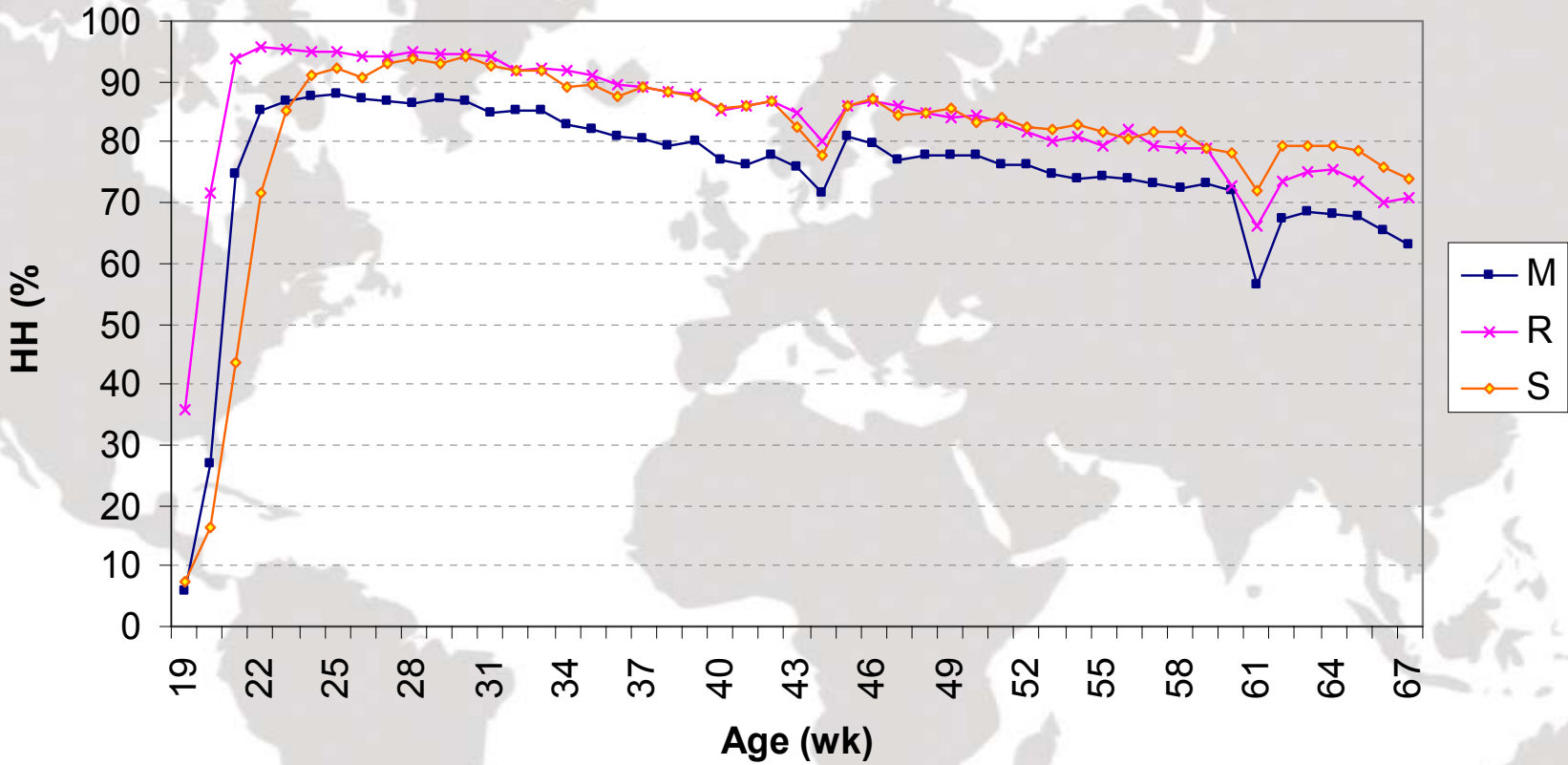
Trial #2: Egg Numbers by Line and Lighting Program



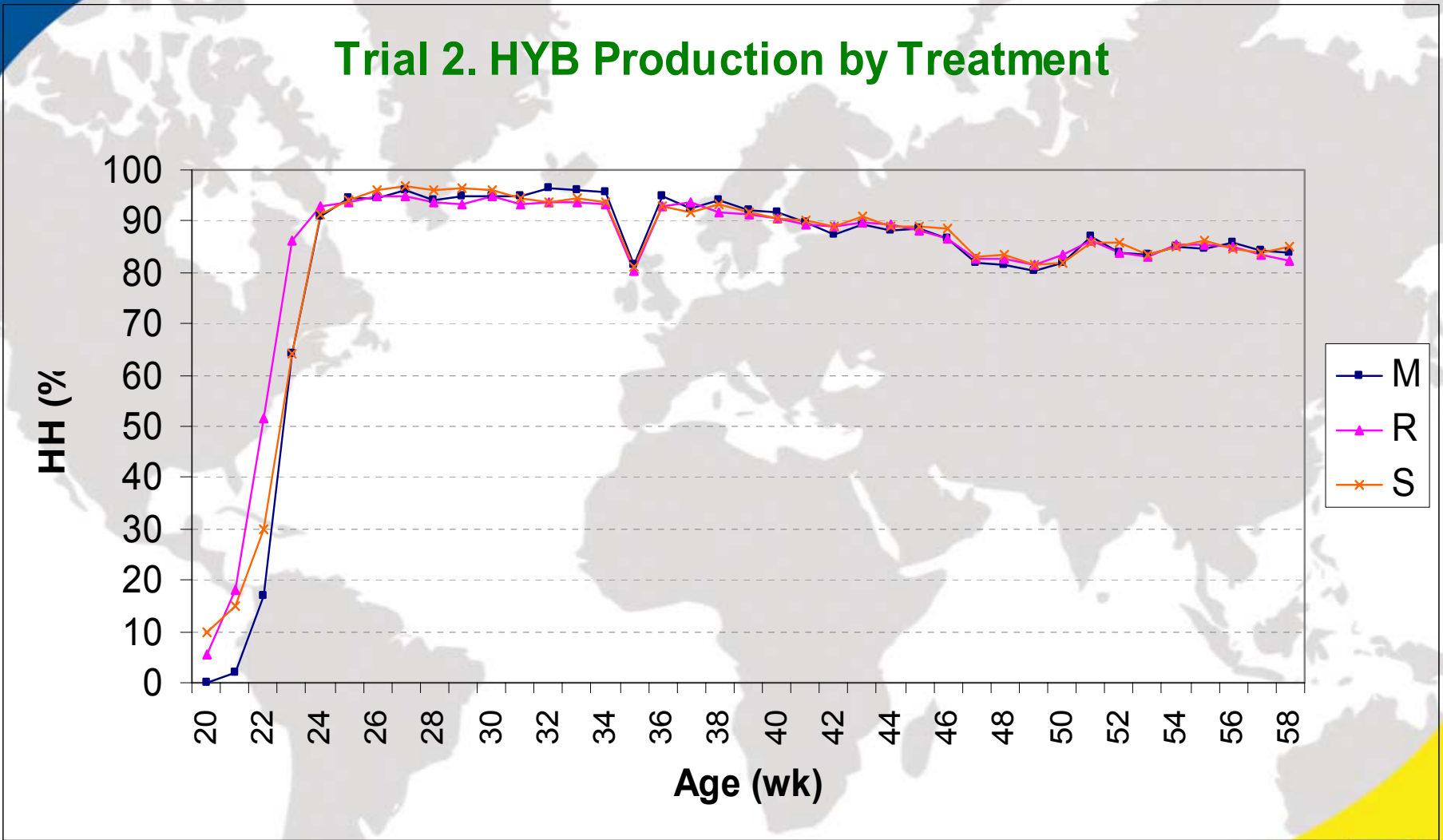
Trial 1. W36 Production by Treatment



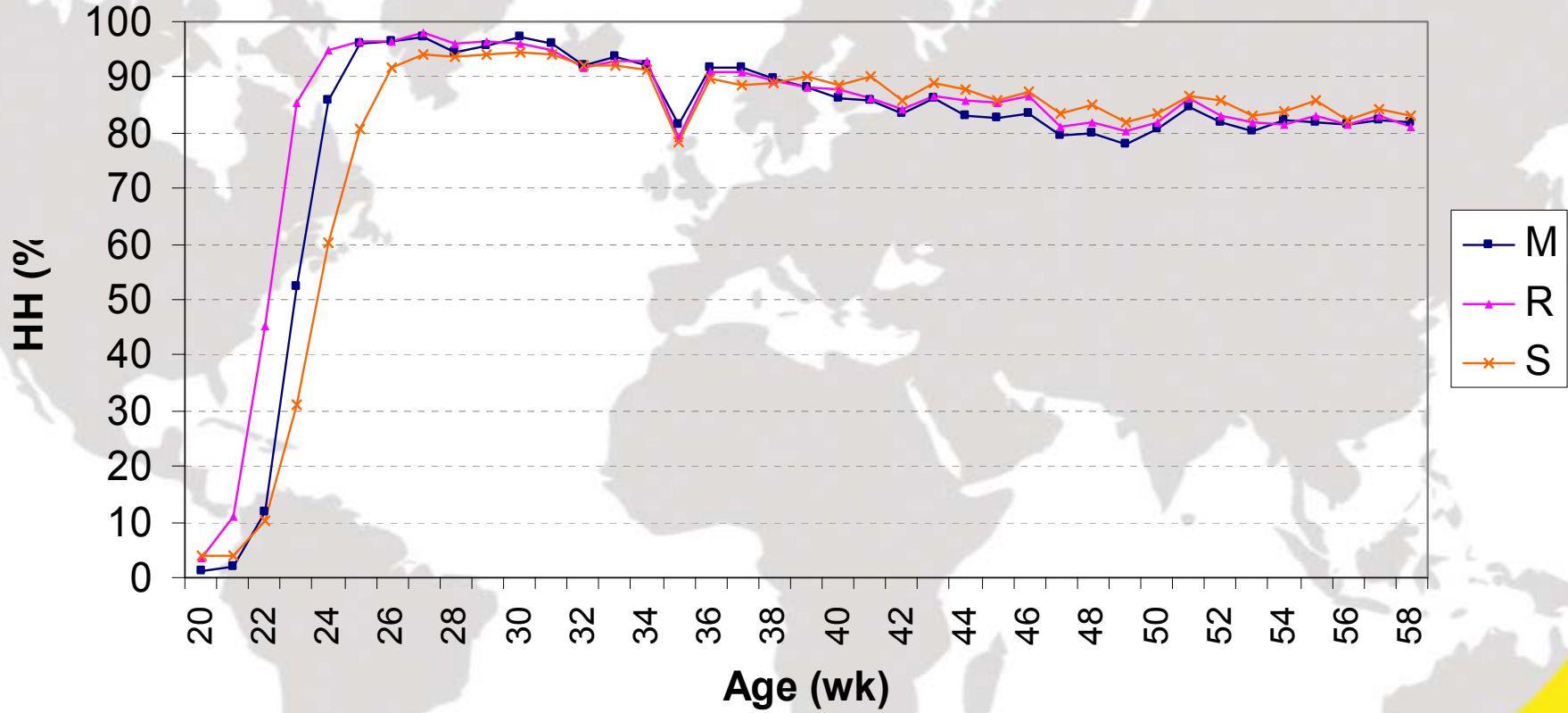
Trial 1. W98 Production by Treatment



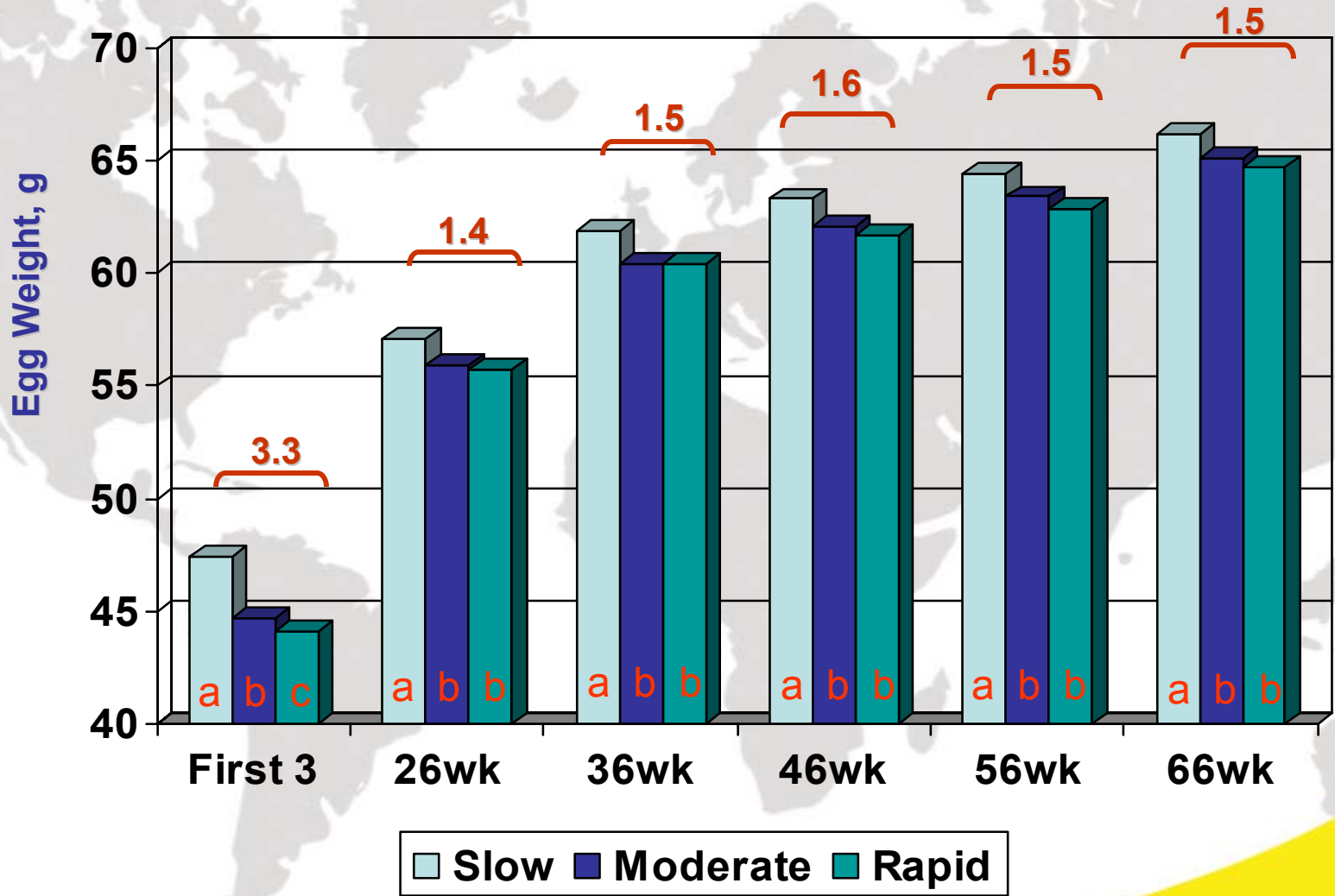
Trial 2. HYB Production by Treatment



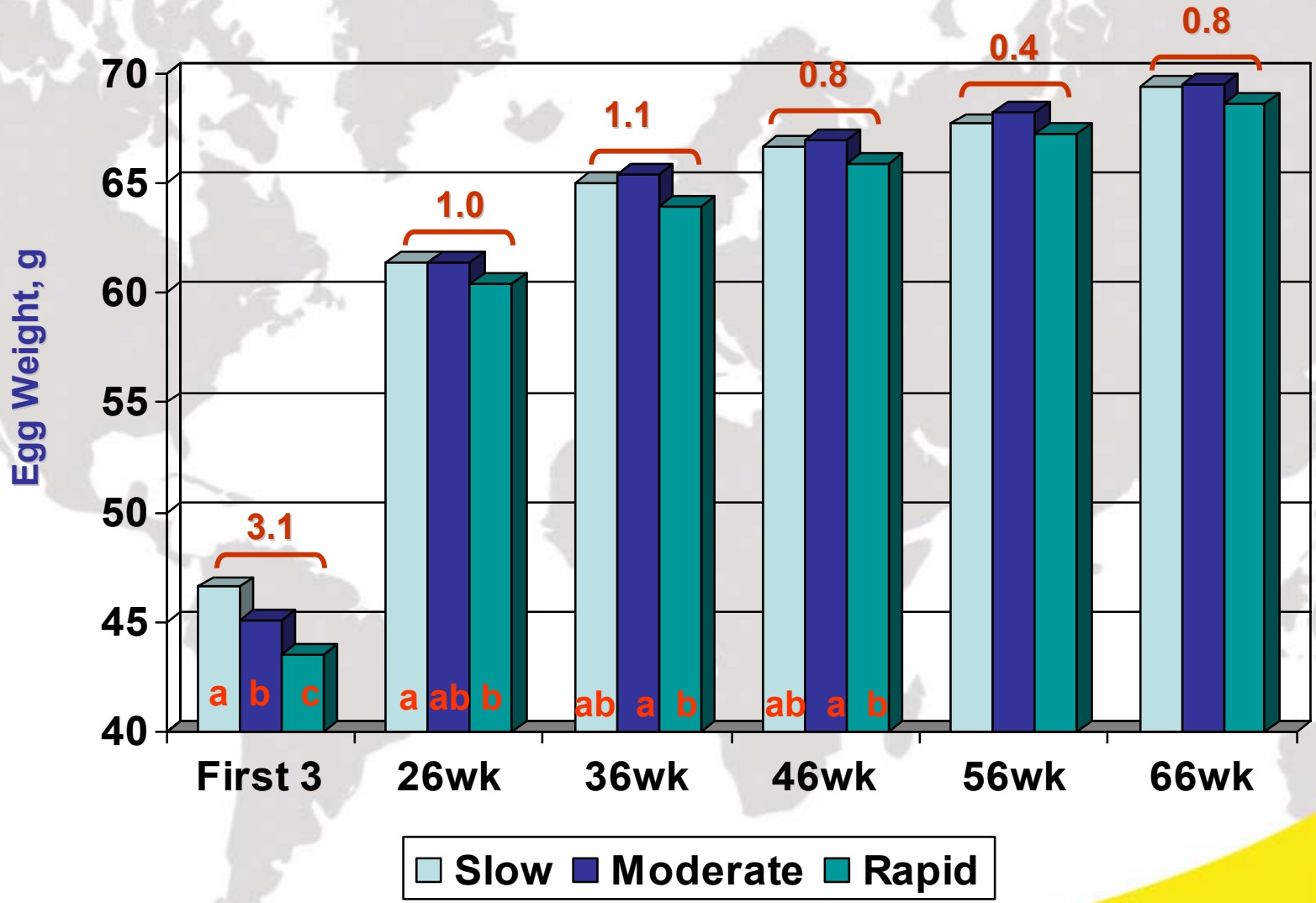
Trial 2. W98 Production by Treatment



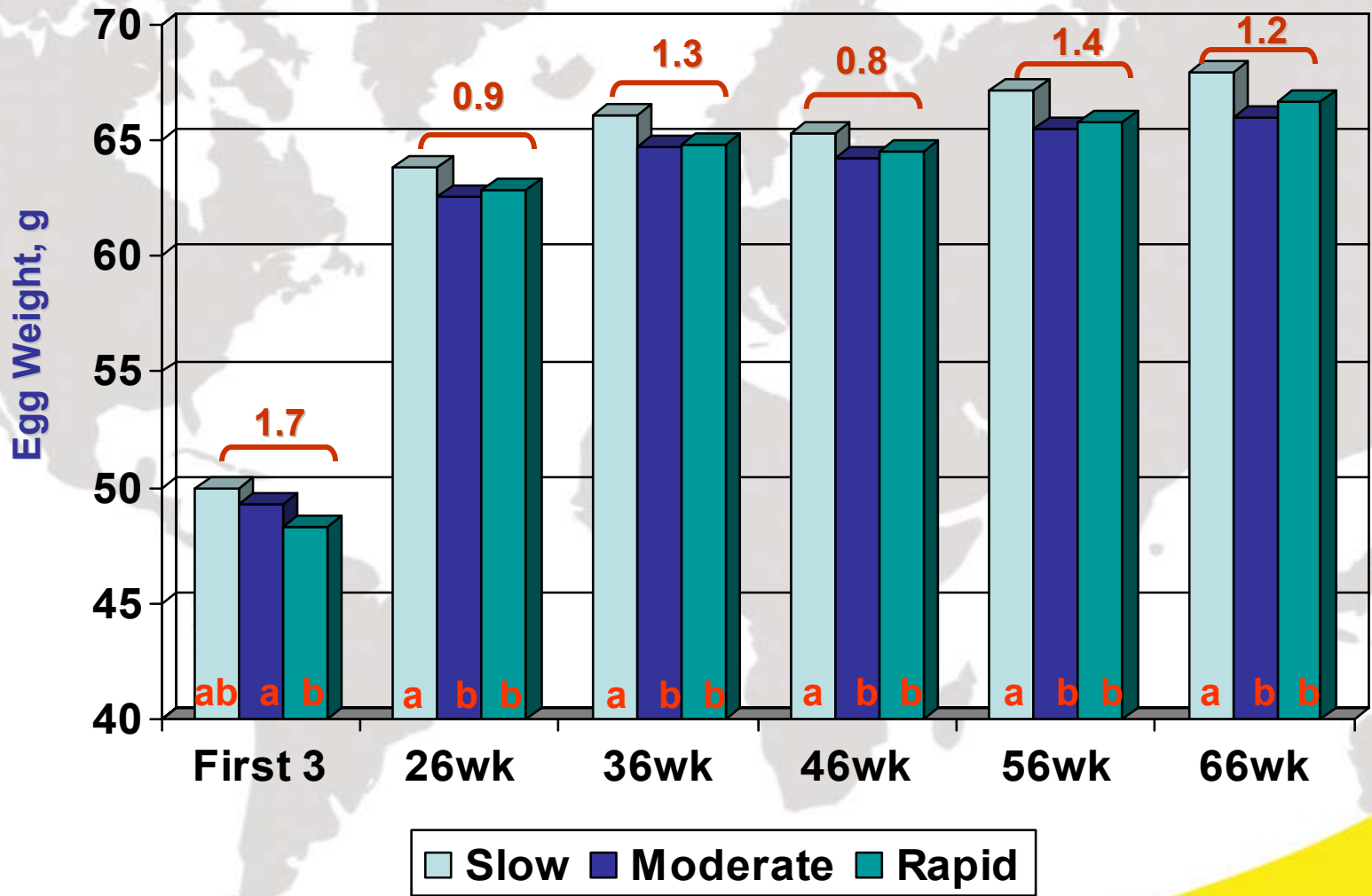
Light Test #1; W36 Egg Weights, g



Light Test #1; W98 Egg Weights, g



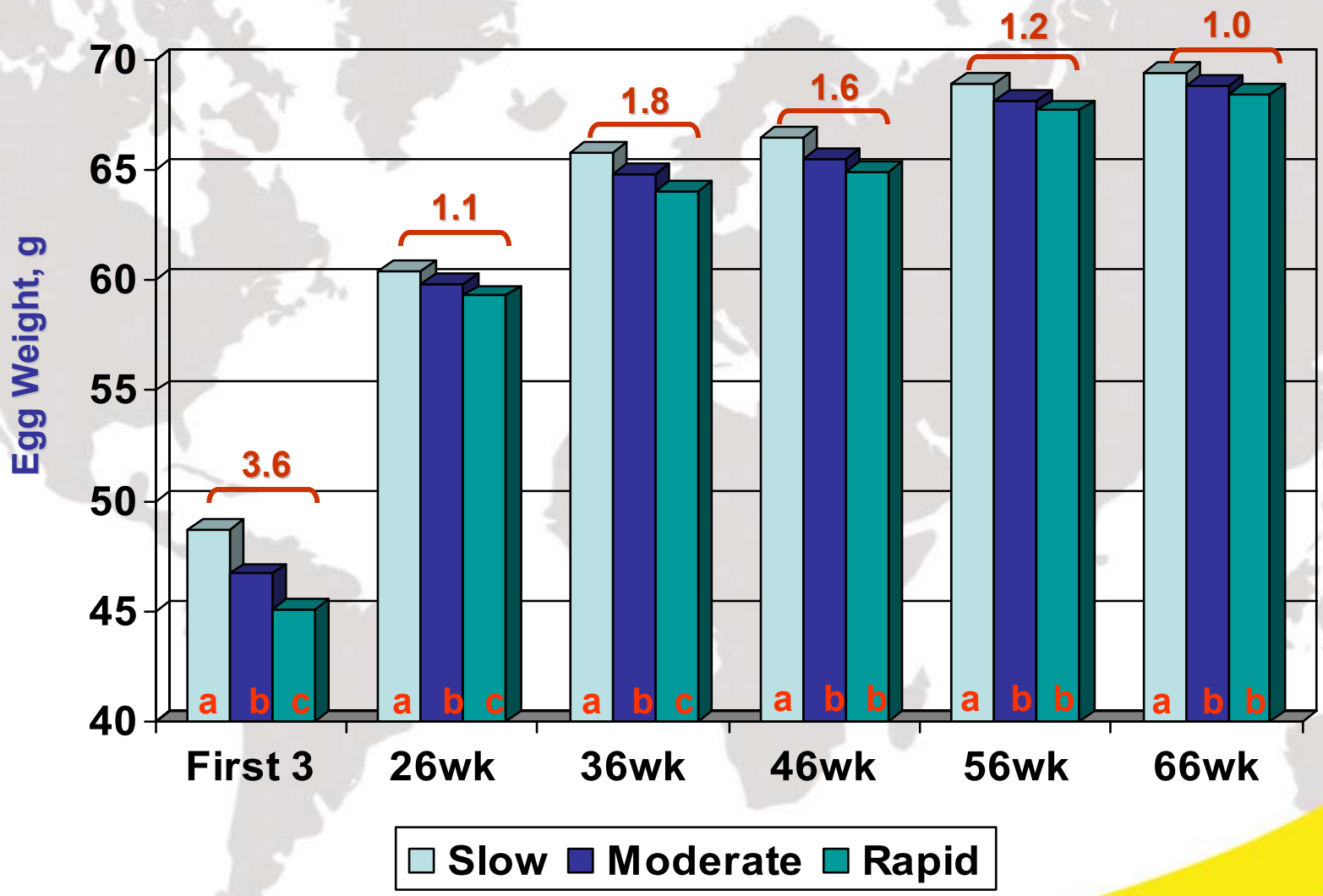
Light Test #2; HYB Egg Weights, g



Slow Moderate Rapid



Light Test #2; W98 Egg Weights, g



Conclusions

- Differences in growth rate due to lighting program tended to continue during the lay period as a residual effect.
- In general, birds from the rapid step down lighting program tended to reach sexual maturity earlier, to attain peak production earlier, and to produce more eggs than those faster growing & heavier birds of the slow program.
- Most of the differences in egg production were due to differences in age at sexual maturity and seem to confirm an antagonism between growth and onset of reproduction ability.

Conclusions & Implications

- Differences in egg weight were consistent, with heavier birds (S) producing heavier eggs along the trajectory. Differences were largest at the beginning of the lay period (first 3-eggs)
- Final conclusions are pending evaluation of differences between treatments for other traits such as egg mass, egg quality, and bone structure, which are ongoing.

Thank you!

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