

The effect of **extra biotin** in the lactation diet of sows on litter weight gain

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*Introduction - **Biotin***

- **H₂O soluble B-vitamin (vitamin H)**
- **essential co-factor in # metabolic pathways (CH, proteins, fat)**
- **important role in gluconeogenesis in liver**
- **microbially produced in gut: not sufficient**
- **availability in feedstuffs is variable & low**



Introduction – Biotin deficiency

- Hair losses
- Skin lesions
- Cracking/lesions of footpads & hooves
- Slow growth
- Impaired reproductive performance



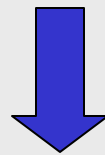
Introduction – Biotin requirements

- **NRC standards (1998): no requirements given because of inconsistent results**
- **In general practice: 0.2 to 0.3 ppm biotin added to sow diets**

Introduction – Biotin levels above the use of 0.3 ppm

Hypothesis:

**Extra biotin in sow lactation diets stimulates
glucose and consequently milk production**



↑ Daily gain of the litter

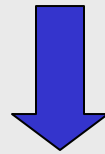
Objective

To compare

a **control** lactation diet: **0.3 ppm** biotin vs.

a **test** lactation diet: **0.3 ppm + 2 ppm biotin**

5-10 days before farrowing until weaning



Daily gain of the litter: 0 to 4 wks age

Material & methods

- **4 series of on av. 17 hybrid sows: 68 sows**

When entering farrowing unit: 2 treatment groups formed based on

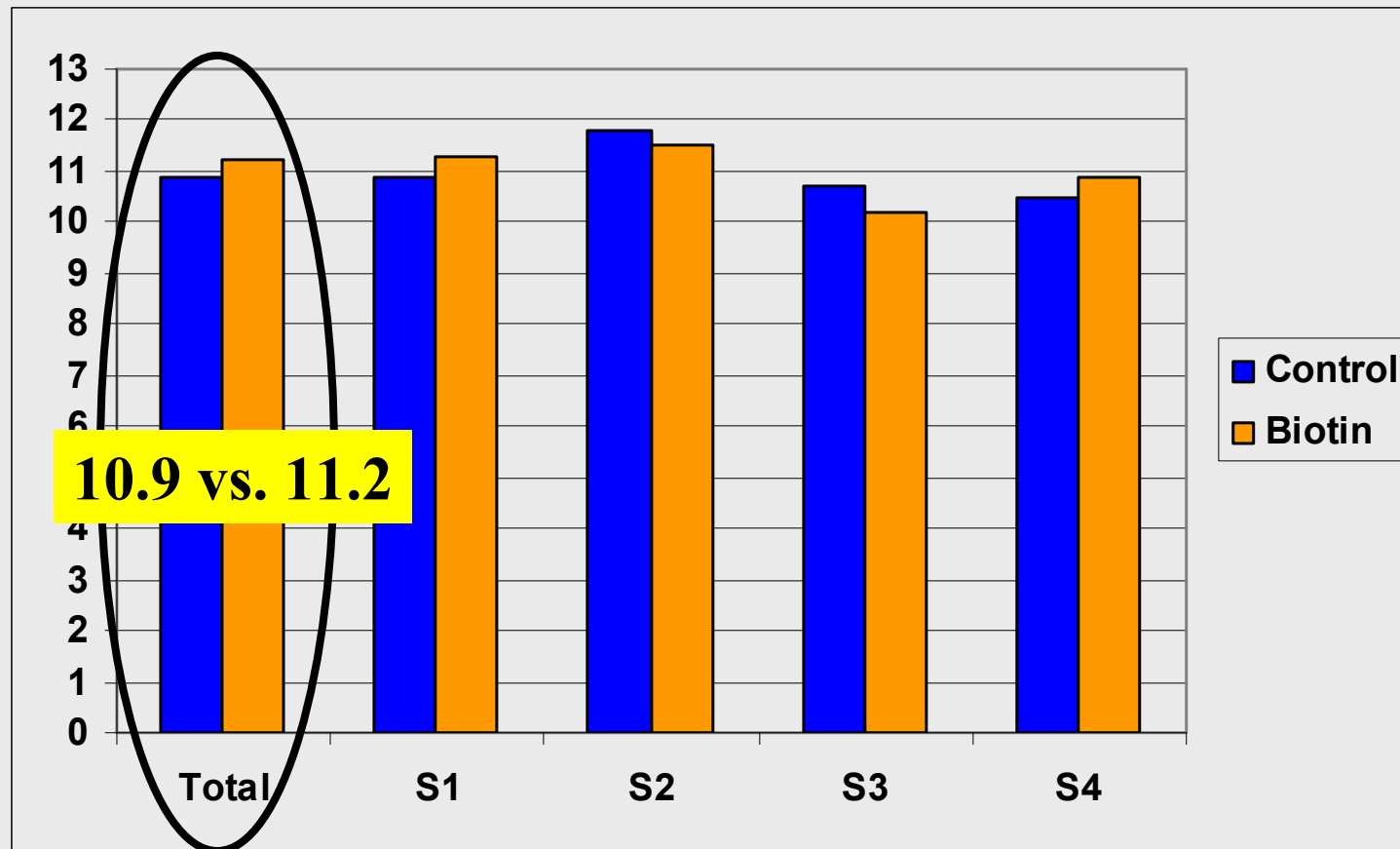
– parity number, previous results and condition.

- **Control diet vs. test diet (+ 2 ppm biotin)**

Standardisation of litter size (to 10-12 piglets)

Creep feed from 1 week after birth

Litter size at birth after standardisation of litter size



Material & methods

- **Parameters:**

- **Weight & fatness of sows** at start & weaning
- **Number of piglets** per litter at birth and weaning and **mortality %**
- **Weight piglets** at birth, death and weaning
- **Feed intake** sows, creep feed intake piglets
- **Health problems** and medical treatments

Material & methods

Estimation of milk production per sow

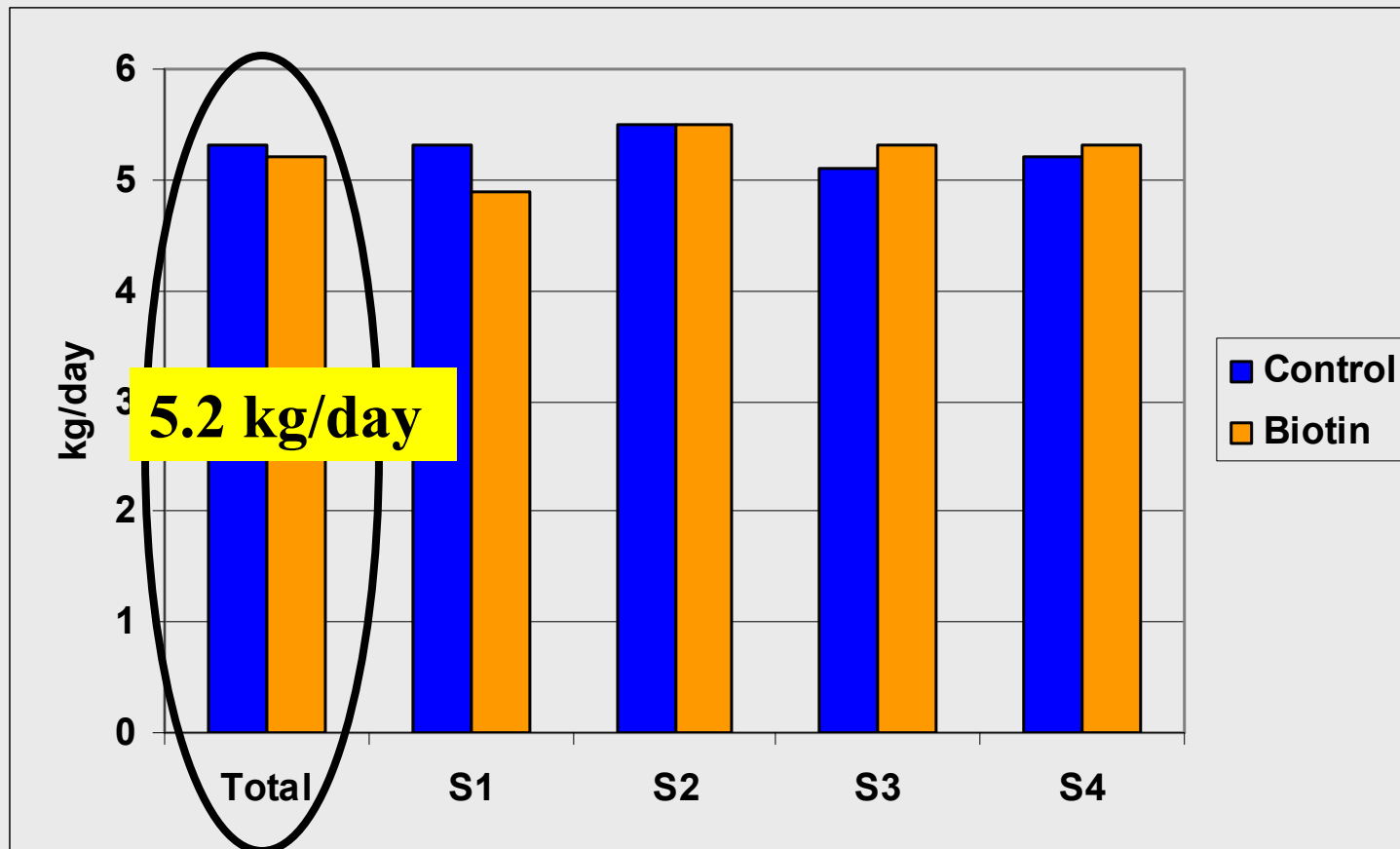
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litter weight gain BUT

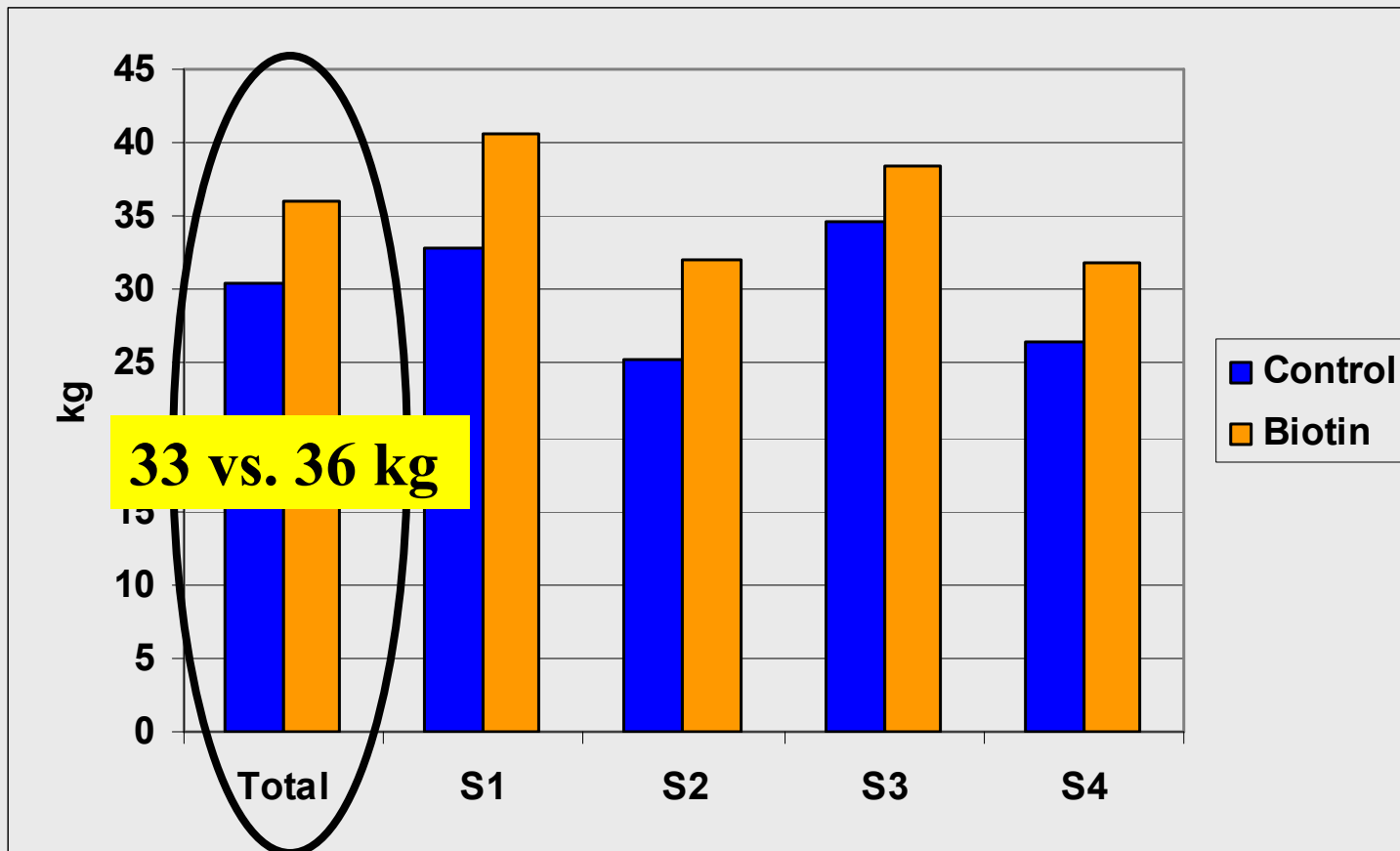
piglets who lost weight & outliers were omitted

Correction to suckling period of 28 days

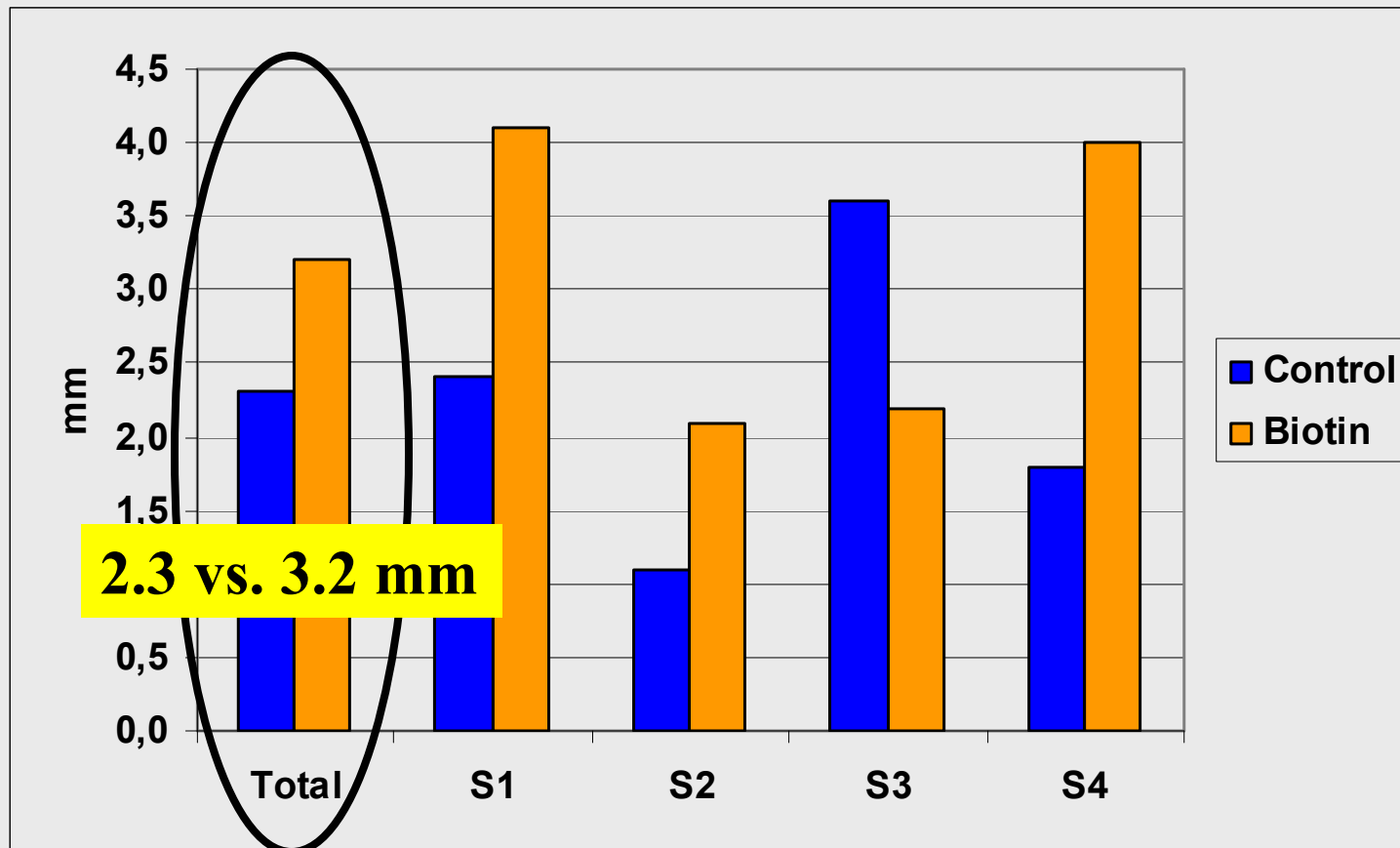
Results: Feed intake sows



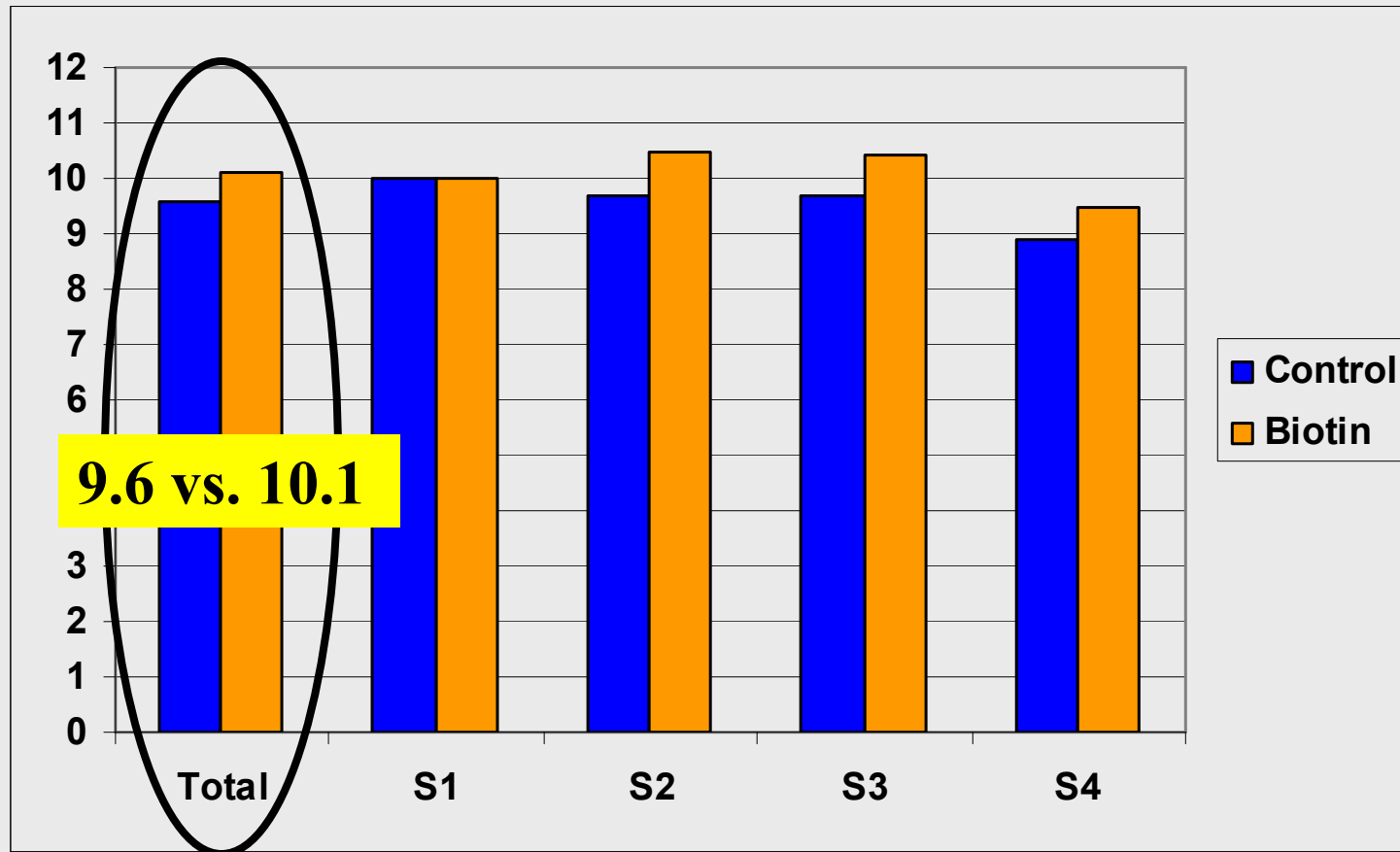
Results: Weight loss of sows



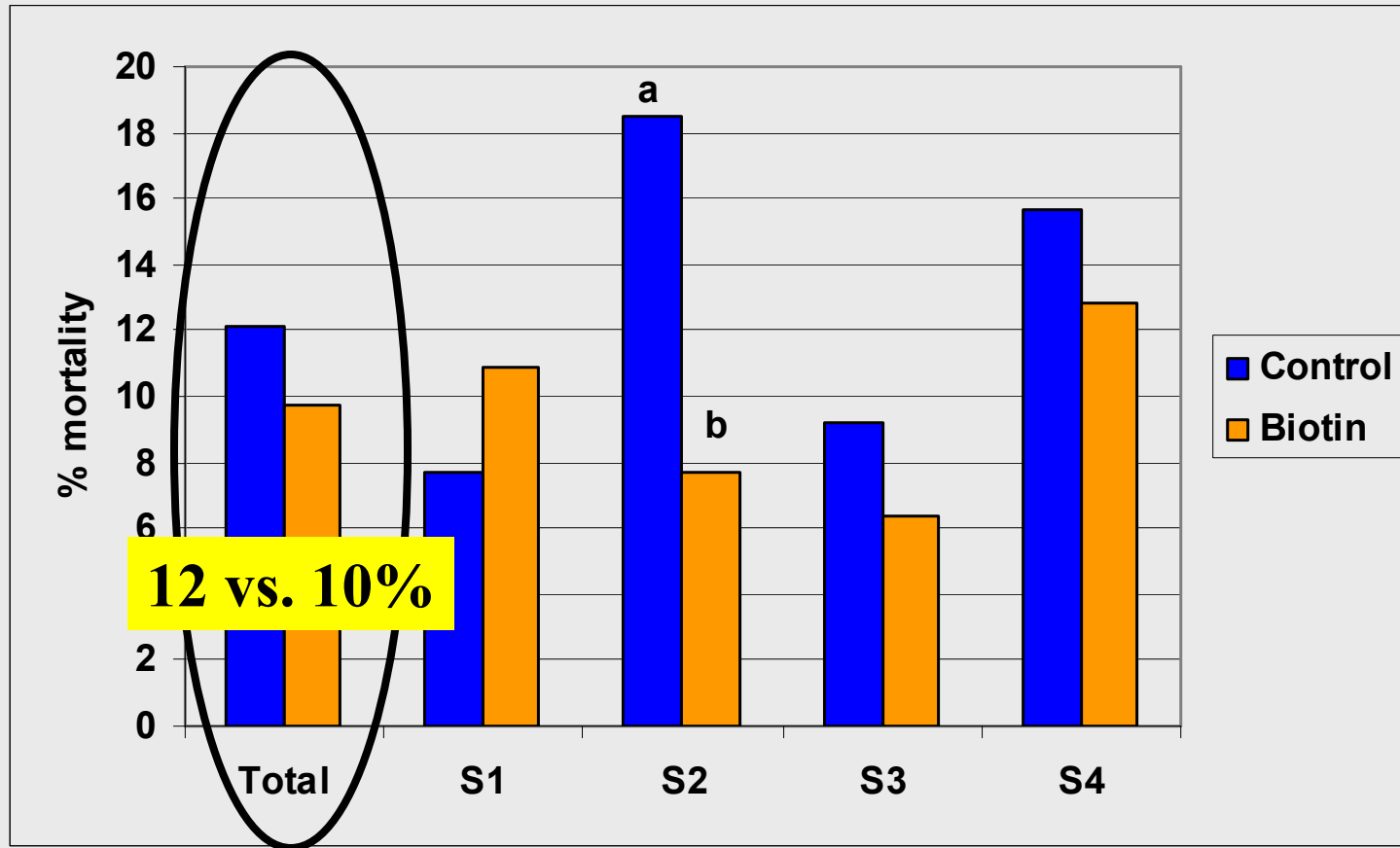
Results: P2 loss of sows



Results: # piglets weaned/litter

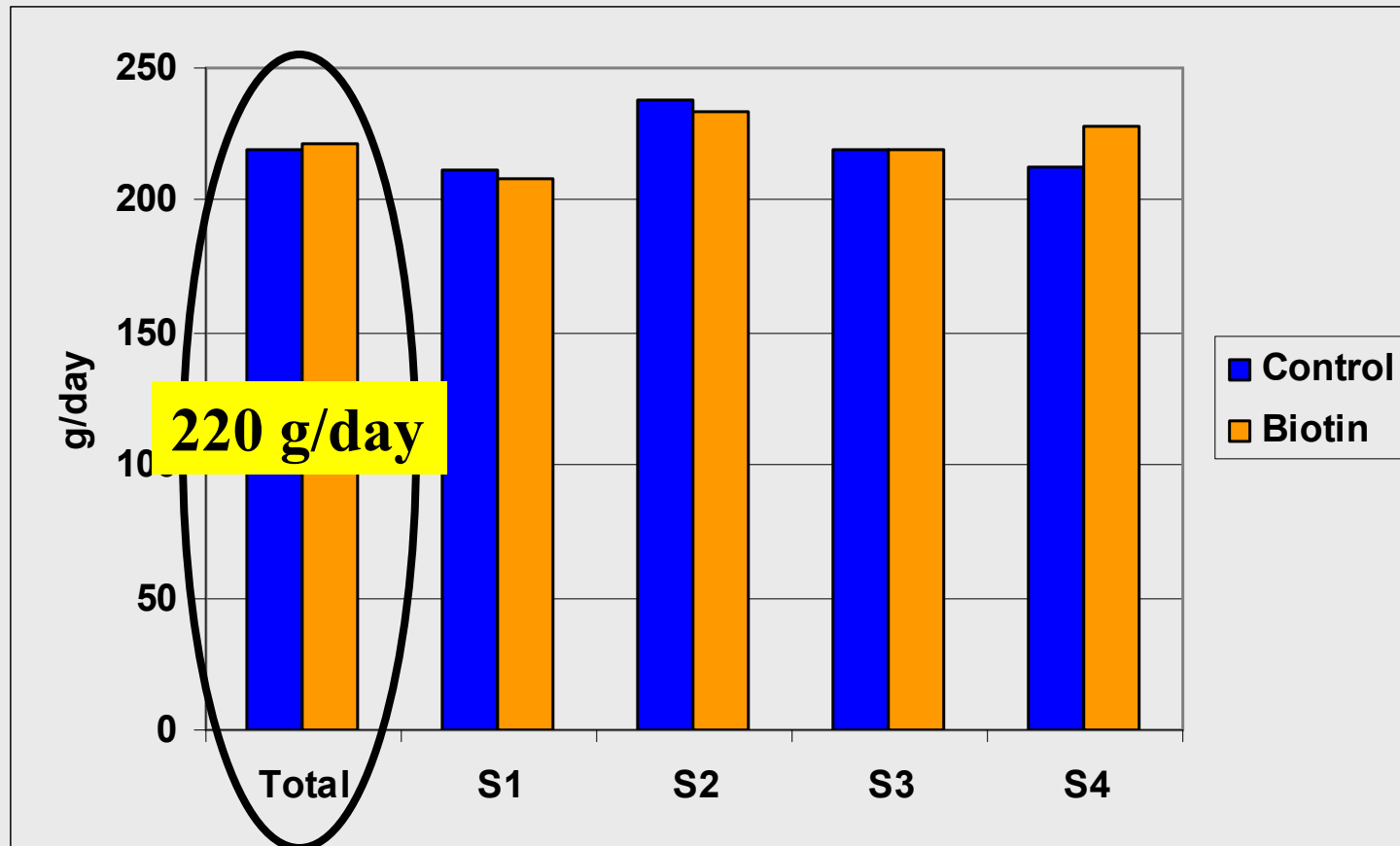


Results: % piglet mortality between birth and weaning



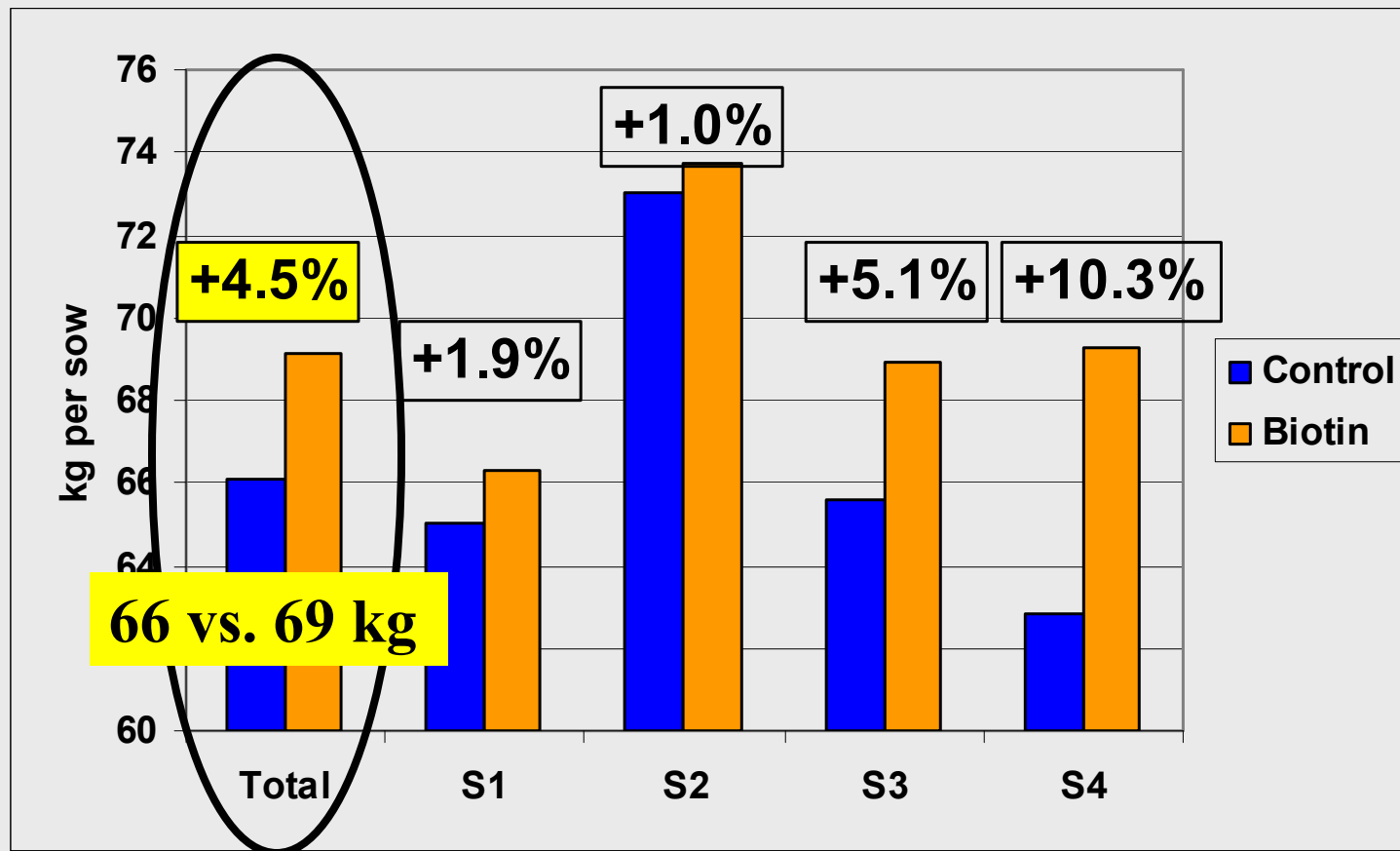
Mortality at younger stage for biotin vs. control group

Results: piglet daily gain



Daily creep feed intake 5 g/piglet, not affected by biotin

Results: Litter weight gain for 28 suckling days, corrected for outliers



Conclusions

No sign. effects of extra 2 ppm biotin in sow lactation diet but limited nr. of sows involved

Indications for

= feed intake, but ↑weight and P2 losses

= piglet weight gain, but ↓ diarrhoea & mortality

↑ litter weight gain by ↑ milk production

more effect for uni- vs. multipareous sows

A 4.5% litter weight gain improvement is similar as earlier found for high productive cows

Thanks to DSM Nutritional Products