

## Article

# The Effect of Feeding Liquid or Dry Creep Feed on Growth Performance, Feed Disappearance, Enzyme Activity and Number of Eaters in Suckling Piglets

Nanna Byrgesen <sup>1</sup>, Johannes G. Madsen <sup>1</sup>, Christina Larsen <sup>1</sup>, Niels J. Kjeldsen <sup>2</sup>, Malene S. Cilieborg <sup>1</sup> and Charlotte Amdi <sup>1,\*</sup>

<sup>1</sup> Department of Veterinary and Animal Sciences, Faculty of Health and Medical Sciences, University of Copenhagen, Grønnegårdsvej 2, 1870 Frederiksberg, Denmark; nanna.byrgesen@gmail.com (N.B.); johannes.g.madsen@sund.ku.dk (J.G.M.); christinalarsen@sund.ku.dk (C.L.); macilie@sund.ku.dk (M.S.C.); ca@sund.ku.dk (C.A.)

<sup>2</sup> SEGES Danish Pig Research Centre, Axeltorv 3, 1609 Copenhagen, Denmark; njk@seges.dk (N.J.K.)

\* Correspondence: ca@sund.ku.dk

**Supplementary Table S1:** The average BW, weight of the stomach, small intestine (SI) and colon both full and empty of 40 pigs euthanized at day 25 or 26. The pigs were fed either a dry- or liquid creep diet from day 10 and categorized as eaters or non-eaters based on the colour of faecal swabs. The weight of SI, stomach and colon are both measured as absolute and relative weight (% of BW).

|                               | Treatment          |                   |                    |                   | SEM   | P-value      |                 |
|-------------------------------|--------------------|-------------------|--------------------|-------------------|-------|--------------|-----------------|
|                               | DCF                |                   | LCF                |                   |       | Treatment    | Eating category |
|                               | Eaters             | Non-eaters        | Eaters             | Non-eaters        |       |              |                 |
| No. of pigs                   | 10                 | 10                | 10                 | 10                |       |              |                 |
| BW, kg                        | 6.69 <sup>a</sup>  | 6.70 <sup>a</sup> | 5.84 <sup>b</sup>  | 5.85 <sup>b</sup> | 0.330 | <b>0.046</b> | 0.984           |
| Stomach full, g               | 119                | 113               | 139                | 133               | 14.2  | 0.247        | 0.709           |
| Stomach full, %               | 1.87 <sup>x</sup>  | 1.74 <sup>x</sup> | 2.41 <sup>y</sup>  | 2.28 <sup>y</sup> | 0.229 | <b>0.066</b> | 0.608           |
| Stomach empty, g <sup>1</sup> | 46.7 <sup>ax</sup> | 40.2 <sup>x</sup> | 34.5 <sup>by</sup> | 39.6 <sup>y</sup> | 3.21  | <b>0.079</b> | 0.382           |
| Stomach empty, %              | 0.66               | 0.65              | 0.65               | 0.64              | 0.041 | 0.849        | 0.890           |
| SI full, g                    | 285                | 268               | 270                | 335               | 2.41  | 0.333        | 0.323           |
| SI full, %                    | 4.02 <sup>a</sup>  | 4.40 <sup>a</sup> | 5.02 <sup>b</sup>  | 5.40 <sup>b</sup> | 0.264 | <b>0.005</b> | 0.195           |
| SI empty, g                   | 244                | 229               | 211                | 254               | 1.63  | 0.797        | 0.379           |
| SI empty, %                   | 3.46 <sup>x</sup>  | 3.71 <sup>x</sup> | 3.90 <sup>y</sup>  | 4.14 <sup>y</sup> | 0.177 | <b>0.056</b> | 0.215           |
| SI length, m                  | 8.53               | 8.77              | 8.53               | 8.77              | 0.219 | 0.996        | 0.329           |

|                |                   |                   |                   |                   |       |              |       |
|----------------|-------------------|-------------------|-------------------|-------------------|-------|--------------|-------|
| Colon full, g  | 121               | 118               | 124               | 121               | 7.90  | 0.738        | 0.735 |
| Colon full, %  | 1.84 <sup>a</sup> | 1.80 <sup>a</sup> | 2.15 <sup>b</sup> | 2.10 <sup>b</sup> | 0.111 | <b>0.034</b> | 0.737 |
| Colon empty, g | 66.4              | 67.8              | 66.0              | 67.3              | 3.14  | 0.919        | 0.746 |
| Colon empty, % | 1.02 <sup>x</sup> | 1.03 <sup>x</sup> | 1.16 <sup>y</sup> | 1.17 <sup>y</sup> | 0.058 | <b>0.060</b> | 0.854 |

<sup>a,b</sup> Means in the same row with different superscripts differ significantly ( $P < 0.05$ )

<sup>x,y</sup> Means in the same row with different superscripts tended to differ ( $P < 0.1$ )

<sup>1</sup> Interaction was found between eating category and dietary treatment ( $P = 0.012$ )

**Supplementary Table S2:** Blood parameters from 40 piglets fed a dry (DCF) or liquid creep feed (LCF) during suckling and categorized as eaters or non-eaters based on faecal swabs.

|                                 | Treatment         |                   |                   |                   | SEM   | P-value           |                 |
|---------------------------------|-------------------|-------------------|-------------------|-------------------|-------|-------------------|-----------------|
|                                 | DCF               |                   | LCF               |                   |       | Dietary treatment | Eating category |
|                                 | Eaters            | Non-eaters        | Eaters            | Non-eaters        |       |                   |                 |
| n                               | 10                | 10                | 10                | 10                |       |                   |                 |
| Albumin, g/L                    | 34.3              | 31.8              | 31.3              | 33.2              | 1.40  | 0.556             | 0.810           |
| Total protein, g/L              | 47.7              | 48.4              | 47.0              | 47.9              | 1.31  | 0.602             | 0.696           |
| Alanine aminotransferase, U/L   | 41.6 <sup>a</sup> | 36.3 <sup>a</sup> | 52.0 <sup>b</sup> | 46.7 <sup>b</sup> | 3.16  | <b>0.012</b>      | 0.134           |
| Basic phosphatase, U/L          | 877               | 762               | 984               | 869               | 94.9  | 0.335             | 0.301           |
| Total bilirubin, umol/L         | 5.0               | 5.0               | 6.1               | 6.1               | 0.76  | 0.289             | 0.977           |
| Creatin Kinase, U/L             | 8234 <sup>a</sup> | 5708 <sup>b</sup> | 6999 <sup>a</sup> | 4473 <sup>b</sup> | 934   | 0.305             | <b>0.023</b>    |
| Creatinine, umol/L              | 88.7 <sup>x</sup> | 89.2 <sup>x</sup> | 79.5 <sup>y</sup> | 80.2 <sup>y</sup> | 4.18  | <b>0.067</b>      | 0.902           |
| Cholesterol, mmol/L             | 4.4               | 4.0               | 4.0               | 3.5               | 0.25  | 0.182             | 0.112           |
| Inorganic Phosphate, mmol/L     | 3.2 <sup>x</sup>  | 3.1 <sup>x</sup>  | 3.0 <sup>y</sup>  | 2.9 <sup>y</sup>  | 0.09  | <b>0.090</b>      | 0.525           |
| Iron, umol/L                    | 28.3              | 26.6              | 25.1              | 23.4              | 2.44  | 0.291             | 0.536           |
| Aspartate aminotransferase, U/L | 206 <sup>x</sup>  | 161 <sup>y</sup>  | 213 <sup>x</sup>  | 167 <sup>y</sup>  | 20    | 0.773             | <b>0.054</b>    |
| Gamma-glutamyl transferase, U/L | 13.2              | 12.9              | 16.7              | 16.4              | 3.00  | 0.362             | 0.916           |
| Blood urea nitrogen, mmol/L     | 2.7 <sup>x</sup>  | 3.5 <sup>y</sup>  | 3.4 <sup>x</sup>  | 4.2 <sup>y</sup>  | 0.41  | 0.177             | <b>0.079</b>    |
| Calcium, mmol/L                 | 3.2               | 3.3               | 3.2               | 3.2               | 0.18  | 0.845             | 0.796           |
| Magnesium, mmol/L               | 0.98              | 1.00              | 0.95              | 0.97              | 0.060 | 0.664             | 0.814           |
| Sodium, mmol/L                  | 144               | 140               | 137               | 133               | 6.01  | 0.297             | 0.556           |

---

|                       |     |     |     |     |      |       |       |
|-----------------------|-----|-----|-----|-----|------|-------|-------|
| Potassium, mmol/L     | 7.1 | 6.7 | 6.9 | 6.6 | 0.23 | 0.651 | 0.182 |
| Glucose, mmol/L       | 7.3 | 7.3 | 7.0 | 7.1 | 0.26 | 0.370 | 0.832 |
| Triglycerides, mmol/L | 1.6 | 1.6 | 1.6 | 1.6 | 0.15 | 0.965 | 0.827 |

---

<sup>a,b</sup> Means in the same row with different superscripts differ significantly ( $P < 0.05$ )

<sup>x,y</sup> Means in the same row with different superscripts shows a statistical tendency ( $P < 0.1$ )