A DEFICIENT PROTEIN SUPPLY COULD BE AFFECTING SELECTION FOR GROWTH RATE IN RABBITS

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The problem

Genetic Selection

Improved FCR

Diets must provide enough quantity of protein and aa

Probably it changed their requirements

"Now here, you see, it takes all the running you can do, to keep in the same place"
Before

Diets provided enough protein but...

Currently...

Recomendation about...

So

What happen with our new requirements? Maybe we can’t meet all our potential!
To evaluate how a **common** growing **diet**, could be **affecting protein supply** and **amino acids retention** during the growing period in function of animals growth rate.
Digestible protein: 120.5 g/kg feed

✔ Body Weight and Feed Intake

✔ Empty bodies crushed and lyophilized

Retention of protein and aa were studied
R animals have better FCR than H and LP (2.36±0.05, 2.70±0.05 and 2.65±0.04 for R, H and LP animals, respectively; P<0.05)

<table>
<thead>
<tr>
<th>FCR (Kg/Kg)</th>
<th>Feki (1996)</th>
<th>Our work:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal lines</td>
<td>3,06 kg/kg</td>
<td>2,68 kg/kg</td>
</tr>
<tr>
<td>Paternal lines</td>
<td>2,73 kg/kg</td>
<td>2,36 kg/kg</td>
</tr>
<tr>
<td>Diference</td>
<td>11%</td>
<td>11%</td>
</tr>
</tbody>
</table>

It reveal a lack of effectiveness...
R animals have greater IPD, but lower to that expected.

Animals with an EGW up to 45 g/day showed a lower protein retention to that expected.

Could be related to a lack on some limiting aa?
The same response presented when aa retained.
From these figures... A key rabbit with an empty body weight gain of 60g/d need to increase its protein retention in 1.75, with an efficiency value of 0.63, they would need a diet with at least 135.7 g DP/Kg, or an adjustment of the limiting aa.
A POSSIBLE PROTEIN DEFICIT EXISTS WHEN HIGH GROWTH RATE ANIMALS ARE FEED WITH A COMMON DIETS, THAT COULD BE HINDERING THE SELECTION PROCESS. DETERMINING CONCENTRATION OF LIMITING AMINO ACIDS REQUIREMENTS IN FUNCTION OF GROWTH RATE WILL BE NEED.
ARE GROWING DIETS PROVIDING ENOUGH PROTEIN TO HIGH GROWTH RATE RABBITS?

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1 INTRODUCTION

Genetic selection has improved growth rate but probably it has changed animal requirements. Current growing diets ensure enough protein supply to crossbred animals. However, animals with high growth rate (>50 g/d) could have difficulties to express all their genetic potential punishing the progress of genetic select.

Our hypothesis was that common diet enough protein to high growth rate rabb.

2 OBJECTIVE: To evaluate how a growing diet could be affecting ileal dig function of animals grow.

3 MATERIALS & METHODS

EXPERIMENTAL DIET:

Was formulated according to current (Blas and Mateos, 2010; Feed Formulate Rabbit, 222-232, CABI)

<table>
<thead>
<tr>
<th>Diet chemical composition</th>
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<tbody>
<tr>
<td>Digestible energy</td>
<td>11.9 MJ/kg</td>
</tr>
<tr>
<td>Digestible protein</td>
<td>111 g/kg</td>
</tr>
<tr>
<td>Acid detergent fibre</td>
<td>159 g/kg</td>
</tr>
<tr>
<td>Lysine</td>
<td>7.94 g/kg</td>
</tr>
<tr>
<td>Methionine</td>
<td>2.55 g/kg</td>
</tr>
<tr>
<td>Cysteine</td>
<td>2.28 g/kg</td>
</tr>
</tbody>
</table>

ANIMALS:

N=140 animals with high variability weight gain

- H LINE: Maternal line selected by litter
- LP LINE: Maternal line selected by litter
- R LINE: Paternal line selected by average

TRAITS CONTROLLED:

Dry matter (DM) intake, daily weight gain and feed conversion ratio (FCR) (28 to 63 days of life)

Analysis of ileal content at 62 days using a Yb-marked version of feed from 53 to 63 days of life

4 RESULTS

As expected, growing rabbits characterized by higher daily weight gain had higher feed intake and better FCR.

![Graph showing ingestion (g/h) over time]

<table>
<thead>
<tr>
<th>Hour (h)</th>
<th>Ingestion (g/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>08.00</td>
<td>8.1</td>
</tr>
<tr>
<td>12.00</td>
<td>8.1</td>
</tr>
<tr>
<td>16.00</td>
<td>8.1</td>
</tr>
<tr>
<td>20.00</td>
<td>8.1</td>
</tr>
<tr>
<td>04.00</td>
<td>8.1</td>
</tr>
</tbody>
</table>

5 CONCLUSIONS: A possible protein deficit on growing rabbits with a high growth rate exists when they are fed with a common diet (146 g CP/kg). It could be punishing their genetic potential expression.
. . . WE STILL WORK . . .

THANKS FOR YOUR ATTENTION . . .

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