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# CLOSTAT® can be a suitable replacement of growth promoters in the piglets post weaning period

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**Key Conclusions**

**Replacement of AGPs with CLOSTAT resulted in:**

- **Improved average daily gain (ADG), feed conversion ratio (FCR) and feed intake (ADFI) in the first phase**
- **Comparable performance and diarrhea scores (p>0.05) during the whole study period.**
- **Reduction of the feeding cost, improved weight gain during the nursery period and a positive the return of investment (ROI)**

## OBJECTIVE

The objective of this study was to assess the effect of CLOSTAT as a replacement of growth promoters in the diet of piglets during the post weaning period on growth performance and profitability.

## INTRODUCTION

Weaning is one of the most stressful interventions in the piglets' life and may have life-long implications both in health and performance. The trend for hyperprolific sows, early weaning at an age the piglets are not immunologically competent and less than ideal. Additionally, management practices lead to imbalances in the piglets intestinal microbiome, which combined with anorexia, and presence of pathogenic bacteria may lead to the well know "Post weaning diarrhea".

Even though growth promoter usage was banned in the EU in 2006, they are still commonly used in parts of the world to minimize intestinal damage, improve performance and feed efficiency.

It is mandatory to find alternatives to antimicrobial growth promoters (AGP). As there is an increasing pressure to restrict the use of antibiotics to prescription use and only when strictly necessary, as well as increased awareness about antimicrobial resistance, and limited number of antibiotics available to both veterinary and human medicine.

A group of products that can help to replace AGPs or to offer performance improvements traditionally achieved by the AGP´s are probiotics.

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The objective of this trial was to assess the effect of CLOSTAT as a candidate to replace AGPs in countries where its use is still allowed to support the piglets through the weaning period to improve performance and profitability, it also allows to assess the potential of probiotics in improving growth performance during the post weaning period.

## MATERIALS AND METHODS

240 weaned piglets (males and females) with an average age of 23 days and an average body weight of 6.7 kg were included in the study. The animals were allotted to one of two groups (10 repetitions of 12 animals / treatment): Control group (n=120) and CLOSTAT group (n=120). The animals were blocked by gender and body weight at inclusion.

The study had a duration of 49 days and covered the initial 4 phases post weaning:

- Pre-Starter 1 – 24 to 31 days of age
- Pre-Starter 2 – 32 to 38 days of age
- Starter 1 – 39 to 45 days of age
- Starter 2 – 46 to 72 days of age

Diets were formulated to meet the nutritional requirements of each of the ages of the animals. A summary of the different treatments can be seen on table 1.

Table 1. summary of the different treatments

| | Phase | Control | CLOSTAT Dry |
|---|---|---|---|
| Treatments | Pre-Starter 1 | Flavomicin (12 PPM) | 500 g / t |
| | Pre-Starter 2 | Flavomicin (12 PPM) | 500 g / t |
| | Starter 1 | Enramicin (12 PPM) | 500 g / t |
| | Starter 2 | Enramicin (12 PPM) | 500 g / t |

Piglets were weighed at the end of each phase, feed used was monitored. Average daily gain (ADG), average daily feed intake (ADFI) and feed conversion ratio (FCR) were calculated.

During the study, diarrhea was also scored (1 to 5, with 1 being the lowest and 5 the highest incidence). Means were compared between the groups (Tukey) using a statistical analysis program (SAS).

For the economic analysis the prices of feed and pork at the time and location of the experiment were used.

## RESULTS AND DISCUSSION

Supplementation with CLOSTAT resulted in a 19% improved average daily gain ($p<0.01$), a 12% improvement in feed conversion ratio (FCR) ($p<0.05$) and a 6% higher ($p<0.05$) feed intake (ADFI) in the first phase, as can be seen in figure 1.

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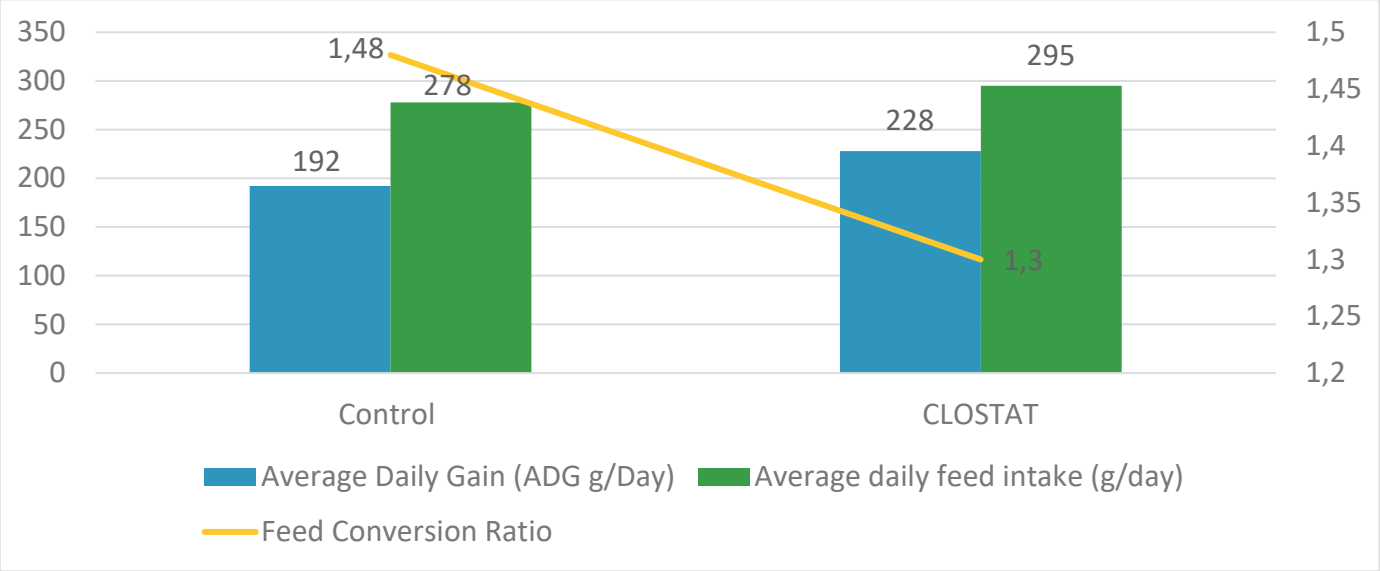
Figure 1. Performance results for phase 1 after weaning, with significantly improved ($p<0.05$) ADG, feed intake and FCR




For the total nursery stage, the replacement of AGPs with CLOSTAT resulted in a comparable performance and diarrhea scores ($p>0.05$), the results can be seen in table 1.

Table 2. Performance results and diarrhea scores for both the Control group and CLOSTAT group for the whole duration of the trial (diarrhea score 1 to 5, with 1 the lowest incidence and 5 the highest incidence).

| | CONTROL | CLOSTAT | *p value* |
|---|---|---|---|
| ADG (g/day) | 478 | 481 | *0.7475* |
| ADFI (g/day) | 755 | 749 | *0.6374* |
| FCR | 1.58 | 1.56 | *0,1917* |
| Diarrhea score[1] | 1.32 | 1.35 | *0.4560* |

An economic analysis was carried out and can be seen on Table 3. Local pork and feed prices for the region and time of the trial were used in these calculations.

Table 3. Economic analysis of the impact of CLOSTAT as an alternative to AGP´s in piglets. Exchange rate US$ to € 0.87 (as in 7/2/2022)

| | **Control** | **CLOSTAT** | **difference € / piglet** |
|---|---|---|---|
| Phase | **Cost feeding / piglet €** | | |
| Pre-Starter 1 | 1.10 | 1.17 | |
| Pre-Starter 2 | 1.67 | 1.70 | |
| Starter 1 | 1.65 | 1.59 | |
| Starter 2 | 7.28 | 7.13 | |
| **Total cost (€)** | **11.71** | **11.59** | **-0.12** |
| | **Gain / piglets** | | |
| Total weight gain (kg) | 23,44 | 23.58 | |
| **Total gain (€)** | 34.87 | 35.08 | **0.21** |

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The replacement of AGPs by CLOSTAT resulted in the reduction of the feeding cost of 0.12 € / piglet and improved weight gain during the nursery period (23.58 vs 23.44 kg), the return of investment (ROI) was calculated to be 2:1.
In a 1000 sows unit, these improvements would result in saving 3.07 € in feed and a gain of 6453 kg extra piglet weight, in financial terms this would equate to 9645 € per year.

## CONCLUSION

In this study it was demonstrated that CLOSTAT can be an alternative to AGPs in markets where these are available, but most importantly, it demonstrated that this probiotic can offer performance improvements comparable to those obtained using AGP´s in.

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