

MAXI HOPPER PAN IMPROVES FEED EFFICIENCY AFTER WEANING

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SUMMARY

The Maxi Hopper Pan is a feeder designed to support other feeders during the first 14 days after weaning, although some farmers use it as a stand alone feeder until 18 kg body weight. It has 10 feeding spaces specially designed for an easy access for the recently weaned piglet. Piglets eat in groups as they were used to during the suckling period. Two weaners feeders, TR5 (5 feeding spaces, dry feeding) and GF (one feeding space, wet/dry feeding), were tested alone or with a support feeder (Maxi Hopper Pan) during the first 14 days postweaning. Apparent feed intake was greater without the Maxi Hopper Pan when animals had a GF. As a result adding the support feeder to the GF feeder feed efficiency improved and no differences in average daily gain were detected. The greater apparent feed intake observed without the support feeder may be because of increased feed wastage caused by the difficulties in obtaining feed. The addition of the support feeder is crucial in animals fed with a GF feeder, because during the first days postweaning only heavier animals are able to obtain food. With the Maxi Hopper Pan animals have more opportunities to eat even the lighter ones. Feed intake increased and feed efficiency improved when the support feeder was added to the TR5 feeder. Maxi Hopper Pan improves results because it increases the number of feeding spaces and piglets have an easy access to feed.

Keywords: piglet, weaning, feed intake, feeder

INTRODUCTION

The weaner pig often under-performs and its performance is well below its genetic potential because it is unable to eat sufficient feed. The reasons are both nutritional and behavioural (Brooks *et al.*, 2000). Following weaning, the piglet has to learn to distinguish between the physiological drives of hunger and thirst and how to satisfy them with solid food and water. These disruptions in intake affect the structure and function of the digestive tract. The discontinuous intake after weaning is generally associated with decreases in villous height and increases in crypt depth, which may contribute to a decrease in digestive and absorptive capacity of the gut and precipitate to post-weaning diarrhoea (Pluske *et al.* 1997).

The objectives of this study were to test if the addition of a support feeder during the 14 days post weaning stimulates feed intake and improves the production results.

MATERIAL AND METHODS

Experimental animals, design and treatments

A trial was conducted on a commercial ISOWEAN farm. Three hundred weaned piglets of 21 days of age with an average body weight of 5.8 ± 0.09 kg were allocated in groups of 25 animals in partially slatted pens of 2.75m x 2m. Two weaner feeders (Grow Feeder, GF, and TR5) were tested alone or in combination with a Maxi Hopper Pan (MHP) as a support feeder (GF, TR5 vs GF + MHP and TR5 + MHP, respectively, Figure 1). In the Grow Feeder (GF) feed is presented in a dry/wet form and has one feeding space, animals needing to operate a mechanism to obtain the feed. Each pen of 25 animals had two GF. In the TR5 feeder feed is presented in a dry form and has 5 feeding spaces. Each pen (25 animals) had one TR5. The support feeder Maxi Hopper Pan (MHP, dry, 10 feeding spaces) was placed in the centre of the pen. In all treatments piglets had access to a MIDI drinker (Rotecna), and in treatments where food form was dry (TR5), they had an additional MIDI drinker to avoid differences in water availability with dry/wet treatments (GF). Pens were designed with PVC panels (60 cm height) and the floor was partially slatted and partially concrete with under floor heating. The buildings were mechanically ventilated. Animals had *ad libitum* access to concentrate 1 (crude protein, 21.5%; ether extract, 7.7%; crude fibre, 1.8%; crude ash, 6.2%, lysine, 1.7%; methionine, 0.6%, 1.8 mm diameter) from the first to the 14th day.

Procedures

Measurements. The apparent voluntary food intake was estimated. Animals were weighed at the beginning and at the 14th day. In case that an animal has been eliminated (death or sick) its weight was recorded. To avoid confusion in data interpretation no new animals were introduced or changed in a pen. Animals were also filmed at 8:00 pm at the beginning of the trial and at the 14th day to study their behaviour. With the filming it was possible to evaluate the effect of feeder design on animals access to feed, fighting at the feeder, if animals step in the pan, etc. This filming was not made to establish numbers of visits to the feeder or time spent eating, because for this purpose filming during 24 hours over several days would be necessary.



Figure 1. Maxi Hopper Pan, TR5, Grow Feeder, respectively

Statistical analysis

Data from the first 14 days were analysed as a random incomplete design with the procedure PROC MIXED with the SAS system (1996). The model included treatment (Feeder ± support feeder), sex effect and their interactions as fixed effects and period as random effect. Initial body weight was evaluated as a covariate.

RESULTS

The effects of feeder type on body weight and on average daily gain (ADG) in these first two weeks are summarised in Table 1.

Table 1. Body weight and liveweight gain corresponding to the first 14 days after weaning

	GF	GF + MHP	TR5	TR5 + MHP	SE
Body weight at the 14 th day, kg	8.39	8.67	8.20	8.95	0.237
Average daily gain, g/d	184	196	175	218	14.7

GF: Grow Feeder; MHP: Maxi Hopper Pan; SE: standard error

No statistical differences in BW and ADG were detected ($P>0.05$) at the 14th day after weaning. Animals with GF had a greater apparent feed intake ($P<0.01$, Figure 2). Apparent feed intake was lower when TR5 had no support feeder (MHP).

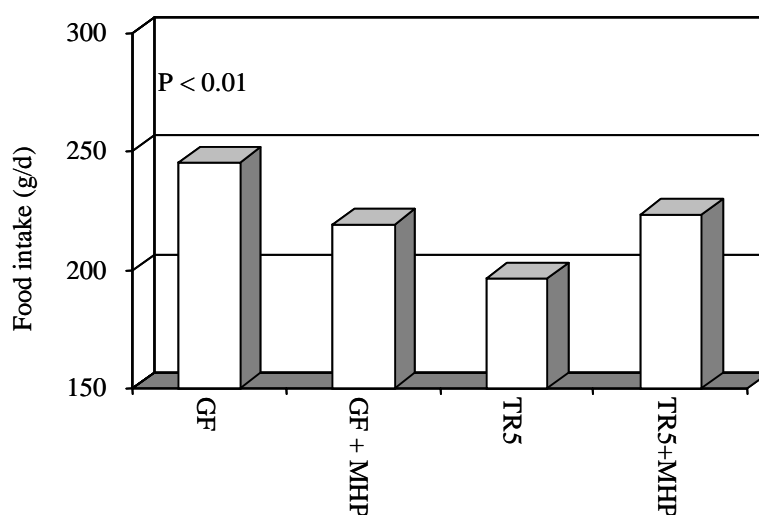


Figure 2. Average apparent food intake during the first 14 days after weaning

In treatments where the support feeder MHP was added, feed efficiency was improved ($P < 0.01$, Figure 3).

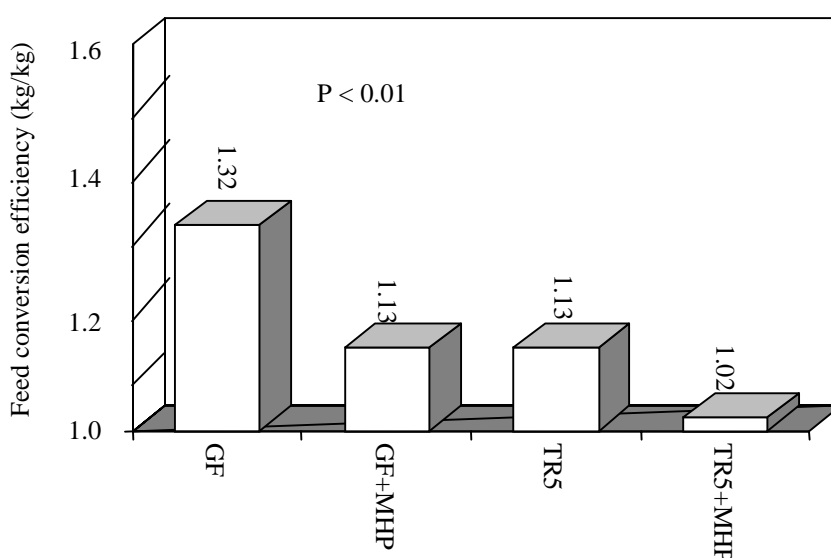


Figure 3. Effect of the support feeder on feed efficiency during the first 14 days after weaning

DISCUSSION

The Maxi Hopper Pan improves production results because it increases the number of feeding spaces and consequent piglets' access to feed is easier (Figure 4). In the video recordings it can be seen that piglets recognize food very easily. In the case of GF, a single-space feeder, the addition of a support feeder is more important. Obtaining feed from the GF involves a operation that only the heavier animals of the group are able to perform. When GF is the only feeder, only the heavier animals are able to obtain food during the first few days, leading to heterogeneity in the group and increased competition at the feeder. In addition, when the GF stands alone, animals step in the pan to gain access to feed thereby increasing feed wastage and apparent feed intake.

Other authors (Piñeiro *et al.* 2000) did not observe improvements in FE when adding a support feeder. These authors only added the support feeder for a period of 7 days and with only 12 animals in a group. In our study the support feeder was added for 14 days and groups consisted of 25 animals. These two factors are important, because one of the benefits of adding a support feeder is that it increases the number of feeding spaces, a fact closely related to the number of animals in a group.



Figure 4. Maxi Hopper Pan increases available feeding spaces

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