Effect of Early Weaning, Split-Weaning and Nursery Feeding Programmes on the Growth of Landrace × Desi Pigs

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ABSTRACT

An experiment using 164 crossbred pigs born to 20 first-parity sows was conducted to evaluate the growth performance of piglets in four weaning management regimes: T1, conventional weaning at 56 days; T2, early weaning at 28 days; T3, split-weaning of the heavier half of the litter at day 28, the remaining half being weaned at 56 days; and T4, split-weaning of the lighter half of the litter at 28 days, with the animals kept on a special nutrient diet up to 56 days, and the heavier half being weaned at 56 days. Split-weaning of the lighter half in combination with feeding a special nutrient diet resulted in an increase of average daily gain of 21% from day 28 to day 140 compared to conventional weaning and of 36% compared to early weaning at day 28. Compared to the control (T1), the average weights of piglets at the 140th day in groups T2 and T4 were 19.6% and 6.16%, respectively, higher, whereas that of the T3 was 8% lower. It is concluded that feeding a special nutrient diet to lighter pigs is beneficial in overcoming the post-weaning lag and enables maximal weight gain.

Keywords: early weaning, growth, special nutrient diet, split-weaning

Abbreviations: ADG, average daily gain; ADFI, average daily feed intake; DM, dry matter; SND, special nutrient diet

INTRODUCTION

With the advent of new weaning management practices in developed countries, sow productivity has improved considerably. The new management regimes not only maintain litter size in subsequent farrowing but also reduce the interval between weaning and mating (Matte et al., 1992). It has been demonstrated that pigs weaned at a lighter weight gain less weight throughout the nursery period (McConnel et al., 1987). Mahan and Lepine (1991) demonstrated that even when light-weight weaning pigs were provided with superior post-weaning diets, it took 10–15 days longer for them to reach market weight.

Competition among piglets during suckling is an important factor influencing their growth and productivity (Matte et al., 1992). The intensity of competition depends on both the number of piglets with the sow and their weight, and it can be decreased by
permanent removal of part of the litter during the period before complete weaning, a procedure called ‘split-weaning’, ‘fractionated weaning’ (Matte et al., 1992) or ‘partial weaning’ (English et al., 1987).

Within special weaning management schemes, split-weaning (i.e. weaning lighter pigs later than heavier pigs) has been shown to reduce the time to reach market weight (Mahan, 1993). According to Zijlstra and colleagues (1996), split-weaning ameliorates the weaning transition for light-weight pigs and achieves an overall decrease in time to reach market weight. Vesseur and colleagues (1997) observed that the smaller piglets of split-weaned sows grew faster during the fourth week of the lactation period compared with piglets of a control group. In the data reviewed by Matte and colleagues (1992), no effect of split-weaning on the growth of piglets remaining with the sow was found when split-weaning was applied for short periods at the end of a long lactation period such as 28 or 35 days.

The present study was carried out to examine the effects of early weaning and split-weaning on the growth of Landrace × Desi pigs under tropical conditions. The experiment evaluated the difference in growth performance of early-weaned, split-weaned and lighter pigs split-weaned to a special nutrient diet over pigs weaned conventionally at 8 weeks.

MATERIALS AND METHODS

Experimental design

The experiment was carried out at the Swine Production Farm of the Indian Veterinary Research Institute. A total of 164 Landrace × Desi crossbred piglets born to 20 first-parity sows were allotted by litter to four weaning management schemes so that each treatment was carried out on piglets of similar litter size at 28 days (Figure 1).

*Treatment 1 (T1): conventional weaning at 56 days (17 lighter + 17 heavier; total 34 piglets):* The animals in treatment 1 were considered as the control group. Piglets of T1 were allowed to suckle their dam until 56 days of age (8 weeks). Creep feed was offered from the 14th day onwards, and after weaning they continued on creep feed up to 70 days of age and then shifted to grower ration up to 140 days of age.

*Treatment 2 (T2): early weaning at 28 days (15 lighter + 17 heavier; total 32 piglets):* In treatment 2, all the piglets were weaned at 28 days (4 weeks) and continued on creep feed up to 70 days. Thereafter, grower ration was fed up to 140 days of age.

*Treatment 3 (T3): split-weaning (16 lighter + 17 heavier; total 33 piglets):* In treatment 3, the heavier half (on the basis of 28-day body weight) of the piglets within the litter were weaned at 28 days (4 weeks) and continued on creep feed up to 70 days. The grower ration was fed up to 140 days of age. The lighter half of the piglets remained with the sow up to 56 days and thereafter were fed the same ration as for the heavier ones.