Effect of different management techniques to enhance colostrum intake on piglets’ growth and mortality

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Abstract

An experiment was conducted to study the effect four different management techniques to enhance colostrum intake had on piglet and litter performance. Treatments were performed on piglets born weighing 1.30 kg or less (SP) within 6 h of birth: control group (CON); split-nursing of the litter for 2 h allowing only the SP piglets free access to teats (SPLIT); oral supplementation with 15 ml of sow colostrum to the SP piglets of the litter (COL); and oral supplementation with 3 ml of an energy product (Calostrene®) to the SP piglets of the litter (EN). Thirty-nine primiparous sows (Large White × Landrace) and their litters (507 piglets) and 100 multiparous sows and their litters (1,375 piglets) were used. Litters were fixed at 12 piglets. Piglets were weighed through lactation. Mortality was recorded. For primiparous sows, oral supplementation with COL enhanced SP piglets bodyweight (BW) at day 1 compared to CON, SPLIT, and EN. However, no differences on BW were observed at day 18 nor on litter total pre-weaning mortality. Nonetheless, lower SP piglets’ mortality rate was found in CON and EN compared to SPLIT and COL groups in primiparous sows. For multiparous sows, no differences among treatments were observed for SP piglets BW at day 1 or at day 18. Primiparous sows’ SP piglets had higher BW at day 1 than multiparous sows’ SP piglets. Colostrum supplementation of low birth weight piglets improved early weight gain in piglets born from primiparous sows, probably by enhancing their colostrum intake, but it did not affect piglets’ weaning BW or pre-weaning mortality.

Keywords: animal welfare, colostrum intake, colostrum supplementation, management routines, pig, sow

Introduction

Piglet mortality during lactation is still a problem in commercial swine herds with mortality rates above 12% in the European Union (Interpig 2012). Piglet survival can be influenced by pre-natal factors, maternal behaviour, physical environment and management around farrowing (Vasdal et al 2011). Although piglet growth and survival are influenced by piglet birth weight and vitality (Muns et al 2013), colostrum intake is determinant for piglet survival. Colostrum provides piglets with the energy necessary for thermoregulation and body growth, and immunoglobulins (Quesnel et al 2012). Passive transfer of immunity via colostrum intake is crucial during the first 24 h of life due to the epitheliocorial nature of the placenta in pigs and due to gut closure, which takes place at approximately 24 h of age (Rooke & Bland 2002). With the ongoing selection for prolific sows the numbers of small and immature piglets at birth have increased in commercial farms (Vasdal & Andersen 2012), resulting in more piglets at risk of low colostrum intake during the first hours of life. Different authors have focused on different management techniques to increase colostrum intake: drying and/or warming up the piglets (Christison et al 1997), drying and placing the piglets close to the udder (Vasdal et al 2011), administering some colostrum replacers (Holyoake et al 1995), providing piglets with extra oxygen (White et al 1996), or performing split-nursing (Donovan & Dritz 2000), are among the most successful techniques.

Intestinal macromolecular absorption in piglets (Svendsen et al 2005) and the effect of different source of immunoglobulins (Ig) fed to artificially reared piglets (Gomez et al 1998) have also been studied. However, little work has been focused on the effect of oral supplementation of newborn piglets on litter survival and growth under commercial conditions. Recently, our study group (Muns et al 2014), found positive results on piglets’ early growth and survival after supplementing them with sow colostrum. However, colostrum benefits were highly dependent on the cross-fostering strategy performed.

We hypothesised that oral supplementation of newborn piglets could benefit their further growth and survival during lactation. The objective of the present study was to compare the effect of four different management techniques to enhance colostrum intake on piglets’ survival and growth in commercial farms without the influence of the cross-fostering strategy. Results should allow the impact of management technique on piglet growth and survival to be assessed and help producers optimise piglets’ management strategies early after farrowing.