

80 Determining the effects of tryptophan biomass on growth performance of 11 to 23 kg nursery pigs.

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A total of 320 barrows (DNA 200×400, initially 11.3 ± 0.65 kg BW) were used in a 21-d growth trial evaluating the effects of feeding Trp biomass (CJ America-Bio, Downers Grove, IL) as a source of Trp on nursery pig performance. Pigs were weaned at approximately 21 d of age, placed in pens based on initial BW, and fed a common diet. On d 21 after weaning, pigs were weighed and pens were allotted to 1 of 4 dietary treatments with 5 pigs/pen and 16 replicates/treatment. Dietary treatments included a negative control (16% SID Trp:Lys), positive control (21% SID Trp:Lys from crystalline L-Trp), or diets containing Trp biomass to provide 21 or 23.5% SID Trp:Lys (included at 0.104 or 0.156% of the diet, respectively). Diets were corn-soybean meal based and contained 1.25% SID Lys with other AA set to meet or exceed NRC (2012) requirement estimates. The Trp biomass contained 69% Trp. Growth data were analyzed as a randomized complete block design using PROC GLIMMIX of SAS with pen as the experimental unit. Overall (d 0 to 21) pigs fed 21% Trp from L-Trp or Trp biomass had increased ($P < 0.05$) ADG compared to the control, with pigs fed the 23.5% SID Trp biomass intermediate. Pigs fed the 21% Trp from Trp biomass had improved ($P < 0.05$) G:F compared to the control with others intermediate. In conclusion, Trp biomass is a viable alternative to crystalline Trp, but further evaluation at higher inclusion levels is needed.

Table 1. Effects of using tryptophan biomass as a source of tryptophan on nursery pig performance

Item	Trp Source:		Biomass ¹		SEM	Probability, $P <$
	None	Crystalline	21	23.5		
BW, kg						
d 0	11.3	11.3	11.2	11.3	0.25	0.723
d 21	22.8 ^b	23.5 ^a	23.5 ^{ab}	23.0 ^{ab}	0.37	0.019
d 0 to 21						
ADG, g	549 ^b	576 ^a	580 ^a	556 ^{ab}	8.9	0.004
ADFI, g	836	865	854	833	18.0	0.132
G:F	0.658 ^b	0.667 ^{ab}	0.680 ^a	0.668 ^{ab}	0.0077	0.045

^{ab} Values with different superscripts differ, $P < 0.05$

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Key words: nursery pig, tryptophan, biomass

79 Seeing the whole picture: Utilizing GPS technology to determine distance and time calves devote to walking post-weaning.

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Common weaning practices in today's beef industry involve discontinuation of the cow-calf social and nutritional bond. When this bond is discontinued, atypical behaviors of walking and vocalizing are immediately observed in the calf that negatively affect calf welfare. Global positioning systems (GPS) provide an opportunity to quantify the effects of animal activity on welfare. Utilizing GPS technology, we are able to determine total distance walked, speed, total time walking, or total time not walking and the interactions with calf production. Thus, the objective of the present study was to evaluate the effects of a familiar trainer animal on calf production during weaning and more specifically, common weaning behaviors such as walking utilizing a Garmin® product. A total of 80 Angus x Simmental heifer calves were used in this study. In all four replications, heifer calves were allotted to each treatment group (n = 10), trainer animal or control (TR, CON) on the day of weaning. Calves in the TR group were placed on pasture at weaning with the familiar trainer animal, and control calves were placed in a similar size pasture without a trainer animal. Each calf was also fitted with their own GPS collar that recorded on days 0, 7, and 14 relative to initiation of the study for a full 24 hours before removal. Data were analyzed as a randomized complete block design with repeated measurements (SAS 9.4). Placing calves with a familiar trainer animal decreased the distance calves walked ($P = 0.001$) as well as the amount of time calves were walking ($P = 0.001$). Placing a familiar trainer animal with calves at weaning, therefore, has an effect on walking distance and amount of time calves devote to walking.

Key words: calves, weaning, GPS