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Improved retention rates and reduced culling for lameness for sows fed a chelated trace mineral blend

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Introduction

The prolific sow has high annualized culling rates which is an economic and welfare issue. Our objectives of this study were to improve sow retention rates by feeding a chelated trace mineral blend (OTM, Mintrex®, Novus International Inc.) from weaning and continued through the reproductive phases.

Materials and Methods

Two sister PRRS stable sow farms utilizing PIC C22 and C29 genetics with a common grandparent farm were fed either an inorganic control (ITM) or an OTM blend (Zn, Mn, and Cu), which replaced 50% of the ITM, with target supplementation levels of Zn, 165 ppm, Cu, 16.5 ppm, and Mn, 38.5 ppm in the final diet. Both farms received 50% of Se as inorganic and 50% as organic. Replacement gilts were blocked by group on the basis of each monthly supply of weaned gilts.

Results and Discussion

Gilts fed OTM (n = 10,725) had lower removal rates than gilts fed ITM (n = 10,729) from first service to farrowing (8.0% vs. 8.8%, P = 0.04). Subsequent retention rates were analyzed for sows that were on treatment from weaning to parity 4 (Table 1, n = 3994 and 4418 for OTM vs ITM, respectively). Sows fed OTM tended (P < 0.06) to have higher retention rates than sows fed ITM at P2. Sows fed OTM had

higher (P < 0.01) retention rates than sows fed ITM at both P3 and P4.

Table 1. Improved sow retention rates with OTM supplementation.

Parity	Retention Rates, %		P-value ¹
	OTM	ITM	
2	90.0	88.7	0.06
3	82.2	77.7	<0.01
4	72.1	63.5	<0.01

¹Based on Chi-square analyses

The involuntary removal rate and relative removal rate due to locomotion were significantly reduced with OTM supplementation. In gilts from first service to farrowing, removal rates due to locomotion were 9.0 vs 13.8% (P < 01) for OTM and ITM, respectively. The involuntary removal rates were reduced (P<0.01) for gilts fed OTM (17.3%) compared to gilts fed ITM (27.1%). Similar results were observed in sows in that removal rates due to locomotion were reduced by 55% with OTM supplementation (10.4% vs. 16.1%; P<0.01) compared to sows fed ITM. The involuntary removal rates were reduced by 45% with OTM supplementation (19.4 vs 28.1%; P < 0.01) compared to sows fed ITM.

Results suggest that OTM is beneficial for maintaining sow skeletal health and improving welfare assessed by higher survival rates to parity 4 and lower removal rates due to locomotion.