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Foreword, Appendices

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Abstract

It is with great pleasure that we present the 2017 Swine Industry Day Report of Progress. This report contains updates and summaries of applied and basic research conducted at Kansas State University during the past year. We hope that the information will be of benefit as we attempt to meet the needs of the Kansas swine industry.

Keywords

swine

Foreword

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2017 Swine Day Report of Progress Editors

Bob Goodband
Mike Tokach
Steve Dritz
Joel DeRouchey
Jason Woodworth

Standard Abbreviations

ADG	=	average daily gain	Mcal	=	megacalorie(s)
ADF	=	acid detergent fiber	ME	=	metabolizable energy
ADFI	=	average daily feed intake	mEq	=	milliequivalent(s)
AI	=	artificial insemination	min	=	minute(s)
avg	=	average	mg	=	milligram(s)
bu	=	bushel	mL	=	cc (cubic centimeters)
BW	=	body weight	mm	=	millimeter(s)
cm	=	centimeter(s)	mo	=	month(s)
CP	=	crude protein	MUFA	=	monounsaturated fatty acid
CV	=	coefficient of variation	N	=	nitrogen
cwt	=	100 lb	NE	=	net energy
d	=	day(s)	NDF	=	neutral detergent fiber
DE	=	digestible energy	NFE	=	nitrogen-free extract
DM	=	dry matter	ng	=	nanogram(s), .001 Fg
DMI	=	dry matter intake	no.	=	number
F/G	=	feed efficiency	NRC	=	National Research Council
ft	=	foot(feet)	ppb	=	parts per billion
ft^2	=	square foot(feet)	ppm	=	parts per million
g	=	gram(s)	psi	=	pounds per square inch
µg	=	microgram(s), .001 mg	PUFA	=	polyunsaturated fatty acid
gal	=	gallon(s)	SD	=	standard deviation
GE	=	gross energy	sec	=	second(s)
h	=	hour(s)	SE	=	standard error
HCW	=	hot carcass weight	SEM	=	standard error of the mean
in	=	inch(es)	SEW	=	segregated early weaning
IU	=	international unit(s)	SFA	=	saturated fatty acid
kg	=	kilogram(s)	UFA	=	unsaturated fatty acid
kcal	=	kilocalorie(s)	wk	=	week(s)
kWh	=	kilowatt hour(s)	wt	=	weight(s)
lb	=	pound(s)	yr	=	year(s)

K-State Vitamin and Trace Mineral Premixes

Diets listed in this report contain the following vitamin and trace mineral premixes unless otherwise specified.

- Trace mineral premix: Each pound of premix contains 10 g Mn, 33 g Fe, 33 g Zn, 5 g Cu, 90 mg I, and 90 mg Se.
- Vitamin premix: Each pound of premix contains 1,600,000 IU vitamin A, 400,000 IU vitamin D3, 8,000 mg vitamin E (dl-œ-tocopherol acetate or 4,000 mg d-œ-tocopherol acetate), 800 mg menadione, 1,500 mg riboflavin, 5,000 mg pantothenic acid, 15,000 mg niacin, and 7 mg vitamin B12.
- Sow add pack: Each pound of premix contains 100,000 mg choline, 40 mg biotin, 300 mg folic acid, 400 mg pyridoxine, 4,000 mg Vit E (dl-œ-tocopherol acetate or 2,000 mg d-œ-tocopherol acetate), 9,000 mg L-carnitine, and 36 mg Cr.

Note

Some of the research reported here was carried out under special U.S. Food and Drug Administration (FDA) clearances that apply only to investigational uses at approved research institutions. Materials that require FDA clearances may be used in the field only at the levels and for the use specified in that clearance.

Biological Variability and Chances of Error

Variability among individual animals in an experiment leads to problems in interpreting the results. Animals on treatment X may have higher average daily gains than those on treatment Y, but variability within treatments may indicate that the differences in production between X and Y were not the result of the treatment alone. Statistical analysis allows us to calculate the probability that such differences are from treatment rather than from chance.

In some of the articles herein, you will see the notation "$P < 0.05$." That means the probability of the differences resulting from chance is less than 5%. If two averages are said to be "significantly different," the probability is less than 5% that the difference is from chance, or the probability exceeds 95% that the difference resulted from the treatments applied.

Some papers report correlations or measures of the relationship between traits. The relationship may be positive (both traits tend to get larger or smaller together) or negative (as one trait gets larger, the other gets smaller). A perfect correlation is one (+1 or -1). If there is no relationship, the correlation is zero.

In other papers, you may see an average given as 2.5 ± 0.1. The 2.5 is the average; 0.1 is the "standard error." The standard error is calculated to be 68% certain that the real average (with unlimited number of animals) would fall within one standard error from the average, in this case between 2.4 and 2.6.

Using many animals per treatment, replicating treatments several times, and using uniform animals increase the probability of finding real differences when they exist. Statistical analysis allows more valid interpretation of the results, regardless of the number of animals. In all the research reported herein, statistical analyses are included to increase the confidence you can place in the results.

Index of Key Words

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