K·STATE
Research and Extension

SWINE DAY
2025

KANSAS STATE UNIVERSITY
SWINE INDUSTRY DAY
2025

Foreword

It is with great pleasure that we present the 2025 Swine Industry Day Report of Progress. This report contains updates and summaries of swine-related 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.

2025 Swine Day Report of Progress Editors

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Standard Abbreviations

AA = amino acids

ADF = acid detergent fiber

ADFI = average daily feed intake

ADG = average daily gain

AI = artificial insemination

avg = average

bu = bushel

BW = body weight

cm = centimeter(s)

CP = crude protein

CV = coefficient of variation

cwt = 100 lb

d = day(s)

DDGS = dried distillers grains with solubles

DE = digestible energy

DM = dry matter

DMI = dry matter intake

F/G = feed efficiency

ft = foot (feet)

ft2 = square foot(feet)

g = gram(s)

µg = microgram(s), .001 mg

gal = gallon(s)

GE = gross energy

h = hour(s)

HCW = hot carcass weight

in. = inch(es)

IU = international unit(s)

kcal = kilocalorie(s)

kg = kilogram(s)

kWh = kilowatt hour(s)

lb = pound(s)

Mcal = megacalorie(s)

ME = metabolizable energy

mEq = milliequivalent(s)

min = minute(s)

mg = milligram(s)

mL = cc (cubic centimeters)

mm = millimeter(s)

mo = month(s)

MUFA = monounsaturated fatty acid

N = nitrogen

NDF = neutral detergent fiber

NE = net energy

NFE = nitrogen-free extract

no. = number

NRC = National Research Council (2012)

ppb = parts per billion

ppm = parts per million

psi = pounds per square inch

PUFA = polyunsaturated fatty acid

s = second(s)

SD = standard deviation

SE = standard error

SEM = standard error of the mean

SEW = segregated early weaning

SFA = saturated fatty acid

SID = standardized ileal digestible

UFA = unsaturated fatty acid

wk = week(s)

wt = weight(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 750,000 IU vitamin A, 300,000 IU vitamin D3, 8,000 mg vitamin E (dl-alpha-tocopherol acetate or 4,000 mg d-alpha-tocopherol acetate), 600 mg menadione, 1,500 mg riboflavin, 5,000 mg pantothenic acid, 9,000 mg niacin, and 6 mg vitamin B12.

Sow add pack: Each pound of premix contains 750,000 IU vitamin A, 100,000 mg choline, 40 mg biotin, 400 mg folic acid, 180 mg pyridoxine, 4,000 mg vitamin E (dl-alpha-tocopherol acetate or 2,000 mg d-alpha-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.

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Hord Farms West, Pipestone, MN

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Iowa Pork Producers Association, Des Moines, IA

Iowa Select Farms, Inc., Iowa Falls, IA

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JYGA Technologies, St. Nicolas, Quebec, Canada

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Pipestone Nutrition, Pipestone, MN

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Sumitomo Chemical Company, Tokyo Japan

SVC Research, LLC, St. Peter, MN

TechMix, LLC, Stewart, MN

Bob and Karen Thaler, Brookings, SD

Triumph Foods, St. Joseph, MO

USDA National Institute of Food and Agriculture, Washington, DC

U.S. Department of Homeland Security, Washington, DC

U.S. Soybean Board, Chesterfield, MO

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Mark and Kim Young, Manhattan, KS

Swine Industry Day Committee

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The Livestock and Meat Industry Council, Inc

The Livestock and Meat Industry Council, Inc (LMIC) is a non-profit charitable organization supporting animal agriculture research, teaching, and education. This is accomplished through the support of individuals and businesses that make LMIC a part of their charitable giving.

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