Swine UPDATE

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K-State Updates Nutrient Recommendations

Swine nutritionists at Kansas State University have recently updated their premix, base mix, and starter diet recommendations. Major changes include:

- Inclusion of phytase in the vitamin premix and base mixes
- Slight change in the B-vitamin recommendations
- Option for sow add pack with or without car nitine and chromium
- Higher lactose level in the Transition starter diet

To receive a copy of the revised recommendations, contact Mike Tokach at *mtokach@ksu.edu* or 785-532-2032. The recommendations also can be downloaded from the internet at: *http://www.oznet.ksu.edu/dp_ansi/swine/swine.htm.*

Importance of including phytase in the new K-State recommendations

Adding phytase to the vitamin premix should allow swine operations to reduce phosphorus excretion by more than 25 percent. Adding phytase to the diet allows pigs to use a higher portion of the unavailable phytate phosphorus present in corn and soybean meal.

The table below indicates the estimated amount of available phosphorus released by the inclusion of phytase and the quantity of monocalcium or dicalcium phosphate that can be removed from each ton of feed when the KSU vitamin premix containing phytase is included in the diet.

Formulation values for KSU premix with 90,700 PTU/lb of premix

Diets	Premix	Phytase	Avail P	Pounds to remove per ton	
	lb/ton	FTU/kg	released	Monocal	Dical
Sows	5	500	0.080	7.7	8.7
Nursery	5	500	0.100	9.6	10.9
Grow-finish	3	300	0.078	7.5	8.5
Grow-finish	2.5	250	0.068	6.5	7.4
Grow-finish	2	200	0.055	5.2	5.9
Grow-finish	1.5	150	0.039	3.7	4.2
Grow-finish	1	100	0.019	1.8	2.0

Sorting Growing-Finishing Pigs by Weight Fails to Improve Growth Performance or Weight Variation

Sorting and grouping pigs by similar body weights at placement into the finisher is a common management technique thought to minimize variation in final pig body weights. Therefore, sorting by weight is thought to achieve packer weight specifications more efficiently. However, few data are available to support these assumptions. Therefore, this study was undertaken to determine the effects of initial within-pen weight variation on growth performance and weight variation at marketing.

Two sequential trials were conducted. In each trial, we allotted 192 crossbred (PIC L326 or 327 boars ¥ C22 sows) barrows and gilts, approximately 14 weeks of age and 75 lb, to one of four experimental groups:

1) Uniformly heavy; initially weighing 81.7 ± 3.09 lb;
2) Uniformly medium; initially weighing 75.0 ± 1.71 lb;
3) Uniformly light; initially weighing 66.5 ± 4.47 lb;
4) High variation, medium weight (Unsorted); initially weighing 74.6 ± 6.96 lb

In each trial, approximately 250 pigs were available to select from, and in each case, pigs weighing more than three standard deviations from the group average (about 12 pigs) were removed from consideration. Thus, extremely heavy or extremely light pigs were not used. The remaining pigs not used in the study were selected across the weight groups so as not to disrupt the normal weight distribution. In each trial, pigs were utilized from a single farrowing group that farrowed over a 7-d period. The unsorted pens were created by taking equal thirds from each of the uniformly heavy, medium, and light groups. Each trial consisted of four blocks of the four experimental groups with pigs housed 12 per pen providing 8 sq ft/pig. Thus, the overall experiment included eight observations per treatment group.

For the overall growth period (d 0 to 91, Table 1), uniformly heavy and unsorted pigs had similar ADG (P>.05), and both had higher (P<.05) ADG than the uniformly medium and light pigs, which were similar (P>.05). Additionally, the ADG of unsorted pigs was higher (P = .03) than the mean ADG of sorted pigs. No differences (P>.05) were observed for ADFI over the total trial, and F/Gs were similar (P>.05) for uniformly heavy pigs, lowest for uniformly light pigs, and intermediate for unsorted and uniformly medium pigs.

At the termination of the study (d 91), uniformly heavy pigs were heaviest, followed by unsorted, uniformly medium, and uniformly light pigs. All four groups were significantly (P<.05) different, and the final weight of unsorted pigs was heavier (P=.03) than the average final weight of all sorted pigs.

Within-pen variation at the start of the trial (Table 2) was smallest (P<.05) for uniformly medium pigs and greatest for unsorted pigs. The variations of the four experimental groups were different (P<.05) at the start of the trial. As time on test progressed, differences in within-pen variation among the three-sorted groups and unsorted group diminished and were not different at the end of the study compared with the unsorted pigs.

These data indicate that sorting pigs uniformly by weight may not be necessary for maximum growth performance. End-point variability in individual pig weights within a pen is unaffected by sorting strategy. Additionally, eliminating sorting of finishing pigs upon placement may improve throughput (amount of pork produced) within a production system. Recently, we have found similar results with nursery pigs. Producers should not sort pigs closely by weight at placement in the barn in the hopes of reducing variability in growth performance.

Table 1. Growth Performance and Average Pig Weights[a]

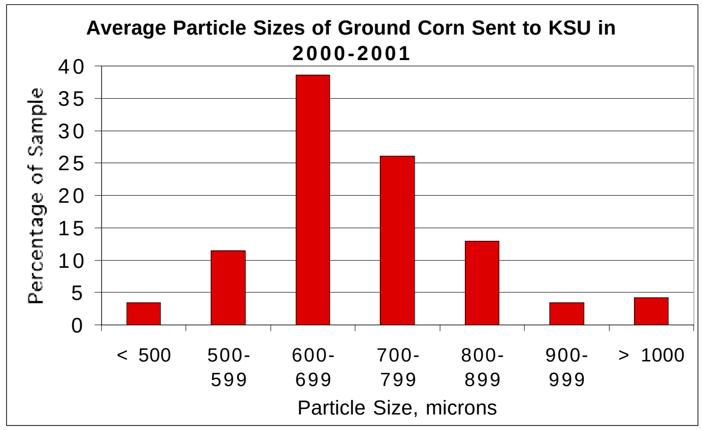
	Sorted Pens					Sorted vs Unsorted
Item	Heavy	Medium	Light	Unsorted	CV	P <
day 0 to 91						
ADG, lb	2.08[b]	2.02[c]	2.00[c]	2.08[b]	2.08	.03
ADFI, lb	5.89	5.87	6.02	5.95	5.37	.84
F/G	2.85[b]	2.93[bc]	3.02[c]	2.88[bc]	5.46	.46
Average Pig Weights on Day, lb						
0	81.7[b]	75.0[c]	66.5[d]	74.6[c]	1.29	.64
91	272.1[b]	259.7[c]	249.6[d]	264.4[e]	1.58	.03
Average Within-Pen Weight Variation (SD)						
day 0	3.09[b]	1.71[c]	4.47[b]	6.96[d]	15.61	.0001
day 91	16.24	16.67	20.40	19.22	28.64	.50

[a]Values are means of eight replicate pens (with 12 pigs per pen) per treatment (initial average pen weight of 74.5 lb)
[b,c,d,e]Means in a row with different superscripts differ (P<.05)

Have You Measured Particle Size Lately?

Most pork producers understand the impact of particle size on feed efficiency. As particle size is reduced, digestibility of the diet increases and feed efficiency is improved. Kansas State University recommends particle size be maintained between 600 and 800 microns with an optimal range of 650 to 750 microns. Larger particle sizes result in poor feed efficiency, while smaller particle sizes increase the energy cost of grinding, susceptibility to ulcers, and problems with feeders and bins bridging.

We have been collecting data from corn samples sent to the swine lab at K-State for particle size analysis. Generally, particle size has improved over the years. Of over 2,500 samples collected between 1986 and 1992, only 21% of the samples received fell within the recommended particle size of 600 to 800 microns. For the 670 corn samples received in the last 18 months, almost 65% of the samples have been between 600 and 800 microns. However, over 35% of the samples are still outside of the normal range. The improvement in particle size is good, but deceiving. The main problem with this data set is that a relatively few producers account for a majority of the samples being tested. Some larger producers have taken particle size very seriously and instituted monthly sampling and testing to ensure that they remain within the optimal range. Relatively few producers in Kansas have analyzed particle size routinely over the last few years.



Particle size of the diet can have a huge economic impact in your cost of production. For every 100 microns your particle size is greater than the recommend range, the cost for poorer feed efficiency will be about $.50 per pig. For example, if you haven't checked your particle size recently, and it has crept up to 1,000 microns, reducing particle size to 700 microns will save you $1.50 for every finishing pig marketed. Ensuring proper particle size can easily be accomplished through routine maintenance like changing hammer mill screens or turning hammers. Adjusting the gap between rolls and regrooving rolls in roller mills should also be preformed regularly.

Particle size analysis can be performed by Kansas State University for ten dollars each. About one half pound of sample should be sent to:

Kansas State University
206 Weber Hall
Manhattan, KS 66506

Results will be sent out within ten working days after the sample arrives at the laboratory. For more information call (785) 532-1277.

—Allen Baldridge

Employee Management for Ag Conference Slated for August 2-3

The Employee Management for Production Agriculture Conference, sponsored by K-State Research and Extension, will focus on a variety of topics that agricultural managers struggle with everyday.

The conference is scheduled August 2-3, 2001 at the Embassy Suites, Airport in Kansas City. It will use formal presentations as well as producer panel discussions to help agricultural producers to learn to better cope with a tight labor market and more demanding jobs.

The featured speakers include: Robert Milligan, Cornell University; Bernie Erven, The Ohio State University; Sarah Fogleman, Kansas State University; and Ron Hanson from the University of Nebraska. These and other experts will help participants learn to deal with the issues that they have never been trained to handle, problems such as poor communication, managing a family workforce, finding local labor, employee conflicts, and structuring a fair and competitive compensation package.

For more information or to register, contact Sarah Fogleman at (620) 431-1530 or e-mail sfoglema@oznet.ksu.edu. Or, check out the conference Website at www.oznet.ksu.edu/employee.

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SWINE UPDATE

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