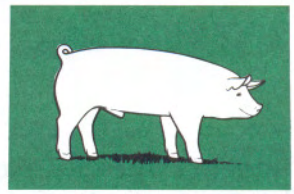
MSU Pork Quarterly



"Information for an industry on the move!"

February 1997 Volume 2.1.97

Adopting the Latest Technology

By: Tim Johnson, West Central Swine Agent

We have all heard about the advantages of adopting all-in, all-out (AIAO) animal flow. The economics of phase feeding and split-sex feeding have been reported on for years. So, one might ask, where or what is going to be the next trend in technology? While that question may cause some debate, one area that will impact our operations will be information and resource procurement. Therefore, one might suggest that the internet will someday have an impact on your swine operation.

The internet and the world wide web have the potential to bring resources and communications to a new level. The internet is a vehicle for information transfer via e-mail, mail lists or web pages. Why almost everything we see advertised today has an e-mail address or web page address attached to the bottom of it.

The internet is simply a network of computers that communicate with one another through a common protocol or language. The internet was originally developed by the government in the 60's and further developed by universities during the late 70's, the government later opened up access to commercial interests and from there, the usage and size of the internet has exploded.

Once connected, there are a variety of ways to communicate to others who are also connected. One method would be electronic mail or e-mail. This is the most common use of the internet and allows persons from all over the world to communicate almost instantaneously with one another. You can send e-mail directly to another person if you know their address, similar to the address your postman uses to deliver mail to your home. Another use of e-mail is to send messages to a mail group where your message will be posted to all subscribers of the mail list. Other subscribers can then respond and the on-going dialogue is sent to all subscribers. The use of electronic mail allows resources to be accessed that you may not have known ever existed. For example, recent discussion on a swine interest mail group or list server has raised some interesting discussion on the use of hoop structures.

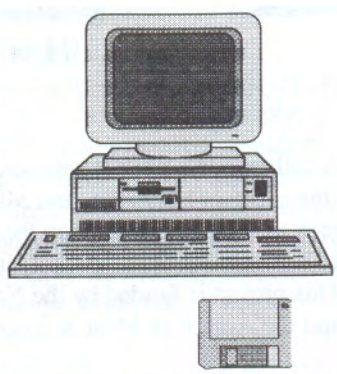
The nature of the informational exchange is only limited by the interest of those subscribed to the mail group. Producers pose questions about pork quality, veterinarians exchange experiences with PRRS and European producers inquire about the nutritional management of SEW sows.

Another use of the internet is to access the world wide web (WWW). Surfing the web is probably what most of us associate with using the internet. The web has the graphical pages that link the various sites and you travel from site to site, often by simply clicking your mouse on a graphic or piece of colored text. Most universities and even departments within the universities have web pages where visitors can read information or even download documents of interest. One method to distinguish a web page from an e-mail address is the format. A web page has an acronym in the beginning of the address of http:\\ which denotes hyper-text transfer protocol. An e-mail or mail group address will have an @ symbol in the middle somewhere and will end with a a three letter suffix to denote the top domain. The top domain can denote the type of group that your message is going to or coming from.
For example,

- a domain of .edu denotes an educational institution,
- a domain of .com denotes a commercial organization,
- a domain of .gov denotes a governmental department.

The internet is a dynamic entity. Parties get on and off line everyday. Web pages are easily set up and for a fee, you can register your site with your own web page if you so desire.

If you would like to contact me via e-mail, my address is johnsoti@msue.msu.edu. If your are interested in the swine mail group send a message to : listserv@tc.umn.edu and include the following in the body of the message: subscribe swine-L. You can view the university web page at http:\\www.msu.edu or the National Pork Producers at http:\\www.nppc.org.



What's inside...

This newsletter is edited by:
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Incoming Seedstock Biosecurity

By: Brian Hines, South Central Swine Agent

The spring brings a need for some farms to open their doors and allow new genetics to come in and make their influence on the next generation. The acceptance of new breeding stock to the farm should follow a strict set of guidelines to preserve the health of the operation and potentially allow more longevity to their seedstock investment. The procedure being referenced is the use of isolation and acclimatization to minimize or negate the health risk to your herd. The purpose of isolation is to protect your herd from possibility of diseases introduced with breeding stock as well as protect incoming animals from the recipient herd. The isolation period will allow for clinical signs to develop and diagnostic testing to be completed if an infectious disease is in the incubation stage at the source farm or infection during transport. The protocol for incoming seedstock is to isolate the stock on a separate site. A dry clean facility providing 12-15 square feet per animal is a must to minimize the stress of transport and a new environment. A critical issue is providing a source of fresh water and feed. The period of time to be isolated varies but the constant tends to revolve around 30 days prior to going into the acclimatization period.

The biosecurity of your isolation facility is the next point to effectively accomplish the separation desired between farms. This facility is ideally located 1-2 miles from the main herd or other neighboring herds. If this potential does not exist then take into consideration the prevailing winds, wildlife traffic, and accessibility before choosing a site. The building should provide a minimum of 12 sq. ft per animal dependent of size and age with protection from the heat or cold elements of nature. The personnel caring for the animals in isolation should not be in contact with any other pigs or if unavoidable utilize the person at the end of the day to care for the isolation facility with clean clothing and boots. The person would then not return till the next day. Equipment should not be carried from isolation unit back to the main farm until the period has ended, at which time all equipment should be thoroughly washed and disinfected. A manure management plan for the potentially contaminated manure should be in place so the four weeks plus manure is handled in a containment structure until blood test shows negative. During the time of isolation the new entrants should be monitored for clinical signs of diseases including: coughing, diarrhea, blood or mucous in feces, loss of appetite, skin lesions, or lameness. In some operations sentinel pigs are used to determine the health status of the pigs in isolation. A sentinel is of known health status and should be one that is totally susceptible to any disease present. It is then used to detect shedding of infectious agents from the incoming animals by the presence of clinical signs or diagnostic testing.

The next phase is the acclimatization phase that lasts thirty more days. During this phase the animals are kept in fence line contact with pigs of the opposite sex. The manure from the sow herd in the farrowing house should be put into the pens during the acclimatization to expose the new seedstock to the microflora of your herd. Once the breeding stock start to form an effective antibody defense system they should have little or no problem with any disease on the farm. This antibody defense system should be boosted with the same vaccination program being administered on the farm the animals are to be used. An animal needs three weeks after exposure/vaccination to develop an effective immune response.

Bottom line to isolation is protecting your investment of your whole operation and the spread of infectious disease to your operation as well as the rest of the area, county, and even state. Be smart and know the facts about the health level of incoming seedstock and spend the time and effort to ensure a clean addition to your herd. Several counties around the state do not require a blood test for psuedorabies due to their Level I, II status, but why not gain a sense of security. If you have any questions give your local swine agent a call.

Pork 101 is on the Way!

By Dr. Osborn, Asst. Professor of Animal & Food Science

A collaborative project between Texas A&M University, University of Nebraska, and Michigan State University will seek to develop a workshop for the pork industry called "Pork 101: Understanding Market Hog Quality andConsistency." This project is funded by the National Pork Producers Council and the American Meat Science Association.

The objective of this project is to develop and provide a hands on workshop course for producers and pork industry leaders to:

- Understand how various segments of the pork industry view quality and consistency problems
- Identify and understand quality and consistency deficiencies associated with live hogs, carcass cut-out and value, and processed pork products

Project leaders will develop the workshop outline and materials for participants, as well as a teacher's guide and visual aids. A prototype of the workshop will be conducted prior to release of the developed materials. Each university will have responsibilities for the following three workshop training modules:

- Live appraisal module - University of Nebraska
- Carcass fabrication/value determination module - Texas A&M University

cont. from pg. 2
Pork 101 is on the Way!

- Processed pork products module - Michigan State University

It is anticipated that the prototype workshop will be conducted during the summer of 1997. Once recommended changes to the workshop design or materials are made, these materials will be made available to interested parties who wish to conduct this type of workshop for their particular organization or constituents.

Questions concerning this project and Michigan State University's involvement can be addressed to Dr. Wesley N. Osburn, Michigan State University at 517-432-0459(Ph.) 517-353-8963 (Fax), or osburnw@pilot.msu.edu (e-mail).

Managing Odor Problems on the Farm

By: Joseph F. Kelpinski, Northeast Swine Agent

Odor problems associated with swine production units are one of the biggest challenges facing swine expansion in our state. The site of a new unit under construction often brings out the "not in my backyard" syndrome amongst neighbors and communities. There are several steps that producers can take to help minimize their impact on their neighbors and communities. In this issue, we will focus on current steps that can be taken to improve air quality. In the next issue, we will examine how to improve community relations and products, technologies and practices that are here or being researched to decrease odors associated with swine production.

When trying to get a handle on odor control, every producer first needs to conduct an odor assessment of their operation. Questions to ask yourself include: What is my current size and what type of structures do I have (outdoor vs. confinement), what are current and future practices and solutions to reduce odor, what is the public perception of my operation (is it neat and clean, or is it a dump?), what is the regulatory status (township, state, federal, etc.), what is my ability to change practices or management, and what changes for the future can I make. Your answers to these questions will help you decide how to address odor management on your farm.

When we talk about odor, their are four areas to be considered: facilities, storage, application and community relations. With odor, perception is reality for people affected by the operation! Looking at facilities, producers with outdoor lots should: scrape lots more often, size lots according to production- don't overfill, use runoff basins and/or grass filter strip to catch runoff from the lots, provide and promote good drainage, and plant tree lines 4 to 5 trees deep to shield the operation as well as provide a windbreak. Producers with confinement facilities should keep them neat and clean, provide good pit ventilation, realize that shallow gutters smell less than deep pits in new building designs, and that reducing dust will help reduce odors (dust absorbs and transports odors). Also, check ventilation frequently to make sure: that maximum air is exchanged, that the fans are clean, that fans are not exhausted towards neighbors homes, and that a tree line is planted to help force exhaust flows upward for dispersal.

As far as application of swine manure to the field, there are four main methods: Surface Applied- has highest odor and runoff potential, Surface Apply followed by Incorporation-better, but should be incorporated quickly to reduce odor and N volatilization, Injection-the best method since it greatly reduces odor as well as reducing the chance of runoff, and finally Irrigation-can move high volumes, but also have high odor and high risk of runoff. During the actual application, be sure to use or at least have available several alternate sites for application, use fields with the least odor risk (those furthest from homes), examine wind direction and intensity and then use fields with the least risk, and finally, examine distance from populated areas-fields next to communities, subdivisions, churches, etc. should **not** receive manure applications.

Finally, there are several conditions to consider when applying manure. Choose cooler temperatures when possible, cooler days reduce odor levels. Spread in the morning or early afternoon since it tends to be cooler at this time. Choose dry, clear, windy days to apply, this helps reduce odors and dissipate any existing odors more quickly. And finally, apply on work days when people are not home. Avoid evenings, weekends, holidays.

These are some things to get started with. In the next issue we will discuss new and existing technologies, practices, and methods to help reduce odor as well as improving community relations. For further information, contact your local Extension Swine Agent.

More on Manure Nutrient Balance - Phosphorus

By: Dr. Dale Rozeboom, Swine Extension Specialist

The Pork Industry Handbook fact sheet entitled *Fertilizer Value of Swine Manure* (PIH Fact Sheet 19.44.03; 1979) states that 70 lb. of P2O5 is used to grow 110 bushel of corn (0.60 lb./bushel). In contrast, a recent Michigan State University publication (AEC Staff Paper #96-11, 1996; *Contracting Finishing for New Entrants in Pork Production*) states that only 40.7 lb. of P2O5 will be used to produce that same yield (0.37 lb./bushel).

So why the discrepancy? What is the correct value to use for phosphorus uptake or utilization by corn? Or, what is the best value to use when planning an expansion project for your swine enterprise?

Phosphorus utilization values presented in PIH were taken from a Midwest Planning Service bulletin (*Livestock Waste Facilities Handbook*, 1985; MWPS-18), which cites the Potash Phosphate Institute of America (PPI) as it's original source of information. On the other hand, the MSU contracting paper cites a new extension bulletin, *Tri-State Fertilizer Recommendations* (1996; E-2567), which based it's phosphorus-use value on research conducted in Ohio, Indiana and Michigan.

The PPI value is also based on research, but is somewhat misleading until you read the footnotes (not printed in PIH, but in MWPS-18). In the footnotes, PPI states that "values are for the total above ground portion of the plant." So the 0.6 lb./bushel removal value should be used when the entire plant is harvested, not just the grain. If only the grain is removed from the field or land, then a lower value would be more accurate when balancing P2O5 applied in manure with P2O5 removed by corn.

If the value cited in PIH, MWPS-18, or PPI is used for planning manure nutrient balance and only the grain is harvested, there may be environmental problems in the future. Short-term, the phosphorus in the corn residue are tied-up, so soil tests will not rise. But long-term, soil P2O5 will increase if you apply manure figuring a 0.6 lb./bushel corn utilization rate, as the nutrients in corn vegetative residues are released during decomposition.

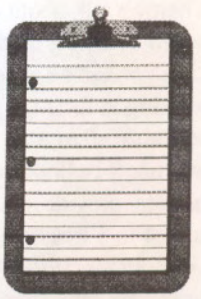
When making manure nutrient plans for a swine operation expansion, use the 0.37 lb./bushel value suggested in the Tri-State bulletin or the 0.35 lb./bushel value stated in the Michigan Agriculture Commission's *Generally Accepted Agricultural and Management Practices for Manure Management and Utilization* manuscript. Balancing manure nutrients using these values will help all livestock producers avoid the soil test upper limit of 300 lb. P2O5 /acre.

It's Coming Soon!

By: Dr. Laura Martin, Assistant Professor of Agricultural Economics

Change, change, change -- it's no secret that the U.S. pork industry is going through a period of growth and transition. These same changes are affecting Michigan producers too. Farmers are increasingly faced with making difficult decisions on how to compete best in a changing industry. Both the Revitalization of Animal Agriculture Initiative and the Michigan Pork Alliance have as objectives the expansion of pork production and the improvement of its profitability and long term viability. These opportunities are meant for all producers and we need your help in making this a reality.

To help identify constraints to successful pork production and to improve resources available to producers, Michigan State University will be conducting a survey of the state's pork producers in the Spring of 1997. With the assistance of the Michigan Pork Alliance and the Michigan Pork Producers Association, producers will be receiving this critical survey between March and April this year. Because all producers are not the same, please make every effort possible to take the time to answer the survey. It is only with your help that we can identify and address the constraints and opportunities facing all producers. Your survey is coming soon --please take the time to fill out this very important questionnaire!



Troubleshooting Ventilation

By: Dale Ricker North Central Swine Agent

Are you happy with the air quality in your confinement barns? As I have traveled and made farm visits this winter there has been a noticeabledifference to me that the air quality is not as good as it was in those same buildings last summer. And that's understandable because no one likes the heaters running all the time! What can producers do to correct this air quality problem? You assumed your ventilation system was designed and installed correctly because you paid good money for it. But is the system doing what it's supposed to do? The MSU Extension swine team now has several troubleshooting tools available to help diagnose your ventilation system. This monitoring equipment includes:

· Minimum/maximum thermometers that measure immediate pig zone temperatures and temperature variation throughout the day. Temperature swings should be less than five degrees during cold weather.

· A sling psychrometer measures wet and dry bulb temperatures to determine relative humidity. Most ventilation experts will recommend controlling cold weather ventilation in relation to relative humidity. The humidity within the animal space should be maintained between 50 and 65%. At relative humidity levels greater than 80%, many pathogens [bacteria and viruses] will have a decreased die-off rate. The pigs comfort is also decreased due to dampness. Low relative humidity levels increase dust problems and cause decreased animal comfort due to cooling associated with rapid evaporation of moisture.

· Air-flow meters monitor inlet air velocities [between 600 to 1000 feet per minute]. Vane anemometers estimate lower air velocities [from 2 to 400 feet per minute] in the distribution system, such as at pig level. Air inlets should be correctly sized and adjusted to supply fresh air evenly throughout the room without causing drafts. Fans should be properly sized for the number, age, and weight of the pigs in the facility. Your fans should provide the correct ventilation rate for cold, mild, and hot weather.

· Smoke generation tubes detect air flow patterns. These help you determine how well inlet air is mixing and reaching different parts of the room. The tubes also help detect excess drafts at pig level. Smoke should not travel more than 2 feet in 5 seconds.

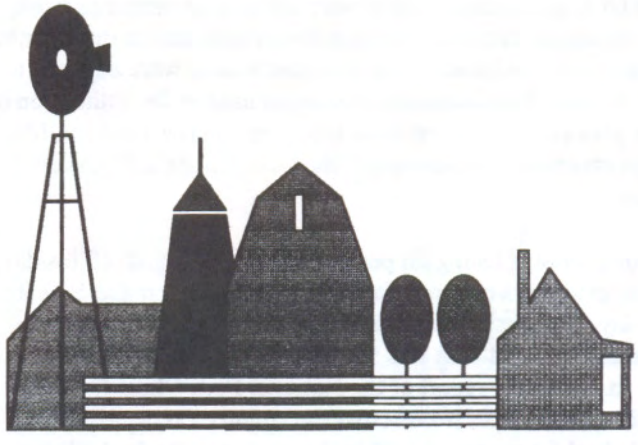
· Gas tubes measure concentrations of gases like ammonia, carbon dioxide, methane, and hydrogen sulfide. Acute levels of toxic gases can lead to massive death of pigs and people, abortions and stillbirths [e.g., hydrogen sulfide from pit agitation]. I'm sure you have probably heard or read about some of these horror stories. We should also be concerned with concentrations of gases that are too low to cause sudden death because they may eventually produce chronic symptoms in animals and workers. Pigs can show nervous system disorders, increased pneumonia levels, reduced feed consumption, and depressed growth performance. Workers may exhibit flu-like symptoms and chronic respiratory symptoms [e.g., cough, wheeze, shortness of breath].

"Ventilation is a key element in the successful operation of any swine production facility," states Jerry Bodman, Extension Agricultural Engineer at the University of Nebraska. The ventilation system components are:

a) insulation;
b) tight construction of the building;
c) supplemental heat;
d) fans;
e) inlets; and
f) controls.

It is important to look at all ventilation system components when trouble shooting because they are interdependent and influence the effectiveness of the system in either a positive or negative manner.

You can get more information on mechanical ventilation systems from the Midwest Plan Service and the Pork Industry Handbook through your MSU Extension Swine Team. If you have specific ventilation concerns, call your area Swine Agent to schedule a visit.



The 1996 Michigan Genetic Improvement Program

By: Dr. Ron Bates, State Swine Specialist, Michigan State University

The Michigan Genetic Improvement Program (MGIP) is a unique program that is sponsored by Michigan Livestock Exchange (MLE) and Michigan State University Extension. It provides swine producers the opportunity to identify pigs on the farm and have lean gain per day on-test estimated. Lean gain per day on-test is a good indicator of the ability of a pig to efficiently convert feed into muscle on a timely basis.

Farms that participated in this program had pigs identified with a visual ear tag provided by the program. These pigs were weighed on the farm by AOE Swine Agents at the start of the program. As pigs reach a designated age they were collected at MLE buying stations to determine final weight. Pigs were then moved to the Battle Creek MLE station to have tenth rib backfat and loin muscle area estimated. Rea-time or B-mode ultrasound was used. Pigs were then transported to Routh Packing, Sandusky, Ohio, for further carcass data collection as well as having a health evaluation completed. All information was compiled and returned to participating producers.

This program allows participants to have lean gain per day on-test estimated under their farm conditions. Participants also have the opportunity to determine how their pigs compare with other Michigan pork producers for lean gain as well other performance, carcass and health characteristics reported.

For 1996, 285 pigs were slaughtered from 18 Michigan farms. Of those 285, 220 pigs completed the lean gain on-farm test portion of the program. The top 25 pigs for lean gain are listed in Table 1. However to be listed in the Top 25, pigs had to be less than 1.0 in. for backfat, more than 5.0 sq. in for loin muscle area and be higher than 50% lean. Simon Farms, Pewamo, MI had the top 3 pigs overall.

Program averages for 1996 are reported in Table 2. Tenth rib backfat and loin muscle area were ultrasound estimates while the remaining carcass information was collected at the slaughter plant. Tenth rib backfat and loin muscle area were adjusted to a 250 lb basis. The calculation formulas used in the estimation of lean gain per day on-test were those used in the 1995 MGIP program and recommended by the National Pork Producers Council.

Among all pigs lean gain per day on-test averaged .68 lbs/day. Daily gain was very good for these pigs and averaged 1.82 lbs per day. Unadjusted tenth rib backfat averaged .95 in. while estimated percent lean was 50.7%. Average final weight was 243 lb. In a 1995 report of the National Pork Chain Quality Audit, percent lean from across the country averaged 49.5% while backfat averaged 1.07 in. In respect to the Pork Chain Quality Audit, the Michigan industry has made progress. In comparison of past MGIP program results pigs slaughtered in 1996 continued to be leaner (Table 3). However other performance characters remained similar compared to 1995. It should be noted that the calculation formula used in 1995 and 1996 estimated total lean with 5% added fat. The formula used in years previous to 1995 corrected total lean to a 10% added fat basis.

In further evaluation of the data was completed to determine the performance of pigs that were either above or below average for lean gain (Table 3). This give an indication of the characteristics of pigs better than average for lean gain. From Table 4 it is evident that lean gain is a composite trait. Pigs that were better than average also gained 0.15 more pounds of body weight per day and yet were 1.91% higher for percent lean. These pigs had higher carcass yields and were 0.14 inches leaner. It is interesting to note that last rib backfat and carcass length were not different among those pigs that either were above or below average for lean gain. However, not all above average herds for percent lean were above average for lean gain. Two farms whose pigs averaged nearly 52% lean were below average (.61 lb/day) for lean gain.

As Michigan pork producers work toward improving their herds for lean gain they must use seedstock that have been selected for improved backfat as well as growth rate. Using reports such as the national sire summary, published by the National Swine Registry, will allow pork producers to determine seedstock sources whose genetic merit is above average for lean growth as well maternal performance. For assistance in improving lean gain in your herd contact your local AOE Swine Agent.

The 1996 Michigan Genetic Improvement Program has been successfully completed. Plans are underway for the 1997 program. If you wish to participate in this program please contact your local AOE Swine Agent or call 317-432-1387.

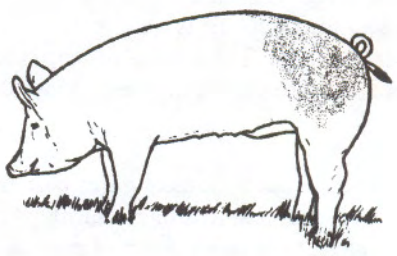


Table 1. 1996 MICHIGAN GENETIC IMPROVEMENT PROGRAM TOP 25

RANK	FARM	TAG	TATTOO	SEX	BEGWT	FNWT	DOT	ADG	CRCWT	DP	BF10	ABF10	LMA	ALMA	LRF	LENGTH	LEANP	LNGN
1	Simon_Farms	704	5943	B	76	295	93	2.35	227	76.95	0.96	0.797	8.66	7.79	1.3	35.0	53.75	1.010
2	Simon_Farms	703	5951	G	72	285	93	2.29	212	74.39	0.89	0.779	7.69	7.08	1.3	33.5	53.30	0.931
3	Simon_Farms	710	5953	G	80	295	93	2.31	222	75.25	0.80	0.676	6.82	6.14	1.0	34.1	52.11	0.924
4	Pridgeon_Hog_Farms	4	X58H	B	60	265	94	2.18	199	75.09	0.92	0.861	7.76	7.48	1.1	32.8	53.79	0.911
5	Simon_Farms	707	5957	G	81	280	93	2.14	210	75.00	0.74	0.659	7.52	7.00	0.9	33.5	54.42	0.904
6	Simon_Farms	708	5944	G	80	275	93	2.10	206	74.91	0.71	0.644	7.62	7.18	0.7	33.5	55.09	0.900
7	Albright_Farms	68	45	B	75	265	92	2.07	200	75.47	0.76	0.711	7.35	7.09	0.9	32.2	54.44	0.882
8	Thumb_Swine_Enter.	184	5514	G	74	255	83	2.18	187	73.33	0.69	0.676	6.09	6.02	0.8	33.0	53.28	0.872
9	Pridgeon_Hog_Farms	23	X16H	G	76	255	94	1.90	190	74.51	0.49	0.480	7.37	7.28	0.5	33.5	57.71	0.867
10	Albright_Farms	75	46	B	85	275	92	2.07	201	73.09	0.74	0.664	7.60	7.16	1.1	33.5	55.06	0.856
11	Blonde_Farms	91	X06	G	70	260	94	2.02	197	75.77	0.69	0.663	6.57	6.41	1.0	33.0	53.73	0.854
12	Simon_Farms	705	5946	B	75	270	93	2.10	205	75.93	0.98	0.898	7.33	6.99	1.3	34.0	52.13	0.851
13	Gerald_May	693	5959	G	70	245	94	1.86	187	76.33	0.67	0.684	7.30	7.39	1.4	32.1	55.99	0.841
14	Albright_Farms	54	26	G	85	270	92	2.01	207	76.67	0.82	0.758	6.86	6.54	1.1	33.0	52.62	0.837
15	Simon_Farms	716	5955	G	80	285	93	2.20	210	73.68	0.94	0.823	6.70	6.17	0.9	34.6	51.12	0.834
16	Pridgeon_Hog_Farms	25	X39H	G	90	260	94	1.81	205	78.85	0.78	0.749	7.59	7.41	1.4	31.0	54.45	0.826
17	Simon_Farms	701	5956	G	82	270	93	2.02	208	77.04	0.96	0.888	6.92	6.59	1.2	34.2	51.42	0.821
18	Blauwiekel	738	5931	G	70	235	92	1.79	174	74.04	0.58	0.618	7.38	7.66	0.7	32.5	58.05	0.820
19	Simon_Farms	702	5948	G	73	275	93	2.17	200	72.73	0.92	0.835	6.52	6.14	1.0	33.8	51.33	0.815
20	Albright_Farms	51	09	G	85	275	92	2.07	200	72.73	0.74	0.671	6.71	6.32	1.1	32.8	53.39	0.814
20	Pridgeon_Hog_Farms	24	X17H	G	67	235	94	1.79	188	80.00	0.60	0.639	5.86	6.09	0.9	32.6	53.65	0.814
22	Albright_Farms	67	16	B	75	260	92	2.01	198	76.15	0.96	0.918	6.89	6.72	1.1	32.0	51.75	0.813
23	Wooden's	514	6002	G	79	280	94	2.14	200	71.43	0.82	0.731	6.72	6.26	1.2	32.4	52.66	0.808
24	Albright_Farms	69	28	B	80	250	92	1.85	190	76.00	0.74	0.740	7.04	7.04	1.0	32.0	54.57	0.803
25	Blauwiekel	731	5925	B	70	250	92	1.96	178	71.20	0.56	0.560	6.38	6.38	0.6	32.3	55.76	0.800

Table 2. Michigan Genetic Improvement Program Results

Item		Item	
Lean Gain/Day On-Test, lb/day	.68	Adj. Loin Muscle Area, in^2.	5.99
Avg Daily Gain, lb/day	1.82	Yield, %	73.3
Adj. Tenth Rib Backfat, in.	.98	Lean Percent, %	50.7
Adj. Last Rib Backfat, in.	1.08	Carcass Length, in.	31.7

Table 3. Yearly MGIP Summary

Year	Number of Head	Average Daily Gain	Adj. 10^{th} Rib Fat[a]	Loin Muscle Area[a]	Length	Percent Lean
1996	285	1.82	.90	5.70	31.3	50.7
1995	297	1.85	.95	5.90	31.6	50.8
1994	245	1.75	.96	5.82	-	56.6
1993	265	1.68	.99	4.68	31.7	53.0
1992	322	1.73	1.16	4.69	31.2	52.5
1991	285	1.76	1.10	4.80	31.5	52.7
1990	290	1.60	1.60	4.90	31.6	52.6

[a]Adjusted to a 230 lb basis.

Table 4.Comparison of Performance for Above and Below Pigs.

Item	Above Average Lean Gain	Below Average Lean Gain	Significant Difference[a]
Estimated Average Lean Gain, lb/day	.74	.62	Yes
Average Daily Gain, lb/day	1.91	1.76	Yes
Yield, %	73.86	72.86	Yes
Percent Lean, %	51.61	49.70	Yes
Adjusted Tenth Rib Backfat, in.	.90	1.04	Yes
Adjusted Last Rib Backfat, in.	1.09	1.11	No
Adjusted Loin Muscle Area, sq. in.	6.32	5.84	Yes
Carcass Length, in.	31.80	31.60	No

[a]Indicates a significant or true difference between the means.

29 Largest Hog Operations in U.S.
August 1, 1996

	Firm	Number of sows
1.	Murphy Family Farms	260,300
2.	Smithfield Foods	112,000
3.	Carroll's Foods	111,400
4.	Tyson Foods	110,000
5.	Premiilm Standard Farms	105,000
6.	Prestage Farms	102,200
7.	CargM	90,000
8.	Seaboard Corporation	90,000
9.	DeKalb Swine Breeders	72,000
10.	Iowa Select Farms	62,000
11.	Goldsboro Mffling Company	54,000
12.	Continental Grain Company	52,000
13.	Heartland Pork Enterprises	36,400
14.	National Farms	34,000
15.	Sand Systems	27,000
16.	Farmland Industries	25,000
17.	The Hanor Company	25,000
18.	Clougherty Packing Company	23,000
19.	Circle Four Farms	20,000
20.	Land 0 Lakes	19,000
21.	Christensen Farms and Feedlots	17,800
22.	Triple Edge Pork	17,000
23.	D & D Farms	17,000
24.	Gold Kist	16,500
25.	Holden Farms	16,000
26.	J.C. Howard Farms	15,600
27.	PIC, USA	15,000
28.	Alliance Farms	15,000
29.	Bell Farms	15,000

Source: Successful Farming Magazine.

Comparison Shopping - What are production costs in Iowa

The following two tables offer you the opportunity to compare production costs and performance levels from Iowa to your operation. A note about cost comparisons is that often times different parameters are used to calculate some of the figures. Therefore making direct cost comparisons with your numbers and the Iowa State numbers may not be comparing apples to apples. For instance, if you produce hogs and corn, the allocation of expenses related to corn production and the valuation of corn fed to the hogs can have a tremendous impact on the bottomline. Therefore, use the following enterprise record summaries for relative comparisons only and appreciate the large price or cost spreads that occur on farms that produce pork. The spreads demonstrate that opportunities still exist for producers to improve efficiency and productivity. Table 1 is for farrow to finish enterprises and Table 4 is for finishing enterprises only. If you would like summaries for farrow to feeder pig production or a combination enterprise that sells both feeder pigs and finished hogs, contact your local swine extension agent. The extension field agents have copies of these summaries and would be happy to discuss them with you.

Table 1. 1995 ISU Swine Enterprise Summary Farrow to Finish Enterprises (Total of 180) Sorted on Item #16 (Margin Over All Costs)	Top 10% Based On Profit	Top 1/3 Based On Profit	Bottom 1/3 Based On Profit	Average Of 180 Farms
1. Return to Capital, Unpaid Labor and Management, $	101088	74702	26800	50917
2. Net Profit and Return to Management this Period, $	70798	46385	-392	22702
3. Return per Hour for All Hours of Labor & Mgmt., $/Hr.	33.24	26.46	7.84	17.61
4. Annual Percent Return on Capital, %	54.27	40.61	7.74	22.97
5. Average Price per Cwt. of Feeder Pigs Sold, $	58.34	67.10	78.82	74.75
6. Average Price per Cwt. of Market Hogs Sold, $	44.06	43.87	42.82	43.38
7. Average Price per Cwt. of Breeding Stock Sold, $	30.38	30.91	29.90	30.35
8. Average Price per Cwt. for All Hogs Sold, $	43.29	43.20	42.05	42.66
9. Feed Cost per Cwt. of Pork Produced, $	22.23	23.48	27.35	25.29
10. Other Oper. Costs (Except Hir. Labor)/Cwt. Pork Prod.,$	3.45	4.28	5.92	5.24
10a.Utilities, Fuel, Elec.,& Telephone/Cwt., $	0.91	1.18	1.58	1.36
10b.Veterinary Services & Medicine per Cwt., $	0.97	1.18	1.74	1.52
11. Depreciation, Taxes & Ins. Costs per Cwt. of Pork Prod.,$	1.86	1.94	3.22	2.61
12. Capital Charge on Fixed Capital/Cwt. of Pork Produced, $	0.71	1.14	1.72	1.38
13. Capital Charge on Operating Capital/Cwt. of Pork Prod., $	0.98	1.20	1.71	1.42
14. Value of Labor (All) per Cwt. of Pork Produced, $	3.83	4.03	5.25	4.59
15. Total Cost per Cwt. of Pork Produced, $	33.07	36.07	45.17	40.55
16. Margin Over All Costs per Cwt. of Pork Produced, not Including Inventory, $	10.22	7.14	-3.12	2.11
17. Margin Over All Costs per Cwt. of Pork Produced, Inventory Included, $	10.98	8.69	-0.30	4.22
18. Margin Over All Costs per Head Sold, $	27.86	22.46	-0.80	10.80
19. Fixed Costs per Year per Female Maintained, $	127.46	133.14	173.80	157.18
20. Fixed Costs per Year per Crate Maintained, $	537.54	585.06	730.99	671.58
21. Fixed Costs per Pig Weaned, $	6.47	7.57	11.48	9.43
22. Net Profit per Year per Female Maintained, $	483.17	363.07	-2.01	176.65
23. Net Profit per Year per Crate Maintained, $	2030.08	1534.33	-36.60	737.05
24. Average No. of Feeder Pigs Sold	88	77	70	83
25. Average Wt. of Feeder Pigs Sold, Lb.	49	55	50	50
26. Average No. of Market Hogs Sold	2615	1982	1391	1778
27. Average Wt. of Market Hogs Sold, Lb.	250	249	247	247
28. Pig Death Loss, Birth to Weaning (% of No. Far. Live).	11.88	12.55	14.25	12.75
29. Pig Death Loss, Weaning to Mkt. (% of No. Weaned)	5.50	5.51	7.50	6.17
30. Breeding Stock Death Loss, (% of No. Maintained)	5.99	5.09	4.52	4.67
31. Average Female Inventory, No. of Head	163	131	108	124
32. No. of Litters Weaned per Female per Year	2.02	1.97	1.80	1.90
33. No. of Pigs Weaned per Litter	8.95	8.74	8.38	8.59
34. No. of Pigs Weaned per Female per Year	18.19	17.28	15.10	16.32
35. No. of Litters Weaned per Crate per Year	9.08	8.58	7.55	8.24
36. No. of Pigs Weaned per Crate per Year	80.85	75.04	63.20	70.88
37. Total Pounds of Grain per Cwt. of Pork Produced, Lb.	268	276	305	287
38. Total Pounds of Supplement per Cwt. of Pork Prod., Lb.	70	69	78	74
39. Total Pounds of Feed per Cwt. of Pork Produced, Lb.	337	345	382	361
40. Average Cost of Diets per Cwt., $	6.63	6.83	7.17	7.02
41. Hours of Labor per Cwt. of Pork Produced, Hours	0.55	0.54	0.72	0.60
42. Hours of Labor per Female Maintained per Year, Hours	23.46	22.36	24.06	22.31
43. Hours of Labor per Litter Weaned, Hours	11.54	11.34	13.72	11.86
44. Cost of Feed Additives & Drugs/Cwt. of Pork Produced, $	0.89	1.04	1.30	0.88
45. Average Price of Grain, $/Bu.	2.49	2.51	2.54	2.53
46. Average Price of Supplement, $/Cwt.	14.62	14.44	15.85	15.24

Table 4. 1995 ISU Swine Enterprise Summary Feeder Pig Finishing Enterprises (Total of 15) Sorted on Item #16 (Margin Over All Costs)	Top 1/3 Based On Profit	Bottom 1/3 Based On Profit	Average Of 15 Farms
1. Return to Capital, Unpaid Labor and Management, $	56952	16628	40458
2. Net Profit and Return to Management this Period, $	37707	112	22028
3. Return per Hour for All Hours of Labor & Mgmt., $/Hr.	36.99	7.74	31.88
4. Annual Percent Return on Capital, %	35.93	11.26	25.87
5. Average Price per Cwt. of Feeder Pigs Sold, $			
6. Average Price per Cwt. of Market Hogs Sold, $	46.84	43.24	44.48
7. Average Price per Cwt. of Breeding Stock Sold, $			
8. Average Price per Cwt. for All Hogs Sold, $	46.90	43.23	44.49
9. Feed Cost per Cwt. of Pork Produced, $	21.12	25.08	22.66
10. Other Oper. Costs (Except Hir. Labor)/Cwt. Pork Prod., $	2.61	4.45	3.30
10a. Utilities, Fuel, Elec., & Telephone/Cwt., $	0.51	0.91	0.67
10b. Veterinary Services & Medicine per Cwt., $	0.32	0.73	0.46
11. Depreciation, Taxes & Ins. Costs per Cwt. of Pork Prod., $	1.63	1.24	1.57
12. Capital Charge on Fixed Capital/Cwt. of Pork Produced, $	0.77	1.20	0.88
13. Capital Charge on Operating Capital/Cwt. of Pork Prod.,$	1.24	1.34	1.29
14. Value of Labor (All) per Cwt. of Pork Produced, $	2.48	3.61	2.92
15. Total Cost per Cwt. of Pork Produced, $	29.84	36.93	32.62
16. Margin Over All Costs per Cwt. of Pork Produced, not Including Inventory, $	17.05	6.30	11.87
17. Margin Over All Costs per Cwt. of Pork Produced, Inventory Included, $	7.99	0.70	4.85
18. Margin Over All Costs per Head Sold, $	19.11	0.80	10.67
19. No. of Feeder Pigs Purchased, No. Head	2357	1554	2035
20. Average Wt. of Purchased Feeder Pigs, Lb.	45	47	49
21. Price per Feeder Pig Purchased, $/Head	40.84	35.54	39.01
22. Price per Cwt. Paid for Purchased Feeder Pigs, $	95.27	84.71	85.69
23. Fixed Cost per Pig Purchased, $	4.63	4.28	4.69
24. Total No. of Feeder Pigs Sold this Period.			
25. Average Wt. of Feeder Pigs Sold, Lb.			
26. Total No. of Market Hogs Sold this Period.	1804	1260	1732
27. Average Wt. of Market Hogs Sold, Lb.	247	250	251
28. Pig Death Loss, Percent of No. Purchased (%)	2.82	3.39	3.18
29. Total Pounds of Grain per Cwt. of Pork Produced, Lb.	243	290	268
30. Total Pounds of Supplement per Cwt. of Pork Prod., Lb.	65	68	66
31. Total Pounds of Feed per Cwt. of Pork Produced, Lb.	308	358	334
32. Average Cost of Diets per Cwt., $	6.85	7.01	6.79
33. Hours of Labor per Cwt. of Pork Produced, Hours	0.29	0.26	0.26
34. Cost of Feed Additives & Drugs/Cwt. of Pork Produced, $	0.20	1.13	0.85
35. Market Price Needed to Break Even, $/Cwt.	42.09	44.41	42.22
36. Average Price of Grain, $/Bu.	2.54	2.50	2.50
37. Average Price of Supplement, $/Cwt.	14.32	16.86	15.19

All comments and suggestions should be directed to:

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