



## Further Valuing Commodity Pork

By: Ronald O. Bates, Extension Swine Specialist Animal Science Dept. Michigan State University

**L**ife and times in today's pork industry is one of peaks and valleys. The peaks are glorious and the valleys are deep. Never before has pork enjoyed such top of the mind presence among American consumers and enjoyed such strong export markets. Demand has remained strong throughout the US and the, "Pork, the Other White Meat<sup>TM</sup>" slogan has become a marketing marvel. Exports today are the strongest in history and higher export tonnage will likely occur. The image of pork has completely changed to one of improved leanness, improved versatility, great taste and value.

The valleys within the industry are within the production sector where producers have invested heavily over the last 10 years to upgrade facilities, genetics and management practices. These investments have been a driving force behind pork's change in image. However, producers at the present time are not recovering their investment due to a disparity between supply and processing capacity. This has caused many producers to question if they can control their product further down the pork chain and recover more of its value.

To receive further value one must realize that further value must be added. In other words, even though today's live pig is much better than its counterpart of 10 and 20 years ago, one can't capture that value until the product is in a form recognizable to the buyer, whether that be the wholesaler, retailer or the final consumer. For pork producers to capture further value they must be able to further control the product into the meat distribution channels or possibly into the retail case itself. This would take producers to become involved in the processing industry, either to compete against well established businesses or to provide service to a marketing niche that is not presently served or not satisfied.

The first option is one that has been undertaken by several entities over the last ten years. Premium Standard Farms, Seaboard Inc. and Farmland Foods are businesses or cooperatives that have moved into processing and marketing their own branded products in direct competition with established na-

tional companies. These firms either own their own pigs or work with members to supply pigs to meet their needs.

The second option, niche marketing is one that can be high risk; however, it can be high reward as well. A niche market is one that is smaller than the broad market and has characteristics different from the broad market. It should not be easily absorbed into the broad market and should be a market in which you can have a competitive edge. These markets can be very profitable but often have a high service component. The niche should be well understood before entry into that market.

There are several niche market examples within today's meat industry. The most notable may be Certified Angus Beef<sup>TM</sup> which is recognized as a product with repeatable quality standards and is marketed above typical retail beef prices. There are examples of marketing niches for pork.. One is Berkshire Gold<sup>TM</sup>. The niche is the Japanese market where consumers consider Berkshire influenced pork to have more desirable quality attributes.

A domestic example exists in Utah where several producers have formed a business that slaughters pigs and supplies pork to ethnic stores, primarily for latino consumers. These Utah producers began in 1996 by examining the size of the latino and Mexican population in Utah and the expectations in population growth. They discovered that the Latino and Mexican population was significant and that this ethnic group does eat more pork than typical US consumers. They further realized that Latinos also prefer the carcass to be fabricated differently and want different cuts than what can be obtained from most U. S. wholesalers. The marketing niche became fabricating pork to meet Latino and other ethnic consumer preferences.

These producers began their niche-marketing venture in 1996. At first they marketed 7 carcasses a week. Pigs were slaughtered on custom kill basis. Carcasses were fabricated to the specifications of the Latino markets. Market development occurred through word of mouth and direct contact to Latino and

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Mexican markets as well as other ethnic markets within major Utah cities. The number of carcasses marketed per week increased until the group opened their own plant to better meet their growing demand. The plant began operation in 1997, a

year after their initial venture. Presently this group is marketing 700 to 750 carcasses a week and is contemplating expansion. They market throughout Utah as well as neighboring states. 

## Facts about the Compliance Audit Program (CAP)

By: Joe Kelpinski, Northeast Swine Agent

**M**any producers who attended the Michigan Pork Producers Association regional meetings heard either Tim Johnson or myself talking about the On Farm Odor Assistance (OFOA) program and the Compliance Audit Program (CAP). I have had many questions relating to these programs from producers since these meetings. I have written about the OFOA program in past newsletters. The OFOA program involves a team of trained assessors visiting your farm to examine the operation and your management practices. The goal is to help swine operations reduce their potential for environmental pollution and odor emissions. This program is an excellent way for operations to get an independent evaluation of their practices and I strongly encourage producers to have their operations evaluated. Contact the state MPPA office at (517) 699-2145 to have an OFOA evaluation done on your operation.

To provide some basic background, the CAP program was an agreement between the National Pork Producers Council (NPPC) and the Environmental Protection Agency (EPA) to work to improve environmental management practices on swine operations nationwide. It began when NPPC approached the EPA to propose an environmental assessment program for the industry. This was to be a comprehensive assessment of operations to help maintain environmental compliance. As a result, the OFOA program was born. The CAP program came about as a means to provide reasonable incentives for swine operations. This is done without compromising the ability of the EPA or individual States to enforce environmental laws consistently and appropriately. The CAP is a stand alone program that is done in conjunction with an OFOA assessment. You may choose to have an OFOA assessment done WITHOUT enrolling in the CAP program. However, you MUST go through the OFOA program to be eligible for the CAP. Let's look at the FACTS about the CAP program:


1. The CAP program is open to ALL pork producers. Participation is VOLUNTARY.
2. Producers with existing facilities must sign up for CAP by 9/30/2001. Producers with facilities completed after that date must sign up by 9/30/2003.
3. The OFOA audits that are an integral part of the CAP program are done by trained, independent assessors at NO COST to producers.
4. Producers report any Clean Water Act violations found in the OFOA assessment to the EPA within 120 days. EPA will

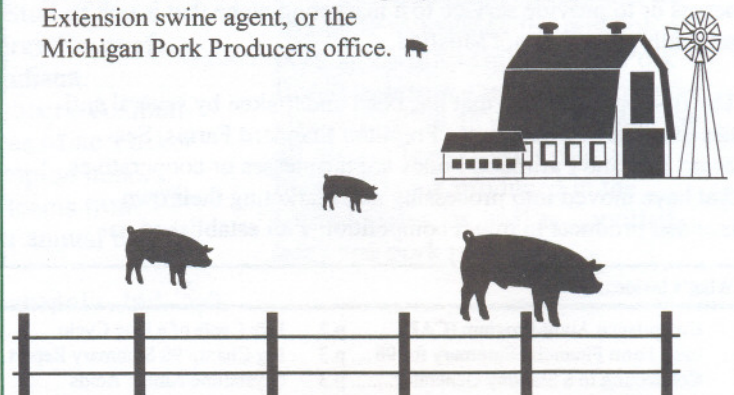
then will give producers 60-90 days for correcting maintenance and operating violations, one year for problems which require major construction. Extensions can also be granted on these initial timetables due to extenuating circumstances.

5. Producers completing the CAP program will see significant reductions in any fines that could be levied. Normal fines of \$27,500-40,000 will be reduced to \$250-1000. More importantly, these penalties can be reduced EVEN FURTHER or WAIVED ENTIRELY and EPA retains the flexibility to do this.

6. EPA will work with States to ensure compliance from participating producers. A State may also elect to administer the CAP program (this will VERY likely be the case in Michigan).

A very common question I have heard from producers is "What do I get from the program?" The most tangible item is the security and peace of mind knowing that your operation has been intensively scrutinized, any potential problems reported, and you have corrected those problems. However, you will also receive a placard with a seal on it developed by EPA and NPPC. This seal states that you have been assessed and been found to be in compliance with the Clean Water Act. It has both the EPA and NPPC's name on it. This placard can be placed where it is highly visible to your neighbors and the public in general. The placard is a VERY positive tool to reinforce your commitment to environmental safety in your local area.

I STRONGLY encourage producers to sign up for both the OFOA and CAP programs. Our industry's participation in these programs reinforces your environmental awareness and concern to the public. These programs continue to improve upon our industry's position as a leader among livestock groups nationwide in promoting environmental stewardship. For more information on either program, contact your local Extension swine agent, or the Michigan Pork Producers office. 





# Iowa State Farm Financial Summary for 1998

Iowa State University recently released their swine business record summary for calendar year 1998. As expected, all of the economic indicators were disastrous.

There were 85 Iowa farrow to finish operations included in this year's summary. The average herd had a cost of production of \$37.46/cwt of live hogs produced. They sold market hogs for \$33.43/cwt and cull breeding stock for \$21.70/cwt. These prices left the average operation with a net operating loss of \$73,857 in 1998 or slightly more than \$400 per sow. Even the best operations lost money last year. The top 10% of farrow to finish herds had an average loss of \$11,276. The top third had an average loss of \$35,454. I've monitored the ISU hog farm records series since 1980 and this is the first year the top third of farrow to finish operations have failed to make money.

One interesting side effect of the financial losses appears to be increased death loss. The 1998 death loss averages for pre-weaning, weaning to feeder, feeder to market, and breeding stock were all higher than in 1997. In addition, the average number of pigs weaned per litter was down from the year before. It could be that these Iowa herds experienced increased disease problems in 1998 or it could be that record low hog prices removed some of the incentive for keeping pigs alive. The average reported hours of labor per litter weaned in 1998 was 10.50, down from 11.21 hours per litter in 1997.

The big item that helped to moderate financial losses last year was low cost feed. The average cost of diet was \$6.41 per hundred pounds fed. This was \$1.58 lower than in 1997 and the lowest feed cost since 1987. 🐷

## Connecting To A Standby Generator

By: Dr. Robert Flick, P.E. Michigan State University



Concerns about losing power at the stroke of midnight on December 31 has pushed many people into purchasing a standby generator. But the generator is of no value unless it is connected to the home, farm, or business wiring system. Making this connection in a safe manner is the real challenge. If connected improperly, the generator can be a shock hazard to occupants of the building or to utility personnel who may be working on the electrical distribution system. Improper connections also frequently lead to fire.

### Generator connections must:

- have an ampere rating sufficient for the load be done in such a manner that at no time can generator power get through to the utility system and prevent any terminals from being energized when exposed.

To be prepared to operate a standby generator during a power outage, proper electrical connections must be installed in advance by a licensed electrician and inspected to insure the utmost of safety. Trying to save a few dollars by having an unqualified person do the installation or avoiding inspection can result in a fire, serious injury or even a fatality.

There are some new products available to make proper connections to a generator and minimize the cost. Here are a couple of ideas:

**DOUBLE-POLE SWITCH.** The circuits or load is either connected to the utility power supply or to the generator. The generator cannot be connected to the utility power supply. A double-pole transfer switch can be installed in the electrical service entrance to a building ahead of the service panel.

Usually a flexible cord extends from the transfer switch to the generator. The handle of the transfer switch is either in the utility supply position or in the generator position. With this method any circuit in the service panel can be operated as long as the generator is rated large enough to supply the load. The disadvantage of this method is that at least a portion of the service entrance must be rewired which can be expensive.

**ESSENTIAL CIRCUIT SWITCH.** An alternative is to select several essential circuits from the service panel and allow only those circuits to be supplied by the generator. This method is generally less expensive because usually it only requires a special panel and receptacle to be installed adjacent to the service panel. One type has a set of interlocked circuit breakers; one connected to the service panel and one connected to the generator. When one is turned on, the other is automatically turned off so it is not possible to have the generator connected to the utility power. Another type connects to individual circuit breakers with a double-pole switch that switches the circuit from utility power to the generator.

There are several safety problems that can occur if proper equipment is not used to connect the generator to the circuits. A plug with bare terminals may be energized thus creating a serious shock hazard. The other major safety problem is that an improper connection to the generator can result in an interconnection between the generator and the utility lines. When this happens, the utility lines become energized at high voltage, thus putting the life of utility personnel in jeopardy. For details on how to safely connect a generator to your wiring system, please visit the MAEC booth at Ag Expo on the Michigan State campus June 29, 30 or July 1, or visit the MAEC web page at [www.egr.msu.edu/age/](http://www.egr.msu.edu/age/) 🐷



# "Manure Tour 99"

On Tuesday, August 10<sup>th</sup>, 1999 the Gratiot County MSU Extension and the MSU Extension Livestock Specialist serving Gratiot County will be sponsoring a manure management and application field day. The day is intended for all livestock producers as well as cash crop producers that are spreading manure on their cropland.

The purpose of this field day is to assist anyone using manure to increase manure's economic potential through proper application and management. Demonstrations of ways to reduce manure's odor, and ways of maintaining good neighborly relations will also be covered.

The field day will be held at the Loren Roslund farm located south of Ithaca at 2452 W. Johnson Rd. Registration will begin at 9:30 AM and the day's events will begin at 10:00 AM. The morning portion of the day will have participants attending six 20 minute seminars on a rotating basis. A lunch will be provided and field application demonstrations will take place in the afternoon. Topics covered in the morning will include:

## WEED PRESSURE

Manure changes the weed pressure in the fields where it's applied. Manure can carry weed seed, and it will change the organic value of the soil. Both of these events can change the effectiveness of a weed control program. This seminar will cover the actions a producer can take to maintain a good weed control program.

## SAND IN DAIRY MANURE

Sand in dairy manure creates a real challenge in getting manure from the storage facilities to the field. This seminar will review different alternatives in handling sand laden manure.

## FEED MANAGEMENT TO REDUCE PHOSPHORUS LEVELS IN MANURE

Each livestock species has its own means of reducing phosphorus in manure. This seminar will be split into two sections. The dairy and beef sections will learn of ways to reduce manure phosphorus levels by feeding less phosphorus

while maintaining production. The swine section will cover

phytase and how it reduces manure phosphorus levels by making the phosphorus in corn more available.

## SOIL NUTRIENT MANAGEMENT

Using manure to increase the profitability of the farm operation will be the goal of this session. The soil nutritional advantages of manure will be explored, along with the costs associated with delivering manure to the field.

## WRITING A MANURE MANAGEMENT PLAN

Livestock producers and cash crop farmers using manure are being encouraged to have and maintain a written manure management plan. During this session attendees will learn what a manure management plan should include, and what recording is required to maintain a good manure management plan.

## BEING A GOOD NEIGHBOR

Farmers are raising large number of livestock while having good neighborly relations. Participants in this session will hear from livestock producers, township officials, and neighbors to livestock facilities on what works in their community.

Lunch will be served at 12:30 PM. Immediately following lunch Wayne Whitman from MDA Farm Stewardship Division will speak on the USDA-EPA "United National Strategy for Animal Feeding Operations" and how that will effect Michigan's "Right to Farm Act".

The afternoon will include demonstrations for applying manure. Each application method demonstrated will meet the "Generally Accepted Management Practices" of the "Right to Farm Act".

For more information contact Jerry May at the Gratiot County Extension Office (Phone 517 875 5233), Dann Bolinger at the Clinton County Extension Office (Phone 517 224 5240) or Kevin Gould at the Ionia County Extension Office (Phone 616 527 5357). 🐾

## New North Central MI Swine Extension Agent

Jerry May of St. Louis has been named as the Michigan State University Extension Swine Agent for a ten-county area. He will be housed at the Gratiot County Extension office.

May will be serving the educational needs of the pork industry for mid-Michigan, and will be part of a five-member Area of Expertise Team that serves the state.

May graduated from the Michigan State University in 1976 with a Bachelor of Science degree in animal husbandry. He

moved to St. Louis in 1976 and worked as a farm manager until 1980. For the past 19 years he has been the owner/operator of a swine operation and has gained a variety of working experiences in the swine industry.

Jerry's wife Kathy is a teacher in Alma. They have three sons Shawn, Mark, and P.J.

May has been active in the Michigan Pork Industry beyond the farm having been a member and past president of the Michigan Pork Producers Board of Directors. He is also a member of the Michigan Pork Council. 🐾



# Life Cycle of a Hog Cycle

**U.S.** Breeding herd liquidation began with the December Hogs & Pigs report. This is the fifth liquidation since 1983 and all have started with the December report. Let's see what we can learn from previous hog cycles that may apply to the current market environment.

## What Causes Hog Cycles?

- After about a year of **profits**, producers begin to reduce sow and gilt slaughter resulting in a year-over-year increase in the breeding herd.
- After about a year of **losses**, producers increase sow and gilt slaughter resulting in a year-over-year increase in the breeding herd.

## Profits and Breeding Herd

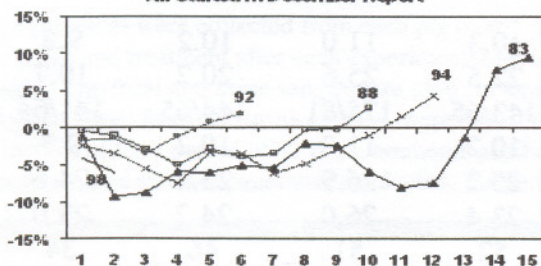
- **Expansion** begins after about a year of profits.
- **Liquidation** begins after about a year of losses.
- Losses began for many producers in November 1997. Liquidation first showed up in December 1998.

## Breeding Herd

Year-over-year reductions in the breeding herd since 1983 started in December:

- 1992 was the shortest and showed a year over year decline for 4 quarters before increasing
- 1983 declined 13 quarters before increasing
- 1988 did not increase for 9 quarters
- 1994 did not increase for 10 quarters

Breeding Herd Liquidation by Quarter  
All Started in December Report

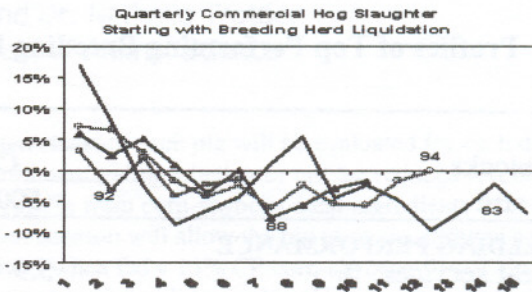


## Hog Slaughter

Following the reduction in the breeding herd, hog slaughter remains larger than the earlier year for a while.

## First year-over-year decrease

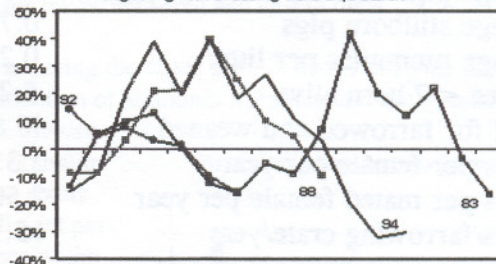
Brd Herd	Slaughter
4Q 83	3Q 84
4Q 88	1Q 90
4Q 92	2Q 93
4Q 94	4Q 95



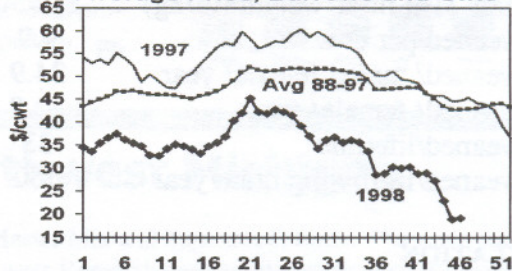
## Prices

- Prices show a greater percentage change than do supplies.
- Prices are typically lower than the year before for 1-2 quarters following the start of a liquidation.
- All 4 cycles had higher prices in the 3rd, 4th, and 5th quarters following the start of liquidation.
- The 1988 and 1994 cycles had the highest prices 6 quarters after the start of liquidation.

Quarterly Barrow & Gilt Price Changes  
Beginning with Breeding Herd Liquidation



Iowa Southern Minnesota Weekly  
Average Price, Barrows and Gilts



## Is this a "Normal" Cycle?

- It is too early to say for certain.
- It did start on schedule.
- Watch the road signs: sow slaughter; commercial slaughter; prices.
- Read, understand, and follow the signs.

Computer article can be found at <http://www.econ.iastate.edu/outreach/agriculture/periodicals/ifo/050399.html>

(Adapted from Iowa Farm Outlook Newsletter May 3, 1999) 



# "Pig Champ" 1998 Summary Report

## Profiles of Top Performing Breeding Farms Based on Pigs Weaned/Mated Females/Yr.

Six blocks Her size	U.S.A			Canada	International	
	Cornbelt		S/E/W			
	> 500	< 500	All	All	< 500	> 500
<b>BREEDING PERFORMANCE</b>						
Repeat services, %	5.9	3.8	5.5	4.2	4.4	11.0
Multiple matings, %	93.2	95.7	99.2	95.3	99.6	100
Entry-to-service interval, day	61	13.8	60.6	24.6	28.0	44.8
Sows bred by seven days, %	92.0	94.1	95.7	97.0	92.4	96.7
Weaning-to-first-service interval	5.8	5.7	5.0	5.1	5.7	4.9
Average nonproductive days	60.2	25.6	51.8	33.9	44.7	47.6
<b>FARROWING PERFORMANCE</b>						
Average parity of farrowed sows	3.8	3.4	4.0	4.0	3.9	3.1
Farrowing interval	139	141	146	147	143	143
Farrowing rate, %	82.9	94.9	85.6	90.7	89.7	84.8
Average total pigs per litter	12	10.2	12.9	12.5	12.3	11.7
Average pigs born alive/litter	11.1	9.8	11.6	11.8	11.2	10.7
Average stillborn pigs	0.7	0.4	1.0	0.6	1.0	0.7
Average mummies per litter	0.2	0.0	0.3	0.1	0.1	0.3
Percent < 7 born alive	5.2	5.9	5.6	2.4	7.0	9.5
PWM for farrowed and weaned	10.8	4.8	11.8	7.2	8.8	8.3
Litters per female per year	2.31	2.56	2.29	2.36	2.37	2.36
Litters per mated female per year	2.50	2.62	2.47	2.44	2.49	2.53
Litters/farrowing crate/year	15.1	13.6	8.9	9.7	10.5	11.6
<b>WEANING PERFORMANCE</b>						
Pigs weaned per litter weaned	9.8	9.4	10.3	11.0	10.2	9.8
Average age at weaning	16.2	18.2	22.5	25.6	20.2	19.7
Adjusted 21-d litter weight (lb/kg)	110/50	129/59	143/65	178/81	144/65	141/64
Pigs weaned per sow	9.9	9.3	10.2	11.0	10.2	9.7
Pigs weaned/ mated female/ year	24.9	24.5	25.2	26.9	25.4	24.6
Pigs weaned/ female/ year	22.9	23.9	23.4	26.0	24.2	23.0
Pigs weaned/lifetime	33	55	52	51	46	34
Pigs weaned/farrowing crate/year	150	126	94	107	107	112
<b>POPULATION</b>						
Average female inventory (AFI)	741	328	499	300	319	849
AFI/farrowing crate	6.9	5.5	4.2	4.2	4.4	5.1
Average gilt pool inventory	59	7.6	37	9.4	15.2	55
Gilt pool: Female inventory, %	8.0	2.3	7.4	3.1	4.8	6.4
Sow: Boar ratio	31	17	129	17	11	57
Average parity	3.1	2.3	2.6	3.1	2.8	2.3
Replacement rate, %	43.7	61.0	45.1	45.1	53.3	50.0
Culling rate, %	34.0	42.7	39.1	42.1	54.5	41.4
Death rate, %	4.2	1.5	5.6	2.3	4.1	2.9
Average parity of culled sows	3.5	5.8	5.6	5.1	4.7	3.7



# Lower Crude Protein Supplemented with Crystalline Amino Acids Reduces Ammonia Production in Swine Manure Slurry

By: Emily Otto, Dr. Mel Yokoyama, and Dr. Nathalie Trottier  
Michigan State University, Department of Animal Science

Several factors lead to the production of odorous compounds in the hindgut of the growing pig. Nutrition of the pig has been given considerable attention in recent years as an important factor contributing to odor production. We are currently investigating the effect on odorous metabolites and ammonia production by reducing crude protein (CP) levels in corn-soybean based diets. The challenge of reducing the dietary protein level is to maintain optimum growth of the pig. We are testing whether this can be achieved by supplementing the diets with crystalline amino acids (CAA) according to the ideal protein pattern for the growing pig. The ideal protein pattern is defined as the balanced ratio of amino acids at levels to meet and not exceed the animal's requirements. The CAA's are supplemented to replace protein when an ingredient, such as soybean meal, is reduced in the diet. The advantage of CAA's is complete absorption by the pig's gastrointestinal tract. Lowering CP and including CAA's will reduce nitrogen (N) present in the urine and feces. This is important because excess N contributes to the production of ammonia.

Six diets were tested: 15 % CP, 12% CP+CAA, 9%+CAA, 6%+CAA, a protein-free diet and casein-based diet. The protein-free and casein-based diets serve as negative and positive controls, respectively. Casein, a milk protein, is a high quality feed ingredient with a protein digestibility of 98%. The 15% CP diet represents a standard diet.

All urine and feces were collected from each pig over 5 days, pooled by pig and treatment after each experimental period, and frozen. The fecal and urine samples are used for several experiments. First, fecal and urine samples were mixed into a slurry, incubated for a period of 31 days, ammonia production was measured, and an odor panel was conducted. Second, the

nitrogen status of each pig will be evaluated for each diet. We are investigating whether or not the reduced levels of intact proteins from corn-soybean meal ingredients with CAA supplementation will allow the pig to retain nitrogen as efficiently as when fed a 15% CP corn-soybean diet. Third, fecal and urine samples will be analyzed by gas chromatography to measure various odorous metabolites and by high-pressure liquid chromatography to measure amino acid concentrations.

Preliminary data shows a reduction in ammonia levels from the stored swine manure from pigs fed different levels of CP supplemented with CAA's. Ammonia levels from each of the swine manure slurries were measured for 3 consecutive days after 31 days of anaerobic storage. As presented in Figure 1, results show approximately 63% reduction in ammonia levels comparing the 15% CP diet to the reduced 12% CP + CAA diet. Similar reductions from the 15% CP diet were also seen for the 9% and 6% diets. Ammonia production was also reduced for the protein-free and casein diets.

While lowering the crude protein levels of swine diets lowers the production of ammonia from manure, the question remains whether we can


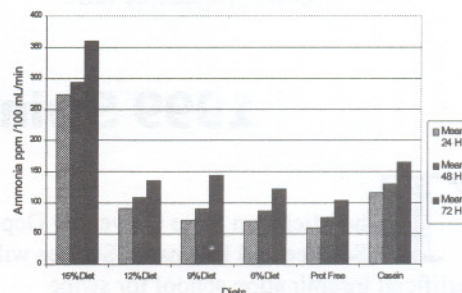
ensure optimum nitrogen status and efficient performance of the pigs by supplementing with crystalline amino acids according to the ideal protein pattern. 

Figure 1. Head Space Ammonia Concentration




## New Swine Agent in Southwest Michigan

Suzanne Hoover started with MSU Extension on June 21, as the new Swine Area of Expertise Agent for Southwestern Michigan.

Suzanne is originally from Michigan, where she was raised on their family farm in the thumb area. She attended Michigan State University and received her Bachelors degree in Animal Science and Masters degree in Animal Science/Swine Nutrition.

Following graduation, Suzanne moved to Indiana to work for Consolidated Nutrition, L.C., which is a livestock feed company formed from the merger of several feed companies such

as Master Mix and Supersweet feeds. Her main responsibilities were Research and Development of swine feeds, working primarily in the areas of growing finishing pig research and swine metabolism concentrating on nutrient excretion research. In addition to her research responsibilities, Suzanne was also responsible for implementation of AI and boar collection for the research swine herd, and development of new products and programs for Consolidated Nutrition's swine feed division.

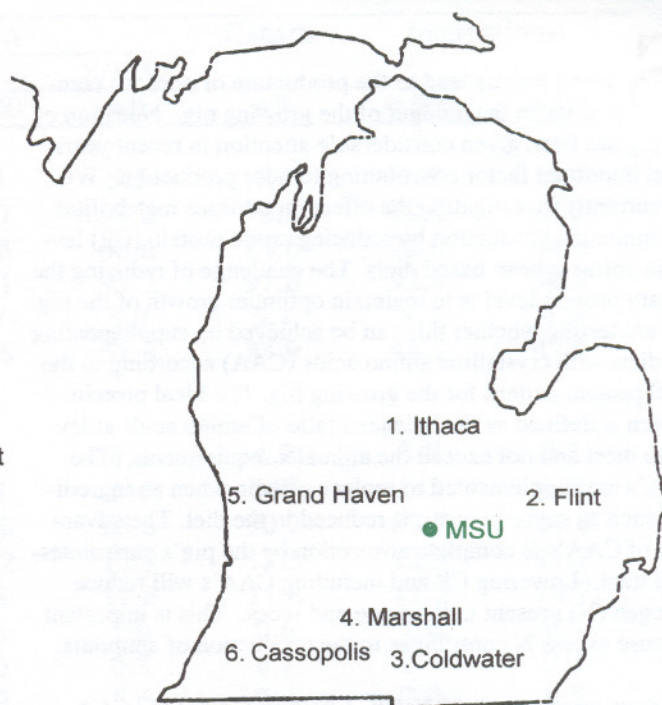
In addition to Cass County where Suzanne's office is located, she also serves St. Joseph, Berrien, Kalamazoo and Van Buren counties. She can be contacted at (616) 445-8661. 



All comments and suggestions should be directed to:

MICHIGAN STATE  
UNIVERSITY  
EXTENSION

1. **Jerry May, North Central Swine Agent**  
Farm Records, Production Systems  
(517) 875-5233
2. **Joe Kelpinski, Northeast Swine Agent**  
Environmental Mgt., Finishing Mgt.  
(810) 732-1470
3. **Brian Hines, South Central Swine Agent**  
Genetic Evaluation, AI, Facilities  
(517) 279-4311
4. **Roger Betz, Southwest District Farm Mgt.**  
Finance, Cash Flow, Business Analysis  
(616) 781-0784
5. **Tim Johnson, West Central Swine Agent**  
Production Records, Software, Confinement  
(616) 846-8250
6. **Suzanne Hoover, Southwest Swine Agent**  
Nutrition  
(616) 445-8661



## 1999 Swine Artificial Insemination School

The Michigan State University Department of Animal Science and Extension Service will hold a one-day artificial insemination school for swine producers on

**Tuesday, September 7, 1999**  
**9:00a.m. to 3:00 p.m.**  
**MSU Swine Teaching and Research Center**  
**3760 College Road**

Specialists will discuss semen collection, evaluation, and handling, as well as heat detection, proper time of insemination, and management practices, which will improve reproduction performance. This course is designed for both beginners and producers with limited AI experience desiring additional help.

**Participants are required to be away from swine at least 48 hours prior to this class.** The new MSU swine unit is a shower-in/shower-out facility (all

clothing and footwear provided). **Cost of the workshop is \$25.00 per person, which includes notebook materials and lunch.**

To attend the AI School, you need to pre-register by mailing your name, address, county, telephone number, and the \$25 payment (payable to MSU) to:

**Swine AI School**  
**c/o Barb Sweeney**  
**2209 Anthony Hall**  
**Department of Animal Science**  
**Michigan State University**  
**East Lansing, MI 48824-1225**

Workshop attendance will be limited to the first 20 people to register. For questions, please contact Al Snedegar, MSU Swine Farm Manager at (517) 355-7485 or Dale Rozeboom at (517) 355-8398. 🐷