

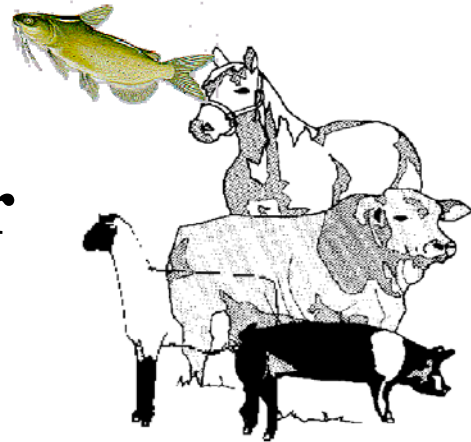
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Animal and Dairy Science Department
Rhodes Center for Animal and Dairy Science

Livestock Newsletter

July/August 2005

<http://www.ces.uga.edu/Agriculture/asdsvm/beef-home.html>



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Robert L. Stewart
Extension Coordinator
Animal and Dairy Science Department

LIVESTOCK NEWSLETTER

July/August 2005

AS-1

Catfish Quality at a Better Value

Gary Burtle

If we aren't raising the highest quality catfish, how can we get better? For many, any catfish is a good one. For others, no catfish is good enough. Where is the target to shoot for? The best catfish starts out being healthy and well fed in fresh water that is free of pollutants. Then the flesh of the fish must be firm, but not tough, and without off-taste. A taste that combines a slightly sweet, buttery or nut-like flavor is best. The way to get that premium quality is to eliminate the issues that make farm-raised catfish anything other than perfect.

Start with pond construction and water source to solve any pollution problems. Clean well water is the best source and a pond should not receive any runoff from land with pesticides, fertilizers, or other chemicals. Our ability to grow catfish in clean water distinguishes U.S. catfish production from that in countries with less demanding pollution and drug use policies.

Catfish health management begins at the hatchery. Certain catfish strains grow better and resist disease longer than other strains. Carefully study the history of the hatchery you buy fingerlings from. Strains with known resistance to disease include USDA 103 and the blue-channel hybrid. Other strains may be tolerant to diseases found in local areas defined by river basins so that buying locally has advantages. Treatments for fish disease should be applied at the earliest moment that disease is suspected. Over-stocking and over-feeding are two practices to avoid.

Managing off-flavor in farm-raised catfish continues to be a challenge. One method combines chemical and biological controls by treating ponds with copper algicides and stocking threadfin shad to control algae related off-flavors. Treat ponds monthly with liquid formulations containing copper or copper sulfate. Stock 600 to 1,000 threadfin shad per acre to reduce algal numbers further. Monitor catfish for good flavor and treat with copper more frequently if needed. Avoid circumstance that allow large catfish to remain in the pond by using good seining methods and aggressively marketing your fish to schedule timely harvests.

Improve your feed conversion efficiency to improve production economy and prevent water quality degradation. Limit feed quantity to 100 pounds per acre per day by setting a maximum fish weight of 3,300 pounds per acre. If you plan to harvest over 6,000 pounds of catfish per year, this means that you will need to partially harvest the pond three or four times each year. Restock, but do not overstock, to maintain between 5,000 and 8,000 catfish per acre. Avoid compensating for lost inventory by growing fish to a larger size that will have tougher and less flavorful meat at a higher feed to gain ratio. Regular harvesting improve economy by limiting potential fish deaths and removing fish during their optimum growth phase. Carefully monitor your feed costs and fish production so that you can evaluate the efficiency. Cheap feeds are not always efficient.

Higher protein feed or feed with better manufacturing may allow enough growth improvement to pay for a higher feed price. A 10% improvement in fish growth can absorb up to 25% increase in feed cost, all other costs the same. Good record keeping will tell the tale.

In a recent article in “The Catfish Journal” the comment was made that the farm-raised catfish industry was once based on a fish weighing 1.25 pounds but now looks for 1.5 to 2.0 pound catfish. The reality is that many catfish harvested today are much larger than 2.0 pounds. Above 2.0 pounds, a catfish eats over 2.25 pounds of feed per pound of gain while eating less than 2.0 pounds of feed per pound of gain up to that point. Catfish flesh tenderness is best when below 1.75 pounds in weight. Common product sizes come from catfish that are less than 2.0 pounds, the 4 ounce fillet or the 8 ounce whole catfish for example. The target weight should be no greater than 2.0 pounds for best quality.

A program of quality and value should include these points: 1. Clean water, 2. Healthy and fast growing catfish, 3. Timely treatment of diseases, 4. Control of off-flavor with an integrated approach, 5. Three or four partial harvests each year, 5. Conservative stocking and feeding practices, 6. High quality feed, and 7. Good record-keeping practices.

Temperament of cattle influences their performance

Johnny Rossi

Temperament is a trait that is rapidly becoming an important selection criteria. In the past, wild cattle have been culled because they were dangerous to work, damaged the corral, and made the herd difficult to gather and work. The reduction in performance of wild cattle was not well documented until recently. Several reports have associated calmer cattle with greater gains, improved feed efficiency, reduce death loss, and more tender meat.

Iowa State analyzed health, performance, and carcass data of over 13,000 calves fed in the Tri-County Steer Carcass Futurity. The analysis showed that docile calves are more likely to earn carcass premiums than more wild cattle. The more aggressive showed a decreased gain of 0.26 lb/d and a 1.8% increase in the feed to gain ratio. This translated into \$38 more profit for calm cattle when sold on a high quality grid system. Several other studies have also shown about a 10% increase in daily gain for calmer calves. This has been documented in both feedlot and stocker calves. Docile cattle in the Iowa State analysis also experienced less death loss than wild aggressive calves. Docile cattle were treated as often as wild calves, but the death loss of wild calves was twice as great as calm calves.

Heritability of temperament is from 0.4 to 0.53, which is considered moderate to highly heritable. Thus, you can make rapid progress in decreasing temperament problems by culling animals that are aggressive. Chute scoring can be completed on routine working days. Cattle usually become calmer the more times they are worked. Therefore, evaluating temperament the first few times that calves go through the chute should be a more accurate means of identifying the more excitable calves. A numerical chute score is an easy way to evaluate cattle temperament. Calves should be scored prior to squeezing the chute on them and scored shortly after entering the working chute. An example 1 to 5 chute scoring system is described as follows:

- 1 = calm, no movement in chute, does not pull on head gate.
- 2 = slightly restless, respiration elevated, may try to back out of chute
- 3 = constant movement, shakes the chute, pushes and pulls on head gate
- 4 = vigorously shakes the chute, bumps into fences when released
- 5 = berserk frenzy, wants to run over handlers when released

It is not recommended to select only heifers that are a chute score of 1. Some research has suggested that maternal ability may be weakened if cows are too docile. It is a good idea to cull any female that is consistently a three and above. Heifers should be identified prior to breeding and removed from the herd. In many cases, temperament can aid in bull culling decisions as the excitable calves will often have the same sire.

Temperament is a trait that is very important when retaining replacement heifers. Highly excitable animals also are not only dangerous for the handler and working pens, but will likely reduce income through poor performance and reduced carcass quality. Temperament scoring is a very easy management practice to implement. Results can be observed in short period of time due to the high heritability of this trait.

HORSE HAPPENINGS

American Horse Council Completes
Economic Impact Study of U.S. Horse Industry
Gary Heusner

The horse industry in the United States contributes \$39 billion in direct economic impact to the U.S. economy and supports 1.4 million jobs on a full-time basis, according to a new study released June 28th by the American Horse Council (AHC). When indirect and induced spending are included, the industry's economic impact reaches \$102 billion. The study also estimates the horse population in this country has reached 9.2 million.

The study, conducted by Deloitte Consulting, LLC over the last year, was commissioned by the American Horse Council Foundation with major funding support from the American Quarter Horse Association, The Jockey Club, the National Thoroughbred Racing Association and Breeders' Cup Ltd., Keeneland Association, American Paint Horse Association, American Association of Equine Practitioners, U.S. Trotting Association, Thoroughbred Owners & Breeders Association and the U.S. Equestrian Federation.

The study, titled *The Economic Impact of the Horse Industry in the United States*, is the most comprehensive research document ever compiled on the American horse industry. (The media can access a summary of the report at www.horsecouncil.org)

The study reveals:

An industry that is both large and economically diverse, as well as a key contributor to the overall fabric of the U.S. economy.

Horse owners and industry suppliers, racetracks and off-track betting operations, horse shows and other industry segments all generate discrete economic activity contributing to the vibrancy of the overall industry;

Of the total economic impacts reported, approximately \$32.0 billion is generated from the recreational segment; \$28.8 billion from the showing segment and \$26.1 billion is generated from the racing segment.

“This study paints a portrait of an industry that operates in every corner of the country and contributes mightily to the American economy and culture,” said Jay Hickey, President of the AHC. “Never before has the impact of our industry been so dramatically demonstrated.”

“Millions of Americans have a personal commitment to the horse industry, from the grassroots to those who compete nationally and internationally,” said David O’Connor, President of the United States Equestrian Federation and an Individual Olympic Gold Medalist. “Some are kids riding their backyard horse for the sheer joy of it, some support their family working for an equine business, and others are breeders and competitors at the highest levels. Together they contribute billions to the economic health of our country through their shared passion for the great American icon, the horse.”

“As someone who has spent a lifetime around horses, I understand how much they are a central piece of our nations’ fabric, from rodeos and trail riding to racing and showing,” said Representative Joel Hefley (R-CO). “This report demonstrates how horses of every breed positively impact our economy and our way of life.”

“This study confirms what many of us in Congress already knew, that the American horse industry is a vital contributor to the U.S. economy while bringing pleasure to millions of people,” said Senator Mitch McConnell (R-KY).

“We know horses have a special place in America’s history and culture. This study clearly demonstrates the horse industry’s significant role in America’s economy too,” said Congressman Don Sherwood (R-PA), a breeder of draft horses. “When you have a tough week in Congress, there is nothing like going home, cleaning a stall and grooming a broodmare. The old saying that there is something about the outside of a horse that is good for the inside of a man is true.”

“This study reveals the importance of the recreational sector of the horse industry. My Right to Ride legislation will help this growing sector of the horse industry continue to enjoy the trails and public lands on horseback” said Congressman George Radanovich (R-CA), a rider. “Horse and saddle stock use on federal land has a long tradition in American culture. Riding livestock is a great way to explore and experience our federal lands; we must preserve our riding heritage.”

Some of the key industry statistics and economic indicators reflected in the study include:

Estimated number of horses in the U.S.

9.2 million

Estimated number of horses by Activity

Recreation, 3,906,923; Showing, 2,718,954; Racing, 844,531; Other, 1,752,439

Estimated number of horses by Breed

Quarter Horse, 3,288,203; Thoroughbred, 1,291,807; Other Horses, 4,642,739

Estimated number of horses in each of the 50 states

Texas (one million), California (700,000) and Florida (500,000) are the leading horse states. 45 of 50 states have at least 20,000 horses

Number of people participating in the industry

By form of participation, (e.g. owner, volunteer, etc.)

Owners, 2 million; Volunteers, 2 million

Direct, indirect and induced economic impacts of the industry on U.S. and individual state economies

Contributions to Gross Domestic Product (GDP)

Nationally, \$102 billion via direct, indirect and induced spending

Number of Full-Time Equivalent (FTE) jobs produced

1.4million

In conducting the study, Deloitte contacted 400,000 horse owners and other industry participants involved in all segments of the horse industry, including people involved in both the recreational and commercial spheres. The report is available for a fee by contacting the American Horse Council at www.horsecouncil.org.

From: American Horse Council News,
Summer 2005, Volume 2 No. 2

REDUCING RISK OF INFECTIOUS DISEASES IN HORSES

Infectious diseases are a constant risk to the health and welfare of horses. The threat of strangles, influenza, equine herpesvirus, rotavirus, Salmonella and Rhodococcus are only some of the reasons for a comprehensive vaccination program. However, no vaccine is 100 percent effective, and vaccines are not commercially available for many diseases, including the dreaded salmonellosis.

However, multiple farm management techniques can have a significant influence on reducing the risk of disease outbreaks. Not all are as labor intensive as completely disinfecting stalls and aisle ways. These techniques include:

Group horses of similar uses. Show horses, yearlings, broodmares and riding horses should not be commingled.

Plan a traffic pattern to take farriers, veterinarians and other personnel to barns and pastures with at-risk horses first (e.g., pregnant mares or mares and foals) and work toward horses that have multiple exposures to pathogens (show and trail riding horses.)

Isolate any new horses to the farm for a minimum of 14 days and ideally 21 days. The horse can be monitored for infectious diseases, and any necessary vaccinations and deworming can be completed at that time.

Isolate horses returning from a hospital stay for similar periods of time. The stress of transportation and medical procedures can lower horses' immunities, and they may come in contact with other equine patients, some of which may be shedding pathogens.

If a horse is observed as being sick (cough, runny nose/eyes, diarrhea, fever, etc.), it should be isolated immediately and protective clothing (disposable gloves, booties and cover-alls) utilized by everyone working should only be used with that horse. Be sure to provide alternative gloves for employees who are allergic to latex, such as gloves made of nitrile or vinyl.

Stalls of sick horses should be mucked out last, and preferably separately, using pitchforks, shovels and other tools that are properly disinfected prior to their use. Alternatively, use separate tools for healthy horses' stalls and a different set for sick animals' stalls.

Manure and bedding from stalls housing sick animals, including those experiencing abortions, should not be spread on fields. This material should be composted away from all animals or disposed of in a manner approved by local ordinances.

Provide running water, liquid hand soap (pump-style container) and disposable paper towels for hand washing

in every barn. All employees should wash their hands prior to leaving at the end of their shift. In the midst of a disease problem, they should thoroughly wash their hands after working with sick animals, whether or not they were wearing disposable gloves. During an out break or when running water is not available, have waterless hand foams or gels (at least 62 percent ethyl alcohol) to use after handling horses. Remind employees these products are flammable!

Rodent control is paramount year round! One barn mouse can ingest Salmonella and be a multiplication factory better than any Petri dish. The mouse droppings contain enormous amounts of bacteria that can effectively seed the horse's environment and feed supply with infectious bacteria. Insect, bird and bat control are also important. Remove standing water, bird nests and other habitats. Hire professionals for removals of bat roosts and difficult rodent or wildlife control.

Routinely clean and disinfect stalls, water buckets, grooming tools, pitch forks and other items, and increase the frequency during an outbreak situation.

Most importantly, communicate and educate employees, and enforce biosecurity procedures on the farm.

From: Lolyd's Equine Disease Quarterly, Volume 14, Number 2
April 2005

Using Fungicides Around Fish Ponds

Gary Burtle

Catfish ponds in Georgia are often located near soybean fields that could possibly be treated for the Asian soybean rust. Fungicide drift has several negative impacts on fish production. However, some fungicides are less dangerous to fish than others. The list below compares two groups of fungicides commonly used in agricultural applications for their danger to aquatic organisms including catfish, zooplankton, and/or phytoplankton.

Fungicides can be directly toxic to catfish. The toxicity of fungicides used to control Asian soybean rust range from 0.0114 parts per million to 27.8 parts per million. A part per million is equivalent to 2.7 pounds of chemical per acre-ft of water, so the least toxic fungicide would require 75 pounds per acre foot to kill catfish. That amount is much more than would be expected to drift from field applications. On the other hand, the most toxic fungicide would require only 0.03 pounds per acre-foot (about two ounces per surface acre of a four foot deep pond) to kill catfish.

Zooplankton are generally more sensitive to chemicals than catfish. These small animals provide food for small fish and are important sources of food at fish hatcheries. Zooplankton provide the basis of the food supply for bream in sport fishing ponds. In catfish ponds, as catfish fry switch to feed pellets as they grow, zooplankton becomes less important as a food source.

Phytoplankton (microscopic algae) is the primary source of oxygen for ponds. Loss of phytoplankton would cause oxygen depletion and result in fish kills or fish stress. Oxygen depletion occurs more rapidly during summer months due to warmer water temperature. Fungicide application should be made with extreme care, regardless of the relative toxicity to phytoplankton, especially in summer months.

Fungicides grouped by toxicity to aquatic organisms (from Avery 2005).		
Group A - Least Toxic	Chemical	Products
	Myclobutanil	Laredo EC, Laredo EW
	Propiconazol	Bumper, Tilt, Propimax
	Tebuconazole	Folicur
	Tetraconazole	Domark 230 ME
Group B - Most Toxic	Azoxystrobin	Quadris
	Azoxystrobin + Propiconazole	Quilt
	Chlorothanoniil	Bravo Weather Stik, Echo 720, Echo 90 DF, Equus 720 SST
	Pyraclostrobin	Headline, Headline SBR
	Trifloxystrobin + Propiconazole	Stratego

Avery, J. 2005. The Catfish Journal. 19 (11):1-11.

What Nitrate Levels In Hay Are Safe For Horses?

Gary Heusner

One of the most often asked questions regarding the selection and purchase of hay for horses is what level of nitrates is safe for horses? Nitrates do not cause the immediate problem of “nitrate poisoning or toxicity”. Nitrate toxicity occurs when ingested nitrates are converted to nitrites by bacteria and other microorganisms that are normal microflora of the large intestine (cecum and colon). In the case of ruminants the conversion takes place in the rumen. Therefore ruminants are much more susceptible to nitrate/nitrite toxicity than horses. Nitrites when absorbed into the blood stream combines with hemoglobin to form methemoglobin. The formation of methemoglobin prevents the binding of oxygen. Therefore oxygen is not carried to the tissues. If sufficient levels of nitrite are formed, absorbed into the blood and methemoglobin levels reach 30 to 40%; clinical signs of nitrate toxicity occur. Clinical signs in the horse include chocolate colored blood, brownish colored mucosal membranes, difficult rapid breathing, muscle tremors, in-coordination, diarrhea and frequent urination. Death occurs when 80 to 90% of hemoglobin is converted to methemoglobin. However it has been reported that death can occur in active animals with 50 to 60% methemoglobin.

So what levels of nitrate in hay may cause potential toxicity problems in the horse? Little research has been done regarding toxic nitrate levels in forages for horses. The few values listed have indicated that hay has been fed safely to mature and growing horses containing 1.8 to 2.1% nitrate which is 18,000 to 21,000 ppm. A recent

study was reported at the nineteenth Equine Society Symposium by Canadian researchers Burwash, Ralston and Olson. Mature, idle horses averaging 1130 pounds were fed a low nitrate (600 ppm) hay for a five day adaptation period. Blood samples were taken prior to feeding high nitrate (17,400 to 18,500 ppm) hay to establish base line values for packed cell volume, total hemoglobin, oxygenated hemoglobin, methemoglobin, reduced hemoglobin and nitrate/nitrite. The horses were fasted for 14 hours prior to being fed the high nitrate (17,400 to 18,500 ppm dry matter basis) hay. This was done based on experience with cattle nitrate toxicosis, which is typically manifested when they consume substantial amounts of high nitrate feed, when they have not been recently consuming these rations. In this study feeding the high nitrate hay did not cause a change in blood hematocrit, total hemoglobin, oxygenated hemoglobin, methemoglobin, or reduced hemoglobin and all values were within the expected normal ranges for mature horses. Methemoglobin levels never went above 1.5% and was within or slightly above normal ranges for horses which is generally less than 1%. Methemoglobin must reach levels of 30 to 40% before clinical signs appear and death may occur at levels of 60% or greater. Based on the fact that methemoglobin values remained low, the researchers concluded that nitrate was being absorbed in the small intestine prior to reaching the cecum and therefore the cecal microbes were unable to convert nitrate to nitrite. Also blood nitrate levels remained elevated during the feeding of the high nitrate hay, but had no noticeable adverse physiological affect.

This study with other observations on nitrate levels in hay indicate that the horse can tolerate up to 15,000 ppm nitrate in the hay and some researchers feel that as long as hay contains less than 20,000 ppm (2.0%) nitrate a horse can safely consume it. One question is still unanswered concerning nitrates and that is what levels are safe for the pregnant mare? Studies in cattle have indicated high nitrate may cause abortion. At the University of Georgia in an uncontrolled study we have fed pregnant mares hay as the sole feed; containing 10,000 ppm nitrate without any abortions or reabsorption of pregnancies. Further work needs to be done concerning nitrate levels in forages that are considered safe for breeding and pregnant mares.

Catfish Industry Moves Forward in 2005

Gary Burtle

Farm-raised catfish in the United States continues to enjoy increasing sales to the American consumer. Sales of processed farm-raised catfish have held up against competition from foreign imports and other meat products over the past three years. The balance between catfish production and sales made positive corrections since the price declines of 2001. January 2005 catfish prices were the highest since 2001 at between \$0.70 and \$0.75 per pound at the pond bank (USDA, ERS). Sales of processed farm-raised catfish were up 4% in May 2005 over the same month last year. The catfish industry is fortunate in many ways compared to other industries still facing low prices.

Catfish sales have remained strong enough to absorb a recent increase in catfish imports. Though the last part of 2004 and continuing into 2005, countries including Vietnam, Cambodia, China, China-Taipei, and Indonesia have sold increasing amounts of fillets to the U.S. In April 2005, over 2.2 million pounds of frozen, boneless

fillets from *Pangasius*, *Siluriformes*, and *Ictalurus* species were imported. About a tenth of that was channel catfish that has been introduced in countries outside its native range in the U.S. During April 2005, some exports of channel catfish partially off-set the larger import numbers when about 110 thousand pounds of farm-raised catfish were sold to Canada, Mexico and the United Kingdom (USDA, ERS).

Georgia sales of farm-raised catfish continue to grow in the south and west central counties. Sources of catfish in the range of 0.5 to 0.75 pound are especially needed. However, catfish up to 1.75 pounds were in short supply during April and May. Catfish harvests during the winter, off-flavor in some ponds, and a heavy inventory of larger catfish contributed to the shortage of smaller catfish. Sales of these larger, 2 to 10 pound catfish are needed before farmer inventories can be balanced to meet sales opportunities. Some marketing changes have taken place to allow sales of family sized fillet packs and marinated 8-10 ounce portions to move these larger fish. A traditional market for catfish steaks has not yet materialized.

More than one processor has proposed that the U.S. catfish industry must position farm-raised catfish as a higher-value fillet for fine and mid-scale dining rather than for casual dining and quick-serve restaurants. In order to accomplish this several suggestions have been offered including, 1. Enact new quality standards for production and processing, 2. Direct marketing groups to focus on quality and price in their mission, 3. Increase funding for catfish marketing specifically for consumer advertising. These processors realize that the U.S. is not the low-cost producer of catfish products in the world and that farm-raised catfish is not perceived as a premium product, even though it could be. Premium catfish quality can overcome competition from foreign raised catfishes and tilapia and has been demonstrated in the south Georgia market.



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Market News
GEORGIA LIVESTOCK



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Atlanta, Georgia 30334

WEEK ENDING: 8-19-05 The Cooperative Extension Service would like to thank Terry Harris for submitting this information.
GEORGIA CATTLE: RECEIPTS: 12500 LAST WK 10900 YEAR AGO 17000

<u>FEEDERS</u>	<u>STEERS</u>	<u>MED & LARGE 1</u>	<u>HEIFERS</u>
	130.00-160.00	300/350 LBS	117.00-137.00
	120.00-153.00	350/400	112.00-137.00
	114.00-136.00	400/450	108.00-122.00
	110.00-126.00	450/500	103.00-121.00
	105.00-120.00	500/550	100.00-118.00
	100.00-118.00	550/600	91.00-116.00
	97.00-111.50	600/650	93.00-117.00
	93.00-108.00	650/700	85.00-102.00

<u>SLAUGHTER COWS</u> % LEAN		
75-80%	850-1200 LBS	50.00-56.00
80-85%	850-1200 LBS	51.00-62.00
80-86%	OVER 1200 LBS	51.00-64.00
85-90%	800-1200 LBS	49.00-63.00

5 Area Daily Wtd Average - Texas/Oklahoma; Kansas; Nebraska; Colorado; and Iowa/So Minnesota Feedlots:

Steers...Select/Choice 65-80% Weighted Average Price Range 78.00-79.00
Heifers...Select/Choice 65-80% Weighted Average Price Range 76.00-79.50

By-Product Drop Value (Steer)...Hide and Offal Value 8.03 /cwt.

Box Beef Cut-Out Value Choice 1-3 550/750 LBS. 134.13
Select 1-3 550/700 LBS. 126.40

Georgia Hogs: GA-FL-AL Direct Area Receipts 4000 Trends .50 Higher

US 1-2 220/260 LBS. 46.00-48.00 Sows 300/500 LBS. _____ 500-UP _____

FEEDER PIGS	GEORGIA	TENNESSEE		GEORGIA	TENNESSEE
US 1-2 35/40 LBS.			55-60		
40/45			60/65		
45/50			65/70		
50/55			70/80		

IOWA-SOUTHERN MINNESOTA DIRECT HOGS: RECEIPTS _____ TRENDS 2.29 Higher
BARROWS & GILTS 49-51% LEAN 185 LB CARCASSES RANGE 57.75-73.00 WTD AVG. 70.04