Report on American Society of Animal Science
Meetings in Des Moines, Iowa, USA
March 2009
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Summary

I attended the American Society of Animal Science Meetings in Des Moines Iowa from March 16-18, and while there, also took the opportunity to discuss industry matters with Dean Boyd and others, both before and during the meetings.

The issues or matters of most interest in the USA during the visit were:

1. **Profitability** - The industry is in its sixth quarter of negative returns with better production companies losing $28-$30/pig in 2008. For 2009 most companies expect to break even though this will depend on pig prices increasing substantially in the second half of the year. Pig imports from Canada are at historic lows due to the Country of Origin Labelling laws and the decline in the sow herd in Canada. Supply in the USA is definitely declining and there are numerous empty finisher facilities across the country. However as yet supply exceeds demand at the Packer and retail levels. The current price for pork in the USA is around $2.00/kg carcass weight and with the lower feed costs ($200-$220 US/tonne) I am surprised most producers are not somewhat profitable - suggesting that many are still using higher price corn.

2. **Immunocastration** - The industry expects Immunocastration to be available (approved) within the next 12-18 months and Pfizer are actively developing advisory groups and preparing for large scale studies. The technology if adopted and implemented correctly will potentially have a marked positive effect on the efficiency of pork production in the USA and throughout the whole supply chain.

3. **Conjugated linoleic acid (CLA)** will be available commercially in the near future though it will be “expensive” and probably of limited value to the pork industry. However, expect to see a rash of research on the product over the next 12 months.

4. **PCV2** - the various vaccines against the PCV2 associated disease syndrome (post weaning wasting disease) continue to prove effective and are now simply a cost of doing business in the USA. Before they began using “the” vaccine the post weaning mortality at one United Feed’s Research facility exceeded 25%. The value is now under 4%. A number of papers were presented on the different vaccines and I have summarized these under the section on research.

5. **Ethanol** - A lot of the “smaller” ethanol plants have stopped production and a number have applied for bankruptcy. Ethanol production is down about 21% (down from 12.9 to 10.2 billion gallons) compared to mid 2008. However, the big players and in particular ADM are expanding their production of ethanol and because of the size of their operations are able to produce ethanol profitability. Someone has to meet the Federal Government’s mandated targets and there is a chance ethanol may have to be imported from Brazil to meet the mandate for 2009. The mandate for 2009 is 10.5 billion gallons of conventional ethanol.

6. **DDGS** - the by product of ethanol production is now commonly used in pig diets at levels up to 30%. Again numerous papers on feeding DDGS in the scientific sessions.
Research outcomes from the ASAS meetings

“Major” or Plenary Presentation with commercial and scientific implications

1. Effects of dietary protein, amino acids and Paylean on animal performance carcass yield and primal weights (Abstract # 48)

Dean Boyd presented as part of the David Baker symposium a paper on the effects of offering pigs between 23 and 120 kg (105 days) diets at 88% 100% or 112% of lysine requirement (based on defined PIC requirement curves) and Paylean in the last 28 days (7.2ppm/8.8 ppm) on whole body performance, carcass weight and on primal weights. Growth rate and feed: gain improved with increasing dietary lysine but carcass yield and carcass weight declined linearly with increasing dietary lysine (protein). Dietary lysine had no effect on the weight of primal cuts at a constant carcass weight. Paylean significantly increased growth rate, feed efficiency (16.7%) and carcass weight compared with the 100% control diet during the last 28 days. Paylean also significantly carcass lean by 4.4% and the weight and proportion of loin and ham in the carcass (by 2.2 kg) with no effect on the belly resulting in an additional increase in carcass value of some $7.70/carcass.

Take home messages -

i. that requirements and dietary responses need to be based on, or certainly include, carcass weight, not just live weight indices

ii. that it may be worth considering the use of lower CP (and fibre) diets in the finishing period to increase carcass weight

iii. that Paylean increases the proportion of primal cuts, and as such has considerable post farm gate economic implications that are certainly exploited by Packing houses and integrated companies in the USA

It is also interesting that somewhat higher doses of Paylean are generally used in the USA than Australia, and levels between zero and 10 ppm may warrant examination as part of our program.

Sows

There were numerous abstracts on reproduction, some with potentially new results or more detailed information on what we already expect. I have summarized what I thought were the more relevant abstracts to our situation. They were:

1. Dietary lysine during Lactation (Abstract # 51). Researchers from the University of Columbia reported the results of two experiments with multiparous sows. In the first experiment sows were offered five diets ranging in total lysine from 0.85% to 1.25% (in 0.1% increments) over 18 day lactation with an average litter size of 11. Sow lactation feed intake averaged 7 kg /day and sows on all treatments gained weight during lactation. However, weight gain declined linearly with increasing dietary lysine (protein) and there were no effects of dietary lysine on piglet performance or subsequent reproduction. In the second experiment sow feed intake was restricted to 5.5 kg/day and dietary lysine levels ranged from 6.4 to 10.3 g/kg (6.4, 7.3, 8.2, 9.1 and 1.03%). In this experiment piglet growth rate increased linearly with increasing dietary lysine (from .228 to .254 g/d). The authors concluded that feeding above 50g/day lysine to lactating sows increases lactation performance and that a daily intake of 62 gram of lysine is the minimal or practical requirement for lactating sows of all parities.
Take home messages -

i. that we should consider reducing the total protein content of diets for lactating sows, because this is a factor affecting overall heat production and weight loss.

ii. that the lactating sow’s requirement for lysine depends on feed intake and litter size

2. Heat stress in sows (Abstracts 236 and 237) - two interesting papers were presented on the effects of heat ‘stress’ during a reproductive cycle (gestation, lactation and post weaning) in first parity sows. The sows were kept in climate controlled rooms and subjected to a thermo neutral (18.7-21.2 degrees Celsius) and a heat stress treatment (24.6 -30.7 degrees Celsius) or various combinations of both during the different phases of the one reproductive cycle. The researchers measured a range of heat stress indicators including rectal temperature and a number of reproductive parameters. The information collected was extensive and informative - its interpretation was more complex and not really attempted by the researchers - however, when published it will be valuable. The most interesting outcome was that whilst different measures of heat stress were higher for sows in the hotter situation (s) they were largely not relevant until lactation when all increased 3-4 fold at the commencement of lactation and increased quite markedly with time during lactation (in both temperature treatments). Lactating sows in the warmer environment ate less feed and produced less milk based on weaning weight (6.2 vs. 5.7 kg P<.001). Temperature however, had no effect on body weight loss during lactation or on subsequent reproduction.

Take home messages -

i. that lactation represents the greatest period of metabolic stress in sows and cooling sows and additives such as Betaine will likely reduce the adverse effects on milk production

ii. Reducing the dietary protein levels of lactating diets might also be advantageous especially in late lactation

The researchers also reported that all sows were in negative energy balance during lactation but feed intake was less than 4.0 kg/day. The authors of the two abstracts were: Coate et al and Williams et al - look for the full papers - probably in the Journal of animal Science.

3. The use of crystalline amino acids in lactating sow diets (Abstract # 149 - University of Missouri) - two experiments conducted with parity 2 and parity 3 sows to investigate replacing protein bound lysine with 0.0, 0.1, 0.2 and 0.3% Lysine from Lysine HCL in diets containing 1.05% total lysine. Lactation feed intake was 5.8 kg/d (probably restricted) and diet had no effect on any measure of lactation performance or subsequent reproduction.

Take home messages -

i. You can use synthetic lysine to 0.3 % (with added threonine and methionine) without adverse or positive effects on lactation performance - however I believe the results would differ at higher feed intakes.

4. Adding fat to lactating sow diets containing 20% DDGS (Abstract # 144-University of Missouri) - another study from Gary Allee’s group conducted in Illinois which showed that adding 0.1.0 or 2.0% fat to lactation diets containing 20% DDGS had no effect on any measure of sow or piglet performance to weaning at 19 days or subsequent reproduction. Lactation
feed intake (Parities 1-6) averaged 6.4 kg/day. Piglet growth rate averaged 272 g/d.

Take home messages - what would you expect?

5. **Effects of N-take on sow feed intake in lactation (Abstract # 188 - C. L. Bradley et al, University of Arkansas, Hanor Company and Tech Mix)** - researchers tested a product developed by different individuals on the feed intake of lactating sows. The product was originally based on aspartame but is now based on a combination of amino acids that stimulate intake. In two studies with mixed parity sows N-Take added to the diet at .25% increased total feed intake during lactation and average daily feed intake by 600g (6.0 vs. 5.4) and 1000 g (5.9 vs. 4.9). In the first experiment N-Take had no effect of sow weight loss in lactation but increased litter weight (63.1 vs. 55.2 kg) and average weaning weight (6.3 vs. 5.7 kg). The litter size was 12.3 and lactation length was 20 days. N-take elicited similar responses in the second experiment but the difference in litter weaning weight (61 vs. 57.8 kg) was not significant (P<.08).

Take home messages -

i. the results suggest sow feed intake in lactation can be enhanced and results in increased milk production

ii. There was a lot of interest in the product and we should look more at product development as part of our R&D program.

iii. N-Take currently costs about $US10.00/tonne for 0.25% inclusion rate, however, this is expected to fall to $US7.00/tonne.

6. **Effects of increasing or decreasing sow feed intake in late gestation on lactation performance (Abstract # 187 D. W. Rozeboom et al –NCERA -committee on swine management)**- a cross site investigation of increasing or decreasing the sow’s feed intake from day 108 of gestation. All treatments had the same feed intake over gestation - the control was 1.8 kg feed/d from mating to farrowing. The step down -1.8 kg/d to 75 days and 2.7 kg/d to day 108 and declining daily there after to 900 g/day from day 114. The Step up -1.8 kg/d to day 85 and 2.7 kg /d to farrowing. Complex and over some four sites - but still only ended up with only 56 sows/treatment. The bottom line - no effects of treatments on performance or health during lactation though step up sows tended to lose more (gain less) weight in lactation than step down sows. Control sows tended to be the heaviest at weaning. Step down sows also tended to have a lower subsequent litter size (BA) than those on the control or step up treatments (10.2; 11.24 and 12.10.) respectively.

Take home messages -

i. that the step down approach is probably not to be encouraged and had no effect on the incidence of agalactia and no effect on lactation feed intake

ii. The second is that the committee approach to sow research needs to modified or questioned.

7. **Effect of dietary Arginine between 14 and 28 days of gestation on foetal number, weight and myogenesis at day 75 (Abstract # 96 - J. Berard etal-Switzerland)** - researchers used 20 mated gilts to assess the effects of feeding 25 g Arginine/day from days 14 to 28 of pregnancy on foetal numbers and weight at day 75 of pregnancy. The authors also measured primary and secondary muscle fibre numbers. The
authors reported that Arginine increased the number of viable foetuses at
day 75 from 9.3 to 13.0 (P<.04) but had no effect on foetal weight. Arginine
supplementation also significantly increased the number of primary muscle
fibres in the ST muscle (P<.04). Foetuses of heavier weight at day 75 also
had greater total muscle fibre numbers than those of average or light
weight at day 75.

Take home messages -

i. despite the limited number of gilts involved there is
   something in Arginine which we are yet to sort out or observe
   commercially

ii. there was certainly no adverse affects on embryo
   implantation and despite the marked difference in numbers no
   effect on foetal weight

iii. results also suggest a possible reason that pigs of light birth
   weight do not perform at the same rate as those of heavy
   birth weight

8. The effects of feeding linseed meal during gestation (Abstract #
   235 - J. Benz et al - North Dakota State University) - one from left
field. The researchers investigated including 12.5% Linseed meal (LM) in the
diets offered pregnant gilts for the whole of gestation or between days 1-15
of gestation only, on litter size. Linseed meal included in the diet between
days 1-15 increased the total number of piglets born compared to the
control and linseed treatment throughout gestation (13.5 vs. 10.1 and 11.6
respectively). Though born alive differences were not significant, sows on
the linseed treatment between days 1-15 had 12.3 pigs BA compared to
9.44 and 10.00 for control and linseed throughout gestation sows
respectively.

Take home messages -

i. the study was based on a theory that there are components in
   LSM that will block estradiol production by the conceptus and
   increase the rate of implantation and embryo survival

   The question - why not the same results for sows fed LSM
   throughout gestation. There was only 10 sows/treatment - but
   maybe something here?

9. Day of farrowing induction and suckling pig performance
   (Abstract # 238 - H. M. Smith et al, University of Missouri) -
experiment on commercial farm to investigate the effects of inducing sows
on day 113, 114 or 116 on piglet survival and health. Involved 472 first and
second parity sows and records on 5493 piglets. Induction occurred at 0300
and 0600 on the treatment day using im injections of Lutalayse to sows that
had not farrowed or were not in labour. For the 113, 114 and 116 day
treatment gestation length was 114 (+/-0.62), 114.68 (+/-0.88) and
115.27(+/-1.32) for the 113, 114 and 116 treatment groups respectively.
The day of induction had no significant effect of litter size, mummies or the
number of piglets requiring treatment or on lactation performance. Sows
induced on day 116 (79.5% farrowed spontaneously) tended to have more
still born piglets than those induced on day 113.

Take home messages -

i. induction at day 113 has no adverse effects on reproduction
   or piglet performance or health
**Parity and birth and weaning weight on progeny performance**

A number of abstracts covered the effects of the pig’s early experiences on overall growth performance

1. **Effects of dam parity on litter performance and passive immunity (Abstract # 159-University of Nebraska- E.E. Carney etal)** - authors compared the performance and transfer of immunoglobulin in parity 1 and parity 4 progeny through to weaning at day 19. Progeny from parity 4 sows tended to be heavier at birth and at all time points throughout lactation compared to parity 1 progeny (P<0.0005). The concentration of IgA tended to be greater in the colostrum and milk from parity 4 sows (P<.09). Serum concentrations of IgG were also higher in the progeny of parity 4 compared to parity 1 sows (P<.02).

**Take home messages** -

i. the results tend to confirm those of Yvette Miller and Rob Smits for performance and suggest that passive immunity is affected by dam parity. This may help explain the higher mortality experienced by gilt progeny

2. **Effects of birth weight on performance to market (Abstracts 71 and 72-Purdue university and PIC -N Carolina)** - Alan Schienckel and other researchers investigated the effects of birth weight using a total of 1932 pigs. Models were fitted around the results - predicted 158 day weights and days to 125 kg had linear-quadratic relationships with birth weight (BW) and predicted that gilts with a birth weight of 1.0 kg would take 13.6 days longer to reach 125 kg than gilts with a birth weight of 2.0 kg. The results suggested that increasing the BW of pigs with below average birth weight would have greater impact on grower finisher performance than increasing the BW of pigs with average or heavier birth weight. The results also suggested pigs of light or below average birth weight would have a higher (worse) feed efficiency than those of average birth weight. The regression equations also predicted pigs of below average birth weight to be “fatter” than those of average BW though BW accounted for only 2-4% of the total variance in back fat depth.

**Take home messages**

i. We need to increase the birth weight, or alter the management, of the below average birth weight pigs - can this be done independent of all piglets in a litter?

3. **Effects of birth weight on the overall performance of barrows and gilts (Abstracts 124 and 125 Ellis et al -University of Illinois)** - the researchers reported the results of two intensive experiments. With barrows they investigated the effects of three birth weight groups (Light 0.9 kg ranging from 0.6 to 1.2 kg; average 1.6 kg ranging from 1.3-1.9 kg and Heavy 2.3 kg ranging from 2.0-2.6) performance to 145 kg. Light birth weight pigs grew slower and had a numerically poorer feed efficiency and carcass lean content. There were no significant performance differences between the average and heavy birth weight pigs. For gilts the researchers investigated two birth weight groups and two weaning weight groups on performance to 125 kg. The heavy and light birth weight group averaged 1.75 and 1.3 kg respectively. Within each group there were two weaning groups (2x2). These comprised heavy and light. The weaning weight differences were achieved by rearing pigs in litters of 6 or 12. Light birth weight pigs grew slower and had a lower fat free lean content in the carcass. Light birth weight pigs also
tended to be less feed efficient (P<0.06) than their heavier counterparts. Weaning weight had no effect on post weaning or overall performance.

**Take home messages**-

i. the results confirm the adverse effects of light birth weight on overall performance and carcass lean but suggest that weaning weight per se has little or no effect

ii. If the latter is true, are we wasting out time trying to increase weaning weight?

The only caution - the pigs were reared under experimental conditions not in the real world and the results differ from those of John Pluske from Project 2B-102.

**Paylean-Ractopamine**

There were a number of presentations and abstracts on Paylean.

All abstracts reported positive effects of Paylean on feed efficiency with the improvements over 21-28 day periods ranging from 8.6% to 26% (21 days). Paylean also always increased final carcass weight and carcass lean content. The most common Paylean dose was 7.5 ppm.

The more interesting abstracts were:

1. **Effects of dietary energy content and Paylean on the performance of pigs with a starting weight of 99.8 kg (Abstract # 154 Hinson et al - University of Missouri and Elanco).** The researchers investigated three dietary DE levels (14.46, 14.69 and 15.42 MJ/kg) and two levels of Paylean (0 and 7.4 ppm) on the performance and carcass traits of PIC pigs over a 21 day period. The pigs were housed in individual pens. There were no interactions between Paylean and dietary DE. Paylean improved carcass weight by 3.7 kg and live weight feed efficiency by 28% (from .303 to .387). Reducing dietary DE reduced carcass weight (P<.001) and feed efficiency (P<.002). **Take home messages** -

   i. remembering that starting weight was equal to slaughter weight in Australia the results suggest we might need to look at 7.5 ppm Paylean under Australian situations

   ii. they confirm the effects of higher DE diets (really high) for finisher pigs on carcass weight and feed efficiency (marked effect on carcass feed efficiency)

   iii. because of the very low DE diets used for finisher pigs in Australia, the lack of any interaction between Paylean and dietary DE may not apply to our situation

2. **The use of Paylean to enhance the environmental sustainability of pork production (Abstract # 161 - Ross et al, Prairie Swine Centre, Elanco and Iowa State University)** - the researchers investigated the effects of Paylean (0,5 and 10 ppm) and dietary lysine on the performance, N retention and water intake (balance) of pigs with a starting weight of 95 kg. Interestingly in a 15 day metabolism study Paylean improved feed efficiency in a dose related manner and reduced water intake and urine out put in a similar fashion (linear responses).

**Take home messages** -

i. to my knowledge the first time Paylean has been reported to affect water intake and could have implications for Australian pork production
3. **ZINPRO enhances the growth rate of pigs offered diets containing Paylean (abstract # 174 - Frank et al, University of Arkansas and ZINPRO)** - an interesting paper showing that Paylean at 5 ppm significantly improved carcass weight and feed efficiency and an interaction between ZINPRO (zinc methionine at 450 ppm) and Paylean with the combination significantly increasing carcass weight and growth rate compared to the controls or pigs offered diets supplemented with ZINPRO or Paylean alone.

*Take home messages - may be worth testing*

**PCV2 vaccines**

There were a number of abstracts on the effects of PCV2 vaccines on weaner, and overall, pig performance

1. **Abstracts # 7 & 8** - Two experiments conducted by Kansas State University showed that vaccinating pigs at weaning with PCV2 and/or Mycoplasma vaccines reduced subsequent growth and feed intake and the effects persisted to the end of the weaner phase (35 days) but declined in severity over time. The effects of the PCV2 vaccine was also product related with Circumvent PCV adversely affecting weaner performance but not CircoFLEX.

*Take home messages -*

i. we need to be aware that vaccinating weaner pigs can adversely affect growth performance

ii. There may be room for products that minimize these effects?

2. **Efficacy of different porcine circovirus vaccination regimens on pig performance (Abstract # 157-B. E. Bass - University of Arkansas)** - researchers investigated the effects of four treatments consisting of 1) a control (no vaccination) , 2) 1.0 ml injection of CircoFLEX (Boehringer Ingelheim) at weaning , 3) 1.0 ml injection of CircoFLEX at weaning and another 0.5 ml injection 21 days after weaning and 4) 2.0 ml IM injection of Intervet Circumvent PCV at weaning and 2.0 ml IM injection of the same vaccine 21 days later. Blood samples were drawn at 4, 10, 14 and 18 weeks of age to test for PCV titres. The herd involved in the study had never experienced any clinical signs of PCV disease. The vaccine treatments had no effect on performance during the weaner phase of production. All vaccinated animals grew faster than the controls during the grower-finisher phases of the study. The final body weights of the four treatments were 122.6, 127.5, 125.9 and 126.3 kg respectively (P<0.01). Carcass weight was increased by 4.5 kg across the vaccine treatments compared to the control animals but there were no differences in lean yield or in feed efficiency between treatments. PCV titres increased with time and pigs with the highest titres at 14 weeks had decreased growth and reduced weights at the end of the study. All vaccination treatments reduced the number of pigs with positive titres at 14 and 18 weeks of age.

*Take home messages -*

i. results tend to prove the efficacy of the vaccines available at least on growth rate though results might be expected to differ (they do because the vaccines reduce mortality) in herds with clinical PCV disease

ii. For Australia, it might be worthwhile having blood tested for PCV titres at 14-18 weeks of age to see if titres reach the levels reported in this study

a. Is it a problem?
b. Is it causing some of the poor performance we see after 70-75 kg in commercial facilities?

**Grower/finishers**

There were plenty of from papers on the responses of grower-finisher pigs to DDGS but nothing really new in the area.

**Glycerol and Paylean**

1. **Abstract # 110** - Researchers at Kansas State University (KSU) reported that adding 5% Glycerol to the diets offered pigs for 28 days starting at 90 kg improved feed efficiency and carcass yield and tended to reduce the adverse effects of Paylean on drip loss.

2. **Lysine requirements of PIC 337 sired gilts between 55 and 80 kg** - KSU researchers investigated the responses of gilts between 55 and 80 kg to five levels of dietary lysine in a commercial environment. The standardized ileal digestible (SID) lysine: DE ratios tested were 0.43, 0.48, 0.53, 0.58 and 0.64 g: MJ DE. Growth rate and Feed: gain averaged 950 g/d and 2.27 (approx 34.5 MJ DE/kg) and performance responses were maximized on the diet containing 0.58 g SID lysine.

3. **The Effects of extrusion of wheat and corn DDGS on nutrient availability for growing pigs** - Researchers from the University of Alberta compared the effects extruding wheat and corn DDGS using single and twin screw extruders on energy digestibility and the digestibility of eight amino acids. Extrusion increased the DE of both DDGS sources by 6% and the digestibility of Lys by 11%, Tryp by 8% and Met by 5% for corn DDGS but had no effect on amino acid digestibility of wheat DDGS.

**When old is new again - feeders and feeder adjustment to improve feed efficiency.**

A couple of ‘interesting” papers were presented by KSU students on the effects of feeder type and feeder adjustment on the performance of grower-finisher pigs.

1. **Comparison of Wet-dry and conventional (Staco) feeders on pig performance (Abstract# 183 - J. R. Bergstrom et al - KSU)** - two studies conducted in commercial barns with 22 pens per feeder and 28 pigs/pen. In the first experiment which was over 69 days starting at 32 kg pigs on the wet-dry feeder grew faster, ate more and were 5 kg heavier (103.1 vs. 98.2 kg) at the end of the study than those on the dry feeders. The second experiment was over a 104 day period and carcass details were reported. Again pigs on the wet-dry feeder grew faster, ate more feed and were 5.2 kg heavier at slaughter. However, pigs on the wet-dry feeders were less feed efficient and had a $4.89/pig higher feed cost than those on the dry feeder. Pigs on the wet-dry feeder also had a significantly lower carcass yield and a lower fat free carcass yield than those on the dry feeders. Taking into account the difference in feed costs and the lower carcass yield and premium received for pigs from the wet-dry feeders there was little difference in the net income received per pig between the two feeders.

**Take home messages** -

1. Clearly, feeder type can affect profitability, and wet-dry feeders (operated as wet-dry feeders) don’t necessarily improve profitability.
ii. the presenter also said that wastage from the wet-dry feeders was horrendous in late finishing

2. Effects of feeder adjustment on the growth performance of finisher pigs (Abstract # 184 - A. W. Duttlinger et al - KSU) - using dry Staco feeders the researchers investigated the effects of reducing the feeder opening on the performance of finisher pigs. Essentially feed disappearance and growth rate declined as the feeder opening was reduced with the best feed efficiency being achieved at feeder setting 3. The best or most accurate measure of the ideal feeder setting was the amount of feed covering the feeder pan - the level of coverage that gave the best overall performance (growth rate and feed efficiency) was 50-55% feed coverage (of the feeder pan).

Take home messages -

   i. Do we pay enough attention to feeder adjustment and make adjustment as the pig grows?
   
   ii. the feeder pan coverage, as an indicator of optimal feed availability, is a simple means of knowing where you’re at but somebody has to do it

Glycerol

Based on the number of papers on the use of Glycerol you might assume the cost of tallow and other fats has declined. The overall results suggested that up to 10% glycerol can be used in grower-finisher and sow diets without adverse effect on animal performance though as mentioned previously KSU researchers reported positive effects of adding 5% Glycerol to finisher diets.

1. Weaners- Abstract # 169

researchers from North Carolina State University reported on the effects of adding Glycerol to the diets offered pigs for the first 14 days after weaning. They used 0, 2.5, 5.0, 7.5 and 10% Glycerol to replace the same amount of lactose (reduced from 20% in the control diets) and had positive (20% lactose) and negative (10% lactose) control diets without added Glycerol. All diets were balanced with respect to salt and water to allow for the effects of added Glycerol on both nutrients.

The diets were pelleted and adding Glycerol to the diets reduced pellet mill electrical usage by up to 53% with increasing level of Glycerol.

Growth rate and weights at 1, 2 and 3 weeks after weaning and feed intake increased linearly with increasing Glycerol but there was no difference in the performance of pigs offered the diets containing 10% or 20% lactose so the changes in performance reported were associated with Glycerol.

Supplementing the diet containing 10% lactose with 10% Glycerol increased body weight at 2 weeks after weaning, increased growth rates in the first and second weeks after weaning and for the first 2 weeks and improved feed efficiency during the same periods compared to the negative control. Serum Glycerol levels during the two week period increased linearly from 7.1 to 96.9 mg/ml as the level of Glycerol increased from zero to 10%.

Take home message

The results suggest that Glycerol may have a performance enhancing role in weaner diets and that the effects are independent of lactose -
the Glycerol used in the study contained 86.95% glycerol, 9.22% moisture, 1.26% sodium, 1.86% chloride and 280 ppm ethanol.