	Mean	CV, %	NRC (1998)	BSAS (2003)
Growing-Finishing:				
Iron	94	35	60	80
Copper	99	47	4	6
Zinc	109	30	60	100
Manganese	46	18	2	30
Selenium	0.19	47	0.15	0.20
Iodine	0.77	44	0.14	0.20
Cobalt	0.27	62	-	0.20
Sows:				
Iron	82	27	80	80
Copper	16	64	5	6
Zinc	105	21	50	80
Manganese	55	25	20	20
Selenium	0.22	47	0.15	0.25
Iodine	0.95	35	0.14	0.20
Cobalt	0.41	61	-	0.20

Table 1. Composition of trace mineral premixes in mg/kg of feed for growing-finishing pigs and sows in the Iberian Peninsaula (Mateos et al., 2005).

Matching minerals to the modern growing pig

Dr Jules Taylor-Pickard
Alltech Biotechnology Centre, Ireland

Minerals play a number of important roles in animal metabolism. The form and/or level of trace minerals in the diet can, however, have a deleterious effect on pig performance and on the environment. There are now strict guidelines on how much copper (Cu) and zinc (Zn) can be added to pig diets in the European Union, and anecdotal evidence that there has been a decline in performance since these new regulations were adopted. In addition, the pig industry must increase productivity and profitability to remain competitive, and understanding the pigs' requirement for minerals is an important component of this.

Establishment of requirements

The numerous functions of trace minerals in animal physiology is well established and documented, and there is little disagreement about the level required to overcome a deficiency. However, much of the research was conducted more than 30 years ago. Van Lunen and Cole (1998) have suggested that the mineral needs for growth in the modern fast-growing pig are about twice the level required by the slower growing pigs of some 20-30 years ago. Unfortunately, establishing the requirement for individual minerals is expensive and complicated research to conduct, let alone take into consideration the impact of factors such as health status, raw material composition, genotype and environment. As a consequence we have a poor understanding of mineral requirements for maximum productivity.

What levels are industry using?

In an extensive review of how trace minerals are used in industry, Mateos et al. (2005) recorded the mineral content of a total of 32 premixes of minerals being used by the commercial industry in Spain and compared this to recommended values (Table 1). The concentration of trace minerals used by industry was generally higher than that recommended by research institutions. The biggest differences observed were for Cu and manganese in sows and for cobalt and iodine in all classes of pigs. This practice suggests a lack of confidence by industry in the recommendations currently available.

Since inorganic trace minerals are relatively inexpensive, does it matter if higher than required levels of trace minerals are used in the diet? In a study with sows over ix parities conducted by Peters and Mahan (2006), NRC (1998) standards for dietary trace minerals were compared with what was considered to be normal industry standards (Table 2). The same study evaluated inorganic and organic sources of trace minerals (Cr, Cu, Fe, Mn, Se and Fe). Reproductive performance of animals over six parities

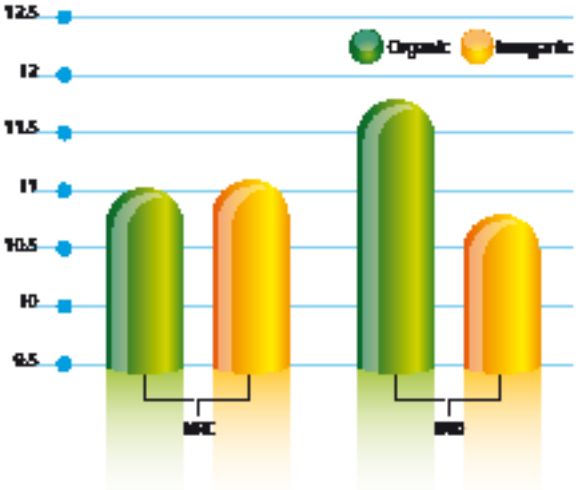


Figure 1. Reproductive performance of sows over two parities provided either inorganic or organic trace minerals at levels recommended by NRC (1998) or by Industry (Mahan and Peters, 2006).

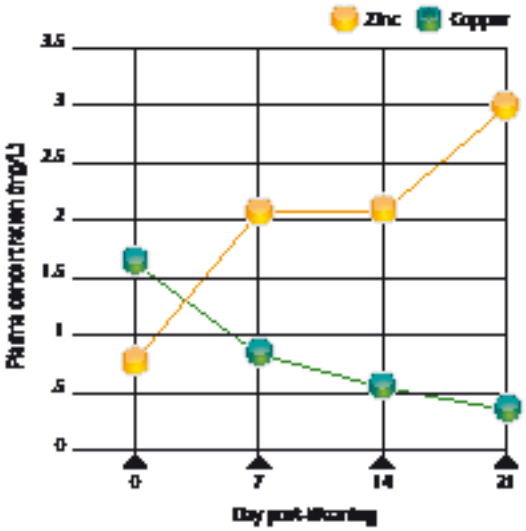


Figure 2. Plasma concentration of Cu and Zn in piglets post-weaning when fed a diet containing 3kg/tonne of zinc oxide

was improved when trace minerals were fed in the organic form, but performance was reduced when the industry average levels were provided (Figure 1). Mahan & Peters (2006) suggest that when additional inorganic trace minerals are added to the diet at "insurance levels", they may in fact contribute to the accumulation of free radicals which can result in a decline in performance when the animal is placed under stress. The findings of Mateos (2005) and Mahan & Peters (2006) highlight the importance of both mineral form and concentration if we are to achieve maximum productivity.

Mineral	NRC (1998)	Industry and University
Copper	5	10 – 20
Iodine	0.14	0.15 – 0.20
Iron	80	100 – 200
Manganese	20	40 – 80
Selenium	0.15	0.2 – 0.5
Zinc	50	100 - 150

Table 2. NRC (1998) mineral levels (ppm) and those recommended by Industry and University nutritionists (Mahan & Peters, 2006) for the breeding sow.

Public concerns are mainly related to soil (accumulation and runoff of minerals from land where manure is applied), water (surface and ground water), and air quality environmental issues (Stalder et al., 2004). While it is possible to reduce the environmental impact of minerals by the treatment of effluent, a more sustainable approach is to reduce the concentration in effluent by either feeding the animal closer to its requirement and/or improve the bioavailability of these minerals to the animal (Mullan and D'Souza, 2005).

Organic versus inorganic minerals

Inorganic salts, such as sulphates, carbonates, chlorides and oxides are traditionally added to the diet to provide the assumed correct levels to meet the animals' needs (Henman, 2001; Close, 2003). These salts are broken down in the digestive tract to form free ions that can form complexes with other dietary molecules, making them more difficult to absorb.

The free ions are also very reactive and interactions between various minerals have to be taken into account when developing a nutritional program. For example, when Mullan et al. (2002) fed diets containing 0, 1.5, 3.0 or 4.5 kg/tonne of zinc oxide (ZnO), the concentration of Zn in plasma increased. However, there was a negative correlation between plasma Zn and plasma Cu; a 3-fold increase in plasma Zn corresponded to a 4-fold decline in plasma Cu, sufficient enough for individual pigs to be deemed Cu deficient.

Interactions such as these may explain why at times animals do not respond to an increased supply of an inorganic mineral in the way that we might otherwise expect.

Inorganic minerals may also interact with other components in the diet thus influencing their bioavailability. For example, phytate has a high binding affinity for copper and zinc (Mateos et al., 2005). Through better availability, organic minerals can replace inorganic sources at a lower level while performance is maintained or enhanced (Fremaut, 2003). Organic minerals are also less reactive with other minerals, making the design of a mineral supplementation program much more reliable.

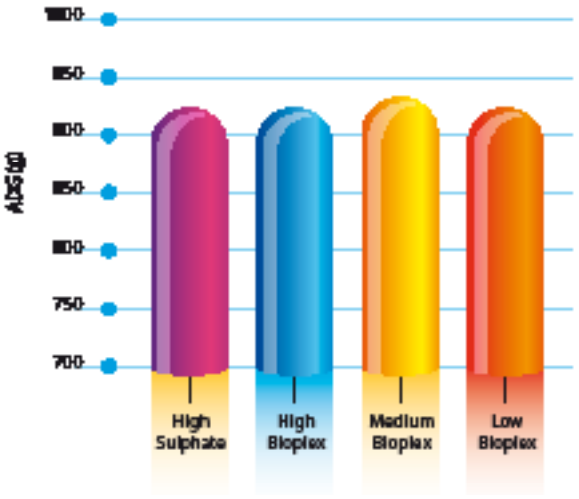


Figure 3. Average daily gain (ADG) of pigs from 16 to 107 kg liveweight fed diets containing different concentrations (ppm) of Cu and Zn (High, 160 and 160; Medium, 80 and 80; Low, 25 and 40, respectively) in either the inorganic (Sulphate) or organic (BioplexTM) form (Hernandez et al., 2006).

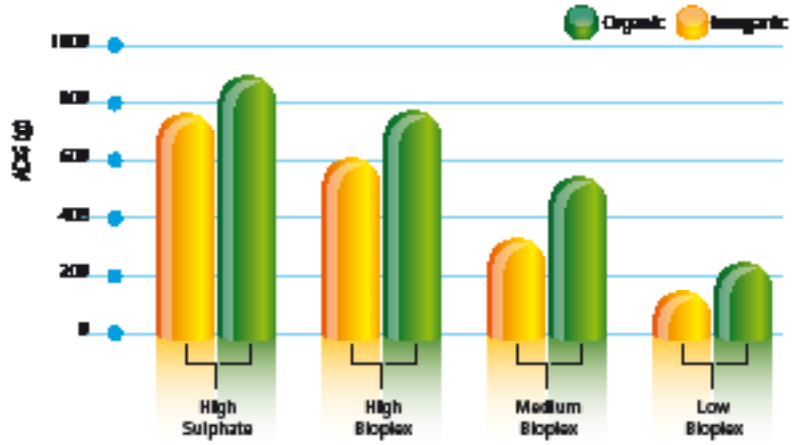


Figure 4. Faecal concentration of copper and zinc for grower pigs fed diets containing either organic (BioplexTM) or inorganic copper and zinc at different concentrations (Hernandez et al., 2006).

Role of organic minerals in the pig industry

Since organic minerals are more expensive to add to diets than are inorganic minerals, it is important to balance the additional cost against benefits in pig performance, product quality and via a reduced impact on the environment. In a recent experiment, Hernandez et al. (2006) compared Cu and Zn provided in either the inorganic or organic (Bioplex) form to pigs from 16 to 107kg liveweight. Neither the form of trace mineral nor the concentration in the diet had any significant effect on growth rate, suggesting that higher concentrations of inorganic minerals can be replaced with lower concentrations of organic Cu and Zn without any detrimental effect on performance (Figure 3).

However, by using the low level of organic Cu and Zn it was possible to reduce the concentration of Cu and Zn in faecal material by 83 per cent and 65 per cent, respectively, compared to when the high level of inorganic minerals were fed (Figure 4). Numerous studies have now been completed to compare pig performance when the traditional inorganic forms of Cu and Zn are replaced with the same or lower concentrations in the organic form. The vast majority of studies have shown no compromise to pig performance but a large reduction in faecal output when the organic form is fed. Future studies need to look more specifically at the requirement for these organic trace minerals under a range of production conditions. There is increasing pressure on the pig industry world-wide to become more efficient and to reduce the cost of production, while reducing the impact of the industry on the environment. At the same time the industry needs to improve the eating quality and nutrient value of the food it produces to match consumer expectations.

A number of technologies, such as computer modelling, feed enzymes and organic minerals can be used to help achieve this goal. However, in most instances the cost benefit of making a change is not obvious and hence uptake of these technologies is slow. Ultimately it will be through a well-managed program of research and development at all levels, backed up by independent technical support that will see the pork industry receive the recognition it deserves as an important supplier of dietary protein.

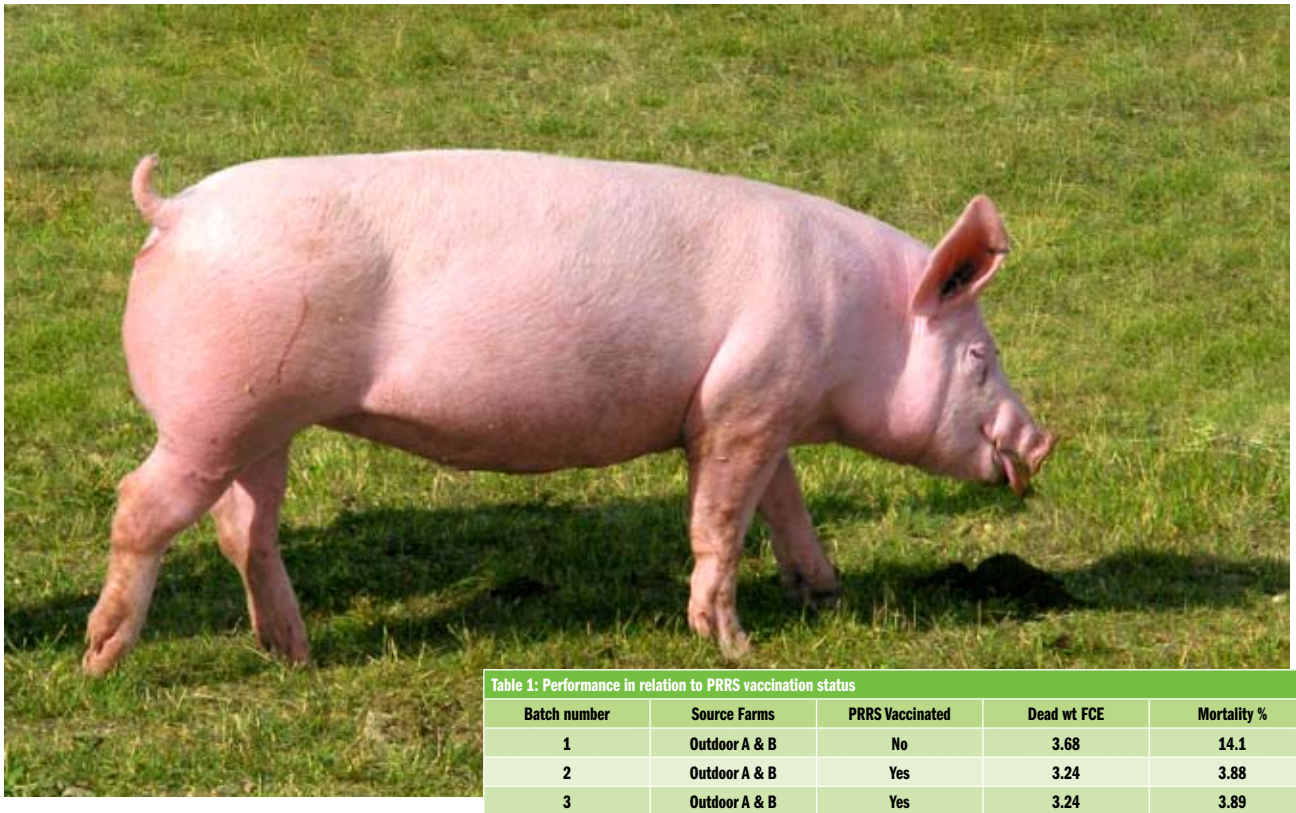


Table 1: Performance in relation to PRRS vaccination status

Batch number	Source Farms	PRRS Vaccinated	Dead wt FCE	Mortality %
1	Outdoor A & B	No	3.68	14.1
2	Outdoor A & B	Yes	3.24	3.88
3	Outdoor A & B	Yes	3.24	3.89

Firewall tactics from PRRS vaccination strategy

Pig mortality clearly has a financial penalty, however, the angst that these escalating or persistently high mortality rates can cause owners and stock people is also very considerable.

John Richardson,
Pig Business Manager at Intervet.

This was the situation for William Childerhouse on his 1,200-place pig-finishing unit in East Anglia. William's business contract finishes pigs for production and processing company Bowes of Norfolk. His straw-based, scrape-through system - typical of many farms in the area - houses between 20 and 40 pigs a pen. The unit follows all-in; all-out principles and is depopulated after each batch of pigs. Buildings are thoroughly cleaned and disinfected, to a very high standard, allowed to dry, and rested before re-stocking.

Pigs enter the unit at around 35kg and are usually supplied from two outdoor breeding units. Both are routinely tested for PRRS and are shown to be negative. The growers perform well, in terms of growth rate, and mortality for around six weeks. However, at between four and six weeks post entry, they begin to cough, succumb to respiratory infections, which is soon followed by a late onset PMWS. PDNS is also evident and thought to be a result of underlying PCV2.

Herd vet Ian Dennis MRCVS, of the Oakwood Veterinary Group, initially prescribed in-feed antibiotics to tackle the respiratory disease complex. Several of the latest high-potency injectable antibiotics were also used, but results proved inconsistent and had little impact on overall pig performance. With mortality touching 14 per cent, losses amounting to up to 175 pigs a batch and a Feed Conversion Ratio (FCR) of 3.68 per pig (on dead-weight calculations). The disease complex needed addressing and something radical had to be done, said William.

Further investigation

Ian suggested further investigations and so pigs were blood tested on entry to the unit. The same pigs were then sampled again six to eight weeks later. Apart from the usual serology, the samples were also run through Intervet's PRRS VetCheck service at Sci-Tech Laboratories. This free diagnostic service provides results within 24 hours - which is just what you want when you are trying to identify the cause of a problem on farm, says Ian Dennis.

"The results proved to be very informative. All pigs sampled were found to be PRRS negative on entry, but at around six weeks later a high percentage of them were PRRS positive," he explains. Further investigations, on a number of pigs sent to the VLA at Bury St Edmunds, confirmed the prevalence of both PRRS virus and PCV2. A result that puzzled both Jim Burling, Bowes pig production manager and Ian Dennis. How could pigs supplied from two confirmed PRRS negative sources and then housed in a fully sanitized, isolated unit contract PRRS virus within eight weeks post arrival?

Both Ian and Jim considered the likely sources of risk to be from pigs,

people, feed lorries and residual PRRS virus contaminating the buildings. They ranked the factors in order of transmission potential and drew conclusions. Due to the repeated pattern in which the respiratory breakdowns occurred, they both agreed that residual PRRS contamination of the buildings was the 'most likely' cause of disease. It was decides to start a vaccination policy with the next batch of pigs using Porcilis PRRS vaccine The pigs were vaccinated on entry to the unit using Intervet's patented intra-dermal vaccination gun (IDAL). The vaccine is 'blown' at extremely high-velocity through the skin without actually having a needle puncture the dermal layers as with a traditional intramuscular injection. The process is swift and hygienic - there is no risk of transmitting infective material from pig to pig. And, as the IDAL gun does not use needles there is no need to stop and change them, so enables rapid vaccination with minimal stress. It took staff at the Childerhouse unit less than four hours to vaccinate approximately 1,200 pigs weighing 35kg by using the IDAL gun.

Improvements

The performance of the first two vaccinated batches of pigs through the system was monitored closely. Both showed good performance and were very consistent. For the first batch FCR to 73kg dead weight was 3.24 and mortality was a commendable 3.8 per cent, which was a substantial improvement compared with the previous unvaccinated batches. The benefit, excluding improved growth rate, was calculated to be worth £7.88 a pig - proving the vaccination policy was economically worthwhile. In this case, vaccinating PRRS negative pigs was aimed at protecting all of the stock against infection - because on this unit it was felt that some of the pigs were managing to contract the virus from the environment. The vaccination policy, when supported by thorough cleaning and hygiene protocols, produces an effective 'fire-break' and so prevents PRRS from infecting the stock and existing as residual infection. Results from the above batch and those of the subsequent two unvaccinated groups of pigs are shown in the table.
Blood sampling showed that these batches remained serologically negative for PRRS virus. The subsequent batches of pigs brought into the unit were not vaccinated and the health status and performance has been sustained.

Combined approach

The results from Childerhouse's unit demonstrate that PRRS virus can be effectively removed from the disease complex by using a combination of thorough clean-down procedures and by vaccinating with Porcilis PRRS for at least two consecutive batches of pigs finished through the farm. But PRRS vaccination of growing pigs need not be a permanent policy.
The vaccine can be used as a tool to break the disease cycle.
Ceasing vaccination certainly can be considered, as long as routine monitoring of both PRRS status and the performance of successive batches is carried out. It can then be re-introduced in subsequent batches if records indicate a dip in performance. However, it is vitally important for producers to seek veterinary advice before changing any vaccination policy.

Increasing feed prices

a need for improved efficiency

With the current climate of increasing feed prices and the resulting impact on the cost of production, what can you do about it? By BPEX

Feed costs represent nearly 80 per cent of the variable costs of producing a pig and 50 per cent of total costs. Consequently, fluctuations in feed prices have a greater impact on production costs and on profitability than any other single factor. Between August 06 and August 07 wheat prices doubled, adding, in the UK, more than 30p/kg to the cost of production (COP), which could lead to losses averaging £22 per finished pig. Although reducing COP can take the form of reducing input prices, for example switching to a cheaper ration or by purchasing in larger quantities, it can more often involve improvements in technical performance.

Environment

Many nurseries have the minimum ventilation set at, or above, 20 per cent. However a clean, dry ready-to-stock nursery should not require more than five per cent of the installed ventilation capacity initially, reducing energy use by up to 75 per cent!

Creep Heating

Enclosing creeps and controlling the heating system using a simple dimmer switch and thermostat can save you up to 50 per cent compared with running the heating on manual.

Water

The intake of water is crucial as it drives feed and therefore growth rate, check availability and flow rates and ensure that the routine cleaning policy includes all water systems being cleaned and flushed on a regular basis (at least between each batch) and that header tanks have intact covers.

Hygiene

Follow an all-in-all-out policy wherever possible. Clean and disinfect buildings and pens between batches. Review your cleaning policy with your vet, ensuring cleaning is effective and that the appropriate disinfectants are used, at the correct dilution rates. The improvements in growth rates and efficiency related to health and hygiene from cleaner systems have been demonstrated on many units.

Movement and mixing

Reducing moves, minimising mixing, keeping variation to a minimum and enforcing actual all-in-all-out policies, will all help to improve health, minimise stress and increase growth rates and efficiency. Review your current pig flow.

Feed

Estimate feed intake: Devise a way to measure the feed intake of the whole building, or individual pens. Regularly checking feed intake will help in optimising diet formulations and will enable fluctuations to be detected, helping the identification of likely causes of reductions or increases. Discuss this with your nutritionist/feed supplier.

Correct diet specification

Review your feed strategies with your nutritionist or feed supplier. Ensure the diets and timing of diet changes match your pig flow, age of pig and actual growth rates. If you have a fixed policy on changing diets, ensure that this is regularly reviewed to reflect actual changes on the farm, which may have affected growth rates. Remember the cheapest is not always the best - the value of performance must be taken into consideration along with the feed programme. Discuss the possible benefits of feed additives specifically for your unit with your nutritionist.

Long-term planning

It is clearly to the advantage of the pig producer to minimise the variation in future feed costs.

This is essentially done by 'locking in' prices. Although future prices may be locked in at higher than current prices, this should be more than outweighed by the knowledge of what your future feed costs are going to be.

This knowledge is essential to successful business planning.

Management

Labour - invest in training

Many producers who have already done so have seen up to an 18 per cent increase in the number of pigs achieving premium payment grade and the cost of labour reduced by 27 per cent through improved output and more efficient methods of working. Not only can training help raise self-esteem and motivate staff, but also as a direct result, output can be improved.

Health

Any health challenge can affect performance and efficiency.

Selection for slaughter

Much of the cost and effort put into producing pigs is lost at this final stage. Reviewing and making simple changes to management procedures can however make a substantial difference to the number of pigs 'in the box' and subsequent payments.

The first step is to increase and optimise the number of pigs meeting the top grade of your contract. Are finishing staff aware of the parameters and what gains can be made from getting more pigs within them?

Weigh your final stage finishers regularly and mark up ones that are ready for the next slaughter load (bearing in mind daily liveweight gain).

Slaughter weights need to be optimal for both your system and the contract; overweight pigs have a negative effect on the value of the carcase but can easily be avoided. The importance of P2 must also be considered, high P2 measurements are indicative of a deterioration in efficiency.

Genetics

The new sire lines can achieve better growth rates, are you using the most appropriate genetics for your system to improve output of farm and improve feed efficiency? Consider reviewing this in the long term and discuss with your breeding company.

Herd ID	No. Sows	Born Alive	Weaned per Litter	Litters per sow per year	Weaned per sow per year
Closed Herd	1100	12.7	11.6	2.36	27.4
Closed Herd	2500	12.4	11.3	2.30	26.0
Closed Herd	800	12.0	11.2	2.38	26.7
Closed Herd	255	13.3	12.3	2.40	29.5
Closed Herd	1100	12.1	11.3	2.40	27.1
Closed Herd	2400	12.3	11.0	2.41	26.5
Closed Herd	1300	12.3	11.3	2.40	27.1
Closed Herd	1000	12.2	11.2	2.38	26.7
Closed Herd	1100	12.5	11.6	2.40	27.8
Closed Herd	650	12.6	11.3	2.39	27.0

Hermitage closed herd BLUP system

Ronan P. Murphy M.Agr.Sc.

BLUP (Best Linear Unbiased Predictor), is a tool used to predict the genetic merit of animals based on their on-farm performance for a group of traits of economic importance to the pig industry. By combining data on each animals individual performance and on all their relatives performance, an E.B.V. (Estimated Breeding Value), is calculated for each animal, thereby ensuring that the genetically superior animals are always selected and the maximum rate of genetic progress is achieved each generation.

BLUP, therefore can be defined as a computer package that uses the performance of all relatives as well as the individual animals own performance, to predict the economic value of the animal.

Hermitage have developed their own unique BLUP programme, specifically designed to meet the requirements of their customers.

The Hermitage BLUP system is specific to both the maternal and terminal populations:

M.L.I: Maternal Line Index – This index focuses specifically on the maternal traits including: born alive, feed intake, litter weight, growth rate and backfat ensuring that the top performing maternal line animals are selected each generation.

T.L.I: Terminal Line Index - This index focuses specifically on the terminal traits including: growth rate, feed intake, FCE, backfat, muscle depth and lean percentage ensuring that the top performing terminal line animals are selected each generation.

How does it work?

Each animal is identified with a unique tattoo number at birth.

This number is registered in the Hermitage BLUP system.

The programme then examines all the records in the Hermitage database, analysing the performance of the individual animal and all relatives of this animal across Hermitage herds worldwide. Economically weighted values for each measured trait are then calculated and finally a single Breeding Value (B.V.) for the selected animal is created.

What is the benefit?

The accuracy of selection is significantly increased as the Breeding Value includes information on the animals own performance and on every related animal in the Hermitage pyramid.

This helps to eliminate the confounding effects of environment etc. when estimating the animals genetics potential. The final result is that the true genetically superior animals are selected each generation.

Hermitage Closed Herd GGP/ GP BLUP Package:

In this system, the herd contains a nucleus of purebred sows (GGP/ GP) which are used to produce the replacements for the sow herd. The Hermitage technical team will setup and run the BLUP for the herd, generating the Breeding Values and ensuring that the best sows in the herd are selected based on their own performance, the performance of their relatives in the herd and the performance of their relatives in the Hermitage database.

A list is then produced each quarter, which ranks the sows in the herd according to their Breeding Values and in turn a mate selection matrix is produced identifying the best AI boar to use on each GGP/GP sow in the herd to ensure maximum genetic progress each generation, thereby maximising the units physical performance and economic returns.

Conformation

In addition to the Breeding Values and Performance results, intensive selection for overall conformation (feet, legs, teats and general body conformation), is a key component of the breeding programme. Every animal in Hermitages GGP pyramid is individually scored for these physical traits. Commercial Herds Performance using Hermitage Closed Herd BLUP Programme:

IFA says €400m needed to save pigmeat sector

'30 per cent of pig producers will exit the sector in the next year'

IFA President Padraig Walshe has warned that without focused Government action, the €400m pig industry here is facing wipeout because of crippling feed costs and consumer confusion over the origin of pigmeat.

Opening a briefing session for Oireachtas members in Dublin recently, Mr Walshe said: "the Government must act on a number of fronts if the pigmeat sector is to survive.

Feed costs have risen by €100 per tonne and the average producer is losing €3,000 a week, a situation that is unsustainable.

The decision to abstain on the crucial vote at last month's Farm Council meeting to accept scientifically approved maize and corn gluten for circulation in the EU smacks of hypocrisy and leaves our pig producers exposed to cost increases they cannot absorb." Mr Walshe said it is time to end the double standards associated with feedstuffs and allow pig producers a margin that will keep them in business.

The IFA President said country-of-origin labelling must be extended to pigmeat as a matter of urgency. "Processors which use imported meat are not informing consumers about the origin of the pigmeat.

A recent IFA survey showed that two-thirds of respondents felt misled when it was revealed that some traditional Irish labels did not contain 100 per cent Irish meat. The Bord Bia logo can be used only for Irish meat and processors can clear up the confusion which exists by correctly identifying the origin of all meats including imports," he said.

IFA Pigs Chairman Michael Maguire said that 7,000 jobs in the pigmeat sector are at stake unless country-of-origin labelling is introduced. He said, "Consumers must be in an informed position on Quality Assured and fully traceable Irish pigmeat.

That is not the case when inferior imports are stacked on the same supermarket shelves."

Mr Maguire said pig producers have to carry out major investment to meet environmental regulations. "The Department of Agriculture must promote organic manure as a preferential fertiliser," he concluded.

The numbers at a recent pig sector meeting, in Roscrea, highlighted the seriousness of the crisis within the industry, according to the IFA President.

The consensus from the meeting was that Irish pigmeat producers and processors could reclaim the Irish market through a revamped marketing strategy by Bord Bia, according to Mr Maguire.

Speaking at the meeting a senior AIB bank official stated that they expected to see 30 per cent of pig producers exit the sector in the next year. Supply and demand will lead to an inevitable rise in pigmeat prices similar to the effect that it had in the UK in 1998. However, should Irish meat secure a stronger footing in the retailers, the national herd can be maintained.

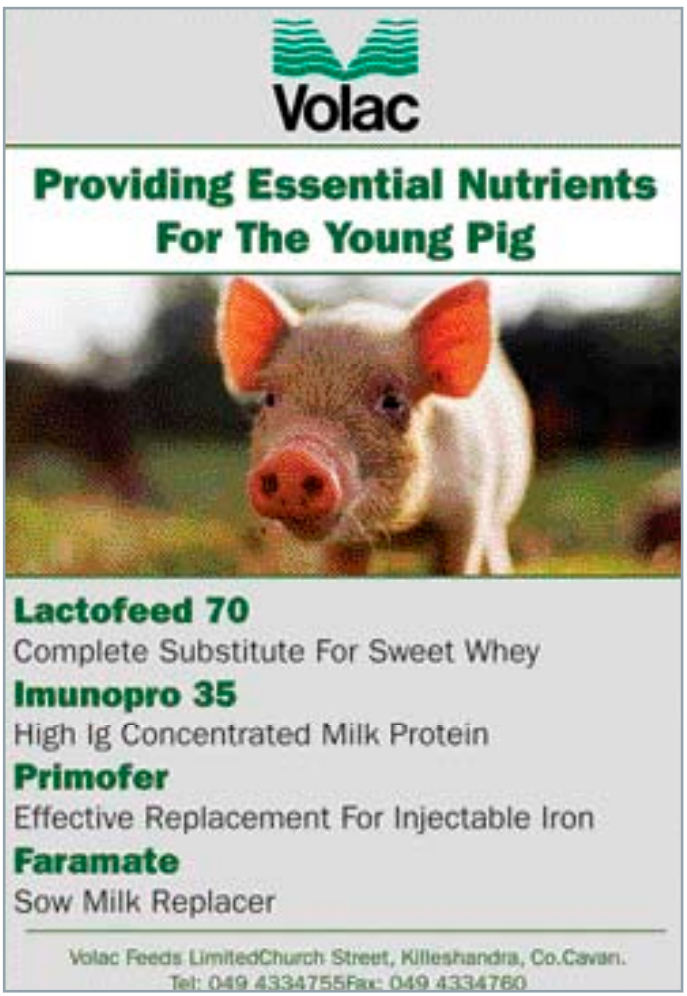
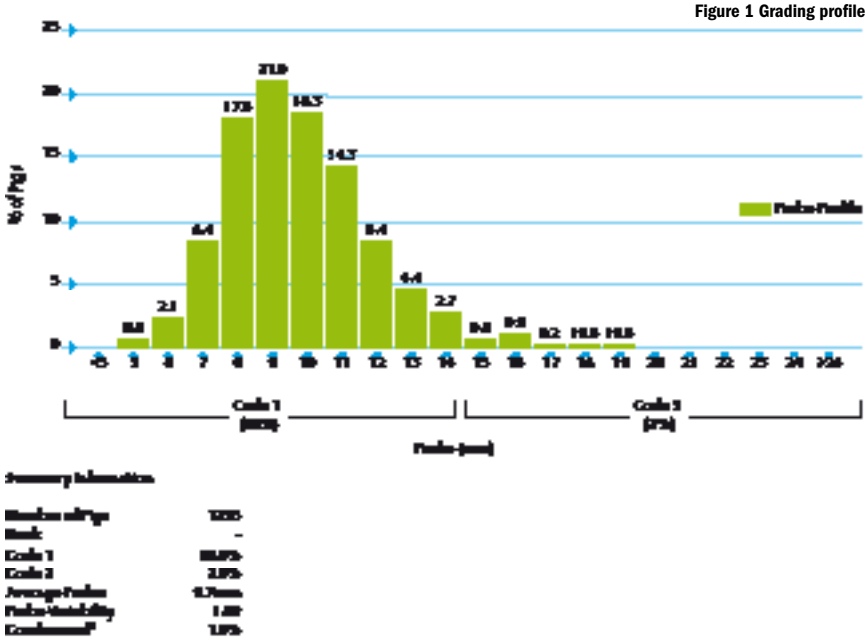


Figure 1 Grading profile



Marketing pigs to maximise profit

Dr Mark Hawe and Liz Donnelly
Greenmount Campus, CAFRE
Northern Ireland

Producers and processors involved in the pig industry share the common goal of improving carcase quality. To achieve this, producers need timely access to accurate carcase information. This enables them to identify where improvements can be made and quantify the effects that changes on the farm have on carcase quality.

Current situation

In Northern Ireland, as elsewhere, producers currently receive individual carcase details for their pigs including weight, P2 fat measurement and condemnations from the processing plant. A basic summary showing averages for these measurements is also provided. This information while useful is limited, with no easy way to compare either changes in carcase quality over time, or individual producers against the "best" producers. This limitation has been overcome by the development of the Pig Grading Information System (PiGIS), which was recently launched in Northern Ireland. This is a tailor-made computer programme that assists both producers and processors in Northern Ireland to assess and benchmark carcase quality, allowing improvements to be quantified. A key feature of PiGIS is that kill data relating to weight, grade and condemnations are directly uploaded from all pig processing plants in Northern Ireland to a central benchmarking database.

This information can be accessed by registered producers in Northern Ireland via the internet at www.ruralni.gov.uk/pigis. Each producer has an individual identity and password which allows secure access to their data only, from their home computer on a "real time" basis. The programme has been developed to be easy to use, totally flexible and provide analysis which is self explanatory.

PiGIS reports

Through PiGIS, producers can assess the quality of carcases supplied over any given time period, providing total flexibility. Figure 1 shows a typical PiGIS report. In this case the range in probe measurements for 1256 pig carcases supplied by one producer over a specified

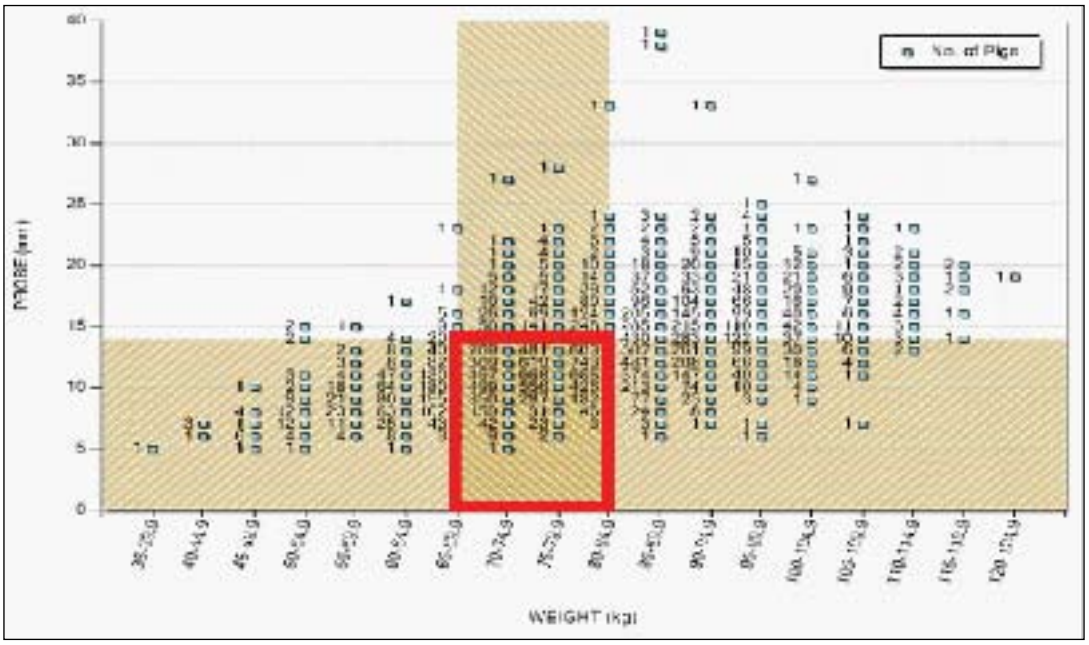
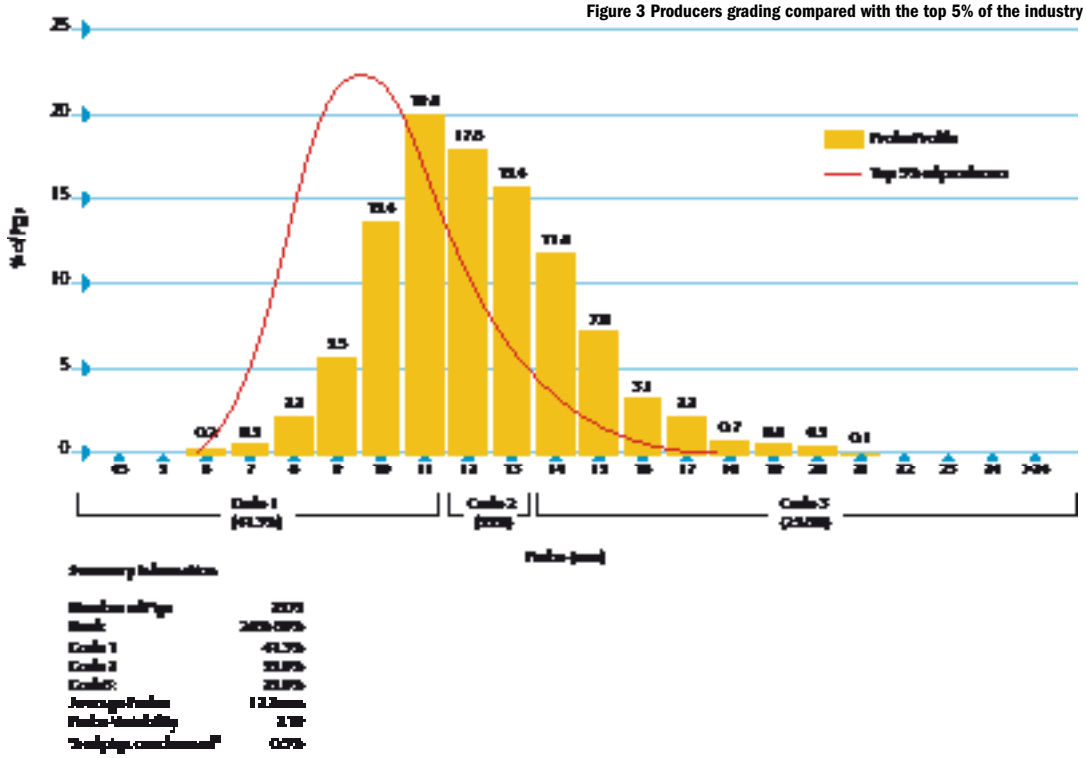


Figure 2 Percentage of pigs in the Golden Box limits

Figure 3 Producers grading compared with the top 5% of the industry



time period is illustrated.
The percentage of pigs in each probe category is shown as a bar-graph. More detailed information is provided in the accompanying summary table including average probe measurement, variation in probe and the percentage of pigs in each grade. Similar information can also be obtained for carcase weight.
The result of on-farm changes which influence grading, weight and thus financial returns can also be identified using PiGIS. For example, the effect of changes in genetics, nutrition and slaughter weight can be easily and quickly quantified using the programme to compare carcases from one time period against another. From this, the optimum slaughter weight to reduce penalties can be identified.

The 'Golden Box'

The 'Golden Box' facility quantifies the number of carcases within more stringent specifications. In Northern Ireland, contracts currently provide bonus payments for pigs within ' tighter' weight and grade ranges. Through PiGIS, producers can quantify the proportion of carcases that receive these payments. A typical report is shown in Figure 2, where 35 per cent of pigs are in the Golden Box range from 65kg to 80kg with probe measurements of 14mm or less. The benefits of farm changes can be determined by the effect on the proportion of 'Golden Box' pigs.
Compare with the 'rest or the best'
Using the powerful benchmarking facility within PiGIS producers for the first time, can compare or benchmark the quality of their carcases with 'the

rest or the best' in the industry over any time period. With this facility producers can compare the weight, grade or proportion of 'Golden Box' pigs with any proportion of the industry. For example, the percentage of pigs in each grade supplied over any time period chosen can be compared with the industry as a whole or the top five per cent, 10 per cent, 20 per cent etc. A typical benchmarking report is shown in Figure 3. In this example the grading profile for the individual producer is shown as a bar graph, with the top five per cent of producers, shown as a curve. More detailed information on average values, variation and percentage of pigs in each grade is easy to extract from the summary table.

By using either weight or grade, producers can immediately identify how their pig carcase quality compares with the best in the industry and where necessary, take appropriate action to address any problems. Similarly marketing groups can use PiGIS to compare the quality of individual member's pigs with all pigs marketed by the group. Alternatively the quality of the group's pigs can be compared with the whole industry.

Processor activity

A 'local' version of the programme (i.e. not connected to the internet) is available for processors to assess and benchmark the carcase quality of pigs slaughtered in their plant. The processor can rank producers either by carcase weight, grade or level of condemnations. The PiGIS program can thus assist processors to match pigs supplied by a particular producer to customer requirements, thus allowing them to target carcases for specific market outlets. Additionally, PiGIS enables processors to work with and assist producers identify problems in their supply of pigs, highlighting areas for improvement. This allows the industry to collectively work together for mutual benefit and strengthen the pig meat supply chain.

Industry analysis

The programme also allows the assessment of population parameters for the national supply. Changes in carcase weight or grade can easily be assessed for large numbers of pigs over any time period. This information can be relayed to producers, allowing them to take corrective action and to be more pro-active in subsequent years.

The Northern Ireland pig industry is confident that with PiGIS, both producers and processors have a tool to help them improve the quality of Northern Ireland pig carcases and thus the performance of the pig sector in the market place. To view a demo of the PiGIS software, visit www.afbini.gov.uk/pigis

Talking pig health at the producers' meeting in Cahir, Co Tipperary are John Moloney, InterChem, John Lyons, farmer and Ifor Phillips, Fort Dodge Animal Health.

Planned programme for Glasser's disease

Glasser's Disease poses a threat to profitable pig production in Ireland, but a planned programme of vaccination can help prevent the problem.

Thus Mark Mombarg, a specialist pig vet from the Netherlands, brought good news to a meeting in Cahir, Co Tipperary attended by producers from across Munster.

"The signs and symptoms of Glasser's Disease vary considerably depending on where in the body pathogens first appear," Mark explained. "For example, if causal agent H. parasuis infects the blood then typically sudden death occurs two weeks after weaning; often so quickly that symptoms other than eyes starting to swell do not have time to appear.

"Pathogens elsewhere in the body can produce a range of symptoms such as laboured breathing, swollen joints and a lack of coordination. At times these can seem similar to symptoms associated with a number of other conditions such as swine oedema disease, so diagnosis should be carried out on a number of pigs. "Apart from mortality, that can reach 50% in acute cases, Glasser's Disease cuts profits by leaving producers with pigs that fail to thrive as feed conversion efficiency worsens and spending on antibiotics, to treat the symptoms, escalates," the Dutch vet warned an audience owning almost 10% of the entire Irish pig herd.

"Add to this wasted time and the damage done to your reputation with finishers and processors and it is clear Glasser's Disease must be prevented.

"Well the good news is that the world's first commercial vaccine offering H. parasuis protection will become generally available to Irish pig producers in the not too distant future. Until now supplies of Suvaxyn M.hyo-Parasuis in the Irish Republic have been limited and are currently only available from your veterinary surgeon on a special licence. The vaccine has now gained full Marketing Authorisation in the UK and Marketing Authorisations for the rest of Europe, including Ireland will follow."

Distributed by InterChem Ireland Ltd, Suvaxyn M.hyo-Parasuis comes from the world's largest vaccine manufacturer, Fort Dodge Animal Health. Founded during 1912 in Iowa to manufacture swine fever serum, the company now has manufacturing facilities world wide, including in Ireland.

Vaccination is by two intramuscular injections, each of 2ml, given two to three weeks apart when pigs are between one and 10 weeks of age. A simple routine task made safer by Suvaxyn M.hyo-Parasuis not being oil based, which means an accidental self-injection is not so dangerous.

As the Fort Dodge pig business manager for Europe, the Middle East and Africa, Mark Mombarg noted, the vaccine is already highly successful world wide.

"Irish pig producers continue to face Glasser's Disease long after it became a major problem in some other countries. Thankfully this means they will soon have access to Suvaxyn M.hyo-Parasuis, a vaccine combining H. parasuis protection with M. hyopneumonia protection. "In fact Irish pig farmers are getting the proven performance of the world's first Mycoplasma vaccine combined with the world's first H. parasuis protection. Above all, experience elsewhere in Europe had shown that this vaccine protects against serotypes 4 and 5, the most prevalent H. parasuis servovars."