Every so often, technologies in the form of products or services are introduced to the market, providing a significant impact on production efficiencies and costs. We have noted this in the past with the introduction of synthetic amino acids, enzymes, and mycotoxin management tools. In each case, the introduction to the feed industry is preceded with industry testing, early adopter incorporation and finally general acceptance across a broad range of applications.

For LinkAsia Partners and our clients, we are especially conscious of this trend as we introduce new technologies in the form of products that is having a marked impact on how farms, integrations or feedmills can manage their business or create new products for the market. Recent examples are too numerous to note here however the most remarkable include:

- OptiCell®, a source of eubiotic lignocellulose, in sow gestation diets that provides increased sow satiety thereby allowing farm workers to move around buildings without disturbing the sows. A real boost to farm efficiency.

- With a focus on the environment including effluent discharge from pig units and its impact on biogas efficiency, HiZox, a source of high grade zinc oxide can replace high dose levels of zinc oxide (many of which are sourced from products containing high levels of cadmium and lead) and allow customers to meet new regulatory standards for Zinc in feeds.

- MacroGard® from Biorigin is redefining how the aquaculture and even the poultry industry is considering the question of immunity response. A source of beta-1,3/1,6-glucan, producers are considering the concept of immune modulation in the animal or aquatic species as the preferred response compared to immune stimulation.

- From literature to field application, we have noted from recent university and field trials how peptides, PerfectDigest™, can have a marked positive impact on feed intake and feed efficiency, whether the peptides are in the water or the feed for poultry and pigs. Stimulating feed intake as a result of stimulation of receptor sites by peptides in the gut may be the reason for the noted and positive impact on feed intake.

In this edition of the LinkAsia Connect, we will provide a glimpse at the most recent information that is coming from our clients, our channel partners and industry leading authorities. It is an exciting time for us and we look to the next few months with great interest as more details develop about our clients’ product applications and how they will continue to emerge from new applications to “must have” technologies.
HiZox (new brand name replacing the former ZinPot) is a potentiated form of zinc oxide, which can be utilised at low inclusion rates instead of the pharmacological dosage of the regular form. HiZox gives premix/feed manufacturers and pig producers the opportunity to have the same beneficial effect (increased growth performance) without all the negative consequences of too high and/or too long zinc oxide supplementation.

There is also another level of concern arising from a high proportion of zinc oxide batches being utilized in pig feeds in some Asian countries where heavy metal levels are in excess of safe levels for the animals or for the environment. With this in mind, over the last few months, Animine has undertaken a key project in various regions to measure concentrations of heavy metals in samples collected from feed mills and pig farms. In addition, the physical properties of these samples were reviewed. The findings can be considered a point of concern for premixers, feed manufacturers and farmers. Approximately half of the samples showed levels of cadmium and lead which are above authorized and acceptable, safe concentrations (as determined by EU and NRC (USA) standards).

As part of Animine’s ongoing commitment to provide safe and effective alternatives to the industry such as the HiZox product, these results have been partly communicated at recent conferences including Pig Focus Asia in Bangkok last February and the Pig Feed Quality Conference in Ho Chi Minh City in March. Stéphane Durosoy, CEO of Animine, said, “Such high concentrations of cadmium and lead may be harmful for animal health and performance, hazardous for human consumption of edible pork products and for ecotoxicity.” Included at 3 kg/ T in the complete feed, some batches of zinc oxide result in dietary concentrations which are above Maximum Tolerable Values defined by NRC (USA) for pig health. Cadmium and lead have very long biological half-life, and will remain in storage organs (kidney, liver) until slaughter age. It is likely that cadmium stored in these tissues will breach international standards for human nutrition. Animine will continue to support the industry and raise awareness of the related risks through ongoing monitoring of zinc oxide sources.

<table>
<thead>
<tr>
<th>Maximum contents (ppm)</th>
<th>EU regulation</th>
<th>HiZox</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Other Zn sources</td>
<td>Zinc oxide</td>
</tr>
<tr>
<td>Cadmium</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>Lead</td>
<td>100</td>
<td>400</td>
</tr>
</tbody>
</table>

---

**IPVS 2012 Korea**

The 22nd International Pig Veterinary Society Congress (IPVS) will be held from 10 June to 13 June in Jeju, Korea. Stéphane Durosoy, founder of Animine, will be presenting a session on “Inhibitory Action of Analytical Grade and of a New Potentiated Form of Zinc Oxide on the Ex Vivo Growth of Porcine Small Intestine Bacteria” on 11 June. For more information on IPVS, please visit [www.ipvs2012.kr](http://www.ipvs2012.kr).
Product performance is often evaluated in the field through visual indicators. This may include the look of the animals, feed disappearance, appetite and in the piglet, manure quality. It is therefore an interesting case when a product is evaluated based on the sound of silence. As Tony Edwards commented at the recent Pig Feed Quality Conference (HCMC, Vietnam), “...working in a sow barn with 120dB of screaming sows is a challenge”. It can be further noted that hungry sows are stressed sows.

It was due to this management challenge of stressed or hungry sows that a 1200-sow unit in the Philippines implemented a trial using Eubiotic Lignocellulose (brandname OptiCell®) in their facility starting last October in all of their gestating sows. The implementation of the use of OptiCell® was overseen by Mr. Paul Hubilla, a Philippines-based nutrition consultant, who also presented the trial findings at the recent Pig Feed Quality Conference.

As described by Paul, while the sows were on diets that conformed to or were higher than industry specifications in terms of energy density, the sows under a two feeding period regime (6:30 am and 12:30 pm) were hungry by 10:30 am. This resulted in the farm taking the management decision to limit all work in the sow gestation area by 9:00am in the morning to minimize sow disturbance. This limited the time for adequate management of this important area of the operation.

With the introduction of OptiCell®, a mixture of non-fermentable and fermentable fibre, to the diets (2.5%) last October, farm management quickly noticed the impact of the fibre on the sows...the sound of silence. The satiated sows were sleeping through to the second feeding period and once again allowed workers to operate around the sows without risk of disturbing them. OptiCell® has been demonstrated to be a great management tool for the farm.

A key question however remained for Paul. If the sows were sleeping more, was there a benefit in terms of sow health or performance? With the help of an extensive computerized database on production statistics, an analysis was made on historical piglet performance (individual birthweight by parity). Prior to using OptiCell® in the gestation period, average birth weights and weaning weights were considered normal. In the detail of individual data it was noted that a large number (up to 20%) of the piglets were below 1kg at birth.

Starting with November farrowings and running through to end of March 2012, data was collected on individual birth weights and weaning weights and compared to the previous period. It should be noted that by the end of March, all farrowing sows would have been on OptiCell® for the full term of gestation. The final numbers provided a key insight into the benefits of sow satiety and the use of OptiCell® including:

- significant reduction in piglets born less than 1kg (20% to 10%)
- a shift in the piglet birthweight to higher and more uniform weights
- an increase in weaned piglets per sow per litter
- higher parity sows had more uniform and heavier litters than before the use of OptiCell®
- increase in average weaning weight by 0.5kg

While the “sound of silence” has been a key benefit for the farm management, the demonstrated improvement in sow performance has been a major economic benefit in terms of return on investment.

The trial will continue over the next two months with the objective to identify any temperature impact or other performance benefits that are below the surface. We will keep you updated on this important trial.

Thank you Paul Hubilla for his excellent work to evaluate the hidden benefits of eubiotic lignocellulose fibre.
Application Update: PerfectDigest™ FPI reaps Higher ADG, Lower FCR in Broilers

The use of amino acid/protein/vitamin/electrolyte supplements in water is a common practice used by broiler production farms with the objective of boosting immunity response and growth.

While the use of amino acids in the drinking water can provide an excellent source of supplemental nutrition for the young or growing bird, extensive trials are confirming over 25 years of research on peptides (amino acids joined with a peptide bond) that they have a place in modern broiler production. Performance data from recent university and field trials using PerfectDigest™ FPI in broilers conducted in Asia Pacific consistently show:

- Higher ADG
- Improved FCR
- Feed intake stimulation

A key feature to consider with peptides is that they have been shown to be more efficiently absorbed through the gut mucosa due to the help of the PEPT1 transporter system. As amino acids are the fuel for the mucosa cells, research (Daniel, 2004) has demonstrated that three amino acids as a peptide can be absorbed as efficiently as one amino acid. In addition to this, peptides have been shown to stimulate receptor sites thereby influencing feed intake.

In a recent field trial in broilers conducted in Yunlin County, Taiwan on a large group (43000 per group) of Ross broilers, PerfectDigest™ FPI LD was mixed into 1000 litres of water each day at the following rates:

- Day 14 to 28: 2 litres/1000 litre
- Day 29 to 35: 4 litres/1000 litre

This solution was the only source of water until fully consumed after which the birds received regular water for the balance of the day. Due to the regular flushing of the water lines, biofilm development is not an issue.

An economic evaluation of the results shows a significant return \(27 \times\) as a result of the PerfectDigest™ usage over the 21 days.

For additional information on this trial, please contact us at info@linkasiapartners.com.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Control</th>
<th>Treatment</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birds on feed</td>
<td>43000</td>
<td>43000</td>
<td></td>
</tr>
<tr>
<td>Feed Consumed: Calculated (kg)</td>
<td>154,438</td>
<td>160,613</td>
<td>+ 6,174 kg</td>
</tr>
<tr>
<td>Total feed cost @ USD400/ton</td>
<td>$61,775</td>
<td>$64,245</td>
<td>+ $2,469</td>
</tr>
<tr>
<td>Total Bird Weight Produced (kg)</td>
<td>94,170</td>
<td>99,760</td>
<td>+ 5,590 kg</td>
</tr>
<tr>
<td>Farmgate Value of Chicken Produced (USD1.80/kg**)</td>
<td>169,506</td>
<td>179,568</td>
<td>+ $10,062</td>
</tr>
<tr>
<td>European Broiler Index</td>
<td>558.66</td>
<td>593.45</td>
<td>+ 6.23%</td>
</tr>
<tr>
<td>Return On Investment</td>
<td>27 X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*EBI (European Broiler Index) = ADG (g) X livability (%) / (10 X FCR)

Application Update: 
**Roxycide™ Effective Against PRRS and PED Virus**
(Efficacy Testing by Chulalongkorn University, Thailand)

In response to continuing challenges of disease outbreaks, researchers at Chulalongkorn University’s Faculty of Veterinary Science in Bangkok Thailand, conducted an evaluation of Roxycide™*, a highly effective disinfectant, at various dilutions on Porcine Reproductive & Respiratory Syndrome (PRRS) and Porcine Epidemic Diarrhoea (PED) Virus. Below is a summary of the trial and results:

### Summary of Results

Roxycide™ effectively killed the PRRS and PED viruses at dilution rates up to 1:800 and 1:400 respectively. This work continues in order to provide a trusted solution for these highly economic diseases commonly found in the region.

For more details of the trial and results, please contact LinkAsia Partners at info@linkasiapartners.com.

---

### Roxycide™ Killing Activity: Result with PRRS Virus

( + = Confirmed Killing Action)

(North American Strain: VR2332 & Europe Strain: S2/54 ST-1)

<table>
<thead>
<tr>
<th>Dilution</th>
<th>1:100</th>
<th>1:200</th>
<th>1:400</th>
<th>1:800</th>
<th>1:1600</th>
<th>1:3200</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>30</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>60</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Roxycide™ Killing Activity: Result with PED virus

( + = Confirmed Killing Action)

(Strain: 23/53 AGI)

<table>
<thead>
<tr>
<th>Dilution</th>
<th>1:100</th>
<th>1:200</th>
<th>1:400</th>
<th>1:800</th>
<th>1:1600</th>
<th>1:3200</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>30</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>60</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

---

**Roxycide™**, a brand of disinfectant containing a triple salt potassium mono-persulphate as the key active ingredient.

Fast acting and safe, **Roxycide™** is a disinfectant designed for use in livestock and aquaculture production systems. The potassium monopersulphate compound and sodium chloride complexed with surfactant and balanced acid pH system generates high levels of free radicals, activated oxygen and hypochlorous acid proven highly effective against viruses, bacteria and other pathogens in environments including organic matter or biofilms. Non-toxic and non-irritant at recommended dilutions, **Roxycide™** is compatible with standard application methods such as surface spray, water systems, nebulizers and aerosol. **Roxycide™** is biodegradable and environmentally friendly.

* Roxycide™ is a brand of Chengdu Rosun Disinfection Pharmaceutical Co. Ltd.

---

**Keen to market Roxycide™ in your region?**

Email info@linkasiapartners.com for more information

---

*ROSUN® Disinfection Pharmaceutical*
Event Review:

ILDEX Bangkok 2012

Recently held at the Queen Sirikit National Convention Center (QSNCC) from 8-9 February, ILDEX Bangkok hosted visitors from varied sectors including poultry, pig, aqua, integrators, feedmillers, veterinarians and other industry professionals from around the region.

LinkAsia Partners together with its clients, Agromed, Animine, Biorigin, Bluewave Marine Ingredients and TechMix, participated in the exhibition showcase which attracted 1,700 visitors.

Stéphane Durosoy, founder of Animine, presented in the Pig Focus Asia 2012 (part of the Pig, Poultry and Dairy Focus Conferences held also at QSNCC and organized by Positive Action) on 8 February. His session on “Zinc Oxide in Piglet Feeds: Challenges and Opportunities” was well-attended and sparked interest on the use of innovative trace minerals for animal health.

Dr. Arthur Kroismayr, Director R&D of Agromed, also presented a 30-minute session in the Pig Focus Asia on 10 February. The session “Improve Gut Health with Eubiotic Lignocellulose” was well-received by delegates and improved understanding of eubiotic lignocellulose in animal health and performance.

For more information on the presentations, please email info@linkasiapartners.com.

From left: Stéphane Durosoy, Arthur Kroismayr and David Saunders

Arthur Kroismayr of Agromed in Pig Focus Asia
Event Review:
Advanced Feeding Strategies Symposium sponsored by Agromed, Animine and Schaumann in Pig Feed Quality Conference 2012, Ho Chi Minh City

Agromed, Animine and Schaumann sponsored the symposium, “Advanced Feeding Strategies for Profitable Pig Production” on 19 March, in conjunction with the Pig Feed Quality Conference 2012 in Ho Chi Minh City, Vietnam.

Complimentary for all delegates of the Pig Feed Quality Conference, the symposium discussed advanced technologies and practices in today’s animal feeding strategies. It was a full room with industry professionals from Philippines, Vietnam, Thailand and Malaysia. The speakers presented practical and enlightening topics that generated good and lively discussion for all attendees.

Thank you to those who joined us at the symposium and for those who missed the event you may wish to review the topics presented which are now available for download at this link -- www.linkasiapartners.com/linkasia_partners/events_PFQC_vietnam

Help us improve this enewsletter - we welcome your feedback and suggestions. Please send your comments to info@linkasiapartners.com.