FIAAP VICTAM grapas

Showtime

Issue 1 · Volume 18 · **Spring 2013**

2014 event set to be even bigger than 2012 shows!

With just under a year to go before FIAAP/VICTAM/GRAPAS Asia 2014 opens to the industry, the event already looks as though it will be even bigger than the 2012 show. Each of the three exhibitions has grown with new and existing companies confirming their participation in 2014.

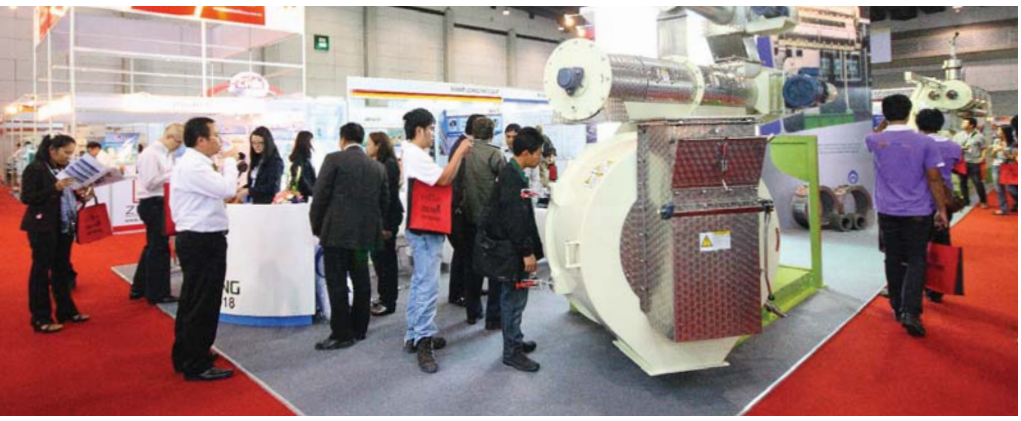
The animal feed ingredient and additive trade show – FIAAP has confirmation from international companies such as Biomin, Novus, Kemin, Dr. Eckel, Cargill, DSM, Alltech and SPF.

Whilst VICTAM, Asia's largest event profiling suppliers of technology and equipment for the production of animal feeds, continues to get even bigger. International companies will be showing the very latest technology available to the industry; these include Buhler, Andritz, Muyang, Wenger, Amandus Kahl, Zhengchang, Ottevanger, Extru-Tech, etc.

Many of these famous companies also manufacture specialist pellet mills and systems for the production of biomass pellets which are increasingly being used as a source of green alternative energy, as they can be used domestically, industrially and also by small power generation plants.

GRAPAS is also consolidating its reputation in the region. This exhibition has a broad exhibitor and visitor profile. The show profiles rice milling and packaging, flour milling, grain processing – transportation – storage – preservation, etc. The production of breakfast cereals, extruded snacks and noodles is also included within the exhibition. Once again well-known and respected international suppliers to these important industries will be represented – Buhler, Wenger, GSI, Stolz,Geelen, SCE, Altantus, Agromatic and more.

A full list of the 2014 exhibitors, as well as those in 2012, can be found on the shows' websites – www.fiaap.com www.victam.com www.grapas.eu



Inside your Spring issue

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New for 2014: ASEAN symposium and summits

The first ASEAN SYMPOSIUM and two summits, one for the animal feed industry and the second for the rice milling and processing sector, will be hosted by the local Thai Associations, the Ministry of Agriculture, The Department of Livestock and Co-Operatives, The Thai Chamber of Commerce and the Thai Convention and Exhibition Bureau.

The first ASEAN FEED & RICE SYMPOSIUM will be addressed by senior figures within the ASEAN ECONOMIC COMMUNITY, the ASIAN DEVELOPMENT BANK and the F.A.O. (Food and Agriculture Organization of the United Nations)

The summits will convene at BITEC, the home of the 2014 event, and will comprise international forums for Animal Feed Associations and Rice Milling and Processing Associations together with related Associations from throughout the ASEAN region in order to discuss and determine the future policies and objectives for the industry. It is expected that the Presidents and Secretary Generals, together with members of these associations will attend and use the summits to prepare for the new ASEAN economic bloc.

The summits will be sponsored by the Victam Foundation, a charitable trust, in order to promote the interests of these important industries within the ASEAN markets and throughout Asia.

The ASEAN SYMPOSIUM and summits will be held during the next FIAAP/VICTAM/GRAPAS Asia event in Bangkok 2014.

Technical Conferences

8 APRIL

AQUAFEED HORIZONS
Organised by Linx Conferences

THE GRAPAS CONFERENCE 2014
Organised by Perendale Publishers

THE THAI FEED CONFERENCE
Organised by the Thai Feed Mill Association and the Thai Department of Livestock

9 APRIL

PETFOOD FORUM ASIA
Organised by Watt Publishing Co

THE FIAAP CONFERENCE 2014
Organised by Linx Conferences

THE FIRST ASEAN FEED & RICE SYMPOSIUM

10 APRIL

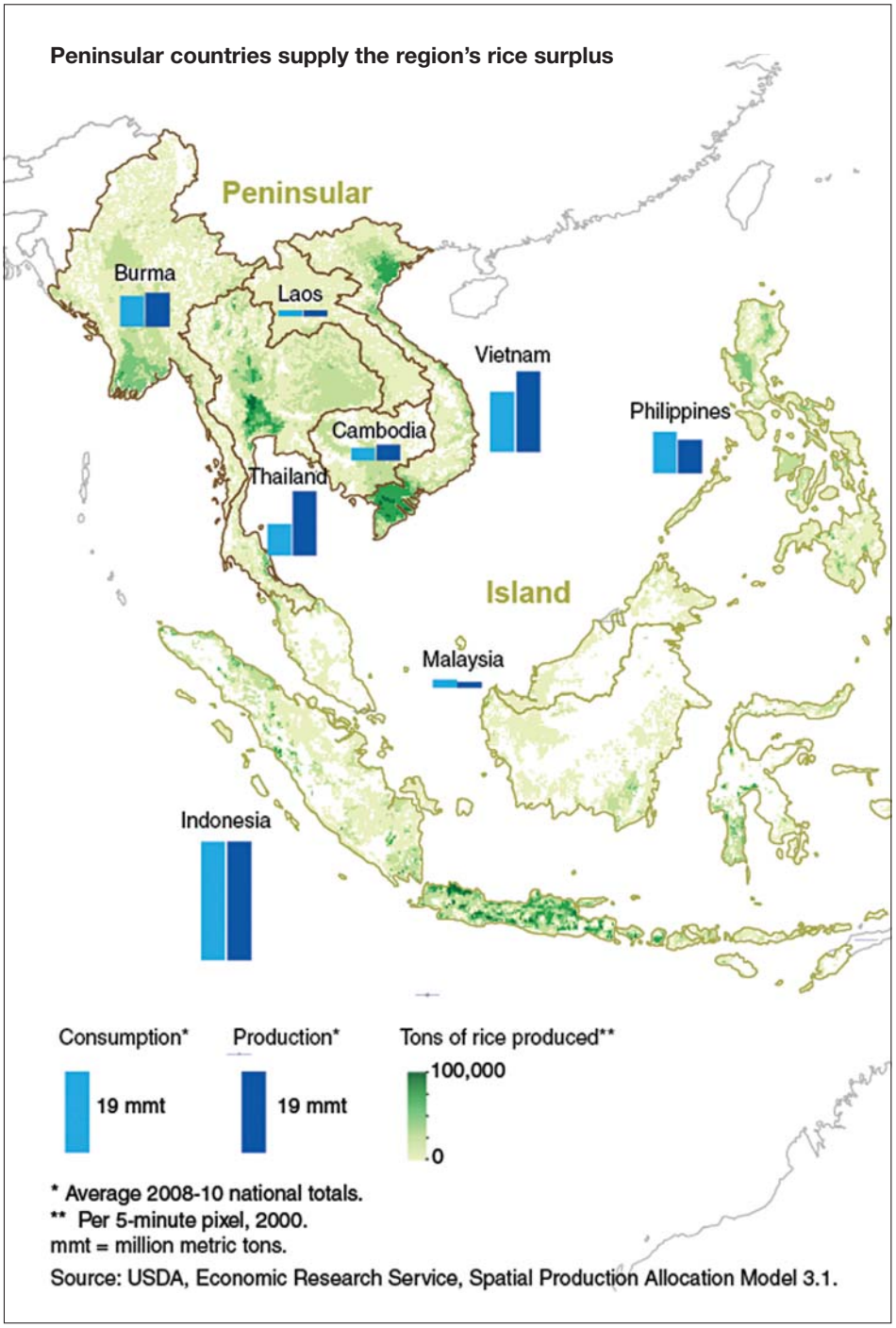
BIOMASS PELLETING ASIA 2014
Organised by Bioenergy International Magazine

ASEAN FEED SUMMIT

ASEAN RICE SUMMIT

Southeast Asia projected to remain top rice exporter

Rice, after wheat, is the world's most consumed food grain, with global consumption reaching 444 million metric tons in 2011. While most rice is consumed in the countries where it is produced, rice trade has been growing. The world's largest source of rice exports is Southeast Asia (especially Thailand and Vietnam), where production exceeds consumption. According to the USDA Baseline, this trend is projected to continue.



Growth in global rice consumption has been slowing, as consumers in much of Asia increasingly diversify their diets and turn to other foods. A simultaneous slowdown in production growth raises concerns about the ability to meet future demand. Throughout the world, consumers, especially in low-income households, face financial stress when rice prices rise, while most producers benefit from higher prices.

Despite slow growth in production, Southeast Asia has a large rice surplus and is likely to continue to supply needs in the rest of the world. Southeast Asia contains the world's largest rice-exporting countries (called "Peninsular" in the map) and major rice-importing countries (called "Island"). The Peninsular countries supply the Island countries but have additional rice to send outside the region. Rice demand is likely to grow slowly across all of Southeast Asia over the next decade,

Highlights:

- The growth rates of both production and consumption of rice in the Southeast Asia region have been slowing.
- The large surplus of production over regional demand in Southeast Asia is likely to continue for the next decade.
- Southeast Asia, the world's dominant rice export region, has an important role in determining world rice prices and food security in regions that depend on rice imports, such as Sub-Saharan Africa.

which could free up more supplies to send to countries outside the region.

Supply grows slowly as markets favor better tasting, lower yielding rice types

Globally, rice production grew at a slower rate in the last two decades than in the 1970s and 1980s. This also applies to rice production in Southeast Asia. Production growth is dependent on yield growth and growth in area harvested. Southeast Asia has little potential for expanding rice fields. Most rice area is in paddies in which crops grow in standing water for part of a crop season. Paddy land needs to be flat and accessible to water sources. Most land of this type is already in use by rice farmers, and it will be difficult to find more in most countries of Southeast Asia.

Area harvested can also be increased by growing more than one crop of rice per year on the same land. Double- and triple-cropping are possible in tropical areas, where water, rather than temperature, is the limiting factor. In addition to putting greater pressure on water and labour, multiple rice crops on the same land are associated with greater incidence of pests and diseases. In southern Vietnam, the risk of disease has prompted the government to strongly discourage triple-cropping. Nevertheless, if prices are favourable and the water supply is sufficient, multiple cropping of rice can increase production. In recent years, double cropping has expanded the rice harvest area in Thailand. Further increases in multiple cropping are anticipated. The rate of increase, however, is expected to be slower than in the past, unless higher rice prices encourage producers to expand the area allocated to rice.

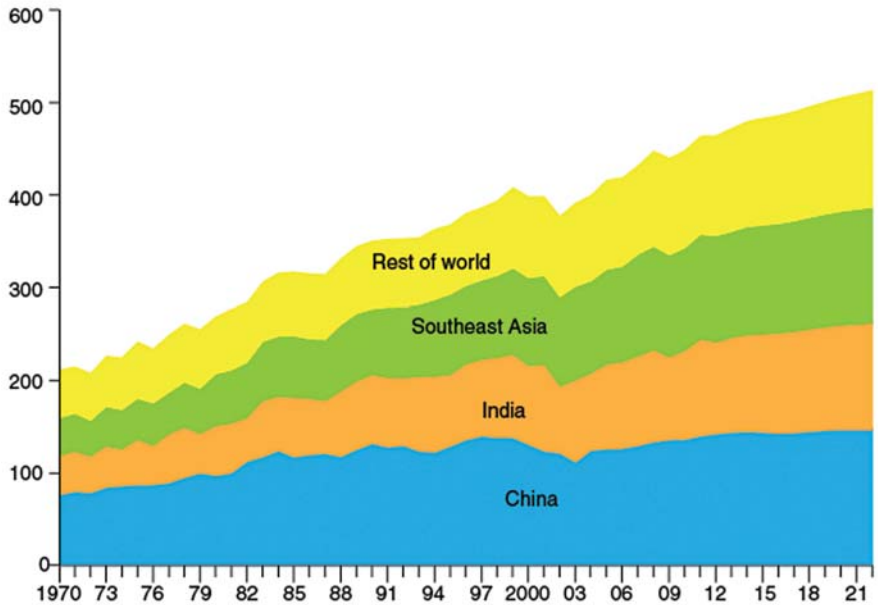
Yield growth in the region has also slowed in recent years (see "The Green Revolution" – page 9). Yields depend on soil, climate, and weather conditions, but management choices can have an effect as well. Greater use of fertilizer and chemical inputs can increase yields, up to a point. Yields can be increased through careful management, including timing of the planting and harvest, and weed control. But management choices such as these often involve higher costs or more time and expertise.

Another way to increase yields is through crop breeding, but hybrid rice programs illustrate some of the barriers to adoption of new varieties. Hybrid seeds greatly boost yields for crops like corn and rice. Rice, however, is a self-pollinated plant, unlike corn, which is cross-pollinated. This makes rice breeding and seed propagation using hybrid techniques more difficult and time-consuming, and seed costs are high. Reports from Indonesia, the Philippines, and Burma indicate that some farmers find hybrid seed prices too high, and that hybrid yields are lower than anticipated because of problems with inputs, water, or extreme conditions. Market prices for hybrid rice are reportedly lower than for traditional varieties because consumers prefer the taste of the traditional varieties. Unlike in China, where hybrid rice seeds dominate the long grain rice sector, hybrid seeds have not taken off commercially in most of Southeast Asia.

Average rice yields in most of the rice-exporting Peninsular countries (Burma, Thailand, Vietnam, Cambodia, and Laos) are below the world average. This is partly attributed to farmer behaviour in Thailand, normally the largest rice-exporting country. Thai farmers have typically planted low-yielding varieties that take a long time to

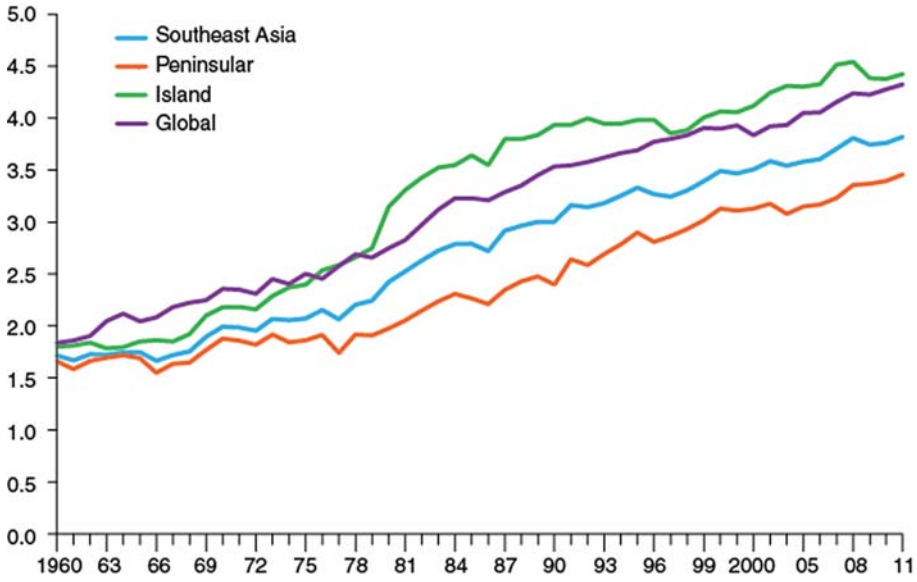
Southeast Asia supplies a large share of world rice production

Million metric tons, milled basis



Source: USDA, Economic Research Service using USDA's Production, Supply, and Distribution database for 1960-2013 and USDA's Baseline for 2014-22.

Island country yields outperform Peninsular yields



Note: Rough rice is unhusked, unmilled rice.
Source: USDA, Economic Research Service using USDA's Production, Supply, and Distribution database.

mature but whose aroma, taste, and appearance command a premium in the world market. These varieties are grown in rainfed conditions without full irrigation systems and with relatively little fertilizer. Low input costs and high output prices make these rice types profitable.

Post-harvest losses--in the field, as well as in transport, processing, and storage--remain high in most Southeast Asian rice economies. Milling separates the rice husk and bran from the polished grain. A low milling rate means that less polished rice is available from a given amount of harvested paddy rice. Cambodia, in particular, suffers from inefficient milling.

Some of the rice losses currently incurred in Southeast Asia can be avoided. Several countries are aiming to improve drying and storage and to make milling more efficient. The success of any such effort would increase the rice supply.

Rice demand grows slowly in a region where rice consumption is already high

Rice is used primarily as a staple food grain. Table rice, served at meals in homes and restaurants, is a basic part of most Asian food systems. Table rice use in Southeast Asia appears to be growing very slowly. Other uses for rice – including feed for livestock and processing – appear to be growing more quickly, although data on other uses are scarce.

Table use can be calculated as rice eaten per person times the number of people. Population growth has slowed markedly in Southeast Asia. Families there increasingly aim for having just one or two children, especially in urban areas, because children are expensive to educate and house. Population growth rates in the coming decade are expected to be below 2% per year throughout most of Southeast Asia.

Meanwhile, table use of rice per person is steady or declining. Southeast Asian consumers eat large amounts of rice. When their incomes rise, they choose to buy other foods, diversifying their diets. For example, broiler consumption in Southeast Asia increased by over 40% in the last decade--much faster than rice (16%). Household surveys indicate declining rice consumption per person in Thailand, Indonesia, and Vietnam, especially in urban areas, which are increasingly where people live. With population growth slowing, total table use of rice in the region is expected to fall eventually.

Processed foods and beverages made from rice include traditional alcoholic drinks and rice noodles, as well as many new products using rice as ingredients. Broken rice kernels are often used as an animal feed and are an important part of feed rations for pigs and chickens in Thailand and Vietnam (data limitations make it difficult to estimate the size and consumer trend of the processing and feed markets for rice). Although such uses are much smaller than table rice use, anecdotal evidence suggests that they account for current growth in rice consumption. This is expected to continue to be the case, particularly if prices for corn, which competes with rice as a feed, and for wheat, which competes in noodle and baking uses, are high relative to rice prices.

USDA's Baseline projects a robust surplus in Southeast Asia

According to 2012 USDA Baseline projections, Southeast Asia will continue to ship large rice exports over the next decade. Island country imports are projected to increase, but less than Peninsular country exports. Regional production is projected to increase about 1% per year, more slowly than in the past decade, because area harvested is expected to increase (0.3% per year) more slowly in all countries. Yields are projected to rise throughout the region at about the same rate (0.9% per year) as in the last decade. The projections assume normal weather and a continuation of current government policies.

Government policies have changed in recent years. Thailand's paddy pledging program has intensified support for rice production by committing the government to buying most rice at prices well above historical levels. Thus, the Thai Government, not the market, is the primary buyer. This is likely to encourage farmers to increase production without as much regard to quality characteristics as in the past, and Thai yields are likely to rise.

Indonesian and Philippine officials have announced their intention to achieve self-sufficiency in rice. The USDA Baseline projections show some production growth in both countries in the next decade, but not enough to achieve self-sufficiency. If through some combination of increased production and decreased consumption the Philippines or Indonesia do move toward self-sufficiency, the region's net rice exports would be higher than currently projected. This could lead to lower prices in the world market where U.S. rice competes with Southeast Asia's rice.

El Niño weather events reduce normal monsoon rainfall, especially in the Island countries, and can reduce Southeast Asia's exports to the rest of the world for a year or two. Because there is no firm pattern to the occurrence of El Niño events, they are not reflected in USDA's Baseline projections. However, they present a downside risk to Southeast Asia's exports.

Although these and other uncertainties could lead to a range of outcomes different from USDA's 2012 projections, rice consumption in Southeast Asia (and in the rest of Asia) is likely to grow more slowly than in the past. This reduces upward pressure on prices, which in turn lowers the incentive for the region's farmers to

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increase production. The USDA Baseline projects growing demand for Southeast Asian rice in Africa, the Middle East, and other areas. Production growth in Southeast Asia, though slower than in the past, is projected to continue to satisfy the added demand in the rest of the world. The region's rice surplus is likely to meet global needs because of the fundamental factor that demand for rice in Southeast Asia itself is weakening.

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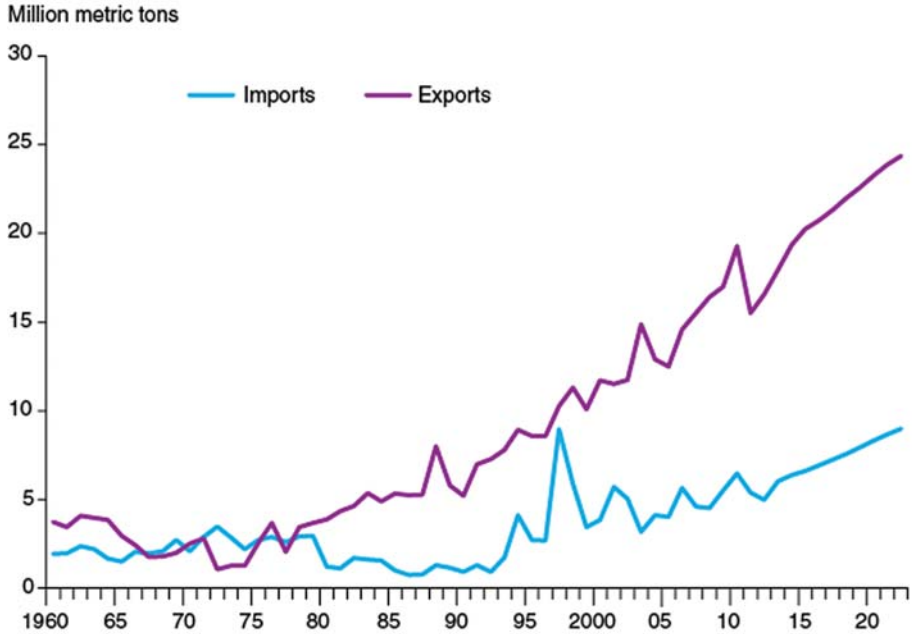
The Green Revolution

In the Green Revolution of the 1970s and 1980s, rice yields were raised primarily by the introduction of new varieties and the use of more inputs. Investments in infrastructure to supply irrigation water and provide drainage raised both area and yields. Yields in Southeast Asia rose by 60% over 1965-85. Partly due to the growing supply, rice prices tended to be stable or to fall in inflation-adjusted terms. Fears of large-scale famine or rice shortages were largely allayed in most of Asia, although poorer households' inability to buy food remained a concern.

Yield growth subsequently slowed. Southeast Asia's yields rose by 25% over 1985-2005, adding 0.5 ton/hectare as opposed to 0.7 ton/hectare in the preceding 20 years (milled basis). Some gains of the Green Revolution are difficult to extend indefinitely. Most of Asia's low-lying plains areas are already covered by rice or cities and often already produce two crops annually. Resistance to dam construction on environmental and social grounds has risen over time, and large-scale irrigation systems are costly. Rather than investing in new irrigation works, governments are trying to maintain and rehabilitate existing systems. Bringing irrigation systems back to their original capacity would allow a boost to harvested area (partly through increased double cropping) and to yield growth.

Throughout much of Asia, fertilizer use is at levels that agronomists think are too high--wasteful or even detrimental to yields. Thus, a linchpin of the Green Revolution--higher fertilizer application--is not likely to be useful again in major producing areas such as Vietnam and Indonesia. Similarly, use of pesticide and herbicide chemicals has swelled to wasteful levels in some countries, such as Vietnam, where the government is now seeking to reduce chemical application for environmental reasons. Greater fertilizer and chemical use could still increase yields in some areas, but the scope for yield increase is less than it was before the Green Revolution.

Southeast Asia projected rice surplus remains robust



Source: USDA, Economic Research Service using USDA's Production, Supply, and Distribution database for 1960-2013 and USDA's Baseline for 2014-22.

By Nathan Childs, John Dyck, and James Hansen, USDA.

This article is drawn from Southeast Asia's Rice Surplus, by Katherine Baldwin, Nathan Childs, John Dyck, and James Hansen, USDA, Economic Research Service, December 2012

International Baseline Data, by Ronald Trostle and Paul Westcott, USDA, Economic Research Service, February 2013

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Rice and contract terms

Rice contracts may be negotiated and agreed up to twelve months or more ahead of the time for shipment. This means buyers and sellers have taken a view on what the forward market price will be when the time comes for the contract to be performed. It is expected that every contract will be fulfilled on the terms agreed irrespective of any rise or fall in the market price.

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Most transactions start with either an email or telephone call between sellers and buyers by one of them making an offer, with an acceptance of that offer and their agreement on the price. When these three elements, offer, acceptance and price, are agreed a contract is made.

However, as Groucho Marx said, a verbal contract is not worth the paper it's written on. Clearly it is not good business practice to leave the arrangements for fulfilling a complex transaction to a telephone call or to an email exchange. So the parties, or their brokers, will follow up a deal with a written contract confirmation. This confirmation of the contract should identify key terms such as price, the delivery or shipment period and detailed quality specifications.

Letters of credit

Along with the price and quality terms, the time for delivery or shipment is probably the most important factor which traders will bear in mind when negotiating a deal. Any stipulation as to time for performance is generally thought to be at the heart of a contract and it is not unusual to hear the comment 'time is of the essence'.

Likewise, payment for the goods is obviously crucial and generally speaking it will depend upon the relationship between sellers and buyers as to whether any credit terms are agreed.

Countries have witnessed tectonic shifts in their economies where prices have dramatically risen or fallen; nevertheless by the time of performance contracts still have to be fulfilled. Letters of credit are mostly used to secure payment for goods. When letters of credit are not opened in time or their terms are not in accordance with banking or contract requirements it is a breach of the contract and will probably give rise to a dispute. Gafta contracts contain instructions on how the documents representing the goods should be tendered and how payment should be made, with useful codes of practice to give guidance.

Specification factors

Clear, quality specifications are crucial and based on a number of factors. For sellers it is the anticipated harvest or what is available for that season's shipments. For buyers it is the needs of their customer or final consumer, not forgetting the legislation buyers have to comply with in the country of destination on import, which will often differ from that of the exporting country.

Most rice is described simply in contracts as either Basmati, Long, Fragrant, Paddy, Husked, Milled, Parboiled or Glutinous Rice. Some rice crops are handled and transported in vast bulk tonnages and that implies that the harvest from one producer is similar enough to that from any other, to be sold via a common grading and distribution system. On the other hand depending on the rice variety or origin, for some rice it will be necessary to maintain its identity, for it to be segregated and labelled specific to origin or quality.

Depending on the origin or rice variety, the parties will negotiate the classification of rice and the quality specifications on each and every transaction, concentrating on moisture content and maximum percentages of foreign or damaged grains which must not be present. Moreover, in accordance with the Gafta terms there is an over-riding requirement that the rice is guaranteed to be in good condition and of satisfactory quality at the time of shipment, with the promise that the goods must be fit for all purposes for which goods of the kind in question are commonly supplied, that is for human consumption.

During the negotiation of a contract buyers may also seek additional guarantees with regard to limits of undesirable substances or pesticides levels depending on their own national legislation in the country of import.

The GM issue

Genetically Modified rice poses a major issue for many countries, be they exporters or importers. For example, in the European Union it is unlawful to import rice of a GM event that the European Food Standards Agency has not approved. There have been cases where rice has been checked by customs officials when imported, seized and in some cases destroyed if comprising wholly or partially an unapproved GM event. Currently for feed imports there is an EU low level presence tolerance of 0.1 percent, but this does not apply to food. At the time of writing this article representation is being

made to the European Commission to adopt this 'technical solution' for food. Unfortunately, many countries' citizens still react adversely to GMO and it becomes a political and emotive issue. Our representation on this matter is that decisions and approval processes should be based on science based policies and evidence.

The Gafta standard

Many of the other contract terms will not be the subject of detailed discussion by the parties at the time of negotiation as they rely on the knowledge that they will be covered by the appropriate Gafta standard contract terms. Whether the buyers and sellers are specialists in milling or food processing, together with the shippers, exporters and importers, they are all traders of the vast movement in rice being transported around the globe, and who rely on the standard Gafta CIF or FOB contracts. These standard terms will give instructions to the buyers and sellers on the next steps in fulfilling the transaction and provide protection in certain circumstances. They will also show who carries the risks and responsibilities for the goods at any given time. Good contract terms will alleviate many risks parties face and this is a reason so many companies incorporate in their contract confirmations reference to the Gafta standard terms and conditions.

Gafta contract forms provide continuity of purpose and operational consistency of the way trade is customarily done and complement the essential elements of the trade by setting down the means and methods by which a contract is to be performed by the parties. These standard contracts provide a framework on which the parties may rely to supply rice from country of origin to country of consumption. When choosing to incorporate a Gafta form of contract in their own individual contract terms, the parties should have uppermost in minds the means and mode of transport and choose a contract appropriate for the carriage of goods by sea, by road or rail, in bulk or bags, or in containers, as the situation warrants.

A trader will need to know where he stands either on having to deliver the goods or being in a position to receive the goods. What happens if ships do not arrive on time due to shipping vagaries? Then the contract terms allow the possibility of an extension of time to be claimed for a few days, with payment of allowances to compensate for the delay. But then any breach of an obligation regarding shipment and delivery means a breach of a condition of the contract, which could give rise to the innocent party having the right to reject.

'Force majeure': unforeseen circumstances

The agricultural trade has felt the impact more than most of changing weather patterns. We have witnessed droughts, fire and floods, in various countries in just a few years. These major changes to what is thought to be traditional weather patterns have resulted in loss of crops and variations in quality. What happens then when there is an impediment to shipping such as strikes, floods or fire often referred to as 'force majeure'? In those circumstances the contract will allow a period of time for the impediment to end and for the parties to continue with the fulfillment of the contract.

On occasion contracts may have to be cancelled where a government imposes an export ban, and where there is no fault in those circumstances by the exporter, there would be no breach of the contract. Otherwise, if a party fails to fulfill his obligations they will be in breach of the contract terms.

If a party is in breach of the contract the default clause comes into play and provides the formula to compensate the innocent party for that failure. Depending on the precise nature of the breach damages are calculated on the basis of the difference between the contract price and the market price, on the day of default, on the mean contract quantity. The intention being to put the innocent party in the financial position they would have enjoyed had the contract been fulfilled.

Beyond contracts

To accompany contracts there are a number of useful rules, guides and codes of practice. Incorporated into the contracts are weighing rules so that goods are weighed by the same methods worldwide and likewise there are rules for taking and testing samples which apply both at load ports at origin and discharge ports.

There will of course be difficulties and disputes from time to time and the most popular method chosen by parties for the settlement of their disputes is through arbitration. When parties enter into a contract incorporating a reference to the terms and conditions of a Gafta contract form they have agreed that their disputes will be heard and determined by arbitrators in accordance with the Gafta Arbitration Rules. The object of arbitration is to obtain the fair resolution of disputes by an impartial tribunal comprising commercial people who will deal with the case without unnecessary delay or expense.

Arbitrators have to be familiar with the operations in the commodity markets; have knowledge of the basic principles of contracts and; also understand the legal principles underlying contracts, carriage and insurance contracts and letters of credit. Arbitrators are acting in a judicial capacity to ensure that they meet the basic requirements of justice and must act with fairness and impartiality towards both the parties.

Mediation

Although not often used, mediation is an alternative dispute resolution procedure to facilitate the parties in settling their differences to find a resolution and reach a settlement.

All the contracts' clauses provide a wide range of measures to ensure the smooth trade from origin to destination. The standard contracts Gafta provides are the standard terms which are almost entirely in place for commercial, financial and legal purposes, to be adopted by two parties, a willing buyer and a willing seller, to form the basis of their individual transactions.

However, there are additional demands made outside of the contract terms by consumers and retailers who need assurances on the safety of their food. For these purposes GTAS, the Gafta Trade Assurance Scheme, was introduced to help demonstrate an all year round good practice and due diligence for food safety. GTAS aims to provide, within one complete HACCP based trading scheme, the best professional practices which are designed to maintain consumer confidence for the delivery of safe food.

Future challenges

Looking to the future, there are emerging issues where parties need to have assurance on the social conditions in countries of origin and also in relation to the environment. Environmental challenges are many and varied, and consumers are keen to know that they are supplied from sustainable sources. When any future biotechnology, social and environmental demands are made the mechanism needed by the trade on how to meet the challenges can be addressed within the framework of the Gafta Trade Assurance Scheme. In essence GTAS is the standard of best practice for all trade operations.

The theory of comparative advantage, common sense and experience all tell us trade is good for economic growth. Trade helps all areas of major concern today, including social and environmental standards. The association started over 130 years ago with the aim to promote free trade internationally and this still applies today with Gafta continuing to seek an ever better trading environment.

By Pamela Kirby Johnson OBE, Director General, The Grain and Feed Trade Association (Gafta)
Website: www.gafta.com
Article first published in Grain & Feed Milling Technology magazine – May-June, 2012.

feedconferences.com

THE 5th FIAAP CONFERENCE

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April 9, 2014. BITEC , Bangkok, Thailand

Feed and food industries – "the most feasible biomass to energy projects"

Energy, feedstock and process efficiency are a common challenge in any refining industry. Food, grain and feed industries share though an advantage. By utilising process residue streams they have the potential to both improve the bottom line and their environmental performance.

South East Asia with its favourable climatic and fertile soils is one of the most dynamic and agriculturally diverse regions in the world. The region is a leading producer and consumer of food and feed products as well as supplier of global foodstuff commodities such as sugar, rice and palm oil. And, as elsewhere around the world, increasing population densities, resource constraints and environmental awareness are pushing development towards higher crop yields along with better resource, process and energy efficiencies.
Victam Asia is unique in that it attracts qualified attendees from a wider range of feed production, grain milling and food processing industries such as rice, maize, flour, sugar, and palm oil from throughout the SEA region. The observant attendee at recent editions of the event will have noted that an increasing number of the big names and brands of technologies and allied equipment on display, also indicate that they serve the rapidly growing bioenergy sector. For example products such as silos, dryers, elevators, conveyors, conditioners, pelletizers, sieves, coolers, bagging and packaging units to mention a few. This stands to reason as a fuel pellet production plant uses essentially the same type of technology, equipment and set-up as an animal feed pellet plant albeit with different feedstock and product end-use.

Right: Participants taking note of yield figures for Giant King Grass given by Dr Carl Kukkonen, VIASPACE.

What is perhaps less obvious to attendees is that their own business operations, as primary or secondary agri-processing industries, may very well be a feasible bioenergy project in itself. For instance rice milling in China alone generates around 50 million tons of rice husks per annum according to figures presented by Dr. Li-Ji Hong, Tsinghua University, China at the previous "Biomass & Pellets Update Asia" conference. At the same time these rice mills require process energy something that Vincent Weyne from Belgian combustion engineering company, Vyncke Energietechniek, spoke on. Vyncke build tailor-made multi-fuel boiler solutions in the 1- 100 MW range for client process heat, power and cogeneration needs. He presented a comprehensive overview of installations by the company in a variety of wood, rice, oil palm and agri-industries from throughout the region.

"Still 70 % of our business is these types of industries as these are the most feasible projects. Why? These are projects with efficiencies of 80 to 90 % where most of them generate their own waste which we can use as fuel," Weyne explained.

Text Alan Sherrard, photos Xinyi Shen

Top: Joseph Lim, Global Green Synergy, Malaysia shared process and supply chain optimization as well as pre-treatment technologies experiences from the palm oil industry.

Above: Vincent Weyne, Vyncke Energietechniek, showed examples of biomass installations in the wood, palm oil and agri-industries from South East Asia.

Above: Michael Coppins, Senior Technical Officer, Renewables Plus Ltd.

2013 Global Feed Summary

Global feed production statistics have traditionally been difficult to quantify because many countries lack national feed associations. For this reason, Alltech began in late 2011 to leverage its global presence to obtain a more accurate estimate of the world's feed tonnage. The results of the annual year-end assessment were announced in January as an industry outlook resource for the new calendar year.

For its second report, Alltech assessed the compound feed production of 134 countries in December 2012. Where possible, information was obtained in partnership with local feed associations and, when not possible, it was done utilizing information gathered by the more than 500 members of Alltech's global sales force, who visit more than 26,000 feed mills on an annual basis.

When reviewing the data, there are two considerations to bear in mind. First, numbers for less developed countries may be less accurate, but given their size, this will have little numerical influence on the overall dataset. Second, the definition of feed, feed mill and species varies from country to country.

Overall, the new results affirm a growing feed industry with a global feed tonnage of 954.4 million, a 9% increase over the late 2011 estimates of 873 million. The actual underlying growth is likely to be about 4 to 5% since the latest results include new sources of information not available in 2011 and identify more accurately the statistics for individual species. China, Brazil, India and Russia (BRIC) represented 33 million tons of the increase.

Among the 134 countries reviewed, China was once again the leading producer of feed with 198.3 million tons manufactured in the official estimate of more than 10,000 feed mills. Consistent with late 2011 assessments, the United States and Brazil followed in second and third places, with 168.5 million tons from 5,251 feed mills and 66 million tons from 1,237 feed mills respectively.

Asia continues to be the world's leading feed producing region at 356 million tons. One region, however, exceeded Asia in percentage growth over 2011 results. Africa was found to be the fastest growing area in terms of tons of feed manufactured, increasing its tonnage

	Country	Total Tonnage (million) 2012
1	China	198.340
2	USA	168.460
3	Brazil	66.285
4	Mexico	28.536
5	Spain	28.231
6	India	26.837
7	Japan	25.220
8	Russia	23.350
9	Germany	22.252
10	France	21.613
11	Canada	19.642
12	Thailand	15.750
13	Netherlands	14.762
14	Italy	14.633
15	Indonesia	13.801
16	UK	13.551
17	Korea	13.515
18	Turkey	12.995
19	Iran	12.000
20	Vietnam	12.000
21	Phillipines	11.917
22	South Africa	11.027
23	Argentina	10.115
24	Poland	8.255
25	Taiwan	7.893
26	Australia	7.548
27	Pakistan	7.410
28	Ireland	6.728
29	Belgium	6.281
30	Colombia	5.500
31	Egypt	5.400
32	Venezula	5.315
33	Ukraine	5.160
34	Saudi Arabia	4.530
35	Chile	4.523
36	Malaysia	4.400
37	Denmark	4.200
38	Algeria	4.000
39	Belarus	4.000
40	Hungary	3.832
41	Israel	3.500
42	Peru	3.391
43	Serbia	3.391
44	Greece and Cyprus	3.221
45	Portugal	3.085
46	Morocco	2.995
47	Norway	2.940
48	Bangladesh	2.730
49	Romania	2.295
50	Ecuador	2.245
51	Czech Republic	1.986
52	Bosnia	1.962
53	Sweden	1.925
54	Nigeria	1.900
55	Uruguay	1.419
56	Finland	1.395
57	Paraguay	1.345
58	Bolivia	1.313
59	Kazakhstan	1.280
60	Switzerland	1.265
61	Dominican Republic	1.162
62	Guatemala	1.137
63	Jordan	1.100
64	Libya	1.060
65	Albania	1.000
66	Tunisia	1.000
67	Austria	0.965
68	Kenya	0.955
69	New Zealand	0.899
70	Bulgaria	0.887
71	Dubai	0.850
72	Costa Rica	0.821
73	UAE	0.767
74	Croatia	0.750
75	Cuba	0.750
76	El Salvador	0.744
77	Nepal	0.739
78	Honduras	0.703
79	Iraq	0.700
80	Sri Lanka	0.615
81	Myanmar	0.600
82	Slovakia	0.600
83	Panama	0.568
84	Lebanon	0.500
85	Macedonia	0.500
86	Moldova	0.500
87	Uzbekistan	0.500
88	Armenia	0.500
89	Estonia	0.480
90	Uganda	0.467
91	Oman	0.464
92	Lithuania	0.462
93	Slovenia	0.450
94	Jamaica	0.320
95	Azerbaijan	0.320
96	Nicaragua	0.318
97	Puerto Rico	0.276
98	Tanzania	0.258
99	Zambia	0.240
100	Latvia	0.234
101	Reunion	0.230
102	Kuwait	0.230
103	Georgia	0.200
104	Kyrgyzstan	0.200
105	Turkish Cyprus	0.200
106	Cote D'ivoire	0.160
107	Bahrain	0.150
108	Caribbean	0.146
109	Senegal	0.125
110	Turkmenistan	0.101
111	Ghana	0.100
112	Kosovo	0.100
113	Sudan	0.100
114	Trinidad & Tobago	0.094
115	Iceland	0.090
116	Mauritius	0.090
117	Haiti	0.090
118	Luxembourg	0.090
119	Malta	0.080
120	Botswana	0.057
121	Namibia	0.052
122	Zimbabwe	0.040
123	Barbados	0.039
124	Mozambique	0.030
125	Guyana	0.022
126	Seychelles	0.015
127	Suriname	0.012
128	Bahamas	0.008
129	Cameroon	0.000
130	Lesotho	0.000
131	Mongolia	0.000
132	Montenegro	0.000
133	San Marino	0.000
134	Singapore	0.000

Average Feed Tonnage per Million

Region	Total Number of Feed Mills	Total Tonnage	Average Tonnage per region
Africa	794	30,305,000	38,168
Asia	12,149	356,542,000	29,347
Europe	4,449	208,400,000	46,842
Latin America	2,975	137,048,000	46,067
Middle East	385	25,411,000	66,003
North America	5,323	188,102,000	35,338
Other	165	8,593,000	52,079
Total	**26,240**	**954,401,000**	**36,372**

Number of Feed Mills (Estimate)	Total Tonnage (million) 2012
26,240	954.4

Total Tonnage per Million

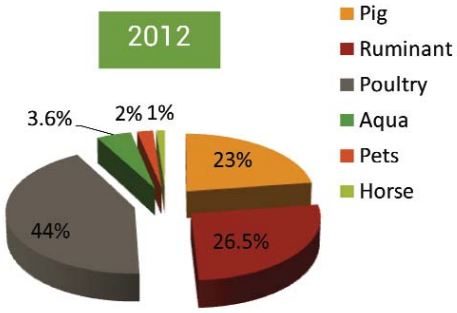
Pig	Ruminant				Poultry				Aqua	Other	
	Dairy	Beef	Calf	*Other Ruminant	Layers	Broilers	Turkeys	**Other Poultry		Pets	Horse
218.1	130.7	97.9	1.4	22.5	141.1	246.1	13.2	17.2	34.4	20.4	10.8
	Total Ruminant				Total Poultry						
	252.6				417.8						

19% from 47 million in 2011 to 56 million in 2012. The Middle East was estimated to have the largest feed mills, with an average of more than 63,000 tons produced per mill.

When analyzed by species, poultry continues to dominate with a 44% share of the feed market at 417.8 million tons, likely due to religious and taste preferences as well as cost. It grew by approximately 10% over 2011 estimates. Sixty% of all poultry tonnage is dedicated to broilers, with the rest fed to egg layers, turkeys, duck and other fowl.

The pig feed sector matched poultry's 8% growth, moving to 218 million tons globally. The ruminant feed market, comprising dairy, beef and small ruminants, grew more than 13% between late 2011 and December 2012, and now requires 254 million tons. Equine feed tonnage increased almost 17% to 10.8 million tons. Aquaculture grew nearly 16% since 2011. Pet food represents 20.5 million tons, 40% of which are produced in the United States, but Brazil continues to make considerable advances in this sector. ➤

❖Poultry	418 Million
❖Ruminant	253 Million
❖Pig	218 Million
❖Aqua	34 Million
❖Pet	20 Million
❖Equine	11 Million
❖Total	954 Million



2012 Global Feed Tonnage Survey

	Country	Number of Feed Mills	Total Tonnage (million) 2012	Pig	Ruminant				Poultry				Aqua	Other	
					Dairy	Beef	Calf	*Other Ruminant	Layers	Broilers	Turkeys	**Other Poultry		Pets	Horse
1	China	10,000	198.34	58.14	35.5	30		0	29.4	20	0	11	13.3	1	0
2	USA	5,251	168.46	23.59	19.51	23.41	0.1	0	23.09	57.22	6.54	0	1	8	6
3	Brazil	1,237	66.285	15.4	5.1	2.9		0	5.1	33.2	0.84	0	0.635	2.5	0.61
4	Mexico	430	28.536	4.208	4.606	3.027		0.45	4.56	10.34	0	0	0.215	0.71	0.42
5	Spain	700	28.231	13.24	2.9	4		2.34	1.6	3	0.45	0	0.096	0.375	0.23
6	India	862	26.837	0	5.854	0		0.008	7.011	10.459	0	0.001	3.5	0.002	0.002
7	Japan	156	25.22	6.109	3.299	4.598		0.05	6.391	3.954	0	0.05	0.432	0.315	0.022
8	Russia	500	23.35	6.2	2	1.75		0	3.8	9.4	0.2	0	0	0	0
9	Germany	340	22.252	9.2	0	0	0.152	6.4	2.1	3.3	0	0	0	0.7	0.4
10	France	294	21.613	5.7	3.12	1.55	0.357	0.6	2.3	3.5	1.44	1.67	0.122	1	0.254
11	Canada	72	19.642	4	10	0.78		0.18	0.8	0.96	0.18	0.18	0.76	1.222	0.58
12	Thailand	30	15.75	6	0.6	0.2		0	0.7	6	0	0.3	1.6	0.25	0.1
13	Netherlands	50	14.762	5.5	0	0	0.652	2.8	2.8	2.5	0	0	0	0.31	0.2
14	Italy	340	14.633	3.5	2.02	1.755	0.15	0.235	3.5	2.75	0	0	0.105	0.57	0.048
15	Indonesia	70	13.801	0.5	0.6	0		0.05	5.063	6.188	0	0.1	1.3	0	0
16	UK	340	13.551	1.506	2.729	0.98	0.001	0.899	1.789	3.287	0.525	0.813	0.145	0.7	0.177
17	Korea	41	13.515	4.606	1.107	4.224		0	1.679	1.779	0	0	0.12	0	0
18	Turkey	350	12.995	0	5.5	1.7		0	1.5	4	0	0	0.25	0.045	0
19	Iran	240	12	0	3	0.9		0	4	4	0	0	0.1	0	0
20	Vietnam	230	12	6.5	0.125	0		0	0.855	1.24	0	0.36	2.92	0	0

The 2012 assessment identified a total of 26,240 feed mills globally, with Asia and North America being home to more than half of them. 60% of the feed produced is pelleted, and this is even more prevalent in Europe.

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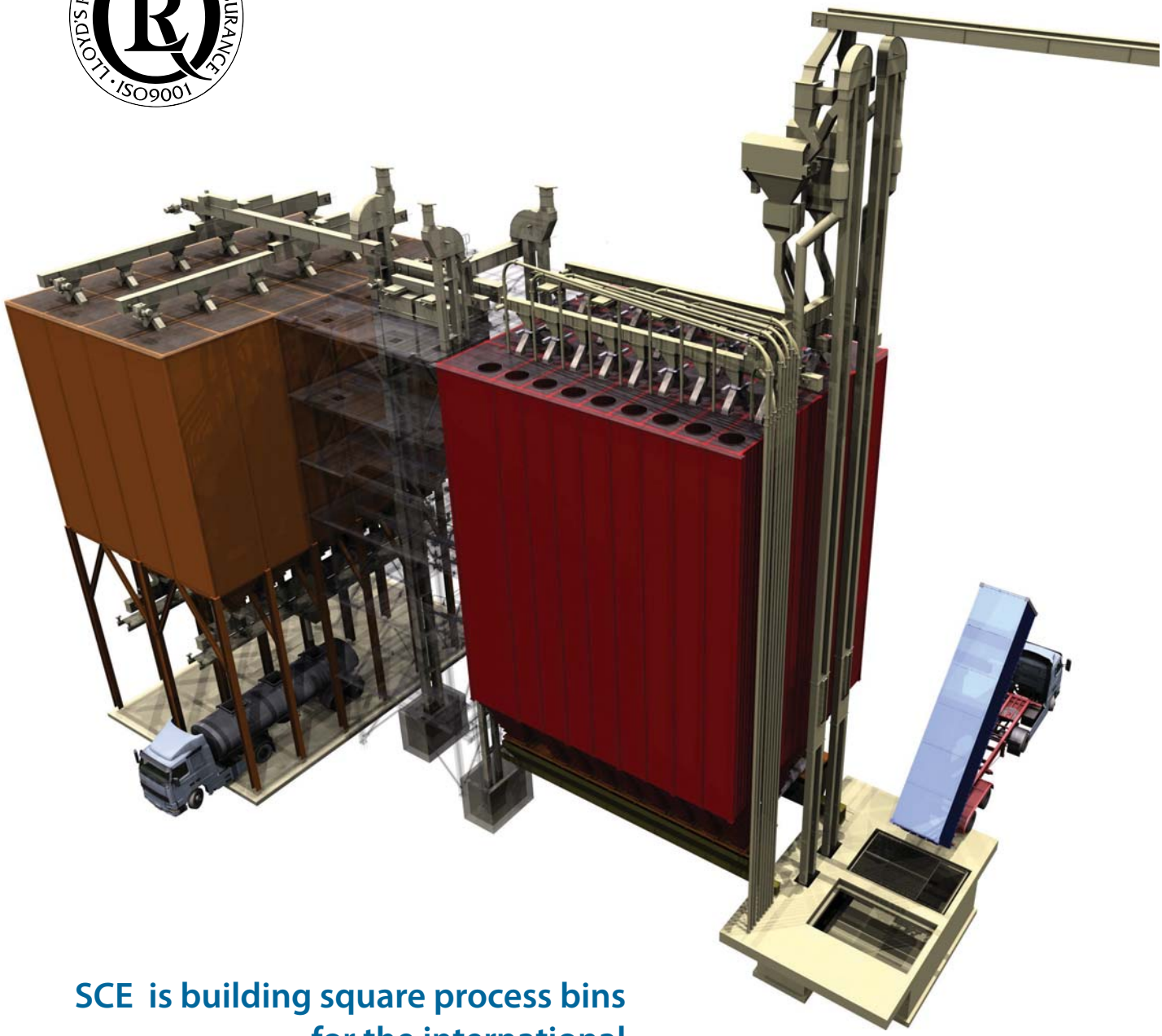

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The rise of aquafeed

Complex and diverse, the feed market for farmed aquatic animals has come of age, offering suppliers of ingredients and technology outstanding opportunities, Aquafeed.com's Suzi Dominy (above) tells Showtime.

SHOWTIME: We hear so much about aquafeed even though it is a small part of the animal feed market; why all the fuss?
SUZI DOMINY: In a word, growth: past, present and future – it's exponential and unparalleled in the industry. When I started Aquafeed.com, back in 1998, there was no defined "Aquafeed" industry and in fact even today aquafeed is still not included in official production statistics for many countries or regions. That means reliable statistics are hard to find. Market commentators tend to rely on the biannual Food and Agriculture Organisation of the United Nations (FAO) report "The State of World Fisheries and Aquaculture (SOFIA)", which is not perfect but makes as good a stab at the numbers as anyone. According to FAO, total industrial compound aquafeed production increased more than threefold, from 7.6 million tonnes in 1995 to 29.2 million tonnes in 2008, with production growing at an average rate of 11 percent per year. Aquafeed production is expected to continue growing at a similar rate to 71million tonnes by 2020. Compare that with a top end figure of 5 per cent growth in animal feed in the most rapidly expanding market, China, and negative growth in North America and Europe, and you see why aquafeed is such an exciting market.

SHOWTIME: So what is driving this growth?
SUZI DOMINY: There are a number of factors behind the growth of aquaculture – and with it aquafeed. Here is what we see as the main drivers: population growth, food security and poverty alleviation, intensification of aquaculture in developing countries and scientific advances. Let's look at these one by one:

Population growth: Considering the projected global population growth over the next decades, it is estimated that an additional 35 million tonnes of aquatic food will be needed by 2030 just to maintain the current consumption level. This will have to come from aquaculture since over-exploited fisheries have led to tighter fishing quotas and lower catches. It is increasingly doing so: in 2012 aquaculture passed the watershed moment of surpassing wild-caught fisheries production for the first time.

Food security and poverty alleviation: Fish currently supplies the major part - more than a quarter - of the total animal protein supply for about 1.25 billion people across 39 countries worldwide. Fish contributes more than half the protein intake for 400 million people from the poorest African and South Asian countries. Many governments now recognize aquaculture as a means of food security and poverty alleviation and are actively supporting its development through funding, education and training and investment in R&D.

Intensification of aquaculture in developing countries: Southeast Asia and China farm almost 90 per cent of all aquatic species, however much of this production is back-yard or otherwise extensive, utilizing farm-made feeds, trash fish and so on. The evolution to large-scale intensive production, requiring commercially produced feeds, is happening at an increasing pace that is predicted to continue. I should add that switching to higher value species to meet export markets and increasing domestic demand from the growing middle classes will also be major factors.

Scientific advances: Scientists are gaining knowledge about the nutrient requirements of species already farmed, allowing for manufactured feeds to be developed. They are also closing the life cycle of new species, making them candidates for farming, and further increasing the feed market.

SHOWTIME: That all sounds very positive, but there must be some challenges; what are the main ones?
SUZI DOMINY: Aquafeed shares many of the same challenges as terrestrial feed manufacturing, such as soaring raw material and energy costs and environmental impact concerns, however it also faces its own unique technical, regulatory and market challenges. None of these challenges however are major market barriers and most present opportunities.

Disease is a major concern in aquaculture and throughout its history severe epidemics have severely impacted farms and feed consumption. In 2000, White Spot Virus (WSSP) all but destroyed the shrimp farming industry in Ecuador. Currently, virtually all the shrimp ponds in Thailand are dry because of Early Mortality Syndrome (EMS). Very few approved drugs are available to aquaculture farmers.

Probably the single greatest barrier to aquaculture development in most western countries is the painfully slow process for new farms to get permits to operate. However, growth elsewhere more than makes up for this in global market terms.

Above: Finfish are raised in aquaculture facilities for food, and for restocking wild populations in some cases. Photo: NOAA

SHOWTIME: So how is the industry responding to these challenges?
SUZI DOMINY: With the same enthusiasm and ingenuity that has got the industry where it is today! What we are seeing is a move away from fishmeal and oil to more sustainable proteins and lipid sources, such as soy, biofuel by-products and algae. The industry is becoming ever more environmentally responsible and we see increasing use of natural or nature-identical ingredients for growth, nutrition and immune support and greater emphasis on lowering even further Feed Conversion Ratio (FCR)s and waste control through the use of production techniques and formulation.

SHOWTIME: What are the opportunities for suppliers to this sector?
SUZI DOMINY: The opportunities for technology and ingredient companies are tremendous. Of course the rapid growth rate of the industry means new mills and a constant supply of new customers. But more than that, aquafeed has reached a point that the fundamentals are well understood: aquafeed production and formulation is already complex and sophisticated but right now we see it stepping up to an even higher level: new feed ingredients and additives as well as those already established in the animal feed sector, such as protein concentrates, phyto-nutrients, probiotics and prebiotics are increasingly being incorporated into aquafeeds. Ingredient and equipment suppliers are helping push these developments. In fact, the reason we decided to create the Aquafeed Innovation Award at FIAAP/VICTAM/GRAPAS Asia, was to recognize the tremendous contribution of the ingredient and technology companies in enabling the development of the sector. I think it is fair to say that the needs of aquafeed production are the direct cause of many of the new developments we have seen in the feed industry recently.

SHOWTIME: Before we finish, can I ask what makes aquafeed any different from feed for other animals?
SUZI DOMINY: Although it shares much – but not all – of its processing technology and regulatory oversight with the animal feed industry, the market for aquafeed is of course entirely different. But what distinguishes aquafeed from other animal feeds more than anything, is its complexity and diversity.

The first obvious difference is that the feed has to be delivered in water and this brings technical considerations that most animal feed manufacturers never need to address. The pellet has to stay together without being too hard to eat or pass through the gut before it is digested – and the nutrients must not leach out into the water.

Another processing challenge is ingredient homogeneity and fine grinding: whereas the poultry feed industry – is geared to the 30 gram baby chick, the shrimp farmer harvests at half that weight! Imagine producing feed for a baby fish or shrimp that weighs half a gram: complete nutrition must be delivered in every tiny bite.

And then there is the astounding diversity. Unlike other livestock production, aquaculture encompasses some 600 widely differing aquatic farmed food species, including fish, crustaceans, molluscs, sea cucumbers and sea urchins – and even frogs, alligators, sea squirts and jellyfish. Some are small and some enormous, and they are raised in a variety of farming systems, such as ponds, raceways, tanks, nets and open ocean facilities of varying input intensities and technological sophistication, using freshwater, brackish water and marine water, some in cold water and some in warm.

Each of these has its own specific feed requirements. Nutritional needs differ by species and life stage and require different physical feed characteristics – shape, hardness, density, solubility etc. to meet their feeding habits: feeds that float for those that feed high in the water column, those that sink at a specific rate for others or sink to the bottom, for those that feed at the bottom, such as shrimp. And aquatic species are very picky – the feed has to look, taste and smell just right for them to be attracted to it, recognize it as food and eat it. The technological and formulation know-how is highly sophisticated and ever evolving.

Suzi Dominy is the proprietor and editor of Aquafeed.com, the information resource for the aquafeed industry.
In addition to its websites, newsletters and magazines, Aquafeed.com will present the 7th Aquafeed Horizons Asia in Bangkok, April 8, 2014 at FIAAP/VICTAM/GRAPAS Asia 2014. Information about this conference, which focuses on advances in aquafeed processing and formulation, can be found at www.feedconferences.com.

Above: Pumping pilchards will soon be a thing of the past, thanks to the development of tuna feeds.

Above: Extruded tuna feeds developed by pioneering R&D firm, E.N. Hutchinson, New Zealand.

AQUAFEED Innovation Award 2014

Aquafeed.com, the information resource for the worldwide aquaculture feed industry, is proud to honor the achievements and contribution of the allied industries to the advancement of aquafeed development, with the Aquafeed Innovation Award.

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Asia's petfood market grows on rising pet ownership, premium products

Petfood Forum Asia offers petfood professionals information on the market, ingredients, product development, safety and other issues.

The number of dogs kept as pets will increase 14% in the Asia Pacific region through 2016, followed by cats and other pets growing in number by 4% and 7%, respectively, according to Warangkana Anuwong, research analyst with Euromonitor International. The growth in pet ownership, combined with a 20% increase in the sales of premium petfood products in the region, will increase petfood sales in Asia Pacific by 6.3% to 7.7% by 2016.

Anuwong presented this information during Petfood Forum Asia 2012 in Bangkok. Petfood Forum Asia will again come to the Bangkok International Trade & Exhibition Centre on April 9, 2014, in conjunction with FIAAP/VICTAM/GRAPAS Asia 2014.

During Petfood Forum Asia 2014, petfood professionals can receive new updates on the Asian and global petfood markets while also learning the latest research on pet nutrition and ingredients, petfood safety, production development and processing, and much more.

Petfood Forum Asia also offers the perfect opportunity to network with petfood professionals from throughout Asia Pacific and visit with leading industry suppliers exhibiting at FIAAP/VICTAM/GRAPAS Asia 2014.

For more information, please visit http://petfoodforum.petfoodindustry.com/PetfoodForumAsia. ➤

Above: Warangkana Anuwong, research analyst with Euromonitor International, presented information on the Asia Pacific petfood market during Petfood Forum Asia 2012 in Bangkok.

Below: Petfood Forum Asia offers the perfect opportunity to network with petfood professionals from throughout Asia Pacific and visit with leading industry suppliers exhibiting at FIAAP/VICTAM/GRAPAS Asia 2014.

Powered by premium products

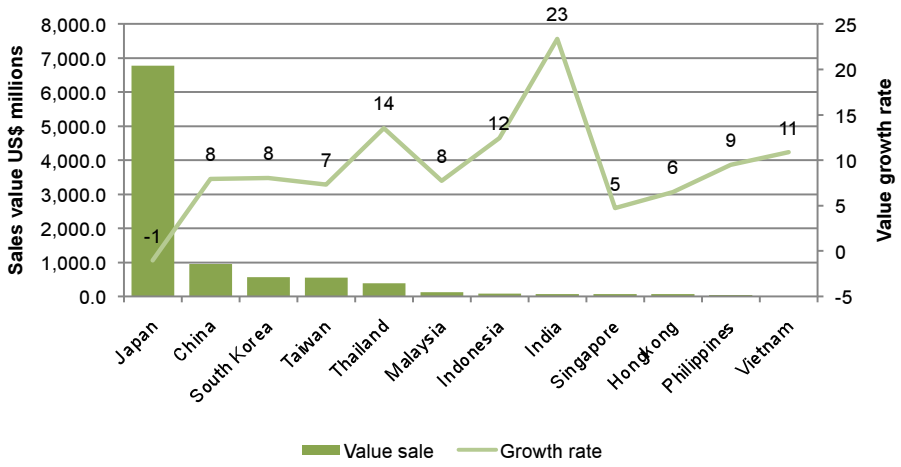
Demographic changes are driving the rise in pet ownership in Asia Pacific, Anuwong said, including 11% growth in the number of single households and couples without children over the past five years. The region's population is also aging, with the number of people over 55 years old increasing by 20% over the same period. All these groups are more likely to own pets.

At the same time, while some countries in the region experienced declines in real GDP growth during the 2009 recession – most notably Japan – most markets weathered the economic storm fairly well. And all Asia Pacific countries saw positive growth in pet product sales, ranging from 2% for Japan up to about 18% for India.

Growth in petfood sales for the region was especially strong with the exception of Japan, whose sales declined 1% in 2011, Anuwong said. Though starting from much smaller sales bases, the other Asia Pacific countries experienced growth ranging from 5% for Singapore up to 23% for India *(see figure 1)*.

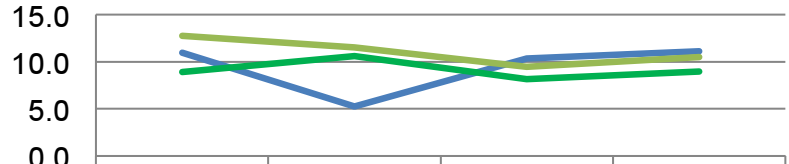
Increasing sales of premium petfoods, along with economy-priced brands, mainly powered that sales growth. Between 2008 and 2011, premium petfood sales in the region (excluding Japan) rose 9.5% to 12.7% a year, Anuwong said, while the growth rate for economy-priced petfoods picked up again after the 2009 recession. Mid-priced brands averaged about 9% growth during that period *(see figure 2)*. In markets like Thailand, Anuwong explained, mid-priced products drove growth because consumers were more cautious about price but did not want to compromise too much in terms of quality.

Figure 1. Asia Pacific pet care sales by country for 2011 (in US$ millions)



Source: Euromonitor International

Figure 2. Annual sales growth rate by petfood category for Asia Pacific (excluding Japan) 2008-2011



	2008	2009	2010	2011
Economy	10.9	5.2	10.3	11.1
Mid-priced	8.9	10.6	8.1	9.0
Premium	12.7	11.5	9.5	10.5

Source: Euromonitor International

Where pet owners shop

Increasingly, pet owners in Asia Pacific are shopping for petfood and other pet supplies at pet superstores and online. From 2006 to 2011, sales of pet products in pet superstores in the region rose 118%, while Internet sales leaped by 168%, Anuwong said. Other distribution channels saw growth in pet product sales, too, including supermarkets/hypermarkets (63% increase), veterinary clinics (53%) and pet shops (45%). Only non-grocery retailers experienced a decline in sales of pet products, by 23%.

In Malaysia, pet shops and pet superstores offered significant discounts to attract pet owners during the recession, Anuwong said, while in Taiwan and Thailand, educational programs launched through pet retailers and veterinarians helped inform pet owners about health care for pets and the benefits of human-grade products and ingredients.

The future looks bright

Anuwong predicted sales of premium petfood products will continue to rise in Asia Pacific through 2016, at a 20% rate, while mid-priced and economy brands will remain steady. For the region overall, she projected dog food sales to increase 7.4% by 2016, cat food to grow 7.7% and petfood for other species to rise 6.3%.

The growth of petfood and pet product sales in Asia Pacific has been so strong that Paula Flores, head of pet care research for Euromonitor, said during Petfood Forum 2013 (in the US) that India and Hong Kong were among the five fastest-growing markets globally for pet care from 2007 to 2012. Within Asia Pacific, China, South Korea and Thailand were driving the region's robust pet product sales growth, she said. Thailand, for example, was among six emerging markets that grew the most in petfood sales from 2007 to 2012.

Based on that solid growth pattern, China, Thailand and India will be among the 10 fastest-growing markets globally for pet care sales through 2017, Flores said.

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Fumonisins – Revelations about an underestimated group of mycotoxin

In 1989, the US corn crop was highly contaminated by fumonisins resulting in large outbreaks of equine leukoencephalomalacia (ELEM) and porcine pulmonary edema (PPE) among swine. Subsequently, fumonisins (FUM) were recognized as a worldwide contaminant of not only animal feed but also food and especially corn.

In 1993, the International Agency for Research on Cancer in Lyon, France, evaluated the toxins produced by Fusarium moniliforme (now verticillioides) as Group 2B carcinogens (i.e. possibly carcinogenic to humans).

This group of fumonisins has been analyzed frequently in different survey reports and at quite high concentrations in commodities sourced worldwide. In 2000, a World Health Organization working group recorded that 59% of corn and corn products produced globally were contaminated with FB1 [1]. In a more recent publication from a three-year survey on the worldwide occurrence of mycotoxins, FUM were found to be the most frequently occurring mycotoxins worldwide (64% of all samples investigated) in the different commodities investigated [2]. Reviewing the occurrence of mycotoxins in DDGS samples, fumonisins were found in 91% of DDGS samples and an average contamination of 1,036 µg/kg was reported [3].

According to the BIOMIN Mycotoxin Survey – conducted yearly since 2004 – more than 60 % of all feed worldwide tested positive for the occurrence of mycotoxins. As fumonisins are relevant feed contaminants worldwide, it is of great interest to survey their occurrence. Moreover, fumonisin awareness has

increased over recent years due to the proven impact on livestock performance. Climate in general is the main factor influencing the life cycle of all mycotoxin producing fungi. Therefore, there are regions in the world where fumonisins are occurring more frequently as well as at higher contamination levels than in others.

In the year 2012, fifty-five percent of all samples analyzed tested positive for fumonisins which represented an increase of 5 percent in comparison to 2011. About 30% of all samples were contaminated with FUM levels above 750 ppb and a maximum value of 42,120 ppb was found in a corn sample from Malaysia. Corn was the most extensively tested commodity and average levels found for the investigated mycotoxins were similar or higher than those observed in 2011. FUM was the most prevalent mycotoxin in 86% of the tested samples, a level which was remarkably higher than in the previous year (71%). Not only was the percentage of positive samples higher, the average contamination level found in all samples analyzed was observed to increase from 1,379 to 1,715 ppb. Fumonisins were also greatly prevalent and were found to occur in 68% of the investigated finished feed samples. In 50% of all cases more than one mycotoxin was found in the same ingredient or feed. Fumonisins also frequently occur in combination with other mycotoxins like aflatoxins or also deoxynivalenol.

Several fungi are known to produce fumonisins in different quantities under similar conditions. The most common producers of fumonisins are Fusarium verticillioides (former F. moniliforme) *(pictured left)* and Fusarium proliferatum which are also the most common fungi associated with maize.

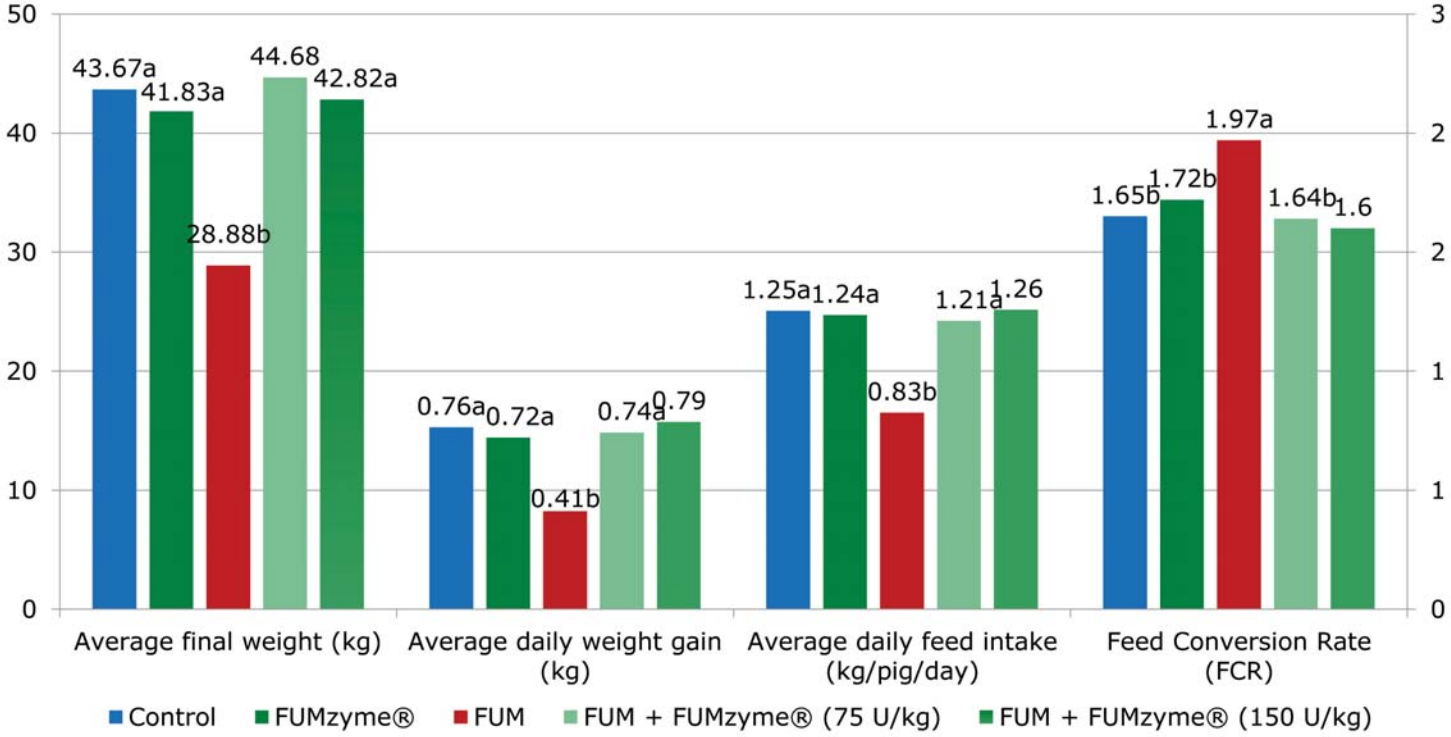
The chemical structure of fumonisin was first reported in 1988 [4]. Since then, more than 28 homologues have been discovered and more are likely to be found [5,6]. FB1 is the most common, and from a toxicological standpoint, the most thoroughly studied.

How do fumonisins affect animals?

Fumonisins are known to inhibit the biosynthesis of sphingolipids, induce hepatotoxicity, possess renal toxicity and elevate serum cholesterol concentrations in all studied species. Since their discovery in the late eighties in South Africa, FUM have been connected to a series of diseases which are tremendously species-specific in terms of pathology [7]. These diseases include esophageal cancer in certain human populations as well as leukoencephalomalacia or "hole-in-the-head-disease" in horses. In swine, fumonisin contamination is associated with porcine pulmonary edema [7,8]. This seems to be due to the capacity of FB1 to decrease cardiac contractility, mean systemic arterial pressure, heart rate and cardiac output, and increase mean pulmonary artery pressure and pulmonary artery wedge pressure [9,10]. Therefore, fumonisin-induced pulmonary edema apparently results from acute left-side heart failure and increase in tissue sphingosine concentrations which have an impact on cardiac contractility. Furthermore, this also leads to decreased heart rate. As the contractile rate of the heart decreases, mean arterial pressure falls below the level needed for the regulation of the cardiac circulation and pulmonary edema forms [11].

Besides the above mentioned effects, FUM show a broad impact on the immune system. Chronic exposure to fumonisin B1 decreased the proliferation of undifferentiated porcine epithelial intestinal cells, altered the integrity of intestinal epithelium and consequently facilitated the intrusion of pathogens into the body [12]. A 28-day administration of 8 mg fumonisin B1/kg feed to weaning piglets caused a significant decrease in antibody titer after vaccination for Mycoplasma agalactiae [13]. Fumonisin-induced impaired vaccination responses also reduced the level of specific antibodies and the period of vaccine protection. Such effects are very often undetected as they are asymptomatic, but they may cause substantial economic losses to the farm. In poultry, fumonisins reduce thymus weight, decrease antibody response to sheep red blood cells and immunization against Brucella abortus and Newcastle disease. FUM also reduce macrophage number, phagocytic ability of macrophages and decrease total white blood cell counts in poultry [14]. After scientific investigation [24-28] BIOMIN discovered FUMzyme®, an enzyme that degrades fumonisins to non-toxic hydrolyzed FB1 (HFB1). A recently published study describes that HFB1 does not cause intestinal or hepatic toxicity in a very sensitive pig model and does not induce major changes in the sphingolipid metabolism. Consequently, this suggests that the enzymatic conversion of FB1 into HFB1 is a feasible strategy to counteract FB1 exposure [29].

Authors: Verena Starkl and Karin Nährer, BIOMIN.



Temperature monitoring systems for solid bulk storages

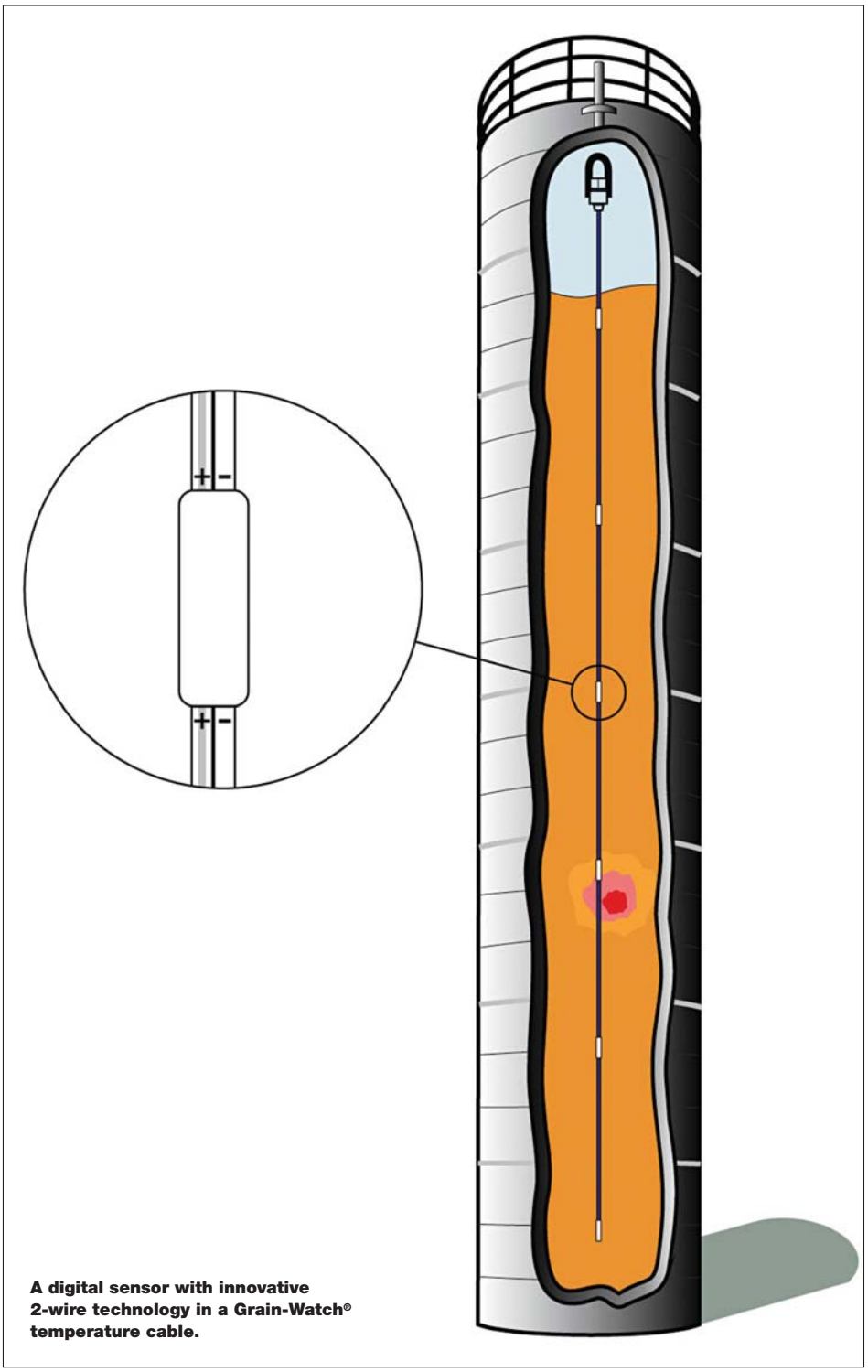
- **Digital – simple construction**
- **Modular – easily expandable**
- **Intrinsically safe – just in case...**

AB LIROS ELECTRONIC with its headquarters in Malmoe, Sweden, is a manufacturer of electrical systems for industry and agriculture with over 45 years of experience.

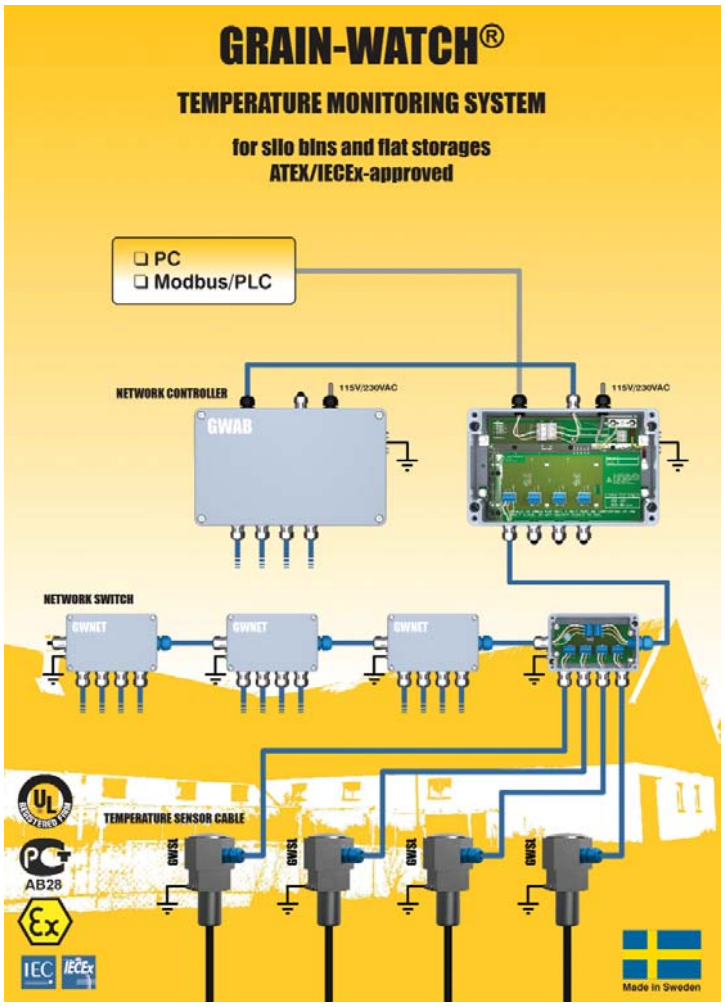
One of AB LIROS ELECTRONIC's main product lines with focus on the agricultural sector is the digital Grain-Watch® system. For over 20 years, the Grain-Watch® system has been used to monitor temperatures in grain silos and storages worldwide. With the ever-growing demand for greater and safer storage capacity and sustainable energy, the Grain-Watch® system has found new uses in the feed and biomass industry as well, for example in feed mills and biomass pellet storages. From small-scale farmers using a hand-held monitoring solution to massive feed mills and grain storages with computerized monitoring – more and more producers and bulk handlers are discovering the advantages of the fully digital Grain-Watch® system.

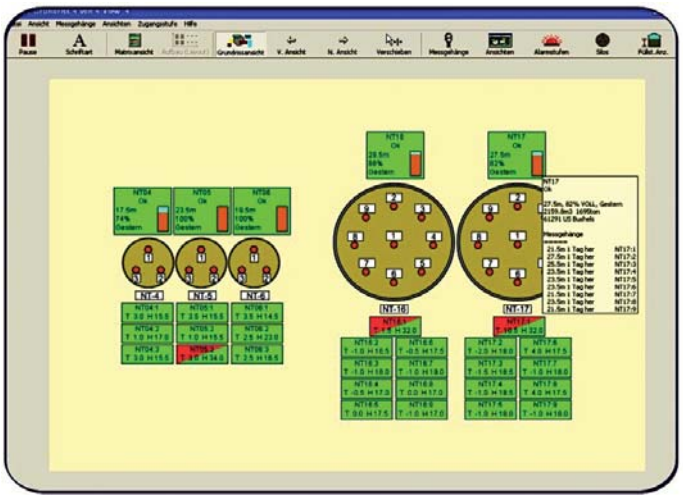
Digital

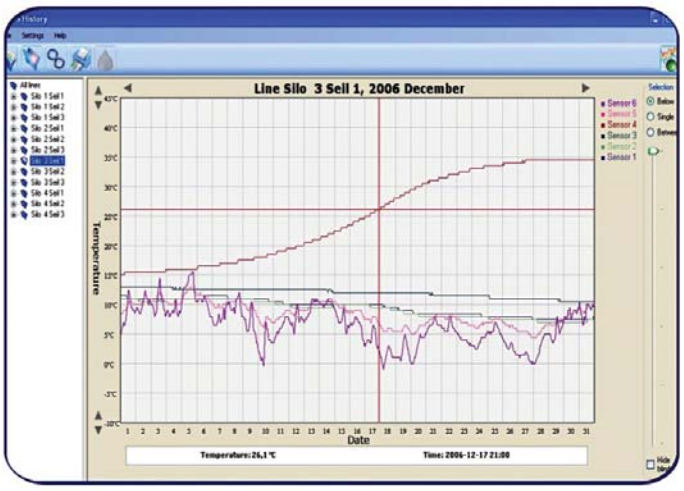
The Grain-Watch® Temperature Monitoring System from LIROS is fully digital from the onset. Using a digital RS-bus from the very beginning facilitates installation and saves components such as signal amplifiers and analogue to digital signal converters, and eliminates costs for maintenance and calibration. There is no sensor drift. Both the Grain-Watch® temperature cables and spears use high-grade digital sensors integrated in an innovative 2-wire technology. Standard sensor spacing is 2m or 3m. This not only makes installation easier, it also allows for the steel conduit temperature cables to be incredibly thin. Temperature cables up to 35m length have an outer cable diameter of only 9,8mm, significantly reducing downward drag on the roof during filling and emptying. And



A digital sensor with innovative 2-wire technology in a Grain-Watch® temperature cable.







since the Grain-Watch® temperature cables and spears do not need to be programmed with an individual ID, they are fully interchangeable.

Modular

From small grain silo plants to big storages, the Grain-Watch® system is always modular. Since all spears and temperature cables use the same innovative technology, an existing Grain-Watch® system is easily upgradeable from hand-held to customized computer monitoring and expandable to include more storage bins. When an enterprise grows, the Grain-Watch® system simply grows along with it. All that is needed to connect the components is a shielded 2- wire or 3-wire cable.

In a computer monitored system, up to 4 temperature cables or spears are connected to a Network Switch type GWNET11 via a shielded 2-wire. The Network Switch addresses the individual temperature cables or spears. 4 Network Switches can be daisy-chained with a shielded 3-wire before being connected to the Network Controller type GWAB11. The Network Controller type GWAB11 has 4 terminals for up to 4 daisy chained Network Switches each (=64 temperature cables or spears) and acts as the digital hub in the Grain-Watch® system. The GWAB11 receives the monitoring commands from the PC and relays the temperature values back to the PC at high speeds. The GWAB11 is also the only Grain-Watch® component requiring mains power in the hazardous zones.

The Grain-Watch® PC-Software is always customer specific and features around-the-clock, real-time monitoring, adjustable warning- and alarm levels for individual temperature cables, storage bins or groups of storage bins. The temperatures are automatically stored in a log file and can be printed out in table form or viewed and printed out in highly detailed temperature graphs.

Intrinsically safe

ATEX-safety is standard for us. The Grain-Watch® System is intrinsically safe – just in case. Accidents can happen, but the unspeakable may not. To ensure operational safety in hazardous environments, the Network Controller type GWAB11 is an associated apparatus to intrinsically safe circuits and limits currents flowing to the Network Switches and temperature cables.

System safety is becoming an increasingly relevant issue worldwide. To meet with the strict demands of both domestic and international customers and exporters, the Grain-Watch® system is ATEX-, IECEx-, and GOST-R approved.

Above left: A schematic view of the Grain-Watch® system. From top to bottom: Network Controller type GWAB11, Network Switch type GWNET11, temperature cables type GWSL1100.

Top: The Grain-Watch® PC-Software: customer specific, real-time temperature monitoring around the clock.

Above: A highly detailed monthly temperature graph (TMS History function).

News

LIROS is putting finishing touches to a new generation of temperature spears, the GWTL-R. Made from powerful composites, the GWTL-R is adequately rigid, yet flexible enough to be rolled up and stowed away instantly. The small diameter (8mm) and high-end, low-friction PTFE(Teflon) finish allow it to penetrate many meters of stored commodity with ease. The ergonomically shaped handle will house connectors for daisy-chaining and monitoring, with a variety of monitoring options available.

The GWTL-R uses the same innovative 2-wire technology with digital sensors, so it will be compatible with all other Grain-Watch® equipment. GWTL-R will be available in lengths up to 12m.

AQUAFEED HORIZONS

Advances in Processing & Formulation

8 April 2014, BITEC, Bangkok, Thailand

Aquafeed.com will once again hold its popular conference "Aquafeed Horizons Asia" during FIAAP/VICTAM/GRAPAS Asia 2014. The 7th in the series will again focus on advances in processing and formulation that offer practical solutions to commercial aquafeed companies and other aquafeed industry stakeholders.

Experts from around the globe will discuss aquafeed ingredients, additives and processing technology to help delegates improve their diets and profitability. The Conference will be in English with simultaneous interpretation and special rates for Thai delegates.

For conference details, sponsorship or speaking opportunities please visit: feedconferences.com

FIAAP – The Conference

Ingredients for Success!

9 April 2014, BITEC, Bangkok, Thailand

With a focus firmly on practical application and profitability, the 5th in the series of FIAAP Conferences will continue the tradition of keeping you informed. An international team of experts will bring insights into market direction, provide innovative solutions for optimizing available raw materials, update information on functional ingredients for animal health, environmental impact and the manipulation of finished animal products, as well as feed additives for physical quality and food chain safety. The Conference will be in English with simultaneous interpretation and special rates for Thai delegates.

For conference details, sponsorship or speaking opportunities please visit: feedconferences.com

XXVI FEFAC Congress

Staying profitable in volatile times

5 – 8 June 2013, Cracow

FEFAC President Mr Patrick Vanden Avenne and IZBA President Mr Adam Tanski, invite all partners of the European and international feed and livestock chain to join FEFAC's Congress in Cracow to find out "how to stay profitable in volatile times".

Key note speakers from the European Commission, including Deputy Director General Mr Jerzy Bogdan Plewa, the Polish Ministry of Agriculture, global financial institutions, market & food chain partners, and academia will present their views on how to maintain a vibrant livestock economy in a volatile market and political environment. They will discuss with the Congress audience on how our industry can meet both European and global consumer demand while ensuring the economic viability of livestock producers and value chain partners.

At a time when the CAP reform proposals are moving to the final stage of the political negotiation process under the Irish EU Council Presidency, FEFAC's Congress will provide a unique opportunity to take stock of the key measures which could help improve competitiveness of the EU livestock sector, including new initiatives for innovation and sustainable development in livestock agriculture.

Adam Tanski highlighted that "FEFAC's Congress delegates will discover with their own eyes how the Polish feed and livestock sector managed to take advantage of new business opportunities in the past decade since EU enlargement and how they plan to make the new CAP work for the benefit of Polish agriculture".

FEFAC President Patrick Vanden Avenne stated that "the only certainty we have today is that volatility is here to stay – our industry needs to support and encourage swift policy and market actions to develop the new financial risk management tools that allow our sector to stay profitable in the years ahead reaping the benefit from growing global consumer demand for products of animal origin"!

For more information on the XXVI FEFAC Congress and delegate registration please check www.fefaccongress2013.eu or contact FEFAC and IZBA offices directly.

3RD BIOMASS & PELLETS UPDATE ASIA

10TH APRIL 2014 BANGKOK INTERNATIONAL TRADE & EXHIBITION CENTRE, (BITEC)

Feed and Fuel - your residue stream a source of revenue?

Join us for Bioenergy International´s 3rd edition of "Biomass & Pellets Update Asia - a must attend one day conference on pellets and other bioenergy solutions held as part of Victam Asia 2014.

SPEAKING AND SPONSORSHIP OPPORTUNITIES AVAILABLE

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Alan Sherrard, alan.sherrard@bioenergyinternational.com
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Bangkok

Bioenergy International – "Whenever and Wherever Bioenergy is Discussed"

Established in 2001 Bioenergy International is the leading global bioenergy magazine. Seven issues per year plus the annual "World of Pellets" map are distributed to readers in 66 countries all around the world.

A Bioenergy International event in cooperation with

THE BIOENERGY international
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VICTAM Asia2014

Conference delegates at the Pellets Update in Victam Asia 2010

Extru-Tech, Inc. completes first of its kind Petfood Extrusion Validation Study

Maintaining their industry leadership role in food and product safety, Extru-Tech recently completed an industry-first scientific validation study that used a production-scale extruder to prove extrusion's effectiveness in controlling Salmonella in dry pet food. In effect, Extru-Tech's scientific validation, which was conducted at the company's Level 2 Bio-Safety Extrusion Lab in Manhattan, Kansas, proved the kill/lethality step of the extrusion system as an effective control against the persistent pathogen.

Since 2010, the Food and Drug Administration has had a zero tolerance policy for Salmonella, which is why the pet food industry has experienced a dramatic increase in recalls over the past few years. However, even though every manufacturer strives for products that are 100 percent pathogen free, applicable and validated scientific studies to support properly designed pet food safety systems weren't possible … until now.

To this point, petfood manufacturers have relied on traditional lab studies based on testing equipment ranging from beakers and pressure pots to table-top model extruders. Moreover, most testing has been completed at very low production rates of 30 grams to a few kilograms per hour. In contrast, Extru-Tech configured a BSL-2 pilot plant outfitted with an E525 production-scale extrusion system, capable of producing nearly 8,000 pounds of product per hour, and the equipment was configured for the production of an industry-generic, low-moisture, dry-expanded pet food. The selected formula was then charged with a three-serotype cocktail of Salmonella, an inoculant that represents typical contamination events in the manufacturing process.

As part of the study, Extru-Tech also considered the fact that a dry inoculant introduced into the ingredient stream better represents how the pathogens are usually present within contaminated raw ingredients. If Salmonella is in a liquid, which is often the case in research studies, heat will transfer quickly and kill it quickly. However, this is not a representation of what happens in a petfood plant, and creates a false set of operational parameters that do not control Salmonella.

"Extru-tech is using actual equipment that you would find in most pet food plants in a bio-hazard laboratory or a pilot plant," said Jim Marsden, PhD, regents distinguished professor at Kansas State University. "Raw materials can be inoculated with Salmonella or other pathogens and the effect of the extrusion process can be exactly quantified. This process is a breakthrough for the pet food industry."

All three replications of the challenge study resulted in a log reduction of Salmonella that exceeded the 5-log reduction requirement of a CCP allocation. Extru-Tech also discovered that many readily available and scientific methods of inoculation rendered a result that was not truly representative of a contamination event because of the method by which the raw material was inoculated.

"Extru-tech is documenting the parameters that are required to deactivate Salmonella in the extrusion process," said Dr. Marsden. "There are other production steps that follow where Salmonella could re-contaminate the product. Consequently, Extru-tech is looking at those additional steps to identify interventions that could be applied downstream to prevent recontamination."

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New Valve Options

In a continued effort to improve product performance and production control, Extru-Tech, Inc. has introduced a new Mid-Barrel Valve (MBV), as well as a new Energy Management Valve (EMV). Used independently, or together, both products offer increased control of SME (Specific Mechanical Energy).

Because it is an internal component, the MBV can be added in any position along the length of the barrel for on-line control of SME and product density. Used with the company's highly adaptable single screw extruders, the new MBV allows manufacturers to achieve higher SME, higher cook and lower bulk density, even with fresh meat and high-fat recipes.

The new EMV located at the barrel discharge, meanwhile, controls the final characteristics of the product by dynamically adjusting the extruder die restriction — even when the machine is in operation. Because of the advanced EMV design it also allows the flow of off-spec extrudate to be diverted away from the conveyance system thus reducing the chances of contaminating the conveyance system and further reducing food safety risk. Used together, the EMV and MBV further maximize SME, by manipulating product density. Their combined use also allows for quicker acquisition of product density, critical limit temperatures and pressures … all with less waste.

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State-of-the-art technology at the service of sanitation of feed

To be able to ensure the absence of pathogens through a modern technique of cleaning. With the strength of an experience gained over more than fifty years of history, combined with the ability to know how to innovate every day thus opening the door to the future, La Meccanica Srl guarantees the highest technological quality of its plants.

This company located in Cittadella (Padua, Italy), numbers about 50 employees and an annual turnover of over 14 million Euros, LaMeccanica Srl is specialized in technology for the animal feed industry and processing of biomasses.

The production of feed must ensure proper hygiene during production, storage and transport, as well as the absence of pathogens. For this reason, the product must go through sanitation, a process that guarantees the quality of the feed in both the technical and the physiological nutritional dimension. The Meccanica Srl makes sanitizing with hydrothermal treatment and extended conditioning.

The product is preheated with steam in a conditioner heat, then passes to the SNF sterilizer, a double walled container heated with diathermic oil, where the preheated flour is maintained for the time necessary to remove all components of pathogens which are sensitive to heat. Thanks to the speed control, the residence time and the high thermal inertia of the mass of oil, the system allows constant and the exact control of the parameters of the heat treatment. All parts that come into contact with raw materials, including shafts and paddles of the thermic conditioner, shaft of the steriliser, connections and mixers, are made of stainless steel to eliminate corrosion and minimize the risk of contamination of products. The steriliser ensures a crossing time from 3 to 4 min.and a constant temperature up to 90 ° C with a tolerance of + / 1° C and a first in first out path of the product. The conditioning can increase the productivity of the press up to 15% and also improves the Pellet Durability Index (PDI). Are thus achieved three objectives: elimination of salmonella, starch gelatinization and sanitizing of the product.

Above: Super Hygenizer – Lamec SNF 800. Inset: Sanitary 925XL with MBV.

Animal Farming Ukraine 2012 heralded as great success

Animal Farming Ukraine 2012 was held from 31 October - 2 November in the International Exhibition Centre (IEC) in Kiev, Ukraine.

The show hosted some 150 companies exhibiting from 24 countries around the world, occupying approx. 5.500 square meters of indoor exhibition space. The exhibition welcomed more than 5.000 trade visitors over 3 days. With an exhibitor satisfaction of 84% we can truly say that Animal Farming Ukraine once again was a great success!"

Key industry players were attracted by the extensive conference and seminar program that was organised during the exhibition. The topics of the seminars included: The 3rd International Seminar "efficient pig farming" organised by Agroexpert Magazine and "International expertise for feed safety and responsibility on the Ukrainian market." Organised by GMP+ from the Netherlands.

Animal Farming Ukraine is the first exhibition in Ukraine dedicated exclusively to animal farming; it is also the only dedicated platform to start or expand the animal farming business in Ukraine

Animal Farming Ukraine 2013 will once again present the entire range of products in the field of animal farming and directly related businesses.

The FIAAP & VICTAM Pavilion at Animal Farming Ukraine 2013 is scheduled for 29 – 31 October 2013.

Following the success of Animal Farming Ukraine 2012 exhibition there will again be a VICTAM & FIAAP Pavilion at the 2013 event. This exhibition pavilion will provide a specialist area within the event for companies that supply ingredients, additives and processing technology used for the safe and cost effective production of animal feeds. Companies who exhibited before have come back and new companies as well. This proves the success of the event and the considerable opportunities that are open to companies wanting to get a foothold in this large agricultural market.

The Ukraine is investing heavily in the development and enlargement of its livestock industry. This will undoubtedly mean that the Ukraine's animal feed sector will have to invest in order to expand and modernise its feed production plants to meet these demands. This will have an impact on companies who design, build and equip animal feed plants and of course also companies who also supply the raw materials and specialist additives and ingredients used within the feed production process. The VICTAM & FIAAP Pavilion at Animal Farming Ukraine therefore offers you the opportunity to meet, discuss and influence the decision makers within the Ukraine's feed industry.

Preparations are well under way for the 2013 exhibition.

ANIMALFARMING Ukraine

More information on FIAAP & VICTAM Pavilion Ukraine can be found on www.fiaap.com and www.victam.com

SIX EVENTS

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VICTAM International 2015

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FIAAP, VICTAM and GRAPAS launch new websites

Over the recent months we have been developing and re-arranging our websites. These are now complete and are on-line.

You are now able to find the latest information on each of our exhibitions – FIAAP, VICTAM and GRAPAS as each show now has a fully dedicated website. As we approach the opening of the shows so new slides will appear on the websites so keeping our exhibitors, visitors and conference delegates up to date on what is happening and what needs to be done.

Don't forget to try out the new websites and let us know how you are finding the content, navigation etc.

We also have our own social networking sites, details of these are also on our websites, so keep in touch!

www.fiaap.com, www.victam.com, www.grapas.eu

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Built by feed millers for feed millers. Equipped with the industry's most efficient drive system, the new Bühler pellet mill Kubex™ T saves up to 20 % of energy – while boosting line capacity to up to 80 tons per hour. With the Kubex™ T you save costs, reduce your carbon footprint and make your operation even more productive. Gaining competitive advantages has never been easier.
For more information www.buhlergroup.com/kubex-t

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