



PET FOOD MAGAZINE

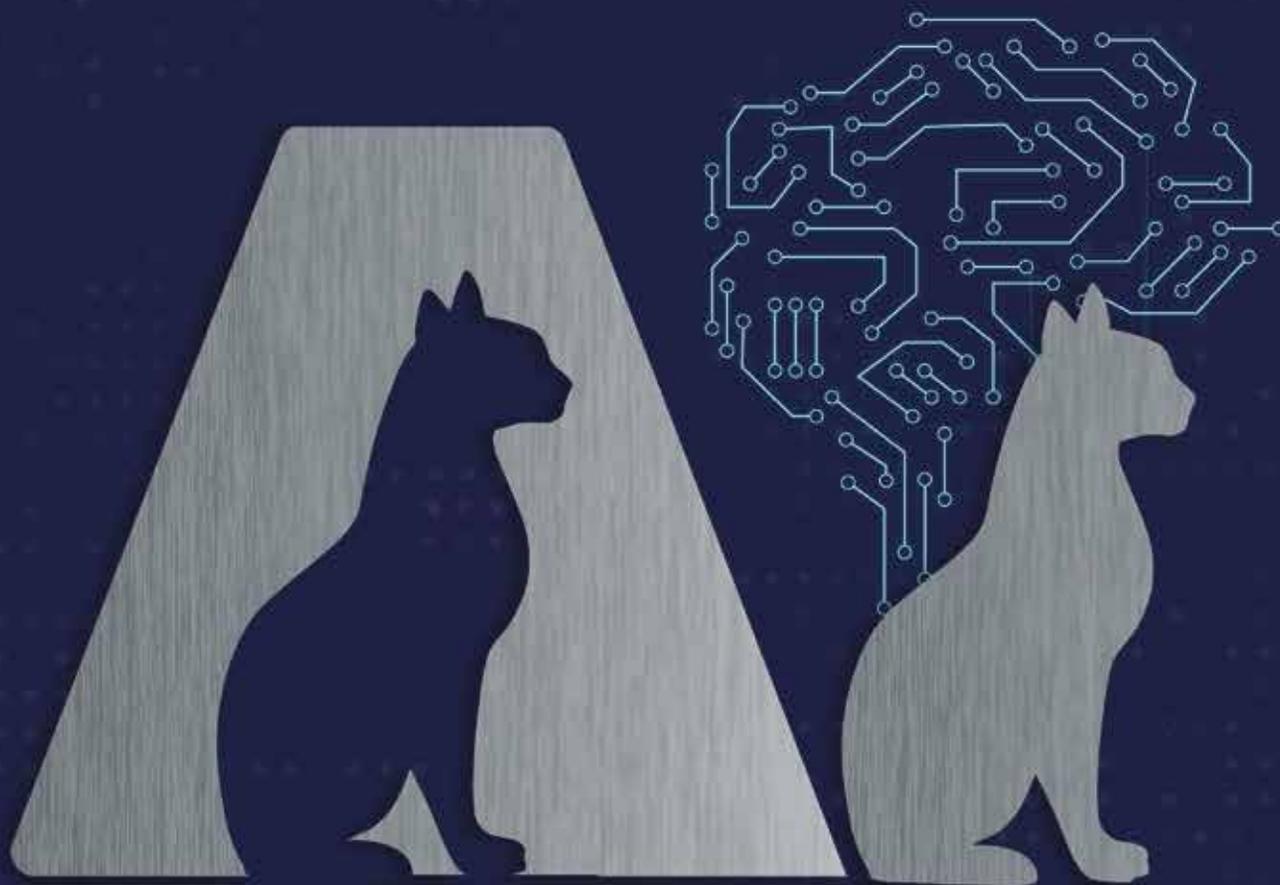
Issue N° 11

INTERNATIONAL MAGAZINE ABOUT PET FOOD INDUSTRY

Volume IV
April 2022

**ARTIFICIAL INTELLIGENCE
IN THE PET INDUSTRY**

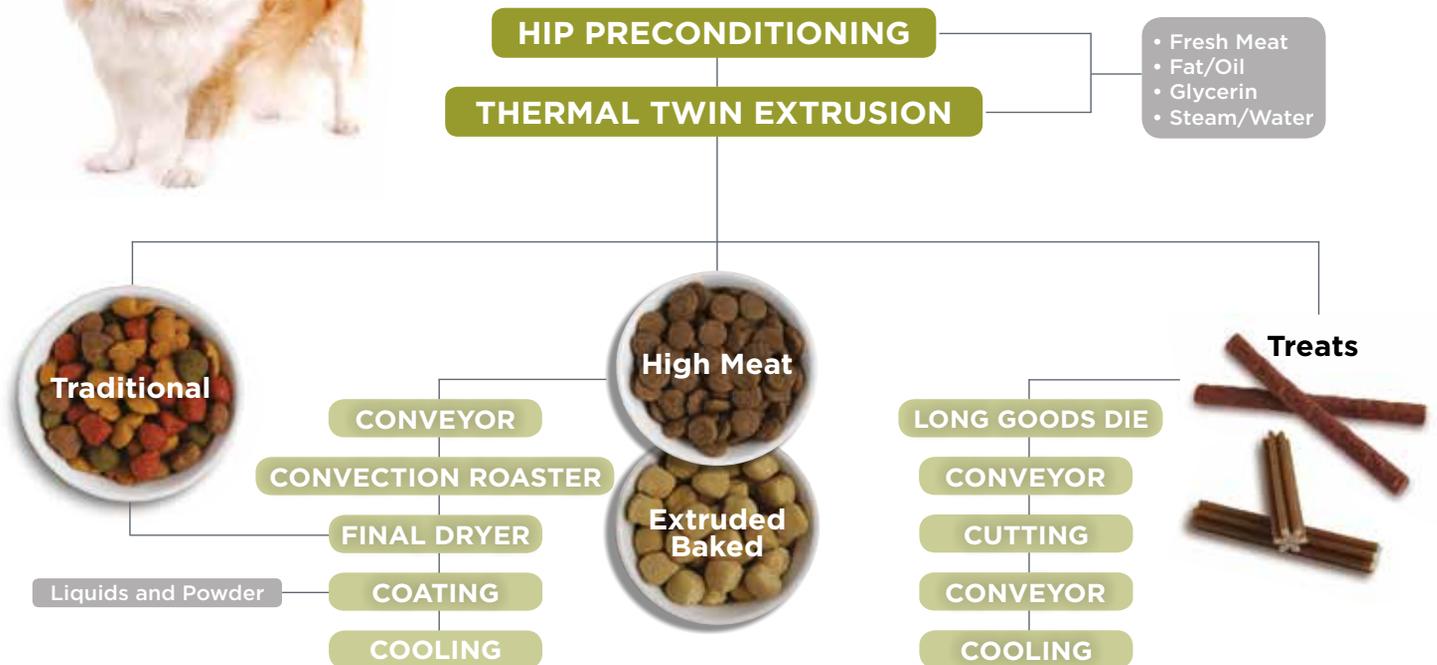
**AUTOMATION AND DATA, A
QUANTUM LEAP IN THE PET
FOOD INDUSTRY**



**FOOD SUPPLEMENTS IN PET FOOD: AN
EXAMPLE IN DOGS WITH ESSENTIAL
OILS AND MELATONIN AS FUNCTIONAL
INGREDIENTS**

**THE INTERVIEW:
VLADMIR MAGANHOTO**

GAIN ULTRA VERSATILITY AND EFFICIENCY WITH THE **PETFLEX PROCESS.**



With Wenger's **PetFlex Process**, you can produce standard pet food, high meat inclusions, baked treats and long goods. Centered around our Thermal Twin Extrusion technology, this complete process boasts lower energy costs, less wear and lower environmental impact.

Stretch your production power with the ultra flexible **PetFlex Process**. Email us at info@wenger.com today.



COMPANION ANIMAL DIVISION

PHONE: 785.284.2133 | EMAIL: INFO@WENGER.COM | WENGER.COM

USA | BELGIUM | TAIWAN | BRASIL | CHINA

In this issue

All Pet Food

Alvear 44, Chacabuco
Provincia Buenos Aires–Argentina
Info@allpetfood.net

Managing Director

Pablo Porcel de Peralta
pablo.porcel@allpetfood.net
M. +54 9 2364-537698

Sales manager

Iván Marquetti
ivan.marquetti@allpetfood.net
M. +54 9 2352 501730

Director's assistant

Victorina Manes
victorina.manes@allpetfood.net

Editorial Team

Luciana Chippano
María Candelaria Carbajo
Ludmila Barbi Trindade
Erika Stasienuk
Armando Enriquez de la Fuente Blanquet
Fernando Raizer
Luis Miguel Gómez Osorio
Juan Manuel Peralta

Art and Editorial Design

Laureano Cane
Juliana Di Palma

Software development

Matías Basile
Matías Schettino

Our Community

Web: www.allextruded.com
Linkedin. <https://bit.ly/36SK5MT>
Facebook <https://bit.ly/3kGFjk5>
Twitter: <https://bit.ly/3ByDbdY>
Youtube: <https://bit.ly/3izLoHn>

4- EDITORIAL

6- NUTRITIONAL ALTERNATIVES TO IMPROVE THE QUALITY OF LIFE OF PETS

8- FOOD SUPPLEMENTS IN PET FOOD: AN EXAMPLE IN DOGS WITH ESSENTIAL OILS AND MELATONIN AS FUNCTIONAL INGREDIENTS

14- AUTOMATION AND DATA, A QUANTUM LEAP IN THE PET FOOD INDUSTRY

20- ARTIFICIAL INTELLIGENCE IN THE PET INDUSTRY

22- TECHNOLOGICAL CHALLENGES IN PET FOOD MANUFACTURING

24- AUTOMATION AVAILABLE RESOURCES FOR THE ANIMAL FEED PRODUCTION SEGMENT

28- TECHNOLOGY SHOWCASE

30- REMOTE ACCESS FOR INDUSTRIAL CONTROL SYSTEMS

34- WHAT'S BEHIND THE BAGS FOR OUR LOVED DOG, CAT OR HORSE?

38- SHOULD I WORRY ABOUT MYCOTOXINS?

42- THE INTERVIEW: VLADMIR MAGANHOTO

46- A YEAR OF INNOVATION IN PET FOOD

48- DIET MODULATION IN ADVERSE FOOD REACTIONS IN DOGS AND CATS

50- INNOVATION IN THE PET FOOD INDUSTRY

52- THE PACKAGING REVOLUTION: SERVICE AND SUSTAINABILITY

54- CANTILEVER SHAFT DESIGN FOR KEMUTEC KEK® CENTRIFUGAL SIFTERS IMPROVES POWDER PROCESSING HYGIENE AND EASE OF OPERATION



EDITORIAL

In 2020, technology disrupted our lives and of course the pet food industry. All of a sudden, accessories stores, manufacturers and distributors were forced to look for technological alternatives that would allow them to continue with the operations and activities. And so, without realizing it, we took a quantum leap towards more efficient, accurate and beneficial processes, formulas, operations and tasks, both for those who ultimately receive our food, the pet parents & pets, and for those of us on this side, the manufacturers. and producers.

Today, more than two years since that fateful March 2020, and only now can we begin to clearly see the consequences and transformational changes that have come to stay in the pet food industry. One of them is, no doubt about it, the digital transformation, to which we focus in a great extent during this issue

In Latin America we're at the beginning of a winter season that seems to be harsh, and what better way to enjoy it with our pets? In USA and Europe, on the other hand, we are preparing to enjoy a new summer, perhaps the closest to what we previously knew as normal life and, of course, along with our pets, which will be enjoying with us the kindness of summer time.

That's why, in this issue, we're focusing on talking about technological innovation in our industry and those implementations that have brought great improvements in the pet food production process, such as automation & its implementation options, data collection and analysis, artificial intelligence, remote access for control systems and more.

To deepening into this aspect and learn about the experiences of those who are working in the industry every day, we have some features and stories of leading companies such as Schenck Process, Ferraz, Northwind, Biorigin and an exclusive interview with *Vladmir Maganhoto, Director of BRF.*

We say goodbye hoping that you enjoy this new issue of All Pet Food Magazine, and we'll be meeting you at the next local or international events.

Editorial Team





THEY DESERVE THE BEST

EXTRUSION | EXPERTISE | EXCELLENCE

www.clextral.com

CLEXTRAL

PETFOOD & TREATS PRODUCTION LINES



EVOLUM+ RANGE

- Twin-screw extrusion line
- Density Control
- Product & Process flexibility
- Hygienic design



ROSKAMP CHAMPION
BETA RAVEN
WOLVERINE PROCTOR
Your Partners in Productivity

Experts in everything.

That goes double for petfood. With the world's lowest operating costs backed by outstanding customer service, our rock-solid equipment will keep your business running—year after year.

Stand IPP N° B7813 (Building B, booth 7813)

sales@cpmroskamp.com
CPM.net



Automation



Weighing systems



Weighing systems



Hammermills

CPM Brasil
(Crown Iron Tecnologías LTDA.)
Av Ibirapuera, 2120 | Moema
São Paulo - SP | 04515-001
Ph: +55-11-3074-4099

CPM Argentina
Junin 191 Piso 6 Of. 2
Rosario (2000) | Santa Fe, Argentina
Ph: Ph: +54 911-5389-5312

CPM Roskamp Champion
2975 Airline Cir., Waterloo, IA 50703 - USA, Ph: +1-319-232-8444



NUTRITIONAL ALTERNATIVES TO IMPROVE THE QUALITY OF LIFE OF PETS

Pet humanization has become an increasingly significant phenomenon. Having fewer children, higher life expectancy, and being emotionally helpless has led people to seek pets' company. During the last two years, the number of dogs and cats adopted has increased worldwide to alleviate the effects of isolation caused by the COVID pandemic. The human-animal bond is a mutually-beneficial and dynamic relationship influenced by behaviors considered essential for the health and well-being of both.

By Biorigin

Several scientific articles demonstrate the beneficial effects of this human-animal relationship in humans. Therefore, pet parents have become increasingly committed to reciprocating these benefits. A recent survey by Mintel (2021) showed that 33% of the Peruvians interviewed said that there are no limits to the amounts they would spend for their pets' health. In Mexico, 73% of respondents own dogs, and 35% own cats. The Latin American pet food industry has increasingly matured and grown. Latin-American consumers seek cost-effective premium pet foods. Although food price is considered when purchasing pet food, food quality has become a significant factor, particularly products

The Latin American pet food industry has increasingly matured and grown. Latin-American consumers seek cost-effective premium pet foods.

offering natural and sustainable options.

According to Mintel, pet parents are increasingly committed to ensuring their pets a long and healthy life and seeking preventive measures to achieve this goal. In the last five years, more than 5,100 products with an immune health claim (Immune System - Functional) were launched worldwide, and this figure has shown a 7% annual increase (CAGR 2018-2020; MINTEL).

Hippocrates said, "Let food be thy medicine, and let medicine be thy food." This sentence perfectly applies to today's pet food market with the extensive adoption of functional and nutraceutical ingredients. Moreover, due to COVID, consumers seek products to prevent diseases and improve their quality of life through nutrition.

The yeast *Saccharomyces cerevisiae* has been used as a functional food ingredient for thousands of years. In the pet food industry, its contribution to food palatability and function-

nality has been widely demonstrated, as it is a source of amino acids, peptides, nucleotides, B vitamins, manna oligosaccharides, and beta-1,3/1,6-glucans.

Beta-1,3/1,6-glucans are natural polysaccharides located inside the yeast cell wall, protected by a mannan oligosaccharide layer. They have proven direct beneficial effects on the gut immune system. However, to exert such benefits, the yeast needs to be submitted to a purification process to break down the mannan oligosaccharide to release the beta-1,3/1,6-glucan molecules. Biorigin's MacroGard is a world-class biotechnological product with extensive scientific evidence of its effectiveness.

MacroGard is composed of beta-1,3/1,6-glucans, and its benefits are related to immune modulation and glucose and lipid metabolism. Studies with dogs and cats evaluating MacroGard added to extruded food and cookies (or fed in capsules) demonstrated its effects on: dog atopy (Beynen et al., 2011), osteoarticular conditions (Beynen & Legerstee, 2010), oral health (Verbrugghe et al., 2012), inflammatory response reduction (Oliveira et al., 2019; Vetvicka and Oliveira, 2014; Zaine, 2014; Verbrugghe et al., 2012; Zaine, 2010), neutrophil and monocyte phagocytic activity (Vetvicka and Oliveira, 2012; Zaine, 2014), antibody production (Oliveira et al., 2019), glucose and insulin metabolism (Ferreira et al., 2022; Vetvicka and Oliveira, 2014), and lipid metabolism (Ferreira et al., 2022).

MacroGard can be fed to dogs of all ages, strengthening their defenses to face possible challenges. It is particularly indicated during vulnerable life stages, such as for growing and elderly dogs. MacroGard is resistant to heat processing during pet food manufacturing, ensuring its safety and effective function when fed to dogs and cats.

References

- Beynen, A.C. & Legerstee, E., 2010, *Influence of Dietary Beta-1,3/1,6-Glucans on Clinical Signs of Canine Osteoarthritis in a Double-Blind, Placebo-Controlled Trial*
- Beynen, A.C. et al., 2011, *Dietary Beta-1,3/1,6-Glucans Reduce Clinical Signs of Canine Atopy*
- MINTEL
- Mintel (2021). *Mintel's-35 market research study, March 2021.*
- Ferreira et al., 2022. *Metabolic variables of obese dogs with insulin resistance supplemented with yeast beta-glucan, BMC Veterinary Research, 2022, <https://doi.org/10.1186/s12917-021-03106-2>*
- Verbrugghe, A. et al., 2012, *B-1,3/1,6-glucans down-regulate whole blood NFκB and IL-1β mRNA expression and alveolar bone loss in feline periodontal disease*
- Vetvicka, V. & Oliveira, C., 2014, *(1-3)(1-6)-D-glucans Modulate Immune Status and Blood Glucose Levels in Dogs*
- Vetvicka, V. & Oliveira, C., 2014. *b(1-3)(1-6)-D-glucans Modulate Immune Status and Blood Glucose Levels in Dogs*
- Zaine, L., 2014, *Doctoral Thesis: Efeito do 1,3/1,6 beta-glucano no sistema imune de cadelas submetidas a ovarió-histerectomia, FCAV/UNESP, Campus de Jaboticabal*
- Zaine, L., 2010, *Master Thesis: Avaliação do efeito de derivados de parede celular de levedura de cana-de-açúcar (Saccharomyces cerevisiae) sobre a resposta imune de cães adultos, FCAV/UNESP, Campus de Jaboticabal*

For the
best buddy,
the best
wishes

MacroGard is an essential nutritional support that helps your buddy have a longer and healthier life. Source of purified beta-glucans from *S. cerevisiae* yeast, MacroGard strengthens your pet's natural defenses by maintaining its health and making it stronger, resistant, and ready to face the challenges of a longer life.

**MORE TIME FOR HAPPINESS
& UNCONDITIONAL LOVE!**



MacroGard is natural, not genetically engineered, and ADF (animal origin free). It does not contain cereals containing gluten.

Choose Biorigin. #GoBiorigin.
Quality Animal Nutrition.

VITALITY
STRONG DEFENSE

BEAUTIFUL SKIN & COAT

HEALTH & WELLNESS

GOOD SHAPE

For technical information:
www.biorigin.net
bioorigin@biorigin.net

Biorigin Animal Health and Nutrition

Biorigin
Act in Natural Ingredients



FOOD SUPPLEMENTS IN PET FOOD: AN EXAMPLE IN DOGS WITH ESSENTIAL OILS AND MELATONIN AS FUNCTIONAL INGREDIENTS

To this day, the term “nutraceutical” applies to a wide range of products, such as food and dietary supplements, botanicals, phytochemicals, specific processed foods (functional foods), and individual nutrients. Consumers in the United States, Canada, Europe, and Japan show great acceptance of these products for their pets, even assuming the high prices that most of them command. Providing pets with a nutritionally balanced diet is the responsibility of the guardians. In this context, numerous innovations related to food supplements development with properties aimed at specific areas of health have emerged, promoting an expanding market in the pet food sector.

Doctor Domingo Ruiz-Cano - R&D Department of ALINATUR PET FOOD, S.L., Lorca, 30817-Murcia, Spain

Mr. Ginés Sánchez Carrasco - Production Department of ALINATUR PET FOOD, S.L., Lorca, 30817-Murcia, Spain.

Professor Marino B. Arnao - Department of Plant Biology (Plant Physiology Area), Faculty of Biology, University of Murcia, 30100-Murcia, Spain.

The word nutraceutical mixes the terms “nutrient” and “pharmaceutical.” It was coined by Stephen DeFelice in 1995, who defined nutraceuticals as “foods (or part of a food) that provide health benefits, including prevention or treatment of a disease.” Today, the term “nutraceutical” applies to a wide range of products, such as food and dietary supplements, botanicals, specific processed foods (functional foods), and isolated nutrients. The European Nutraceutical Association defines nutraceuticals as substances that differ from pharmaceuticals being “synthetic

substances or chemical compounds formulated for specific health indications.” The terms “food and dietary supplements” and “functional foods” are used without distinction as synonyms, although there are substantial differences between them that are not always obvious. On the one hand, food supplements contain nutrients derived from food products commonly concentrated in capsule, powder, liquid, or tablet forms. On the other hand, functional foods contain the nutrients necessary for survival, while nutraceuticals are complementary to the diet;

they also help in disease prevention and health dysfunctions.

There are numerous classifications of nutraceuticals, functional foods, and food and dietary supplements. Previously, they were classified as potential or established nutraceuticals based on food material and nutrients or concerning their positive effects on health. Their classification is mostly based on the chemical components or active ingredients. During the last couple of years, we have seen many new nutraceuticals. This resulted in a long nutraceutical list whose active ingredients are as diverse as surprising. It includes: phenolic compounds (i.e., flavonoids, anthocyanins, resveratrol), organic acids (vitamin C), tocopherols (vitamin E), carotenoids (provitamin A), anthraquinones, isoprenoids, alkaloids, isothiocyanates, and mono and polyunsaturated fatty acids (MUFAs, PUFA), among others. A particular type is prebiotic and probiotic products. Consumers in the United States, Canada, Europe, and Japan show great acceptance of these products and easily pay the high prices that most of them command. Perhaps, for companies producing nutraceuticals, the potential nutritional interest is dwarfed by the prospective market value that reached US\$250 billion in 2018. In general, plant-based nutraceuticals tend to be better accepted by consumers than others, as they come from vegetal sources. In this sense, nutrition-based health throughout human history can be explained by Prof. Rowe's humorous comment (1999):

2000 B.C.—Here, eat this root.

A.D. 1000—That root is pagan. Now say this prayer.

A.D. 1850—That prayer is superstition. Now, drink this potion.

1940 A.D.—That potion is poisonous. Now take this pill.

1985 A.D.—That pill is ineffective, take this antibiotic.

2000 A.D.—That antibiotic is not natural, better eat this root.

By synergy, nutrition in pet food has been conquered by nutraceuticals and functional foods as well, constituting a category of products booming in the sector. Pet food companies are considerably increasing the incorporation of functional foods in the diets of companion animals, complementing the offer of conventional products (Ruiz-Cano, Sánchez, & Arnao, 2022). The global market for functional pet foods, including organic foods, reached a value of US\$ 1,955 million in 2020 and is estimated to reach US\$ 4,676 million in 2030, forecasting a growth of 8.8% in that period. Within this market, the dog segment accounted for 69% in 2019, representing approximately 50% of the global functional pet food market in 2020. This trend is

The global market for functional pet foods, including organic foods, reached a value of US\$ 1,955 million in 2020 and is estimated to reach US\$ 4,676 million in 2030

expected to continue over the forecast period (Kamble and Deshmukh, 2021). Generally, veterinary professionals agree with the use of functional foods, as long as their recommendation has scientific data support for the safety and efficacy of these new products (Ruiz-Cano, Sánchez, and Arnao, 2022).

There are many types of ingredients that constitute the new functional foods. Thus, the classics such as minerals, vitamins, fibers, various polysaccharides, mono- and poly-unsaturated fatty acids, etc., have been joined by others, which alone or in combination, are presented as novelties or even as "foods or ingredients miracle." In the pet food sector, we can mention novel compounds such as:

1) Polyphenols (flavones and isoflavones, flavonols and flavonoids, anthocyanins and pro-anthocyanidins); simple phenols such as phenolic acids and their alcoholic derivatives, ella-

gic acids, coumarins, stilbenes such as resveratrol, colorants such as betalains (betacyanins and betaxanthins) and curcuminoids, very topical, with wide and varied applications in health.

2) Aliphatic, aromatic and indolic glucosinolates, and their hydrolysis products, isothiocyanates, where their role as anti-oncogenic substances stands out.

3) Terpenoids, one of the most traditional in their use, are the carotenoids, although several xanthophylls with excellent characteristics have been added to the classic carotenes (α - and β -carotene, lycopene). Another group of terpenoids with growing applications are essential oils, composed of mono-, di- and sesquiterpenes, as well as various phenolic compounds. Aspects such as its enormous diversity, ethnopharmacological background, and progressive scientific study are opening up multiple applications as functional ingredients with a promising future. Triterpene saponins such as squalene and others have attractive applications as hypocholesterolemic and anti-inflammatory.

4) Alkaloids used pharmacologically for their psycho- and neurophysiological properties, which have been recently revisited with extensive studies (capsaicin, piperine, barbaloin, hypericin, etc.), are also the case of anthraquinones, studied for their antibacterial properties, among others.

The key source of these compounds are various plants, constituting a great and diverse store of functional ingredients with enormous prospects for application in nutrition and health. With increasing momentum, large companies are chartering expeditions of scientists in search of novel plant ingredients, especially in Asian countries. Lately, other sources provide interesting ingredients and functionalities, such as microalgae. In this case, counting to its excellent qualitative and quantitative protein and fatty acid content, a mineral and vitamin content is added that is difficult to surpass by other sources. In addition, its good relationship between production costs and yields makes it possible to boast increasingly affordable prices. One of the most novel sources of ingredients is that of insects. Even though nutritionally speaking, they are high-quality biological materials, especially for their protein, it is difficult to think that their limited production can cover the sector's needs.

Among the functional properties of these ingredients with interest for the pet food sector, we can point out, from general actions with non-specific benefits for health such as healthy, energetic, invigorating, restorative, anti-aging, etc., to more or less specific impacts such as anti-bacterial, fungal, viral, parasitic; ingredients with regulatory activities of metabolic functions such as those related to cholesterol, triglycerides, glucose, ureides, etc.; we can also mention the ingredients against pain, nausea, dizziness, hypertension, vasodilators, etc.; those with organic activity such as hepato-protectors, protectors of the renal, urinary, coronary, pulmonary, arterial, gastrointestinal, oral, nasal, etc.; without forgetting those aimed at mood and sleep such as antidepressants, relaxants and sedatives, and finally, those with an activating capacity of the immune system and anti-cancer and anti-aging, which means a whole arsenal of natural compounds to improve against health dysfunctions in our pets. We must not forget that they are not drugs and, therefore, only adequate and generally continued use could - presumably - alleviate specific minor dysfunctions. For example, increased intake of certain functional ingredients (vitamin D, omega-3 PUFA, phytochemicals such as some essential oils and tea catechins) affects positively immune function, improving defenses and reducing the risk of infection (Bobek, 2020).

Next, we are focusing on the development of a range of food supplements for dogs. In this case, a preliminary study was carried out on those aspects related to the health of animals that

BRAVERY

NEW FLAVOUR

HERRING



HERRING
PROTEIN

100%



www.braverypetfood.com



Alinatur

PET FOODS

BRAVERY

MOST

NATURAL FOOD

FOR YOUR PET

100%
NATURAL

NATURAL ANTIOXIDANTS
GLUTEN FREE
HYPOALLERGENIC
NO ARTIFICIAL ADDITIVES



www.braverypetfood.com



Alinatur

PET FOODS

Table 1. Packaging and formulation of food supplements for dogs.

NAME OF PRODUCT	IMAGEN PACK	FUNCTIONAL INGREDIENTS	BENEFICIAL PROPERTIES
Articular		Salmon oil Tocopherols & Essential oils: Eucalyptus Ginger Marjoram	Joint health Anti-inflammatory Arthritis prevention
Intestinal Parasite		Salmon oil Tocopherols & Essential oils: Savory Sagebrush Clove	Gut health Antiparasitic action Antiseptic action
Skin & Hair		Salmon oil Tocopherols & Essential oils: Chinese Tea tree Peppermint & Melatonin	Hair and skin health Pads and strong nails Shiny hair
Antistress		Salmon oil Tocopherols & Essential oils: Lemongrass Hypericum & Melatonin	Nervous system health Anti-stress Anti-fears Relaxing

could be improved or alleviated with functional ingredients. In this range, aspects such as oral hygiene, fur, gastrointestinal, liver, and kidney problems; muscle and joint performance aids; aging and stress problems, remedies against fear, and some more were addressed. In this work, we will focus on exposing four of the food supplements developed, with health objectives in joint health (Joint), intestinal health (Intestinal Parasite), fur health (Skin & Hair), and nervous health (Relaxing-Anti-stress).

These products complement an adequate diet for the dog since they do not provide fundamental nutritional constituents, so the easiest and most controlled way of supplying the product was thought of. Due to the nature of the functional ingredients selected, a common denominator based on high-quality salmon oil was chosen. Salmon oil, considered a nutraceutical of great interest (thanks to its anti-arteriosclerotic and anti-inflammatory qualities), has multiple health benefits for pets, such as: atopic dermatitis, musculoskeletal system, osteoarthritis, joint health, gastrointestinal tract, cognitive function, neurological health, and behavioral disorders (aggressiveness) among others. Thus, it can be used as a base material to formulate the rest of the functional ingredients.

Table 1 shows the functional ingredients used in the mentioned food supplements development. Essential oils used since ancient times present enormous baggage of historical and ethnographic knowledge (Baser and Buchbauer, 2015). Our experience and studies have allowed us to design appropriate formulations for each of the health objectives previously set. Stability and dosage studies (considering the synergistic interactions found) present each essential oil used (and their integration as a whole) as unique and specific supplements. The excellent antioxidant properties of essential oils come to complement that of other ingredients such as tocopherols and carotenoids, all of natural origin and perfectly integrated into salmon oil.

The other functional ingredient used in these food supplements is melatonin. This natural compound has numerous

excellent beneficial properties for animal health (Arnao and Hernández-Ruiz, 2018). Although there are few studies on pets, this molecule is one of the most studied in animal and human models. In our case, melatonin is incorporated as a functional ingredient under two aspects: as a regenerating agent of hair follicles, also used in treatments for seasonal (cyclical) alopecia of the flanks, and as an anti-stress and sedative agent against episodes of fear, anxiety, and nervousness that some dogs suffer; also in sleep disorders in elderly dogs. In addition, melatonin has excellent antioxidant properties, which reinforces the actions of essential oils, contributing to the stability of the whole.

The food supplement is added to the food ratio indicated according to the dog weight (from 0 to >48 kg corresponding to a proportional amount of product between 4 and 16 ml). The functional ingredients used (terpenoids, polyphenols, tocopherols, carotenoids, EPA and DHA, and melatonin) contribute to the diet gradually improving the well-being of dogs due to their positive effects. Excellent palatability and subsequent acceptance of the developed products by animals have been verified, without causing adverse or secondary reactions in dogs, due to the balance between its components.

BIBLIOGRAPHY

1. Arnao, M.B.; Hernández-Ruiz, J. (2018). Phytomelatonin, Natural Melatonin from Plants as a Novel Dietary Supplement: Sources, Activities and World Market. *Journal of Functional Foods*, 48, 37–42.
2. Baser, K.H.C., Buchbauer, G. (2015). *Essential Oils Used in Veterinary Medicine*. In: *Handbook of Essential Oils*; CRC Press, NY. ISBN 978-0-429-15566-6.
3. Bobeck, E. A. (2020). Nutrition and health: companion animal applications: Functional nutrition in livestock and companion animals to modulate the immune response. *Journal of Animal Science*, 1, 98: skaa035.
4. Kamble, A., Deshmukh, R. (2021). Global functional pet food market. *Allied Market Research*, <https://www.alliedmarketresearch.com/functional-pet-food-market-A11855>
5. Rowe, S. B. (1999). What is a Nutrient? Defining the Food-Drug Continuum. In Round table forum, moderator's comments. Georgetown University.
6. Ruiz-Cano, D., Sánchez, G., & Arnao, M.B. (2022). Current vision of functional foods in the diet of cats and dogs. *International magazine about pet food industry*, edition nº 10, volume IV.



DOES LICKING MEAN LIKING?

Pet parents are more likely to repurchase a food their cats enjoy. That's why cat food palatability is so important to both pet food manufacturers and pet parents.

Typical two-bowl or one-bowl trials are a valuable way to evaluate food preference and acceptance. Additionally, AFB International wanted to develop new methods to assess cat food enjoyment that would represent what a pet parent might experience at home.

To learn more about how these behavior measures can provide insight to product performance, download our white paper **"Cats' Eating Enjoyment Informs Preference for Food Components"**. Attending Foro Mascotas 2022? Visit our booth #60-61 to learn about our palatant solutions.





AUTOMATION AND DATA, A QUANTUM LEAP IN THE PET FOOD INDUSTRY

The digitization of operations and processes is no longer an option but a necessity for companies that want to remain competitive in their market. In our industry, we find that the automation of pet food manufacturing processes is disrupting traditional methods by leaps and bounds.

By All Pet Food

What do we talk about when we're referring to automation?

Automation is about using technology to execute repetitive tasks with little human intervention. In many cases, the intervention becomes null.

Incorporating automation into pet food production guarantees us a reliable and optimized solution to speed up the production operations, reduce costs and human errors.

From basic automation that needs the help of men to function correctly, going through comprehensive automation and reaching integrations with other control or traceability systems, for example, the possibilities of incorporating this technology into the production process are simply countless.

Automation in pet food production

The truth is that, in most cases, the first idea is to look for solutions that can directly impact human lives. This, some time ago, meant that the pet food industry was left behind. But today, when

the lines between requirements, demand, and standards among pet and human food are virtually invisible, we can find ways to benefit from advances in equal measure.

In this sense, the key is to adapt the solutions that come onto the market. As pet food has become more humanized, the transfer of equipment from human food processing to the pet food industry has become more common.

A key aspect in the advance: the data

If we talk about automation, we can't avoid talking about data, an ingredient that, when harnessed, can give us an invaluable amount of information to improve our processes, products, and market reach.

Most of the advances achieved in recent times regarding process automation happened thanks to, precisely, the collection, grouping, and arrangement of data. For example, the cost of collection sensors has dropped significantly, making it more cost-effective to add them to machinery. This change, along with

advances in networking, allows a pet food production chain to be interconnected. Data travels to a central location, from where it is available in real-time (such as to make process adjustments), or deferred, to observe long-term trends and support continuous improvement projects.

Nowadays, data is primarily useful to trigger certain events or system responses according to a "stimulus." In the case of machinery such as microbalances, extruders, and dryers, feedback from various sensors is used to adjust process control. However, in the long term, it is expected that more complex and intelligent systems are developed with the help of artificial intelligence or machine learning to respond to even greater variations.

Ultimately, better data availability allows us to improve processes, making them more accurate and efficient. Given that, we could have greater control over plant operations, quality control, raw materials reception, product manufacturing, energy consumption, waste, efficiency, and production costs, among other variables that act in production.

The great benefit of data: real-time information

The data accumulated in historical periods is undoubtedly useful to make intelligent decisions in the future, but perhaps the 180° turn that they bring us to the industry is, in reality, immediacy. Connecting a data flow to a plant decision-maker is a revolution, as we can find errors or mismatches live and take action on them.

When a problem is not detected in time, we will be producing, throughout an entire batch, a product that does not meet specific requirements or standards, and in the end, we will have generated nothing but waste. This can apply to knowing the accuracy of

utility inputs such as water, steam, and electricity and certifying that temperatures are correct, for example, to ensure repeatable, efficient, and safe processes.

Data and automation do not replace men; on the contrary, it empowers them; now, a control employee with real-time data can make decisions about the production carried out. And that is an invaluable asset for the company's efficiency, profitability, and success.

Finally, we must say that data also brings flexibility and transparency to the process. Having this information automatically available allows us to give response to the need to keep up with a constantly evolving market while continuing to produce. Good automation offers the flexibility to reduce time-to-market with new products, additions, and ingredients.

Summary

Automation allows us to respond to market advances and trends; It makes it easier for us to comply with new standards and, in turn, improves the technical capacity and functionality of the production system.

Implementing automated systems brings innovation, and only with it, we will achieve cost-effective processing and consistent product quality. Having state-of-the-art automated machinery is the door to constant improvement to faster, more precise, and efficient production.

Finally, it is important to say that having total and real-time control of the process helps achieve integrated traceability, so we do not doubt that automation is a checkmate in the pet food processing and production.

FAMSUN
Integrated Solution Provider




8000+ animal nutrition projects
in 145 countries




52 agencies, sales & service sites
and spare parts warehouses
worldwide closed to customers




4 wholly-owned R&D institutions
in China, America, Denmark
and Germany




6 Production bases,
one in Egypt and five in China,
total 74.07 hectares

FAMSUN Co., Ltd.

Add: No.1 Huasheng Road, Yangzhou,
Jiangsu, China 225127
T: +86-514-87848880
E-mail: mypublic@famsungroup.com

Contact: Jason Wang

M.T: +86 137 733 86598 (Whatsapp)
E-mail: wangjlang@famsungroup.com

Contact: Ave Yang

M.T: +86 18852721612 (Whatsapp)
E-mail: aveyang@famsungroup.com

www.famsungroup.com



24 – 27 May 2022 | Nuremberg, Germany



Interzoo 2022

37. International Trade Fair for Pet Supplies

TOGETHER AGAIN AT THE WORLD'S LEADING TRADE FAIR IN NUREMBERG

With this unique overview of the market, you will benefit from countless ideas for structuring your product range, the most important trends, and innovations. And from valuable business contacts – all with a very personal touch at Interzoo.

Join us – personally
and successful

[INTERZOO.COM](https://www.interzoo.com)

Follow us!



Organizer



Honorary sponsor



Organization

NÜRNBERG MESSE

Admission granted to authorised trade visitors only.



CIPAL

THE ENTIRE
PET FOOD INDUSTRY
IN ONE PLACE

We'll be waiting for you in our next edition
September 28th and 29th 2022

**Conferences
Exhibition
Meeting point**

Universidad Católica Argentina (UCA)
Puerto Madero - Buenos Aires - Argentina

www.cipal.com.ar

**20
22**


Organize **PETFOOD**



Hidrolyzed Aromas · Texture & Appearance · Colorants · Additives

WE CREATE **UNIQUE SENSATIONS OF TASTE, SCENT AND COLOR**

We develop innovative solutions of integral palatability for pet-food manufacturers, destined to improve food quality and pets well-being.



SINGLE SCREW MULTIPLE MARKETS

SINGLE SCREW EXTRUSION SYSTEM OPTIMIZES FLEXIBILITY AND MARKET OPPORTUNITIES



Optimize the return on your capital investment with a single screw extrusion system. Buy one system and cost-effectively deliver product to multiple market opportunities.

- One system capable of economy up to super premium fresh meat petfood
- Aquatic feeds that range from floating to sinking shrimp feed
- Capitalize on high margin petfood treat opportunities
- Significantly lower operating cost per ton versus competitive systems

As the chart below demonstrates, an Extru-Tech Single Screw Extrusion System provides all the flexibility and production efficiencies at around half the cost of competitive extrusion systems with high operating costs.

	Extru-Tech Solution	VS	The Competition
Capital Investment	1.0		2.5
Operating Costs	1.0		1.60
Ingredient Flexibility	Excellent		Excellent
Complexity	Low		High
Operating Cost (\$/M Ton)	1.08		2.80

KEEP IT SINGLE.

Contact Extru-Tech today at 785-284-2153 or visit us online at extru-techinc.com



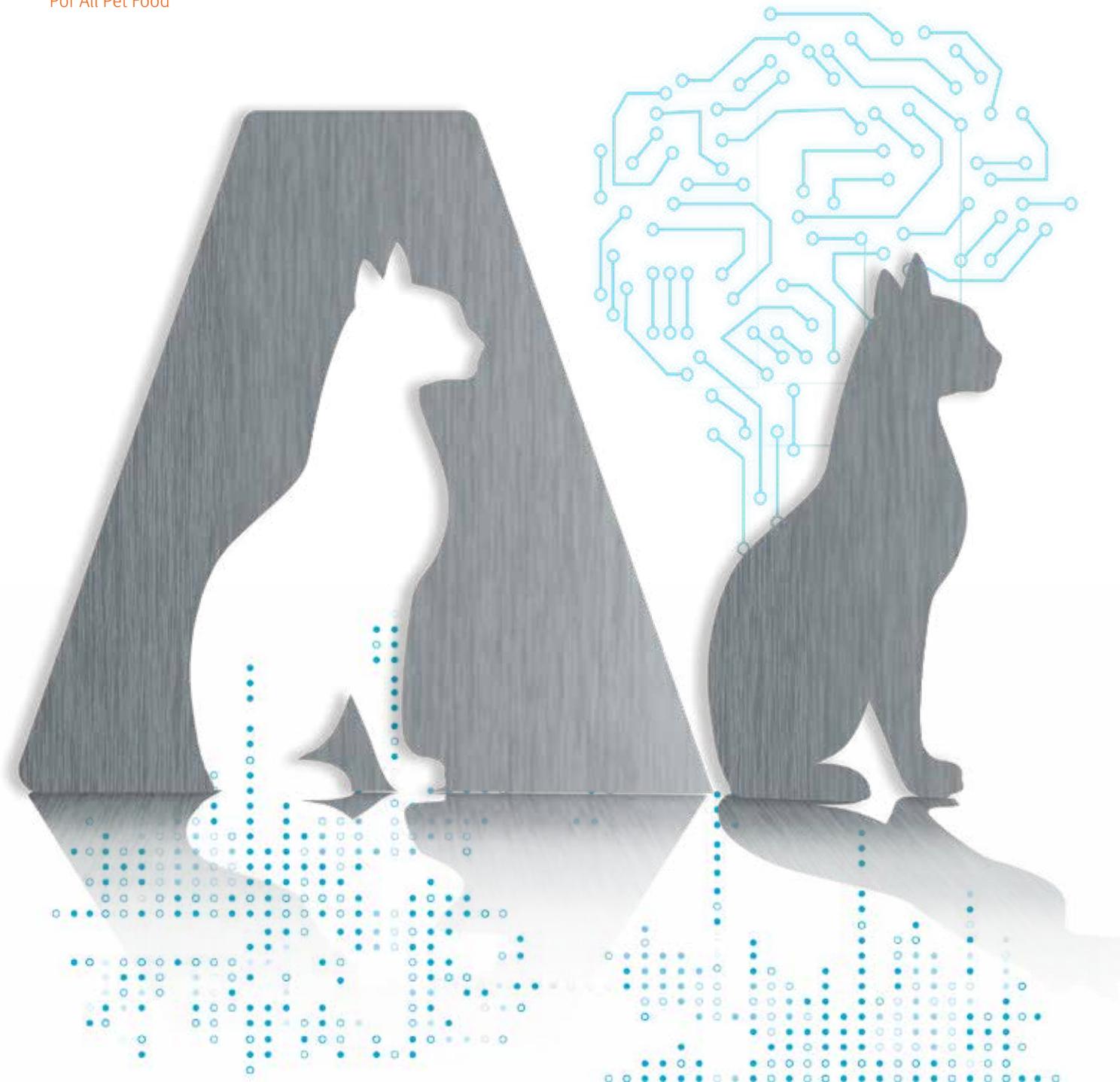
extru-techinc@extru-techinc.com
www.extru-techinc.com

P.O. Box 8
 100 Airport Road
 Sabetha, KS 66534, USA
 Phone: 1-785-284-2153

ARTIFICIAL INTELLIGENCE IN THE PET INDUSTRY

In the last two decades, pet nutrition has become highly relevant. In fact, Grand View Research states that the size of the global pet food market will grow by 4.5% between 2019 and 2025.

Por All Pet Food



Artificial intelligence and robotics have the potential to revolutionize the entire pet industry, from food processing to healthcare and disease prevention.

Let's delve a little deeper into production and preventive medicine, the sectors with the highest implementation of IA today.

AI is breaking into these operations providing the possibility of improving quality inspections. For example, a robotic palletizer with a vision system allows better detection of defective or poor-quality food batches, allowing the process to be stopped before it is finished and thus saving time, costs and efforts.

However, AI is breaking into these operations providing the possibility of improving quality inspections. For example, a robotic palletizer with a vision system allows better detection of defective or poor-quality food batches, allowing the process to be stopped before it is finished and thus saving time, costs and efforts.

If we talk about quality control, any type product classification is complex and necessary. Normally, there would be one person doing these inspections, but now we have vision systems that can detect anomalies and take action to remove defective products or help employees making better decisions.

Disease predictive models

The pet care industry is moving toward prediction: instead of tackling diseases once they occur, there is a growing focus on extending pet health and preventing health problems.

Currently, we can collect a wealth of data about pets from veterinary medical records, diets, daily activity, and even genetic makeup. This contains hidden patterns that, if connected, lead us to a better understanding of the behavior and responses of animals to certain stimuli.

Artificial intelligence allows us to cross and review these patterns efficiently and effectively. In a way, what it does is unlock the latent power of the data of one and millions of pets.

The implementation of AI seeks not only to understand how the genetics and behavior of a pet can reveal valuable information about its general health but also the collective construction: crossing patterns, behaviors, and analysis, we will find new ways to assist animals in the process of development of a problem or disease.

Cases studies

For example, in the case of scratching dogs, AI can be used to find movement patterns in dogs diagnosed with a skin condition and detect, in advance, when they will start scratching more often, through activity monitoring with a sensor on the necklace.

IA in food production

Automation, artificial intelligence and robotics are becoming increasingly important in food and beverage processing, both for humans and pets. Although the main objective is not to incorporate AI in certain instances of the process, but to integrate it systematically and comprehensively into all the operations of the production process, the advances and tests go, logically, by sectors:

Quality control

The use of robots in the palletizing area is not new.

The same technology works to detect when a dog starts to develop joint problems like osteoarthritis. AI can be used to identify subtle variations with gait activity tracking devices to identify possible arthritis preemptively or, at least, earlier in the disease development process.

In the case of obesity, the extra challenge is that the studies and controls carried out by veterinarians are not recorded uniformly: sometimes they remain as notes, sometimes as a body condition score, etc, which makes it difficult to obtain an adequate set of standards for pet weight and body condition scores in a large sample.

To address this, Mars Petcare developed a natural language processing (NLP) algorithm for veterinary hospitals that efficiently extract this information. The model has helped detect 30% more cases of obese pets and identify a specific problem with overweight and obesity in cats. The system allows veterinarians to explore treatment pathways after diagnosis while assessing which interventions were most successful and make the best decision for each particular case.

Because many diseases have better outcomes if detected and treated earlier, predictive models have the potential to be transformative for veterinary care. However, the goal transcends prevention: if we at least manage to treat it in advance or stop part of its development, we are already gaining more quality life time.

Pet wearable devices and IA Innovation

We are already seeing an explosion of AI tools in the pet industry, and it will continue that way for some years to come. The new generation of wearable devices, now for pets, uses AI to interpret data.

A clear demonstration of evolution and innovation is that of activity trackers. These are no longer limited to tracking the number of steps a pet has taken; today they seek to identify behavior patterns that may impact health. For example, monitoring animals that scratch and lick can help owners and veterinarians identify an underlying cause when these behaviors increase or change.

In 2022, it is difficult and even illogical to think that the growing industry, such as pets, will not be transformed thanks to artificial intelligence. In our case, we will see more and more improvements and implementation in veterinary care, diagnostics, and pet food production.

Without a doubt, we can affirm that we are moving towards a reality in which AI puts at the center what should be in it: food manufacturers, owners, and veterinarians at the service of artificial intelligence in pursuit of care and improvement quality life of all pets.

After all, anything that involves nutrition and care improvement means working towards longer, happier, and healthier pet lives.





TECHNOLOGICAL CHALLENGES IN PET FOOD MANUFACTURING

The growth of the pet food industry and pet ownership, in general, is undeniable. This increasing demand requires that companies find quick answers on how to improve their processes, which means making them more agile, efficient, cheaper, and, therefore, more technological.

Technology applies to absolutely everything: we have already discussed how e-commerce and the Internet have grown within our industry. Let's now see what are the main challenges in pet food manufacturing that technology can help us overcome.

For All Pet Food

In context

In recent years, dog and cat food markets have been ranked the most dynamic worldwide, with a global average annual growth of more than 5%. Even in 2020, with the production and logistics problems presented by the pandemic, the market kept growing. A recent report by Grandview Research states that the global pet snacks and supplements market alone was valued at \$1.47 billion in 2020, with the CAGR currently expected to be 5.9% through 2028.

All these trend factors indirectly promote the technology use improvement in the sector since it allows us to improve, streamline and perfect food production processes.

Current technological challenges in the pet food industry

Automation

Automation in pet food processing is no longer an option; we need speed and agility in manufacturing. We need processors

that get better at running; this way, we can expand quickly and efficiently. The biggest challenge is, perhaps, full-scope automation, not automation of different instances individually; beyond achieving automated machinery, the problem lies in creating automation that goes from the arrival of raw material to the distribution point.

Humidity content

Pet food can be distinguished based on its water content and stability over time. For instance, dry or canned food has a longer shelf life due to its water content and pasteurization process. From a technological point of view, the main challenge is to ensure the correct storage of products with a higher amount of moisture for longer periods without losing their quality and palatability.

Fat content

In this case, technology is already answering how to achieve a higher fat content in food. With technological innovation

applied to extrusion, be it simple, coating, or vacuum infusion, we can produce products with higher fat content.

Products with two structures

Another technological innovation seeks to facilitate the product's gelatinization process. To this day, that takes place by steam treating the products before the extrusion stage (known as the co-extrusion process). This format allows the manufacture of products with two structures, one of them as a coating to increase its long-term stability.

Glycemic response modulation

Thanks to the technological machinery evolution used in the extrusion process, it is possible to modulate the glycemic response of animals to the food they consume. With what? Other sources of starch, such as sorghum, which are less digestible than traditional starch sources (such as rice or corn), allow the manufacture of better pet food.

Drying

In the extrusion process (especially in the drying phase), the challenge is to improve the quality control operation. Water content values above the recommended level make food more vulnerable to microbiological instability. That is why we need precise and detailed quality control systems to achieve the correct quality; this will also allow a homogeneous effect on the product structure and the batches manufactured.

Innovative technological solutions

Deville Technologies presented a solution in 2021 to improve the automation of the pet food production process. The com-

pany has developed (after years of testing with rabbit muscles, beef liver, salmon fillets, and duck hearts) a dicing machine that meets the industry's needs. The FAM CMD.2 Dicer is designed with minimal cutting tools and complete separation between zones. It also features higher durability to handle a variety of product temperatures while producing at high capacities, eliminating process steps and increasing your competitiveness. In addition, the equipment has a built-in metal detector to ensure that there are no foreign objects within the workflow.

For its part, Key Technology designed a sorting solution for pet food processors. They developed VERYX®, a digital grading platform specifically to identify and remove foreign material and product defects. The platform seeks to eliminate cross-contamination, improve product quality and safety, and reduce labor. It works with various formats and products such as croquettes, chews, dry, dehydrated, or freeze-dried sweets. It can work at the end of the production line to ensure the quality of the final product or near the reception of crude oil to inspect the products' ingredients. It can detect color, size, shape, and structural properties, with the ability to remove defective products or materials such as plastics, glass, paper, and other foreign objects.

These are the main challenges facing technology implementation in the pet food industry. The examples are only two launches from 2021, but we are sure that, in 2022, many more will come from the hand of large technology companies seeking to improve the production process and the final product that we offer to the pet food market.

Cablevey Conveyors

Gentle Clean Reliable Conveying



(641) 673-8451
www.Cablevey.com



Decades of Global Experience.
Worldwide Experts in
Cable & Disc Conveying Solutions

50
Years
in Business

1,000+
Products
Moved

66
Countries
Served

32,000+
Conveyors
Commissioned



AUTOMATION RESOURCES FOR THE ANIMAL FEED PRODUCTION SEGMENT

During the last few years, we have observed the demand for an increased level of automation in various sectors of the global industry. This need came especially by managers and business owners to improve their plants to reduce costs and labor taxes in the first place. Secondly, an increased level of automation is needed to guarantee stipulated quality standards; and facilitate processes control and data accessibility by industrial managers.

By Ferraz Maquinarias

During the last few years, we have observed the demand for an increased level of automation in various sectors of the global industry. This necessity came especially by managers and business owners to improve their plants to reduce costs and labor charges in the first place. Secondly, an increased level of automation is needed to guarantee stipulated quality standards; and facilitate processes control and data accessibility by industrial managers.

This phenomenon of an increased level of automation, real-time process control, and digitization of information is globally known as the "Industry 4.0". However, we can't avoid asking ourselves how this phenomenon applies to animal feed produc-

tion. What resources do we already have available today? And what advantages can these automation features bring to the productivity and efficiency of industries?

Next, we try to describe, in a summarized way, what technologies are currently available for each production process of a feed manufacturing industry.

Reception of raw materials

It is possible to establish "entry routes" for each raw material received: since the moment the automation software gets the information about what raw material is being received, it can automatically determine the "path" which that raw material

must take to arrive at its destination. That is to say, to establish through which equipment the product will pass until it is properly stored. In addition, the reception and dosage silos usually have minimum and maximum level sensors or load cells, so it is possible to know exactly how much merchandise is in each silo, or at least if the said silo is full or empty.

This technology is essential to avoid, for example, cross-contamination in the reception process, that is, to prevent the soybean meal that the factory is receiving from going to a silo that already has a different raw material, such as organ meal.

Dosage of macro and microcomponents

Through dosing automation software, it is possible to know exactly how much of each raw material was used in a given production batch and the variation for the quantities previously stipulated. That is to say, we can know how much, more or less, of each product was dosed in each batch. In addition, it is possible to know how much of each product was used in a day, month, or year, which permits automatic inventory controls.

Another available resource is the register of the formulas produced. This way, when there is a need to make a product already registered, it is only possible to select the existing one, which must contain all the information in terms of raw materials used, quantities, and location.

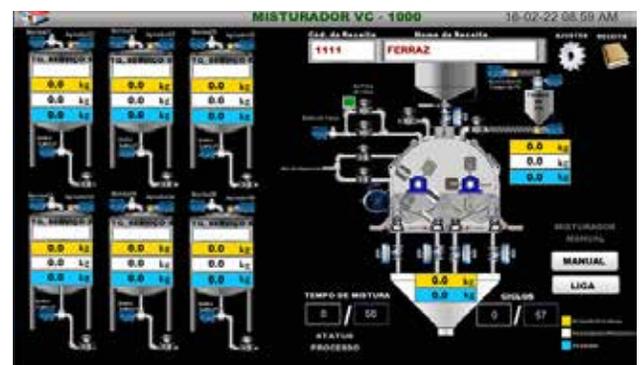
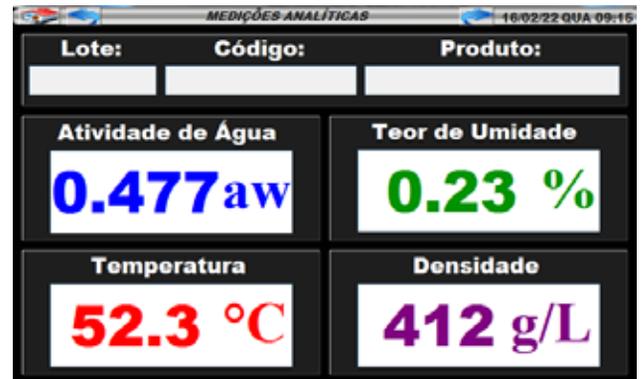
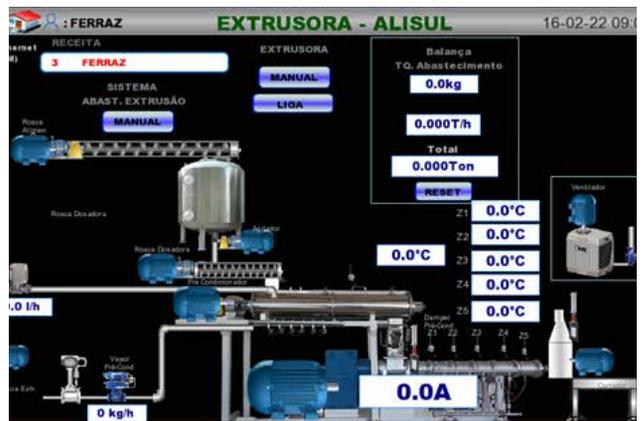
In addition, it is possible to issue alerts if, for example, there is not enough stock of a specific raw material to comply with the provisions of the registered formulation.

Grinding

Generally, above the mill, we have a feeding system, which can be done through a dosing thread or, more commonly, a rotary valve.

The automation software can increase or decrease the rotation of this feeder valve according to the amperage main mill motor. That is to say, if the equipment is working very close to the maximum amperage of the motor, the automation will make the rotation of the valve automatically decrease, consequently reducing the volume of raw material entering the mill per period. On the contrary, automation will increase the product flow entering the mill if the main motor is working with excessively low amperage.

In addition, it is possible to install sensors in the mill to mea-





Industrial Automation Technology

- Creation of supervisors • Panel assembly • Industrial connectivity •
- Development of command and control panels • Online factory management •





Complete line of equipment

Via Anhanguera, km 320 - Ribeirão Preto - SP - Brasil | Fone: +55 16 3934 1055 | +55 16 99624 8076
 vendas@ferrazmaquinas.com.br - www.ferrazmaquinas.com.br






sure temperature and vibration, for example, and parameterize the software so that it turns off the equipment if the maximum allowed vibration limit hits.

Extrusion

By using load cells in the tank that feeds the extruder's dosing thread, it is possible to know how much flour enters the equipment per period. From these data, and using flowmeters, it is possible to automate process parameters, such as the dosing thread rotation, the cutting system rotation, and the volume of inclusion of water and steam in the preconditioner for each formulation to be extruded.

It is also possible to automatically increase or decrease the flour volume entering the preconditioner, based on the amperage of the main engine of the extruder. That is to say, if the amperage measurement shows that the motor is working near the limit, the software automation automatically decreases the rotation of the dosing thread.

Similarly, alerts can be issued if, for example, there is a lack of flour in the agitator tank or the steam entering the preconditioner is under pressure.

Finally, the measurement in real time of the food density after the extruder is out; thus, the level of water activity of the food after passing through the dryer can also be performed.

Pelletizing

The main automation features currently existing for the pelletizing process are automatic lubrication systems for rollers, adjustment systems for the distance between the roller cover and the die, and the function of increasing or decreasing the thread rotation. The feeder supplies the pelletizer according to the amperage of the principal motor.

These features primarily aim at reducing equipment downtime for process adjustments and maintenance.

Coating

Taking as example batch coating system of oil, palatants, or molasses, we can install load cells in the lung silo or in the coating itself, in order to know in an accurate way the exact volume of feed to be coated in a specific batch.

With this information, and using load cells or flow meters to control the liquids to be added, it is possible to stipulate the exact percentage of each liquid to be dosed and their time and sequence application. That is, which liquid will be applied first

and which one later. This happens in addition to registering the formulas used, already with the process parameters of each product.

Bagging

There is automation software for bagging that automatically performs the self-correction of the weight reached in each bag: based on the stipulated weight and comparing it with the weight reached in the last weighed bags, the software automatically seeks to reduce the variation and get as close as possible to what is stipulated.

In addition, there are semi-automatic and automatic bags.

Semi-automatic bag lifts dose and weigh the products, but they require the operator to open and place the bag in the bagger.

Automatic baggers already have a Cartesian suction cup system or robotic arms that open and position the bags in the correct form, which eliminates the need for human labor in the process.

Palletizing

There are Cartesian or robotic systems to automate the function of positioning the bags and forming the pallets according to the previously stipulated layout. In addition to providing labor cost savings, these systems can also ensure that the pallets will actually be assembled according to the previously stipulated design, i.e. number of bags per layer, number of layers, correct positioning of each bag, etc.



**INDUSTRIAS
BARTOLI HNOS S.R.L.**



■ **PLANTAS
COMPLETAS**

■ **EQUIPOS**

MASCOTAS
(Pet food)

PECES
(Acuicultura)

EXTRUSIÓN
Mezclas de
exportación



Ruta 32 e Intendente Rivero - Parque Industrial
(3133) María Grande, Entre Ríos, Argentina
Tel: 0343 486 2707

info@bartolihnos.com.ar - www.bartolihnos.com.ar

QUATEC PLUS®

Integral complex to inactivate
MYCOTOXINS



Acts against total trichothecenes

Protects animal's gut integrity

Promotes defense system

Prevents liver damage



BRASCORP

TECHNOLOGY SHOWCASE

In this issue of All Pet Food Magazine, we highlight the latest innovations that can optimize your pet food operations. We take a look at innovations from different leading companies in the Pet Food market



EMERGE™

Petfood manufacturers demand natural, clean label and nutritious ingredients. Break through to the future of feed with a sustainable and innovative protein source derived from barley.



Emerge™ is made through a patented production process that uses fractionation to naturally concentrate the protein found in whole barley kernels. The result is a clean, environmentally-friendly protein source that's traceable and non-GMO. EmERGE barley protein concentrate is proudly made in the USA by the food, feed and supply chain experts at Scoular.

Feeding Trials Underway

In dog trials completed in summer 2021, EmERGE delivered a neutral flavor and natural color with no change in palatability. Within these trials, EmERGE barley protein concentrate was formulated in a complete and balanced diet to serve as the control diet. Four other variable diets were formulated with similar protein, fat and energy values to the EmERGE control diet.

<https://www.soular.com/our-brands/emerge/>



QRILL PET ASTAOMEGA OIL

Rich in marine astaxanthin and omega-3s. QRILL Pet AstaOmega Oil offers a natural combination of omega-3s and the powerful antioxidant astaxanthin, both derived from one unique source.

Not only do pets get to enjoy the health benefits of these components, but pet owners can rest assured that their pets are benefiting from a sustainable and natural supplement.



One powerful antioxidant - Astaxanthin

Astaxanthin is a powerful antioxidant known to protect the body's cells and boost the immune system. Antioxidants are essential for the optimal health of pets, cognition, and longevity by preventing oxidative stress.

Natural astaxanthin is more than 95% esterified, meaning fatty acids are attached to one or both ends, and it is shown to be well absorbed by dogs.

<https://www.qrillpet.com/qrill-pet-astaomega-oil>



CONVENIA®

The Only Antibiotic That Provides Up to 14 days of Treatment With One Injection
 CONVENIA quickly targets the bacteria that cause signs of skin infection soon after injection, so you may begin to see progress in a matter of hours.

CONVENIA® is a fast-acting, safe, and effective treatment for common bacterial skin infections in dogs and cats.^{1,2} Just one injection, administered by a veterinarian, lasts up to 14 days.

- Fast-acting antibiotic
- No daily struggles to give medication
- One shot delivers up to two weeks of treatment*^{1,2}
- Administered by your veterinarian

<https://www.zoetispetcare.com/products/convenia>



MacroGard:

- Improves natural defenses.
- Helps improve the response to vaccines in puppies.
- Has beneficial effects on glucose and inulin metabolism in obese pets.
- Helps maintain healthy skin and coat, providing benefits to animals with diseases associated with these areas.
- Contributes to maintaining the integrity of the skin.
- Provides benefits to joint health and contributes to the well-being of animals suffering from conditions in these areas.

<https://www.biorigin.net/biorigin/index.php/es/feed-es/portafolio-feed-es/macrogard-es>



MINILUX - THE TECHNOLOGY OF THE FUTURE

Equipment and technology supplier Luxme International Ltd released its new bag-slitting equipment that ensures food safety with the elimination of dust. The MINILux bag splitter allows for a faster feed rate and increased revenue and material recovery.

The MINILux allows for high-volume, automated bag slitting that features optional self-contained dust collection, eliminating dust from plant environments and protecting the plant workers and processed pet food.

The MINILux's dust collection prevents the need for a separate ventilation system, which would increase a company's operating costs and can be self-contained or sent off to a different system. MINILux's self-contained dust collector recovers product and funnels it for reuse. The dust collector also offers an option for an added spigot, allowing connection to a central dust collector or venting system.

<https://www.tubularchainconveyors.com/products/automatic-bag-slitter-minilux/>



PURIFIED 1,3/1,6-BETA-GLUCAN

Biorigin has long studied the effect of beta-glucans in companion animals and MacroGard, its purified yeast beta-glucan, is the most studied and is considered a scientific and commercial reference in pet nutrition and health.





REMOTE ACCESS FOR INDUSTRIAL CONTROL SYSTEMS

Remote access is the ability to access a computer or network from any location through a network connection. This tool is particularly helpful in servicing control systems through a network connection. By connecting to the system's programmable logic controllers (PLC), Human Machine Interface (HMI), and other Ethernet compatible devices, integrators can efficiently monitor, troubleshoot, and fix an issue without physically traveling to the site.

By: Jake Taylor - Gerente de servicio | Fuente: NorthWind's Technical Services

Employers can control many quality services via remote access, such as: troubleshooting, remote startup, remote monitoring, software upgrades or additions, proportional-integral-derivative (PID) tuning (adjust the PID controller), User Interface (UI) additions, and other improvements to the customer's automated system. Service technicians have access to tools and software solutions that many manufacturing plants may not have, and these can be utilized remotely to enhance the service experience.

This article discusses best practices for establishing remote access, services provided using a remote connection, and help determine if remote access is correct for your plant.

Best practices for establishing Remote Access

When establishing remote access to a plant's control system for the first time, there are several guidelines to follow from both the integrator and the plant's side.

The first step to connecting remotely is to obtain permission from the plant's IT department to access the virtual private network (VPN). The integrator provides the plant's IT department with a list of authorized technicians who will provide service and support for the plant. The plant's IT department will set up user accounts for those authorized technicians. If applicable, non-disclosure agreements will be signed.

Safeguards for a secure connection

- Integrators use a VPN for connecting to the plant's control system
- Plant IT has an isolated network for the VPN
- Routine system backups
- Utilize virtual machines (VM)
- Remote Access – Technical Service and Support

A major benefit for establishing remote access to a plant's

control system is the ability to quickly be connected for service and support. In the event there is a problem with the control system, such as a production sequence is out of order, a burner is not reaching a high enough temperature, or a conveyor is not moving fast enough, plant maintenance personnel can contact an integrator for technical support. A service technician is speaking directly with the plant personnel. By working together, problems are solved faster, immediate feedback is provided, questions or concerns are addressed, and this is an opportune time to provide plant personnel some system training.

With remote access available, service technicians are able to support plants quickly and efficiently. With prior remote access established, a technician can be connected to a plant within 15 minutes of calling about an issue. This quick connection time allows for troubleshooting to begin immediately, while reducing plant down-time.

Remote access allows the service technician to monitor the system live to catch any intermittent problems. Control Systems can be remotely accessed and watched for a specific problem or issue over a number of hours or days. Then when the problem occurs, the service technician can isolate what caused the problem, what conditions were present when the issue occurred and provide a solution.

Another benefit to remote access is being flexible within the time frame of system maintenance. Service can be provided around rigid time and production schedules, as remote access can occur at any time during the day. This eliminates waiting until regular business hours to contact support and then having to make travel arrangement to get a technician on site. Remote

access can also serve as an extension of the customer's maintenance and continual improvement departments.

Remote Access – Control System Startup

Some Control System modification and addition projects can be started up remotely. The benefits to a remote startup are similar to remote access service.

- Time (travel and onsite)
- Money (costs of travel, rental, accommodations, etc.)
- Resources

Help can be offered immediately, the customer only has to pay for labor time to fix an issue, fixes can be provided around rigid production schedules, and additional resources can be utilized.

Remote Access can also be used in conjunction with onsite startups to provide additional training and which helps build on more complex ideas and unique operating situations. And lastly, with the restrictions of travel and health concerns surrounding Covid 19, quarantine restrictions and safety protocols can be eliminated if remote access is used.

Remote Access can provide a quick, affordable solution for control system maintenance. Remote Access saves travel time, accommodation costs, and costs associated with down-time. Remote access provides the customer with immediate help and resources any time day or night and remote access can also be used to monitor intermittent problems. Remote Access can be utilized not only for start-ups, service, and maintenance, but operational training as well.



Industry Leader in
PET FOOD AUTOMATION

**MAXIMIZING PLANT EFFICIENCY
WITH INNOVATIVE SOLUTIONS**

- Process Controls
- Plant Integration
- Formula Management
- Lot Tracking
- Data Collection
- Alarm Management

Learn more about our pet food automation solutions at www.northwindts.com





FENAGRA 2022

Feira Internacional da Agroindústria

FEED & FOOD

TECNOLOGIA e PROCESSAMENTO

EXPO PET FOOD

10-11-12 / May 2022

SÃO PAULO - CAMPINAS - BRAZIL

10 am - 7 pm

Sponsors:



www.fenagra.com.br

Organization:



Information:



/editorastilo

contato@editorastilo.com.br

+55 11 2384-0047



FIGAP[®]
 GDLOCT19 al 21
MÉXICO 2022



VISIT US

Av. México 3370,
 Plaza Bonita, C-19,
 Fracc. Monraz, CP 44670,
 Guadalajara, Jal.

+52 (33) 3641-8119

Figap.com

“Be part of FIGAP 2022

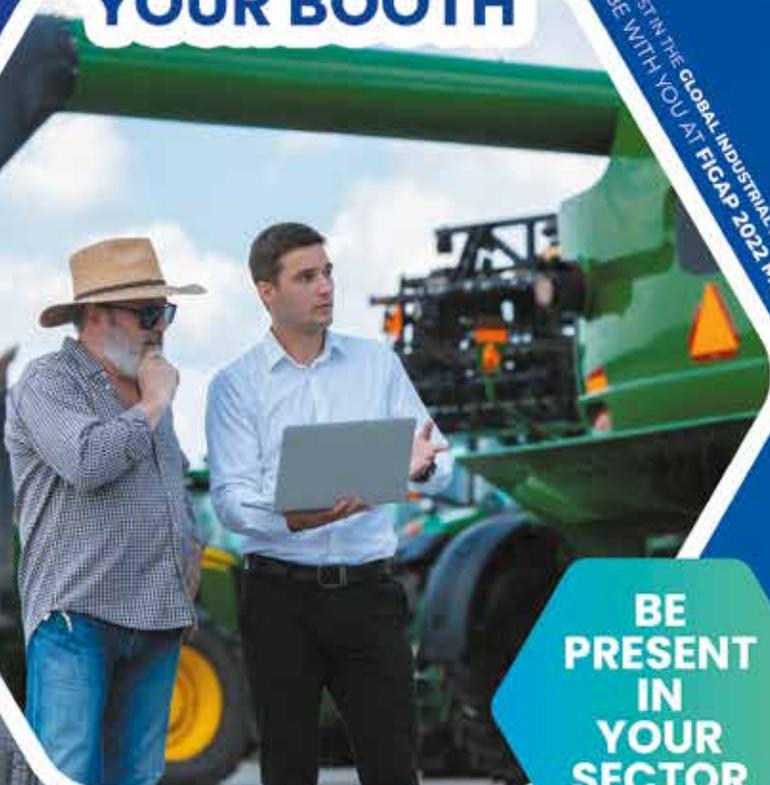
Secure Event,

**We’re looking
 forward**

to seeing you!”

**BOOK
 YOUR BOOTH**

THE NEWEST IN THE GLOBAL INDUSTRIAL AGRICULTURE
 WILL BE WITH YOU AT FIGAP 2022 MEXICO



REGISTRATION FREE

figap.com



Expo Guadalajara

**BE
 PRESENT
 IN
 YOUR
 SECTOR**

**EXPO FIGAP
 MÉXICO 2022**

**“10th Edition,
 with the presence of
 leading companies
 on an international level”**





WHAT'S BEHIND THE BAGS FOR OUR LOVED DOG, CAT OR HORSE?

It's something we don't think about too often. We and many others take it for granted that the food, granulates, and supplements for our four-legged friends will arrive in our supermarkets on their own. But there is a lot more behind it. The process alone, from filling the animal food bags to the actual delivery of the goods can be very extensive.

For STATEC BINDER

At **STATEC BINDER**, we know perfectly what it means, when it comes to packaging and palletizing—because that is exactly our daily business. With over 40 years of experience in the field of packaging and palletizing technology and over 1,600 successfully installed machines worldwide, we can confidently say that we provide our customers with the best possible know-how and advice. For many customers, weighing, packing, sealing, and delivering their actual goods on a pallet is a very complex process, especially when it comes to working with a high number of bags per hour.

But with your reliable partner **STATEC BINDER** at your side,

this section of the production process will be successful. Our wide product portfolio allows us to meet the needs of our customers in a variety of industries while also offering an excellent customer service program. On the one hand, there is the **PRINCIPAC**, one of the world's fastest bagging machines with up to 2,000 bags per hour; and on the other hand, the **CERTOPAC**, which is ideal for bagging animal feed up to 1,500 bags per hour. The **ACROPAC** model was developed by **STATEC BINDER** for small and medium-sized operations with lower production capacities and is suitable for bagging up to 600 bags per hour. Our high-performance palletizer **PRINCIPAL-H**, with a capacity of up

2,400 bags per hour, completes an all-round high-quality and efficient palletizing process with a nice and stable layer pattern. With our robotic palletizer PRINIPAL-R, of a high-tech version, up to 1,400 bags or boxes per hour can be achieved.



With **STATEC BINDER**, you stay on the sunny side—because as a reliable partner, we faithfully support our customers even after the systems have been installed. With the 1-6-11 program, we have made it our promise that our customers will receive excellent after-sales support. Perfectly coordinated service appointments and spare parts deliveries, customer training, the Remote Maintenance System & Support, and always being at the state-of-the-art through optimization & modernization round off our customer service. At **STATEC BINDER**, we place great emphasis on customer-oriented solutions, excellent advice, flexibility, and know-how. Together with our customers, we look for custom-fit solutions for their circumstances and their products. As an international packaging and palletizing specialist based in Austria, we are here for our customers around the globe. Are you interested? You can find more information about our product portfolio or our company at: www.statec-binder.com




STATEC BINDER
highly efficient bagging and palletizing solutions

YOUR SPECIALIST FOR BAGGING & PALLETIZING



OPEN-MOUTH & FFS bagging machines



ROBOT, PORTAL & HIGH-LEVEL palletizing

more than
40
years
of experience

more than
1700
installed
machines

in over
80
countries

Global
customer
service

www.statec-binder.com

STATEC BINDER GmbH
 Industriestrasse 32, 8200 Gleisdorf, Austria
 Tel.: +43 3112 38580-0
 E-Mail: office@statec-binder.com

PALATABILITY & INTESTINAL HEALTH



highly
palatable



Improves absorption
of nutrients

No allergic
effects



Source of
hydrolyzed proteins



PALBIO Feed additive solutions
62 SP to improve pet food.

Director jdfontana@iberianfeed.com

Sales efabian@iberianfeed.com

<https://www.iberianfeed.com>

f in Follow us


IBERIAN FEED
ANIMAL NUTRITION



www.foromascotas.mx

2022 Foro Mascotas
PET FOOD
Internacional



CONGRESO INTERNACIONAL
La Industria del rendimiento
Miércoles 15 Junio 2022

June 16-17th
Expo Guadalajara



-  Commercial Area
-  Conference Rooms
-  Technical Conferences
-  Networking

Contact us

Fabián Ortiz:
fabian@foromascotas.mx
Cel. (+52 1) 55 54083909

Miguel A. López:
miguel@foromascotas.mx
Cel (+52 1) 55 85327107



SHOULD I WORRY ABOUT MYCOTOXINS?

Mycotoxins (from the ancient Greek *mýkes* ‘fungus’ and the Latin ‘*toxicum*’ referring to poison) are toxic secondary metabolites of varied composition. They come from organisms of the fungi kingdom, which includes mushrooms, molds, and yeasts.

MVZ. Armando Enríquez de la Fuente Blanquet

According to the World Health Organization, mycotoxins are toxic compounds produced naturally by some types of fungi or molds. Mycotoxin-producing fungi grow on many foods, such as cereals, dried fruits, nuts, and spices. Its growth can occur before or after harvest, during storage, or in the food itself in warm and humid environments. Most mycotoxins are chemically stable and persist after food processing, which means that the extrusion process does not eliminate the mycotoxins present in raw materials.

No pet food manufacturer wants to cause a pet owner a problem from mycotoxins. However, dogs can consume mycotoxins by eating sourced contaminated food, improperly stored food, or mushroom bread during their daily walks. One of the key indicators that a dog has ingested a mycotoxin-contaminated food is liver failure, which can result from acute or chronic exposure (and this can vary by the type of mycotoxin and by the concentration and frequency of exposure to her). Other common signs include vomiting and loss of appetite, weight loss, lethargy,

diarrhea, a weak immune system, breathing problems, tremors, heart palpitations, or jaundice. The responsibility of the pet food manufacturer is big enough because, in addition to producing food that provides the necessary nutrients, it must be mycotoxins-free. The FDA regulates aflatoxin levels in feed ingredients; the current regulated limit for companion animals (dogs, cats, rabbits, etc.) is 20 ppb (parts per billion) for total Aflatoxins.

The growth of fungi and the production of their toxins can occur due to improper storage of grains and other ingredients used in the pet food manufacturing process. On this occasion, I will be talking about raw materials, without detracting from the importance of proper manufacturing, handling, and proper balanced food storage. Fungi generally do not grow on properly dried and stored grains.

That is why an efficient drying of commodities and dryness maintenance or proper storage are effective measures against fungal growth and mycotoxin production. However, harvest conditions or the source of raw materials can also vary signi-



TRIPLETHREE
INTERNATIONAL

**NEW:
BRAND ARCHITECTURE
FOR PET FOOD**



MARKET RESEARCH FOR PET FOOD

REACH ACROSS THE CONTINENT:

- ✓ RELEASES
- ✓ CONSUMERS
- ✓ CHANNELS
- ✓ BRANDS
- ✓ COMPETITION AND PRICING

CALL US:

WHATSAPP: +521 5521874357

triplethreeinternational.com

ificantly from year to year. Therefore, the solution to solve this situation is to have a complete quality control system for raw materials and a good program of efficient storage practices.

more than 80% of agricultural production contains mycotoxins contamination. To this day, more than 500 mycotoxins have been identified.

According to Dr. Swamy Haladi, Global Mycotoxin Management Program Manager at Trouw Nutrition, more than 80% of agricultural production contains mycotoxins contamination. To this day, more than 500 mycotoxins have been identified. However, the main mycotoxins established in animal feed are: aflatoxins, deoxynivalenol (DON), fumonisins (FUM), ze-

ralenone (ZEA), ochratoxins (OCH), and T2-H2T. If these six are present, it can be assumed that there are 30-40 other mycotoxins as well, because the same fungus can produce multiple mycotoxins. In addition to the threats of individual toxins, mycotoxins can have a synergistic and additive or antagonistic effect.

The interaction between DON and fusaric acid, the most common Fusarium mycotoxin, is an excellent example of a synergistic interaction. Fusaric acid by itself is not toxic to animals, even at very high concentrations, but it increases the toxicity of DON when the two are found together. On the one hand, we see that mycotoxins cause pet health disorders per se, but on the other hand, they are anti-nutritional factors by degrading the quality of raw materials and balanced feed.

A quality raw material control system can include regular monitoring to determine whether or not mycotoxins are pre-

sent. Laboratory tests are not a guarantee for mycotoxins-free food. Even when results do not find significant mycotoxins in an ingredient or feed, pet food manufacturers must consider additional factors such as: how the samples were collected, the level of mycotoxins that fall below screening levels, the levels of untested toxins, and masked mycotoxins.

Beyond the problems given by known mycotoxins, "masked mycotoxins" introduce a new level of complexity, when it comes to diagnosing the presence of mycotoxins, assessing toxicity, and developing a solution. Research on the topic is expanding in North America, Europe, and Africa.

Mycotoxins are highly undesirable substances that should not be present in food and for which zero tolerance is ideal. Should I worry about mycotoxins? I would say that, instead, I should deal with mycotoxins. Their presence causes deterioration in raw materials quality, but also causes health problems in pets, even when consumed in small quantities, (and especially if there is a recurrence in their consumption).

Keep in mind that there is a high probability that the raw materials used in the manufacture of pet food are contaminated, even with the so-called "masked mycotoxins". Therefore, it is essential to have a high-quality system for the raw materials, correct storage that avoids an increase in the temperature and humidity of the grains. In addition, a program to control the development of fungi and yeasts through a preservation plan with the use of inhibitor additives as an alternative. And finally, do not rule out the use of mycotoxin binders or sequestrants in balanced feed, as part of a food safety plan.



PLP Systems

TECHNOLOGY IN LIQUID HANDLING & POWDER DOSING



**MT - PADDLE COATER
COATING POST PELLET**

- **HOMOGENEITY**
- **PRECISION**
- **REDUCTION OF
CROSS CONTAMINATION**
- **ADDITION OF POWDER
ADDITIVES POST
EXTRUSION**

PLP SYSTEMS

Specialized in:

- Post pellet coating
- Liquid dosing and spraying
- Powder microdosing

info@plp-systems.com

www.plp-systems.com

always
inspiring more ...

symrise 

—

Discover Symrise Pet Food:

*Now uniting four leading players
to improve pets' well being
and owners' satisfaction!*

—

Symrise Pet Food comprises former trusted companies Diana Pet Food, ADF, IsoNova and Schaffelaarbos who have been leading the pet food palatability and nutrition markets for more than 40 years. Symrise Pet Food will now support pet food manufacturers on three essential aspects of their products: pet food palatability with SPF, pet nutrition with new brand Nutrios and pet food protection with Videka*

**Videka is a joint venture between Symrise and Kalsec.*

dianapetfood 

ADF

IsoNova 

 SCHAFFELAARBOS
INDUSTRIE B.V.

This year visit us at Fenagra, Foro Mascotas Pet Food, CIPAL

or visit <https://petfood.symrise.com>



THE INTERVIEW

VLADMIR MAGANHOTO

by ALL PET FOOD

My professional experience was built in the Food and Beverage industries. Throughout a 25-year career, I had the opportunity to develop myself in large national and global companies, focusing on sales and marketing. In the last 9 years I have had responsibilities as a "generalist", having been CEO and GM of businesses. Since November 2020, I have been at BRF Pet leading the business.

1. Dear Vladimir, it is a great honor for us to be able to interview you. Being part of BRF, a company with more than 85 years of history and a great team of more than 90 thousand employees, could you give us a brief personal and company introduction?

BRF is present in more than 117 countries. Its purpose is to offer quality food, increasingly tasty and practical, for people and their pets around the world, through the sustainable management of a long and complex living chain, which provides a better life for everyone, from farm to table. Owner of iconic brands such as **Sadia, Perdigão, Qualy, Biofresh, Balance and GranPlus**, the Company bases its actions on the fundamental commitments of safety, quality and integrity. The company bases its strategy on a long-term vision and aims to generate value for its more than 100,000 employees around the world, more than 350,000 customers and approximately 10,000 integrated producers in Brazil, all its shareholders and for society.

My professional experience was built in the Food and Beverage industries. Throughout a 25-year career, I had the opportunity to develop myself in large national and global companies, focusing on sales and marketing. In the last 9 years I have had responsibilities as a "generalist", having been CEO and GM of businesses. Since November 2020, I have been at BRF Pet leading the business.

Our purpose is to offer quality food, increasingly tasty and practical, for people all over the world. We do this through the sustainable management of a long and complex living chain that provides a better life for everyone, from farm to fork

2. The phrase "Better life" is the purpose that guides the company, we would like you to tell us what that precious motto means to you.

Our purpose is to offer quality food, increasingly tasty and practical, for people all over the world. We do this through the sustainable management of a long and complex living chain that provides a better life for everyone, from farm to fork. Our story began 87 years ago. Since then much has changed in the world and we have also been changing to continue

evolving and writing our history. We are part of a large ecosystem and we know that our role in the world only makes sense if we contribute to a better life for those who are also part of it.

3. Regarding the market growth in your country, Brazil, how much do you think the demand for Pet Food ingredients will continue to grow?

How do you think the Pet Food market will look like in a few years?

The pet market has enormous growth potential. We estimate a double-digit increase per year, reaching retail sales of more than R\$ 40 billion. Our expansion into Pet Food is one of the main growth paths of the Company's strategic plan, **Vision 2030**, to triple its size by 2030. Specifically in this segment, we are the 3rd largest player and we are working to be one of the two big players by 2025. Adding the acquisitions of Mogiana Alimentos and Grupo Hercosul, BRF Pet reaches approximately 10% market share, according to data provided by ABINPET – Brazilian Association of the Pet Products Industry.

4. BRF states "a better future will demand quality food", and in line to that belief there is a phenomenon of "humanization of pets"... what feeding trends do you think will prevail for our four-legged friends? What are the trends that could last over time?

As mentioned in the question itself, there is indeed a greater connection between owners and their pets, and this close interaction between them is absolutely genuine. Through our brands, we are investing heavily in products with high nutritional value, which benefit the health and longevity of dogs and cats. A good example of a trend in the Pet Food segment is natural products. According to Mintel's 2021 report 'A year of innovation in pet food and products', Pet Parents are increasingly looking for more natural food options for their animals. In addition, according to the survey, the owners showed a preference for foods that contain safety and functional benefits for the animals. The survey also reflects consumer concerns about transparency regarding food ingredients used in production.

In our portfolio, for example, we have the Guabi Natural and Biofresh brands, two benchmarks in the natural pet food market. The recipes are developed by experts in animal nutrition

In our portfolio, for example, we have the Guabi Natural and Bio-fresh brands, two benchmarks in the natural pet food market. The recipes are developed by experts in animal nutrition and add the most nutritious ingredients to each ingredient, without GMOs, artificial colors or flavors.

and add the most nutritious ingredients to each ingredient, without GMOs, artificial colors or flavors.

In addition, BRF Pet has a robust portfolio of brands for a wide universe of owners and pets that includes the Balance, Faro and Herói brands, which are aimed at the supermarket channel, while Three Dogs, Three Cats, Primocão, Primogato, Apolo and Átila, Guabi Natural (market leader in the Super Premium Natural segment), GranPlus (deputy leader in the High Premium segment), are aimed at the largest sales channel in Brazil:

specialized pet stores (pet shops and veterinary clinics). With this robust portfolio, we can offer quality, reliability and adequate nutrition for different profiles of Parents and their pets, in different sales channels in Brazil and in the world.

5. As Director of BRF, could you tell us if you are developing any new products for the Pet Food industry?

After completing the integration of operations with Hercosul and Mogiana Alimentos, earlier this year, we are now focused on expanding our Pet business. For the second half of the year we will work on the execution of our growth plans, such as: launching new natural products for dogs and cats; increase in production capacity; logistics optimization and factory automation.

We are committed to our innovation plan and to meeting the needs of our customers and the market.

With this move we will have a complete portfolio of brands and products, mainly in the premium and super premium segments, reinforcing our operations in the specialized channel. In addition, we will use all of BRF's robust platform to obtain relevant competitive advantages, such as obtaining grains at more competitive prices. We are committed to becoming one of the leaders in pet food in the country. Our Vision 2030 project is underway and we are focused on bringing the best products to this market, which has enormous growth potential. We are excited to take the next steps and consolidate our position as one of the main market players in Brazil and worldwide.

6. BRF is also a company committed to the environment, could you tell us what actions you take to promote and develop sustainable management?

Sustainability is in the BRF Culture, in our 2030 Vision, in the business strategy and in the day-to-day management of our activities. For BRF, sustainability is a journey that has not yet begun. We are committed to continuing and inspiring each person to be an agent of change. Our ambitions reflect the awareness of our responsibility. We know that it is always possible to do more to provide a better life for people and the planet, in line with our Purpose, and to increase our transparency and reinforce our ambitions, we have established global and transversal Commitments with **ESG (Environment, Social and Governance)**, connected with the Company's Growth Vision. We are ready for a sustainable growth journey, thanks to the consistency of our management, strategy and competitive ad-

vantages (brands, people, digital transformation and operational excellence in the integrated chain).

We work on several fronts to improve our performance, including projects to reduce water in equipment, infrastructure modernization and application of the Lean philosophy (lean production) in factories, valuing waste control without prejudice to the sanitary field. Through actions such as the reuse of water (avoiding new extractions from the environment), the prioritization of surface catchment (with greater renewability of the resource), the treatment of wastewater for its release and the return of about 95% of the water captured from the environment. In addition, we also invest in green projects. The issuance of green bonds allowed the Company to increase its investment capacity in green projects, focusing on categories such as energy efficiency, renewable energies, sustainable forests, reduction of greenhouse gas emissions, water management, packaging, reduction of the use of raw material or waste management.

7. On the wake of pandemic, we have seen a growth in online sales. How did the company manage to adapt to this marketing trend? Does BRF consider it favorable, and do you think incorporating it in the future?

The evolution of e-commerce in the pet segment is a movement that has intensified in recent years, mainly with the acceleration of digital use since the start of the pandemic, but also with the entry of large players in the country on large platforms. usability, relevant investments and offering differentiated services. BRF Pet has been supporting these partner customers and investing to grow together and even exceed expectations in the pet food category.

This is a favorable trend for Pet Parents, mainly due to the convenience and practicality generated by access to services such as delivery, pick-up and through subscription programs. It is also favorable for the industry, which ensures that its products are available and accessible with a click of the owner.

8. As we were commenting before, and also as a significant change since confinement, as well as the demands of pet parents, when it comes to feeding them. How do you think this benefited the Industry? Do you believe that companies are ready for this requirement?

Pet Parents are increasingly demanding, they seek information and knowledge to choose the best food for their pets. As with human nutrition, they began to understand that good nutrition promotes a longer and healthier life, as well as helping to prevent diseases and improve the quality of life of dogs and cats. This trend, added to the great level of humanization existing in the relationship between owners and pets in Brazil, favors our industry, and in particular BRF, which has the same purpose of providing a high nutritional level and quality of life to pets.

In addition, we have a solid portfolio of innovations, which seeks the best in technologies and ingredients, combined with extensive technical experience in animal nutrition to provide increasingly innovative foods with high nutritional value to meet the entire dog feeding process. and cats, including dry food and wet food and treats.

¡We promote your marketing strategy with different options!

The entire Pet Food industry in one place.



**PET FOOD
ONLINE**

Online platform

Content in **Spanish** and **English**.



**PET FOOD
MAGAZINE**

Printed and digital magazine

Own content of **excellence**.



**PET FOOD
CONGRESS**

Congresses

CIPAL & AllPetFoodDay.



**PET FOOD
TRAINING**

Webinars and trainings

For **companies** and **industry organizations**.



**PET FOOD
ANALYTICS**

Analysis

Industry **information** and market **trends**.

✉ info@allpetfood.net

🌐 <https://allpetfood.net>

in company/all-petfood

A YEAR OF INNOVATION IN PET FOOD

Consumers, including pet owners, will completely change the way they interact.



By Diana Mercado Directora de Zoo Inc.

The landscape of innovation in pet food products is changing rapidly, as companion animal owners are more interested in meeting the dietary needs of their pets, and brands support them by offering a more diverse product portfolio. There are exciting innovations in age-specific treats and foods, while products with sustainable slogans have potential.

In this article we'll discuss the major innovations that have been launched in recent months and the opportunities they represent for pet food manufacturers.

Capitalize on clean label trends

Consumers in the mass market are increasingly looking for recipes that do not contain harmful substances, such as artificial additives.

According to consumer data from Mintel, a market research company in London, 41% of UK adults buying pet food are looking for all-natural foods.

These clean label considerations are also impacting the type of food pet owners are choosing for their four-legged companions.

Between 2019 and 2020, around 53% of pet food and product launches in Europe featured a "natural" slogan, and it's a category of claims that has grown steadily over the last five years - according to Mintel.

The natural tagline category is dominated by the phrase "no additives/preservatives," which appears in 43% of launches.



United Kingdom. Hownd Hemp prizes and 100% vegetarian snacks

Pet owners' expectations of clean labels have shifted from "safe" and natural ingredients to requiring access to product origin and manufacturing information.

Functional pet foods and products gain traction

Las marcas de alimentos Pet food brands are responding to owners' interest in ensuring their pets live long and healthy lives by developing foods and treats that promise a wide range of functional health benefits, often linked to popular ingredients like CBD for anxiety, probiotics for healthy gut microbiota, or DHA for cognitive functions.

72% of pet food and products in Europe featured a functional claim/slogan (i.e. immune system, joints, muscles, nervous system), according to Mintel.

Beaphar's Snack, launched in France, contains cannabidiol (CBD), which has acclaimed beneficial properties for dogs, such as improving vitality, stimulating the immune system, and supporting joints and muscles.

Pet food joins the cause of climate change

The climate crisis will remain a long-term consumer concern, and brands must innovate to reduce their environmental footprint, sourcing from sustainable ingredients to plastic-free and compostable plastic packaging.



Germany. wet food



Francia. Beaphar premios y snack con CBD.

As a result of the crisis, consumers are looking for organic products in all facets of their lives, including pet food and products. In France, 72% of pet owners say they try to buy pet food from environmentally friendly companies.

In Europe, most of the ethical and environmental claims concern the packaging, whether it is made from recyclable materials or with an environmentally friendly process, such as soy-based inks.

LLATAM markets increase natural launches

In Latin America, claims of naturalness (no additives/preservatives, all-natural product, GMO-free) have seen growth as a percentage of pet food and product launches.

For example, additive/preservative-free claims more than doubled between 2015 and 2019 to reach 22% of all pet food and product launches in Latin America between 2019-2020.

Lastly, other texture trends, and special dietary products, are also emerging, creating



Peru. Completely vegan feed food for dogs.

plenty of new areas of innovation to explore, as around 36% of pet owners in Brazil worry that their pets will get bored of eating the same type of food every day.

What's next?

This innovation review highlights what has been brought to market. In the short to medium term, consumers, including pet owners, will completely change the way they interact with each other, with brands, and pet food companies, due to the COVID-19 outbreak.

Power, immunity, transparency of supply sources, and online availability will be important factors in the purchase decision.

In the future, other opportunities, aided by new digital technologies, will facilitate the emergence of new products and services in the personalization space. Experimentation with unconventional sources of animal protein, which can benefit both pets and the planet, as well as advances in biotechnology will be of growing interest.



United Kingdom. Scrumbles recycled material, no plastic and ethical company logo.



Brazil. Padaria pet, wet pet food made with steamed ingredients.



LET'S GROW YOUR BUSINESS TOGETHER

DIET MODULATION IN ADVERSE REACTIONS IN DOGS AND CATS



Through food ingestion, the body is constantly exposed to toxins, antigens, and pathogenic microorganisms. The intestinal epithelium acts as a physical and immune barrier, preventing the content present in the intestinal lumen from diffusing to other tissues and organs and compromising their homeostasis

By: Gabriela S.C.P. Corte Real, Ludmila Barbi, Erika Stasieniuk

Adverse food reactions are abnormal responses to an ingested food and can be divided into 2 main groups:

- 1) Food intolerance or intoxication, reaction without the involvement of the immune system;
- 2) Food hypersensitivity or allergy, immune-based food reaction;

When the adverse reaction does not involve the immune system, the terms intolerance and food poisoning can be used, related to metabolic, idiosyncratic, pharmacological reactions and ingestion of toxins present in some food.

Food poisoning results from the direct action of a food or food additive. Examples include excessive nutrient intake (vitamin A or D intoxication, selenium), food contaminated with microorganisms or their toxic metabolites (decaying material, mycotoxins), specific foods (onions, chocolates), or food preservatives (benzoic acid or propylene glycol in cats).

Gluten-induced enteropathy (celiac disease) is a major food intolerance, which causes chronic inflammation of the small intestine. "Gluten" is a crude mixture of gliadin and glutenin, and is normally well digested by pancreatic enzymes in the intestinal lumen, and intracellular enzymes in the brush border of the mucosa. Familial gluten-sensitive enteropathy has been described in Irish setters. However, this sensitivity can affect

a larger number of breeds of dogs and cats. In this breed, this pathology can be observed between four and seven months of age as an inability to gain weight accompanied by chronic diarrhea (Garden et al., 2000).

Food hypersensitivity or, more simply, food allergy, is included in the differential diagnosis of dogs and cats affected by clinical manifestations associated with skin diseases. It represents an immune-based adverse reaction to food as well as food anaphylaxis.

Despite the relatively low prevalence of food hypersensitivity in small animals (compared to other allergies such as atopic dermatitis and flea allergy dermatitis), many animals have a multifactorial etiology, which means they are allergic to flea saliva, flea food, and dust mites at the same time. Thus, in supposedly allergic animals, it is essential to determine whether or not the food participates in the clinical picture.

Food allergies usually occur as non-seasonal itchy dermatitis, with or without gastrointestinal signs. Pruritus varies in severity, and the distribution of the lesion is often indistinguishable from that seen in atopic dermatitis triggered by environmental allergens. The feet, face, armpits, perineal region, groin region, and ears are often affected. It should always be suspected in dogs with pruritic otitis (external unilateral or bilateral), accompanied

by secondary bacterial or fungal infections.

Generally, the main food allergens are water-soluble glycoproteins, which have a molecular weight ranging from 10 to 70 kD (thousand daltons) and are stable to heat, acid, and protease treatment. Meat, dairy, and wheat are the ingredients that most commonly cause adverse food reactions in dogs. Specific food allergens identified in dogs include chicken serum albumin, bovine IgG (milk and beef), sheep IgG (lamb), muscle phosphoglucomutase (beef, lamb), and Gly 50 and 75 kD soy proteins. Meat, soy, rice, dairy products, and fish are the ingredients that most commonly cause adverse food reactions in cats.

Elimination challenge tests confirm the diagnosis of an adverse reaction to a specific food. Resolution of clinical signs occurs after food elimination is present in the patient's diet, followed by a signal return when the patient faces the original food.

How to adjust the diet for adverse reactions to food?

Theoretically, the treatment would eliminate the agent causing the adverse reaction from the animal's diet. This option is more feasible when we talk about adverse reactions that do not involve the immune system since it is easy to identify which ingredient or food is causing the direct reaction of intolerance or intoxication to the organism.

Food allergy is an immune reaction to proteins ingested in the diet that are mistakenly identified by the body as antigens, generating an immune response that involves GALT (gut-associated lymphoid tissue).

As protein is an essential macronutrient for dogs and cats and we cannot eliminate it from their diets, our strategy in pet food is to include protein sources in quantity and quality, which will be key factors in the management of adverse food reactions in dogs and cats.

Thus, the protein/energy ratio in hypoallergenic diets is a parameter of great importance for the formulation since the den-

ser the diet, the less protein the animal will ingest. It would be interesting if the hypoallergenic rations had ME equal to or greater than 4000 Kcal/kg, both for cats and dogs.

However, not only the % of crude protein inclusion in hypoallergenic diets should be considered; the type of protein is a key factor to improve the immune response. Using unprecedented protein sources or synthetic amino acids is an excellent strategy since the animal has never had contact with them, and their immune system does not identify them. Some products replace beef or chicken with exotic meats for pets, such as lamb, salmon, rabbit, venison, ostrich, among others. However, the cost and availability of these proteins make it difficult to produce and market this type of food.

The immune system recognizes proteins with a molecular weight greater than 5 kD; those with a lower weight are absorbed and are not identified. Currently, the most commercialized hypoallergenic foods are those formulated with hydrolyzed protein. They undergo a denaturation and fragmentation process by chemical reactions.

New products with the analgesic concept are coming onto the market; in addition to hydrolyzing the protein sources, the other ingredients are, for example, protein-free; only the starch fraction of the carbohydrate sources are used to ensure that no protein is produced. They do not even have plant-based allergens.

The ratio between $\omega 6$ and $\omega 3$ fatty acids in animal tissues can be modulated through diet and thus influence the inflammatory response of animal skin. To improve the performance of polyunsaturated fatty acids, there must be an optimal ratio between them. According to Reinhart et al. (1996), a $\omega 6:\omega 3$ ratio between 5:1 and 10:1 can significantly reduce itching conditions. Vaughn et al. (1994) determined an optimal $\omega 6:\omega 3$ ratio of 10:1 to 5:1 for adult dogs, while Wander et al. (1997) studying elderly dogs, found a significant decrease in prostaglandin E₂ (PGE₂) only with the $\omega 6:\omega 3$ ratio of 1.4:1.



We resignify the care with our Pets.

The packaging as well has.

Innovation, protection, sustainability and convenience.

We develop special packaging for high-quality nutrition.

Soulpack[®]
special packaging



Access the QR code and talk to us to get to know our 100% recyclable Box Pouch.



INNOVATION IN THE PET FOOD INDUSTRY

The first documented processed pet food was created in England in 1860 by James Spratt; that day began a long path of evolution and constant innovation to improve pet nutrition and well-being by the industry. Many changes and technological innovations have developed over the years; a good example is the invention of the first prescription diet designed for dogs with kidney problems in 1939 by Mark L. Morris.

By Miguel Lopez

It seems the change that turned the pet food industry upside down and into what we know today is the introduction to the market of the first food manufactured by extrusion worldwide in 1957. After that, there has been a great evolution and very important changes regarding: food safety, processing, and product appearance, as well as from a nutritional approach.

In terms of time, food safety is perhaps one of the first points to be addressed by the industry: water activity measurement in food to prevent bacterial growth, antioxidants inclusion to prevent rancidity or agents that prevent fungi proliferation or the blocking of their toxins.

The introduction to the market in the early 1990s of the use of hydrolyzed (digested), liquid or powdered animal proteins represented a substantial improvement in the acceptance of diets by pets.

In the case of processing, we can mention examples imme-

diately accepted by buyers as: new product varieties with different textures (semi-moist, moist foods) or the inclusion of fresh meat in dry foods.

The pet health and care trend that took place 10 or 15 years ago is helping take important steps in improving the market offer. This is happening by applying nutritional technological improvements, intrinsic and resorting innovations from the nutrition of production animals, as well as from the food and nutrition humans. The industry is taking increasingly solid and constant steps towards a new generation of foods that guarantee pets a better quality of life for many more years.

For a long time, nutrition served as the most important point in the development of pet food, as shown by the modifications made to the nutritional standards established by the National Research Council. In fact, in 1985, only minimum and maximum levels were recommended. The concept changed for 2006 when

minimum, adequate, recommended and safe levels were established. Another important point is the inclusion of omega 3 fatty acids minimum recommended levels, not included in the 1985 version.

Many things have been changing from a nutritional point of view. The inclusion of innovative ingredients sources that provide higher biological values of protein than existing traditional sources is something more commonly seen on food labels such as the use of plasma or from the egg. Additionally, there is an increase in the use of non-traditional concentrated vegetable protein sources such as peas, potatoes, or lentils. Of course, it is important to nutritionally assess the use of fresh proteins in the formulation of pet diets.

There are serious moves toward formulating pet foods with soluble and insoluble dietary fiber values (instead of the current crude fiber values). This will improve the nutritional performance of the food and its response in dogs and cats. Another valuable and interesting point is the inclusion of additives that improve pet intestinal health (prebiotics).

The use of organic minerals is becoming more and more common in the industry, and fortunately, the cost difference with inorganic sources of these nutrients is less and less, which is why it is easy to take advantage of their greater bioavailability.

The use of organic minerals is becoming more and more common in the industry, and fortunately, the cost difference with inorganic sources of these nutrients is less and less, which is why it is easy to take advantage of their greater bioavailability.

Some companies have dedicated resources and time to substitute antioxidants and artificial colors for natural ones; in the case of colorants, there is still much to be done in this area since the characteristics of food processing usually modify the performance of natural colorants. From a cost point of view, the differential in antioxidant costs is still high, which is why their use is limited to certain food segments.

Enzyme usage to improve the availability of some nutrients is relatively limited due to their viability during the thermal processing they undergo. It is the same case for some additives that improve pet intestinal health (probiotics). Notwithstanding the foregoing ways in which their application and inclusion in food can be optimized, they are constantly evaluated.

The inclusion of phytobiotics in pet nutrition is another lesson learned from the production animal feed industry. Facts have demonstrated that artificial choline substitutes have a very important space in new pet food generation. Proposals for more resistant and cheaper analogs of vitamin C have even been ventured into.

There are even more complex advances in pet nutrition such as nutrigenomics, which is the science that studies how food and its nutrients interact or even modulate the genetic expression of the organism.

The pet food industry is constantly evolving and innovating, which increasingly guarantees a coexistence with our best friends for more years and with better life quality.

Providing the best Solutions for the Extruded Pet Food and Aqua Feed Industry



Projects: Focused mainly on companies manufacturing Extruded Pet Food and Aqua Feed, we develop Projects for complete or partial plants.

Solutions: We offer consulting work and provide Solutions to improve the Efficiency and Quality of your Manufacturing Processes.

Representations: We only work with Associated Companies that can offer the Highest Quality of products and Services for our Customers.



CS CLIVIO SOLUTIONS
PET FOOD & AQUA FEED INDUSTRY

+54-9-2352 54-0040 ■ francisco.pantoni@cliviosolutions.com ■ www.cliviosolutions.com



THE PACKAGING REVOLUTION: SERVICE AND SUSTAINABILITY

Regulations and trends in plastic usage in food packaging are forcing a revolution in the food packaging system, both for humans and pets.

By: All Pet Food

A significant increase in pets in households worldwide, together with increased interest and expectations of owners about the quality and variety of products, that is, the trend towards humanization, drives innovation. In this sense, we can say that the motivation for advances in technology and sustainability is the consumer himself.

Without going any further, if we compare the pet food and snack packaging of a decade ago with those of today, we would find significant differences. From the rise of chilled foods or individual-serving packs to greener-packaged big bags, new materials and formats are literally and figuratively revolutionizing the market.

Regulations in Latin America

In the member countries of MERCOSUR (Argentina, Brazil, Paraguay, Uruguay, Venezuela, and Bolivia -in the integration

process-) and their associated states (Chile, Colombia, Ecuador, Guyana, Peru, and Suriname), the reuse of plastic materials for contact with food is prohibited by GMC resolution 56/92, except for some future conditions.

In the last 15 years, several factories focused on PET decontamination technologies have emerged in Latin America. In fact, in the MERCOSUR countries, there are already mandatory regulations and standards (and other voluntary ones) related to safety issues of post-consumer recycled PET. These requirements have taken as references to international organizations for risk assessments, regulations, and scientific opinions, the FDA of the United States, and the EFSA of the European Union.

In the region (and in the world), PET is the main post-consumer recycled input, although there has been an interest in expanding the current legislation to other recycled plastics.

The (re)evolution of graphic design, at the service of information

One of the significant improvements of this packaging revolution involves the availability of information. Nowadays, having clear and extensive information is a priority for all consumers and, therefore, it must also be for manufacturers. Whether it's usage information, ingredients, or recycling advice, companies and their design teams focus on treating packaging aesthetics not only as something attractive to stand out from their competitors, but also as a utility in itself: to inform, and with information, provide security to the consumer, and therefore... Sell.

To this day, hundreds of studies and investigations have stated that consumers respond to the visual presentation of a product. Therefore, it is only logical that we are witnessing the implementation of high-quality graphics and design on pet food packaging in first-world countries (such as Germany, the United States, Germany, and Russia).

The visual appeal of packaging extends to aesthetics; today, it has more to do with how products present as a whole. For this very reason, graphic design is a focus of innovation in the industry.

Currently, the driving force behind the pet food category is the differentiation of product presentation on the shelf to visually communicate the premiumization of that specific food (and the industry in general).

Sustainability, the focus of innovation

Indeed, innovation in the pet food industry is disrupting: nutrition, food formulation, ingredients, packaging, and technology, among other aspects. However, we find 3 common points in all of them: sustainability, limited resources use reduction, and pollution and waste reduction.

In this sense, the continuous push for more sustainable packaging is more relevant than ever in the market. At this time, it is imperative to pay attention to how we package the products and the waste the process produces. Undoubtedly, we are already aware (or we should be), at an individual and corporate level, that we have only one planet; and that we must be better stewards of resources and the environment.

The same consumers say that given to choose on equal terms, they prefer brands that work to achieve more sustainable packaging.

Cases of success in packaging innovation: walking towards sustainability

- More reusable packaging and custom-made paper bags are being introduced to the market, which reduces the carbon footprint.

- The global manufacturer Nestlé has partnered with Amcor, a packaging manufacturer, to jointly launch the industry's first flexible and recyclable autoclave bag, a high-barrier container for pet food.

- Another large packaging manufacturer, Mondi, developed in 2020 the BarrierPack Recyclable, a fully recyclable plastic laminate container and qualifies for store delivery labelling.

- Printpack developed Preserve, a line of recyclable packaging for pet food that meets the design standards of How2Recycle, a communication system for ways to recycle packaging. In addition, they are made with post-consumer recycled materials and renewable sources such as corn, sugar cane or trees.

In general terms, the market is experiencing new innovative

...companies and their design teams focus on treating packaging aesthetics not only as something attractive to stand out from their competitors, but also as a utility in itself: to inform, and with information, provide security to the consumer, and therefore...,

and sustainable formats for different types of food and snacks, such as flexible stand-up bags. There are also seen all kinds of single-portion packaging, both for traditional food and treats (made in the historical human "cereal bar" format). This, together with sweets in "bakery"-style cardboard boxes, make up a reflection of the human market.

For its part, following the line of providing information and reducing product waste, we found new options with the possibility of reclosing or sealing the product inside the container to preserve it and transparent places

so that the consumer can visually corroborate the state and quality even before you buy it. However, innovative packaging solutions must provide correct aromatic and fat barriers, high-quality conservation, and palletization optimization apart from customer practicality and sustainability.

The prospects for the evolution of packaging are more than interesting. The industry is consolidating its forces in creating more creative, safe, and sustainable packaging that meets the new regulations to preserve the health of animals.

In conclusion, we can say that the pet food packaging industry is seeking to find that long-awaited balance between shelf life, food safety, and environmental impact.

ambiental.



› Producción y Desarrollo de Alimentos Húmedos para Mascotas

› Servicio de consultoría

✉ info@wmg-pet.com

📍 Córdoba, Argentina

www.wmg-pet.com



CANTILEVER SHAFT DESIGN FOR KEMUTEC KEK® CENTRIFUGAL SIFTERS IMPROVES POWDER PROCESSING HYGIENE AND EASE OF OPERATION

Por Schenck process

KEK® Centrifugal Sifters by Kemutec, part of the Schenck Process Group, feature an advanced cantilever design that greatly improves sifting efficiency in handling materials, such as: Pet Food Meal, Soy Meal, Bran, Wheat Gluten, Fish Food, Shrimp Food, Chicken Meal, Animal Feed Supplements, and Dried Yeast in pet food manufacturing applications. This innovative design, which has been implemented on virtually every model of KEK® Centrifugal Sifters, features an easy-to-remove

hygienic screen basket and paddle screw assembly, a hinged oversize end door, and bolted flanges for dust-tight operation. The sifters also operate quietly without vibration.

The cantilevered design improves efficiency with its clean, simple features that are operator friendly – no tools are required for stripping down and cleaning – along with the time saved during an inspection, cleaning, and maintenance. The units also contain easily removable sifter screens for inspection and

schenckprocess



System Solutions in Bulk Material Handling

- » Pneumatic Conveying
- » Rotary Moulding
- » Dust Collection
- » Depositing
- » Feeding
- » Milling
- » Mixing
- » Sifting



**More
Information**

www.schenckprocess.com
americas@schcnckprocess.com
816-891-9300

we make processes work

cleaning, and easy access via the oversize end door, which opens in seconds. There is zero leakage or contamination from the oversize end door.

The sifters are ideal for feedstock policing, scalping, dedusting, conditioning, and deagglomerating; but can also be used in unique applications, such as de-packing, fruit dumping, inline sieving, gas purging, and explosion containment.

Pending suitability, these sifters are available with white nylon sifting screens, stainless steel wedge wire, or woven wire screens. They are built to handle the most arduous, heavy-duty applications where access for maintenance is severely limited, such as toxic and radioactive processes. Also, optional screen protectors eject incoming extraneous objects, which could damage the sieving mesh. For further improvement of the sifter's hygienic capabilities, the units can also include clean-in-place spray facilities, inlet section access door, and additional inspection doors on the sifter body.

The design is also available on KEK® models K300C, K650C, K800C, and K1150C (the largest cantilevered sifter with capacities of up to 80 tons per hour).

"Schenck Process has established itself as the bulk materials, handling providers trust most throughout the process industries by creating a culture of constant innovation, and always looking at how our extensive product portfolio can better serve customers," said Karin Galloway, Executive Director of Sales – Kemutec North America. "The Kemutec KEK® Centrifugal Sifter line with unparalleled hygienic and ease-of-use standards

exemplify that commitment."

To view KEK Centrifugal Sifters in action, click here or go to <https://www.kemutecusa.com/products/kek-centrifugal-sifters/>. Operating for over 130 years, Schenck Process has engineered cutting-edge technologies and solutions across the bulk material handling spectrum, delivering unmatched precision and accuracy for dry powder pneumatic conveying, mixing, blending, depositing, milling, sifting, weighing and feeding. Through its integration of the Kemutec, Mac Process, AccuRate, Raymond Bartlett Snow and Stock Equipment brands, Schenck Process delivers a unified process solution for customers in every corner of the world.

Para más información, póngase en contacto con

Kemutec - Parte del Grupo Schenck Process

130 Wharton Rd

Parque Industrial Keystone

Bristol, PA 19007

Teléfono: 215-788-8013

Correo electrónico: k.galloway@kemutecusa.com

Web: www.kemutecusa.com



MAVERICK

EXTRUSION DEVELOPMENT GROUP

A DIVISION OF **W** WENGER

**SECADOR -
ENFRIADOR**



**EXTRUSORES
SERIES MVK**

Single Screw Extruder



WENGER DO BRASIL

ALAMEDA ITATUBA, 2232 JOAPIRANGA II

13278 - 520 VALINHOS - SP BRASIL

TEL +55 3881 5060



Kibbles



Pillows



Dental sticks

Dry pet food as never before.

Years of experience in the food sector paired with customer-centric development and constant innovation, allow us to supply processing lines for a new generation of pet food.

Our food industry experience, combined with the legendary flexibility of our extrusion and drying solutions, means pet food manufacturers can set standards even higher.



Discover more on
[GEA.com/petfoodtech](https://www.gea.com/petfoodtech)

GEA Engineering
for a better
world.

Bühler Single-Screw Extruder

Are you looking to develop a new product that complies safety regulations?

The **Bühler single-screw extruder** offers a modular design with maximum flexibility and versatility, allowing to produce pet and aqua feed, based on your specific needs regarding capacity, screw speed, torque and pressure options.

Increase your profitability!



More info?

Scan the QR code and contact us!

