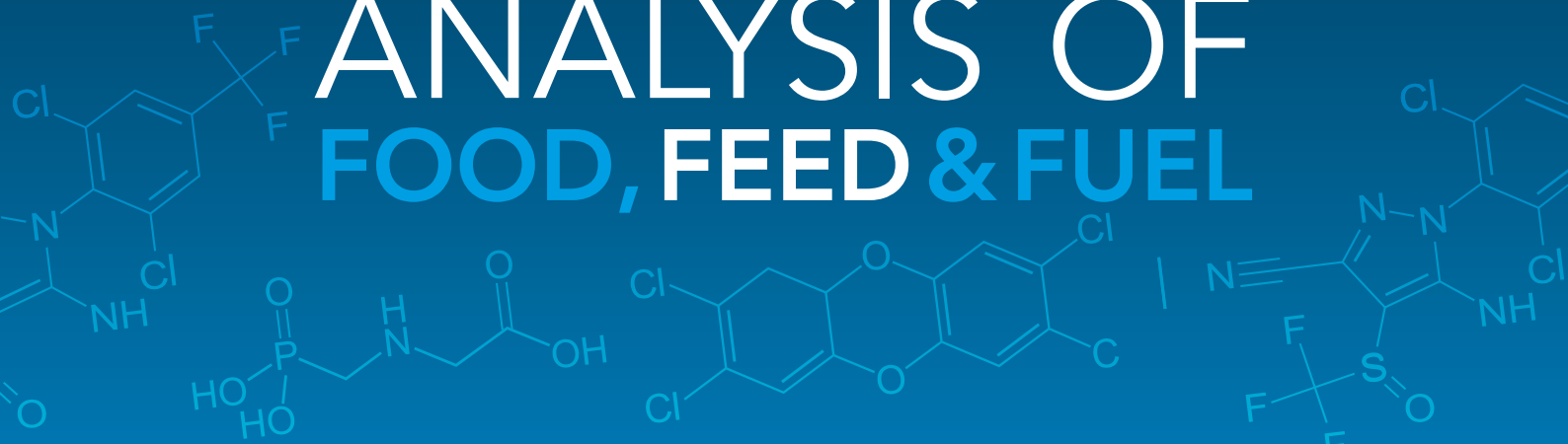


TLR

INTERNATIONAL LABORATORIES



FAST, COMPREHENSIVE
ANALYSIS OF
FOOD, FEED & FUEL





'FAST, COMPREHENSIVE ANALYSIS OF FOOD, FEED & FUEL'

FAST, ACCURATE, USABLE ANALYSES FOR YOUR COMPANY

Welcome to TLR International Laboratories, an independent lab facility for chemical analysis, microbiological analysis, DNA analysis, PCR, and analysis interpretations. TLR is a modern lab in Rotterdam, The Netherlands where highly trained staff work with state-of-the-art instruments to present the best, most reliable results in ways our clients can use. TLR specialises in analysing foods, feed and ingredients for the feed industry, as well as fuel and biomass products.

When food, feed and fuel products are submitted to us for analysis, quality and safety are the highest priority – for our clients and for us. Reliable analysis results are the least you can expect from your laboratory. TLR is internationally accredited (L059) to perform a wide-ranging array of chemical, microbiological and DNA analyses. We constantly expand our range of services to include innovative, high-quality solutions so we can keep meeting your needs optimally.

Fast turnaround times are guaranteed at TLR. We can achieve these speeds by having our expert staff work with state-of-the-art equipment in a cutting-edge modern environment. All analyses are performed quickly and efficiently from a single location, saving you time and money.

Personal contact is very important to us. At TLR, you have a single point of contact: an account manager who has a solid understanding of the process. And a list of analysis results isn't where we stop; we also provide you with an interpretation of what your results mean, tailored to your company and your specific analysis needs.



TLR is a member of the Peterson and Control Union network. This network consists of independently operating service providers that specialise in inspection and certification of food, feed, ingredients for mixed foods, textiles and fuel.

Most of the companies operate under the Peterson and Control Union trade names. This international network allows us to take samples all around the world. These connections also ensure that the consultants at TLR and its fellow companies can be deployed and consulted for advice on quality issues worldwide.

WORLDWIDE NETWORK

TLR is part of the Peterson and Control Union network. This network consists of independently operating companies that collectively have a presence in over seventy countries worldwide. Each of the affiliated companies has its own specialisation in terms of inspection and certification. Whether you use only one of the services that these companies offer, or a comprehensive range of services, you can rest assured that you will enjoy the benefits of a powerful global partnership.

Peterson and Control Union traces its roots back to agricultural inspection. Nearly 100 years later, the network includes fundamental knowledge of logistical processes, quality management, certification and risk management for many different industries – agriculture, forestry, energy, sustainability, textiles, and many more.

Our worldwide services include support and guidance during certification, as well as administrative checks for certification accuracy and validity. Within our international network, we can also arrange sampling and auditing for you. We

also have all the expertise you need for support during e.g. due diligence, including IMO and USCG approval for your ballast water management systems, and during implementation of the strict rules and regulations imposed by the US Food and Drug Administration (FDA) and the Food Safety Modernization Act. Does your organisation need to ensure constant, cutting-edge awareness of the latest international laws and regulations? We can put together a training programme for your employees which is tailored to your specific needs. We can provide this option at any of your locations worldwide.

*'You benefit from
the powerful global
partnership'*





STANDARD AS WELL AS COMPLEX ANALYSIS METHODS FOR ANIMAL FEED

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The quality of feed and ingredients for the feed industry is an important priority. First and foremost, you want to produce nutritious, safe feed products that contribute to good health, growth and development of livestock and household pets. These priorities are a matter of public health, particularly for livestock feed. Through the food chain, you will most likely only want to produce high-quality meat.

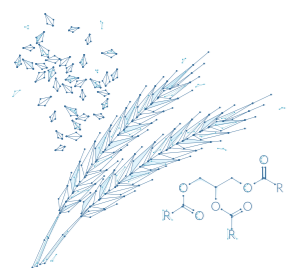
TLR offers a wide range of standard and complex analyses for feed and ingredients for the feed industry. In our modern laboratory, we can quickly and efficiently perform analyses to determine nutritional content. This information can be used e.g. to prove fulfilment of contracted performance and for labelling purposes. We also work with complex methods for detecting residues and contaminants, such as pesticides, dioxins and melamine. TLR also performs classical microbiological analyses, such as plate counts, as well as modern PCR techniques for pathogenic bacteria like salmonella, or enteropathogenic E. coli and E. coli O157. PCR screening is used to detect genetically modified variants. TLR can

also test for intended and unintended nutrients or components, foreign contaminants, damaged kernels of grain, or toxic seeds. Our portfolio also includes DNA analyses.

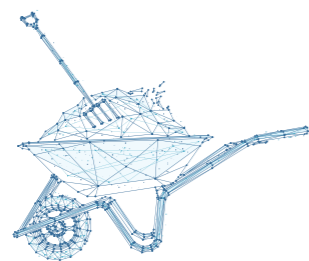
Our connections to the Peterson and Control Union network allow us to take independent samples and conduct research all over the world. Our experienced consultancy department advises clients on quality issues, including in feed products.

TLR is GMP+ and QS certified, ISO 17025 accredited (L059) and approved by the FOSFA and GAFTA.

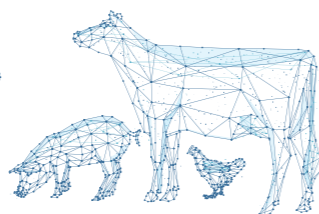
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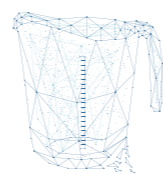
BASIC INGREDIENTS



ROUGHAGES



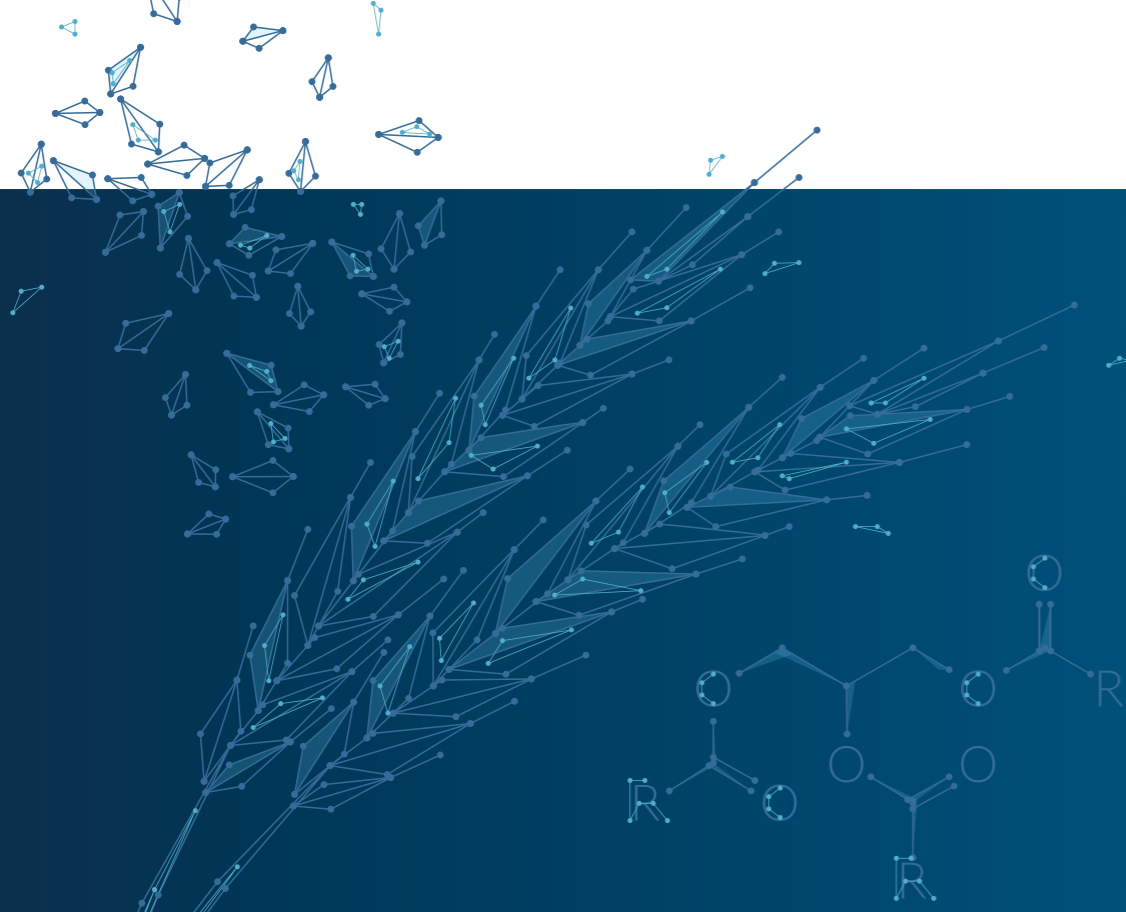
MIXED FEED



HIGH MOISTURE ANIMAL FEEDS



PET FOOD



*'Analyse pesticides
within 24 hours'*

BASIC INGREDIENTS

The foundation of high-quality animal feed is the ingredients. As an animal feed producer, you want to know as soon as possible about the quality of the ingredients used in the feed, as well as the nutrient levels. Those insights are the only way for you to offer an optimal feed formula. A complete analysis of Weende components using state-of-the-art instruments gives you a clear overview of the composition of your ingredients, for instance.

But TLR does more. In addition to chemical analyses, we can also quickly determine microbiological quality and safety, and rapidly check for the presence of mycotoxins. Crops that are contaminated with fungus or mould during cultivation or storage could form mycotoxins, which pose a risk to animal health. Insufficient hygiene and climate control during storage or transport are common causes of microbiological contamination in feed ingredients. Although fungi, yeasts and bacteria in ingredients are usually neutralised during the mixed feed production process, it is important to know the microbiological quality of your ingredients for quality assurance purposes. TLR can monitor the microbiological of crops during cultivation and analyse them at a later stage to check for the presence of salmonella, campylobacter and enterobacteriaceae.

Various options are also available for analysis of physical, chemical and biochemical contaminants in feed ingredients. Heavy metals, dioxins, pesticides and PCBs are examples of contaminants that are subject to action and rejection thresholds. Accordingly, it remains vital to monitor levels of such contaminants in feed ingredients. It goes without saying that maximum reliability is absolutely required for an analysis laboratory like TLR.

TLR is GMP+ and QS certified and ISO 17025 accredited. We have also been approved by FOSFA and GAFTA, ensuring that our reports will be accredited (L059) internationally. With the wide range of analyses we offer, we support companies in their operations according to quality standards.

ANALYSES FOR BASIC INGREDIENTS

Weende components

- Water, crude protein, crude fat, carbohydrates (starches and sugars), fibre fractions (NDF, ADF, lignin)

Nutrients in detail

- Amino acid profile, fatty acid profile, digestibility

Residues and contaminants

- Physical check for contaminations and damaged kernels of grain
- Pesticides
- Nitrate and nitrite
- Antibiotics (e.g. furazolidone in soy)
- Heavy metals like lead, cadmium or mercury
- Dioxins and dioxin-like PCBs
- Mycotoxins like aflatoxin, deoxynivalenol, ochratoxin or fumonisins

Microbiological parameters

- Total germ count
- Pathogenic bacteria such as salmonella and enteropathogenic E. coli (EHEC / O157)
- Spoilage bacteria, such as alicyclobacillus
- Yeasts and fungi
- Viruses like norovirus or hepatitis A

Genetic characteristics

- Identifying GMOs by using PCR analysis

ROUGHAGES

Roughage is an essential part of what ruminants are fed: on average, nearly 70% of their diet consists of roughages. Besides meadow grass and maize silage, cows receive various types of hay and straw - possibly ensiled. Pigs, especially sows, often receive roughage on a daily basis (hay or straw), since it improves their overall well-being and intestinal health. Roughages are variable products; in order to include them in the feed rations, you need to know their nutritional content. TLR can help you here.



analyse your maize silage for dry weight, protein and starch content before ensilage. Once the silo (or pit) is opened, silage feeds are exposed to air; at that point, unintended microorganisms may proliferate. We test silage feed and other roughages for pH, bacteria, fungi and yeasts, but also for residues from crop protection products.

Roughage nutritional content and composition are important factors – not just in producing high quality feed, but also in eliminating unintended and possible hazardous components. Mycotoxins produced by fungi and mould in hay and straw could pose a risk. The botanical composition is also relevant, especially in hay. For example, natural hay could contain ragwort (*Jacobaea vulgaris*), which is toxic to horses and cattle. Consequently, it is vitally important to exclude the presence of this plant before the hay is sold.

The quality and structure of roughage depends on many different factors. During cultivation, the composition can be affected by weather conditions, soil management, and when the crops are harvested. Ensiling also needs to be done properly: the harvest must be dried to the recommended moisture level, closely packed, and then stored in an airtight environment. TLR can

ANALYSES FOR ROUGHAGES

Weende components

- Water, crude protein, crude fat, carbohydrates (starches and sugars), fibre fractions (NDF, ADF, lignin)

Nutrients in detail

- Amino acid profile, fatty acid profile, pH, dietary organic acids

Residuen en contaminanten

- Physical check for contaminations, damaged kernels of grain, and botanical composition
- Pesticides
 - Fungicides such as dithiocarbamates
 - Herbicides such as glyphosate, paraquat and diquat
- Biocides

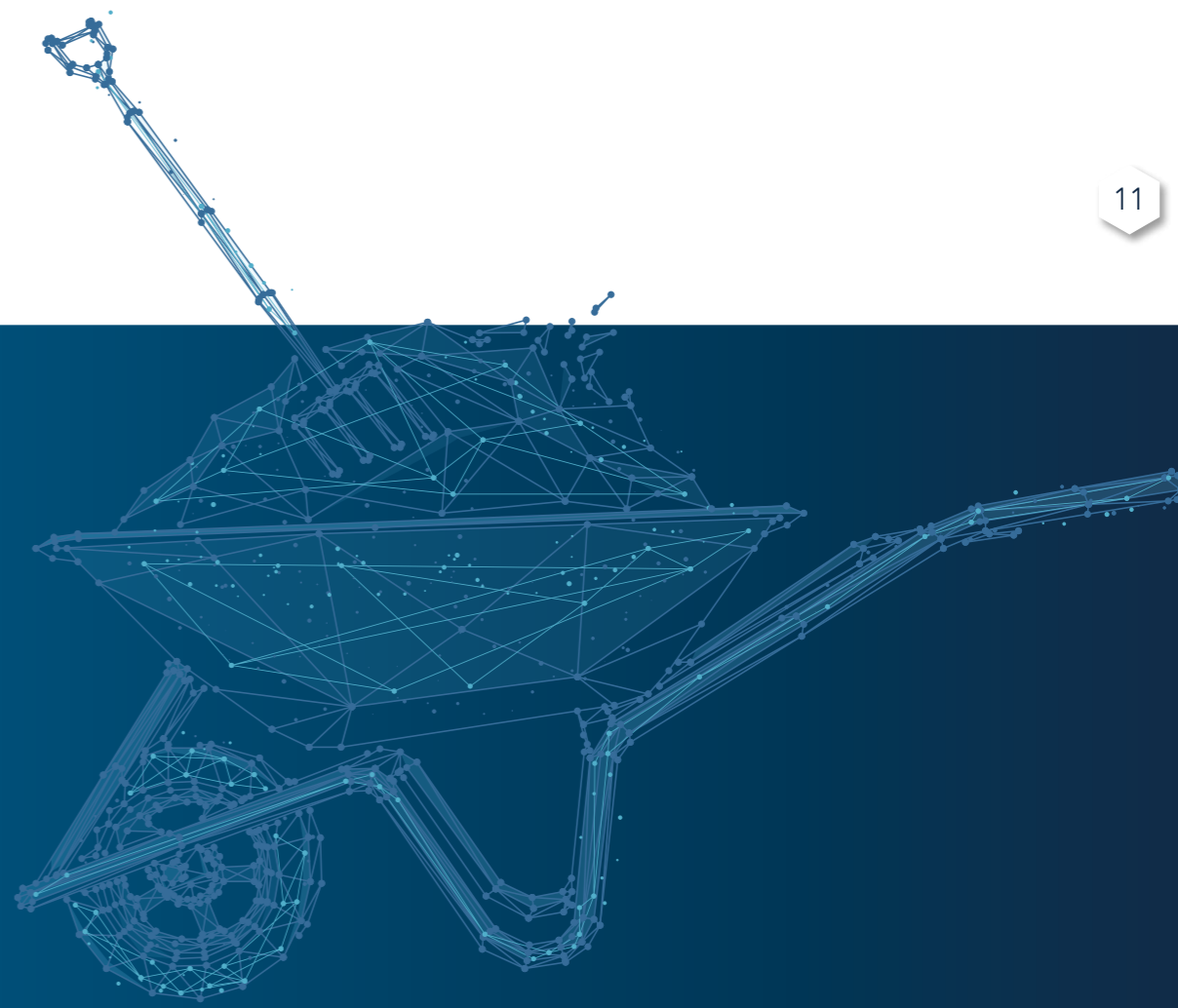
- Nitrate and nitrite
- Antibiotics (e.g. furazolidone in soy)
- Heavy metals like lead, cadmium or mercury
- Dioxins and dioxin-like PCBs
- Mycotoxins like aflatoxin, deoxynivalenol, ochratoxin or fumonisins

Microbiological parameters

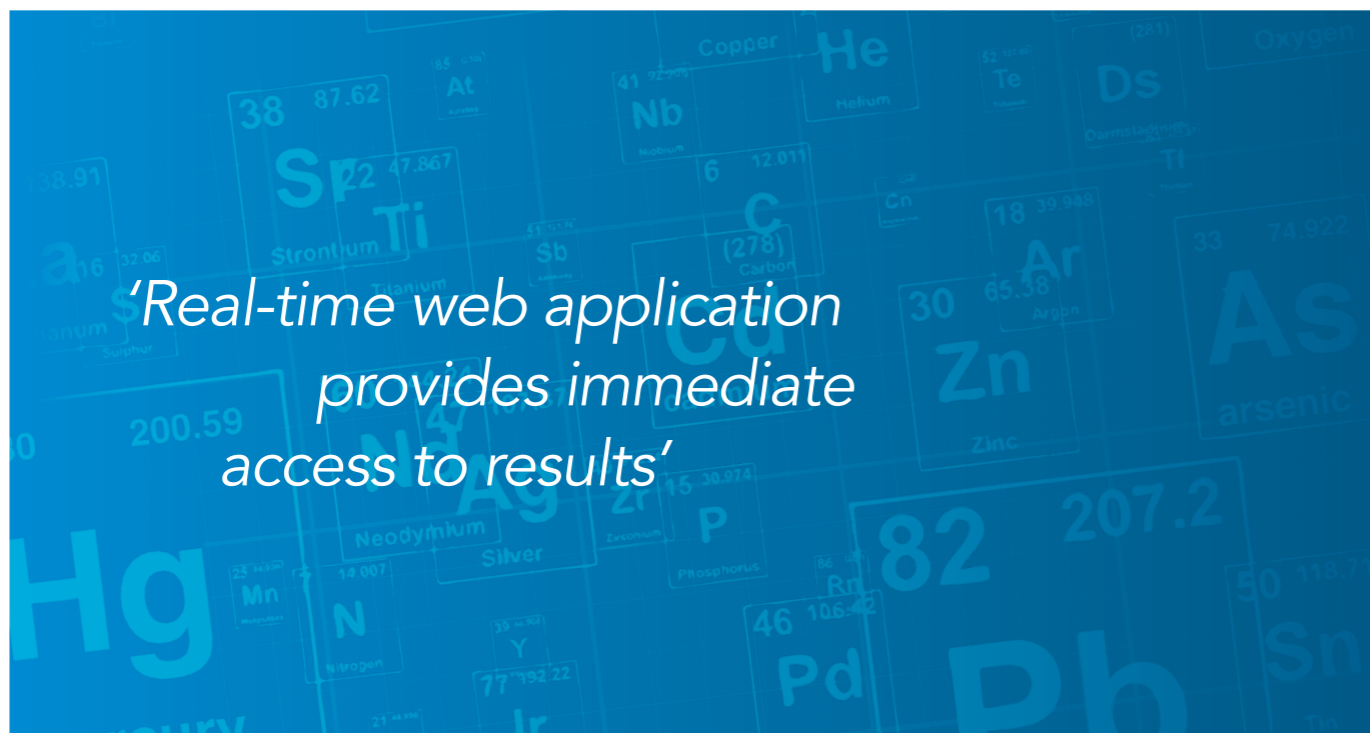
- Total germ count
- Pathogenic bacteria such as salmonella, clostridia, E. coli
- Spoilage micro-organisms
- Yeasts and fungi
- Viruses like norovirus or hepatitis A

Genetic characteristics

- Identifying GMOs by using PCR analysis



'Real-time web application provides immediate access to results'



'All your analysis needs met quickly and efficiently in a single lab'

MIXED FEED

As a mixed feed producer, you want to know as soon as possible about the quality of your products. And you need accurate information about nutrient levels to optimise your feed formula. TLR uses intelligent instruments to analyse all the parameters that are relevant to nutritional value or quality for animals: crude protein, crude fat, ash, crude fibre and cellulose, sugars and starches. In addition, we always analyse the moisture content of the dry material.

In addition to chemical analyses, we can also quickly determine microbiological quality and safety, as well as the presence of mycotoxins – even during cultivation. If crops are contaminated with fungus or mould during cultivation or storage, mycotoxins could form, which pose a risk to animal health. During storage or transport, insufficient hygiene and poor climate control are common causes of microbiological contamination in feed ingredients. Although fungi, yeasts and bacteria in feed ingredients are generally killed off during the mixed feed production process, it is important for you to maintain constant high standards of quality. An accurate analysis of your feed ingredients to check for the presence of salmonella, campylobacter and enterobacteriaceae gives you insight into the microbiological quality of the components.

Heavy metals, dioxins, pesticides and PCBs are subject to action and rejection thresholds. Accordingly, it remains vital to monitor levels of these substances. TLR can test and monitor the physical, chemical and biochemical contaminants in your products.

Solid reliability and wide-ranging acceptance of analysis results are crucial to TLR. TLR is GMP+ and QS certified and ISO 17025 accredited (L059). We have also been approved by FOSFA and GAFTA, ensuring that our reports will be accredited internationally. With the wide range of analyses we offer, we support companies in their operations according to quality standards.

ANALYSES FOR MIXED FEEDS

Weende components

- Water, crude protein, crude fat, carbohydrates (starches and sugars), fibre fractions (NDF, ADF, lignin)

Nutrients in detail

- Amino acid profile, fatty acid profile, digestibility

Residues and contaminants

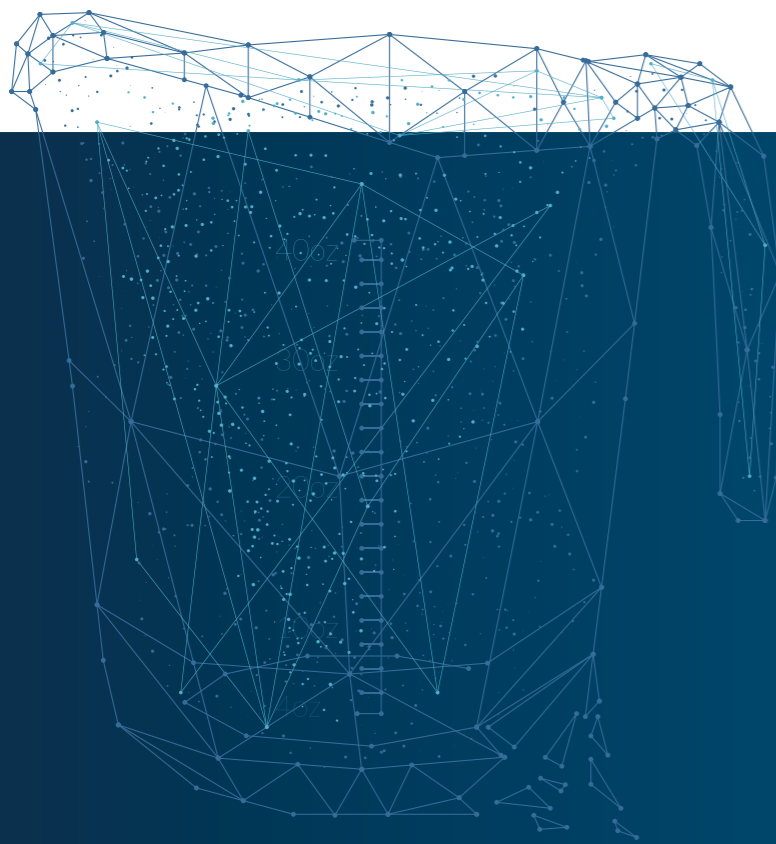
- Physical check for contaminations and damaged kernels of grain
- Pesticides
- Nitrate and nitrite
- Antibiotics, for instance furazolidone in soy
- Heavy metals like lead, cadmium or mercury
- Dioxins and dioxin-like PCBs
- Mycotoxins like aflatoxin, deoxynivalenol, ochratoxin or fumonisins

Microbiological parameters

- Total germ count
- Pathogenic bacteria such as salmonella and enteropathogenic E. coli (EHEC / O157)
- Spoilage bacteria, such as alicyclobacillus
- Yeasts and fungi
- Viruses like norovirus or hepatitis A

Genetic characteristics

- Identifying GMOs by using PCR analysis



'Analyse for contaminants within 48 hours'

HIGH MOISTURE ANIMAL FEEDS

High moisture animal feeds - simple feeds that are delivered directly to the livestock farmer - are an essential part of feed rations for pigs and cattle. Wet feed has a positive effect on the animal's overall health and intestinal health, and also cuts costs. This category could include liquid products used in mash feeds or stackable products can be ensiled. The microbiological quality of high moisture animal feeds is an important consideration. TLR offers a wide range of specific analyses for high moisture animal feeds.

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extend shelf life. The microbiological quality of high moisture animal feeds is an important consideration, since potentially pathogenic bacteria could supplant the beneficial lactobacilli. Unintended micro-organisms reduce nutritional quality and could pose a risk to animal health. Simple silage feeds are exposed to air once the silo (or pit) is opened, making it possible for unintended micro-organisms to proliferate.

During storage of high moisture animal feeds, microorganisms cause fermentation: starches and sugars are converted in lactic acid and other organic acids, which generally has a beneficial impact on shelf life, digestibility and intestinal health. Spontaneous acidification helps

TLR can analyse high moisture feed products and silage feeds for pH, bacteria, fungi and yeasts. High moisture, simple feeds are variable products; in order to include them in the feed rations, you need to know their nutritional content. TLR can help you here.

ANALYSES FOR HIGH MOISTURE ANIMAL FEEDS

Weende components

- Water, crude protein, crude fat, carbohydrates (starches and sugars), fibre fractions (NDF, ADF, lignin)

Nutrients in detail

- Amino acid profile, fatty acid profile, pH, dietary organic acids

Residuen en contaminanten

- Physical check for contaminations and damaged kernels of grain
- Pesticides
 - Fungicides such as dithiocarbamates
 - Herbicides such as glyphosate, paraquat and diquat
- Biocides

- Nitrate and nitrite
- Antibiotics (such as furazolidone in soy)
- Heavy metals like lead, cadmium or mercury
- Dioxins and dioxin-like PCBs
- Mycotoxins like aflatoxin, deoxynivalenol, ochratoxin or fumonisins

Microbiological parameters

- Total germ count
- Pathogenic bacteria such as salmonella, clostridia, E. coli
- Spoilage micro-organisms
- Yeasts and fungi
- Viruses like norovirus or hepatitis A

Genetic characteristics

- Identifying GMOs by using PCR analysis

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PETFOOD

Pet food quality generally involves nutritional quality, food safety and shelf life. Both dry food (kibble) and wet food (cans or containers of pet food) are complex in composition and contain highly concentrated nutrients. The complex composition imposes specific parameters on analysis methods. TLR can routinely test for the presence of intended or unintended substances - such as fungi on grains and other materials, or contamination with e.g. dioxins, PCBs, heavy metals, pesticides or melamine.



The nutrients in pet food come from meat, fish, grains and vegetables or are added in the form of supplements. Each of the ingredients has to meet strict standards of quality for bacteriological properties, freshness, nutritional content and digestibility. Hygienic quality is an important aspect of pet food, especially since the high concentrations of carbohydrates, proteins and fats make these products vulnerable to microbiological contamination. We are specialised in performing analyses in complex matrices, so you can rest assured that the lab results will be correct.

The ingredients in complete pet foods determine how nutritious it is for the pet. In our modern laboratory, we can quickly and efficiently perform analyses to determine the nutritional content of your ingredients and your final product. We can test for nutritional composition, but also e.g. for levels of vitamins, minerals and other additives. The information acquired from the tests can be used e.g. to prove fulfilment of contracted performance and for labelling purposes.

ANALYSES FOR PETFOOD

Weende components

- Water, crude protein, crude fat, carbohydrates (starches and sugars), fibre fractions (NDF, ADF, lignin)

Nutrients in detail

- Amino acid profile, fatty acid profile, pH, dietary organic acids.

Residues and contaminants

- Physical check for contaminations and damaged kernels of grain
- Pesticides
 - Fungicides, including dithiocarbamates
 - Herbicides such as glyphosate, paraquat and diquat
 - Biocides
- Nitrate and nitrite
- Antibiotics (e.g. furazolidone in soy)
- Heavy metals like lead, cadmium or mercury
- Dioxins and dioxin-like PCBs
- Mycotoxins like aflatoxin, deoxynivalenol, ochratoxin or fumonisins

Microbiological parameters

- Total germ count
- Pathogenic bacteria such as salmonella, clostridia, E. coli
- Spoilage micro-organisms
- Yeasts and fungi
- Viruses like norovirus or hepatitis A

Genetic characteristics

- Identifying GMOs by using PCR analysis
- Analysis of the animal of origin

'Not just the results, but the interpretation that meets your company's needs'



'Innovative services and analysis methods so we can offer you future-proof solutions'

TLR DOES MORE ON YOUR BEHALF

Besides its extensive package of analyses, TLR can mean a lot more to you. We can help you navigate the regulatory framework and arrange sampling – within the European Union, but also worldwide thanks to the international network of our affiliate companies: Peterson and Control Union.

Expert advice tailored to your needs

The TLR consultants can offer wide-ranging advice on enforcing and improving food safety and quality, troubleshooting, helping achieve the intended standard of product quality in production, and assisting in risk assessment and risk evaluation of food production processes according to methods and standards such as HACCP, ISO 22000, GMP+, GLOBALGAP, BRC, IFS and QS.

Quality and safety training

TLR offers tailor-made training programmes in food quality and food safety for your ranking staff and employees. Your staff will acquire the relevant skills they need to achieve your management goals. We target all segments of the food sector, including catering, food production and distribution, and retail.

Solutions that suit your needs

The range of services provided by TLR are not easily described in a short, simple phrase. On the one hand, this is because we are dedicated to ongoing innovation, so we frequently add new services and advanced analysis methods to our range. Conversely, we deliver tailor-made solutions for analyses and other research questions whenever necessary.

Do you have a question for us?

Feel free to call or e-mail; our team of account managers is ready to help you find a solution that suits your needs!



ACCREDITATIONS

TLR is NEN-EN-ISO/IEC 17025 accredited (L059) by the Dutch Accreditation Council. In addition, TLR is accredited (L059), certified or approved by the following international organisations:

- 1 FOSFA - Federation Oils, Seeds & Fats Associations Ltd.
- 2 FEDIOL - European Vegetable Oil and Proteinmeal Industry
- 3 NOFOTA - Netherlands Oils, Fats and Oilseeds Trade Association
- 4 GAFTA - Grain and Feed Trade Association
- 5 VERNOF - Association of Dutch Producers of Edible Oils and Fats
- 6 QS - Qualität & Sicherheit (scope: feed, and fruit & vegetables)
- 7 GMP+ Feed Safety Assurance scheme
- 8 OVOCOM Platform Animal Feed chain
- 9 GlobalGAP
- 10 VLOG (Verband Lebensmittel Ohne Gentechnik)



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