Since its foundation in 1983, the German Institute of Food Technologies (Deutsches Institut für Lebensmitteltechnik e.V. - DIL) has been working as an industrial and research institute for product and process development in food production. It is supported by more than 120 members from the fields of food and compound feeds production, mechanical engineering, metrology and process engineering.

It has a staff of more than 90 members, who are dedicated to linking science and practice, in order to support small and medium-sized enterprises in the development of innovative ideas for a successful future.

Due to its extensive cooperation with universities and the integration into European and international research networks, the DIL is an acknowledged cooperation partner for the industry and acts as a safeguard for successful outcomes.

Product development, process optimization and quality assurance are key factors for securing the future of companies in times when consumers demand high food safety standards and globalization is stiffening the competition. The German Institute of Food Technologies (DIL) has already proven to be a reliable partner in helping companies to solve these issues. The Institute is also well positioned to deliver these services successfully in the future.
A PARTNER TO THE FOOD INDUSTRY AND RESEARCH. RIGHT FROM THE BEGINNING!

Product development, process optimization and quality assurance are the key factors which define the market position when caught between the crossfire of competitive pressure and changing consumer habits. The German Institute of Food Technologies – DIL – has committed itself to these future-oriented tasks.

Since its foundation in 1983 by the state of Lower Saxony and representatives from the German food industry, this research institute, located in the county of Osnabrück, has become a recognized global player. More than 120 renowned member companies from food and compound feeds production, mechanical engineering, metrology and process engineering provide clear evidence of the extraordinary market position of the DIL.
MISSION INNOVATION

Changing eating habits and the increasing concerns of consumers regarding the quality and safety of our food are new challenges for the food industry. They have to be resolved in order to secure the important market position of the industry in the years ahead.

Innovative products are needed! This is the mission of DIL. This is our strength. By providing highly efficient technical and engineering solutions, we support you in the development of improved food products.

We see ourselves as a partner to the industry, as a central link between science and practice. More than 90 qualified staff members are involved in active dialogue to generate mutual success. We are always looking ahead and utilizing our knowledge resources from different fields to present our resulting innovative solutions. These can be utilized by the food industry and assist in holding its ground within the scope of globalization.

KEY ASPECTS

As a privately, self financed institute, DIL offers its members a wealth of benefits which allow small and medium-sized companies to market innovative products as a result of their membership.
The Research Agenda 2015 of the European Parliament aims at the effective coordination of research and development programs (R&D) and making use of synergies. In this way, growth, competitiveness, and sustainable development in Europe will be strengthened. The basis for this is the pooling of research activities from the industry, national authorities, universities and research organizations.

Since its formation, the DIL has been employing this interdisciplinary approach. The agenda confirms DIL’s philosophy. Together with our partners we will intensify our efforts and extend our service portfolio.

**VISION**

**RESEARCH AGENDA 2015 · CHANCES AND PERSPECTIVES**

You want to inspire your customers and secure or expand market shares? We will support you in the best way that we can – from product development to new production methods and by providing advice on daily business matters. In this context, we will also supervise existing R&D activities. Furthermore, we will also be involved with smaller enterprises which are currently not doing their own research and development.

With its highly qualified staff members and extensive, advanced instruments, equipment and machines, the DIL is well positioned to solve complex problems with its interdisciplinary approach, including construction and pilot production of special purpose machines.

**STRONG PERFORMANCE FOR SUCCESS**

Our service range is complemented by external analysis, compilation of legally relevant expert opinions, advice in the planning of equipment and machines, expert’s reports on mixing and operation accuracy of compound feeds plants as well as seminars for further education and training.
RESEARCH FOR IMPLEMENTATION IN PRACTICE

The overall concept of the DIL is defined by combining fundamental research and the development of user-oriented solutions. The focus is placed on the pooling and linking of expertise. The route from the laboratory to putting into practice is short and will be guided by cooperative research, networks, information meetings, and further education seminars.

In order to better serve your needs with our research projects, we have installed specialized business units and a research spanning platform. These are the fundamental requirements needed for top research performance and efficient transfer of know-how into the food industry.

As a leading institute, we always keep up with the times. Therefore, we are now focusing on food structure, engineering, robotics and biotechnology. This way, we can forcefully handle the important field of life sciences and open up new development prospects for you.

RESEARCH WITH STRUCTURE

Genuine innovation is always an interdisciplinary work. The basis is the deep understanding of (bio)chemical, (bio)physical and biological processes, their cause, effect and interaction on food structures. We utilize novel processes for texturizing, stabilization, transformation and separation for your purposes and enable the aimed production of complex products with optimized and functional properties.

Progress is our aim. We focus, right from the beginning, on the precise analysis of structures using biophysical, biochemical and biological methods such as...

- **SYNTHESIS OF DESIRED SUBSTANCES**
  - by microorganisms or isolated enzymes.

- **NANOTECHNOLOGY PROCESSES**
  - which can provide new interesting properties due to the size range of 1-100 nm for particles or layers.

- **PHYSICAL-CHEMICAL EFFECTS**
  - such as the unfolding and aggregation of proteins and their interaction with lipid and carbohydrate systems for the creation of boundary layers in disperse multi-phase systems.
RESEARCH WITH EXPERIENCE

ICCF - International Competence Centre Food Research and Development
The research collaboration was founded jointly by DIL, the University of Groningen, The Netherlands, and the Dutch research organization, TNO. This project establishes a permanent link between the research institutes which are active in the EDR region (Ems Dollart Region).

NieKE - Lower Saxonian competency center for the food industry
This network pools the expertise and know-how from all food industry fields in Lower Saxony. Next to the DIL, other partners in this network are the Institute for Spatial Analysis and Planning in Areas of Intensive Agriculture (ISPA) of the University of Vechta, DIALOG - Center for Transfer of Information and Technology at the University of Oldenburg, the Competency Center Functional Food (KFF) at the University of Veterinary Medicine in Hanover (TiHo), and the Research and Technology Contact Center of the University of Hanover (unitransfer).

Food Future
This initiative is positioned within the scope of INTERREG (Community initiative for inter-regional cooperation in the European Union). It is aimed at the integration of research and development activities on both sides of the Dutch-German border - the most innovative region in food processing with the highest turnover worldwide.

FAEN - Research collaboration in agricultural and nutritional science in Lower Saxony
FAEN is a collaborative project for the development of innovative products based on fundamental, molecular principles and their application to all product trials for “Bio–active food - ingredients - production from domestic raw materials - processing along the food chain - healthy products”. The project is coordinated by DIL and combines all of the food industry expertise from Lower Saxony.

RIS - Competency center for renewable raw materials
The objective is the pooling and promotion of regional competency and its transfer into the enterprises. The competency center is situated in Werlte (county of Emsland).

German collaboration “High pressure and food”
The German Federal Minister for Nutrition, Agriculture and Consumer Protection is sponsoring a joint project initiated and coordinated by DIL which combines, in a unique way, the research proficiencies in this field.

Furthermore, there are numerous project-related cooperation projects with universities and research organizations: the Technical University of Berlin, the University of Jena, IUTA, FGK, the University of Applied Sciences Lemgo, the University of veterinary medicine in Hanover, and the Max-Rubner Institute. The cooperation activities with other countries include the US, Chile, Australia, India, and Japan. The European network has an area-wide coverage.
My interest in research is fueled by my curiosity for things that are behind them. We all eat food on a daily basis. However, the large efforts needed to produce high quality food are not commonly known. This was the reason why I was so hugely interested in learning more about the food matrix and how it can be influenced. In this context, discovering new ways and implementing them into practice is a daily challenge.

What does this have to do with an avocado? Well, that’s easy to explain. Guacamole is not only one of my favorite foods, but the large popularity of this high-pressure treated product worldwide shows clearly that innovative ideas have a chance on the market and that they can decisively affect the future of food processing. This is what makes an avocado so fascinating to me – as a pleasure food and as a symbol for progress.

„To me, avocados are the world’s greatest vegetables...“
NEW ORGANIZATION

For further expansion of the cooperation with our partners in the future - responsibilities and services are controlled by four predominantly independent organization units:

- PRODUCT DEVELOPMENT
- PROCESS DEVELOPMENT
- SAFETY
- SERVICE

These units are linked internally via the central research platform which is integrated as a partner in industrial R&D projects.

The permanent mutual exchange of information between the competency fields and the research fields ensures fast implementation of complex problems from application fields into systematic research – also with the integration of external partners.

Please read how you can benefit from the new organization on the following two pages.
THE PERFECT ORGANIZATION - ALWAYS ONE STEP AHEAD

Competitive products are the result of many years of thorough development work. The better the analytics, the technology, the process design, the more intense the quality and the safety management - then the higher the success for your customers.

We will support you in all fields. We are always close at hand; we research and develop according to your specifications - right from the beginning. Our broad range of services ensures perfect service beyond the pure project. You will gain more insight into extraordinary foods and can use this advantage to your profit.

Make use of our expertise in fields such as:

- Evaluation of framework requirements, IP status, legal requirements, etc.
- Patent application opportunities.
- Production plant design.
- Utilization of intermediate results from individual development stages - for example, for reviewing a certain new ingredient or a new processing technology.

We design product and process development as a never-ending cycle where the steps are subordinated to one specific goal: Advanced technology and analytics for extraordinary food.
The main goal of the central research field is the creation of innovative approaches and solutions which can be turned into appealing products for the food industry. We commit ourselves to the determination of scientific findings which are not necessarily dependent on industrial contracts.

In food production, the matrix is structurized, stabilized or converted by processes which are often derived from the technological expertise of the respective food field. Thus, the development trends are limited to the optimization of existing processes. Genuine innovation requires a multi-disciplinary approach, free from thinking in product categories, which focuses on the interaction of process, structure and function.

„Research for me means: starting with amazement...”
Food products do not only deliver nutrients in combination with indulgence. They also have special functions for improving the body’s defenses and human health. A reasonable use of ingredients such as prebiotics or probiotics in industrially processed food will contribute significantly to improving human health and promoting satisfaction and wellbeing of the population.

The work of the DIL Biotechnology division focuses on the research and development of innovative products and processes that can be used for designing appealing and healthier food. Our work is not only centered on the addition or multiplication of useful microorganisms or the inhibition or reduction of undesired microorganisms, but also on the utilization of the special properties displayed by yeast.
In the food industry, robots are predominantly used in the logistics field for order picking or stacking of cardboard boxes or plastic crates. But this is only the beginning! In the future, they should also be able to sort delicate products such as chocolate candies into boxes, combine hamburger or hot dogs independently and assist in the cutting of fresh meat.

The DIL has set up a novel research field which is jointly put into practice by food producers and robot manufacturers. As a partner for the development of novel equipment solutions, the DIL can contribute to this interdisciplinary field with its broad expertise, ranging from mechanical engineering to food safety and the description of physical food properties.

The working group Robotics will assist in making this highly innovative technology available for the specific requirements of the food industry.
Research needs exchange to stay alive. Unity in diversity – the European maxim – offers the best conditions for this. HighTech Europe is an initiative of European research organizations, industrial associations and enterprises with the goal of setting up a European Institute of Food Technology in order to harmonize the excellence of research available in Europe and to strengthen the resident industry for global competition.

The Network of Excellence, coordinated by DIL within the scope of the 7. Framework Program of the EU research sponsoring, has been lined up with the goal of making the latest findings from biotechnology, nanotechnology as well as information and communication technology available for novel strategies in food production. Currently, the network consists of 23 partners.

For the companies cooperating with DIL, HighTech Europe is the pipeline for technological development which is globally unsurpassed in its comprehensive approach.

HighTech Europe, as a part of the DIL Research Platform, is the turning point for future-oriented product and process innovations.
PROFESSIONAL IN ALL FIELDS

This division is concerned with the development of appealing, healthy food products for all market segments: confectionery, baked goods, dairy and meat products, snacks and convenience products. We research and develop directly on behalf of the industry with individual customer specifications having top priority in product design. To generate the best possible result for you, we use our product-specific knowledge as well as the latest findings from our research platform.

„I am fascinated by seeing how a raw material can be turned into a delicious snack...“

Dr. Ing. Achim Knoch
Manager Product Development Division
The development process is also governed by a comprehensive analytical characterization of the structure which is needed for an early assessment of the interaction of the recipe components used and a possible technical implementation.

You will be on the side of safety as we apply a wide range of physical analysis methods for characterization of the microstructure of disperse systems such as foams, emulsions and suspensions, for example. Added to this, we also employ other physical analysis methods for thermal, rheological and physical-chemical examinations.

Recipe design, in combination with technological implementation, is one focus of our work. The development of an optimized product structure occupies a key position. For this, we use the entire wealth of basic components and functional ingredients that are available.

The analysis results are then implemented using the same process technology as in large-scale production. The DIL is equipped with a wide range of equipment and machines for extrusion, emulsifying, foaming and freezing. For further optimization, novel technologies, if needed, are also used: for example, high pressure technology, pulsed electric processing, ultrasonics and others.
Dr. Ing. Stefan Töpfi
Manager Process Development Division

„Process technology development to me means movement in motion...”

In the future, the competitiveness of the food industry will be even more dependent on the efficiency of the processing methods applied. Innovations arise from improved energy management, automation and the use of novel technologies for material transformation. We are ready to master these future central tasks with you.
PROCESS DEVELOPMENT

Technical proficiency, flexibility and closeness to research are the foundations for trend-setting solutions which can be implemented in practice with intense consultation and support as well as with the construction of prototypes and production plants. You can rely on us in the following development fields:

- PULSED ELECTRICAL FIELDS
- EXTRUSION
- HIGH PRESSURE
- ULTRASONIC / SHOCKWAVE TECHNOLOGY
- APPLICATION OF SUPERCRITICAL FLUIDS

Another characteristic, demonstrating the innovative power of DIL, is the optimization of classical processes and the use of entirely new tools. These result in tailor-made products developed in close cooperation with companies.

The combination of innovative process technologies with advanced analytical methods for the evaluation of the effect that the process might have on food structure and functionality is the ideal prerequisite for the development of attractive, novel products. Process development at DIL is more than just systems engineering. Our service range spans from fundamentals in the test tube to production equipment ready for operation.
"Foods are indispensable for life. As a result, safety is indispensable..."

Food scandals frequently make the headlines. Consumers are becoming more and more aware of food safety issues. The safety of our food products is of key significance - as an essential quality feature and trademark for good sales arguments. However, the safe product is not just important at the point of sale. The increasing amount of legal requirements and standards and the higher pressure, as a result of globalization, are pushing safety issues more and more into the foreground along the entire value-added chain.

We meet the criteria of the international standard ISO/IEC 17025:2005 laid down in the AKS register (AKS is an official accreditation body in Hanover, Germany).
SAFETY FIRST

Next to the sensory properties of the products and their nutritional profile, food safety is the main quality feature of the future for the marketing of premium products. Legal requirements and standards for food safety, in combination with improved detection methods for contaminants, are the reasons behind this importance.

The food producer alone carries the responsibility for the production of safe food and the implementation of the necessary measures. The goal of DIL is to support the industrial companies in the implementation of the required measures.

Food safety can only be ensured when considering the entire value chain. Due to its interdisciplinary approach, DIL cooperates with companies at all production stages. Alongside the evaluation of agricultural raw materials and the marketability of end products, the main focus is placed on the hygiene management in production. These activities are supported by microbiological and chemical examinations.

Furthermore, the companies will be supported in the future by specific training seminars for staff members covering important issues such as implementation of self-control systems, hygiene and risk management, microbiological and sensory quality control.

KEY ASPECTS

Speed is an important factor for success today. In particular in critical situations, DIL will be able to help its members much faster than e.g. regional analytical authorities.
Your success is our success

We need to know that you are satisfied and that we have done a good job. Our professional team with all its scientific excellence, technical pioneering spirit and many years of practical experience is there and ready to help you.

With our extensive services, the circle is complete: from the research in the test tube to the industrial machine ready for operation - everything from one organization, individually adapted to your particular needs.

Dr. Ing. Volker Heinz (Manager Service Division)
Werner gr. Kohorst (Assistant Manager)
Thomas Rohe (Assistant Manager)

„Only satisfied customers will come back...“

Education and training, information brokerage and the participation in networks and research collaborations are of essential significance. The medium-sized food industry is turning more and more into a high-tech industry. To comply with the fast technological changes, it will need reliable information and excellently trained staff members.

We provide you with the skills that you will need for the future. With our Service division, we offer you real added value with tailor-made individual advice and development services in the following fields:

- EDUCATION AND TRAINING
- INFORMATION BROKERAGE
- NETWORKING
- WORKSTATIONS
- SEMINARS
The Support Association for Promoting the Establishment of the German Institute of Food Technologies, in Quakenbrück, was founded on May 17, 1983 in the legal form of a membership cooperation and renamed, in 1988, to the "German Institute of Food Technologies, incorporated society" (German abbreviation: DIL).

The ground-breaking ceremony for the new building for the institute in the Professor-von-Klitzing-Straße took place on May 15, 1985.

The foundation stone was laid on September 23, 1985 by Birgit Breul, Secretary of Commerce in Lower Saxony. At the turn of the year 1986/1987, the institute moved into the new building. Ernst Albrecht, Prime Minister of Lower Saxony at that time, celebrated the inauguration of the building in October 1987.

Contrary to most other research organizations, the DIL in Quakenbrück is a private-sector enterprise in the form of a member cooperation.
Members of the DIL belong to the “Who’s Who” of the German and international food and feed industry and adjoining areas. They benefit from detailed insight into the current research activities of the DIL and the option to take an active part.

Another big advantage is the access to the documentation and information database representing the unique know-how in the food and feed fields compiled over more than 25 years. All members are invited to use this knowledge for their own companies. Added to this, there is a large range of other services:

- DIL PUBLICATIONS
- INFORMATION ON INTERESTING LITERATURE
- REFERENCE TO OTHER MEMBERS
- SUPPORT IN LITERATURE AND PATENT RESEARCH
- INFORMATION ON EVENTS AND SEMINARS
PROFICIENCY ON ALL LEVELS

Since the middle of 2006, Dr.-Ing. Volker Heinz has been the Director at DIL with sole responsibility.

As well as the Director, a Supervisory board and the General Meeting are concerned with the positive development of the institute in agreement with the tasks laid down in the Statutes.

The bodies are supported by an independent scientific advisory board currently consisting of 10 - representatives from administration, industry and science.

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As well as the Director, a Supervisory board and the General Meeting are concerned with the positive development of the institute in agreement with the tasks laid down in the Statutes.

The bodies are supported by an independent scientific advisory board currently consisting of 10 - representatives from administration, industry and science.
The success story of the Institute began on May 17, 1983 in Quakenbrück. Here, the Support Association for Promoting the Establishment of the German Institute of Food Technologies (Deutsches Institut für Lebensmitteltechnik) was founded.

Due to its dynamic growth, the first building soon became too small. On May 15, 1985, the ground was prepared for the new building in the Professor-von-Klitzing-Straße. Four months later, Birgit Breul, Secretary of Commerce in Lower Saxony at that time, laid the foundation stone. In October 1987, another official visited the site: Prime Minister of Lower Saxony, Ernst Albrecht celebrated the inauguration.

It was only one year later that the increasing significance of the Institute was also reflected in the name. The sponsoring association was renamed to “Deutsches Institut für Lebensmitteltechnik e.V.” German Institute of Food Technologies (German abbreviation: DIL).
DYNAMICALLY INTO THE FUTURE

With more than 25 years of history, the DIL is firmly established within the German research societies. This status must be safeguarded and expanded in the sense of the members. The signal for this progressive development was given by Dr. Volker Heinz, head of the Institute. He implemented a future concept based on an expert’s report compiled by Prognos AG of 2005.

The expert’s report, on behalf of Wigos (Society for economic development in the area of Osnabrück), confirms the exposed position of the DIL as a link between research and the food industry and sets a course for further growth and expanded service structures.

The statement for the future: The DIL positions itself as a leading network for research and development in the food industry. With innovative power and know-how, process and product development will be pushed forward, safety standards defined and broad service opportunities developed - for the members and together with the members!

POINTING THE WAY

The strategy for the future is being supported by a new corporate identity for the DIL. It symbolizes the idea behind the networking as well as the future structure of the building. Everything is in green – the color of the institute, the color of hope, and the color of nature as a supplier for all food.

With this positive symbol, we will point the way – for a positive development of our network, for coping with future tasks and for providing knowledge about extraordinary food products.
New tasks require new tools. The challenges cannot be managed with known technologies or processes alone. DIL will provide for its members, clients and cooperation partners an adequate research platform for the joint development of future-oriented processes and products.

In the years 2008 - 2010, the DIL will invest in a new technical center, new laboratories and a new event center in order to be able to better solve the new tasks for its clients even faster.
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German Institute of Food Technologies
Prof.-von-Klitzing-Str. 7
49610 Quakenbrück
Tel: +49(0)5431.183 - 0
Fax: +49(0)5431.183 - 114
info@dil-ev.de
www.dil-ev.de

Concept, Design and Realization:
Running Frames
Agency for Visual Communication
www.runningframes.de