



# CENTRAL RESEARCH INSTITUTE OF FOOD AND FEED CONTROL



# Vision

To be unique in its scope with the most qualified, rapid, reliable analysis services and research activities.

# Mission

- Ensuring the public health.
- Providing customer satisfaction and ensuring food safety.
- Performing qualified, rapid and reliable control, research and training services that fulfill the needs of food sector.

# Quality Policy

- Performing control and research services according to customer requests, national and international standards and regulations.
- Increasing the quality of our services by following appropriate technology and using good laboratory practices (GLP).
- Having principles based on privacy, objectivity, reliability and justice.
- Enhancing customer satisfaction.
- Fulfilling the training and social needs of staff.
- Updating the plans based on quality policy.
- Sustaining a continuous improvement with all staff by complying with EN-ISO 9001, EN ISO/IEC 17025 standards.

# History

History History History History History

The institute was founded on 25 February 1961, named as “Research Institute of Canned Food”, to establish and develop canned food industry in Bursa, a city of Marmara region, where supplies large amount of vegetable and fruit demand of Turkey.

In line with its foundation goal the Institute led canned food, tomato paste, fruit juice industries also other relevant industries like machine, packaging in its region and the country about improvement, developing quality and new products. According to the economic development plan, MFAL was charged with developing and controlling the food industry also training and research activities about these subjects. For that purpose



General Directorate of Food was founded and The Institute was affiliated to General Directorate of Food with its property on 19 August 1974.

By Feed Law numbered 1734 and published in 1982, The Institute was charged with feed control and started to make research about solving problems of feed industry. After some organizational changes, eventually, Our Institute has been named as “Central Research Institute of Food and Feed Control” since 2011.

# about us

Central Research Institute of Food and Feed Control (CRIFFC), affiliated to GDAR, MFAL (Ministry of Food, Agriculture and Livestock), provides lab services with its qualified staff that works in team spirit. CRIFFC has a reliable and objective manner that is based on to fulfill customers' requests on time. CRIFFC aims to be leader and a continuous improvement with drawing on the latest developments in its scope. Also International ethical rules are inevitable in all CRIFFC' activities.

Clients consist of firm from private sector, provincial directories of MFAL established in Bursa, nearby cities where activities of food industry and agricultural production are very common and directories of other public organizations. In accordance with mission given by MFAL; CRIFFC provides research and analysis services for food, feed, water and fishery products. CRIFFC aims to provide the most qualified, rapid and reliable services according to the customer-focused strategies. Samples analysed in CRIFFC are classified as import, export, private request and other control

samples. CRIFFC plans R&D projects cooperation with GDAR, TÜBİTAK, universities and firms from private sector for food industry.

Referring the decision that all affiliated laboratories must be accredited, MFAL chose five control laboratories which one of them was CRIFFC. In this direction, studies for quality management system started in 2001. CRIFFC has been certificated to ISO 9001, base of accreditation period, by TÜV since 2002.

CRIFFC has been accredited to EN ISO/IEC 17025 standard by Turkish Accreditation Agency since 2004; the number of accredited analysis has been increasing year by year. CRIFFC also has led other laboratories of MFAL for their accreditation.

EFQM excellence model has been carried out since 2008 by being a member of KALDER (Turkish Quality Association). The Institute was rewarded with "Quality Success Award of Bursa" in 2009 and it was the first laboratory rewarded with this award in public and private laboratories.

## ■ National and International Projects

- Cooperation with Food Industry, NGOs and Universities

## ■ Analyses of Food, Feed, Food Package, Fisheries, Water and Waste Water

- Sensory Analysis of Olive Oil
- Additives
- Residues
- Biotechnology and Biosafety
- Mineral
- Vitamins
- Antibiotics
- Microbiology
- Mycotoxins
- Counterfeiting, adulteration

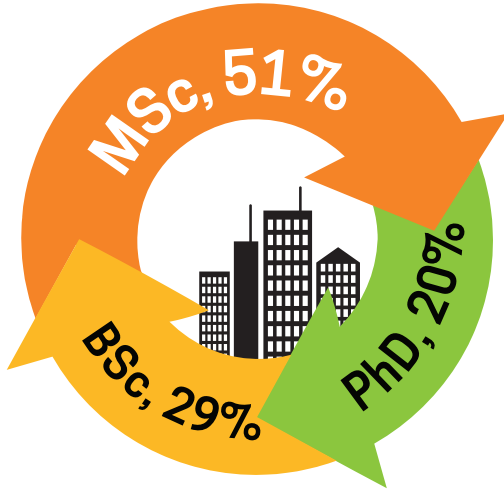
## ■ Training Services for stakeholders

## ■ National Food Starter Culture Gene Bank

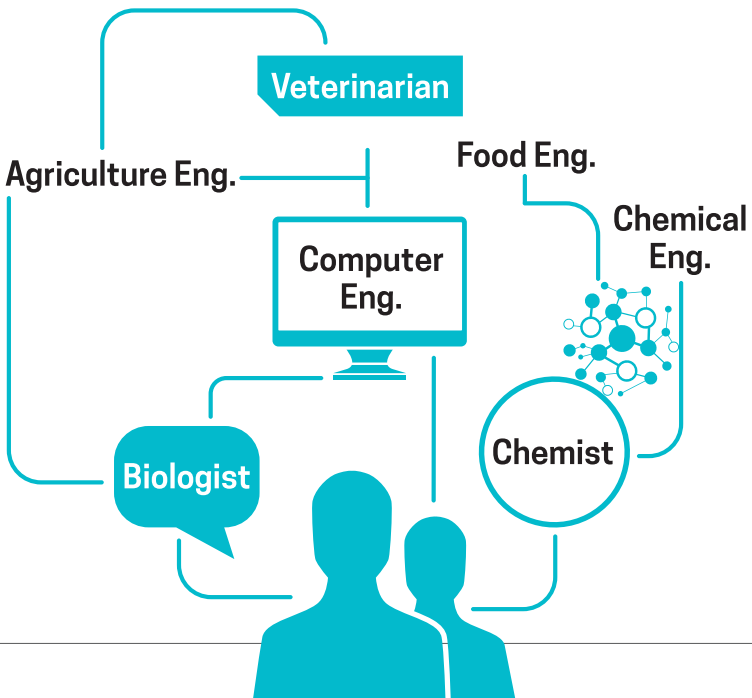
## ■ Food Authenticity



# Academic Profile



# Employee Profile





# Advancements

## ■ National Food Starter Culture Gene Bank

- It will be first in Turkey
- Isolation, identification and collection of microorganisms
- Production of industrial microorganisms
- Registration and sustainability of genetic resources of microorganisms in Turkey

## ■ Authenticity Laboratory

- Inspects the authenticity of foodstuffs
- Geographical origins, whether a product is from an Turkey or not.
- Inspects food adulteration
- Detection of green peas in pistachio baklava
- Determination of origin of leaf gelatine, gelatine powder, and gelatine used in soft candies and dietary supplement capsules

## ■ Detection of Hormones

- Determination of hormone amounts in red meat, poultry and fishes

## ■ Detection of Antibiotic and Anticoccidials

# PROJECTS



## national

GDAR  
TUBITAK

MINISTRY OF DEVELOPMENT  
PRIVATE SECTOR COLLABORATION

## international

GEF  
ERASMUS  
ERA-NET  
STRATEGIC PARTNERSHIPS  
EUROKA

## technical departments

The Enstitute performs National & International projects and also training services to whole stakeholders.

All Technical Departments have been accredited in accordance with the

EU standards (EN ISO / IEC 17025) since 2004. Routine analysis of food and feed industries' requests have been carried out in the laboratories by skilled staff (researchers, laboratory technicians).



# Animal Originated Foodstuff Department



Activities performed in the department are given below;

- Physical/Chemical and instrumental analysis of meat and meat products,
- Physical/Chemical and instrumental analysis of milk and dairy products,
- Analysis of veterinary drug residues in feed, feed supplements and water
- Analysis of hormones in red meat, poultry and fishes
- Analysis of veterinary drug residues in red meat, poultry and raw milk

## Laboratory Equipments;

- Real-Time PCR
- Classic PCR
- PCR Gel Electrophoresis
- LC-MS/MS
- HPLC
- ELISA
- Kjeldahl Instrument
- Automated Fat Analyzer
- FTS/FCM Combi System
- Cryoscope



# Biotechnology Department



Activities performed in the department are given below;

- DNA isolation,
- Detection, identification and quantification of genetically modified organisms (GMO) in processed and

unprocessed food and feed,

- Development of methods for the qualitative and quantitative analysis of GMO,

## Laboratory Equipments;

- Real Time PCR
- Gel Documentation and Analysis System
- Thermomixers
- Spectrophotometer



# Feed and Feedstuff Department



Activities performed in the department are given below;

- Analysis of vegetal and animal origin feedstuff,
- Analysis of feed additives,
- Analysis of agro-industrial by products,



## Laboratory Equipments;

- Spectrophotometer
- Polarimeter
- Stereo Microscope
- Compound Microscope
- Kjeldahl protein instrument
- Cellulose analyzer
- Nitrogen/Protein analyzer
- Automated fat analyzer

# Food Additives and Residues Department



Activities performed in the department are given below;

- Pesticide residues in food and feed,
- Naphthalene in honey samples,
- Acrylamide, volatile organic compounds, and pesticide residues in water samples,
- Analysis of plant growth

regulators (Ethephon, 2,4 D, etc.) in fresh fruit and vegetable samples.

## Laboratory Equipments;

- LC-MS/MS Triple Quadrupole
- GC-MS/MS Triple Quadrupole
- GC/MS
- GC(ECD-FPD)
- GC(FPD)
- GC(ECD)
- GC(ECD-NPD)
- GC-MS/MS (Ion Trap)
- GPC (Gel Permeatio Chromatography)
- Purge and Trap



# HPLC Department



Activities performed in the department are given below;

- Analysis of food additives (food preservatives, synthetic sweetener, coloring agents),
- Analysis of polycyclic aromatic hydrocarbons and et al. ,
- Analysis of mycotoxins,
- Analysis of nutritional ingredients,

## Laboratory Equipments;

- HPLC (DAD detector, Fluorescence detector, etc.)
- LC-MS/MS



# Microbiology Department

Activities performed in the department are given below;

- Isolation and identification of microorganisms (*Salmonella* sp., *Shigella* sp., *Staphylococcus aureus*, *Clostridium perfringens*, *Listeria monocytogenes*, *Vibrio parahaemolyticus*) from food and feed samples,
- Isolation and identification of *E. coli* and coliforms from enteric indicator organisms,
- Isolation of yeast and fungus (Mesophilic aerobic-anaerobic bacteria, Thermophilic aerobic-anaerobic bacteria, psychrophilic aerobic-anaerobic bacteria),
- Isolation and identification of thermophilic anaerobes that produce hydrogen sulfide, acid tolerant bacteria (*B. Coagulans* etc.), spored and sporeless bacteria.

## Laboratory Equipments;

- VIDAS Instrument
- VITEK II Instrument
- Tempo Instrument
- AIRIDEAL Instrument
- Somatic Cell Counter Instrument





# Mineral Department

Activities performed in the department are given below;

- Mineral analyses of food, water and feed,
- Mineral analyses of waste water,

## Laboratory Equipments;

- ICP-MS Instrument,
- Atomic Absorption Spectrophotometry Instrument,
- Microwave



# Packaging Department

Activities performed in the laboratory are given below;

- Analysis of metal packaging,
- Analysis of plastic packaging,
- Analysis of glass packaging,
- Analysis of paper-based packaging,
- Semi-quantitative determination of metals in all packaging materials (Al, As, Cu, Fe, Cd, Sn, Cr, Pb, Ni),
- Can-clamp control, the amount of coating (tin, lac), pore size control,
- The overall and specific migration of plastic packaging, structure determination,
- Determination of glass packaging resistance to sudden temperature changes,



## Laboratory Equipments;

- WD-XRF (Wavelength Dispersive X-Ray Fluorescence Spectrometer)
- FTIR (Fourier Transform Infrared Spectrometer)
- DSC (Differential Scanning Calorimetry)
- Headspace GC-MS



# Quality Management Department

CRIFFC certificated to

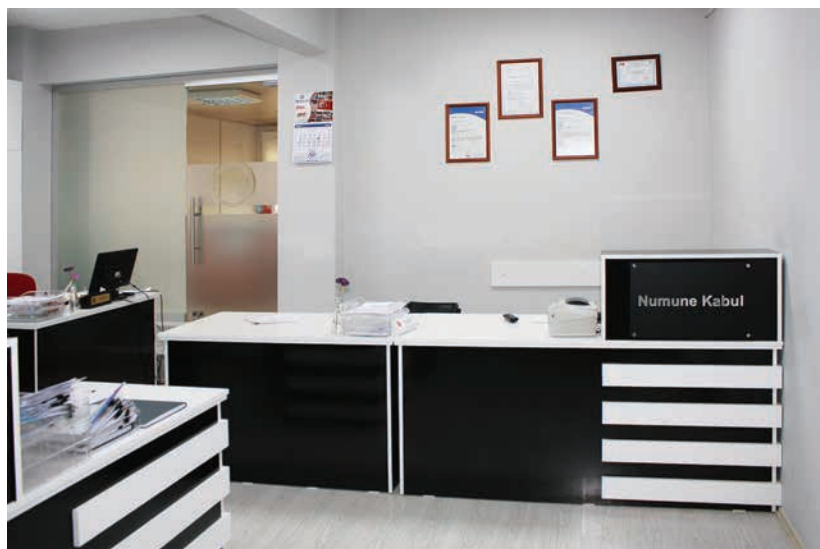
- ISO 9001 in 2002,
- EN ISO/IEC 17025 in 2004,
- Environmental Measurement and Competence in 2008.

## Activities of this department are given below;

- To prepare, update and distribute Quality Management System Documents,
- To ensure that the documents should be intelligible, accesible and practicable for the personnel,
- To control laboratory' s activities whether they are compliance with quality management system' s procedures,
- To make a schedule for internal quality control system and run to this schedule.
- To monitor corrective and preventive actions to overcome mismatch,
- To organise the management review meetings.



# Sample Admittance and Reporting Department



Referring to studies of Accreditation and Quality Management System, Sample Admittance and Reporting Department was established in 2002 for providing privacy, objectiveness and customer satisfaction to CRIFFC' s customer.



Activities performed in the department are

- To admit samples
- To determine new kind of analysis by evaluating the customers' requests
- To determine analysis fee
- To give code and transfer samples to departments according to the analysis requests
- To report analysis results
- To deliver analysis reports to the customers
- To file analysis reports and other relevant documents
- To make data entry to GGBS (Food Safety Data System)

# Vegetal Products Department

## Sensory Testing

- Quality classification of olive oil by sensory testing,

## Analysis For Sugary, Fruit, Vegetal and Agricultural Food Products (honey, royal jelly etc.)

- Identifying the adulteration in foodstuff,
- Developing new products and identification of process technologies,
- Determining the composition,
- Monitoring the quality change,

## Analysis For Whole Grains, Cereals and Spices;

- Development of new products and determination of process technologies,
- Identifying food adulteration,
- Determination of nutrient composition.

## For Vegetable Oil;

- Determining of sterol compounds and the composition of fatty acids,
- Identifying food adulteration,



- Identifying the quality parameters.

## Other Analyses;

- Determining of trans fatty acids, omega 3, omega 6, saturated and unsaturated fatty acids in vegetable oil and animal fat samples,
- Identifying the adulteration in fatty food samples,
- Identifying the adulteration in olive oil,
- Determining methanol in high alcoholic beverages,
- Determining ethanol in low and high alcoholic beverages.

## Laboratory Equipments;

- Rancimat Analyzer
- Spectrophotometer
- Dietary Fiber Analyzer
- HPLC (RI and UV-DAD detector)
- GC-FID
- Headspace-GC
- Total Fat Analyzer
- Protein Analyzer

# Water and Waste Water Department

Activities performed in the department are given below;

- Analysis of drinking and utility water,
- Analysis of water from fishery areas,
- Analysis of effluent and receiving environment water,

## Laboratory Equipments;

- Ion Chromatography
- Spectrophotometer (UV-Visible)
- B.O.I Analysis Instrument
- Total Nitrogen Analysis Instrument
- Total Nitrogen Combustion Unit



# Food Authentication And Verification Laboratory

## Department Services

- Food authenticity
- Detection of food adulteration
- Food fingerprinting
- Peptide fingerprinting
- Analysis of drug substance in dietary supplements
- Analysis of flavor profile and phenolic compounds

## Laboratory Equipments

- LC-QTOF/MS
- GC-QTOF/MS



# National Food Starter Culture Gene Bank



## Department Services;

- Isolation of starter cultures from traditional foods
- Identification
- Characterisation
- 16S and 23S sequencing analysis
- full genome sequencing analysis
- Fermentation
- Lyophilisation
- Generation of culture collections
- Research and Development, and dairy processing plant

## Laboratory Equipments;

- Matrix-Assisted Laser Desorption Ionization Time-Of-Flight Mass Spectrometry (Maldi-Tof MS)
- Riboprinter (16S ve 23S)
- Next Generations Sequencing (Yeni Nesil Full Sekanslama)
- Real-Time PCR
- Classical PCR
- PCR gel electrophoresis
- Flow cytometry
- Fermentor
- Lyophilizer



# ADMINISTRATIVE UNITS

Ensuring peaceful work environment  
for employees and customers.



Units are given below;

- Human Resources
- Training and Publication
- Fiscal Affairs
- Circulating Capital Enterprise
- Maintenance-Repair
- Commissariat
- Civil Defence and Security  
Department

# MINISTRY OF FOOD, AGRICULTURE AND LIVESTOCK

## GENERAL DIRECTORATE OF AGRICULTURAL RESEARCH AND POLICIES

### Central Research Institute of Food And Feed Control



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