

■ GREETINGS ■ ■ ■

Dear Reader,

It is our honor to welcome you on behalf of the management of the University of Debrecen and the Centre for Agricultural Sciences and Engineering and to thank you for your interest in our historical university and our agricultural higher education activities, the latter of which date back almost 140 years. The new higher education act which entered into force on 1 March 2006 was



a basis for the most comprehensive and radical reform of Hungarian higher education ever. From the 2006/2007 academic year, the entire structure of higher education changed and a multi-cycle educational structure was established. Education will be transferable at national and international levels.

Classical higher education has always been linked to universities, and though many might think that the difference between universities and colleges will disappear as a result of the Bologna process, we are convinced that universities will remain centres of quality education.

I am certain that the value of B.Sc. and M.Sc. diplomas will increasingly be determined by from which alma mater they are obtained. The University of Debrecen is an internationally renowned research university. Due to its scientific potential and research output, our institution has ranked among the top universities in the country for years. Our highly qualified teachers and researchers, and the level of education, guarantee the stable value of our diplomas for the future.

The integrated University of Debrecen is among the institutions offering the widest array of educational fields in the country. As a scientific and educational headquarter of the Tiszántúl region, we strive to provide unique opportunities for obtaining state-of-the-art knowledge and performing professional and scientific activities.

We aim to further strengthen our role in the economic, social and cultural development of the region and to exploit the advantages of an integrated university and the co-operation possibilities among faculties. We aim to be a compass in the region, to show the way in education, science organization, research, adaptation of results and development. The research and academic staff, the experts of the university and their creativity, serve as a solid background for this effort. Our institution, uniquely among the Hungarian institutions, performs research and education in almost all fields of science. In order to

realize all these objectives, the university offers an attractive possibility for its students at 3 centres with 14 faculties, from which they may obtain qualification in professions in demand in economic, social and artistic fields. Both the infrastructure and the level of education

ensure excellent opportunities for students of the Centre of Agricultural Sciences. In addition to providing students with state-of-the-art knowledge, we offer a unique opportunity for conducting individual research and scientific work beyond classroom work. By finishing B.Sc. programmes, the students gain a practice-oriented knowledge that is marketable on the labour market. After successful admission, students can continue their studies in Master programmes. The best graduates of Master programmes can enter the PhD training, which runs 6 semesters.

The integration carried out at the threshold of the new millennium aims at turning our students into excellently prepared professionals as well as providing them with a high value degree. We are convinced that many choose the Centre of Agricultural Sciences to continue their studies due to our wide range of programmes and the diverse opportunities for employment after graduation.

In this booklet, we tried to offer an overview of the education and research activities at our faculties and institution and to provide information on the new system of education and the starting B.Sc. programmes. We hope that the readers will find useful information in our publication.

Debrecen, 7 January 2008

Prof. Dr. János Nagy
President of the Centre for Agricultural
Sciences and Engineering





Debrecen

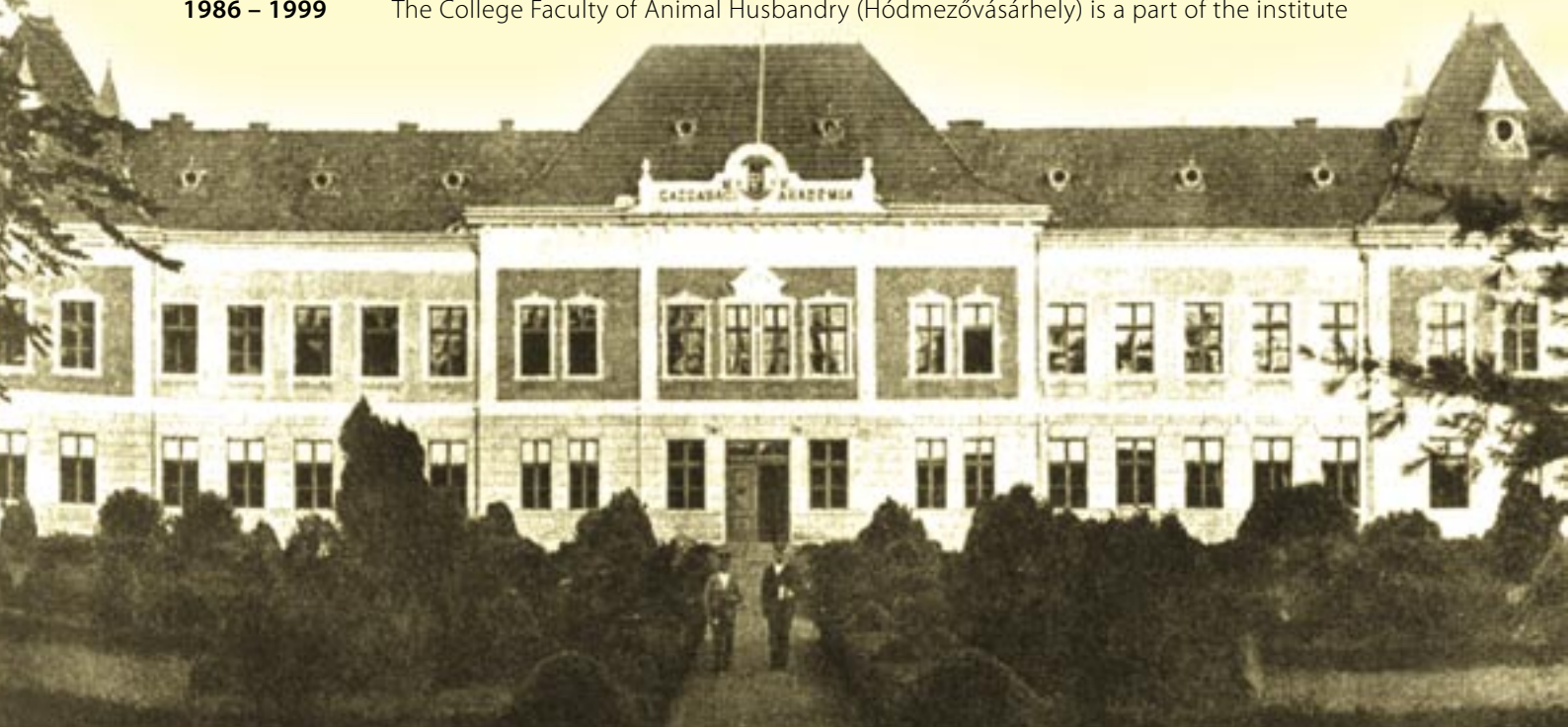
The city of Debrecen has more than 200,000 inhabitants, making it the second largest in Hungary. It lies in the northeastern part of the Great Plain region, and is the cultural and scientific center of eastern Hungary, a city of festivals, which was always able to renew itself during its turbulent history of 640 years. The city is also attractive to people living in other continents. It receives hundreds of thousands of visitors every year during its festivals, which include the Béla Bartók International Choir Contest, Debrecen's Jazz Days, the Hungarian language and cultural courses of the Debrecen Summer School, or the Flower Carnival, held each year on August 20th. Thousands of students attending college or university-level faculties choose to live and study in our city each academic year.





CHRONOLOGIC ■ ■ ■

- 1868** Foundation of the Debrecen National School of Agriculture
- 1874 – 1906** Operation as Secondary School of Agriculture
- 1906 – 1944** Operation as Royal Hungarian Academy of Agriculture
- 1945 – 1949** Hungarian Agricultural University, Debrecen Division of the Faculty of Agriculture
- 1953** Re-establishment as Agricultural Academy of Debrecen
- 1962** Foundation of the Agricultural College
- 1970** Foundation of the Agricultural University of Debrecen with the University Faculty of Agriculture at Debrecen and the College Faculty of Irrigation and Amelioration at Szarvas (the latter being a unit of the institution until 31 December 1999)
- 1972** Foundation of the Institute for Production Development (legal predecessor of the Institute for Research and Development)
- 1972 – 1986** The College Faculty of Agricultural Mechanical Engineering (Mezőtúr) is a part of the institution
- 1976** Joining of the Karcag Research Institute
- 1986 – 1999** The College Faculty of Animal Husbandry (Hódmezővásárhely) is a part of the institute





- 1991** Joining of the Nyíregyháza Research Centre
- 2000** Establishment of the University of Debrecen
 Foundation of the Centre of Agricultural Sciences
 (Faculty of Agriculture, Institute of Agricultural
 Economics and Rural Development, Debrecen
 Farm and Regional Research Institute, Karcag
 Research Institute, Nyíregyháza Research Centre)
 Inauguration of the Extension building
- 2002** Inauguration of the building of Regional and Ru-
 ral Development Centre
 Foundation of the Faculty of Agricultural Econo-
 mics and Rural Development



- 2003** Inauguration of the Student Hotel
 135th anniversary of agricultural higher
 education in Debrecen
- 2005** Celebration of the Student Hotel (new
 name: Sándor Arany Student Apartments)
 Inauguration of the Life Sciences Centre
 Launch of the enlargement of the Food
 Sciences Building (HEFOP/2004/4.1.2. project)
 Establishment of the Centre for Adult and
 Distance Education (legal predecessor
 Institute for Further and Distance Education)
- 2006** Joining of the College Faculty of Engineering
- 2007** Establishment of the Centre for Agricultural
 Sciences and Engineering

CENTRE FOR AGRICULTURAL SCIENCES AND ENGINEERING



Agricultural higher education in Debrecen has a history spanning over 140 years. The Debrecen National School of Agriculture was established in 1868. This date marks the beginning of higher agricultural education in Debrecen and Eastern Hungary. During the past 138 years, numerous changes have occurred in the life of the institute, but it always strived to be a determining scientific centre, performing diverse tasks in the spirit of its own traditions.

The Centre of Agricultural Sciences of the University of Debrecen was established on 1 January 2000, during the integration of the higher education institutions



of Debrecen via the restructuring of the former units of the Agricultural University of Debrecen, to perform the following tasks: research and development activities in the agricultural sector, extension work and its development for aiding farming, rural and regional development activities. Research and educational units of the Centre are: the Faculty of



Agriculture, the Faculty of Agricultural Economics and Rural Development, and since 1 July 2006, the Faculty of Engineering. Research is also carried out by three research institutes: the Karcag Research Institute situated in a region with saline soils and unfavourable growing conditions, the Nyíregyháza Research Centre operating on sandy soils, and the Debrecen

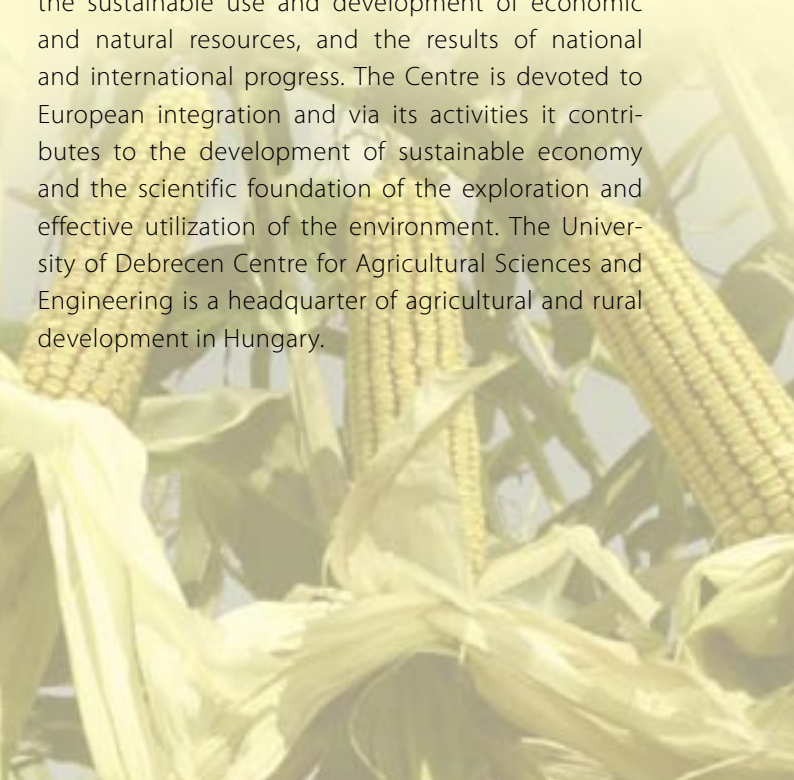
University Farm and Regional Research Institute consisting of three departments in animal husbandry, crop production and horticulture, farming in a loess area. There are also several smaller units in the service of education and research: the Centre for Adult and Distance Education and the Institute for Research and Development. In the field of extension, activities and regional innovation are coordinated by the recently established Regional Extension Centre.

The University of Debrecen Centre for Agricultural Sciences and Engineering acts as a centre and coordinator of agricultural higher education, research and extension in the region east of the Tisza River. Its activities serve the development of Hungary, and the strengthening of the international reputation of the country. In addition to training in agriculture and technical engineering the institution trains innovative experts capable of applying and developing their



practical and theoretical knowledge, and organizing and directing work in the fields of food industry, environmental protection, nature conservation, game management, extension, services, trade, public administration and finance. With the diplomas obtained here, numerous graduates find employment in state administration, municipalities and in the different organizations of internal affairs.

In its educational and scientific activities, the institution utilizes the results of agricultural, technical engineering and related sciences, applies the principles of the sustainable use and development of economic and natural resources, and the results of national and international progress. The Centre is devoted to European integration and via its activities it contributes to the development of sustainable economy and the scientific foundation of the exploration and effective utilization of the environment. The University of Debrecen Centre for Agricultural Sciences and Engineering is a headquarter of agricultural and rural development in Hungary.







The Centre for Agricultural Sciences and Engineering maintains diverse, long-established international relations in Europe and worldwide, within the scope of which student and teaching staff mobility and educational and research co-operations are made possible.

A major element of the international co-operative activities of the Centre for Agricultural Sciences and Engineering with 120 institutions in 30 countries is the mobility of students and teaching staff. Within the framework of the ERASMUS and CEEPUS programs, traineeships, the students can study in almost all countries of the European Union and with the help of international scholarships and agreements; they can travel to numerous countries of the world. In recent years, the number of students spending semesters or years at foreign universities has increased. In this way, these students develop their theo-

INTERNATIONAL RELATIONS



retical and practical knowledge, practice communication in a foreign language and improve their language skills. The number of incoming international students is also increasing year by year. Due to the existing 20-year professional co-operation with Wageningen University, our students majoring in Agribusiness can obtain a Masters degree in the Netherlands, according to an agreement between the two institutions, which was signed after a year-long preparatory period. After defending their thesis, they can receive the Masters degree from Wageningen University, alongside the degree they will receive from the Faculty of Agricultural Economics and Rural Development of the Debrecen University Centre for Agricultural Sciences and Engineering. An excellent example of the cross-border relationships with neighbouring countries is the agricultural engineer training in Hungarian started by the Faculty of Agriculture in Oradea, Romania, at Partium Christian University, in 2005. The Centre for Agricultural Sciences and Engineering has been quite successful at winning international projects (Tempus, Phare). Presently, the units of the Centre are participating in the EU's 5th and 6th framework projects. EU 7th framework projects, as well as several bilateral research projects, are currently under preparation.

The Centre is a member of the following international organizations:

- ICA: Interuniversity Conference of Agricultural and Related Sciences in Europe
- IROICA: European Network of International Relations Officers at Higher Education Institutions for Agricultural and Related Sciences
- GCHERA: Global Consortium of Higher Education and Research for Agriculture
- ESA: European Society for Agronomy
- OECD IMHE: Organisation for Economic Co-operation and Development Institutional Management in Higher Education
- EUA: European University Association



The Faculty of Engineering has bilateral co-operation agreements with nine foreign higher education institutions, the oldest partners are the Moscow Technical University (since 1968) and the Wismar Engineering College (since 1977).





cing the fields of agricultural sciences, food, environmental and social sciences and rural development. The students and graduates travel to numerous universities and research institutes in the world, thereby, widening the existing diverse international relations. Since 1993, more than 100 doctoral degrees have been awarded by the four doctoral schools of the Centre.

The Faculty of Agriculture considers it especially important to successfully operate its nationally and internationally acknowledged doctoral schools:

- Doctoral School of Animal Husbandry
- Doctoral School of Crop Production and Horticultural Sciences
- Doctoral School of Interdisciplinary Agricultural and Natural Sciences

DOCTORAL PROGRAMME

The highest level of higher education is PhD education. The University of Debrecen is leading in Hungary in the number of scientific fields of PhD education. The University has 21 doctoral schools in the fields of natural sciences, medical sciences, agricultural sciences, social sciences and humanities, education is pursued and PhD degrees are awarded in 23 scientific branches.

The Centre for Agricultural Sciences and Engineering has four doctoral schools embr-

The Doctoral School of the Faculty of Agricultural Economics and Rural Development of Interdisciplinary Social and Agricultural Sciences has been accredited in the field of interdisciplinary social and agricultural sciences. Presently, about 90 people are performing research work here. The activities of the doctoral school are closely related to the Regional Research Centre of HAS (Hungarian Academy of Sciences).

The doctoral schools have a key role in the high-level research work of the faculties, they provide for a new scientific generation. The number of their research programmes is increasing, and this enables the strengthening of the institute's national and international scientific and economic relationships.



FACULTY OF AGRICULTURAL ECONOMICS AND RURAL DEVELOPMENT

The mission of the Faculty of Agricultural Economics and Rural Development, founded on 1 September 2002, is to develop such high-quality educational, research and development activities in the region which meet the demands of the nation, the agricultural sphere of the economy and the EU integration process, and to contribute to the augmentation of national and international results via its creative activities.

The Faculty, being one of the youngest units of the University of Debrecen, still preserves one of the oldest traditions of the Centre. The mission of the Faculty is to perform education and research in agribusiness and rural development with special focus on education in agribusiness, public administration, rural development and informatics. The Faculty trains such

experts for agribusiness who have knowledge of economics, public administration and informatics, and meet the requirements not only of agriculture, but also agribusiness in their work.

The infrastructural background of the Faculty, the lecture halls, seminar rooms, information technology, and access to computers and the institutions for practical training are of European standards. New buildings for education were built in 2000 and 2002. The colleagues and future students started to use the





newest informatics building in the summer of 2006.

EDUCATION

The Faculty lays emphasis on agriculture-related activities, but not especially on production. Economic organization, agricultural economics, finance-accounting, marketing, special and state administration, agricultural informatics rural development and tourism are such fields of education which fit well into the educational structure of the University of Debrecen representing a transition between pure economics and agriculture. The need for professionals in this field will continuously increase in the near future for which the management of the

Faculty has prepared via the development of degree programmes of all levels.

The Faculty lays special emphasis on changing to a multi-cycle, linear educational system, in this process, the Faculty aims to start degree programmes related to the scientific fields determined in its mission statement. According to the two level system, the following BSc programmes will be launched: Agribusiness and Rural Development, Informatics and Public Administration. The Faculty also launches BA programmes in the field of Finance and Accounting, Touris and Catering, and Trade and Marketing. Based on the BSc programmes, the Faculty also participates in the preparation of the MSc programme in Rural Development and that of the MA programme in Accounting.

The MBA postgraduate training (Entrepreneurial management further education programme, International MBA, Agribusiness and Commerce major) is unique in Hungary, and it represents the highest level of business training in agribusiness.

According to an agreement with Wageningen University (NL), signed following one year of preparatory work and 20 years of professional co-operation, the students in the Agribusiness program can obtain a Masters degree in the Netherlands. They participate in the training as Erasmus students for one year, and then as self-financing students for one



semester. After defending their master thesis, they receive a Masters degree from Wageningen University.

RESEARCH WORK

One major direction of research work at the Faculty is agricultural economics research focused on regional matters, in the framework of which numerous economic, analytical, development problems are studied. Research on rural development in a wider sense is becoming increasingly significant.

Analysis and study of the effect of risk factors, research on extension methodology, theoretical foundation of rural development, trade and marketing, human resources, land use and assessment are also important fields of basic and applied research.

Research work in agribusiness started several decades ago at the Faculty. We are in everyday contact with numerous agricultural enterprises, which enhances the practical adaptation of the results of R&D activities and simultaneously boosts the development of the chain of innovation.





trains graduates for the highest level organizational and administrative tasks of the agricultural sector. With its scientific activities, it contributes to the exploration and exploitation of the region's values. Its active involvement in public life and its relationships with the agricultural sphere enable the Faculty to undertake a leading role in production development. Via its diverse activities, the Faculty assists the development of the subjective and objective conditions in the eastern part of the country with agricultural predestination.

EDUCATION

The Faculty trains experts at all levels of higher education in numerous fields of agricultural sciences: in addition to classical fields (animal husbandry, crop production, hor-

FACULTY OF AGRICULTURE ■ ■ ■

The aim of the educational, research and development activities at the Faculty is to satisfy the present and medium term requirements of the nation, the agricultural sphere and society. Via creative work in these fields, it contributes to the enrichment of national and international results and values and by offering diverse educational programs, it

ticulture), environmental management, food processing, game management, nature conservation waste management and logistics are also included among the diverse educational programs.

The Faculty is a pioneer in the implementation of the multi-cycle education prescribed by the Bologna process.





One level of this educational structure is represented by our four-semester post-secondary education programs: production and processing of medicinal plants and spices, waste management technician, horse-keeping, agricultural laboratory assistant, crop production and plant protection technician, international transport and logistics officer, and logistics technical assistant. The Faculty has been granted permission from the Hungarian Accreditation Committee to launch 8 BSc programmes: These are the following:

- Animal breeding engineer
- Food engineer
- Horticultural engineer
- Environmental management engineer
- Agricultural engineer
- Crop Production engineer
- Game management engineer

Within the framework of the multi-cycle educational system, the following accredited BSc courses are available: animal breeding engineer, food engineer, horticulture, environmental management, agricultural engineer, crop production engineer, nature conservation, game management. The courses offer a choice of several minors and, upon their completion, the students will receive a supplement in their diploma attesting to the acquired qualification.

With consideration to the expectations of society and eco-

nomie life, the academic and research staff of the Faculty considers it an important task to accredit MSc courses which will enable students to obtain special skills in a specialized agricultural field. The Faculty of Agriculture, in co-operation with other agricultural higher education institutions, has submitted several applications to the Ministry of Education and the Hungarian Educational Accreditation Committee.

Among the planned MSc courses, the following are included: agricultural engineering, animal husbandry, food quality assurance and food safety, horticulture, environmental management, agricultural biotechnology, crop





production, plant protection, nature conservation. The quality of education is ensured by 75 qualified teachers and researchers, including 9 DSc.

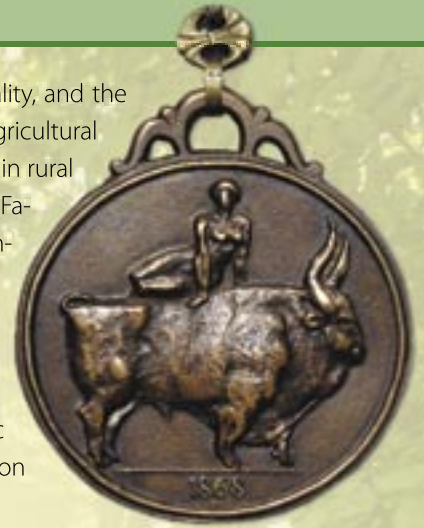
Among the students of the faculty, there are many talented students who are preparing for a given specialization. They will participate in the work of the Students' Scientific Association, join the Talent Care Program of the University of Debrecen or the Tormay Béla College for Special Studies or are involved in the research and educational activities of a department as a demonstrator.

RESEARCH WORK

The research strategy of the Faculty is closely related to the strategic fields of education and extension, thereby, ensuring an integration of these fields. Among the classical agricultural fields, traditional plant production and related sciences and the complex evaluation of fruit and vegetable species adapted to specific ecological conditions are of special importance. In the field of animal husbandry and related sciences, in addition to traditional research (pig, sheep, fish, poultry), new interdisciplinary fields (reproduction biology, animal physiology, biotechnology, organic animal keeping) are of increasing significance. One field that is highlighted is the economic study of the environmental aspects of agricultural research, the factors and parame-

ters influencing product quality, and the basic and supplementary agricultural activities. Via its involvement in rural development programs, the Faculty plays a role in the scientific foundation of regional developments. Research is also focused on the quality of agricultural products and food products, the scientific foundation of healthy nutrition and quality control.

The wide array of courses offered by the Faculty is in continuous transformation via the establishment of new courses. Accordingly, research foci are also changing. By now, interdisciplinary research topics have become predominant, in addition to technological research tasks. The unique research infrastructure of the University of Debrecen promotes this process, since it ensures a real division of labour in science among the participating units (e.g. the new Life Sciences Centre, new scientific workshops, Faculty of Public Health, Faculty of Informatics).



The Faculty of Engineering has trained engineers, technical managers and engineering teachers for the economy since 1965. Most of the graduates find employment in the eastern part of the country, but graduates of the Faculty can be found in every part of Hungary. Within the traditional college-level programs and the new BSc. programs in civil engineering, architecture, mechanical engineering, environmental engineering and technical management, the Faculty strives to provide its graduates with a special mentality and attitude in addition to up-to-date knowledge, which will enable them to lead a creative life.

The Faculty gives marketable knowledge to its graduates, which is indicated by the great interest toward the programs of the Faculty. A career office helps the graduates in finding employment and performs follow-up on their future career. In addition to basic trainings, postgraduate education is also carried out by the Faculty.

The József Borsos Dormitory, with 270 beds, is located next to the school buildings, providing students with comfortable accommodation in triple rooms. The Student Association and the Dormitory Committee organize



COLLEGE FACULTY OF ENGINEERING ■ ■ ■

diverse cultural and sport programs. The work of students and teachers is helped by the Faculty Library with its significant holdings, which collects and processes the scientific literature related to fields of education and research at the Faculty.

EDUCATION

From 2006/2007, the educational buildings, the dormitory and the 24 laboratories and training workshops will be capable of hosting students with limitation of motion or eyesight.





Programs of the traditional college-level training are: architect, civil engineer, mechanical engineer, environmental engineer, chemical engineer, electrical engineer, technical informatics, technical manager and engineering teacher. Education takes 6-7 semesters at full-time courses and 8-10 semesters at part-time courses.

The BSc courses include mechanical engineer and environmental engineer from 2005/2006, technical manager, architect and civil engineer from 2006/2007. The BSc in engineering teaching is expected to start from 2007/2008. Education takes 6-7 semesters at full-time courses and 8-10 semesters at part-time courses. Postgraduate courses include: building engineering, euro-management, management (quality control, settlement development and administration), and design. The part-time course runs four semesters.

The students of the Faculty can study in Germany, Slovakia, the Netherlands and Poland, within the frame of

the Erasmus program. In 2005, the Faculty had approved CEEPUS II applications, and it participates in three networks as a partner. Talented students of the Faculty are involved in the Talent Care Program of the University of Debrecen.

The full-time teaching staff of the Faculty consists of 84 teachers including 21 qualified lecturers.



RESEARCH WORK

The departments and teachers of the Faculty have intensive contacts with the economic organizations of the region. They participate in solving the technical R&D problems of these organizations. The Faculty publishes the Debrecen Műszaki Közlemények periodical two-three times per year, in which articles by researchers of the Faculty, of domestic and foreign higher education institutions are published.





The two major fields of research at the Faculty are:

1. Study of the temporal mechanical parameters of materials (study of the temporal mechanical parameters of silicate-based materials and polymers, study of mechanical quality parameters of metals after different loadings).
2. Transport processed in the built environment (building energetics, building physics, protection of the built environment, environment-focused engineering design, study of the dynamics of transport processes).

The teaching staff of the Faculty participates in several research projects in co-operation with other faculties of the University of Debrecen, Budapest University of Technology and Economics, the University of Miskolc and the University of Veszprém. Since the Faculty does not have a Doctoral School presently, the teachers of the Faculty participate in the doctoral programs of the above universities. Several teachers are doing their PhD at the doctoral schools of the University of Debrecen.





FARM AND REGIONAL RESEARCH INSTITUTE ■ ■ ■

The Farm and Regional Research Institute started to operate as an independent unit of the University of Debrecen, Centre of Agricultural Sciences in 2000.

The operation and mission of FRRI is very complex. It serves as a research site; it provides a basis for practical training, which is financed from its market revenues. The Institute performs diverse activities in three basic fields of agriculture at the crop production farm at Látókép, the animal breeding farm at Kismacs, and at the horticultural site at Pallag. The sites are managed by the competent, complementary departments, but they also serve as a research background for six other departments.

It is an important objective to provide the students with a university-level practical training. The Institute provides the professional background for preparing scientific works, thesis works and 10-15 PhD theses annually.

Látókép Experimental Farm

This farm is located 15 km from Debrecen, along main road No. 33. It consists of 193 ha arable land of good quality, out of which 146 ha can be irrigated with a modern linear system established in 2003. The experimental area

is 45 ha, on the remaining fields; they produce crops to be marketed. On 80 ha, soil- and environmentally-friendly biotechnology is applied. The experimental farm is equipped with the necessary machinery and the special equipment for research.

Major research fields:

- Development of the major elements (fertilization, crop rotation, etc.) of region-specific production technology for promoting quality wheat production
- Study of winter wheat crop models with different intensity
- Long-term, polyfactorial crop production experiments
- Development of environmentally-friendly new production procedures with low chemical and energy requirements
- Development of complex production technologies in the Tiszántúl region, assisting the utilization of biological bases
- Testing of yielding capacity and crop density qualities of maize hybrids

- Development of variety-specific maize production technologies

Animal Breeding Experimental Farm

This farm is located along main road No. 35, near Kismacs. At the experimental farm, several varieties of three animal species are maintained (Hungarian goose, bronze turkey, and prolific merino). In 2003, another endemic variety was also included, a nucleus population of "csókai" Tsigai sheep, the original type of Tsigai sheep, was obtained. Research on endemic varieties has peaked in the Széchenyi Research Program.

Research carried out at the farm has served as a bases for several PhD thesis works: „Molecular genetic studies in sheep breeding”, „Endogenous factors influencing the prolificacy of sheep”, „Identification of varieties by molecular markers and protection of varieties in the case of goose and turkey species”. A study on the origin of Tsigai sheep based on DNA analysis and the genetic distance assessment of varieties is being performed presently.

Pallag Horticultural Site

The ecological conditions and soil type of the experimental site of 70 ha area represent the characteristics of the Southern Nyírség area. In the past few years, about 6 hectares of orchards were established. The number of cul-

tivars at the orchard is above 250, the site serves as a cultivar collection and gene bank. In 2003, a demonstration garden was established presenting the diversity and genetic values of endemic, wild fruit species. The site offers an opportunity for the students to get acquainted with and practice the technological phases and procedures.

Major research fields:

- Increasing intensity in apple, pear, sweet and sour cherry, plum
- Development and improvement of environmentally-benign fruit production technologies
- Research on ornamental plants, breeding of Canna cultivars

The Debrecen Farm and Regional Research Institute regularly organizes agricultural exhibitions involving extension, which attract considerable interest and have a regional impact.

The financial sources for research are from several sources. 40% of the operation costs are covered by the University. The own income of sites covers about 50-60% of the costs. Investments and reconstructions are done from a budget set up for experimental farms. By winning applications, the institute can widen the possibilities for development.





utilization of grasslands of the Great Plain and the improvement of sheep keeping technologies. The institute has a rich tradition in the scientific foundation of the chemical and physical amelioration and water balance control of saline and acidic soils. It has expanded its R&D profile to include programs of rural development programs which offer opportunities for applying new research results in a wide-ranging manner as well as preparing and implementing rural development plans based on these results. During its operation, the Institute has produced numerous research results which are not only of scientific value, but are also important from the point of view of practical applicability. The activities of the research institute can be described by the following R&D topics:

- Periodic deep-cultivation of soils.
- Soil-protective and cost-effective tillage methods.
- Chemical and mechanical amelioration methods for acidic and saline soils.
- Complex method and cheap equipment of sheep grazing.
- Creation of plant cultivars and hybrids adapting to the extreme ecological conditions of the Great Plain.
- Environmentally-benign utilization of liquid manure and sewage via the soil.
- Development of land utilization methods assisting and maintaining the efficacy of soil amelioration.
- Improvement of the nutrient management system of soils with unfavourable physical and chemical characteristics.

KARCAG RESEARCH INSTITUTE

The basic activities of the research institute include agricultural research, development, education and extension. Due to its location, its major task is research on problems arising in agricultural production amid the unfavourable ecological conditions of the Central Tisza region. It performs comprehensive research on the development of soil amelioration, cultivation and nutrient management of heavy soils with unfavourable physical and chemical characteristics.

An important task of the institute is to breed plant cultivars adapting to the ecological conditions of the region and working out their respective production technologies,

- Working out the large-scale application technology of multi-component, complex soil amelioration materials.
- Analysis of the main characteristics of cultivation, inputs, costs and work organization questions of machinery.

Such research bases are available for the research and development works by the continuous development of which a high-level research work can be ensured. In addition to their role in R&D tasks, the research capacity, the R&D results, the research bases and reference sites of the institute serve as a basis for the Nagykunság Department



of Regional Production for practical training and further education.

The Institute, with its area of more than 1000 ha, is a good representative of the characteristics of the soils found in the Great Plain. Its size, together with the existing sites, provides a good opportunity for the practical training of students and for establishing model farms, demonstration areas and extension bases. The research institute has a great innovative role in the development of the region's agriculture, in education and rural development.

The most important future tasks include: dry farming, the scientific foundation of sustainable agricultural development under more frequent dry periods, and consideration of regional development requirements. The operation of the institute is based on governmental support, winning applications and own income. The institute strives to develop and strengthen its research staff.

The institute carries out its R&D tasks in co-operation with other units of the University of Debrecen, Hungarian scientific institutions, authorities and professional organizations and numerous foreign institutes.





In 2000, the research centre was successfully integrated into the organizational system of the Centre of Agricultural Sciences and the University of Debrecen. From the beginning of the integration process, the Research Centre has been successful in its research and economic tasks, thereby contributing to the efficient operation of the Centre for Agricultural Sciences and Engineering.

The aim of the R&D activities of the research centre is to perform successful regional agricultural research in the Nyírség region. Keywords of research are: biotechnology, sustainable agriculture, rural development, regionalism, regional research, regional economy, biological bases, quality, and environmental protection. The major research tracks of the institute are as follows:

NYÍREGYHÁZA RESEARCH CENTRE ■ ■ ■



- Breeding of plants adapting to regional conditions, providing biological bases, plant biotechnology research. Major crops: potato, sunflower, rye, triticale, oat, broad-bean, green and dry beans, green and dry peas, lupine, alfalfa, hairy and common vetch, bird's foot trefoil, millet, annual canary grass, buckwheat, setaria. The breeding activity of the institution is qualified by more than 50 registered cultivars, and by the maintenance of these varieties. Via application of the most recent methods, the Biotechnological Laboratory contributes to a more efficient breeding work and the production of virus-free propagation material of high biological value.

The institute has an important role in the development of cultivation methods for sandy soils, in the study of the mineral nutrition of plants and in working out environmentally-friendly agrotechniques. This embraces the study of possibilities in complex and rational land use and the development of procedures for maintaining and increasing soil fertility. Significant tasks in these fields are:

- Continuation of the long-term experiment started by V. Westsik.



- Development of alternative, environmentally-friendly, cultivar-specific production technology procedures, soil-protective agrotechnical and chemical methods and their applications, which minimize the physical and chemical burden of soils in addition to ensuring optimal conditions for plants.
- Development of organic production technologies, breeding and selection of cultivars suitable for organic growing on sandy soils.
- Development of sustainable farming on sandy soils, complex soil production capacity management. Improvement of soil fertility by complex, environmentally-friendly soil conservation: application of different minerals and agricultural and industrial wastes and by-products using different technologies, improvement of soil structure for increasing soil fertility.

With the establishment of a regional contact network, the research centre aims to assist in the implementation of the medium-term strategy of the region and to enhance its research, development, extension and educational activities by taking into consideration the traditions, the special opportunities, regional needs and the priorities of the EU regulations.

During the realization of the above objectives, the research centre has developed a close co-operation with the leading and determining agricultural firms and a large number of farmers in the region. From 2nd September 2003, the Research Centre has been operating a Quality Assurance System audited according to MSZEN 9001; 2001 in the field of complex utilization and research of sandy soils, plant breeding, commodity crop production and extension.



NORTHERN GREAT PLAIN REGIONAL EXTENSION CENTRE ■ ■ ■



Agricultural extension assists farmers in the improvement of production processes by using educational methods and current research results, thereby contributing to enhancing the living standards of farmers and social appreciation of rural life. In 1999, the Ministry of Agriculture and Rural Development commissioned the agricultural higher education institutions to organize free extension meetings for groups as a first step. In order to perform this task, an Extension Coordination Office was established at the Debrecen Agricultural University in 1999. Then, a concept was developed for improving the extension system, which built the operation of extension in Hungary at higher education and research institutes. In the next step, the University of Debrecen Centre of Agricultural Sciences was declared a Regional Extension Centre. Since all EU member states are obliged to operate a Farm Advisory System beginning from 1 January 2007, it seemed obvious to base ours upon the existing university system. According to EU regulations, the application of this system is a precondition of obtaining support from the EU agricultural funds. In the implementation of this



task, the Regional Extension Centre and the Centre for Agricultural Sciences and Engineering are of determining role. In the future, the Northern Great Plain Regional Extension Centre will perform global extension services. In addition, it will co-ordinate and control the operation of Local and Professional Extension Centres. The Regional

Extension Centre operating within the framework of the CAS will become the most important basis and generator of the Farm Advisory System, which will serve the development of agriculture in Hungary, in the region and in areas with Hungarian population across the border and will boost innovation.





INSTITUTE FOR RESEARCH AND DEVELOPMENT ■ ■ ■

In the ever increasing rate of market competition, only those innovative growers can survive, who effectively achieve high yields with excellent quality. They can only adapt to ecological, economic and social change, if the transfer of new knowledge and technologies through extension works efficiently.

The Institute for Research and Development and its legal predecessor have participated in working out and implementing agricultural development programs as an independent unit since 1965. The basic missions of the

Institute are to put into practice and spread the new scientific results obtained at the Centre for Agricultural Sciences and Engineering and to develop strategies for the development of horticultural production in the region.

The institute carries out research, educational and extension activities mainly in the field of fruit production, it participates in working out and managing regional and national horticultural programs. They co-operate with Hungarian and foreign universities, colleges and research institutes. The members of the institute have an active role in the undergraduate and postgraduate horticultural education at the University of Debrecen Centre of Agricultural Sciences, they assist undergraduate and PhD students in the selection of their thesis topics and co-ordinate their research work.

They perform field experiments in orchards of various ecological conditions. The laboratory work related to fruit quality, storability and technology development are performed at the laboratory of the institute and in cooperation with other departments. Research is financed from different regional, national and international R&D projects. The institute carries out a comprehensive extension work at the leading horticultural firms of the Northern Great Plain region; it organizes national and regional professional meetings and exhibitions in each year.





CENTRE FOR ADULT AND DISTANCE EDUCATION ■ ■ ■

The Centre and its legal predecessor (DAU Department of Further Education) have been receiving students since 1973. It provides high-level education and issues certificates in state-accredited or non-accredited courses and further education programs. It has licenses for organizing and executing qualifying exams in different fields.

The basic mission of the centre is to increase the competitiveness of students in the labour market. In the course of its activities, it relies upon the educational and research capacity of the departments and institutes of the university and its relationships with the authorities, business organizations and professional institutions of the region. The Centre operates also as an examination centre, which enables it to held final exams and issue certificated for students studying independently or in other institutions. Since 1992, the Centre organizes trainings supported by the Labour Office, the right of organizing these course are won by inviting applications. Its activities include the organization and execution of trainings and examinations. According to EU expectations, the system of competen-

ce-based and modular courses is gaining importance in the field of adult education. In order to facilitate lifelong learning at a social level, the centre has established a wide network of contacts, co-operations and information channels with the companies and institutes of the region. The trainings are organized based on the actual requirements of the labour market.

In co-operation with the Department of Management and the Technical Languages Centre, the centre regularly starts postgraduate and language trainings. The aim of the general and technical language courses is to provide students with a modern, practice-oriented language knowledge meeting the requirements of the labour market.





RESIDENCE HALLS ■ ■ ■



The Centre for Agricultural Sciences and Engineering offers a variety of student accommodation in 3 residence units.

Student residences provide a home and a comfortable environment for students to actively engage in cultural life, self-education, physical education and free time activities, while also fostering student traditions. The functioning of residence halls is assisted by dormitory bodies.



Eighty percent of all students applying for dormitory housing receive accommodation, which is 15% higher than the national average. Admission to student residences is based on a unified system. Most of those who do not gain admission receive financial assistance.

Our university strives to increase the number of spaces in the residence halls, access to and expansion of unified basic services. Our efforts were manifested in the building of a new 930 student capacity dormitory on our Kassai Street Campus, with the help of private capital, inaugurated in the summer of 2005.



Although the university aims to prepare future experts for their careers at the highest level, we consider it important to provide them with opportunities for cultural programs. The library, the language centre, the sport facilities such as sports-court, tennis court, fitness rooms are at the students' disposal for spending their free time. Skiing excursions and rowing tours are also organized for the students.

The clubs and groups operating at the Centre for Agricultural Sciences and Engineering (nature conservation circle, photo circle, circle of fine arts, folklore dance group, hiker circle, movie and video circle, youth club) provide opportunities for self-education and entertainment.

The long-established cultural events organized throughout the year by the Student Government also ensure possibilities for entertainment. The series of events starts with the Camp for Freshmen at the end of August, continuing with the Freshmen's Ball in October organized in the honour of the first year students. In March, the events of the Halving Week offer an opportunity for recovering from the exam period. The next event is the Week of Graduates in April, which culminates in the Graduates' Procession and Graduates' Ball.

Numerous additional sport and cultural events are organized for students such as InterFaculty Sport Days, Skiing

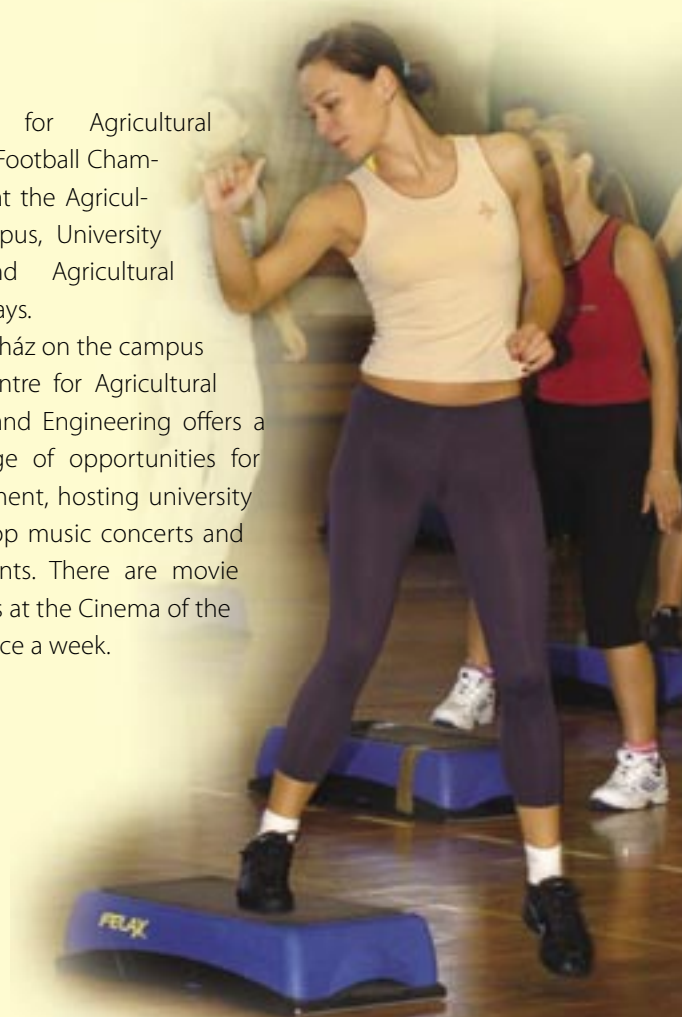
CULTURAL LIFE AND SPORTS ■ ■ ■





Excursion for Agricultural Students, Football Championship at the Agricultural Campus, University Days, and Agricultural Cultural Days.

The Kazánház on the campus of the Centre for Agricultural Sciences and Engineering offers a wide range of opportunities for entertainment, hosting university parties, pop music concerts and other events. There are movie screenings at the Cinema of the Centre twice a week.



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