UNIWERSYTET
ROLNICZY
W KRAKOWIE

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UNIVERSITY
OF AGRICULTURE
IN KRAKOW

Z NATURY NAJLEPSI
THE BEST BY NATURE

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University of Agriculture - structure

7 faculties
University Centre of
Veterinary Medicine (JU-UA)

23 main fields of study
51 specializations
31 post-graduate programmes

Over 8 thousand students
Over 750 academic staff

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Faculties

Faculty of Agrulture and Economics (Rector's Office)

Al. Mickiewicza 21,
30-059 Kraków

Faculty of Animal Science

Faculty of Environmental Engineering and Land Surveying

Al. Mickiewicza 24/28,
30-059 Kraków

Faculty of Biotechnology and Horticulture

Al. 29 Listopada 54,
31-425 Kraków

Faculty of Forestry

Al. 29 Listopada 46,
31-425 Kraków

Faculty of Production and Power Engineering

Ul. Balicka 116B,
30-149 Kraków

Faculty of Food Technology

Ul. Balicka 122,
30-149 Kraków

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Main area of education & research

- Agriculture
- Animal Sciences
- Animal Bioengineering
- Applied Biology
- Biotechnology
- Environmental Protection
- Environmental Engineering
- Fishery
- Forestry
- Food technology
- Horticulture
- Management and Economics
- Veterinary Medicine

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Full study programmes taught in English

- Agriculture
- Environmental Protection
- The International Master's Double Degree In Business Economics (międzynarodowe wspólne studia II stopnia – ekonomia w biznesie)
- Renevable Energy Resources
- Forestry
- Environmental and Plant Biotechnology
- International Master of Horticultural Science

  (Międzynarodowe studia wspólne II stopnia

  w dziedzinie ogrodnictwa)
- Erasmus Mundus – Master Programme in Soil Sciences

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of the European Union

Intensive programmes taught in English

- Foundation of International Economics and Agriculture
- Current Problems with Classification and Evaluation of Soil Qualities
- Geomatics
- Forestry and Transportation Activity in Polish Forests
- Close-to-nature Silviculture
- Soil Enzymology
- Dendrochronology
- Forest Protection
- Practicals in Plant and Environmental Biotechnology
- Foundation of International Horticulture
- Foundation of International Food Technology
- Renewable Energy
- Management and Production Engineering.

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Courses taught in English

Over 100 courses taught in English offered by all Faculties

Educational Programmes

- **Erasmus+ Programme Countries,**
  (117 Agreemants with 30 Countries)

- **Erasmus+ Partner Countries**
  (Western Balkans, Eastern Partnership countries, Russian Federation, Central Asia)

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Educational Programmes

- **Erasmus+ Strategic Partnerships**

Food Quality and Consumer Studies (finished)

Trans-European Education for Landscape Architects EULAND 21 (finished)

Higher Education for Central Asia Food Systems and Standards (finished)

Capacity Building In Agricultural Innovation Services in CEE Countries(finished)

Development of a serious game for digital learning in agroecology in Europe SEGAE (SErious Game in AgroEcology)(finished)

Modern Agriculture and Future - Oriented Education (MO-LAB)

Innovation of the structure and content of study programs profiling food study fields with a view to digitizing teaching FOODINOVO

"Development of Higher Education Content Aimed to Support Industries for Sustainable Production of Qualitative Agri-food",

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Educational Programmes

- **CEEPUS (for Central and East-European countries)**
- **International Visegrad Fund**
- **National Programmes NAWA**

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Research area - Horizon 2020

- Small farms, small food businesses and sustainable food security- *SALSA*,

- Food science, technology and engineering- European Joint Doctorate training towards knowledge, skills and mobility- *EJDFoodSci*

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Developing educational and research offer

- Internationalization of educational process
- Seeking new partners and funding
- E- Learning
- 3rd cycle programmes in English

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International Relations Office

recint@urk.edu.pl

Institutional Erasmus+ Coordinator

Dominika Dankiewicz
Phone +48126624203
d.dankiewicz@urk.edu.pl

Institutonal Erasmus+ Supervisor

Marcelina Machura
Phone+48126624863
marcelina.machura@urk.edu.pl

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Faculty of Animal Science
(history)

1890 – Agronomy Studies at the Faculty of Philosophy,
Jagiellonian University of Krakow

1891 - as a part of the Agronomy Studies of the Jagiellonian University:

Department of Domestic Animal Breeding and Dairy Science

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Faculty of Animal Science
(history)

- 1923 - the Agronomy Studies changed its status into the Faculty of Agriculture at the Jagiellonian University

- 1951 - the Institute of Animal Production was formed at the Faculty of Agriculture of the Jagiellonian University.

  It comprised the following 6 Departments:

  Animal Breeding,
  Animal Production
  Animal Physiology,
  Animal Nutrition,
  Zoology and Applied Entomology
  Animal Hygiene

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Faculty of Animal Science
(history)

- 1953r. - the Faculty of Agriculture of the Jagiellonian University was the basis on which Agricultural College in Krakow was founded.

  It consisted of 3 Faculties: Agriculture, Forestry and Animal Husbandry including the former departments of the Institute of Animal Production.

  Moreover, 2 new departments were established:

  Department of Animal Anatomy

  Department of Fisheries

❼ In 1998 the Faculty was re-named as **the Faculty of Animal Science**

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Faculty of Animal Science

Dean of the Faculty
Prof. Czesław Klocek

Vice Dean for Education and Student Affairs
Dr. Marta Basiaga

Chief of the Faculty Office

Beata Majka, MSc

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Faculty of Animal Science

Staff: 122 – including:

- **18 professors**
- **25 associate professors (with habilitation)**
- **2 associete professors (with PhD)**
- **5 PhD with habilitation (adjuncts)**
- **32 PhD (adjuncts or assistants)**
- **8 M.Sc. (assistants)**
- **32 technical assistants & administration**

ca. 750 the first and the second degree students & 30 PhD students

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Faculty of Animal Science

- **Department of Animal Physiology & Endocrinology**

  Head: Prof. Andrzej Sechman
- **Department of Animal Genetics, Breeding and Ethology**, Head: Prof. Ewa Ptak
- **Department of Animal Reproduction, Anatomy and Genomics,** Head: Prof. Monika Bugno-Poniewierska
- **Department of Zoology and Animal Welfare**

  Head: Assoc. prof. Paweł Nosal
- **Department of Animal Nutrition and Biotechnology, and Fisheries**

  Head: Prof. Zygmunt Maciej Kowalski

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Experimental & Educational Centre of the Faculty in Rząska

- Horse, poultry and fur animal breeding
- Horse Riding Center of the Faculty

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Experimental Unit in Przegorzały

- Horse and rabbit breeding, *Dept. of Animal Genetics, Breeding and Ethology*
- Isotopic Laboratory of *the Dept. of Animal Physiology & Endocrinology*

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Experimental Unit in Bielany

- Sheep and goat breeding
- Genomics Laboratory of *the Dpt. of Animal Nutrition and Biotechnology, and Fisheries*

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Experimental Unit in MydIniki

- Fish, wild birds, ruminants
- *Dept. of Animal Nutrition and Biotechnology, and Fisheries*

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Fields of study at the Faculty of Animal Science

- Full time programmes
  - **Animal Husbandry**
  - **Applied Biology**
  - **Animal Bioengineering**
  - ***Animal Ethology and Psychology (from 2021/2022)***
- Extramural programme
  - **Animal Husbandry**

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Animal Husbandry specializations

- 1st degree (Ing.) programme

  7 semesters

  - ✦Animal Breeding
  - ✦Breeding and Usage of Horses
  - ✦Veterinary Prevention and Protection of Animal Health
  - ✦Pet and Exotic Animal Breeding
  - ✦Fishery and fishing management and water protection

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Animal Husbandry specializations

- 2nd degree (MSc.) programme
  - 3 semesters
    - ✦Breeding and Use of Animals
    - ✦Nutrition and Dietetics of Animals
    - ✦Bioengineering in Animal Reproduction
    - ✦Aquaculture and Water Environment Protection
    - ✦Bioengineering in Animal Sciences (*the programme taught in English*)

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PhD studies carried out within the Doctoral School of the University of Agriculture

The third degree of studies

- 8 semesters
  - PhD in agricultural sciences (in Polish and English)
    - **Animal Sciences**

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Major research areas

Department of Animal Physiology & Endocrinology

1.Neuroimmunoendocrine regulation of the mechanisms of animal development and adaptation.

2.Comprehensive regulation of brain-intestine axis activity in different animal species.

3.Influence of thyroid hormones and environmental xenobiotics on the functions of the hypothalamo-pituitary-ovarian and -thyroid axes in domestic birds and cyprinid fish.

4.Chicken, quail and common carp embryos as experimental models in studies concerning the influence of environmental toxicants on physiological processes in the organism.

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Major research areas

Department of Animal Physiology & Endocrinology

5.The role of GH, PRL and aquaporins in the regulation of the avian reproductive system function in domestic birds.

6.Molecular mechanisms of tissue remodeling of the avian ovary and oviduct during the reproductive cycle with particular emphasis on the role of metalloproteinases.

7.The role of glutamic acid and its receptors in the stress response on the level of motivation structures of the brain and adrenal glands.

8.Genetic variability and gene expression, mainly fatty acid metabolism-related genes; influence of miR and agomiR on the expression of selected aging genes in fibroblast cells.

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Major research areas

Department of Animal Genetics, Breeding and Ethology

1.Genetic and environmental factors influencing functional and production traits of dairy cattle in Poland and estimation of genetic parameters and breeding value of farm animals.

2.Phenotypic and genetic analysis of quantitative and qualitative traits in livestock and companion animals.

3.Production, environmental and economic aspects of dairy and beef herd management in the intensive and sustainable cattle farming.

4.Genetic and environmental factors influencing swine physiological function and production performance.

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Major research areas

Department of Animal Genetics, Breeding and Ethology

5.Estimation of breeding, reproductive and performance value of equines and dogs.

6.Cell biology, histology, histopathology, protein expression, microstructure and meat quality.

7.Behaviour of animals used in animal therapy.

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Major research areas

Department of Animal Reproduction, Anatomy and Genomics

1.Maturation mechanisms and development competences of livestock and companion animals gametes and embryos

2.Mutagenesis and its impact on the level of instability and genome variability in livestock and companion animals

3.Analysis of chosen reproductive and functional features of domestic birds

4.Study of genome variability using molecular genetics techniques and high-throughput genome analysis tools - NGS and microarrays.

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Major research areas

Department of Zoology and Animal Welfare

1. Hygiene of animals' environment, and abiotic factors influencing animal welfare (geo- and electromagnetic field, suspended dust, disinfectants)
2. Research on the optimization of the poultry incubation process
3. Parasitic fauna of animals, and the prevention and prophylaxis of parasitic diseases
4. Individual differentiation of the honey bees (*Apis mellifera*) temperature preferences
5. The relationships between body size and labor efficiency in ants.

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Major research areas

Department of Animal Nutrition and Biotechnology, and Fisheries

1.The effects of genetic and environmental factors in the processes of reproduction, lactation and metabolism of animals

2.Mechanism of action of endocrine distruptors in neuronal cells - in vitro studies

3.Studies on hormonal control of fish reproduction, an impact of environmental pollutants on fish physiology and ichthyofauna monitoring in inland waters

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Major research areas

Department of Animal Nutrition and Biotechnology, and Fisheries

5.The effect of nutritional factors on the development of gastrointestinal tract and immune system of dairy calves

6.Prevalence, risk factors, and consequences of ketosis in dairy cows

7.Digestive physiology of selected zoo animals

8.Effect of fats in the diet of horses.

https://whibz.urk.edu.pl/en

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Faculty of Animal Science

- https://en.urk.edu.pl/
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Thüringer Agentur für
Europäische Programme e.V.

Moderne Landwirtschaft
und
zukunftsorientierte Ausbildung

Liliana Hrytsyshyn ThAEP e.V.
Kraków, Juli 2021

Projekt Mo-LAB – 1. Treffen

Thüringer Agentur für Europäische Programme e.V.

Co-funded by the Erasmus+ Programme of the European Union

MO-LAB 01.10. 2020- 31.03.2022

Erfahrungsaustausch: Moderne Landwirtschaft und zukunftsorientierte Ausbildung

Exchange of experience: Modern agriculture and future-oriented training

UNIWERSYTET ROLNICZY im. Hugona Kołłątaja w Krakowie

CHEMTRADE ESTONIA PLC

Agrargenossenschaft eG Bollstedt – Vor dem Riedtor 7 · 99998 Weinbergen

THÜRINGETI

- Verortung der landwirtschaftlichen Betriebe in den Partnerregionen auf der Innovationskette elektronische Überwachung – Steuerung/Regelung – Automatisierung – Smart- Farming – Digital Farming – Shared Economy Farming und damit verbundene Anforderungen an die Ausbildung,

  Location of agricultural enterprises/farms in the partner regions along the innovation chain from control / regulation via automation - smart farming - digital farming up to shared economy farming and as a result VET requirements,

- Spagat der landwirtschaftlichen Betriebe zwischen Ökologie und Ökonomie und daraus resultierende Anforderungen an die Kompetenzen, die Einstellung und das Bewusstsein für die Optionen des eigenen Beitrages von Landwirten hierzu und zu den Anforderungen an die Ausbildung zu deren Erwerb (beispielhaft am Scannen der Felder und dem dadurch optimierten und technisierten Einsatz von Düngemitteln).

  Balancing between ecology and economy and the resulting requirements for competencies of skilled work force, attitudes and awareness of the options for farmers' own contribution to this and the requirements for training to acquire them (exemplified by the scanning of fields and the resulting optimised and engineered use of fertilisers).

www.molab-erasmus.de

Projekt Mo-LAB

Thüringer Agentur für Europäische Programme e.V.

Co-funded by the Erasmus+ Programme of the European Union

Erfahrungsaustausch

zum Stand der Betriebe in der Innovationsprozesskette bezogen auf

Digitalisierung,

ökologische Aspekte,

Anforderungen an Aus- und Weiterbildung

Geplantes Ergebnis

In Ansätzen sinnvolle und notwendige Ergänzungen für die Landwirtschaft 4.0 zu antizipieren

Übersicht über Stand und Entwicklungspotentiale hinsichtlich des Einsatzes digitaler Medien in der Ausbildung landwirtschaftlicher Berufe

Innovationsprozesse in der Landwirtschaft: Analog-Digital-Vernetzt

Thüringer Agentur für Europäische Programme e.V.

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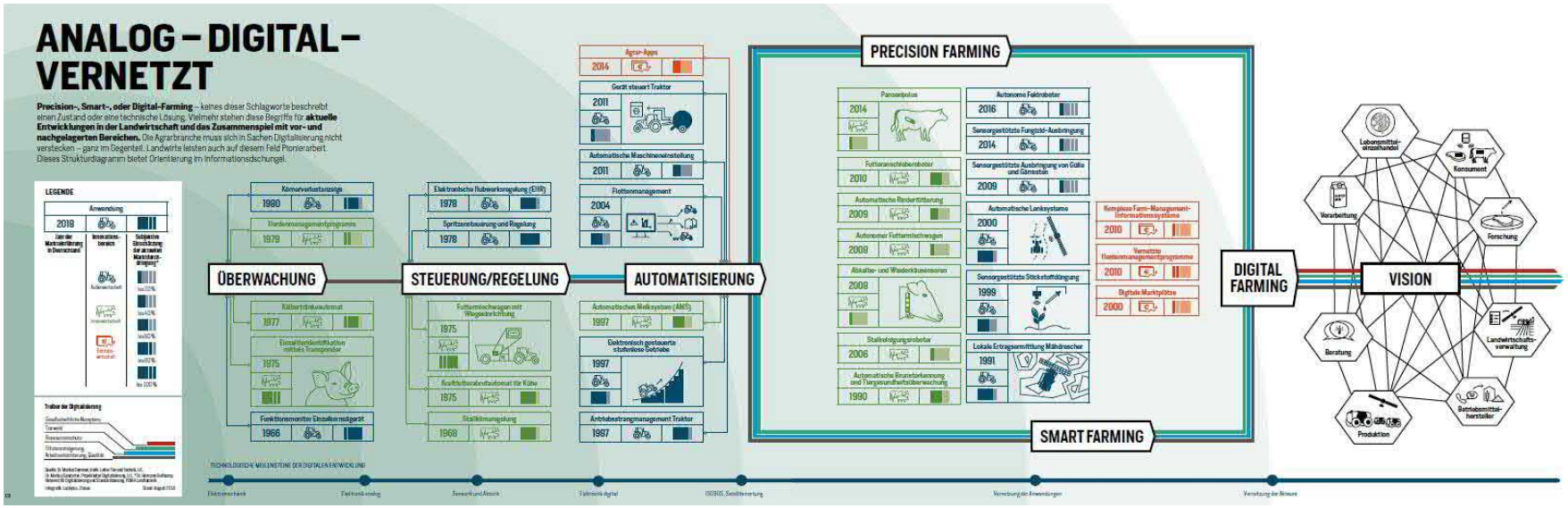

Quelle: Zeitschrift „agrarheute“, Sonderheft 2018, „Digitale Zukunft – Landwirtschaft 4.0“

Innovationsprozesse in der Landwirtschaft: Analog-Digital-Vernetzt

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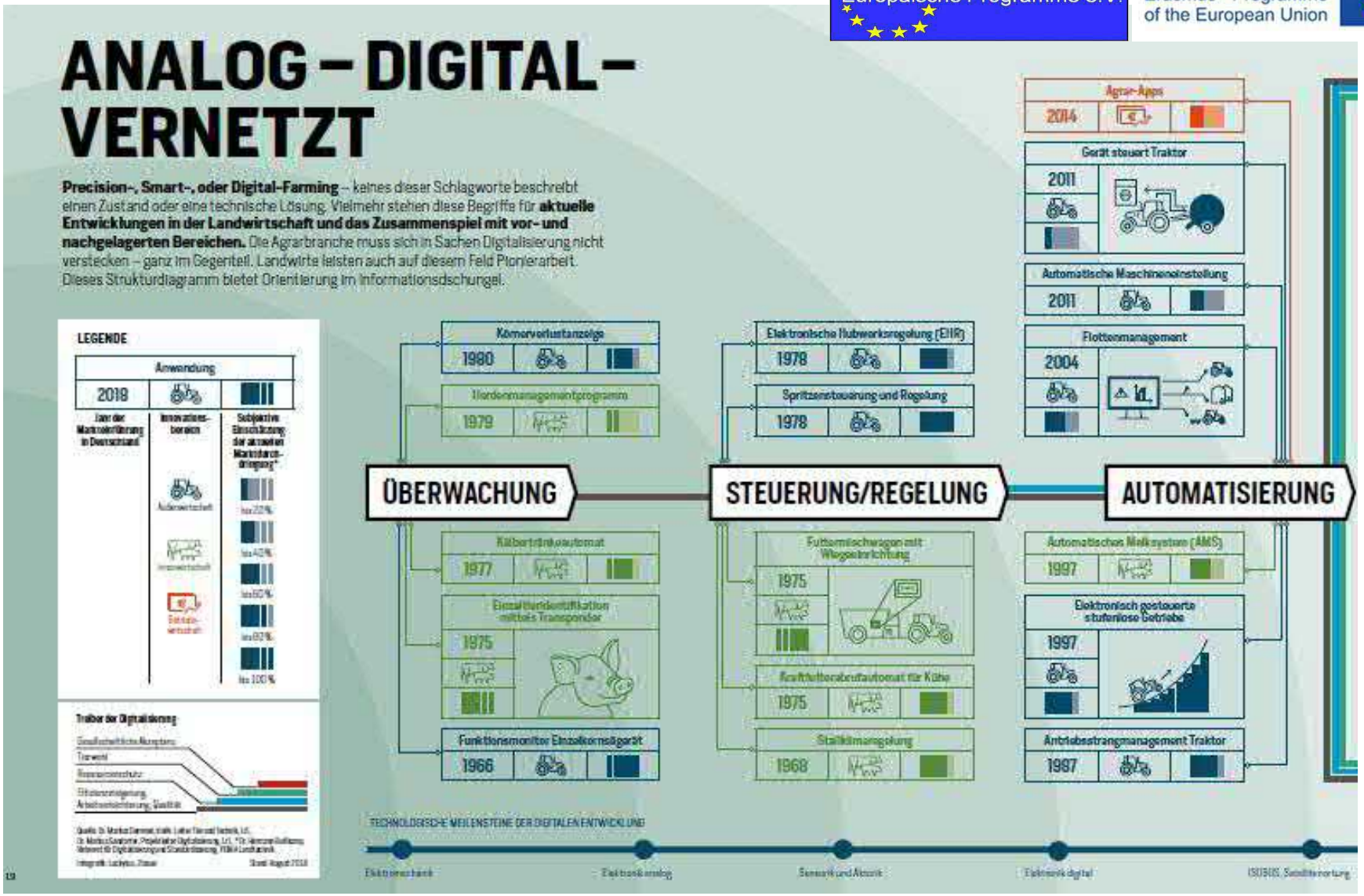

Innovationsprozesse in der Landwirtschaft: Analog-Digital-Vernetzt

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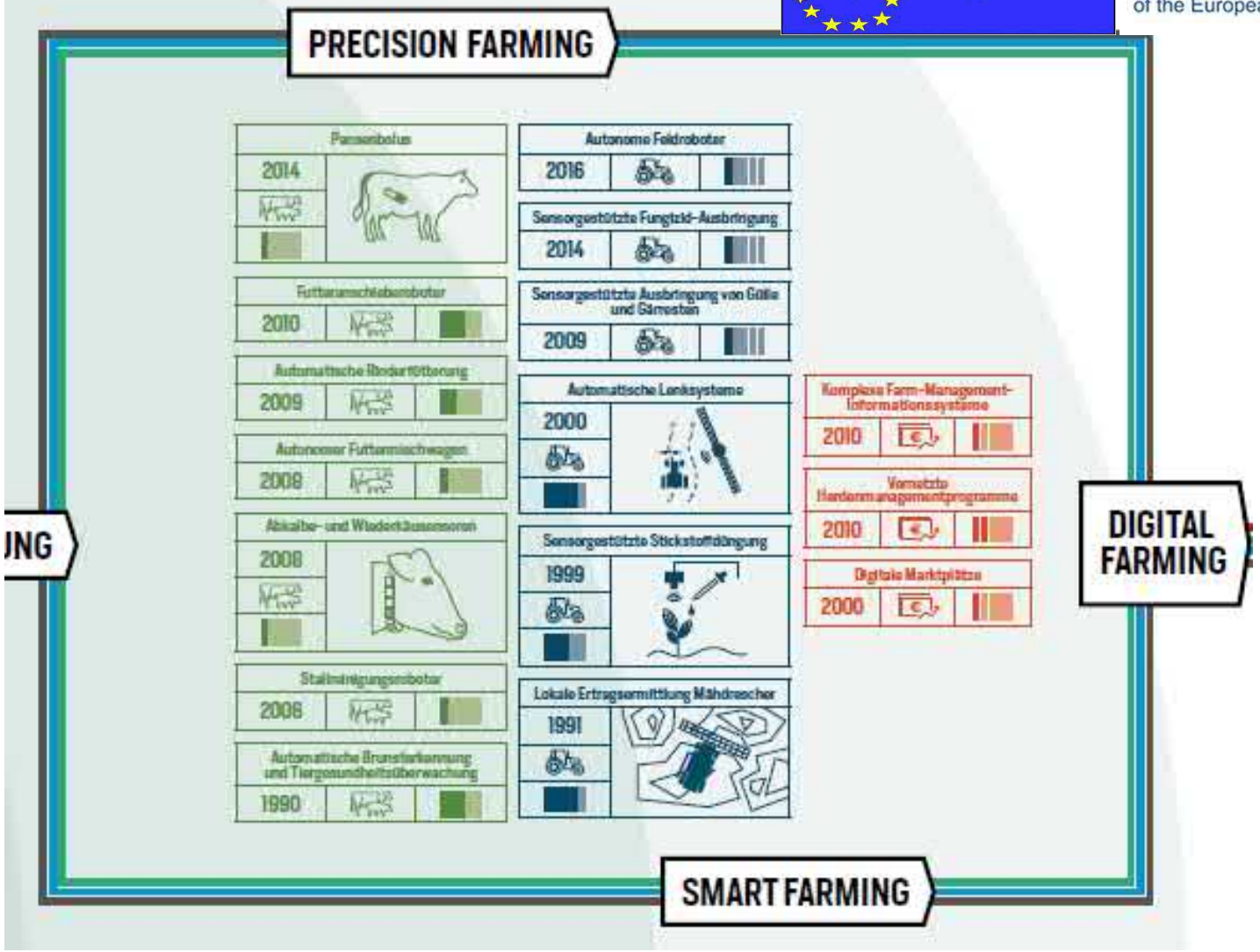
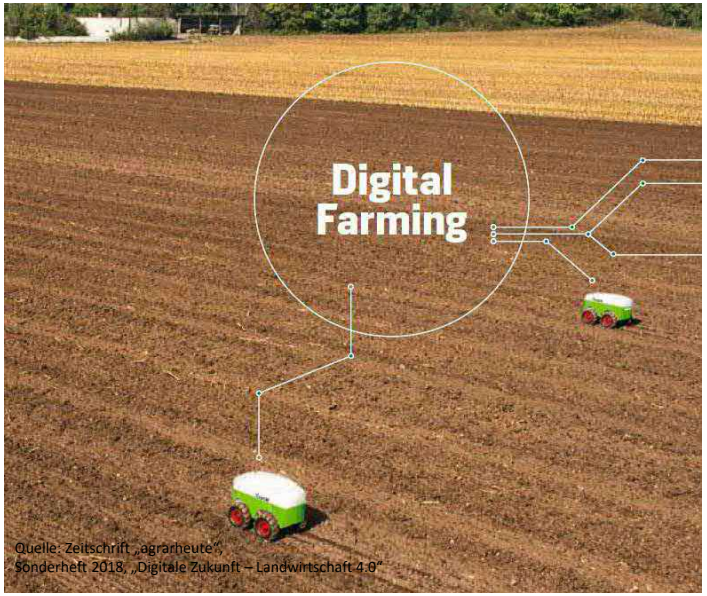


Innovationsprozesse in der Landwirtschaft: Analog-Digital-Vernetzt



Quelle: Zeitschrift „agrarheute“, Sonderheft 2018, „Digitale Zukunft – Landwirtschaft 4.0“

Wichtigste Ressource des Landwirtes?
Nicht ausschließlich sein Ackerboden,
seine Tiere seine Technik.

Zunehmend wichtige Ressource = Information

Datenfluss vom Trog bis zum Teller

zum Beispiel

Pünktliche und selektive Düngung

Individuelle Betreuung von Milchkühen
(Tierwohl, Umwelt)

Vernetztes und passgenaues Arbeiten im Betrieb

und

Fluss der Daten wird noch erweitert bis zur Frischetheke,
zum Käufer von Brot, Milch und Eiern

Innovationsprozesse in der Landwirtschaft: Analog-Digital-Vernetzt

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Große Versprechen

Transparenz und Optimierung

Den Tieren soll es besser gehen

Düngemittel und Pflanzenschutzmittel so einsetzen,
dass sie Boden, Luft und Wasser nicht beeinträchtigen

Trotzdem tröpfeln Daten oft, anstatt zu fließen. Aber …

… es gibt schon Apps, die Unkräuter erkennen,
die in Echtzeit den Stickstoffbedarf eines bestimmten m^2 Feld ermitteln

Vernetztes Einbinden der Informationen in den Betriebsablauf = Luft nach oben

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Kleine Höfe scheuen Investitionen in Digitalisierung

Wie viele Stunden ist welche Maschine auf großen und kleinen Feldern?

Was bringt welches Feld wirklich ein?

Was kosten Säen und Ernten insgesamt?

Digitale Technik hilft, Fragen zu beantworten und Informationen zu liefern.

z.B. Anwendung App, die via Bluetooth und Tablett auf jeder Maschine
Position, Fahrstrecke und Zeit erfasst
(live sehen wieviel geschafft, wann Fahrer wieder da, etc.)

Nutzen

Man muss nicht am Samstagabend stundenlang Buchungen
aus Fahrerprotokollen erstellen.
Man kann effektiver und effizienter Abläufe disponieren.

Innovationsprozesse in der Landwirtschaft: Analog-Digital-Vernetzt

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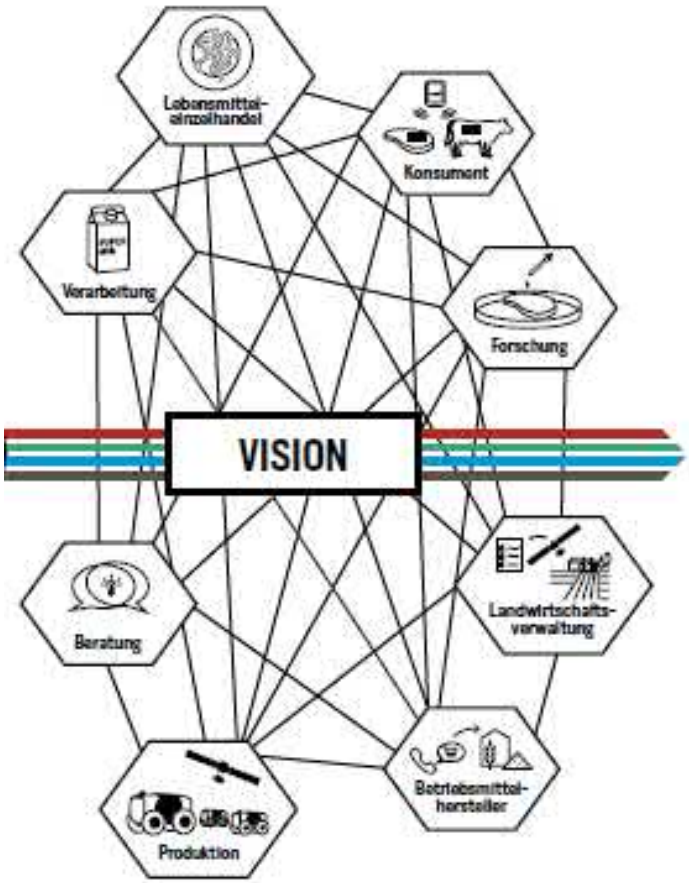

Klassischen Familienbetrieb setzen nicht gleich
auf teilflächenspezifische Streuung und Telematics.

Aber irgendwann müssen sie einsteigen -

Anforderungen an Umweltschutz

Anforderungen an Effektivität und Effizienz = Preisgestaltung

Änderung von Förderungsmodalitäten der EU für Landwirtschaft

Schritt für Schritt – Anfangen ist wichtig

Zur Erinnerung:

Es gab auch jede Menge Landwirte,
die anfangs auf Traktor und Melkmaschine geschimpft haben.

Projekt Mo-LAB – 2. Treffen

Thüringer Agentur für Europäische Programme e.V.

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Dieser Vortrag erhebt keinen Anspruch auf Vollständigkeit.

Er soll zu Diskussionen, Erfahrungsberichten und Ideen anregen.

Er dient der Vorbereitung auf die Projektion der Anforderungen auf die zukünftige Ausbildung von Tier- und Landwirt.

Co-funded by the
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Thüringer Agentur für
Europäische Programme e.V.

Vielen Dank für die Aufmerksamkeit

Liliana Hrytsyshyn ThAEP e.V.
Kraków, Juli 2021

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Chemtrade Estonia OU

KRAKOW

MO-LAB

Modern agriculture and future-oriented vocational training

Co-funded by the
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Vocational secondary education on the basis of basic education (full-time learning)

- AGRICULTURAL WORKER CURRICULUM MODULES IMPLEMENTATION PROGRAM (on the basis of “Olustvere School of Service and Rural Economics”, Director - Arnold Pastak)

- The specialty is for young people who enjoy life in the countryside, machines and animals; at the same time, boys and girls who have chosen agriculture must be ready to work in the future, regardless of the time, if necessary. The agricultural profession requires good health, a sharp mind and a positive outlook on life!

Olustvere School of Service and Rural Economics
Arnold Pastak
Director

Järva County Vocational Training
Rein Oselin
Direktor

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The program consists of compulsory and elective theoretical m.odules, theoretical exam and practice

Learning of:

- crop production (soil and fertilization training, farming, plant protection, cultivation of arable and grassland crops);
- animal husbandry (cattle and pig farming, animal nutrition, health, farm technologies);
- agricultural machinery (tractors, agricultural machinery, metalwork, stationary machinery)
- basics of economics and business (basics of accounting, business, basics of management, economics, principles of preparing a business plan)
- occupational safety, labor legislation, computer use, communication
- basics of horticulture, basics of forestry, construction and repair works

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AGRICULTURAL MODULES

LEARNING PATH AND WORK IN A CHANGING ENVIRONMENT

GROWING OF ARABLE AND GRASSLAND CROPS

HARVESTING AND PRESERVATION OF CROPS

HARVESTING AND PRESERVATION OF GRASSLAND CROPS

MAINTENANCE OF AGRICULTURAL MACHINERY AND EQUIPMENT

CATTLE CARE

FEEDING OF CATTLE

CATTLE HEALTH

GRAZING OF CATTLE

MILKING

REPRODUCTION OF BOVINE ANIMALS

PRACTICE

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Baltic Phosphates

GENERAL STUDIES MODULES

LANGUAGE AND LITERATURE

FOREIGN LANGUAGE

MATHEMATICS

NATURAL SCIENCES

SOCIAL SCIENCES

ARTS

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ELECTIVE MODULES

TRANSPORT AND LOGISTIC

BASICS OF SHEEP AND GOAT BREEDING

BASICS OF HORTICULTURE

BASICS OF FORESTRY

RUSSIAN

BASICS OF ORGANIC FARMING

BASICS OF BEEKEEPING

COMPUTER TRAINING

BASICS OF PIG FARMING

BASIS OF ACCOUNTING

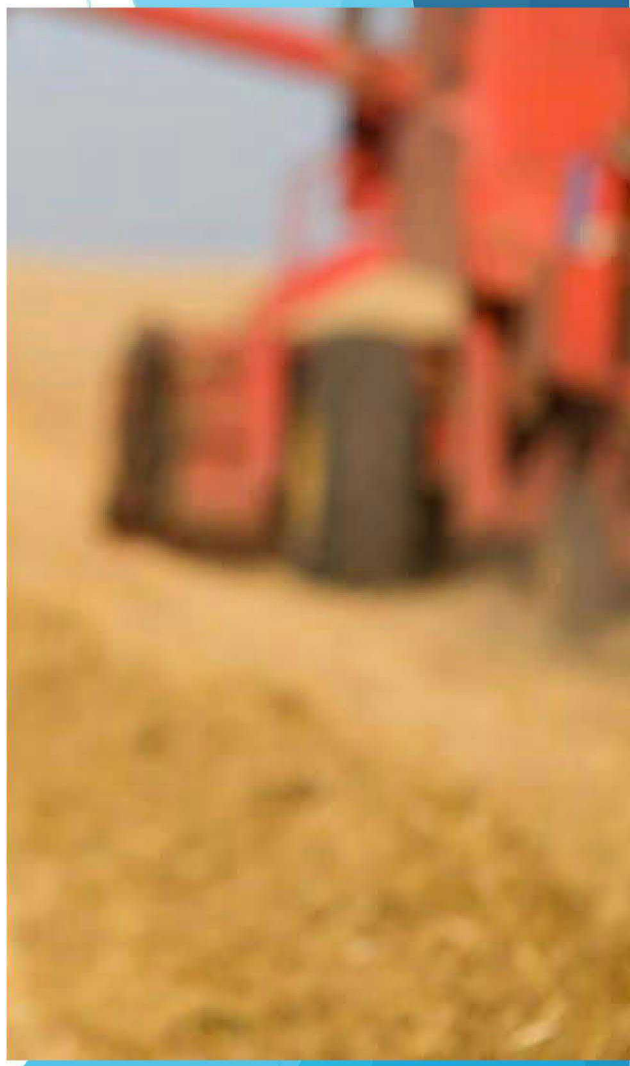
ECONOMIC FUNDAMENTALS

COMMUNICATION AND TEAMWORK

FUNDAMENTALS OF LABOR LAW

OCCUPATIONAL SAFETY AND FIRST AID

CUSTOMER SERVICE



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ELECTIVE MODULES (LEARNER'S CHOICE)

PHYSICAL ABILITIES AND MOBILITY SKILLS

MATHEMATICS (NARROW MATHEMATICS COURSE FOR GO TO UNIVERSITY)

MANUFACTURE OF MEAT PRODUCTS

PREPARATION OF A BUSINESS PLAN

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THEORETICAL LEARNING

- As a result of theoretical studies, vocational secondary education and knowledge necessary for effective work on agricultural holdings are acquired.
- Practical training is carried out mainly in the school's study farm, where there are all possibilities (field, machines) for teaching the specialty at a modern level.
- Neighboring companies and firms are also involved in the teaching. In the second year, the students have 3 weeks of animal husbandry internship (farm work) and 3 weeks of farming internship (spring field work); after the third year, there is a 22-week internship.
- The curriculum also includes the subjects necessary for obtaining driving licenses for a car (category B) and a tractor (category T). Driving licenses can be obtained by the end of the second year. In the third year it is also possible to obtain a certificate of a plant protection worker.
- The final exam is combined with the professional qualification exam (level IV of an agricultural worker).
- The graduate of the program is an agricultural worker with diverse skills, who copes with work of different sizes and specializations in agricultural enterprises, agricultural service companies and companies engaged in the procurement and sale of agricultural products.

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MODULE: BASICS OF ORGANIC FARMING

Purpose of the module

the aim of the teaching is that the learner is able to feel the processes taking place in nature, understand them and plan their activities taking into account the laws in force in nature

Teaching methods

Reading with thought, discussion, teamwork, engaging lecture, etc.

Assessment

Assessment of the activities indicated in the assessment criteria of learning outcomes through theoretical and independent work

Written work

- cultivation of arable and horticultural crops and herbs and spices
- organic livestock farming (cattle, pigs, sheep, goats, poultry)

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Learning outcomes (the student learns the following knowledge and skills):

- UNDERSTANDS THE NATURE AND EXPLAINS THE BASIC CONCEPTS AND THE PRINCIPLES OF ENVIRONMENTALLY FRIENDLY AND ORGANIC FARMING; ANALYZES ITS ROLE AS PART OF THE NATURAL ENVIRONMENT
- FILLS IN THE DOCUMENTS NECESSARY FOR APPLYING FOR ORGANIC SUPPORT
- USES THE PRINCIPLES OF ENVIRONMENTALLY FRIENDLY AND ORGANIC PLANT GROWING IN ITS ACTIVITIES, LINKING THEM WITH REAL PRODUCTION CONDITIONS
- CLARIFIES THE REQUIREMENTS FOR ENVIRONMENTALLY FRIENDLY AND ORGANIC PLANT PRODUCTION
- WORKS IN AN ORGANIC PLANT
- USES THE PRINCIPLES OF ENVIRONMENTALLY FRIENDLY AND ORGANIC ANIMAL HUSBANDRY IN ITS ACTIVITIES, LINKING THEM TO REAL PRODUCTION CONDITIONS, DESCRIBES THE PECULIARITIES OF BREEDING OF DIFFERENT ANIMALS

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Topics, subtopics:

1. Basics of organic farming

- organic farming in Estonia and the EU; basic concepts, history; modern organic farming systems
- Organic Farming Act; Animal Protection Act, etc., support for organic farming

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Topics, subtopics:

2. Environmentally friendly and organic plant growing

- soil as a living organism; crop rotations; tillage
- organic fertilizers, green fertilizers; composting, mulch
- cultivation of arable and horticultural crops, herbs and medicinal plants; alternative production; species and varieties suitable for organic farming
- plant protection, weeds and their control
- Requirements for environmentally friendly and organic plant production

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Baltic Phosphates

Topics, subtopics:

3. Environmentally friendly and organic animal husbandry

- principles of organic animal husbandry (cattle, pig, sheep, goat, poultry), suitable animal breeds; local breeds; manure management
- animal welfare and health; principles of organic representation
- organic feed; cultivated and natural grasslands, use and maintenance of grasslands; hay and silage making, storage requirements
- requirements for environmentally friendly and organic livestock production

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TNANK YOU FOR ATTENTION

CHEMTRADE ESTONIA OU

Maisi 12-1, Tallinn, 10317, Estonia
info@chemtrade.ee

+372-5699-5116
+372-5699-5117

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