

INSTITUTE OF WORLD AGRICULTURAL MARKETS



**EXPERT AND ANALYTICAL REPORT:
"KEY COMPETENCE CENTERS
AND EXPERTS IN THE FIELD
OF INTERNATIONAL TRADE
OF AGRICULTURAL PRODUCTS
IN RUSSIA AND THE WORLD"**

2022

Table of Contents

Introduction	04
Chapter 1. The identification of key competence centers and experts	06
1.1. The Methodology for identifying key competence centers and experts	06
1.2. Subject areas of research	13
Chapter 2. Competence centers in the field of international trade of agricultural products in foreign countries	15
2.1. Cornell University (USA)	15
2.2. University of Illinois at Urbana-Champaign (USA)	19
2.3. Wageningen University & Research (Netherlands)	23
2.4. University of California, Davis (UCD) (USA)	27
2.5. University of Queensland (Australia)	30
2.6. China Agricultural University (China)	33
2.7. Michigan State University (USA)	36
2.8. Ghent University (Belgium)	40
2.9. University of British Columbia (Canada)	43
2.10. University of Copenhagen (Denmark)	46
2.11. Nanjing Agricultural University (China)	49
Chapter 3. Russian competence centers in the field of international trade in agricultural products	52
3.1. Russian State Agrarian University - Moscow Timiryazev Agricultural Academy	52
3.2. RUDN University	57
3.3. Stavropol State Agrarian University	60
3.4. Kuban State Agrarian University named after I.T.Trubilin	63
3.5. Institute for Agrarian Studies, National Research University Higher School of Economics	65
3.6. Agri-Food Policy Center of the Russian Presidential Academy of National Economy and Public Administration	67
3.7. Eurasian Center for Food Security of Lomonosov Moscow State University	70
3.8. Competence centers on certain issues of export of agricultural products	72

3.8.1. Krasnoyarsk State Agrarian University	72
3.8.2. Saratov State Agrarian University named after N.I. Vavilov	73
3.8.3. Russian Biotechnological University	75
Summary	76
References	84
Appendix 1	86
Appendix 2	93

Introduction

Relevance. According to the Development Program of MGIMO for 2021-2030 (hereinafter referred as the Program), submitted as part of the application for participation in the implementation of the “Priority -2030” program for **strategic academic leadership**, the strategic goal of MGIMO-2030 is to provide academic **leadership** in education, research and communications for MGIMO, to create and maintain an effective transfer channel for best practices between Russian and foreign university communities. This strategic goal sets a number of outlines for the development of MGIMO which are enshrined in the Program, and one such outline is the “International outline” focusing on international quality criteria and striving to integrate foreign lecturers as a reference subject of educational and research communications in most educational and scientific programs.

The development of the Institute of World Agricultural Markets (hereinafter referred as a IWAR), an essential component of MGIMO, is **impossible** outside an international framework and should include various aspects of “internationalization” such as the development of educational network and research partnership with foreign universities, ensuring international academic mobility of students and lecturers, the creation of a wide range of educational programs and highly specialized courses in foreign languages and other areas. The inclusion of these international aspects in IWAR’s development and management is a prerequisite for the competitiveness of any world-class competence center.

Such an international framework cannot be developed without an effective channel of communication and exchange of best practices with the foreign university community. In this regard, it is necessary to have an idea of the existing global landscape of educational, research and expert-analytical competencies in the field of international trade in agro-industrial products. With the centers of these competencies a strategic partnership can subsequently be built to successfully meet the challenges of promoting international food security that IWAR and the global university community are facing today.

At this moment the **strategic partnership** between MGIMO and Russian industry universities - Stavropol State Agrarian University and Kuban State Agrarian University contributes to completing these tasks. Thus, the MBA’s and master’s educational programs have been implemented for several years on the basis of the MGIMO’s academic department “International Agrarian Markets and Foreign Economic Activities in the Agro-Industrial Complex”. Considering the positive experience of this partnership and current geopolitical situation, it is advisable to analyze Russian universities for possessing relevant competences. Network forms of cooperation with these higher education institutions will help to solve urgent problems in the field of exporting of Russian agro-industrial products and ensuring international food security.

That is why the “Key competence centers and experts in the field of international trade of agricultural products in Russia and the world” expert-analytical report has high relevance for the development of IWAR.

The goal. The elaboration of theoretical and methodological provisions, as well as practical recommendations, for the progression of IWAR as a center of competence in the field of agro-industrial product export development.

Tasks:

- ♦ To determine the global and Russian fields of key competence centers and experts in the sphere of international trade of agro-industrial products;
- ♦ To identify the best practices in organizing of educational, research and expert-analytical activities of key competence centers;
- ♦ To analyze key topics of educational, research and expert-analytical activity of competence centers;
- ♦ To form a list of promising areas of cooperation between key competence centers and experts, with IWAR;
- ♦ To identify experts for potential integration into IWAR’s educational, research and expert-analysis activities;

- ♦ To prepare recommendations for the implementation of various aspects of “internationalization” in the development of IWAR’s activities considering the best practices of global and Russian centers of competence and experts.

The object. Foreign and Russian universities as competence centers for the development of international trade of agro-industrial products.

The subject. The system of activity organization and key tools for the development of competence centers in the field of international trade of agro-industrial products in Russia and the world.

Research methods. General scientific and empirical research methods: comparative method; content analysis; methods of system analysis; expert evaluation; methods of tabular and graphical data interpretation.

Chapter 1. The identification of key competence centers and experts

1.1. THE METHODOLOGY FOR IDENTIFYING KEY COMPETENCE CENTERS AND EXPERTS

Why is the university the center of competence?

One of the key problems is adapting higher education to the needs of the modern labor market. It is often caused by the lack of a sufficient level of practice-oriented knowledge that students acquire during their studies at universities. There are many reasons for this: from insufficient number of practicing teachers to the lack of applied educational programs and courses.

In a dynamically developing society, this problem becomes even more relevant: the speed of updating knowledge and competencies is increasing, competition in the education services market is growing, education is transitioning to an online environment, and much more. Traditional universities are being replaced by corporate university programs, online platforms, professional consultants, and representatives of industry communities. All of this is pushing universities to systematically transform and gradually transition from the traditional university model to a competence center model.

For this purpose, universities need to form new educational programs, **considering** industry and corporate orders, maintaining their own body of lecturers, researchers and an effective network of scientific contacts, strengthening horizontal ties with international and Russian universities for the implementation of joint initiatives (international and domestic academic mobility, implementing of network educational and research programs) to increase the economic returns from expert and analytical work with companies of the real economy. Only if these tasks are successfully solved, a higher education institution as a center of competence can provide an appropriate level of competitiveness and be in demand among applicants, industry and corporate clients.

Taking into account the magnitude of these tasks, it can be assumed that only higher education institutions can successfully and effectively solve them. Neither corporate universities that specialize in MBA programs, nor online platforms that provide short highly specialized courses and programs, nor consulting and industry communities, which provide business development services and conduct training for companies in the real economy, are ready to take over the full range of tasks. Therefore, higher education institutions (both foreign and Russian) should be the focus of our research because they are centers of competence.

Which types of higher education institutions should be included in the research sample?

The issues of international trade in agricultural products have an interdisciplinary nature and are related to a wide range of student learning domains: management, agriculture, international relations, marketing, trade, logistics, economics, law. This circumstance significantly complicates the determination of the final list of objects for research because there is a large number of universities specializing in the individual above-mentioned areas of students' training or having competence only in certain issues in Russia and abroad. In this regard, it's impossible to speak of such universities as full-fledged competence centers on issues related to international trade of agro-industrial products. Considering that products of the Agro-Industrial Complex have certain features related to production, consumption, transportation, the agricultural specialization of the university should be the determining factor for its selection as the object of research. Therefore, our research should target universities (both foreign and Russian) that specialize in the subject of agriculture.

What is the selection tool for universities?

To determine a specific list of universities, we used rankings, which are the means of comparative analysis. Ranking is the optimal tool for comparative analysis, as it allows you to take into account many criteria by forming a single integrated indicator.

We have selected four of the most authoritative international rankings:

1. QS World University Rankings;
2. Times Higher Education World University Rankings;

3. Shanghai Ranking's Global Ranking of Academic Subjects Methodology;

4. The Best Global Universities Rankings.

QS World University Rankings evaluates the best universities of the world in individual subject areas (51 subjects). The ranking is compiled using **5 sources**. The first two are global surveys of QS's **(Quacquarelli Symonds is a reputable British company specializing in the analysis of higher education institutions worldwide) global surveys of** academics and employers, which are used to assess institutions' international reputation in each subject. The second two indicators assess the impact of research, based on citations per paper and h-index (Hirsch index) in the relevant subject. The fifth is the International Research Network (IRN) Index that evaluates the sustainable international research cooperation of the university.

A. Academic reputation. In 2022, the calculation of academic reputation was based on the results of a survey of more than 130,000 scientists from around the world. Each respondent named two narrow subject areas in which he estimated himself as an expert. Further on, each respondent identified up to 10 domestic and 30 international institutions which he considered the best for research on each of these subject disciplines (he could not name his own institution). Then each educational institution received its own score.

B. Employer reputation. The QS World University Rankings also includes an evaluation of employability. In 2022, almost 75,000 responses from graduate employers from all over the world were used. The employer reputation survey works on the same basis as academic one but without binding to various faculties. Employers are asked to identify up to 10 domestic and 30 international educational institutions, whose graduates they consider to be the best candidates.

C. Citation per one paper. The rating measures the number of citations per paper, rather than the number of citations per lecturer. This is due to the greater practicality of the obtained data. To avoid potential anomalies associated with a small number of highly cited articles the minimum publication threshold is set separately for each topic. All citation data is received from Elsevier Scopus.

D. Hirsch index ("h-index"). The Hirsch Index is a way to measure both the productivity and the impact of the published work of a scientist. The index is based on the set of academic's most cited articles and the number of citations they have received in other publications.

E. International Research Network. This indicator reflects the ability of institutions to diversify the geography of their international research network by establishing sustainable research partnerships with other higher education institutions. The indicator focuses on the diversity of partner locations compared to the efforts needed to achieve such diversity.

THE World University Rankings. Times Higher Education magazine (THE) is known for the annual publication of THE World University Rankings (often referred to as the THE Rankings). The first such ranking was published in November 2004. On October 30, 2009, THE ended its partnership with QS and signed an agreement with Thomson Reuters **(a Reuters agency-based multinational media company)** to provide data for annual global rankings. THE has developed a new method of ranking considering the opinions of readers and editorial staff. The results have been published annually **since** autumn 2010. Since then, THE has no business relations with QS and QS World University Rankings.

THE World University Rankings is a ranking that ranks universities in areas such as teaching, research, knowledge transfer and international projects. THE uses 13 carefully calibrated performance metrics to provide the most comprehensive and balanced comparisons trusted by students, academics, university administrators, businesses and governments.

The performance indicators are grouped into five areas:

A. Teaching (an educational environment) – 30.00%. This indicator includes such criteria as reputation assessment **(15.00%)** - the institution's prestige in the field of education and research which is formed on the base of survey respondents **(more than 22,000 in 2022)**; academic staff to student ratio **(4.50%)**; doctoral degrees to bachelor degrees ratio **(2.25%)**; doctoral degrees to academic staff's ratio **(6.00%)** – the assessment of the institution's commitment to the tutoring the next generation of scientists; institutional income **(2.25%)** - indicates the overall status of the educational institution and gives a general idea of the infrastructure and opportunities available to students and staff.

B. Research (volume, income and reputation) - 30.00%. This indicator includes such criteria as reputation assessment (18.00%) - assessment of the institution's reputation in the field of scientific research, formed according to the results of a survey of scientists; research income (6.00%) - research income is weighed against the number of academic staff and adjusted considering purchasing power parity; research productivity (6.00%) - number of publications per scientist published in academic journals indexed by Elsevier Scopus per 1 scientist.

C. Citations (research influence) – 30.00%. This indicator measures the role of the universities in spreading new knowledge and ideas. THE averages the number of times the published work of the university was cited by scientists all around the world.

D. International purview (employees, students and research) – 7.50%. This indicator includes such criteria as the share of foreign students (2.50%) and the share of international staff (2.50%) - an assessment of the university's ability to attract students, graduate students and teachers from all over the world; international cooperation (2.50%) - calculation of the proportion of the total number of relevant university publications that have at least 1 international co-author.

E. Industry income (knowledge transfer) - 2.5%. This indicator assesses the ability of the university to attract fundings in the commercial market by providing the right of access to innovations, inventions and expert-analytical consultations.

Global Ranking of Academic Subjects Methodology (ARWU or “Shanghai’s ranking”). This rating was first published by Shanghai Jiao Tong University in 2003. Since 2009, ARWU has been published annually and is copyrighted by Shanghai Ranking Consultancy, an independent higher education research organization that is not legally subordinated to any universities or government agencies.

The following set of objective academic indicators are used by the ranking:

A. Research results (Q1) - an indicator that includes the number of articles on the academic topic published by the university in scientific journals in the period of 2015-2019. The data is gathered from Web of Science and InCites.

B. Research influence (Category Normalized Citation Impact, CNCI) – an indicator that includes the ratio of the number of citations in published university articles to the average citation of articles in the same subject category, year and in the type of publication of all universities on the subject in the period of 2016-2020.

C. International collaboration (IC) – an indicator that includes the ratio of the number of publications made by authors from at least two different countries to the total number of publications on the relevant university's topic in the period of 2016-2020.

D. Research quality (TOP) - the number of university articles published in leading academic journals (164 journals in 2021) in the period of 2015-2019.

E. International academic awards (Award) – an indicator that includes the number of awards on an academic subject received by the employees of the university since 1981. In 2021, 32 prestigious international academic awards were taken into account when calculating this indicator.

The Best Global Universities Rankings (U.S. News & World Report). The U.S. News & World Report first published this ranking of global universities in 2014, after previously only ranking U.S. educational institutions since 1983. In 2022, the overall Best Global Universities rankings included 1750 top universities involving more than 90 countries. Each university is evaluated according to 13 indicators grouped into 3 groups:

A. Reputation indicators:

Global research reputation (12.5%) and regional research reputation (12.5%). These indicators evolved from scientists' surveys on educational programs of disciplines with which they were familiar. The total number of respondents who were interviewed by Clarivate company as part of this study in 2017-2021 amounted to more than 26 thousand people. The global research reputation is the respondents' evaluation of foreign universities, the regional research reputation is the respondents' evaluation of national universities.

B. Bibliometric indicators:

- ♦ **Publications (10.0%).** This indicator assesses the overall research productivity of the university and is based on the total number of scientific papers (reviews, articles, notes) associated with the university and published in high-quality and authoritative journals.
- ♦ **Books (2.5%).** This indicator assesses the number of university research publications in book form. It is an important indicator primarily for social sciences, the humanities, and the arts.
- ♦ **Conferences (2.5%).** This indicator assesses the number of academic conferences held by the university. An official publication of conference proceedings may represent a genuine research breakthrough in certain areas that may not have been documented or published elsewhere before.
- ♦ **Normalized citation impact (10.0%).** This indication assesses a total number of citations per paper. Clarivate uses content and citation indicators found in Web of Science.
- ♦ **Total citations (7.5%).** This indicator assesses the university's influence on the global research community and is defined by multiplying the publication ranking factor by the normalized citation impact factor.
- ♦ **Number of publications** that are among the 10% most cited **(12.5%).** This indicator assesses the number of papers that have been assigned as being in the **10%** of the most highly cited papers in the world for their respective fields.
- ♦ **Percentage of total publications** that are among the 10% most cited **(10%).** This indicator represents the percentage of a university's total papers that are among the **10%** of the most highly cited papers in the world - per field and publication year.
- ♦ **International collaboration** – relative to country **(5.0%).** This indicator is the proportion of the university's total number of articles with foreign co-authors divided by the proportion of internationally co-authored articles for the country in which the university is located. **International cooperation (5.0%).** This indicator is the proportion of the education institution's total papers that contain international co-authors and is another measure of quality.

C. Scientific Excellence Indicators:

- ♦ **Number of highly cited papers** that are among the top 1% most cited in their respective field (5.0%). This indicator assesses the volume of papers classified by Clarivate as highly cited over the past 10 years.
- ♦ **Percentage of total publications** that are among the top 1% most highly cited papers (5.0%). This indicator represents the number of highly cited university's papers divided by the total number of its publications.

The total score for all 13 indicators is 100.

It should be noting that these ratings contain subject (industry) rankings related to the topics of agricultural sciences and food in addition to the overall rating:

1. QS World University Rankings – “Agricultural & Forestry”;
2. THE World University Rankings – “Agricultural & Forestry”;
3. Shanghai Ranking's Global Ranking of Academic Subjects Methodology – “Agricultural science”;
4. The Best Global Universities Rankings – “Best Global Universities for Agricultural Sciences”.

Which universities should be analyzed?

To define the final list of universities to following action sequence was carried out:

- 1.** Top 50 universities with the highest ranking for 2022 were defined for each of the industry rankings.
- 2.** Then, in order to consider the time factor (university's position in the ranking could change) for each of the selected universities, the average value of the ranking index for the last 3 years was calculated.
- 3.** Afterward, the selected universities were ranked by average rating index. As a result, top 25 universities, which have the highest average ranking index value, were selected for each of the rankings (Appendix 1).
- 4.** Next, the top 25 universities selected from each of the 4 rankings were analyzed for their presence in other top 25 rankings (each university from the top 25 universities' list of one rating was assessed on its presence in another top 25 universities' rankings). As a result, the total number of universities present in the lists of the top 25 universities of the four rankings was 60.
- 5.** Further, these 60 educational institutions were divided into groups depending on the number of times of their presence in four of top 25 universities' ranking list (Appendix 2):
 - ♦ 1st group (4 times) – 2 universities,
 - ♦ 2nd group (3 times) – 9 universities,
 - ♦ 3rd group (2 times) – 14 universities,
 - ♦ 4th group (1 time) – 35 universities.
- 6.** As a result, foreign universities from the 1st and 2nd groups were selected for the analysis and became the object of the research (11 universities):
 - ♦ Cornell University (USA),
 - ♦ University of Illinois at Urbana-Champaign (USA),
 - ♦ Wageningen University & Research (Netherlands),
 - ♦ University of California, Davis (USA),
 - ♦ University of Queensland (Australia),
 - ♦ China Agricultural University (China),
 - ♦ Michigan State University (USA),
 - ♦ Ghent University (Belgium),
 - ♦ University of British Columbia (Canada),
 - ♦ University of Copenhagen (Denmark),
 - ♦ Nanjing Agricultural University (China).

As for Russian universities, only two out of the four considered industrial rankings have represented Russian universities over the past three years:

University / period	QS World University Rankings – “Agricultural & Forestry” (QS) (place in the ranking)			Shanghai Ranking’s Global Ranking of Academic Subjects Methodology – “Agricultural science” (ARWU) (place in the ranking)		
	2022	2021	2020	2022	2021	2020
RUDN University	201-250	–	–	151-200	201-300	–
Russian State Agrarian University - Moscow Timiryazev Agricultural Academy	301-350	351-400	251-300	–	–	–
Kazan Federal University	–	–	–	301-400	401-500	401-500

As it can be seen from the results of the table, only RUDN University is represented in both rankings. Yet, Russian State Agrarian University - Moscow Timiryazev Agricultural Academy and Kazan Federal University have been confidently present for the last 3 years’ rankings of QS and ARWU, respectively.

Considering small presence of Russian universities in the international rankings we have used following Russian industry ratings to identify key competence centers in Russia:

1. RAEX rating agency’s rating of universities in the “Agriculture” area (2020);
2. The “National recognition” rating of agrarian universities (2021).

RAEX rating agency’s rating of universities in the “Agriculture” area (2020). RAEX-Analytics was established in 2015 and consists of a team of employees who worked as part of the “Expert RA”, the first Russian rating agency, founded in 1997 under the common brand of RAEX. The company is engaged in creating rankings, assigning non-credit ratings, researching industries and markets, and conducting activities related to its analytical activities. **RAEX produces** more than 50 rankings and ratings annually and holds more than 20 conferences and round tables every year.

RAEX subject ratings are based on three groups of indicators: admission quality, reputation parameters and bibliometric indicators. When assessing the quality of admission, a weighted average competitive score was calculated for students enrolled in 2019/20 for full-time study on a budgetary and paid basis, taking points for individual achievements into account. Reputational assessments were based on surveys of two target groups - students and graduates, as well as representatives of the academic community conducted by RAEX. The total number of respondents exceeded 60,000 people. Bibliometric indicators - the number of publications in the considered subject area and their citation - were accounted for the period from 2015 to 2019, according to the Web of Science Core Collection.

Name of the institution	Score	Ranking
Russian State Agrarian University - Moscow Timiryazev Agricultural Academy	100.0	1
Stavropol State Agrarian University	78.9	2
RUDN University	59.7	3
Saint Petersburg State University of Veterinary Medicine	54.7	4
Moscow State Academy of Veterinary Medicine and Biotechnology — MVA by K.I. Skryabin	53.3	5
Voronezh State Agricultural University named after the Peter the Great	47.0	6
Don State Technical University	44.5	7

The “National recognition” rating of agrarian universities (2021). This rating is carried out by the “UniverExpert - Academic Critic” company and assesses the university through its key personnel - the teaching staff. The rating methodology is as follows: a rating was made of all individuals affiliated with the university, whose publications are indexed in the scientific electronic library eLIBRARY.RU and taken into account in the Russian Science Citation Index (RSCI). The total number of the university's points was formed by the sum of the number of points scored in the major subject by the affiliated persons.

A table with the top 10 agrarian universities by the number of points in 2021 is presented below:

Name	Score	Ranking
Stavropol State Agrarian University	240.1	1
Russian State Agrarian University - Moscow Timiryazev Agricultural Academy	149.0	2
Kuban State Agrarian University named after I.T. Trubilin	146.3	3
Saratov State Agrarian University named after N.I. Vavilov	91.4	4
Voronezh State Agricultural University named after the Peter the Great	85.5	5
Bashkir State Agrarian University	89.0	6
Donskoy State Technical University	85.5	7
Ulyanovsk State Agrarian University named after P.A. Stolypin	67.6	8
Oryol State Agrarian University named after N.V. Parakhin	45.5	9
Saint Petersburg State Agrarian University	39.1	10

Thus, taking into account two foreign and two Russian industry rankings data (top 3 of each ranking), 4 Russian universities were selected for further analysis:

- ♦ Russian State Agrarian University - Moscow Timiryazev Agricultural Academy;
- ♦ RUDN University;
- ♦ Stavropol State Agrarian University;
- ♦ Kuban State Agrarian University named after I.T. Trubilin

This list of objects for research also included leading Russian universities with separate structural subdivisions specializing in research and expert analytical activities on the development of international trade of agro-industrial products:

- ♦ Institute for Agricultural Research, National Research University Higher School of Economics,
- ♦ Agri-Food Policy Center of Russian Presidential Academy of National Economy and Public Administration,
- ♦ Eurasian Center for Food Security of Lomonosov Moscow State University.

As a result, the final list of research objects of Russian higher educational institutions included 7 institutions.

1.2. SUBJECT AREAS OF RESEARCH

In the previous paragraph we defined the specific institutions that make up the subject of this study. In the introduction we formulated the subject of the research as “The system of activity organization and key tools for the development of competence centers in the field of international trade of agro-industrial products in Russia and the world”. But what does that mean?

The Competence Center is characterized by the presence of three key areas of activity: educational, research and expert-analytical. In this regard, the indicators of our research should also correlate with these areas of activity:

- 1. Educational programs.** This indicator refers to the existence and characteristics of educational programs of higher education on relevant subjects that exist in the institution (bachelor's degree, master's degree, further education, MBA, PhD, major/minor etc.).
- 2. Educational courses.** This indicator refers to availability and characteristics of educational courses on relevant subjects that are taught at the university (any duration and form).
- 3. Structural subdivisions.** This indicator refers to the existence and characteristics of individual structural subdivisions (institutions, faculties, academic departments) which exist in the institution and address certain issues relevant to the subject of the study.
- 4. Research projects.** This indicator refers to the existence and characteristics of research projects on relevant topics which are implemented on the basis of the institution including the results of the activities of scientific institutes and research centers activities.
- 5. Expert-analytical services.** This indicator refers to the existence and characteristics of expert-analytical and consulting services on relevant topics provided by the institution to external parties (public authorities, non-governmental organizations, businesses, researchers, students, etc.)
- 6. Experts.** This indicator refers to the list of employees (lecturers, scientific and pedagogical staff) who are affiliated with the institution including their academic degrees, positions and areas of interest.

The issues of international trade of agro-industrial products, as mentioned earlier, are interdisciplinary in nature. They cover a wide range of areas related to the production, consumption and transport of agro-industrial products. In this regard, not only the issues of international trade of agricultural products, but also other issues will be relevant for our study:

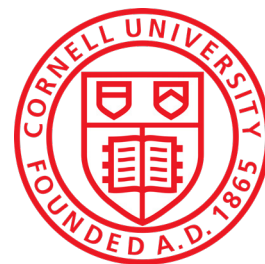
- ♦ Food security;
- ♦ Global agrarian markets:
- ♦ Value added chains;
- ♦ Agrologistics;
- ♦ International certification
- ♦ Agro-industrial products consumer behavior;
- ♦ International agricultural development;
- ♦ Agricultural economy:
- ♦ Agro management;
- ♦ Marketing of agro-industrial products;
- ♦ Food safety.

Thus, we have defined and specified the subject of this study which allows us to proceed to the analysis.

Chapter 2. Competence centers in the field of international trade of agricultural products in foreign countries

2.1. CORNELL UNIVERSITY (USA)

General information. Cornell University (CU) is one of the largest and well-known American universities founded in 1865. It's based in Ithaca, New York. The university is private but partly sponsored by the State of New York. CU is a member of the Ivy League (an association of 8 private American universities located in 7 states in the Northeastern United States). The university has 25,500 students (15,500 undergraduate students, 7,100 students involved in graduate studies (including master's studies) and 2,900 students involved in professional studies).



CU offers almost 80 major specialties and more than 120 minor ones as well as dual degree programs. There is an opportunity to develop independent (individual) study programs for students, whose interests do not conform to standard academic programs.

There are several colleges and science schools operating at Cornell University such as the College of Agriculture and Life Sciences focusing on such issues as food, energy and environmental resources, and the Cornell SC Johnson College of Business which has the Charles H. Dyson School of Applied Economics and Management. The Charles H. Dyson School of Applied Economics and Management is globally known for its experience in food and agriculture economics, governance, environment and resource economics, and international and development economics.

Education. The US education system itself is a little different from the Russian one to which we are used to. There are Undergraduate (bachelor's), Graduate and Postgraduate (master's, PhD) and Professional (professional, MBA) programs. Also, in the US education system there are such concepts as major (main specialization) and minor (additional specialization).

1. Applied Economics & Management bachelor's program

The program is implemented by the Charles H. Dyson School of Applied Economics and Management (accredited by the AACSB - Association to Advance Collegiate Schools of Business), that is, it has an interdisciplinary nature. Within its framework, students study issues such as agribusiness management, applied economics, business analytics, entrepreneurship, environmental, energy and resource economics, food industry management, international trade and development, marketing and strategy. This program is taught in masters, doctoral and professional competency development (1-year program).

Examples of educational courses of the program: "Toward a Sustainable Global Food System: Food Policy for Developing Countries", "International Trade Policy", "Political Economy of the WTO", "Economics of Food and Malnutrition", "Business and Economy in the Food Industry", "Price Analysis" and "Futures, Options and Financial Derivatives".

2. Global Development bachelor's program

This program prepares students to interpret existing global problems and find solutions to these problems. All students take a broad interdisciplinary study and practice course in global development. Then they delve deeper into one of three following topics: agriculture and food systems; social and economic development; environment and development.

Examples of educational courses of the program: "Global Food, Energy, and Water Nexus – Engage the US, China, and India for Sustainability", "Agriculture, Food, Sustainability and Social Justice", "International Trade and Finance", "Research and Strategy in Emerging Markets" and "Ecology of Agricultural Systems".

3. Accredited HACCP professional program

This **online course** provides instructions on how to ensure food safety in HACCP-based production. It includes practical and group exercises designed to give the participants practical HACCP (Hazard Analysis and Critical Control Points) development skills. The course is based on the **core** curriculum of The National Conference on Interstate Milk Shipments and can be seen as an individual program for those involved in the dairy and juices production as well as of the other goods.

4. Foreign Supplier Verification Programs (professional)

The course provides the knowledge of implementing the USFDA's (The United States Food and Drug Administration) Foreign Supplier Verification Programs' (FSVP) requirements to its participants. The FSVP's training course was developed by regulatory and academic experts and designed for:

- ♦ The US importers who are end users or distributors of agricultural products at the time of importation into the US;
- ♦ Others who have an interest in ensuring compliance with the FSVP's rules (e.g., brokers, foreign suppliers of agricultural products, foreign government officials etc.).

Research activities. There are more than 100 interdisciplinary research centers, institutes and laboratories at CU. The postgraduate education receives strong financial support from the university with nearly \$50 million in tuition, scholarships and organized research expenses. Unfortunately, there is no individual institute dedicated to the study of international trade of agro-industrial products.

However, The College of Agriculture and Life Sciences conducts basic and applied research **in the fields** of agriculture, food and nutrition, life sciences, environmental sciences, and social and behavioral sciences. Scientific research is carried out in laboratories, greenhouses and "in the field" under controlled environmental conditions. Researchers can also gather information in a wide variety of areas such as food supermarkets, media organizations, farms and tropical rainforests.

There is an individual platform for the research activities management: researchservices.cornell.edu/.

Expert and analytical activities. This university's activity is concentrated within the framework of the activities of a separate structural unit - the **Center for Technology Licensing (CTL)**. **CTL** commercializes CU technology, fosters the creation and growth of new businesses, and encourages the industry to form partnerships and collaborations. **CTL** also manages inventions from a variety of disciplines, including crop and veterinary science **and** licenses CU technologies to industry partners in all 50 states as well as in Europe, Asia-Pacific, the Middle East, Central and South America. CU inventions are patented in more than 40 countries.

CTL activity areas:

- ♦ **Inventions' disclosure.** All inventions, made by CU faculty, staff, and students, must be disclosed to CTL;
- ♦ **Inventions' patenting.** CTL helps to maintain invention's patent rights by assisting in the proper patent application filling;
- ♦ **"Selling" the invention.** If the invention has market potential, CTL assists in obtaining a license to use it in industry. That includes identifying target companies;
- ♦ **Available technology.** CTL maintains a list of technologies currently available for licensing;
- ♦ **Path to partnership.** CTL provides guaranteed access to the future intellectual property of the project by giving industry companies the opportunity to invest in it.

CU also has **Cornell Institute for China Economic Research** which helps to coordinate the efforts of CU's industry scientists (lecturers and students). It also supports research aimed at understanding economic growth in China (its past, present and future) and its impact on the global economy. Rural development, companies' activity, industrial dynamics and international trade are some of the key issues.

"WTO accession and performance of Chinese manufacturing firms" is an example of a completed project.

The Cornell Institute for Food Systems (CIFS) is a structural subdivision of the CU that is dedicated to the study of food security issues. The institute has more than 100 CU teachers from a variety of faculties.

A key element of the institute is a partnership program that connects industry representatives along the entire food value chain from farm and enterprise to packaging and retail. By interacting with CIFS teachers as well as colleagues in the food industry, the program's members - people of business - have the opportunity to become part of an interdisciplinary network focused on solving food systems challenges.

The opportunities that CIFS partnership program offers to its members:

- ♦ To participate in CU forums to network and collaborate with research scholars, business leaders and CU's faculty;
- ♦ To receive assistance in leading-edge food production research from science to industry transfer;
- ♦ To receive invitations to the CIFS's annual symposium and other events to learn about leading research and new technologies that CU researchers are currently engaged in;
- ♦ To receive a monthly news digest along with new opportunities for participation in research projects;
- ♦ To interact with more than 200 CU students for following recruiting;
- ♦ To get priority access to CU's production facilities and services in the Food Science area;
- ♦ To access CU faculty personally or through Zoom to meet company's scientific and technical needs.

Experts

- ♦ **Miguel Gómez** (PhD), a professor at the Charles H. Dyson School of Applied Economics and Management of Cornell's SC Johnson College of Business. Research interests: food distribution and marketing (from farm to table); pricing and price analysis of agricultural products; supply and demand in the agricultural market; retail efficiency; food systems' sustainability.
- ♦ **Elena Belavina** (PhD), an associate professor at the Cornell Peter and Stephanie Nolan School of Hotel Administration of Cornell's SC Johnson College of Business. Research interests: global supply chains; online commerce; logistics; last mile food delivery.
- ♦ **Aaron Adalja** (PhD), an assistant professor at the Cornell Peter and Stephanie Nolan School of Hotel Administration of Cornell's SC Johnson College of Business. Research interests: food quality disclosure; agricultural product labeling; food safety; local food systems; agricultural economics; sustainable agriculture.
- ♦ **Prabhu Pingali** (PhD), a professor at the Charles H. Dyson School of Applied Economics and Management of Cornell's SC Johnson College of Business. He participated in food systems' transformation in Asia and supply chains projects. Research interests: transformation of agriculture; food systems and the transition to a healthy diet; food markets and value chains.
- ♦ **David Just** (PhD), a professor at the Charles H. Dyson School of Applied Economics and Management of Cornell's SC Johnson College of Business. Research interests: economic implications of agricultural and food policy; risk and production; food aid and nutrition; consumer behavior.

Conclusions

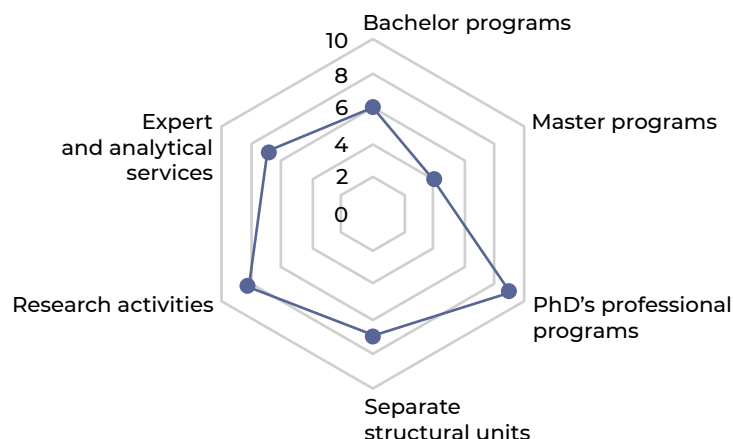


Fig. 1.

- ♦ There are very few individual educational programs dedicated to international agricultural trade at bachelor's and master's degrees, these programs are concentrated mainly in the bachelor's degree;
- ♦ However, there are some very relevant educational professional programs such as "Accredited HACCP" and exporter's inspection;
- ♦ The description of educational programs and courses, and competencies and faculty experience are very well presented. Students can form individual educational tracks;
- ♦ It is worth noting that there is a very strong business school which, in addition to AACSB accreditation, has a fairly large number of experts involved in food security, supply chain, agribusiness marketing etc.;
- ♦ Research activities have been developed and some institutes have been formed, for example the Cornell Institute for Food Systems;
- ♦ Expert and analytical activities are mainly concentrated in the Center for Technology Licensing but there are individual partnership programs as a form of consulting.

2.2. UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN (USA)



General information. The University of Illinois at Urbana-Champaign was founded in 1867. It has more than 51,000 students and 2,500 faculty members. The university has 16 colleges and divisions including the College of Agricultural, Consumer & Environmental Sciences. The interdisciplinary nature of the college's subject areas is represented by initiatives in food and agricultural systems, global climate change, public policy in these areas, bioenergy, biotechnology and more.

The Department of Agricultural and Consumer Economics (ACE) is one of the college's key divisions.

Education. The university implements its education through the provision of educational programs for bachelor's, master's and postgraduate training levels as well as elective courses and business education programs. You can master these programs both offline and completely online.

1. Agricultural & Consumer Economics: Agribusiness Markets & Management bachelor's program

The students gain marketing and management knowledge for international agricultural trade with the opportunity to serve as entry-level managers involved in the production, sales, and marketing of agricultural products. The program's practice-oriented nature is ensured by the industry "leaders" involvement in the educational process as well as the availability of internship programs in industry's leading enterprises and international exchange programs to the trainees.

"International Trade in Food and Agriculture", "Global Agribusiness Management", "Agricultural Marketing", "Agri-food Strategic Management", "Food and Agribusiness" are examples of the program's educational courses.

2. Agricultural & Consumer Economics: Policy, International Trade & Development bachelor's program

The program views subject areas of politics, international trade and agricultural development from an economic perspective. It is designed for trainees oriented toward professional careers in international business, federal or state institutions involved in agricultural policy and commerce.

Students gain analytical skills to quantify the link between politics, trade, food production, environmental impacts and human well-being. They can conduct research on such topics as international food security and the impact of international trade on malnutrition. Students may participate in international exchange programs in such countries as Sierra Leone, China or Brazil.

"The World Food Economy", "International Trade in Food and Agriculture", "Agricultural and Food Policies" are examples of the program's educational courses.

3. Agricultural & Consumer Economics: Consumer Economics & Finance bachelor's program

Students studying this program develop the knowledge and skills to help solve the problems of end-users of agro-industrial products that arise in the food sector. Students can choose to specialize in consumer economics, financial planning and consulting, which opens up career opportunities in government agencies, marketing and trading companies, and financial institutions.

"Food Marketing and Behavior", "International Trade in Food and Agricultural", "Agricultural and Food Policies", "Behavioral Economics and Financial Decision Making" are examples of the program's educational courses.

4. Supply Chain Management bachelor's program

Students in this program study a full range of money, information and material flow issues, from supply chain planning to sourcing raw materials, parts and components through the manufacturing or manufacturing sector to marketing and delivering final products to industrial customers or individual consumers.

"Fundamentals of Supply Chain Management", "Global Supply Chain Management", "Global Business Perspectives", "Market Research", "Logistics Management" and "Business Analytics" are examples of educational courses of the program.

5. Management: International Business bachelor's program

This program is designed to prepare future business leaders, decision makers and strategic thinkers for effective management in international companies. Specific attention is given to the problems associated with multinational companies and management in an international context with different rules and cultures.

"The International Business", "The World Food Economy", "Global Agribusiness Management", "International Marketing", "International Trade in Food and Agriculture" are examples of educational courses of the program.

6. Agricultural and Applied Economics master's program

The program offers 2 possible tracks: "thesis" and "non-thesis" master's program. For the "non-thesis" program, students choose the area of study according to their interests, including commodity markets, international trade, and development. The "thesis" master's program focuses on economic theory and analytical research tools used by analysts, managers, government officials and other agricultural sector organizations. The topics include an assessment of international efforts to reduce poverty and hunger, improvement of efficiency of commodity and speculative markets, etc.

7. Agricultural and Applied Economics postgraduate program

Specialization options for the four-year postgraduate program are as follows:

- ♦ Food, Agribusiness and Farm Management;
- ♦ International Policy and Development Economics;
- ♦ Natural Resource and Environmental Economics;
- ♦ Price Analysis and Agricultural Marketing.

8. MBA business education

A professional education focusing on developing leadership skills and vision that has no clear industry affiliation. It relies on all university resources with the most popular programs in engineering and technology as well as in business.

Some of the MBA's specializations:

- ♦ Global Challenges in Business;
- ♦ Entrepreneurship and strategic innovation.

9. Minors:

- ♦ Agricultural, Consumer & Environmental Sciences Minor;
- ♦ Food & Agribusiness Management Minor;
- ♦ Global Markets & Society Minor;
- ♦ Industrial and Agricultural Safety and Health Minor;
- ♦ International Business Minor;
- ♦ International Development Economics Minor.

Research activities. The Department of Agricultural and Consumer Economics (ACE) conducts its research activities within the structure of the college.

Commercial Agriculture and Commodity Markets area of research

Agricultural producers and farmers face serious management challenges in an ever-changing economic environment. The ACE Department is a national leader in commodity price analysis and has the nation's largest concentration of academic staff dedicated to analysis and research on grain markets. The ACE's faculty have significantly contributed to research and government policy in areas related to market price analysis, risk management, crop insurance and farm management.

ACE has also launched "Farmdoc" project, a leading online source of agricultural market information for the US Corn Belt producers (link: farmdoc.illinois.edu)

Also, (under the auspices of the ACE Department) the Center for Farmland Research conducts research and academic symposiums, collects data related to the agricultural sector and works to inform state and US governments on issues related to farmland prices and financial aspects of farm management (link: farmland.illinois.edu).

International, Regional, and Development Economics area of research

This thematic area examines the role of government and public policy in economic development, agriculture, international trade, and addressing poverty and hunger. Particular attention is paid to the impact of a wide range of government policies and programs on economic advancement in developing and developed countries. Students and faculty also explore the lobbyists' role in the development of public policies and programs. The International Food Security at Illinois program: publish.illinois.edu/intl-food-security.

CREATE, a research center dedicated to study climate change and other environmental issues by applying system-wide methods developed in regional economic and trade, operates under the auspices of the ACE Department (link: create.ace.illinois.edu).

The Big Data, Food Security and the Environment project was implemented within the framework of the International Food Security at Illinois program with the goal to bring together researchers and stakeholders to use big data tools in addressing global malnutrition reduction while improving natural resource management.

Expert and analytical activities. The university is a leader in developing innovations that turn into products and services, grow companies and jobs, and positively impact people's lives and economic well-being. The university promotes innovations resulting from scientific research for public use by protecting and licensing intellectual property. The Office of Technology Management was created to implement this function (link: otm.illinois.edu).

The Research Park, which provides an environment for technology businesses and startups to work with faculty and students, operates within The University of Illinois. Companies have access to collaborative research opportunities and university laboratories, equipment and services. Such companies of the agro-industrial sector as Cargill Innovation Lab and Corteva Agriscience actively work with the Research Park.

Experts

- ♦ **Scott H. Irwin** (PhD), a professor and the head of the Agricultural and Consumer Economics department. He helps farmers in Illinois and around the world to make more informed production, marketing and financial decisions by assessing economic factors that affect the price of agricultural products, such as corn and soybeans. He also leads the aforementioned innovative Farmdoc project. Research interests: analysis and forecasting of agricultural products prices; commodity futures markets.
- ♦ **Michel A. Robe** (PhD), a professor who specializes on the issues of commodity trading financing and automation. His study shows their impact on the agricultural sector's pricing of goods and the market liquidity. He expands the understanding of the causes and consequences of price volatility in financial and commodity markets, and improves grain price forecasting. Research interests: causes and consequences of economic instability; commodities markets.
- ♦ **Gary D. Schnitkey** (PhD), a professor who specializes in analyzing the profitability of major field crops and assessing the impacts of farm programs and risk management strategies by using agribusiness revenue and cost data. Research interests: commercial agriculture and commodity markets.

- ♦ **Professor Sandy Dall'Erba** (PhD). In 2021, he co-founded CREATE (Climate, Regional, Environmental, and Trade Economics center) at the University of Illinois. Research interests: environmental economics; climate change impacts on agriculture, food security, and global supply chains.
- ♦ **Bruce J. Sherrick** (PhD), the director of the TIAA Center for Farmland Research at College of Agricultural, Consumer and Environmental Sciences. Research interests: commercial agriculture and commodity markets; crop insurance; agricultural investment; financial contracts.

Additional information

There is an Illinois Experts service on the university website that provides access to the work of more than 2,500 researchers and scholars from Illinois. Anyone can identify potential co-authors and find advanced research papers (link: experts.illinois.edu).

Conclusions

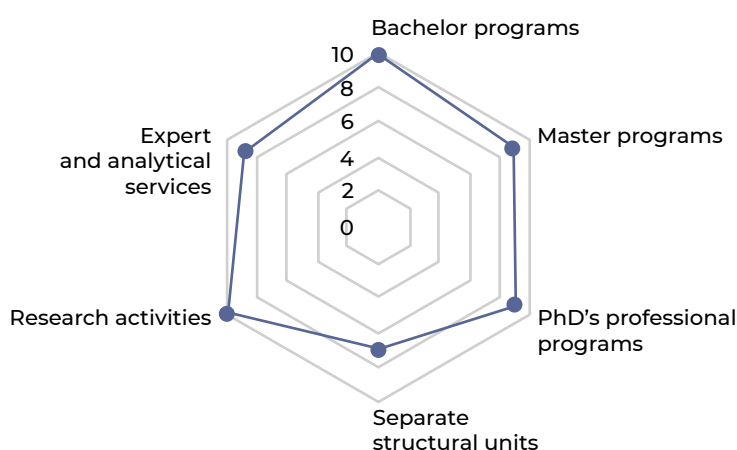


Fig. 2.

- ♦ The College of Agricultural, Consumer and Environmental Sciences operates within the university. It specializes in international trade of agricultural products and is a cutting-edge center of competence;
- ♦ The university has the largest number of research-relevant educational programs - bachelor's, master's, PhD's, MBA's, minors etc.;
- ♦ Activity research area examines the development of commodity markets, improving the agribusiness results through supply chain management, and improving food security in developing countries and the United States;
- ♦ Consulting activities are widely developed, and a large number of projects are implemented with companies' broad participation in the agricultural sector.
- ♦ Farmdoc online service is the most interesting project.

2.3. WAGENINGEN UNIVERSITY & RESEARCH (NETHERLANDS)

General information. The Wageningen University & Research is a large Netherlands' university specializing in the natural sciences. WUR has more than 7,200 employees, 13,200 students and 150,000 lifelong learning programs' participants from more than 100 countries. WUR specializes in animal and plant research, environment, food production and agro-technology, and food systems.



The structure of WUR is divided into 5 individual areas. Given that WUR is a combination of a university and a research center, each area has a separate educational and research track. One of the 5 directions, for example, is the direction of social sciences, which includes the Wageningen Economic Research.

Education. The structure of WUR's educational programs is very similar to the Russian universities' programs: bachelor's and master's programs, professional programs (skills development, MBA), postgraduate and doctoral programs (PhD).

1. Bachelor Bedrijfs- en Consumentenwetenschappen (Bachelor of Business and Consumer Sciences program)

Within the framework of this three-year program, students, in order to further their professional activities in organizing sustainable production chains and introducing innovations, study consumer behavior and find answers to the questions: "How is food produced?", "What role do logistics factors play?", "What marketing strategies affect to buy food?" and "How do consumers and producers make decisions?".

"Supply Chain Management", "Producer and Consumer Preferences for Food Quality", "The Science of Decision Making in Logistics", "Consumer Behavior", "Economics of Agricultural Production", "Agricultural Business Management" are examples of the program's educational courses.

2. Sustainable Supply Chain Analytics master's program

This two-year program specializes in the study of sustainable agricultural supply chains. At the end of the training students will understand the specifics of organizing food supply chains, the advantages of using new technological solutions and logistic innovations, and how to practically solve business problems of supply assurance.

"Sustainable Supply Chain Analytics", "Material Flow Analytics", "Supply Chain Research Skills", "Data-Driven Supply Chain Management", "Business Information Analytics" are examples of the program's educational courses.

3. European master's in Food Studies program

This program offers students the opportunity to expand their knowledge of food production. The program is implemented in cooperation with Irish, Swedish, French universities as well as 9 major industrial companies - Heineken, Nestle, Mondelez, DSM, Firmenich, Mars, Tetra Pak, JDE (Jacobs Douwe Egberts) and Unilever.

"Food Retail Marketing and Supply Chain Management", "Consumer Behavior in Food Markets", "Advanced Agribusiness Management", "Food Processing and Packaging", "Food Safety" are examples of the program's educational courses.

4. Master's Consumer Studies program

It's a two-year master's program that allows students to understand how consumers make rational and emotional buying decisions in the short and long term.

"Consumer Studies for Sustainability", "Sensory Perception and Consumer Preference", "Consumer, Technology and Innovation" are examples of the program's educational courses.

5. Executive MBA in Food & Agribusiness professional program

This EMBA (Executive MBA) program is designed for professionals with at least 5-year experience in the agricultural sector. It will provide answers to questions: "How to solve the problems of sustainable development?", "What do new customer segments need from agricultural producers?", "How can agricultural companies ensure sustainable food production?". As part of the EMBA, students learn

about the latest food industry trends and innovations as well as gain knowledge about creating international businesses in the agricultural industry. Some EMBA modules are implemented in cooperation with business schools and companies from the international WUR network. The program is internationally (AMBA) and institutionally (AACSB) accredited.

“Operations and Sustainable Supply Chains”, “Sales Management”, “Human Behavior in Organizations”, “Corporate and Business Strategy” are examples of the program’s educational courses.

6. Governance and Food Safety in International Food Chains professional program (an online course)

The course provides an understanding of how to develop and implement science-based and practical food quality and safety controls, and to create sustainable business and value chains. It will cover such issues as standards and regulations, monitoring and oversight, control management, inspection and certification, and risk communication.

As a result of mastering the course, the students will be able to identify the national food safety system elements, institutional constraints and options for improving national quality control systems. They will also participate in the creation or improvement of the national quality control system elements and consult public authorities and manufacturing companies on food safety management issues.

Research activities. The fundamental research at Wageningen University & Research is conducted by chair groups.

The Business Economics Group conducts research on a wide range of business economics in agriculture and food supply chains aspects. Research interests: productivity and risks, quality and safety, agricultural supply chain efficiency, EU’s agricultural sector’s business economics and other projects.

The Business Management & Organization group focuses on the operational efficiency of agricultural manufacturing companies and their strategies for participating in value chains including international ones.

The Marketing and Consumer Behavior group conducts research on marketing and food consumer behavior. Research interests: marketing strategies and sale channels, consumer behavior motives, improving research methodology and data collection.

Operations Research and Logistics Group specializes in operations and logistics management in agricultural supply chains including availability, quality and sustainability issues.

Expert and analytical activities. There is a Wageningen Economic Research institute (WER) within WUR that supports businesses, government authorities and non-governmental organizations in decision-making and development strategies.

Market Intelligence track. WER offers consulting services to assess the prospects of global agricultural and food markets, identify consumer motivations and key factors influencing consumer choices, and analyze the impact of changing trade agreements and climate change on market development. “Forecasting the development of agricultural products markets”, “Functioning of agricultural products markets analysis”, “Strategies to influence consumers development and testing” and “Analysis of the consumption of agricultural products’ motives” are examples of these services.

Markets and chains track. WER has a lot of statistical data which provides unique information about agricultural market products in Europe and the world (such as beef, pork, poultry, eggs, lamb, milk, butter, cheese, casein, skim milk, drinking milk, wheat, barley, corn, rye, oat, rice, rapeseed, sunflower seeds, soy, etc.).

The WER website presents examples of previous projects: “Life cycle assessment of agri-food chains”, “Competitiveness of the EU poultry sector”. There are also examples of short seminars and training sessions: “Oilseeds and Grain value chains”, “Potato Value Chain”.

Food Security track. WER offers services to authorities, agro-industrial complex manufacturers and other stakeholders in the preparation of recommendations to improve corporate policy and development strategy. The advantage of the proposal is the development of new ideas based on information about the implemented government support programs, supply chain research, and comprehensive assessments of the economic, environmental and social aspects of issues related to food and the environment. “Development of Agricultural Information Center in Riyadh”, “Joint Learning about Innovation

Systems in African Agriculture (JOLISAA project)" and "Metrics, Models and Foresight for European SUSTainable Food And Nutrition Security (SUSFANS project)" are examples of previous projects featured on WER's website.

Experts

- ♦ **Professor Myrna Van Leeuwen** (PhD), a Wageningen Economic Research project coordinator and International Policy Expert Group researcher. Research interests: agro-industrial chains; macro-economic analysis; bioeconomics.
- ♦ **Professor Ruerd Ruben** (PhD), an external employee of the Department of Social Sciences, who specializes on small agricultural producers' participation in tropical agribusiness value chains and export certification impact on value chains. Research interests: food policy; agroecosystems; agricultural economics.
- ♦ **Fedes van Rijn** (PhD), a senior scientist at Wageningen Economic Research who participated in such project topics as sustainable value chain development (cocoa) and improving the competitiveness of avocado exports in Kenya. Research interests: certification; agricultural economics; Latin American and Caribbean agricultural sectors.
- ♦ **Sander de Leeuw** (PhD), an Operations Research and Logistics Group professor. He participated in such project topics as last mile logistics optimization for food consumers and inventory management for multi-channel retailers of agro-industrial products.
- ♦ **Hans van Trijp** (PhD), a Marketing and Consumer Behavior group professor. Research interests: consumer preference analysis; marketing; environmental marketing; consumer research.

Additional information

1. **The Agro & food portal** (link: www.agrofoodportal.com) is an online platform with statistics on Netherlands agricultural markets. It brings together the best available sources of statistical data on such topics as agribusiness trade, farm income, environmental impact, employment and prices.
2. **An Internet portal** with all WUR studies and expert's information (link: research.wur.nl/en) holds more than 291,000 different reports and reviews and information on more than 7,200 researchers.
3. **There is a Wageningen Youth Institute** which engages high school students from around the world to address global food security and to fight against hunger. Together they try to find an answer to the question: "How do we feed the world in a fair, sustainable and healthy way in 2050 when the world population rises to 10 billion?"
4. **Wageningen Pre-University** (formerly the Food Valley School Network) – WUR's working system involving 10 regional schools. As part of the project, WUR inspires teachers to apply innovative knowledge from the healthy eating and the environment areas in their teaching. For example, the center's staff develops extension courses for professional teachers. According to WUR, success in higher education starts with secondary education, so it strives for a good connection between secondary and higher education.

Conclusions

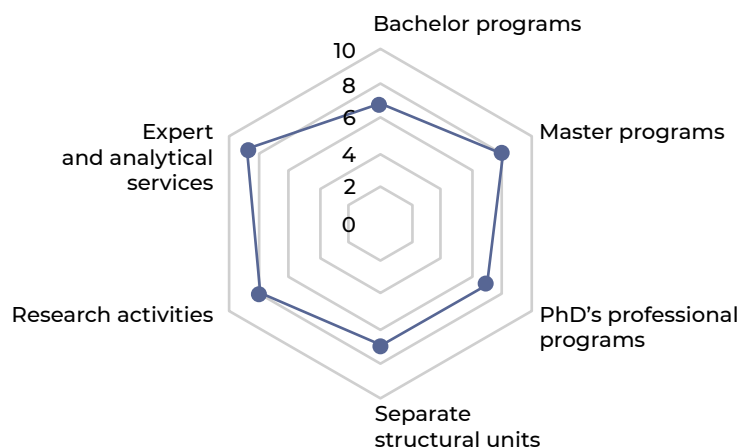


Fig. 3.

- ♦ The university covers a very large list of agricultural questions: from study of plants and animals to supply chains and sustainable development. A lot of attention is paid to economics and statistics.
- ♦ International agribusiness trade educational programs are concentrated in master's professional degrees (MBA, online courses);
- ♦ In the structure of WUR separately allocated WER, which concentrated the main research and expert-analytical competence on international trade in agro-industrial complex products;
- ♦ Competences in the field of research and consulting are widely advertised and presented in the form of expert-analytical works and statistical data access;
- ♦ Different terminology such as "supply chain" instead of "export" and "global market" instead of "world market";
- ♦ Many open access sources (reports, research results, etc.);
- ♦ Wide extracurricular activities such as developing regional schools and working with graduates.

2.4. UNIVERSITY OF CALIFORNIA, DAVIS (UCD) (USA)

General information. The University of California, Davis (UCD) is one of the ten campuses of the University of California system and is located in Davis, California. UCD was founded in 1908 as an agricultural campus of the system. Now it has more than 38,000 students enrolled in 107 undergraduate and graduate programs.



UCD has 4 colleges (one of which is the College of Agricultural and Environmental Sciences), 1 postgraduate and 6 schools for professional education (one of which is the Graduate School of Management).

Education. The system of educational programs of the UC Davis is typical for all American universities.

1. International Agricultural Development undergraduate program

In this undergraduate program students will learn how to improve food production and solve the malnutrition problem in less technologically developed countries. They learn about social and cultural roots of malnutrition and poverty, opportunities for technological improvements in food production system and distribution, and environmental and international trade issues. The students can later continue their studies in the master's program with the same name.

"Food Systems", "International Agricultural Development Major", "Applied Statistics in Agricultural Sciences", "Population, Environment and Global Agriculture", "International Microeconomics and Macroeconomics" are examples of the program's educational courses.

2. Managerial Economics undergraduate program

This program prepares students for a variety of careers in business and beyond. They can choose one of the 4 areas of specialties which explores economic factors and problems in major developing countries. The examples of these specialties are "Agricultural Business Economics", which focuses on business aspects of food production and marketing, and "International Business Economics", which explores economic factors and problems in major developing countries.

"Food Markets", "International Commodity and Resource Markets", "Developing an Agribusiness Marketing Plan", "International Economic Relations", "Business, GR (Government Relations) and Society", "Economics of Sustainable Agriculture" are examples of the program's educational courses.

3. Sustainable Agriculture and Food Systems undergraduate program

The program provides students with the skills and knowledge necessary to become successful agrarians, entrepreneurs, and researchers. The training takes an interdisciplinary approach in understanding such complex issues as food security, food policy, and growing farm crops.

"Food Systems", "Sustainable Food Systems", "Alternative Proteins", "Food Markets", "International Commodity and Resource Markets" are examples of the program's educational courses.

4. Agricultural and Resource Economics PhD program

In this program students study food production, distribution, and consumption in different countries. To address these issues, the program emphasizes the development and application of rigorous economic theory and quantitative analysis methods. The program provides advanced training in such areas as agricultural marketing, international trade, natural resource and environmental economics.

"International Agricultural Trade and Policy", "International Agricultural Economics", "Agricultural Demand and Supply", "Agricultural Commodity Markets", and "Agricultural Policy" are examples of the program's educational courses.

5. Master of Business Administration professional program

UCD offers the MBA program in 3 formats (full-time, part-time, online). This program focuses on the management, analytical and leadership skills that graduates need to become more effective managers and confident business leaders. The program provides an industry immersion in biotechnology, business intelligence, food and agriculture to future top managers.

“Supply Chain Management”, “Corporate Governance”, “International Finance”, “Investment Analysis”, “Market Research”, and “M&A (Mergers and Acquisitions)” are examples of the program’s educational courses.

Research activities. UCD implements research activities mainly through the work of research centers as individual structural units. Thus, there is The Undergraduate Research Center at UCD which encourages undergraduate research endeavors with **\$1,500 scholarships**. All projects are implemented by students under the guidance of UCD teachers.

UCD has The Office of Research which is responsible for organizing and conducting all UCD research including interdisciplinary ones. The Innovation Institute for Food and Health (IIFH, link: foodaghealth.solutions) serves as one of its subdivisions.

IIFH develops an interdisciplinary research approach to encourage food, agriculture and health innovations. Its vision is to accelerate the adoption of products and processes that provide safe, sustainable and reliable food for all. IIFH, together with the UCD’s Graduate School of Management, hosts market research forums that bring together leading research scientists with business leaders focused on the commercialization of food and health products and services. Together they work to understand the new technologies’ market place in food and healthy living.

UCD also actively develops strategic research partnerships with large companies, non-governmental organizations and other universities. The examples of such partnerships are:

- ♦ UCD and Mars have created an institute to develop breakthrough technologies in food, agriculture, and health;
- ♦ UCD is working to improve food safety in China and around the world in partnership with a number of Chinese universities.

Expert and analytical activities. This area is implemented through the commercialization of the research activities results. There is the Innovation and Technology Commercialization center (ITC, link: itc.ucdavis.edu) within the UCD.

ITC provides services to transform research and development into successful products, services and businesses. The ITC’s goal is to turn innovative research into successful commercial products. The main areas of commercialization are as follows:

For an inventor:

1. Assistance in obtaining a license for inventor’s own invention;
2. Regulation of the consulting services’ provision to businesses by inventors;
3. Consulting inventors on the regulation of intellectual property.

For entrepreneurs:

1. Providing licenses for UCD technologies (innovative solutions);
2. Creation and development of university startups services (infrastructure).

For investors:

1. Providing information about existing and developing university startups that investors can invest in;
2. A guide for creating startups.

Thus, UCD emphasizes the commercialization of research activities through patenting, licensing and entrepreneurial support.

Experts

- ♦ **Richard Sexton** (PhD), a honored professor at the Agricultural and Resource Economics department. Research interests: agribusiness supply chains; commodity markets; international economic development; industrial organization.
- ♦ **Rachael Goodhue** (PhD), a professor and the chair of the Agricultural and Resource Economics department. Research interests: commodity markets; agricultural marketing; agricultural and agro-ecological regulation and policy; California's agricultural sector analysis.
- ♦ **Colin Carter** (PhD), a professor at the College of Agricultural and Environmental Sciences. Research interests: commodity markets; international trade; agricultural policy; futures and options markets; China's agricultural economy.
- ♦ **Pierre Mérel** (PhD), a professor at the College of Agricultural and Environmental Sciences. Research interests: agricultural economics; environmental economics; production organizing; climate change and agriculture; food policy.
- ♦ **Daniel Sumner**, a professor at the College of Agricultural and Environmental Sciences. Research interests: agricultural policy (including commodity programs, trade policy, human resources and rules); agricultural products trade in the Asia-Pacific (especially in South Korea); dairy industry; government policy on rice production.

Conclusions

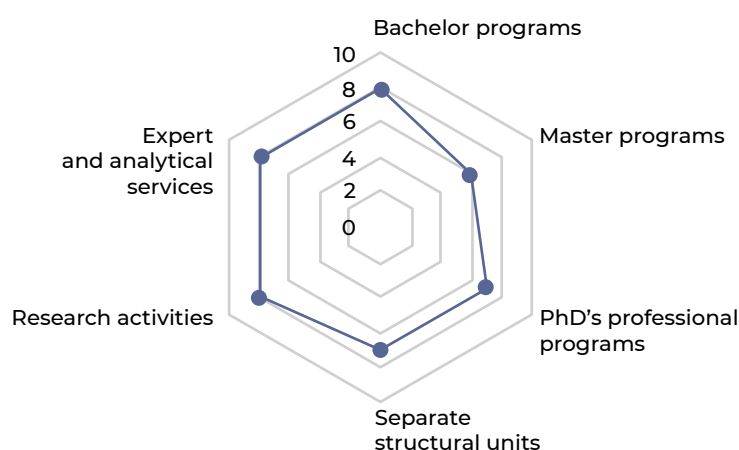


Fig. 4.

- ♦ Educational programs and courses related to the topic of international trade in agro-industrial complex are more presented for undergraduate students than for masters;
- ♦ At the same time, the student is given a great opportunity to form an individual educational program at the expense of minors;
- ♦ The career center is very well structured, and each program has a description of career prospects;
- ♦ There are many educational programs devoted to learning foreign languages, politics, chemistry, and design;
- ♦ The structure of UCD represents a large number of individual institutions that specialize in specific areas of research and consulting;
- ♦ The consulting activity's features lie in the greater patenting emphasis and licensing rather than preparation of expert-analytical materials;
- ♦ There is an active development of research activities among students.

2.5. UNIVERSITY OF QUEENSLAND (AUSTRALIA)



General information. The University of Queensland (UQ, Queensland state, Australia) was founded in 1909. It's one of the country's leading research and educational institutions. UQ is one of three Australian members of Universitas 21 (an international network of research universities) as well as one of the Go8 (Group of Eight) founders. UQ has more than 56,100 students (34,200 undergraduate students and 21,900 graduate and postgraduate students) including 13,300 international students from 141 countries. The university employs over 6,900 people.

In late 2013, UQ joined edX, the global leading consortium of massive open online courses (MOOCs), co-founded by Harvard University and the Massachusetts Institute of Technology.

The structure of UQ is divided into 6 faculties and 8 major research institutes. Each faculty is divided into several academic schools. Thus, the School of Agriculture and Food Sciences (SAFS) of the Faculty of Science is of the greatest interest. SAFS provides knowledge and develops skills, conducts research and creates innovation to ensure global food and water security and to create a more sustainable world.

One of UQ's 9 research institutes is the Queensland Alliance for Agriculture and Food Innovation. It consists of 4 interrelated research centers specializing in tropical and subtropical countries' food issues. The Global Change Institute is another unique research center that brings together researchers from various disciplines to address major social and economic problems. Thus, one of the activity areas is the agricultural emission reduction study.

Education. The UQ's system of educational programs has its own features. For example, there are several types of bachelor's programs (4-5-year or 3-4-year bachelor's programs, 1-year pre-graduate bachelor's programs, dual bachelor's programs, graduate certificate programs, and diploma graduate programs), master's and postgraduate programs, and individual courses for professionals.

1. Agribusiness bachelor's program

This 3-year program is focused on studying the commercial effectiveness of agricultural companies both at the regional and international levels. Graduates gain knowledge of agribusiness value chains | and other agribusiness-related issues including domestic and international marketing, commodity trading, personnel management and electronic technology to improve agribusiness efficiency.

There are also individual 1,5-year full-time Master of Agribusiness programs and 1 year full-time Graduate diploma in Agribusiness.

"Export Marketing and Practices", "Agrifood Strategy and Competitiveness", "Agricultural Economics" "Agribusiness Planning and Management", and "Agribusiness Investment Project Appraisal" are examples of the program's educational courses.

2. Agribusiness/Agricultural Science bachelor's program

This 4-year program is a dual degree program that includes the Agribusiness bachelor's program and an Agriculture program component specializing in agronomy, zootechnics or gardening. It was created in cooperation with international and Australian agricultural sector representatives.

3. Graduate certificate in Agribusiness

This 6-month program is designed for undergraduates in business or agricultural sciences as well as professionals who wish to enhance management skills or pursue an agribusiness career.

"Sustainable Food Supply Chains", "Agribusiness Planning and Management", "Applied Market Research", "Agribusiness Value Chain Management", "Agrifood Strategy and Competitiveness", "Agribusiness Investment Project Appraisal", "Agribusiness Marketing" are examples of program's educational courses.

At UQ, there are MBA programs that are not strongly industry-specific and cover topics such as business management and business administration, and doctoral programs that focus on areas such as wildlife science, crop production, rural and agricultural landscapes. UQ also provides other educational programs and courses, such as online courses and online MicroMasters programs ("Master of Business", "Corporate Innovation", "Leadership in Global Development"), professional development courses ("Leading Effective Teams", "Innovation for Growth"), individual courses for business, and short-term

professional development programs (for professionals in education and healthcare), but they are not clearly industry-specific.

Research activities. At UQ, scientific research covers more than 1,200 scientific issues, involving more than 4,800 researchers.

Of greatest interest for the subject of our study is the research activities of the School of Agriculture and Food Sciences (School of Agriculture and Food Sciences) which focuses on topics such as:

- ♦ Economics and agricultural development (examples of projects: “Research into the formal and informal flows of cattle in China, Vietnam, Laos, Thailand and Myanmar to understand the dynamics and integration of regional beef markets in Southeast Asia”; “Developing cassava production and marketing systems in Cambodia, Laos, Myanmar, Vietnam and Indonesia”);
- ♦ Agribusiness Management (examples of projects: “Vegetable and fruit value chain development and integration into community development in the southern Philippines”).

The China Agricultural Economics Group has been part of UQ since 1978 and is dedicated to the study of China’s agricultural trade and the development of China’s agricultural sector as a whole.

The Queensland Alliance for Agriculture and Food Innovation (QAAFI) is also a part of UQ. QAAFI serves as a research university supported by the Queensland state government and specializes in agricultural and food research in subtropical and tropical production systems. Its research focuses on such topics as agribusiness, value chains and bioeconomics; forecasting agricultural development; sustainable agrifood systems.

The QAAFI works with South East Queensland food producers and aims to turn innovations and ideas into sustainable production methods and commercially viable products. Thus, the QAAFI commercializes research and development activities results of UQ.

Expert and analytical activities. The School of Agriculture and Food Sciences offers a set of commercial services for businesses, authorities and non-governmental organizations in the form of access to laboratories and research equipment, and consultations and expertise on various food industry issues. For example, the Analytical Facility of the School of Agriculture and Food Sciences provides laboratory analysis of soil, plant, water, animal, and food materials.

The School of Agriculture and Food Sciences also provides professional consulting on developing management plans and business strategies, conducting preliminary studies on value chain analysis, sustainable rural development, agricultural markets, natural resource management, and creating digital doubles for food supply chains.

In 1984, UQ created UniQuest, a special research commercialization organization that helps to transform UQ’s technological advances into sustainable and demanded business results. UQ is leading among other universities of Australian Go8 in terms of commercialization revenues, the number of active startups and their capital value created from intellectual property of the university.

The UniQuest team provides high-quality commercialization expertise and helps gain access to world-class research, resources and intellectual property. The website shows a set of technologies available for licensing or investment.

Experts

- ♦ **Rajendra Adhikari** (PhD), a professor at the School of Agriculture and Food Sciences. Research interests: value chain analysis and development; agri-food policy and strategy; export marketing; consumer behavior; agribusiness.
- ♦ **Scott Waldron** (PhD), an associate professor at the School of Agriculture and Food Sciences. Research interests: agricultural trade between Australia and Asia; international agricultural development; agricultural development in Asia; agricultural policy and agribusiness.

- ♦ **Risti Permani** (PhD), a senior lecturer at the School of Agriculture and Food Sciences. Research interests: beef and dairy supply chains; agricultural trade; adoption of agricultural innovation by small producers; e-commerce of agricultural products.
- ♦ **Zannie Langford** (PhD), a research fellow at the School of Agriculture and Food Sciences. Research interests: food security; Indonesia's value chains; rural development.

Conclussions

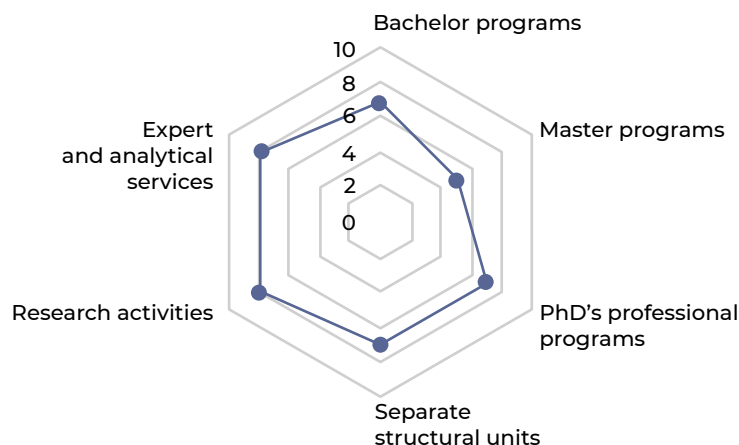


Fig. 5.

- ♦ UQ offers a wide variety of bachelor's degree programs to meet any student's tasks lasting from 6 months to 4 years. Individual online courses and programs are also widely represented;
- ♦ There are no separate educational programs on the international trade in agricultural products but there is a sufficient number of courses on relevant topics (such as value chains);
- ♦ UQ actively conducts scientific and research activities and establishes well-developed infrastructure (laboratories). It also has created an individual company which is engaged in commercialization of the scientific activity results;
- ♦ Consulting activities range from access to laboratories and pastures to licensing and expert advice;
- ♦ The website provides a detailed description of all activity areas including profiles of researchers and experts

2.6. CHINA AGRICULTURAL UNIVERSITY (CHINA)



General information. China Agricultural University (CAU), which was founded in 1905 (Beijing), specializes in a wide range of areas such as agriculture, management, economics, biology, veterinary medicine, humanities and social sciences. Currently CAU has over 19,000 students (more than 12,000 undergraduates, 4,300 master's degree students and 2,700 doctoral degree students), more than 200 postdoctoral researchers and over 1,500 academic staff.

The structural units of CAU are:

- ♦ **The College of International Development and Global Agriculture** (founded in 2020) which specializes on international development and global agriculture issues;
- ♦ **The College of Economics and Management** which specializes in agricultural market research, international agricultural trade, agro-economics and other issues.

Education. CAU offers more than 60 undergraduate programs, 170 master's programs and 90 graduate programs to its students. Bachelor's programs are implemented in Chinese, and master and doctoral programs are implemented both in Chinese and in English. CAU has joint educational programs with more than 200 universities from 44 countries which allows it to attract international students and fulfill the "global university mission".

1. Agricultural Economics and Management master's program

The program was implemented by the College of Economics and Management and specializes in agribusiness development, agricultural trade, rural economics, global agricultural development trends and the environment.

"Agricultural Market and Trade", "Agribusiness Management", "Agricultural Finance", "Agricultural Economic Institutions", "Agricultural Market and Trade" are examples of the program's educational courses.

2. International Development Policy and Governance master's program

The program was developed by the College of International Development and Global Agriculture and specializes in the study of public administration systems in developing countries and international development, and the analysis of effective public policy instruments.

"Government Policy Analysis", "Public Administration", "International Development Cooperation", "China Development Models" are examples of the program's educational courses.

3. International Development Policy and Governance postgraduate program

This program is the continuation of the master's program with the same name. It focuses on the study of rural development and management, and international cooperation in the field of agriculture.

"Global Agriculture Management", "African Studies and International Development", "Modern Regional Development Planning and Management", "Environmental and Natural Resource Economics", and "Innovative Economics and Management" are examples of the program's education courses.

4. The General Management Professional Program

The program was developed by the College of Economics and Management in cooperation with CAU MBA Education Center. This program focuses on agribusiness and private enterprise management by providing systematic business-related knowledge and practical case studies. It is taught in English and offers the opportunity to study abroad. The program itself was recognized by the AACSB.

Research activity. CAU colleges are structured with research centers, institutes, and laboratories.

The College of Economics and Management has established research centers (e.g., "Beijing Food Safety Policy and Strategy Research Center" and "International Agricultural Products"), 7 research institutes (including "Center for Agricultural Market Research", "Institute for Global Food Economics and Policy" and "Institute for Planning and Logistics Development"), and 14 academic-level research institutions (including "International Agricultural Trade Research Center", "Research Center for Strategy and Solutions",

“China Agricultural Brand Research Center”, “China Agricultural Industry Chain Research Center”). Many employees serve as consultants to international organizations such as the World Bank and FAO.

This college publishes the international “China Agricultural Economic Review” academic journal. Annually the journal's editors and the International Food Policy Research Institute (IFPRI) hold joint international academic conferences on Chinese and global agricultural economics.

Thus, the College of Economics and Management research activities focus on the study of such issues as changing global and Chinese agri-food systems, agricultural logistics, WTO's agricultural negotiations, agricultural tariff policy, international agricultural competitiveness, international market analysis of agricultural products.

The National Academy of Agriculture Green Development focuses on research commissioned by the Chinese government on the issues of safe agricultural production in China, China's environment protection, healthy food, agricultural equipment modernization, regional agriculture and the development of agricultural areas. The Academy's partner is Wageningen University & Research (also considered in this study).

Expert and analytical activities

The CAU website indicates that its staff has long been acting as consultants and conducting research for government organizations (Chinese Ministries of Education, Agriculture, and Science and Technology) and international intergovernmental organizations (UN, World Bank, EU and Asian Development Bank). However, there is no more available information on the Website.

Experts

- ♦ **Chunding Li** (PhD), a professor and the director of the Economics and Trade Department at the College of Economics and Management. Research interests: international trade and investment; agricultural trade and international cooperation; economic policy; modeling and simulation.
- ♦ **Yijun Han**, a professor at the College of Economics and Management. Research interests: agricultural market; agricultural trade; investment and industrial development.
- ♦ **Yumei Zhang**, a researcher at the Institute of Agricultural Economics and Development. Research interests: agricultural policy and agricultural market analysis.
- ♦ **Zhigang Chen**, professor. Research interests: agriculture and food value chain analysis; food health policy modeling; poverty reduction strategies.
- ♦ **Tian Zhihong**, a professor and the director of the International Agricultural Trade Research Center. He is also the academic director of the School of Economics and Management. Research interests: international trade in agribusiness products; agricultural market and food policy.

Additional information:

There is a separate website (link: admissions.cau.edu.cn/en/index/index) in English for international students which contains all necessary information about the university, its educational programs, extracurricular activities and more. It is an effective tool for attracting international students.

Conclusions.

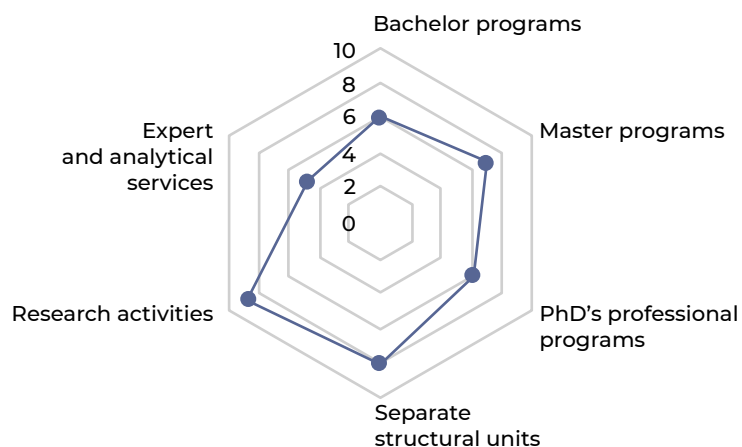


Fig. 6.

- ♦ CAU is one of the world's leading agricultural universities focused on educating students from around the world and conducting world-class research;
- ♦ Relevant programs are presented for graduate students;
- ♦ For all its scale, the CAU has been quite expeditious in creating individual colleges to meet the challenges (for example, the College of International Development and Global Agriculture, which was established in 2020);
- ♦ Research activities are concentrated in some separate highly specialized scientific centers (for example, the International Research Center of Agricultural Trade);
- ♦ University's consulting activities information is practically unavailable on the website of CAU.

2.7. MICHIGAN STATE UNIVERSITY (USA)



General information. Michigan State University (MSU) is a public education and research institution founded in 1855 (East Lansing, Michigan). The university has more than 49,600 students (more than 38,500 undergraduates and 11,100 graduate and professional students) and over 12,000 employees. MSU has more than 200 academic programs. The total research funding amount was \$713 million.

There are 21 scientific and educational divisions within MSU including:

- ♦ **The College of Agriculture and Natural Resources (CANR)** which specializes in the study of food, health, and the environment issues;
- ♦ **The Broad College of Business (BCB)** which specializes on business education, studying the commodity marketing and logistics including those of agricultural products.

Education. The educational programs system is typical for the American educational system and includes undergraduate, graduate and postgraduate programs which are presented as majors and minors.

1. B.S. (Bachelor of Science) Agribusiness Management program

This program was developed by CANR. It focuses on the study of agricultural development and international business and offers a world-class business education as well as building management skills and functions needed in the agribusiness sector (farm management, agricultural procurement and marketing, global food issues, etc.).

“Global Agri-Food Industry and Markets”, “Agribusiness and Food Industry Sales”, “Food Product Marketing”, “Supply Chain Management”, “Decision-making in the Agri-Food System”, and “Data Analysis for the Agri-Food System” are examples of program’s education courses.

2. B.S. Food Industry Management program

Another CANR-developed program focusing on food system development, product and commodity marketing, statistics and supply chain issues. Graduates of this program are employed by such companies as Kroger, Coyote Logistics, Target, Kellogg’s, Coca-Cola, Daymon, The Hershey Company, and The Clorox Company.

“Global Agri-Food Industry and Markets”, “Decision-making in the Agri-Food System”, “Data Analysis for the Agri-Food System”, “Food Product Marketing”, “Supply Chain Management”, and “Strategic Management for Food and Agribusiness Firms” are examples of program’s educational courses.

3. Supply Chain Management bachelor’s program

This program was developed by BCB. It aims to develop students’ knowledge of supply chain management as a complete system that considers production operations, purchasing, transportation and physical distribution of commodities including agricultural products.

“Procurement and Supply Chain Management”, “Logistics and Supply Chain Management”, “Data Analytics in Supply Chain Management”, and “Integrated Supply Chain Management” are examples of the program’s educational courses.

There is also an individual Master’s in Supply Chain Management program.

4. Ph.D. Food and Agricultural Economics program

This program provides students with comprehensive skills for solving economic and management problems in agricultural and food systems. They master methods of applied econometric analysis for commodity production, supply and demand, and price formation.

The program’s research covers a wide range of topics including examining the food systems structure to improve management practices and economic performance of commodity markets and the agricultural industry. The program also conducts economic research to better understand the agricultural and food decision-making process, as well as analyze the economic impact of agricultural and food policies.

“Political Economy of Agricultural and Trade Policy”, “Analysis of Food System Organization”, “Experimental Methods in Food and Agricultural Economics”, “Information Economics and Institutions in Agriculture and Natural Resources” are examples of the program’s educational courses.

5. Applied Development in the International Agriculture and Natural Resources minor program

This course provides students with the knowledge and experience necessary for a career in international agriculture.

“Problems of International Agriculture”, “Applied International Development”, “Global Agribusiness and Marketing”, “International Agricultural Systems”, “World Food, Population and Poverty” are examples of the program’s educational courses.

6. Other programs and courses.

MSU has a wide range of online programs including those that are in procurement and supply chain management areas (multisectoral specifics):

- A.** Master Certificate in Advanced Procurement Management – Global Supply Chain;
- B.** Master Certificate in Supply Chain Management and Operations;
- C.** Master Certificate in Supply Chain Management and Procurement;
- D.** Advanced Master Certificate in Integrated Supply Chain Management.

MSU also offers a wide range of business education programs (multi-industry specific) such as MBA and Executive MBA. “Leadership and Teamwork”, “Applied Economics”, “Managerial Communication Strategy and Tactics”, “Marketing Management”, “Organization Analysis”, “Organization Environment Analysis”, “Change and Innovation Management”, “Strategy Development in a Global Environment” and “Current Issues in Business” are examples of educational courses.

Research activity. MSU actively develops research activities as evidenced by the \$713 million funding it received last year. MSU has more than 100 research centers and institutes. A number of centers and institutes are directly supervised by The Office of Research and Innovation while others are directly managed by their specialized colleges.

- 1. AXIA Institute** (former Midland Research Institute for Value Chain Reaction) was founded in 2013 and reports directly to The Office of Research and Innovation. It develops effective and sustainable solutions to improve the value chain: value chain optimization, data analytics, RFID technology, smart packaging, anti-counterfeiting, water and food safety. One of AXIA’s key research areas is the study of global logistics and transparency in the international supply chain of goods, including agricultural products.
- 2. The Center for Economic Analysis** (CEA) was founded in 2006 to provide research and data services to universities, businesses and governments on economic impact assessment. The CEA has a Product Center that helps companies in Michigan’s agricultural sector to develop and launch new products and services in food markets.
- 3. The Agricultural Institute** for Food Laws and Regulations offers online courses for MSU graduates on the legal regulation of agricultural products:
 - ♦ The Agricultural International Food Laws and Regulations focuses on agricultural products’ regulation on the national and global levels (Codex Alimentarius, the US, EU, Japan, India, Australia, New Zealand regulation and EU’s genetically modified products regulation).
 - ♦ Global Animal Health, Food Safety, and International Trade.
 - ♦ Separate courses on agricultural regulation in the US, EU, Canada, China.
- 4. The Statistical Consulting Center** (SCC) assists in developing, analyzing and interpreting statistical data. The SCC offers free statistical advice to faculty, alumni and students in the College of Agriculture and Natural Resources or AgBioResearch, as well as access to electronic resources.

Expert and analytical activities. The MSU Product Center offers a range of consulting services for businesses: from business planning to market analysis, from scientific support to technical services. Thus, the most relevant services are:

- 1. Business ideas development** - assistance in the development of an innovative idea into a full-fledged business concept.
- 2. Business development** – development of a business plan, marketing research for specific agricultural products, assistance in the development of distribution channels.
- 3. Market research** - providing information on the agricultural value chain including market analysis, economic impact research and consumer analysis.
- 4. The MarketMaker** - an interactive online mapping resource that puts together all the links in the agricultural supply chain (farmers, processors, retailers, consumers, HoReCa).
Link: mi.foodmarketmaker.com
- 5. Advanced technical and economic studies** - providing feasibility studies, conclusions on packaging, labeling and logistics, food value analysis of raw materials, and sensory testing.
- 6. Strategic government support** - economic, business and marketing research that contributes to the strategic growth of the food and agriculture sector in Michigan.
- 7. Making It In Michigan** - an annual agricultural trade show featuring an educational program and networking opportunities with retail buyers who promote the expansion of food or agricultural business.

Experts

- ♦ **Bill Knudson** (PhD), a College of Agriculture and Natural Resources and Food Center professor. Research interests: agricultural and food markets analysis; agrarian policy; agribusiness and rural development.
- ♦ **Titus O. Awokuse** (PhD), a College of Agriculture and Natural Resources and Food Center professor. Research interests: agricultural markets and price analysis; international economics; food security and supply chain issues.
- ♦ **Dave D. Weatherspoon** (PhD), a College of Agriculture and Natural Resources and Food Center professor. Research interests: food supply chains; food industry management, agribusiness management.
- ♦ **Nicole Mason-Wardell** (PhD), an Associate Professor at the College of Agriculture and Natural Resources and Food Center. Interests: food security and poverty reduction strategies in Africa; resource and agricultural product markets; issues of agricultural environment and development intersection; sub-Saharan Africa geographic focus.
- ♦ **Christopher Peterson** (PhD), a College of Agriculture and Natural Resources and Food Center professor. Research interests: agribusiness management (including globalization strategies); supply chain management; strategic planning techniques; agriculture marketing.

Additional information

- 1. The College of Agriculture and Natural Resources** has many student clubs: “Agriculture, Food and Natural Resources Education Club”; “Agronomy Club”; “Collegiate Farm Bureau”; “Leadership in Environmental and Agricultural Field”; “National Agrarian Marketing Association”.
- 2. MSU** has a large-scale AgBioResearch project that conducts cutting-edge research on agricultural development, natural resource conservation, economic prosperity, and life quality. Priority areas of research and development: food safety and security; sustainable and profitable agriculture, and natural resource systems; climate and environment adaptations.
- 3. The Food Security Group** is a group of MSU faculty and researchers who do research on food security policy focusing primarily on African countries. “Nigeria Agricultural Policy Activity” and “Food Market Assessment” are its current projects.

4. The Feed the Future Innovation Lab for Food Security Policy generates, summarizes and disseminates new knowledge (data) on food security issues for policy planning and implementation at national, regional and global levels. Feed the Future is the US government's global initiative to combat malnutrition and food insecurity. The Lab operates in 14 countries in Africa and 10 countries in Asia.

Conclusions

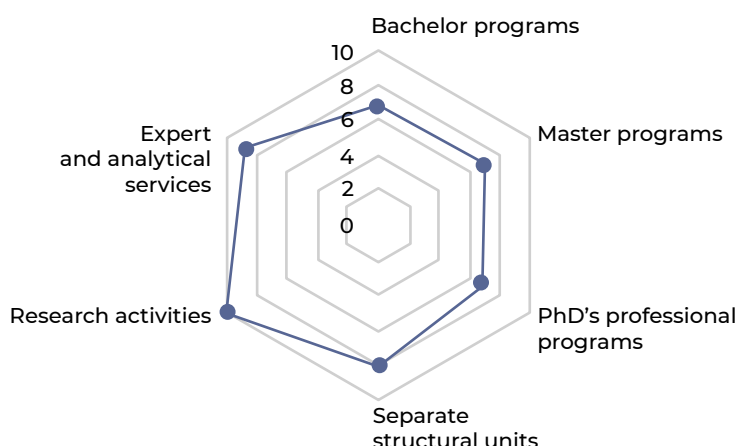


Fig. 7.

- ♦ MSU can be called one of the brightest examples of competence centers for agricultural international trade;
- ♦ It is worth noting a large number of relevant bachelor's and master's degree programs, and especially individual courses on highly specialized topics;
- ♦ The structure of MSU and the management system deserve special attention - most scientific and research centers are subordinate to specialized colleges, and a number of others - to the Office of Research and Innovation;
- ♦ Faculties and researchers actively cooperate with representatives of business, government and international organizations;
- ♦ One of the areas of research activity is food security issues, in connection with which the Food Security Group and the Laboratory were created;
- ♦ Key consulting services for the development of agricultural markets including international trade, are concentrated in a separate MSU's structural unit - The Product Center.

2.8. GHENT UNIVERSITY (BELGIUM)



General information. Ghent University (GU) is one of the largest universities in Belgium, founded in 1817 in Ghent, Flanders. The university has about 49,000 students and 15,000 employees.

The university has created more than 200 educational programs and conducts research on a wide range of topics. The university's teaching is mainly in Dutch with significantly fewer programs in English. But GU has an advantage in a very wide network of international partner universities that facilitate interdisciplinary research opportunities allowing students to take courses on other venues in English.

The university's structure is highlighted with 11 faculties which train best specialists in veterinary medicine, biology, chemistry, psychology, economics and other disciplines. The university also offers socio-humanities disciplines such as archaeology and history.

The topics relevant to our study are mainly represented in the Department of Agricultural Economics of the Faculty of Bioscience Engineering which develops programs and courses on socioeconomic issues related to agricultural economics, business management, agri-food marketing and supply chain management, agricultural, food and environmental policy, and consumer behavior.

Education. In addition to classical levels of training (bachelor's, master's and postgraduate degrees) the university offers international exchange programs, accelerated master training programs, advanced training programs and international courses of choice which are available through a wide network of international partner universities formed through participation in the Erasmus Mundus program.

1. Master of Science in Rural Development program

The goal of this program is to train specialists who contribute to the solution of socio-economic and agricultural problems in rural areas. The interdisciplinary approach, the comparative study of EU and non-EU models, the flexible curriculum, and unique mobility requirements encourage students to gain a broad understanding of rural development and create an international network of contacts. This program is implemented jointly by 15 leading universities in the socio-economic and environmental sciences.

"Agricultural and Rural Policy", "Applied Agricultural Economic Research Methods", "Agroecology and Food Sovereignty" are examples of the program's educational courses.

2. Master of science in Economics of Globalization and European Integration program

This program is designed for students interested in gaining skills of analyzing globalization and economic integration as well as developing appropriate political or strategic recommendations in the public and private sectors. Within the program, learners can choose to specialize in globalization and emerging market economies, international economic policy, EU's financial and economic issues, and others.

"International Trade", "Trade Policy Analysis", "International Management", and "International Trade Agreements" are examples of the program's educational courses.

It is also worth noting that the staff of the Department of Agricultural Economics of the Faculty of Bioscience Engineering lectures on such topics as: "Advanced Marketing and Agribusiness Management"; "Project Management in Agriculture"; and "Food Marketing and Consumer Behavior".

Research activity. GU is actively developing research activities. Thus, the following scientific groups are active within the framework of the Faculty of Bioscience Engineering:

- ♦ **Agri-food marketing and consumer behavior.** This research group brings together competencies and expertise in such scientific disciplines as economics, agri-food marketing, consumer behavior, market research and marketing, risk perception, communication, and health promotion.
- ♦ **Institutional, Socio-economic and Political Issues in Rural-urban Area (INSPIRA).** The main focus of this research group is the study of issues related to food production, safety and management, and social and environmental justice.
- ♦ **Modelling and Optimisation of Decisions in Economics, Resources, Nature and Agriculture (MODERNA)** is a group of researchers focused on developing integrated models, combining bio-

physical and economic aspects, to evaluate agricultural and environmental policies related to the nitrogen cycle and the overall EU environmental policy in agricultural.

- ♦ **Agri-food marketing and management.** This research group aims to become a leading center for the development and dissemination of knowledge in agri-food marketing and management. The project list covers a wide range of agricultural markets: from research in the European Union to capacity building in developing countries.

Expert and analytical activities. GU offers a variety of consulting services including analytical, measurement, testing and certification services, preclinical and clinical research, access to and storage of microbiological and genetic material.

Thus, the Department of Agricultural Economics of the Faculty of Bioscience Engineering offers a variety of consulting services to government agencies, businesses, and educational institutions, including:

- ♦ Marketing research for the agro-industrial complex;
- ♦ Consultations on the supply of agro-industrial products to foreign markets.

Also, within the GU structure there is a separate specialized structure - Food2Know - which serves as a link for businesses, public authorities and other participants related to animal nutrition, agribusiness products and health, and provides a wide range of services in the form of research and consulting.

Food2Know implements a CUSTOMEAT (artificial meat) project which aims to increase artificial meat production knowledge and contribute to the technology required for meat production. These issues are solved by combining experience in biomedical research with food technology know-how.

Out of the many GU projects, a EUREKA project deserves special attention. It will be a European Repository (FarmBook) that consolidates the best agricultural knowledge and practices from research, events and strategies of the Horizon 2020 projects. The Repository is presented as an electronic platform with open-access for the world's leading producers and exporters of agricultural products. It was developed with the participation of 16 member countries and 48 organizations. Link: www.eurekanetwork.org

Experts

- ♦ **Wim Verbeke** (PhD), a Department of Agricultural Economics of the Faculty of Bioscience Engineering professor and the head of the INSPIRA research group. Courses taught by him: "Advanced Marketing and Agribusiness Management" and "Food Marketing and Consumer Behavior". Field of interests: B2B marketing; consumer behavior.
- ♦ **Xavier Gellynck** (PhD), a Department of Agricultural Economics of the Faculty of Bioscience Engineering professor and the head of the Agri-food marketing and supply chain management research group. Research interests: agribusiness management; B2B agri-food marketing; optimization of agricultural value chains and networks; lean management.
- ♦ **Hans De Steur** (PhD), an associate professor of the Department of Agricultural Economics of the Faculty of Bioscience Engineering. A member of the Agri-food marketing and supply chain management research group. Research interests: agri-food marketing.

Conclusions

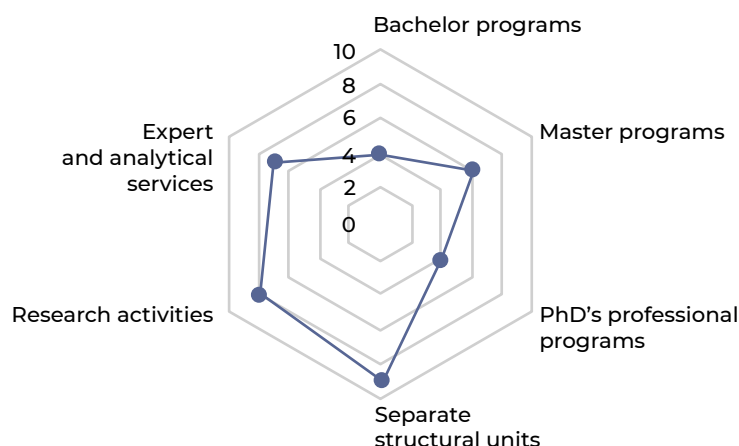


Fig. 8.

- ♦ GU does not offer bachelor's degree programs that are fully relevant for our research, and master's degree programs are poorly represented. However, it is worth noting the wide range of international interdisciplinary educational programs;
- ♦ GU has a large number of separate structural units which specialize in the study of specific agricultural international trade issues;
- ♦ Participation in the Erasmus Mundus program helps to optimize costs and freed-up funds can be used for additional research;
- ♦ The university is involved in many national projects funded by the EU such as the Horizon 2020 project;
- ♦ There is also the EUREKA project, an online repository of the EU's knowledge and agricultural practices that were received as a result of experts' partnership from 21 organizations of 15 countries created as part of 120 national projects.

2.9. UNIVERSITY OF BRITISH COLUMBIA (CANADA)



General information. The University of British Columbia (UBC), founded in 1908, is one of the leading public research universities of Canada. Education is conducted on two Canadian campuses: Vancouver Campus (Vancouver) and Okanagan Campus (Kelowna). The UBC has around 19,000 employees including 8,000 faculty and researchers, as well as 71,000 students.

The university has about 26 faculties and schools located on two campuses. The issues of our interest are most widely represented at the Faculty of Land and Food System. The staff conducts research to address global challenges in sustainable food systems and management of scarce resources.

Education. The university offers an approximate total of 500 bachelor and master degree programs.

1. Bachelor of Food and Resource Economics program

This program specializes in the study of local and global food production and distribution through economical and business management lenses. In the process students will also learn about market constraints and governments' role in making the global food distribution more efficient and equitable.

"International Trade", "Economics of Global Resource Use and Conservation", "Food and Resource Economics", "Introduction to Global Food Markets", and "Understanding Globalization" are examples of the program's educational courses.

2. Bachelor Global Resource Systems program

In this program students gain an understanding of natural and agricultural resources from an international development perspective. During the fifth training unit students choose one of two tracks: a regional (African Studies, Asia-Pacific courses, American courses and European courses) or resource specializations (agribusiness, international trade and development, health and nutrition, planning, and sustainable agriculture).

"International Agricultural Development" is an example of the educational courses of the program.

3. Master of Food and Resource Economics (MFRE) program

MFRE is a unique one-year professional development program combining economics, politics and business from the perspective of agriculture, food, natural resources and the environment. This degree combines the economical and analytical rigor of a master's degree with the MBA's business and management elements, and gives students the ability to analyze real-world problems using applied economics and quantitative skills.

"Commodity Markets and Price Analysis", "Financial and Marketing Management in Food Industry", "Food Market Analysis", "Commodity Futures Trading", and "Strategic Economic Analysis of Agri-Food Markets" are examples of the program's educational courses.

4. Master of Integrated Studies In Land and Food Systems program

This program aims to explore food systems and develop sustainable solutions for a more integral and healthier world. Students conduct interdisciplinary research that addresses priority food system issues ranging from food production, processing, distribution, access, consumption and food waste management.

"Introduction to Global Food Markets" and "International Agricultural Development" are examples of educational courses of the program.

Research activity. The Faculty of Land and Food Systems is an aggregator for a wide variety of research groups with the common goal of identifying essential sustainable food systems elements and striving to develop and implement solutions of critical issues affecting local and global problems in food supply chains. Staff conduct cutting-edge research in such areas as: eradicating malnutrition and improving food security; confronting climate change and building sustainable food systems; promoting nutrition and well-being for healthier communities and others.

There are 4 research centers in the structure of the faculty. The Center for Food, Resource and Environmental Economics (CFREE) deserves special attention. CFREE members include environmental, resource and food economists from the Departments of Land and Food Systems, Arts, Applied Sciences and Forestry, as well as from the Sauder School of Business. CFREE has formed research groups including the Food and Resource Economics Group which studies the interaction between food production and the environment through the application of economic analysis.

The Centre for Sustainable Food Systems (CSFS) is also a part of the faculty's structure. It was formed for co-creating scientific knowledge, tools, and designs for a sustainable global food system development. CSFS research focuses on the social, environmental and economic sustainability of food systems. The interdisciplinary and collaborative research network supported by CSFS covers many topics: from land administration to indigenous food sovereignty; from sustainable organic and traditional food production methods to ecosystem services.

UBC Farm is the primary facility that supports teaching, research and community engagement at the CSFS, and serves as a laboratory where many research ideas are developed and tested.

Expert and analytical activities. UBC offers a wide range of services for businesses, public authorities, nonprofit organizations and institutions. The Centre for Innovation, which operates within the structure of the university, offers these services:

- ♦ **Research conducting.** UBC's experts work with industry, government and non-profit organizations on commercial terms. UBC creates more than 1,300 collaborative projects between its researchers and industry partners each year.
- ♦ **Patenting and licensing.** UBC strives to generate knowledge that has a lasting impact on society. These impacts can be in the form of new products, services and companies (patenting, licensing, start-ups and other forms of partnerships).

Additional areas of consulting services:

- ♦ **Infrastructure database.** UBC's database allows researchers, other universities, nonprofit organizations and industries to use UBC's research equipment. The database is intended to be a tool for maximizing the use of infrastructure, encouraging and sharing knowledge among researchers, and improving collaboration. Work on the database continues, with new equipment being added all the time.
- ♦ **Research Facilities Navigator.** Provides a searchable online catalog of funded research labs and facilities open to collaboration with businesses meeting their research and innovation needs.

Experts

- ♦ **Kelleen Wiseman** (PhD), MFRE Academic Director & Manager. She has multidisciplinary experience in agri-food and marketing sectors in Canada and the United States. Research interests: small business management in the agri-food industry; financial and marketing management in the agri-food industry; economics of food and resources.
- ♦ **Richard Barichello**, PhD, a Food and Resource Economics of the Faculty of Land and Food Systems professor. He teaches the "Introduction to Global Food Markets" course and was an advisor to the Vietnamese Prime Minister and Minister of Agriculture Advisory group. Research interests: the impact of selected agricultural policy instruments analysis; trade, industrial and agricultural policy reform in Southeast Asia countries; the economics of raw material export bans; state trading enterprises and WTO rules.
- ♦ **James Vercammen** (PhD), a Food and Resource Economics of the Faculty of Land and Food Systems professor. He teaches the "Economic Analysis of Agri-Food Markets" and "Commodity Markets and Price Analysis" courses. Research interests: agricultural markets and agroecological contracts; agricultural policy.
- ♦ **Carol McAusland** (PhD), a Food and Resource Economics of the Faculty of Land and Food Systems professor. He teaches the "The Economics of International Trade and the Environment", "Economics of Food Consumption", "Food Market Analysis" courses. Research interests: trade liberalization; WTO activities; climate policy; regulatory charges and environmental policy (carbon footprint taxes and vehicle subsidies).

- ♦ **Matias E. Margulis**, PhD, a School of Public Policy and Global Affairs of the Faculty of Land and Food Systems professor. Research interests: global food policy; global food crises; international legal regulation of agricultural trade; the UN (FAO) and the WTO activities.

Additional information

The University of British Columbia is implementing a Feeding Growth project that supports and scales progressive food brands and producers operating in British Columbia (Canada). Project participants believe that British Columbia can become an internationally recognized center of innovation and production of environmentally progressive, natural and organic, ethical and socially responsible foods for the retail and FMCG sector. Link: ubcfarm.ubc.ca/feeding-growth.

Conclusions

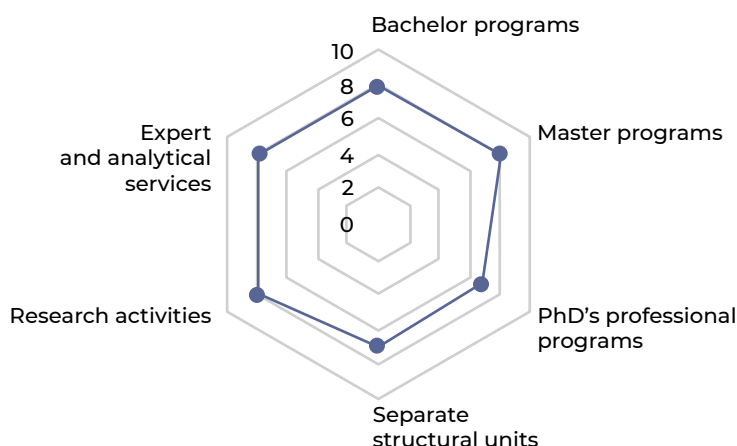


Fig. 9.

- ♦ The system of educational programs is classical (bachelor's degree, master's degree, postgraduate education). The UBC has several bachelor's and master's degree programs in agricultural international trade. There are also PhD programs;
- ♦ Practically, there are no short specialized courses on topics of our interest;
- ♦ There are 4 established industry research centers at the Faculty of Land and Food Systems. One of them is the Center for Food, Resource and Environmental Economics which has separate research groups: Food and Resource Economics Group and the Public Health and Urban Nutrition Group;
- ♦ There is also an Innovation Center that commercializes the results of UBC's scientific activities and offers commercial services to businesses, governments, non-governmental organizations, etc.;
- ♦ There are many extracurricular projects: "Feeding Growth", "UBC Food Services", "Agronomy Garden" and others.

2.10. UNIVERSITY OF COPENHAGEN (DENMARK)



General information. The University of Copenhagen (UC) founded in 1479, is one of the oldest universities in Denmark and second Scandinavian oldest university. It has more than 13,000 employees including 9,000 research staff and 36,000 students. UC has about 100 different institutes, departments, laboratories, learning centers and museums.

The issues of interest to us are dealt with by the Department of Food Economics and Resources of the Faculty of Sciences, whose subjects of activity are:

- ♦ Environment and resources;
- ♦ Food production, agricultural markets and policy;
- ♦ Global development;
- ♦ Food consumption, nutrition and health.

Education

1. Bachelor's programme in Environmental and Food Economics (formerly Agricultural Economics) (in Danish)

In this program students receive an economics education focusing on agriculture, environment and international relations. They work with such areas as world trade, globalization, climate and inequality. The students are trained in economic theories and methods to understand how to solve specific social problems. This makes students in demand among employers in the financial sector, multinational companies, authorities, non-governmental organizations and consulting companies.

"Food Policy", "Environmental and Natural Resource Economics", and "EU Law - Environment, Agriculture and Food" are examples of educational courses of the program.

2. Master's programme in Agricultural Economics

Students develop a broad knowledge of the agricultural economy and public policy including production and operations of agribusiness companies. It also advances skills in applying econometric methods and tools of international economy analysis, the environment and food industry economics.

"International Trade", "Contracts and Cooperation", "Agricultural Value Chains in Developing Countries" and "Computational Policy Analysis Methods for Agribusiness Markets" are examples of educational courses of the program.

3. Master of Science in Integrated Food Studies programme

In this program students study the issues of production, processing, distribution and consumption of agricultural products from the point of view of natural and social sciences. They learn how to analyze problems and propose ways to develop food systems to promote the agricultural sector, quality nutrition and health care for a growing global population.

"Food Systems", "Food System Innovation", "Sustainable Food Systems and Diets", and "Agricultural Consumer Research" are examples of educational courses of the program.

Research activity. The Department of Food and Resource Economics specializes in food and natural resource economics. There are 4 scientific sections within the Department, two of which are the "Global Development" section and the "Production, Markets and Policy" section.

Within the "Global Development" section, UC staff members are engaged in interdisciplinary research on livelihood, small scale industry, trade and labor; climate change mitigation and adaptation; forest and natural resource management. Researches are currently carried out in Cambodia, Vietnam, Indonesia, Nepal, India, Bangladesh, Kenya, Tanzania, Ethiopia, Mozambique, Ghana, Burkina Faso and Senegal.

“The Future of the Animal Feeding Sector: The Triple Challenges of Income and Demographics, Climate Change and Trade Policy Uncertainty”, “Agricultural Growth and Poverty Pockets”, “Opportunities and Dynamics of Agribusiness Innovation Systems” are the section's projects.

Within the “Production, Markets and Policy” section, UC researchers conduct basic and applied research in business, microeconomics and macroeconomics focusing on the national and international food sector. Research examples include such subject areas as the permanence of agricultural support in the EU and the United States, the economic and political implications of multilateral and bilateral trade negotiations on agribusiness. It also includes the food price crisis, the climate change impact and adaptation strategies for small farmers in Northern Ghana, and the investment impact on the productivity of Danish pig farms.

The Section has a Research Group, which studies agricultural and food markets and public policy. The group focuses its scientific interest on international agricultural trade and international agricultural commodity markets.

Expert and analytical activities. The Department provides public authorities with research-based consulting services on economic issues related to food, agriculture, fisheries and the environment. The consulting takes the form of written reports and analyses as well as the participation in committees and target groups' activities. The main users of these services are the Ministry of Environment and Food (Denmark) and other institutions and ministries. The consulting reports are used by ministries in preparing for international negotiations, evaluating bills, action plans, etc.

UC offers external contractors the opportunity to contract with a researcher for consulting services (graduate students actively participate in the program). It is also possible to enter into a license agreement for UC inventions.

Experts

- ♦ **Henning Otte Hansen** (PhD), a Department of Food and Resource Economics professor. The head of the “Production, Markets and Policy” section. He works with food holdings and cooperatives, and explores their role in value chains and international competitiveness development. Research interests: international food business; globalization and food markets
- ♦ **Carsten Daugbjerg** (PhD), a Department of Food and Resource Economics professor and head of the “Production, Markets and Policy” section. Research interests: agricultural policy reform; public and private food standards in global trade; agri-environmental regulation; organic food policies; agricultural trade negotiations in the World Trade Organization.
- ♦ **Aske Skovmand Bosselmann** (PhD), an associate professor at the Department of Food and Resource Economics. He lectures an “Agricultural Value Chains in Developing Countries” course and takes part in research projects related to the socio-economic aspects of smallholder farming and agricultural value chains, for example Breedcafs (EU H2020), Climcocoa (FFU - DANIDA) and WeFoCoS (Nordic Climate Facility).
- ♦ **Wusheng Yu** (PhD), a Department of Food and Resource Economics professor. Research interests: international trade; agricultural trade policy; global animal feed market; agricultural and food policy.

Additional information

UC is a member of several international alliances. Three of the most important alliances are: The International Alliance of Research Universities (IARU), The League of European Research Universities (LERU) and 4EU+.

Conclusions

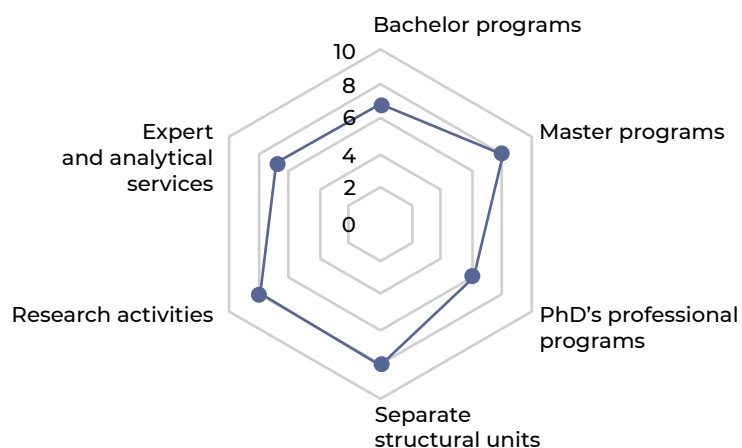


Fig. 10.

- ♦ UC's international agricultural trade competencies are concentrated in the Department of Food Economics and Resources of the Faculty of Science;
- ♦ The agricultural international trade specifics are primarily considered in the study of master's programs rather than the bachelor ones;
- ♦ The branched organizational structure confirms the UC's ability and interest to focus on individual scientific issues including the agricultural international trade;
- ♦ UC's podcasts are created for research which is a non-trivial popularization of scientific activity results.
- ♦ Consulting activity is represented by providing expert and analytical information mainly to the public sector. At the same time consulting services are also provided to agribusiness representatives

2.11. NANJING AGRICULTURAL UNIVERSITY (CHINA)



General information. Nanjing Agricultural University (NAU) was founded in China in 1902 and is one of the oldest in its field. The university has more than 25,500 students and 2,700 faculty members. NAU specializes in natural sciences, economics, management, engineering, humanities and law. It partners with more than 150 universities and research institutes of more than 30 countries through joint educational and research programs, and academic exchanges. In particular, there are joint programs with the University of California, Davis (USA), the University of Reading (UK), the University of Western Australia (Australia) and Massey University (New Zealand).

NAU has 18 colleges including the College of Agriculture, the College of Economics and Management, the College of Resources and Environmental Sciences, and the College of Food Sciences and Technology.

Education. NAU presents a socialist education system with Chinese specifics. It has developed bachelor's degree programs in 62 specialties, master's degree programs in 31 specialties, and professional education programs in 15 specialties and doctoral programs.

1. International Economics and Trade bachelor's program

The program was developed by the College of Economics and Management. "International Trade of Agricultural Products" and "Economic Globalization and Regional Trade Cooperation" are examples of educational courses of the program.

2. International Trade master's program

The program was developed by the College of Economics and Management. "International Trade Theory and Policy", "International Trade System and Planning", and "International Marketing" are examples of educational courses of the program.

3. Agricultural Economics and Management master's program

Students in this three-year program, developed by the College of Economics and Management and taught in Chinese and English, learn about agricultural economic theory and policy, agricultural management, natural resource and environmental economics, regional economics, and sustainable rural development.

"Microeconomic Theory and Analysis", "Macroeconomic Theory and Analysis", and "Econometric Theory and Applications" are examples of educational courses of the program.

4. International Business master's program

The program was developed by the College of Economics and Management. "International Business", "International Trade Policy and Practice" and "International Finance Theory and Practice" are examples of educational courses of the program.

5. Other programs

On the NAU website, there are several MBA programs listed ("Financial Management", "Investment Management", "Marketing Management", "Logistics Management", "Food Safety Management") and graduate-level disciplines for "Agricultural Economic Management" and "International Trade".

Research activity. NAU has two main activity areas: natural sciences, and social sciences and humanities. Research spending exceeds 2,6 billion yuan. The university has received more than 100 scientific and technical awards.

NAU serves as a site to 66 research platforms including the State Core Laboratory for Crop Genetics and Germplasm Innovation, The National Center of Meat Quality and Safety Control, National Soybean Improvement Sub-Center, and the National Organic Fertilizer Engineering and Research Center. Also, a number of international collaborative research platforms have been established. Among them are the Sino-American Joint Research Center on Food Safety and Quality and the Cornell International Technology Transfer Center. The China-ASEAN Education and Training Center was launched on the university campus at the initiative of the Ministry of Foreign Affairs of the People's Republic of China and the Ministry of Education of the People's Republic of China.

Expert and analytical activities. NAU is the holder for plant breeding varieties rights. The College of Food Science and Technology has carried out 150 research projects and developed 11 international and national standards over the last 5 years. It works closely with a large number of leading enterprises in the agribusiness sector such as Wen's Food Group (China's leading poultry and pork producer), Yurun Group (the nationwide meat producer), Jiangsu Food Group Co. Ltd. (a poultry and feed manufacturer), COFCO Group (the country's largest agricultural processor, and food and beverage producer). The college has established the Meat Products Quality Supervision, Inspection and Testing Center of the Ministry of Agriculture of the People's Republic of China.

The College of Economics and Management (CEM) has carried out more than 200 research projects since 2000, including 8 projects under the Key Bidding Program of the National Social Science Foundation of China. The CEM has developed close research partnerships with more than 10 international organizations, including the World Bank, FAO, International Food Policy Research Institute (IFPRI), USDA Economic Research Service, and the Ford Foundation. It cooperates with such world leading universities as the University of California, Davis (USA), Cornell University (USA), the University of Iowa (USA), Purdue University (USA), Georg-August-Universität (Germany), Justus-Liebig-Universität Gießen (Germany), Kyoto University (Japan), Wageningen University & Research (Netherlands), the University of Sydney (Australia), Universidade de São Paulo (Brazil) and the Federal University of Rio Grande do Sul (Brazil).

Experts

- ♦ **Funing Zhong**, a CEM's Department of Agricultural Economics professor. Research interests: national food security system; agricultural development strategies; GMO products.
- ♦ **Li Zhou** (PhD), a CEM's Department of Agricultural Economics professor and a postgraduate supervisor. Research interests: international trade; resource economics; agricultural economics; natural resource management.
- ♦ **Xuejun Wang**, a CEM's Department of Agricultural Economics professor. "The impacts of financing constraints on the quality upgrading of China's agri-food exporters", "The Impact of Country Reputation on Export Quality of Agricultural Products", "Trade Liberalization and Value-Added Trade: The Real Impact of the WTO on China's Exports" are some of his publications. Research interests: agricultural markets and international trade; agricultural economics and policy.
- ♦ **Xianhui Geng**, a professor and scientific advisor. Industrial Economics Research Director of the National Modern Agricultural Industrial Technology System. The deputy director of the Food Economics Professional Committee of the Chinese Association of Agricultural Economics. Research activity: transportation and agricultural marketing; food industry economics; agricultural brand operations management.

Conclusions

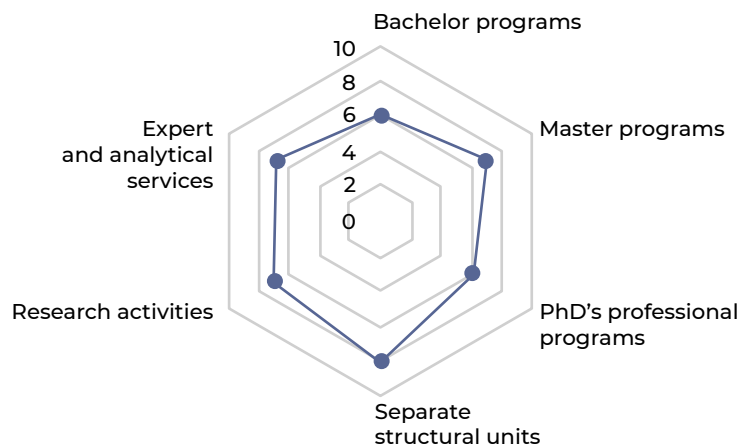


Fig. 11.

- ♦ Competencies in the international trade of agricultural products are concentrated in NAU's College of Economics and Management activities;
- ♦ Master's programs are the most relevant for our study;
- ♦ There is also a number of postgraduate and MBA programs, but they are not industry-specific;
- ♦ NAU conducts extensive research activities, implements projects in cooperation with China's large agro-industrial enterprises, foreign universities, and research centers;
- ♦ The English version of the website contains a very scant amount of information about the university.
- ♦ That makes it difficult to conduct a full content analysis.

Chapter 3. Russian competence centers in the field of international trade in agricultural products

3.1. RUSSIAN STATE AGRARIAN UNIVERSITY - MOSCOW TIMIRYAZEV AGRICULTURAL ACADEMY



General information. The Federal State Budgetary Educational Institution of Higher Education “Russian State Agrarian University - Moscow Timiryazev Agricultural Academy” (hereinafter referred to as RSAU – MTAA) was founded in 1865. It is the oldest and leading agricultural education system center in Russia. In 2017, RSAU – MTAA was given the status of the Russian Ministry of Agriculture’s core organization on training, professional development and personnel retraining in the field of agriculture. More than 3,000 employees work at RSAU – MTAA. The number of students is around 15,000 including 800 foreign students from 55 countries. The university has extensive foreign relations, implementing more than 80 cooperation agreements with partners in Europe, Asia, Africa and America.

The university unites 8 institutes, 79 departments, the pre-university training vocational guidance faculty, experimental bases in different Russian climatic zones, various centers, facilities, divisions and laboratories.

Education. Topics relevant to the subject of our research are presented at all levels of higher education programs (bachelor’s, master’s, postgraduate studies), additional education programs and individual online courses: Institute of Economics and management in agribusiness (12 graduate and 6 base departments), the Graduate School of Agribusiness, the Institute of Continuing Education (Federal competence center).

14 dissertation councils have been opened on the basis of the RSAU-MTTA, among which is the dissertation council D 220.043.15 for defending dissertations for the degree of Doctor of Economics, Candidate of Economic Sciences.

In the academic year of 2022/23 there was an enrollment for these educational programs:

1. “Economics” bachelor’s program, “World Economy and foreign economic activity” field of study

This program was developed by the Department of World Economy and Marketing of the Institute of Economics and management in agribusiness. It prepares specialists and managers in the planning and management of enterprise’s foreign economic activity. It is obligatory to study two foreign languages within the program.

“Foreign economic activity”, “International trade”, “World Agrarian Economy”, “International business negotiations”, “International Marketing”, “International Management”, “World Economy”, “Modern international relations” and “Fundamentals of customs business” are examples of educational courses of the program.

2. “Economics” bachelor’s program, “Enterprise economy” field of study

This program covers all types and spheres of activity of modern enterprises, state and budgetary institutions, agricultural organizations, and prepares economists of a broad profile.

“Economy of the enterprise (organization) of the agro-industrial complex”, “Comprehensive economic analysis of financial and economic activities in agriculture”, “Economics of state and municipal property”, “Economics of resource saving”, “Economics of small business”, and “Economic evaluation of investment” are examples of educational courses of the program.

3. “Management” bachelor’s program, “Business Logistics” field of study

Graduates are able to conduct logistics, manage stocks, supply chains, solve issues of storage, packaging and transportation of products using geolocation systems, special attention is paid to the logistics of food. “Food Supply Chain Management”, “Quality management of food products”, “Logistics Supply and Inventory Management”, “Organization of business activities”, “Organization of Cargo Transportation”,

“Merchandising, Expertise and Standardization”, “Warehouse Logistics” and “Production Logistics” are examples of educational courses of the program.

4. “Economics” master’s program, “International Agricultural Markets” field of study

The program aims to train competent specialists and managers in the field of planning and management of foreign economic activity who will be able to work in departments of state, regional and municipal structures of the agro-industrial complex, as well as in commercial firms of the agro-industrial complex.

“International agricultural markets”, “Foreign trade transactions”, “Foreign trade transportation”, “Foreign economic activity”, “Foreign language in the field of professional activity”, “Marketing analysis”, “International Marketing”, “International Management” and “Intercultural Communication in Professional Activity” are examples of educational courses of the program.

5. “World Economy” postgraduate program

After mastering the “International Agricultural Markets” field of study of the “Economics” master’s program a student can continue his postgraduate training in “World Economy” program under the guidance of Candidate of Economics, Associate Professor A.F. Korolkov.

It is worth noting that in previous academic years the RSAU-MTAA also implemented following education programs:

- ♦ **“Economics” bachelor’s program, the “World Economy” field of study.** The graduates acquired skills in the analysis and development of foreign economic activity or international economic relations, and studied two foreign languages.
- ♦ **“Management” bachelor’s program, the “Marketing” field of study.** Graduates received in-depth knowledge in the field of economics of entire industries and individual organizations, studied the issues of selling goods and services, advertising and public relations, creating new goods, products and services, new forms and ways of organizing interaction between producers, sellers and consumers.
- ♦ **“Management” master’s program, the “Agricultural trade and marketing”.** The direction’s graduates had the opportunity to receive a master’s degree in Russia and abroad - at the Slovak University of Agriculture in Nitra. As a result, graduates of the program could build a career in the largest international companies both in Russia and abroad, organize their own business, continue their postgraduate studies in leading Russian and European educational and research organizations.

6. “Agribusiness” MBA program and “Strategic Management of Agribusiness Companies” Executive MBA program

These programs were developed by the Higher School of Agribusiness (RSAU – MTAA) and are oriented to people who have practical experience in leadership positions (managers) in agribusiness companies (at least 2 years of experience is required for the MBA), as well as to managers and owners of agribusiness companies (at least 4 years of experience is required for the Executive MBA). The website of the university states that the graduates of these MBA and EMBA programs are representatives of such agricultural companies as “Dmitrov’s vegetables”, “Komos Group”, “Yug Rusi”, and “Syngenta”.

These programs have an export-oriented “Agricultural Products Export” educational block. It is represented by the following educational disciplines: “World agricultural markets”, “The trade between countries of the Eurasian Economic Union”, “Currency control”, “International certification”, “International logistics”, “Administrative logistics of agricultural export”, “State program for supporting competitiveness” and “Promotion of agricultural products in foreign markets”.

7. Professional development programs. Through the Institute of Extended Education (Federal Competence Center), RSAU-MTAA provides a wide range of advanced training programs which are in one way or another related to the international agricultural trade:

- ♦ “The confirmation of product conformity within the EAEU”;
- ♦ “Agri-food markets: macroeconomic trends and forecasts”;
- ♦ “Introduction to the agricultural exports”;

- ♦ “Preparation of documentation (business plans) for obtaining funds for the implementation of investment projects for the development of agribusiness enterprises”;
- ♦ “Control and supervision of agriculture”;
- ♦ “Communication activities to promote companies of agro-industrial complex”;
- ♦ “Methodology for the analysis of global processes in the international (regional) food (agricultural) market”;
- ♦ “Efficiency, feasibility and risks assessment of agricultural enterprises’ development investment projects (for managers)”.

8. Online courses in open access. RSAU-MTAA offers mass open online courses:

- ♦ Management consulting in organic agriculture”;
- ♦ Standardization and conformity assessment of agricultural raw materials and products”.

Research activity. There are 4 research activities directions (scientific schools) presented at the Department of World Economy and Marketing of the Institute of Economics and management in agribusiness:

1. Study of modern problems of the development of world agriculture and agro-industrial complex industries, as well as mechanisms of their regulation at the national, regional and global levels (representatives of the direction A.G. Paptsov, A.F. Korolkov);
2. Study of modern problems of development of foreign economic relations of the Russian agrarian sector in the context of internationalization and globalization of economic relations of countries in the agri-cultural sector, functioning and development of international agri-food and resource markets of agro-industrial complex (representatives of the direction V.P. Korovkin, V.V. Shaikin, R.R. Mukhametzyanov);
3. Study of trends, regularities, factors and conditions of functioning and development of rural socio-economic systems, sustainable development of rural areas and social infrastructure in the global economy (the representatives of the direction are A.V. Merzlov, O.I. Panteleeva and N.V. Vorontsova);
4. Study of modern problems of the state and development of supply and demand, the structure and development of markets, their research and segmentation, market positioning of products and companies, competitiveness and competition, the concept of marketing, methods and forms of managing marketing activities in an organization in modern conditions of the development of the Russian economy and globalization of markets in the agricultural sector (representatives of the direction V.V. Butyrin, N.V. Surkova).

Some of faculty members’ publications:

- ♦ “Exports of AIC products of Russia: trends and development”, A.G. Paptsov, I.G. Ushachev, A.I. Altukhov and others, Moscow, 2020.
- ♦ “Development of the export potential of the agricultural sector of Russia: price aspect”, A.G. Paptsov and others, Moscow, 2019.
- ♦ “Agricultural Exports’ Regulation in Russia and Abroad”, O.I. Panteleeva, N.V. Surkova and others, Moscow, Economics, 2017

Expert and analytical activities. Over the last two years the Institute of Economics and Management in agribusiness has conducted a number of applied researches commissioned by the Ministry of Agriculture of the Russian Federation on the following topics:

- ♦ “Development of indicators and agricultural producers’ export potential assessment, including on small and medium-sized businesses”;
- ♦ “Justification of the qualification requirements for specialists in the management of agricultural industries and enterprises management”;

- ♦ “Development of methods for assessing the economic efficiency of grain production management and regulation in a digital economy”.

At different times the Department of World Economy and Marketing of the Institute of Economics and management employed former or acting Russian agricultural attaches with whom the Department maintains business and friendly relations. Among them are K.A. Malashenkov (India), O.V. Pugaev (Netherlands), P.V. Solomakhin (India), P.P. Sorokin (USA), V.V. Shaykin (Germany).

The Department’s employees have developed the “Economist in agricultural production” professional standard.

A world-class research center called “Agrotechnologies of the Future” was established at RSAU-MTAA as part of a consortium with 7 organizations. The center aims to develop expertise in key areas of activity such as the creation of safe, quality, functional feeds and food, and the use of new digital technologies in agriculture on an international level.

The RSAU-MTAA’s Graduate School of Agribusiness provides consulting services in the field of business security:

- ♦ Quality management system implementation and regulation of company’s business processes;
- ♦ Operational management and lean production;
- ♦ Logistics, supply chain optimization, inventory management, etc.

Experts

- ♦ **A.G. Paptsov**, Doctor of Economic Sciences, Academician of the Russian Academy of Sciences, a professor at the Department of World Economy and Marketing of the Institute of Economics and management in agribusiness. He cooperates with FAO and OECD. The courses taught: “World Agricultural Markets”, “Global Agricultural and Trade Policy”, “World Agrarian Economy”, and “State regulation of global agriculture”. Research interests: global agricultural economics, food security; state agricultural regulation.
- ♦ **V.P. Korovkin**, Candidate of Economic Sciences, the head of the Department of World Economy and Marketing of the Institute of Economics and management in agribusiness. The courses taught: “Global Agricultural and Trade Policy”, “Foreign economic relations of agribusiness enterprises”, “State support for agricultural production under WTO and EAEU conditions”, “State regulation of Foreign Economic Activity”, “State regulation of global agriculture”, “International Agricultural and Trade Policy”, “International trade”, “Foreign trade transactions”, “International commerce”, “World Agrarian Economy”, and “Foreign economic activity management”. Research interests: agricultural policy in the countries of the world; information and advisory activities in agriculture; world economy; international relations.
- ♦ **T.N. Vorozheikina**, Doctor of Economic Sciences, the head of the Department of Industrial Organizing. Research interests: planning and production at agricultural enterprises; food security; agricultural digitalization.
- ♦ **V.M. Koshelev**, Doctor of Economic Sciences, the head of the Department of World Economy and Marketing of the Institute of Economics and management in agribusiness. The courses taught: “Modern problems of agricultural economics and management”, “Agricultural project analysis (in English)”, “Actual problems of agricultural economics and AIC management”. Research interests: analysis and management of investment projects, performance investments evaluation of agribusiness; justifying, preparing and evaluating the solution effectiveness in such areas of agricultural development as: organic farming, cooperation and food security.
- ♦ **Y.V. Chutcheva**, Doctor of Economic Sciences, the head of the Department of Economy of the Institute of Economics and management in agribusiness. Courses taught: “Enterprise economics” and “Modern Trends in Economic Development”. Research interests: agri-food markets development; increasing the investment attractiveness of agricultural production; reproduction of agricultural fixed assets.

Conclusions.

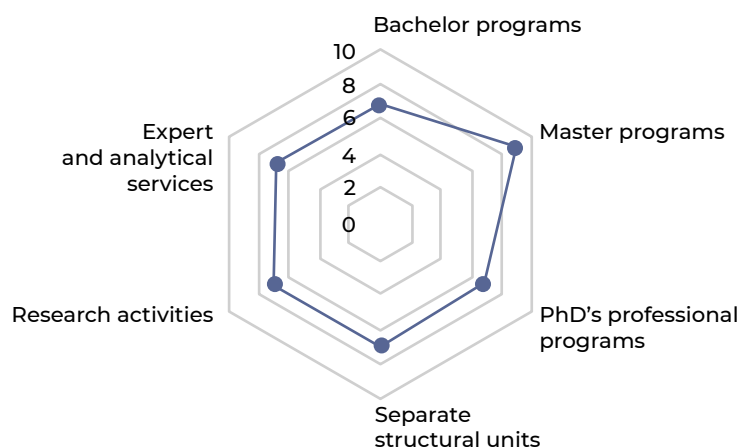


Fig. 12.

- ♦ RSAU-MTAA has a wide range of educational programs related to the international trade of agricultural products (for example, the “International Agricultural Markets” master’s program);
- ♦ RSAU-MTAA also provides a large number of short educational programs and courses on highly specialized issues as well as MBA and EMBA programs;
- ♦ Scientific research on the subject area of our interest is determined by the relevant scientific schools, the dissertation council, and peer-reviewed scientific journals;
- ♦ RSAU-MTAA’s employees specialize in the problems of international agrarian and trade policy, food security, global agrarian economics and the state regulation of global agriculture;
- ♦ RSAU-MTAA cooperates with a large number of agricultural companies, including providing them with consulting services.

3.2. RUDN UNIVERSITY

General information. The Federal State Budgetary Educational Institution of Higher Education “Peoples’ Friendship University of Russia” (hereinafter referred as RUDN University) was founded in 1960. It positions itself as an academic global research university focused on international collaboration and the presence of multinational students. The university has more than 34,000 students including over 10,000 foreign students from 160 countries.



Education. RUDN University implements 433 educational programs including 176 joint educational programs and more than 2,000 additional education programs. The university has 25 dissertation councils and publishes 29 scientific peer-reviewed journals.

1. “International economic relations and foreign economic activity” bachelor’s program

This program is implemented at the Department of International Economic Relations of the Faculty of Economics and consists of a core and an optional part. Students gain knowledge of the world economy, international trade and foreign economic activities. The program itself does not specialize in the international agricultural trade but looks through its various aspects.

“Fundamentals of International Logistics”, “Fundamentals of International Trade”, “Trade Finance and Export Support”, “Theory and Practice of International Business”, “Project Approach to International Companies’ Foreign Economic Activity”, “Foreign Economic Activity Insurance”, “Legal Regulations on Foreign Economic Activities”, “Russian Regions’ Foreign Economic Activities”, “Production Fragmentation and Cross-Border Value Chains”, “International Statistical Databases” are examples of educational courses of the program.

It’s also worth mentioning that in the past, RUDN University offered a bachelor’s program in “International Agribusiness” under the “Economics” direction, which was developed by the university’s Agrarian and Technological Institute. The program covered topics such as agricultural development in the global economy, the basics of agricultural marketing, price formation in the agricultural market, and economic evaluation of investments in the agricultural sector.

2. “Technologies and quality assurance and safety of food products and industries” master’s program

Students enrolled in this program study the issues of standardization and metrology in the field of quality assessment and control, product and production safety, development of technical documentation, product compliance with the requirements of Russian and international standards.

“Organizing state veterinary supervision at import and export”, “Veterinary and sanitary expertise and biological safety of food raw materials and products”, “State veterinary supervision at subordinate objects”, and “Food safety control” are examples of educational courses of the program.

3. “Management of Foreign Economic Activity and Analysis of World Commodity Markets Conjuncture” professional development program

This program trains professionals who are demanded in various fields of international economic relations including the management of foreign economic activity. The students explore the marketing strategies development for entering and promoting commodities and services on global markets as well as the management of enterprises’ foreign trade flows in any sector of the economy.

“Foreign economic activity: foreign trade contract, Incoterms 2020”, “Customs and tariff regulation”, “Conjuncture research”, “Features of trade and conjuncture of raw materials and finished products in global markets” are examples of educational courses of the program.

4. “Foreign economic activity management” professional development program

The program pays special attention to foreign economic relations with China and Asian countries. In this connection students study features of work with companies from China, questions of calculation of the customs value when importing goods from China (documents, price formation, logistics, delivery terms), the permissive procedure of import (phytosanitary, veterinary, sanitary-quarantine control and confirmation of compliance of products with Technical regulations and standards), specifics

of organization of international payments with China and other Asian countries, international transport routes from China to Europe.

“State regulation of foreign economic activity in Russia”, “Customs legislation”, “Customs procedures”, “Customs payments and their types”, “Marketing strategies of foreign economic activities”, “Structure and basic terms of foreign trade contracts”, “Transport and logistics support for foreign economic activities”, “Declaration of commodity and transport”, “Currency control in carrying out foreign economic activity” are examples of educational courses of the program.

5. “Export manager” professional development program

The program is aimed at training specialists in the field of foreign economic activity who are able to build processes, conduct negotiations and find new markets for the products of Russian manufacturers.

“Export value of the product”, “Transport documents’ preparation”, “The documents for foreign economic activities”, “Customs aspects of foreign economic activity”, “Currency control of foreign economic activities”, “Incoterms”, “Competitor analysis”, “Market analysis”, “Strategic export opportunities”, “International customer’s portrait”, and “International customer path” are examples of educational courses of the program.

Research activity. RUDN University is actively developing its research activities. Thus, the International Center for Emerging Market Studies operates within the university. Its main goal is to formulate recommendations to address modern challenges that emerging markets face by better understanding the interactions and potential growth arising from systemic innovation, improved competitiveness, and planned growth in emerging markets.

Also, various projects are being implemented on the basis of the Faculty of Economics:

“The development of forecast scenarios for the EAEU’s (Eurasian Economic Union) socio-economic development in medium and long term”. The main purpose of the project is to create a methodological tool for forecasting scenarios of the EAEU’ socio-economic development.

Consulting activity. There is the International Institute for Strategic Development of Industrial Economies (hereinafter referred as MISROE) within the RUDN University. MISROE is based on the synergy of education, science and industrial partnership.

MISROE conducts a series of studies on the development of the Russian commodity producers’ export potential in order to increase the volume of non-resource exports particularly by reducing technical barriers and increasing the competitiveness of Russian commodities when they enter foreign markets.

MISROE’s experts monitor best foreign practices and conditions that promote the import of quality products to the Russian market. Since 2020 MISROE pay special attention to the promotion of Halal-branded products and services as well as probiotics and pharmabiotics which are the basis for creating functional products particularly for therapeutic and prophylactic nutrition.

MISROE cooperates with structures of national accreditation bodies of Russia, Belarus, Italy and Turkey. Daniele Pernigotti, Carla Sanz (developers of international standards of the EU and experts of the Italian Accreditation Body (ACCREDIA)) and A.V. Lebedeva (a deputy general director of the National Accreditation Institute for RusAccreditation) take part in MISROE’s activities.

Experts

- ♦ **I.V. Andronova**, Doctor of Economic Sciences, a professor and the head of the Department of International Economic Relations of the Faculty of Economics. The disciplines taught: “World Economy”, “Theory and Practice of International Business Communication”, “International Economic Organizations”, “Foreign Economic Security”, “International Economic Relations”, “International Business Communications”, and “International Business Etiquette”. Research interests: economical and foreign economic security; Russia’s economic interests in the regions of the world.
- ♦ **E.V. Savenkova**, Doctor of Economic Sciences, a professor at the “Finance and Credit” Department of the Faculty of Economics, the director of MISROE. Research interests: theory and practice of the investment activity; analysis of PPP (Public–Private Partnership) problems in investment projects; management of investment projects; management of innovative environmental projects; issues of economic efficiency and safety of environmental projects.

Conclusions

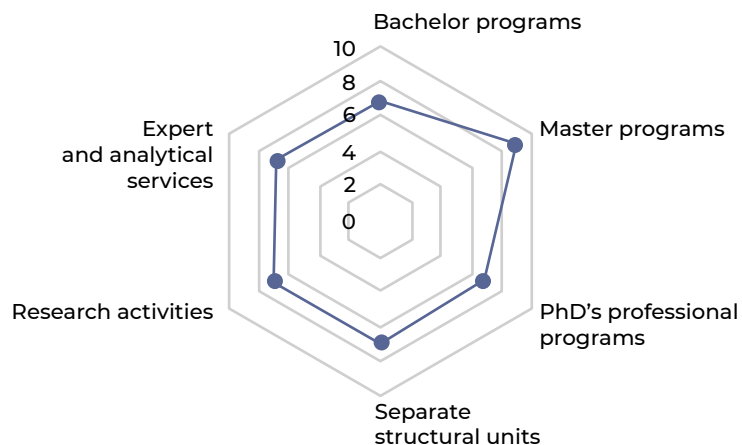


Fig. 13.

- ♦ RUDN University has a wide range of educational programs at the bachelor, master and additional professional education levels on the subjects of international trade and foreign economic activity but without reference to agricultural specifics;
- ♦ It is worth noting the previously existed “International Agribusiness” bachelor’s program.
- ♦ The master’s and additional professional education programs in quality control and food safety, including for export and their assessment of compliance with Russian and international standards, also draw attention;
- ♦ Research activities are represented by implemented projects on the topic of international trade but also without reference to the industry specifics;
- ♦ According to the university’s website, consulting activities are mostly implemented by MISROE.

3.3. STAVROPOL STATE AGRARIAN UNIVERSITY



General information. The Federal State Budgetary Educational Institution of Higher Education “Stavropol State Agrarian University” (hereinafter referred as StGAU), founded in 1930, is a key agrarian university of the North Caucasian Federal District. It represents many scientific fields such as biotechnology, engineering, veterinary medicine, agrobiological, ecology and landscape architecture, and other sciences. The university structure includes 10 faculties and more than 100 fields of study.

There are around 18,500 students, about 1,100 teachers and researchers at StGAU. 94% of scientific and pedagogical workers have a scientific degree and title, of which 25% are Doctors of Science - this is one of the best indicators among Russian universities.

The university has 4 dissertation councils for the defense of qualification works on biological, veterinary, agricultural and technical sciences. StGAU publishes the “Agricultural Bulletin of Stavropol Region” scientific-practical journal (included in the Higher Attestation Commission (VAK) List).

In 2020, the Center for Advanced Vocational Training was opened in Stavropol Territory. Its main goal is to coordinate the use of material, technical, and human resources of the region’s educational institutions to educate children and adults in accordance with the prospects for economic development of the country and the region.

Education. StGAU provides training in secondary vocational education programs, programs of higher education (bachelor’s, specialist’s, master’s, postgraduate), and professional education programs.

1. Bachelor’s programs:

- ♦ “World economy” (the “Economics and management” direction);
- ♦ “Business management” (the “Management” direction);
- ♦ “Commerce” (the “Commercial business” direction);
- ♦ “Economics of enterprises and organizations” (the “Economics” direction).

These programs are not industry-specific and are general in nature.

2. “Firm economics and industry markets” master’s program (the “Economics” direction)

There is no more detailed information about this master’s program on the University’s website.

3. Professional Development program:

- ♦ “Management of agribusiness organizations” (268 hours);
- ♦ “Organization and technology of transport logistics” (350 hours);
- ♦ “Veterinary and sanitary expertise of livestock and crop products” (350 hours);
- ♦ The Mercury Federal State Information System’s working features (16 hours);
- ♦ “Development of the food safety management system based on HACCP principles at the enterprises of the agro-industrial complex” (72 hours);
- ♦ “International experience in the agricultural development of agro-industrial complex in the Eurasian Economic Union (EAEU)” (72 hours);
- ♦ “Agricultural management” (24 hours).

4. “Agribusiness” MBA program (2014-2018)

It is worth noting that in the period from 2014 to 2018 the “Agribusiness” MBA program was implemented on the Institute of Additional Professional Education’s basis. The program had an international certificate of accreditation in agribusiness (“AGRIMBA”).

It was focused on:

- ♦ Examining international experience in areas such as agricultural economics, management, marketing, and logistics;
- ♦ Gaining knowledge of the latest methods, technologies and knowledge in international agribusiness;
- ♦ Understanding the basics of organizing, developing and financing new businesses in the agro-industrial complex;
- ♦ Acquiring knowledge in the legal support of agribusiness;
- ♦ Providing opportunities for internships at leading agribusiness enterprises in Russia and Europe.

Research activity. There are 2 departments that operate on the basis of the Faculty of Economics: The Department of Management and Management Technologies and the Department of Entrepreneurship and World Economy.

The Center for Management Technology Modeling was created at the Department of Management and Management Technologies. The main purpose of its activities is to build an instrumental environment for modeling management processes, technologies and techniques for the real sector of the agricultural economy and the formation of future specialists' professional competencies. The range of ongoing and planned research within the Center is very wide - from modeling the management of agricultural technological processes to participating in the development of various programs with strategic partners of the university.

The teaching and research laboratory of economics and enterprise planning was established at the Department of Entrepreneurship and World Economy. Teachers of the department and laboratory staff are actively involved in consulting activities as well as the development of Federal Target Programs, and implementation of grants and government contracts.

These are electronic learning resources developed by the staff of the department and laboratory for 3 years: electronic manual on the discipline "Fundamentals of International Economic Security" (2018), electronic manual "Customs" (2019), electronic manual "International Currency and Credit Relations" (2019), electronic manual on the discipline "The World Economy and International Economic Relations" (2020), electronic textbook "Foreign Economic Activity of the Organization" (2020).

Expert and analytical activity. Teaching and research laboratory of economics and enterprise planning has been established at the Department of Entrepreneurship and World Economy. The department's faculty and laboratory staff are actively involved in consulting activities as well as the development of Federal Target Programs, grant implementation and government contracts. In recent years these projects have been implemented:

- ♦ Scientific rationale for an innovative enterprise development strategy (2019);
- ♦ Development of rates for paid veterinary services provided by the budgetary institution of the Voronezh region (2020);
- ♦ State contract of the Ministry of Agriculture of Stavropol: "Development of science-based recommendations for evolving organic agricultural production by producers from Stavropol, including livestock and crop production in accordance with the legislation of the Russian Federation, on: organic production economic evaluation of vegetable subsectors and fruit growing in the Stavropol Territory" (2019).

Experts

N.V. Vorobyeva, Candidate of Economic Sciences, an associate professor at the Department of Entrepreneurship and World Economy. Courses taught: "International trade", "Foreign economic activity of organizations", "World Economy and International Economic Relations", "Organizing Foreign Economic Activity management".

Conclusions

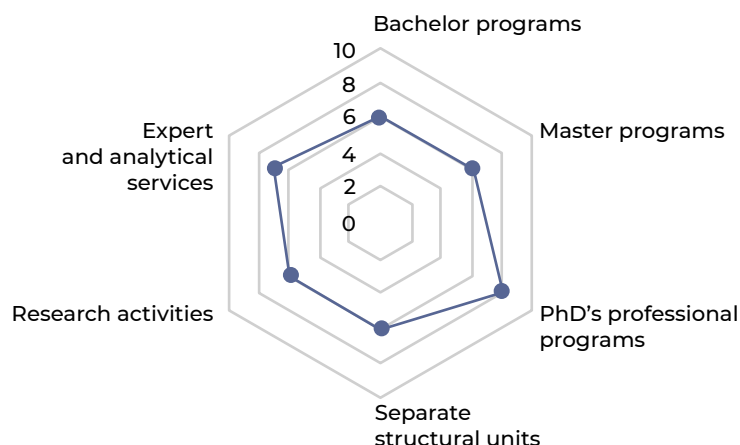


Fig. 14.

- ♦ From the entire list of educational programs, it is worth noting the “Agribusiness” MBA program (which was implemented from 2014 to 2018) as well as professional development programs;
- ♦ The university’s research and consulting activities are growing rapidly, however, the issue of international trade in agricultural products is not well addressed within this framework;
- ♦ It is necessary to note that StSAU had partnership relations with Wageningen University & Research (the Netherlands) within the framework of implementation of the “Agribusiness” MBA program;
- ♦ The availability of educational and methodical literature on such disciplines as “The Basics of International Economic Security”, “World Economy and International Economic Relations”, “Foreign Economic Relations of the Organization” also draws attention to itself.

3.4. KUBAN STATE AGRARIAN UNIVERSITY NAMED AFTER I.T.TRUBILIN

General information. The Federal State Budgetary Educational Institution of Higher Education “Kuban State Agrarian University named after I.T.Trubilin” (hereinafter - KubSAU) was founded in 1922 and is currently one of the recognized higher agrarian education leaders in the Southern Federal District. At the present time about **16,000 students** study in KubSAU on full-time and part-time basis.



KubSAU has 18 faculties, the Krasnodar Regional Institute of Agribusiness, the Bio-technology and Certification of Food Products Research Institute, the Applied and Experimental Ecology Research Institute, The “Technologist” Educational-Scientific-Innovation Complex, experimental training farm “Krasnodar”, and experimental training farm “Kuban”.

KubSAU has 7 dissertation councils in economic, veterinary, legal, agricultural, technical and biological sciences. The university publishes scientific periodicals: “Works of the Kuban State Agrarian University” (VAK, RSCI, Agris), “Polythematic Network Electronic Scientific Journal of the Kuban State Agrarian University” (VAK, RSCI).

Among the 18 faculties of Kuban State Agrarian University, the Economic Faculty deserves special attention, with the Department of Economics and Foreign Economic Activity, the Department of Institutional Economics and Investment Management, and the Department of Management and Marketing all operating within its structure.

Education. Let’s take a closer look at the educational programs and courses that are implemented by KubSAU.

1. “Agrarian Management” master’s program.

This program is internationally accredited. As a result of training students acquire interdisciplinary knowledge and practical skills in the field of agricultural management, contributing to the production efficiency and competitiveness of domestic agricultural products in the domestic and foreign markets. The program is implemented as part of the “Priority 2030” program. “Strategies of international agrarian marketing”, “Foreign economic activity in the agro-industrial complex”, “Business planning in the AIC”, “Economic research methods of agricultural production systems”, “Agricultural state policy”, “Investment risk management in the AIC” and “Organization of consulting activities in the agro-industrial complex” are examples of educational courses of the program.

2. Professional development programs:

- ♦ “State control (supervision) in the field of food quality and safety” (16 hours);
- ♦ “Veterinary and Sanitary Expertise” (72 hours);
- ♦ “Project management in the agro-industrial complex” (72 hours).

It’s also worth mentioning the individual educational courses taught by the university’s faculty. For example, faculty members of the Department of Economics and Foreign Economic Activity teach the following courses: “Agrarian policy and food security”, “Foreign economic activity in agribusiness”, “State regulation of agribusiness economy”, “Economics of agribusiness industries”, “Economics Agribusiness enterprises and industries economics”, “Foreign economic activity”, “Customs”, “The theory of industrial markets”.

Research activity. The Scientific school “The economic security of Russia and its regions in the context of globalization of the world economy” was formed at the Department of Economics and Foreign Economic Activity of the Faculty of Economics. Its scientific directions are:

- ♦ Foreign economic activities of agricultural and agro-industrial companies and enterprises;
- ♦ Problems and mechanisms of ensuring food security;
- ♦ Agricultural policy and state support of the AIC industries and others.

Expert and analytical activity. Over the past 10 years Kuban State Agrarian University has received more than 1,500 patents. Research and educational laboratories (e.g., Laboratory of Management

and Marketing), research centers, small innovative enterprises, and Center for forecasting and monitoring the scientific and technological development of the AIC operate within the university.

Experts

A.B. Melnikov, Doctor of Economic Sciences, an expert of the Higher Attestation Commission, the head of the Department of Economics and foreign economic activity, an honored economist of the Kuban, the head of the scientific school of the Department. Courses taught: “World Economy”, “World Economy and International Economic Relations”, and “Economic Security”. Research interests: economic security; food policy.

Additional information. The Center of Agricultural Competence operates on the basis of the Kuban State Agrarian University. The Center was formed as part of the “Assessment and development of managerial competencies in Russian educational organizations” project. At the same time, the center acts as a center of competence in the agricultural industry by coordinating the interaction of agricultural universities with the “Russia - the Land of Opportunities” autonomous non-profit organization.

The Business School of the Kuban State Agrarian University, opened in 2019, invites undergraduate and graduate third- and fourth-year students and alumni to study. The school offers modular training focusing on business planning, public speaking courses, courses on emotional literacy as well as introductions to leading agribusinesses in Kuban. Top managers of international companies, public authorities’ representatives and winners of the “Kuban Leaders” project serve as invited lectures.

Conclusions

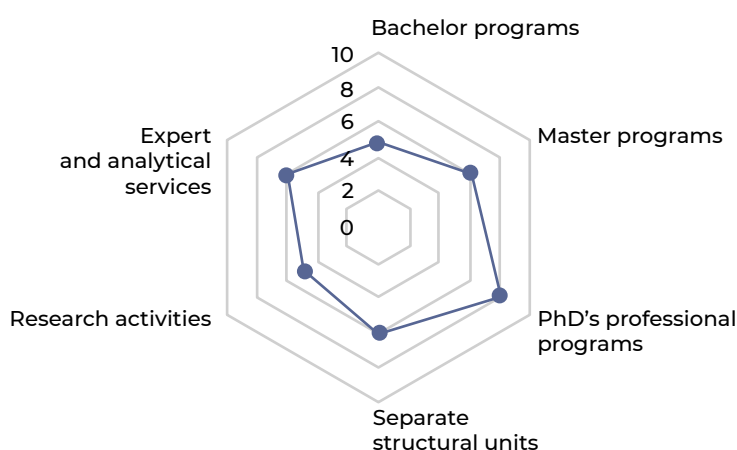


Fig. 15.

- ♦ Out of the entire list of educational programs it is worth noting the “Agrarian Management” master’s program and professional development programs;
- ♦ Based on the content analysis of the information presented on the website, Kuban State Agrarian University’s research and consulting activities in the field of international trade in agro-industrial complex products are poorly developed;
- ♦ The activities of the School of Business and the Center of Competences (together with the “Russia - the Land of opportunities” autonomous non-profit organization) are noteworthy.

3.5. INSTITUTE FOR AGRARIAN STUDIES, NATIONAL RESEARCH UNIVERSITY HIGHER SCHOOL OF ECONOMICS



General information. The HSE University (National Research University Higher School of Economics) is a research university that carries out its mission through scientific and educational, project, expert, and sociocultural activities on the basis of international scientific and organizational standards. There are around 7,000 faculty staff and researchers and more than 51,000 students, including 5,500 foreign students at HSE University.

HSE University actively uses innovative educational tools, it has campuses in 4 Russian cities, one lyceum, more than 110 bachelor's programs, around 200 master's programs and more than 150 business education programs. HSE University performs around 130 fundamental research projects, 500 applied research projects and more than 300 research fund grants. The university has opened 51 international laboratories. It participates in 13 national projects and has a unique research infrastructure.

The University has 21 faculties, 74 base departments including 26 base departments of the Russian Academy of Sciences. The activity of the Institute for Agrarian Studies, headed by E.V. Serova, is of the greatest interest for our research.

Education. The issues of our interest are presented at the Institute for Agrarian Studies, which has several departments: the Department of Agrarian Policy; the Department for Rural Development Studies; the Department for Economics of Innovation in Agriculture; the Department of Agrarian Market Research (which specializes in studying the state and forecasts of agri-food markets development, market structure, prospects for the Russian AIC in global markets and diversification of Russian agricultural exports, and losses of agricultural products along the food chain).

1. “Agrarian economics” (the “Economics” direction) master’s program

This program was developed by the Institute for Agrarian Studies. It is based on the best global practices and complements the line of master's programs in economics offered by the HSE University. The program has a comprehensive nature and is aimed at training specialists in the field of agricultural economics considering the knowledge of the agricultural production cycle's peculiarities and the inclusion of agricultural production in value chains, integration into the digital environment and rational environmental management.

“Global Agrifood System and Global Trade”, “Agricultural Markets’ analysis”, “Agrarian Marketing”, “Agricultural Economics Theory”, “Agricultural Analysis Policy”, “Agricultural Statistics”, “Project Management in Agribusiness”, “State and Municipal Agricultural Management”, and “Agri-Food Markets Modelling” are examples of educational courses of the program.

2. Elective “Agrarian Economics” course within the “Economics” bachelor’s program

This course was also developed by the Institute for Agrarian Studies. It is implemented within the framework of bachelor's educational programs and aims to form a general idea about the specifics of agricultural production functioning, forms and consequences of the state regulation in the agri-food sector. It also helps to familiarize with the global agricultural system and practice of agricultural reforms in conditions of transitional economies, primarily in Russia. While reviewing many problems in agricultural economics, students apply the knowledge they have gained in courses such as microeconomics, branch markets theory, public sector economics, and international trade theory and other disciplines to practical material.

Research activity. The following projects and publications are the result of the Institute's research and expert analytical activities:

- ♦ “Conducting research on the market of protein supplements in mixed feeds of Russia and Asia-Pacific countries” (2021);
- ♦ “Educational Courses in the “Global Food and Agricultural Systems” master’s program for the University of Kansas” (2021);
- ♦ “Scientific rationale for the long-term strategy of state support for Russian agri-food exports” (2019);

- ♦ “The development of the advanced evolution concept for regional exports of the Russian agricultural products” (2018);
- ♦ The chapter “Russia” of the book “Review of agricultural trade policy in the post-Soviet countries 2017-18” (2020);
- ♦ The “Prospects of the Chinese market for Russian agri-food exports” article (2020);
- ♦ The “Milk belt” formation as a factor in realizing export potential of Russian agro-industrial complex” article (2019);
- ♦ The chapter “Russia” of the book “Review of agricultural trade policy in post-Soviet countries 2016-17” (2018).

Experts

- ♦ **E.V. Serova**, Doctor of Economic Sciences, a professor of the Department of Applied Economics of the Faculty of Economics. The director of the Institute for Agrarian Studies. Courses taught: “Agricultural Economics” and “Agricultural commodity markets analysis”. Research interests: agri-cultural economy; agri-food policy; agricultural cooperation; land relations;
- ♦ **N.A. Karlova**, Candidate of Economic Sciences and guest lecturer. A course taught: “World Food System”. Research interests: agricultural markets; agri-food exports; WTO activities; rural development.
- ♦ **A.S. Naumov**, Candidate of Geographical Sciences and a guest lecturer. A course taught: “Agrarian Sociology and Rural Development”. Research interests: global agricultural geography and agri-business; socio-economic geography; rural development.
- ♦ **R.G. Yanbykh**, Doctor of Economic Sciences, an associate professor and head of the Agrarian Policy Department. Research interests: agrarian policy; agricultural cooperation; rural development.

Conclusions

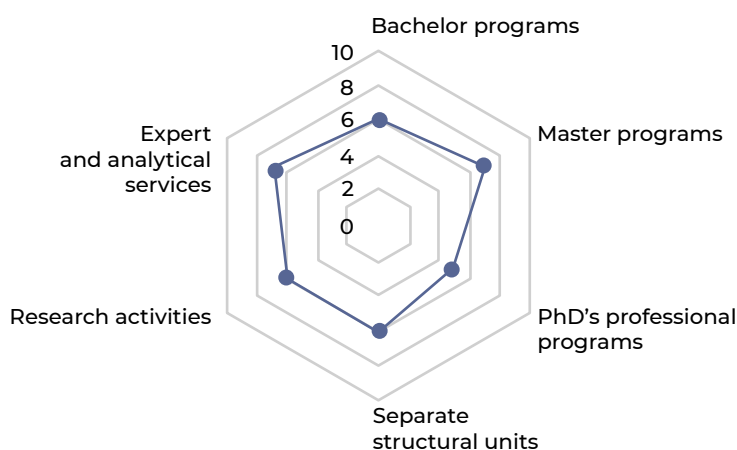
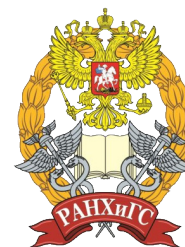


Fig. 16.

- ♦ The educational activity of the Institute for Agrarian Studies of the HSE University is represented by a full-fledged master's program and one bachelor's course.
- ♦ The Institute is actively engaged in research and consulting activities. For example, projects within various grants from government agencies and non-governmental organizations were implemented;
- ♦ There are several departments within the institute that specialize in specific agricultural issues including research on agricultural markets;
- ♦ Also, a large number of experts who specialize in various issues in the development of the agricultural sector, including export issues, are involved in the institute's activity.

3.6. AGRI-FOOD POLICY CENTER OF THE RUSSIAN PRESIDENTIAL ACADEMY OF NATIONAL ECONOMY AND PUBLIC ADMINISTRATION



General information. The Federal State Budgetary Educational Institution of Higher Education “Russian Presidential Academy of National Economy and Public Administration” (hereinafter RANEPA) was created by the Decree of the President of the Russian Federation No. 1140 of 20.09.2010 by the merging of the Russian Academy of National Economy under the government (founded in 1977) with the Russian Academy of Public Administration under the president (founded in 1994). They were also joined with the 12 other federal state educational institutions. Today RANEPA has a wide network of branches across the country (47 branches) and provides training in public administration. The academy has more than 230,000 students, 4,000 implemented educational programs and around 950 professors.

In addition to faculties and institutes RANEPA has research centers including the Center for Agricultural Research, the Center for Agri-Food Policy and the International Laboratory for Foreign Trade Research.

Education. Main higher educational programs do not have a pronounced affiliation with the sectoral agrarian specificity, so they are presented in a traditional format. However, some online courses do cover specific aspects of the agricultural industry.

1. “World economy and foreign economic activity” (the “Economics” direction) bachelor’s program

It is the only world economy program within RANEPA which aims to train specialists in the field of international economic relations. Future professionals will be able to make managerial decisions based on the international economic environment analysis. They will be also able to engage in quantitative forecasting of global market conjuncture, algorithms and programming, to conduct organization’s foreign trade activity, and to define competitive forms of international business.

“World Food System”, “Foreign Economic Activity”, “Organization and Techniques for Foreign Trade Operations”, “International Economic Integration”, and “Transport Support for Foreign Economic Activity” are examples of educational courses of the program.

2. “Trade policy” (the “Economics” direction) bachelor’s program

This program trains qualified specialists who are able to ensure Russian companies’ activities in the foreign market in conditions of legislation adapted to international standards of trade law and liberalization of foreign trade. The relevance of the program is related to the intensive integration of Russia into the world economy and accession to the WTO. It requires Russian managers and economists to have deep theoretical and practical knowledge in the organization of domestic and foreign trade to maintain international competitiveness of national companies and the country as a whole.

“International Logistics”, “International Trade Law”, “Organization and Regulation of Company’s Foreign Trade Activities”, “Industry Markets Theory”, “Risk Management in Company’s Trade Activities”, and “Marketing in Company’s Trade Activities” are examples of educational courses of the program.

3. “International Management” (the “Management” direction) master’s program

This is an English-language master’s program with AACSB accreditation. The program trains leaders with a global strategic vision who are able to anticipate change, easily adapt and create new management models in a rapidly transforming environment. This master’s degree program provides a unique learning system with business simulations, a project-based approach, and a choice of specializations. The ability of combining work and study allows you to immediately apply the acquired knowledge in practice.

“Strategies for Entering International Markets”, “Sales and Distribution Management in Emerging Markets”, “Consumer Behavior in Emerging Markets”, “Investing in Emerging Markets”, “Management Models in Emerging Markets”, and “International Business Development” are examples of educational courses of the program.

4. Professional development programs:

- ♦ “Managing the export potential of an organization” (16 hours);
- ♦ “Foreign Economic Activity Logistics” (16 hours);

Research, expert and analytical activities

1. The Center for Agri-Food Policy is a research center within the RANEPa's Institute of Applied Economic Research. It mainly focuses on providing expert and analytical support to businesses and government agencies on:

- ♦ Assessing the impact of agricultural exports on producers and consumers;
- ♦ Agricultural holdings' activities and the evaluation of their role in agriculture;
- ♦ The potential of rural cooperative development;
- ♦ The assessments of crop development alternatives in the context of the SDGs (Sustainable Development Goals).

A list of research projects conducted by the Center in recent years:

- ♦ "Regulation of foreign trade in agricultural products and ensuring the stable functioning of the domestic market in the context of global economic shocks";
- ♦ "State and risks of food security in a pandemic and declining family income";
- ♦ "Assessment of food security in Russian Federation (2018-2020)";
- ♦ "Assessment of production growth and exports of competitive AIC products";
- ♦ "Agricultural exports' impact on the Russian agri-food sector".

2. The Agricultural Research Center is another research center within the Institute of Applied Economic Research of RANEPa. It is focused on interdisciplinary and comparative agricultural research in Russia and abroad. Key areas of work: the study of agricultural reforms' cycles and crises, the typology of rural communities and the regional development's trajectory, rural-urban labor migration and opportunities for ecological development of the village. The center is engaged in comparative analysis of rural development of northern territories as well as socio-economic differentiation problems of Russian agricultural territories.

Research projects conducted by the Agricultural Research Center in recent years:

"Agrarian Transformation of Agricultural Enterprises and Regions of the BRICS and EU Countries: Comparative Analysis".

3. International Laboratory for Foreign Trade Research is also a research center within the Institute of Applied Economic Research of RANEPa. The main area of laboratory's research interests is trade policy, and international trade and economic relations, including the issues of Russia's participation in the WTO and economic integration in the post-Soviet space. The laboratory prepares expert and analytical materials for ministries and departments of the Russian Federation. The research projects conducted by the laboratory in recent years are:

- ♦ "Benefits and risks from the implementation of trade and economic agreements of the CIS countries for Russian and individual enterprises";
- ♦ "Approaches to assessing the impact of protective trade measures on Russian exporters";
- ♦ "Analysis of Russian exporters' price dynamics factors for non-energy commodities";
- ♦ "Macroeconomic impact of export restrictions imposed by Brazil, Vietnam, Canada, China, the U.S. and the EU motivated by national security concerns amid COVID threats";
- ♦ "Estimation and forecasting the consequences of Russian firms' entering export markets, considering the selection effect".

Experts

- ♦ **N.I. Shagaida**, Doctor of Economic Sciences, a professor and the head of the Agrarian Policy Center. Research interests: food security; agricultural holdings; export impact on Russian agricultural producers
- ♦ **A.Y. Knobel**, Candidate of Economic Sciences, the head of the International Laboratory for Foreign Trade Research. Research interests: trade policy and international trade and economic relations; Russia's participation in the WTO.

Additional information. The Center for Agri-Food Policy has developed an interactive dashboard for food security monitoring which allows you to track the dynamics of key indicators to assess the level of food security in Russia.

Conclusions

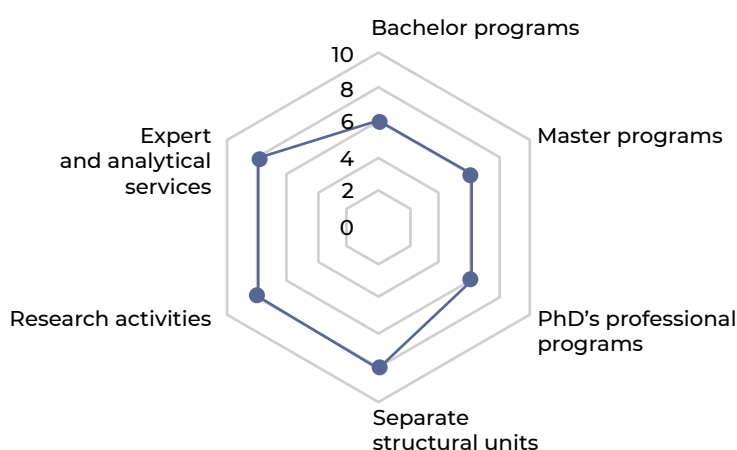


Fig. 17.

- ♦ There are no separate educational programs on agricultural export in RANEPA. However, there are individual bachelor's and master's programs in the field of international trade and foreign economic activities, and the online course "Managing the organization's export potential" is also presented;
- ♦ Research and expert-analytical competencies on the topic of our interest are concentrated in the Center for Agri-Food Policy, the Center for Agricultural Research and the International Laboratory of Foreign Trade Research;
- ♦ It is also worth noting the presence of the interactive dashboard for Food Security Monitoring.

3.7. EURASIAN CENTER FOR FOOD SECURITY OF LOMONOSOV MOSCOW STATE UNIVERSITY



General information. The Federal State Budgetary Educational Institution of Higher Education “M. V. Lomonosov Moscow State University” (hereinafter referred as MSU), founded in 1755, is the oldest Russian university. It occupies the highest position among Russian universities in global subject rankings. The MSU is a leader in the university community of Eastern Europe and Central Asia. It has 39 faculties and 84 dissertation councils. The number of students exceeds 60,000.

MSU actively develops international relations and has more than 700 valid agreements on scientific and educational cooperation with governmental and international organizations, foreign universities and research centers. More than 10,000 foreign and graduate students, and interns from 90 countries annually visit MSU to study, improve their qualifications, and participate in scientific internship programs.

Education. MSU faculties offer bachelor's, master's and postgraduate education programs. Additional education is represented by general education programs (for children) and professional education programs (professional development and vocational retraining programs).

The subject area of our interest is represented at the Department of Agroeconomics of the MSU's Faculty of Economics.

1. “International Business Management” master's program

“International Business Management” master's program is a new program which aims to provide knowledge and practical experience in international business management. This goal is achieved through educational projects and workshops, internships included in the curriculum, and participation in international student teams.

“International Sales Management”, “Entering International Markets and Expansion”, “Supply Chain Management”, “International Business”, and “International Marketing” are examples of educational courses of the program.

2. “World Economy” master's program

This program trains high-level researchers and practitioners in the field of analysis of global processes and international economic relations. During the training, students study current issues and trends in the global economy and international economic cooperation using a combination of modern theoretical concepts and real-world examples and experiences of key players in the global economy.

“Modern Trends in International Trade and the WTO” (the Department of Agroeconomics' course), “International Trade”, “International Statistics”, “The Theory of Foreign Trade”, “International Economic Organizations” are examples of educational courses of the program.

Research, expert and analytical activities

The Eurasian Center for Food Security (MSU's Agricultural center) was established within MSU in 2011. It conducts expert and analytical work on food security issues in Russia, Central Asia, and the South Caucasus.

The center's main international partners are the World Bank and the Institutes and Centers under the Consultative Group on International Agricultural Research (CGIAR). The Food and Agriculture Organization of the United Nations (FAO), the International Fund for Agricultural Development (IFAD), Global Forum on Agricultural Research and Innovation (GFAR), and Central Asia and Caucasus Association of Agricultural Research Institutes (CACAARI) are among other partners.

One of the main directions of the center's expert and analytical activity are the issues of agricultural economy, logistics, social and economic food security problems. Focus regions: Russia, Kazakhstan, Kyrgyzstan, Armenia, Tajikistan and Uzbekistan.

Center's publications in recent years:

- ♦ "Prospects of Russian agri-food exports in the Chinese market";
- ♦ "Food Security in the Eurasia: Case Studies" annual publications of 2016, 2017, 2018, 2019 and 2020 years;
- ♦ "Strengthening Food Security and Building Sustainable Food Systems in Eurasia: Achievements and Prospects";
- ♦ "Anti-crisis agenda of the Eurasian Economic Community with regard to the agro-industrial complex and food security".

The Center also publishes newsletters which contain expert and analytical information on current issues of agricultural development. It conducts country studies such as "Russia - Development of Agri-Food Exports and Competitiveness in Russian Federation".

Experts

- ♦ **S.V. Kiselev**, Doctor of Economic Sciences, a professor and the head of the Department of Agroecoeconomics. Courses taught: "Agricultural economics and food security", "Russia and the WTO", "Modern Trends in International Trade and the WTO". Research interests: agrarian policy; regulation of international agricultural trade and WTO; the impact of climate change on agriculture.
- ♦ **R.A. Romashkin**, Candidate of Economic Sciences, an associate professor at the Department of Agroecoeconomics and the deputy director of the MSU's Eurasian Center for Food Security. Research interests: foreign trade in agricultural products, economic and trade policy modeling, public policy in the field of agriculture.

Conclusions

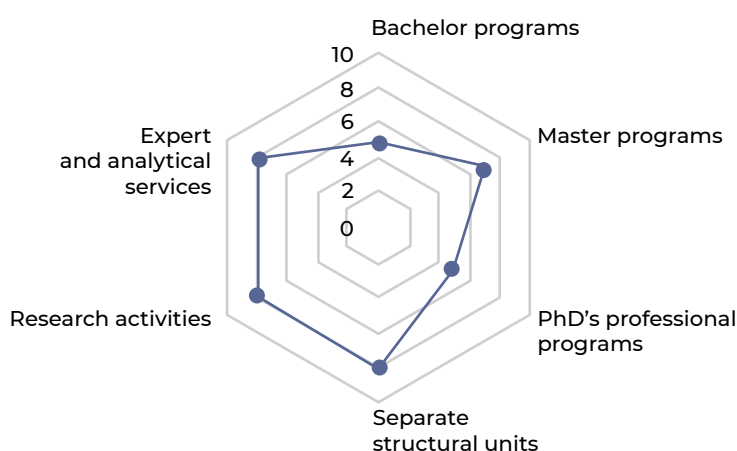


Fig. 18.

- ♦ Relevant topics are presented within individual courses of master's programs, for example, "Modern trends in the development of international trade and the WTO";
- ♦ Research and expert-analytical competencies on international trade in agro-industrial complex products are concentrated in the Eurasian Center for Food Security;
- ♦ Judging by the names and topics of research, the work of the Center is focused on the analysis of the markets of neighboring countries.

3.8. COMPETENCE CENTERS ON CERTAIN ISSUES OF EXPORT OF AGRICULTURAL PRODUCTS

3.8.1. Krasnoyarsk State Agrarian University



General information. The Federal State Budgetary Educational Institution of Higher Education “Krasnoyarsk State Agrarian University” (hereinafter referred as Krasnoyarsk SAU) specializes in such subject areas as agroecology, biotechnology, veterinary medicine, engineering and energy, food production, and economic sciences. The university has more than 9,300 students with access to training programs in 25 areas of bachelor’s degree, 12 of master’s degree, 13 postgraduate areas, and 6 vocational education specialties. The structure of the university is represented by 7 institutes and 45 departments.

Education. Specialization and expertise of faculty at the Institute of economics and AIC management of Krasnoyarsk SAU allow to create interdisciplinary educational programs that are relevant to the modern global challenges and the labor markets’ needs.

1. “Logistics and marketing in the agro-industrial complex” bachelor’s program

“Logistics systems’ design in agribusiness”, “Stockpile management in supply chains”, “Modeling of integrated supply chains” and “Management of multilevel logistics systems” are examples of educational courses of the program.

2. “Agricultural marketing” bachelor’s program

“Analysis of Production and Marketing Activities at Agricultural Enterprises”, “Competitor’s Analysis of Agricultural Products and Markets”, “Product Policy”, “International Marketing”, and “Agro-marketing” are examples of educational courses of the program.

3. “Export of agricultural products” master’s program

The program was accredited by the European Council for Business Education (ECBE) in 2017. “Export management”, “International marketing”, “Foreign economic activities”, “Legal support for export activities”, “Commodity international standardization”, “Foreign trade pricing”, “Tax regulation of export activities”, “Strategic planning and forecasting in export activities”, “Project management in export activities”, and “International cooperation and export” are examples of educational courses program

4. Logistics: supply chain management in AIC master’s program

“Designing logistics systems in the agricultural sector”, “Risk management in supply chains”, “Procurement planning in the contractual purchase system”, “Integrated supply chains’ modeling”, “The formation of distribution systems and networks in logistics” are examples of educational courses of the program.

5. “Economics and organization of business-entrepreneurship in the agro-industrial complex” master’s program

“Agri-food markets and agrarian policy”, “The theory of agricultural cooperation and agro-industrial integration”, “Modern problems of agricultural economy”, “Features of agricultural production” are examples educational courses of the program.

Research and consulting activities. There are 17 scientific schools, 15 innovative laboratories, 3 research centers, a Technology Transfer Center, an Engineering Center and 7 small innovative enterprises at Krasnoyarsk State Agrarian University.

In 2020 the Research Center of competencies in the field of organic agriculture and production was established at Krasnoyarsk SAU. It conducts fundamental, exploratory and applied research and development in the field of organic agriculture and production, and the implementation of research results in production.

The scientific school “Economic mechanism for sustainable development of agro-industrial complex” operates under the guidance of Doctor of Economic Sciences, Professor N.I. Pyzhikov, at the Institute of Economics and AIC Management. Projects implemented by the school:

- ♦ “A model development for the formation and promotion of the regional brand of Krasnoyarsk Territory in the category of oilseeds processing products. Agribusiness: a startup for success”;
- ♦ “The study of mechanisms, forms and volumes of state support on agriculture in Krasnoyarsk Territory”.

Experts

- ♦ **N.V. Grigoriev**, Doctor of Economic Sciences, professor. Some of his publications: “Ensuring food security of the Siberian Federal District in the context of Russia’s membership in the WTO”, “The impact of state support on the return on equity of agricultural organizations”, “The model of the region’s agro-industrial cluster”.
- ♦ **L.A. Ovsyanko**, Doctor of Economic Sciences, professor. Some of her publications: “State support peculiarities of the region’s agricultural subjects”, “Rapeseed for export - new opportunities for the Krasnoyarsk’s agro-industrial complex”.
- ♦ **N.A. Dalisova**, Candidate of Economic Sciences. The head of the “AIC management” department and the developer of the “Export of agricultural products” program. Some of her publications: “Development of export activities of AIC enterprises”, “Ways to Enter the International Farm Market”, “Risk Management in the Export Activities of the Agricultural Enterprises”.

3.8.2. Saratov State Agrarian University named after N.I. Vavilov

General information. The Federal State Budgetary Educational Institution of Higher Education “Saratov State Agrarian University named after N.I. Vavilov” (hereinafter referred as SSAU) is one of the largest universities for training specialists for the agro-industrial complex of the Saratov region and Russia. The university is a participant in the “Priority 2030” state program. The university also annually organizes an international scientific-practical “Problems and prospects of innovative development of global agriculture” conference.



Among the university’s faculties, the Faculty of Economy and Management is engaged in the issue of our interest. Currently, its structure includes the following departments: The Department of Project Management and Foreign Economic Activity in the AIC; the Department of Agricultural Economics.

Education

1. “Industrial Management (agribusiness)” bachelor’s program

“Economics of Agricultural Enterprise”, “Commodity Management in Agribusiness”, “Sales Management in Agribusiness”, “Foreign Economic Activity Management”, “Global Economy and International Economic Relations”, “Investment Management in Agribusiness”, and “Logistic Management in Agribusiness” are examples of educational courses of the program.

2. “Economics of enterprises and organizations of agriculture” bachelor’s program

“Economic efficiency of project activity of the agricultural enterprise”, “Economics of agri-food markets”, “Global economy and international economic relations”, “Fundamentals of agribusiness”, and “Foreign economic activity of the agricultural enterprise” are examples of educational courses of the program.

3. “Management in Agro-industrial Complex” master’s program

“The concept of agribusiness development”, “Planning and evaluation of agricultural projects”, “Agribusiness management”, “Management consulting in agribusiness”, “Agrarian policy”, and “Strategies of agribusiness innovative development” are examples of educational courses of the program.

4. "Agrarian economics" master's program

"Agrarian economics", "Economic analysis in the AIC", "Economic policy in the agro-industrial complex", "Modeling in the agrarian economy", "Global agri-food system", "Global agrarian economy", "Agri-food security of the country" and "Development strategies for the agrarian economics" are examples of educational courses of the program.

Research and consulting activities. The work of the Department of Project Management and Foreign Economic Activity in AIC is conducted in accordance with the following priorities:

- ♦ Development and implementation of an export-oriented strategy for the agricultural evolving;
- ♦ Development of agricultural markets' infrastructure and logistics;
- ♦ Improvement of food and resource markets' agricultural state regulation;
- ♦ Development of the modern agri-food market's infrastructure;
- ♦ Formation of effective foreign economic and interregional interactions of agricultural producers in Russia in the process of establishing a global food market.

The department provides information and analytical services to agricultural producers as well as expert evaluation for the Ministry of Agriculture of Saratov on state regulation of local agricultural business entities.

The faculty of the Department of Project Management and Foreign Economic Activity in AIC has published several training manuals: "International Marketing and International Management", "Logistics of Foreign Economic Activity", "Management of Foreign Economic Activity", "Innovation Management in the AIC".

Experts

- ♦ **I.L. Vorotnikov**, Doctor of Economic Sciences, a professor and the head of the Department of Project Management and Foreign Economic Activity in AIC. Research interests: current problems of innovation economy; building effective regional and federal agri-food policy; socio-economic development of rural areas; market-state partnership.
- ♦ **A.I. Pshentsova**, Candidate of Economic Sciences, an associate professor at the Department of Project Management and Foreign Economic Activity in AIC. Research interests: agri-food policy of Russia; Russian Foreign Trade Activities and foreign economic relations; WTO requirements; agro-marketing.
- ♦ **I.F. Sukhanova**, Doctor of Economic Sciences, a professor at the Department of Agricultural Economics. Disciplines taught: "Strategies of international agro-marketing", "International agro-economics", "Global agri-food system", "Customs regulation and payments", "International food business" and "Foreign economic relations". Research interests: international economic integration; export food potential of Russia and its regions; requirements of the WTO; state support for agricultural producers; Russian foreign economic activity and foreign economic relations; Customs Union of Russia, Belarus, Kazakhstan; the EAEU.

3.8.3. Russian Biotechnological University

General information. The Federal State Budgetary Educational Institution of Higher Education “Russian Biotechnological University” (hereinafter referred as BIOTECH University) is focused on strengthening national security through the development of food and health-saving technologies. It also implements scientific and technological potential of the food and processing industry as well as training of specialists with advanced competencies.



Education. Competences on certain issues of international trade in agricultural products are concentrated within the framework of the following institutions:

1. The Institute of Veterinary Medicine, Veterinary Sanitary Expertise and Agricultural Safety

The Institute's employees, namely employees of the Department of Veterinary and Sanitary Expertise and Biological Safety, implement the following educational courses: “State veterinary supervision of imports and exports”, “International standards in the field of veterinary and sanitary expertise”, “Veterinary Sanitation at the agricultural facilities”, “Veterinary Sanitation in agricultural enterprises”.

2. The Institute of Management and Agribusiness

The Institute's employees, namely employees of the Department of Customs and Commodity Expertise, implement the following educational courses: “Foreign economic activity of food industry enterprises”, “Prohibitions and restrictions on Foreign Economic Activity”, “International marketing of food industry enterprises”, “General and customs statistics”, “Customs and tariff Foreign Economic Activity regulation”, and “The Commodity nomenclature of Foreign Economic Activity”.

The Institute's employees, namely employees of the Department of Business Management and Service Technology, implement the following educational courses: “International Supply Chain”, “Customs Expertise”, “Price formation in Foreign Trade”, “Analysis of Organization's (a Foreign Economic Activity Participant) Financial and Economic Activity”, “Business Planning in the Food Industry's Business Planning”.

The Russian Biotechnological University also implements additional professional programs:

- ♦ “Food safety: the HACCP concept and ISO 22000 standards” (72 hours);
- ♦ “The improvement of industrial veterinary and sanitary control at agricultural enterprises, and veterinary and sanitary expertise laboratories” (72 hours);
- ♦ “Foreign Economic Activity: Practical issues of accounting, taxation, compliance and currency control” (64 hours);
- ♦ “Veterinary and sanitary expertise of raw materials and finished products of animal origin” (72 hours).

Summary

Within our research we analyzed 11 foreign and 7 Russian centers of competence in international agricultural trade which were selected as a relevant sample of research objects according to their average values of rating indicators. The study's subjects were the system of activity organization and key tools for the development of competence centers, which were expressed through the presence of educational programs and courses, separate structural units, research and expert analytical projects, and qualified experts.

We conducted an expert assessment of the selected competence centers, using a 10-point scale where 1 represents the lowest level of development and 10 represents the highest, in addition to analyzing the content of their information resources. The results of the expert assessment are presented in Table 1.

Table 1. The results of the expert evaluation

Name of the universities / Evaluation criteria	Bachelor's programs	Master's programs	Professional and PhD's programs	Separate Structural units	Research activities	Expert and analytical activities	An average value
Competence centers for international agricultural trade of foreign countries							
Cornell University	6	4	9	7	8	7	6.8
University of Illinois at Urbana-Champaign	10	9	8	8	10	9	9.0
Wageningen University & Research	7	8	7	7	8	9	7.7
The University of California, Davis	8	6	7	7	8	8	7.3
The University of Queensland	7	5	7	8	8	8	7.2
China Agricultural University	6	7	6	8	9	5	6.8
Michigan State University	7	7	7	8	10	9	8.0
Ghent University	4	6	4	9	8	7	6.3
The University of British Columbia	8	8	7	7	8	8	7.7
The University of Copenhagen	7	8	6	8	8	7	7.3
Nanjing Agricultural University	6	7	6	8	7	7	6.8
Russian competence centers in international agricultural trade							
Russian State Agrarian University - Moscow Timiryazev Agricultural Academy (RSAU – MTAA)	7	9	7	7	7	7	7.3
RUDN University	6	7	7	6	5	6	6.2
Stavropol State Agrarian University	6	6	8	6	6	7	6.5
Kuban State Agrarian University	5	6	7	6	5	6	5.8
HSE University	6	7	5	6	7	7	6.3
Agri-Food Policy Center of Russian Presidential Academy of National Economy and Public Administration (RANEPA)	6	6	6	8	9	8	7.2
Eurasian Center for Food Security of Lomonosov Moscow State University	5	7	5	8	8	8	6.8

The source: an expert assessment of the FGBU "Agroexport"

Competence centers in international agricultural trade of foreign countries

The table shows that the University of Illinois at Urbana-Champaign (USA) received the highest average score according to the results of the expert evaluation (9.0). This university received the highest score (10) in 2 subject areas out of 6 – “Bachelor’s programs” and “Research activities”.

Indeed, the university offers three bachelor’s programs in the Agricultural & Consumer Economics direction (“Agribusiness Markets & Management”, “Policy, International Trade & Development”, and “Consumer Economics & Finance”) and two separate bachelor’s programs (“Chain Management” and “International Business”) where students are taught in such courses as “International Trade in Food and Agriculture”, “Global Agribusiness Management”, “The World Food Economy”, and “Agricultural and Food Policies”. It is worth noting that the average value of all 11 foreign universities on this criterion is 6.9. This fact allows us to conclude that the university attaches great importance to the development of students’ competencies in the field of international trade in agro-industrial products as a basic higher education.

The University’s research activities, such as “Commercial Agriculture and Commodity Markets” and “International Food Security at Illinois” conducted by the Department of Agricultural and Consumer Economics, are rightfully praised. The Department has also launched several research projects (“Farmdoc”, “AgReach” and “CREATE”), which were internationally recognized by the industry expert community. This indicates that this university has advanced research competencies in the study of global agricultural markets.

Second place with a score of 8.0 is also occupied by an American university - Michigan State University (USA). This university received the highest score (10) in the “Research activities” subject area, and one of the highest (9) in the “Expert and analytical services” subject area.

The University is actively developing research activities, there are more than 100 research centers and institutes operate in its structure. The most interesting is the work of AXIA Institute, which specializes in the study of global logistics and transparency in the international supply chain of goods; the work of the Institute for Food Laws and Regulations, which specialized in legal regulation of international trade in agricultural products, is also notable. Thus, we can conclude that this university has a high level of research competence in the study of international supply chains and legal agricultural trade regulation.

It is also worth noting the university’s field of consulting services where a separate structural unit of the university (The Product Center) offers a wide range of services for agricultural companies: from business planning services to analysis of domestic and foreign agricultural markets, from in-depth technical and economic research to access interactive online resources.

Wageningen University & Research (Netherlands) and the University of British Columbia (Canada) share the third place with a score of 7.7. These competence centers have almost identical scores in comparable subject areas.

However, it is impossible not to mention the direction of Wageningen University & Research’s expert-analytical activities where the university offers three tracks of consulting services to public authorities, businesses and non-governmental organizations: “Market Intelligence” – the assessment of prospects for the global agricultural markets’ development and identifying the motivation of agricultural consumers; “Food security” – the preparation of recommendations to improve corporate policies and strategies for the food security development; “Markets and chains” - providing statistical data on the agricultural markets in Europe and the world (meat, dairy products, cereals, etc.). The wide range of consulting services makes this European university one of the key consulting centers for agricultural market research and agribusiness development in Europe.

At the same time, the University of British Columbia has a highly expert evaluation of its master’s programs. For example, the “Master of Food and Resource Economics” program that combines economic and analytical rigor with business and MBA management elements and gives students the opportunity to analyze real agricultural problems using applied economics and quantitative skills is worth mentioning. This is reflected in such educational courses as “Food Market Analysis”, “Strategic Economic Analysis of Agri-Food Markets”, “Agribusiness Management”, “Financial & Marketing Management in Agri-food Industries” and “Commodity Futures Trading”. Considering the above, we can conclude that this university emphasizes the development of students’ competencies in the field of international agricultural trade as a specialized higher education.

Educational activity. According to the educational activities' research results of the considered foreign countries' competence centers, it is impossible to come to a definite conclusion about the presence of a trend on developing competencies in the field of international agricultural trade only at bachelor's, master's or additional professional programs (as evidenced by the average values of expert assessments of 11 universities: "Bachelor's Programs" (6.9), "Graduate Programs" (6.8), "Professional and PhD programs" (6.7)). Some universities emphasize the development of bachelor's degree, others emphasize the development of master's or additional professional educational degrees.

However, if we talk about European universities, whose system of higher education is similar to the Russian ones, the highest expert evaluation is observed for master's degree programs. This is confirmed by the set of relevant educational programs. For example, Wageningen University & Research (Netherlands) offers "European master's in Food Studies" and "Master's Consumer Studies" programs. The University of Copenhagen (Denmark) offers "Master's programme in Agricultural Economics" and "Master of Science in Integrated Food Studies" program while the Ghent University (Belgium) offers "Master of science in Economics of Globalization and European Integration" program.

At the same time, we cannot ignore a number of highly specialized programs for professionals offered by American competence centers which can be used as the best practices. For example, Cornell University (USA) offers "Accredited HACCP" and "Foreign Supplier Verification Programs" while University of Illinois at Urbana-Champaign (USA) offers "Food & Agribusiness Management Minor" and "Industrial and Agricultural Safety and Health Minor".

Thus, as part of the development of educational activities in the short term, IWAR should focus on the development of master's educational programs and highly specialized programs for professionals, followed by the creation and development of undergraduate programs in the global agricultural markets in the long term.

Research activity. It is worth noting that all reviewed competence centers actively develop research activities on international food trade and agricultural development. The range of covered issues is widest: from food security and climate impact on international trade to consumer preferences and new food production technologies.

At the same time, the development of research activities on the issues in question takes place both as part of autonomous work within the branch institute and as part of interdisciplinary work on the basis of a separate center, which projects involve specialists in various fields (managers, lawyers, economists, logisticians, marketers). The choice of one or another model of work is determined by the "research culture" and the availability of the necessary university resources. In this regard, it is difficult to draw unequivocal conclusions about the prospects of one or another model for IWAR.

Expert and analytical activities. The range of expert and analytical services of foreign competence centers, as well as the range of areas of research activities, is quite wide. However, it is worth noting that European and North American universities are characterized by different models of consulting activities. Thus, the reviewed European universities are mainly specialized in providing consulting services in the form of market research, designing development strategies and government programs, and providing access to various online platforms and databases. The American universities, in turn, mainly specialize in granting rights to the intellectual activity's results (patents, licenses, etc.), attracting companies to partnerships by investing in university startups, and providing consulting services by individual university employees. Thus, taking into account the proximity of Russian and European systems of higher education and cultures of expert-analytical activity, it seems reasonable to consider the experience of the model of consulting activity development of Wageningen University & Research (the Netherlands) as a best practice.

Russian competence centers in the field of international agricultural trade

The data in the table shows that the Russian State Agrarian University - Moscow Timiryazev Agricultural Academy (RSAU – MTAA) has the highest average score (7.3) among Russian competence centers according to the results of expert evaluation. This university has sufficiently high marks in all subject areas. But it is necessary to pay special attention to the "International Agricultural Markets" profile within the "Economics" master's program where the university trains specialists and managers in the field of Foreign Economics Activities planning and management for further work in government institutions and agricultural companies. Students master such educational courses as "International agricultural markets", "Foreign trade transactions", "Foreign trade transportation", "Foreign economic activity", "Foreign language in the field of professional activity", "International Marketing", "International Management" and other specialized courses.

It is worth noting that this is one of the few highly specialized master's programs of international agricultural trade in Russia. In addition to RSAU – MTAA, a similar master's program ("Export of Agricultural Products") is taught at Krasnoyarsk State Agrarian University which was not included in the main sample of research objects but was analyzed in the report section "Competence centers on certain issues of export of agricultural products". Thus, these master's programs can be considered as a relevant example for subsequent study in the construction of IWAR's educational programs.

According to the results of expert evaluation, the second and the third places are taken by the Agri-Food Policy Center of Russian Presidential Academy of National Economy and Public Administration (RANEPA) (7.2) and the Eurasian Center for Food Security of Lomonosov Moscow State University (MSU) (6.8) respectively. The activity of these competence centers is mainly focused on research and expert-analytical directions. The specialists of these competence centers are less actively involved in educational activities than in the above-mentioned areas, primarily focusing on the preparation and reading of individual educational courses.

Speaking about the Center for Agri-food Policy of RANEPA, its activities are focused on providing consulting services to the authorities and businesses on assessing the impact of exports on agricultural producers and consumers of agricultural products as well as evaluating the activities of agricultural holdings and their role in the development of the agro-industrial complex. It is worth noting that in addition to the Center for Agri-Food Policy, the Center for Agricultural Research and the International Laboratory for Foreign Trade Research also work in the structure of RANEPA. Together with them, the Center for Agri-Food Policy of RANEPA forms a major center of competence for international trade in agro-industrial products in Russia.

The MSU's Eurasian Center for Food Security carries out expert and analytical work on food security issues in Russia, Central Asia, and the South Caucasus. It provides consulting services to authorities and businesses on the development of the agro-industrial complex economy, logistics, food security and focuses mainly on the markets of Russia, Kazakhstan, Kyrgyzstan, Armenia, Tajikistan and Uzbekistan. In addition to these competencies, the information bulletins of the MSU's Agricultural center on topical issues of the development of the agro-industrial complex are of particular interest.

Recommendations

To achieve the goal of this study we have developed following theoretical and methodological provisions, and practical recommendations for the IWAR's development as a competence center in the AIC export development:

A. Educational activities

Main points:

- ♦ Development of IWAR's educational programs' portfolio in accordance with the Russian and international labor market requirements.
- ♦ All IWAR's educational programs should be formed on the basis of a forecast of demand for competencies on a horizon of 2-5 years through a more consistent involvement of employers and strategic partners in the program development process.
- ♦ In the area of educational activities, IWAR needs a transition to building personalized educational tracks. These tracks consider each student's preferences and professional goals, and use hybrid learning formats.
- ♦ Development of international academic cooperation with foreign competence centers by increasing the number of master's programs jointly conducted with foreign universities, expanding the practice of international exchange and the availability of double degree options on key programs.
- ♦ Increasing the level of satisfaction of IWAR students and the transition to managing their full educational cycle (3L - Life long learning).
- ♦ Development of professional development and professional retraining programs for IWAR, including creation of a pool of mass and premium additional professional education programs designed for new target audiences.

Actions:

1. Development of master's, professional and MBA programs for all steps of AIC career (from analyst and Foreign Economic Activity manager to the head of export direction and the commercial director).
2. Development of an online master's degree to teach basic knowledge in the field of agricultural management "on-the-job" for working professionals of companies in the agricultural sector at the beginning of their managerial career.
3. Development of advanced training and professional retraining programs for all types of employees involved in export development: for companies in the agricultural sector (analyst, marketer, manager, logistician, quality specialist), for the authorities and development institutions (specialist in creating strategic development documents, manager in organizing business missions and B2B-meetings).
4. Renewal of the "Global Agrarian Markets and Foreign Economic Activities in AIC" MBA program and receiving an accreditation (for example, the EQUIS (European Quality Improvement System) accreditation).
5. Implementation of ESG-agenda into the learning courses in IWAR's educational programs, the creation of specialized additional professional education program on the impact of ESG-agenda on AIC export development and food security.
6. Creation of free online programs for IWAR's students for receiving additional qualifications (in the form of online courses): the international business etiquette, the international business communications, industry terminology, work with Big Data etc.
7. Creation of specialized production for entrants: the career's online games, webinars and career guidance testing.
8. Formation of the system of mentoring of first year students by corporative partners and elder students.
9. Creation of leading programs and case championships of IWAR's students in cooperation with international and Russian agricultural companies.
10. Development of summer and winter IWAR's schools, including English-speaking international schools, as an instrument for attracting new applicants.
11. Expansion of internship options for international students in Russia and for Russian students abroad.
12. Creation of a resource center for training cases on the export of AIC products, including the creation and development of a team of case authors (teachers from IWAR and other stakeholders) and the formation of the largest collection of training cases based on the practical experience of Russian and foreign companies of the agro-industrial complex sector.

B. Research activities

Main points:

- ♦ Development of IWAR as an international scientific center and creation of world-class research environment.
- ♦ Development of strategic partnerships with international scientific centers and development institutions, including foreign centers of competence for international trade in agricultural products.
- ♦ Systemic implementation of the product approach to research activities with a focus on publications in leading scientific journals, creating content for educational programs and expert speeches.
- ♦ Research topics should be formed considering the priorities of partner companies of the agro-industrial complex sector.

Actions:

1. Formation of an effective system of research support: financial support, technical and organizational support, promotion and popularization.
2. Creation of international teams of researchers on the basis of IWAR.
3. Formation of a short-term mobility program for IWAR's academic staff (creation of a system of direct funding and travel-grants).
4. Increasing the number of publications in "A" category scientific journals and in journals included in the Financial Times 50 list.
5. Formation of a program for the development of IWAR postgraduate and doctoral studies (intensive study programs, double postgraduate studies with a PhD degree in foreign centers of excellence, increased scholarships).
6. Active participation of IWAR in the activities of MGIMO centers: the ASEAN Center, the Center for East Asian and Shanghai Cooperation Organization Studies.
7. Organization and conduct of student conferences and publications, creation and support of the IWAR Scientific Student Society.
8. IWAR research activities should focus on such topics as food security, international supply chains, climate impacts and ESGs, food safety, international certification, behavior of consumers of agri-business products, and other relevant topics.
9. The Center for Certification of Agricultural Products, the Institute of Agro-Logistics, the Center of Statistics and Data on World Agricultural Markets can subsequently be opened on the basis of IWAR.

C. Expert and analytical activities**Main points:**

- ♦ Development of expert and analytical activities of IWAR on the principles of leading commercial consulting companies.
- ♦ Formation of a wide product line of consulting services for government agencies, NGOs and businesses on the principles of European competence centers.

Actions:

1. Development of IWAR's Strategy for the Development of Strategic Consulting, which defines the principles of the management system, motivation system, specialized recruiting system, product line, marketing system, and B2B and B2C sales.
2. Development of the system of regional consulting aimed at medium and large AIC companies, public authorities of "agricultural regions", Moscow and Moscow region.
3. Creation of a Corporate Training Center.
4. Promotion of IWAR products (consulting, additional professional education programs) among current students of educational programs.

D. Staffing**Main points:**

- ♦ Strengthening of the IWAR staff through the purposeful attraction of specialists from leading foreign institutes, including world-class professors, and Russian universities, including specialists with Candidate of Science or Doctor of Science degree.

- ♦ Involvement of teachers-practitioners and representatives of companies with industry expertise.
- ♦ Continuous improvement and development of IWAR teachers on improving the quality of educational programs.

Actions:

1. Establishment of a recruitment center on the basis of IWAR.
2. Formation of an effective system of personnel management: development of long-term career tracks, international academic mobility, intelligible and transparent system of employment, grants programs for faculty.
3. Active involvement of young teachers and researchers through postgraduate and postdoctoral programs.
4. Development of the practice of attracting top managers and owners of AIC companies to teaching activities as professors of business practice.
5. Identification of potential practicing teachers among IWAR alumni and partners.
6. Creation of a separate program for recruiting leading professors from international organizations to lead major research projects of IWAR.
7. Creation of a separate program to support talented young scientists.
8. Providing the opportunity for “cluster recruiting” to attract formed scientific and professional teams.
9. Creation of the institute of IWAR ambassadors abroad and in the regions of Russia - unofficial representatives from among alumni and teachers, by analogy with brand ambassadors of companies.

E. Financial Support

Actions:

1. Creation of fundraising tools to support the initiatives requiring immediate financing (for example, inviting foreign professors, creating new educational programs and courses).
2. Creation of a special Development Fund for long-term financing of IWAR strategic initiatives with participation of IWAR partners.

F. Organizational development

Main points:

- ♦ Expansion of the geography of IWAR's presence both globally and in Russia by attracting more international participants and increasing its presence in the Russian regions.
- ♦ Formation of a digital environment for interaction between students, staff, IWAR partners and other stakeholders.
- ♦ Creation of a unified system of career support at all stages of management career development.
- ♦ Formation of a strong brand and wide recognition of IWAR.

Actions:

- ♦ Creation of the IWAR's Board of Trustees that includes representatives from Russian AIC companies, transnational companies in the agribusiness sector, government agencies and development institutions for building an effective system of management of IWAR's development.
- ♦ Formation of a Center of Competence in Educational Technologies which would specialize in methodological support for instructors in developing educational programs and courses including creation of necessary infrastructure - equipment, studios, software.

- ♦ Creation of the Career Management Center to assist students and alumni of IWAR in matters of employment (career support, recruitment agency services).
- ♦ Providing an English-speaking administrative environment for the adaptation of international students and teachers, including the implementation of adaptation programs and career services.
- ♦ Creation and development of electronic resources of collective use for students and faculty: databases, libraries, subscriptions to sources (Euromonitor, EMIS, The World Bank).
- ♦ Development of IWAR competencies in promotion of educational programs in the international market, digital marketing, SMM and PR activities.
- ♦ Creation of a digital platform of interaction with students, alumni and employers, educational courses, analytics, interactive services.

In that way, the development of these activities and the implementation of these actions will contribute to the formation and development of the Institute of World Agricultural Markets of MGIMO as a global center of competence in the field of international trade in agro-industrial products.

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- 28.** RUDN University: www.rudn.ru
- 29.** Stavropol State Agrarian University: www.stgau.ru
- 30.** KubSAU: kubsau.ru
- 31.** The Institute for Agrarian Studies at HSE University: inagres.hse.ru
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- 34.** Krasnoyarsk State Agrarian University: www.kgau.ru
- 35.** Saratov State Agrarian University named after N.I. Vavilov: www.sgau.ru
- 36.** Russian Biotechnological University: mgupp.ru/

Appendix 1

TOP 25 UNIVERSITIES IN EACH OF THE 4 ANALYZED RANKINGS

1. QS World University Rankings – “Agricultural & Forestry”

Nº	Name of the university	Country	2022	2021	2020	Average	Ranking
1	Wageningen University & Research	Netherlands	98.5	98.8	96.9	98.1	1
2	The University of California, Davis	USA	92.4	93.8	91.8	92.7	2
3	The Swedish University of Agricultural Sciences	Sweden	90.4	90.0	89.3	89.9	3
4	Cornell University	USA	84.6	86.0	84.3	85.0	4
5	China Agricultural University	China	84.0	84.8	81.6	83.5	6
6	ETH Zurich - The Swiss Federal Institute of Technology	Switzerland	82.7	84.9	83.7	83.8	5
7	The University of California, Berkeley	USA	82.6	83.1	83.8	83.2	7
8	Purdue University	USA	82.2	81.3	77.6	80.4	12
9	The Norwegian University of Life Sciences	Norway	81.3	79.2	79.8	80.1	13
10	Michigan State University	USA	81.2	83.0	80.5	81.6	10
11	Ghent University	Belgium	80.9	82.8	80.3	81.3	11
12	The University of Reading	UK	80.9	82.0	82.4	81.8	9
13	The University of Wisconsin-Madison	USA	80.4	84.4	82.5	82.4	8
14	Iowa State University	USA	79.9	81.4	78.2	79.8	14
15	Texas A&M University	USA	79.3	80.8	77.1	79.1	17
16	The University of Queensland	Australia	78.7	77.4	76.7	77.6	21
17	The University of British Columbia	Canada	78.7	80.5	78.6	79.3	16
18	The University of Copenhagen	Denmark	78.7	81.5	78.0	79.4	15
19	The University of Hohenheim	Germany	77.9	79.3	78.2	78.5	18
20	The University of Guelph	Canada	77.8	79.1	78.0	78.3	19
21	The University of Illinois at Urbana-Champaign	USA	77.8	76.9	76.0	76.9	23
22	North Carolina State University	USA	77.1	76.0	73.8	75.6	30
23	The University of Natural Resources and Life Sciences	Austria	76.6	76.8	75.1	76.2	27
24	The University of Tokyo	Japan	76.3	78.6	78.5	77.8	20
25	Montpellier SupAgro	France	76.0	71.1	74.3	73.8	40

Nº	Name of the university	Country	2022	2021	2020	Average	Ranking
26	Oregon State University	USA	75.9	79.2	76.8	77.3	22
27	The Technical University of Munich	Germany	75.7	76.2	76.9	76.3	26
28	The University of Florida	USA	75.7	77.7	75.1	76.2	28
29	Nanjing Agricultural University	China	75.5	78.1	76.2	76.6	24
30	The University of Göttingen	Germany	75.3	77.4	77.1	76.6	25
31	The University of Massachusetts Amherst	USA	75.2	75.5	–	75.4	31
32	The Ohio State University	USA	75.1	76.5	73.6	75.1	32
33	Pennsylvania State University	USA	74.9	77.8	75.2	76.0	29
34	Seoul National University	South Korea	74.6	74.1	75.5	74.7	34
35	Université Paris-Saclay	France	74.5	–	–	74.5	36
36	South China Agricultural University	China	74.2	74.2	75.3	74.6	35
37	Aarhus University	Denmark	73.8	77.2	74.2	75.1	33
38	The University of Minnesota Twin Cities	USA	73.8	75.1	73.5	74.1	38
39	Australian National University	Australia	73.5	74.3	75.1	74.3	37
40	Alma Mater Studiorum - The University of Bologna	Italy	73.2	73.7	73.7	73.5	41
41	Bogor Agricultural University	Indonesia	73.0	71.3	–	72.2	49
42	Universitat Politècnica de Valencia	Spain	73.0	72.4	–	72.7	47
43	The University of Helsinki	Finland	72.8	73.4	73.1	73.1	42
44	Zhejiang University	China	72.8	74.9	–	73.9	39
45	The University of Western Australia	Australia	72.7	73.0	72.9	72.9	44
46	Washington State University	USA	72.7	73.7	71.9	72.8	46
47	Universidade Estadual de Campinas (Unicamp)	Brazil	72.6	73.1	–	72.9	45
48	Universidade de São Paulo	Brazil	72.5	73.6	71.9	72.7	48
49	Warsaw University of Life Sciences SGGW	Poland	72.5	70.5	73.6	72.2	50
50	The University of Melbourne	Australia	72.4	72.3	74.5	73.1	43

2. THE World University Rankings – “Agricultural & Forestry”

Nº	Name of the university	Country	2022	2021	2020	Average	Ranking
1	Harvard University	USA	95.0	95.9	93.0	94.6	1
2	Stanford University	USA	94.9	91.0	94.3	93.4	2

Nº	Name of the university	Country	2022	2021	2020	Average	Ranking
3	Princeton University	USA	93.6	93.3	93.2	93.4	3
4	The University of California, Berkeley	USA	92.2	92.7	88.3	91.1	5
5	Yale University	USA	90.8	91.5	91.7	91.3	4
6	Columbia University	USA	89.6	85.8	87.0	87.5	8
7	The University of Pennsylvania	USA	88.4	88.9	89.6	89.0	6
8	ETH Zurich	Switzerland	88.2	87.9	88.3	88.1	7
9	The University of Toronto	Canada	87.2	86.0	85.5	86.2	10
10	The University of California, Los Angeles	USA	86.7	87.1	86.8	86.9	9
11	The National University of Singapore	Singapore	85.2	83.5	81.9	83.5	14
12	Cornell University	USA	85.0	85.3	85.1	85.1	11
13	Duke University	USA	83.5	84.8	84.0	84.1	12
14	The University of Michigan Ann Arbor	USA	83.1	84.0	83.8	83.6	13
15	The University of Washington	USA	79.8	80.4	81.6	80.6	15
16	The University of Edinburgh	UK	78.9	79.4	79.4	79.2	16
17	The University of Hong Kong	China (Hong Kong)	78.9	75.2	75.9	76.7	18
18	The University of Melbourne	Australia	77.8	78.9	77.8	78.2	17
19	The University of Tokyo	Japan	76.0	76.0	75.7	75.9	20
20	The University of British Columbia	Canada	75.8	76.4	76.3	76.2	19
21	The Technical University of Munich	Germany	75.6	74.8	74.1	74.8	21
22	KU Leuven	Belgium	73.6	73.7	73.2	73.5	23
23	McGill University	Canada	73.4	75.1	74.3	74.3	22
24	The University of Illinois at Urbana-Champaign	USA	72.6	72.3	72.9	72.6	24
25	The University of Manchester	UK	71.2	70.9	69.7	70.6	26
26	The University of North Carolina at Chapel Hill	USA	70.6	70.1	69.9	70.2	28
27	Wageningen University & Research	Netherlands	70.1	69.4	69.4	69.6	30
28	Australian National University	Australia	70.0	69.8	72.1	70.6	27
29	The University of Queensland	Australia	70.0	69.4	67.4	68.9	34
30	Seoul National University	South Korea	70.0	69.7	68.0	69.2	32
31	The University of Sydney	Australia	69.8	70.9	69.3	70.0	29
32	The University of Wisconsin-Madison	USA	69.8	71.4	72.0	71.1	25
33	Fudan University	China	69.7	66.7	61.4	65.9	37

Nº	Name of the university	Country	2022	2021	2020	Average	Ranking
34	Kyoto University	Japan	69.6	70.3	67.7	69.2	33
35	The University of Southern California	USA	69.3	70.4	68.1	69.3	31
36	The University of California, Davis	USA	67.9	68.9	69.7	68.8	35
37	The University of California, Santa Barbara	USA	67.7	67.9	69.6	68.4	36
38	The Humboldt University of Berlin	Germany	66.3	65.1	65.0	65.5	39
39	The Delft University of Technology	Netherlands	65.8	65.2	66.7	65.9	38
40	Zhejiang University	China	65.8	62.5	61.5	63.3	43
41	The University of Zurich	Switzerland	65.8	65.6	62.8	64.7	41
42	Shanghai Jiao Tong University	China	64.7	61.8	56.9	61.1	49
43	Ohio State University	USA	63.8	65.1	66.1	65.0	40
44	The University of Glasgow	UK	63.7	62.9	62.2	62.9	44
45	The University of Minnesota	USA	63.7	63.7	64.1	63.8	42
46	The University of Maryland, College Park	USA	63.0	63.1	62.7	62.9	45
47	Michigan State University	USA	63.0	61.5	63.9	62.8	46
48	The University of Copenhagen	Denmark	62.7	53.8	62.1	59.5	50
49	Ghent University	Belgium	62.7	61.6	59.7	61.3	48
50	The University of Helsinki	Finland	62.2	62.1	62.3	62.2	47

3. ShanghaiRanking's Global Ranking of Academic Subjects Methodology – “Agricultural science”

Nº	Name of the university	Country	2022	2021	2020	Average	Ranking
1	Wageningen University & Research	Netherlands	292.0	302.3	303.0	299.1	1
2	China Agricultural University	China	291.1	292.3	279.4	287.6	2
3	Northwest A&F University	China	290.9	286.0	267.2	281.4	4
4	Nanjing Agricultural University	China	285.2	288.4	277.1	283.6	3
5	Huazhong Agricultural University	China	261.9	263.3	251.3	258.8	5
6	The University of California, Davis	USA	250.5	262.5	260.9	258.0	6
7	Zhejiang University	China	246.8	248.3	240.8	245.3	7
8	The University of Florida	USA	246.1	248.8	238.5	244.5	9
9	Cornell University	USA	242.1	246.4	246.0	244.8	8
10	The Swedish University of Agricultural Sciences	Sweden	239.8	245.8	244.9	243.5	10
11	Paris-Saclay University	France	230.6	234.0	230.8	231.8	12
12	Michigan State University	USA	229.8	240.6	237.0	235.8	11

Nº	Name of the university	Country	2022	2021	2020	Average	Ranking
13	Ghent University	Belgium	223.6	230.8	228.3	227.6	13
14	South China Agricultural University	China	223.3	211.7	198.9	211.3	26
15	The University of Western Australia	Australia	222.6	226.7	224.7	224.7	15
16	The University of Copenhagen	Denmark	221.5	228.9	228.7	226.4	14
17	The University of Montpellier	France	218.8	217.9	210.0	215.6	21
18	The University of Sao Paulo	Brazil	218.2	222.2	213.3	217.9	19
19	Aarhus University	Denmark	217.0	228.2	227.6	224.3	16
20	The University of Wisconsin - Madison	USA	216.6	226.4	226.6	223.2	17
21	Institut Agro	France	216.0	222.1	205.6	214.6	23
22	The University of Goettingen	Germany	215.2	216.0	212.2	214.5	24
23	The University of Illinois at Urbana-Champaign	USA	215.1	222.4	218.5	218.7	18
24	The University of Queensland	Australia	210.8	218.1	216.7	215.2	22
25	The University of British Columbia	Canada	210.2	220.8	221.2	217.4	20
26	Shandong Agricultural University	China	209.8	204.6	–	207.2	30
27	Iowa State University	USA	207.2	216.9	217.5	213.9	25
28	Purdue University - West Lafayette	USA	205.6	209.6	209.2	208.1	28
29	The University of Minnesota, Twin Cities	USA	205.3	212.2	214.6	210.7	27
30	The University of Guelph	Canada	204.6	210.2	207.2	207.3	29
31	Texas A&M University	USA	203.7	203.0	197.5	201.4	34
32	Sichuan Agricultural University	China	203.6	202.0	191.5	199.0	39
33	The University of Georgia	USA	202.9	207.2	202.0	204.0	31
34	North Carolina State University – Raleigh	USA	201.9	205.0	201.8	202.9	33
35	Fujian Agriculture and Forestry University	China	201.7	195.3	–	198.5	40
36	The University of Melbourne	Australia	201.3	204.6	203.7	203.2	32
37	The Technical University of Munich	Germany	199.3	202.2	202.3	201.3	35
38	ETH Zurich	Switzerland	195.1	203.7	204.4	201.1	36
39	Washington State University	USA	194.5	203.9	202.7	200.4	37
40	The University of Sydney	Australia	194.1	198.3	199.3	197.2	42
41	Kansas State University	USA	193.1	198.4	199.3	196.9	44
42	The University of Alberta	Canada	192.5	200.1	201.1	197.9	41
43	The University of California, Berkeley	USA	192.5	203.7	203.1	199.8	38

Nº	Name of the university	Country	2022	2021	2020	Average	Ranking
44	The University of Padua	Italy	192.3	196.9	191.6	193.6	48
45	The University of Adelaide	Australia	192.2	199.1	200.3	197.2	43
46	The University of Bonn	Germany	191.3	197.4	195.5	194.7	46
47	The University of Helsinki	Finland	191.3	196.9	194.4	194.2	47
48	The University of Cambridge	UK	190.4	195.2	–	192.8	49
49	The University of Hohenheim	Germany	189.6	–	–	189.6	50
50	Oregon State University	USA	189.4	200.1	200.1	196.5	45

4. Best Global Universities for Agricultural Sciences (U.S. News)

no	Name of the university	Country	2022	Ranking
1	Wageningen University and Research Center	Netherlands	100.0	1
2	China Agricultural University	China	94.1	2
3	South China University of Technology	China	93.0	3
4	Jiangnan University	China	91.5	4
5	The University of Massachusetts Amherst	USA	91.1	5
6	Zhejiang University	China	87.1	6
7	The University of California, Davis	USA	86.2	7
8	Cornell University	USA	86.1	8
9	Nanjing Agricultural University	China	86.1	9
10	Universidade de Sao Paulo	Brazil	84.7	10
11	Northwest A&F University - China	China	83.6	11
12	The University of Valencia	Spain	81.4	12
13	The State University of Campinas	Brazil	81.3	13
14	The University of Queensland	Australia	81.0	14
15	The University of Florida	USA	79.5	15
16	Nanchang University	China	78.8	16
17	Ghent University	Belgium	78.6	17
18	The University of Copenhagen	Denmark	78.6	18
19	Huazhong Agricultural University	China	76.1	19
20	University College Dublin	Ireland	76.0	20
21	The University of Guelph	Canada	75.6	21
22	The University of Illinois at Urbana-Champaign	USA	75.6	22
23	Michigan State University	USA	75.3	23
24	Purdue University-West Lafayette	USA	74.2	24
25	The National University of Singapore	Singapore	73.8	25
26	Harvard University	USA	73.7	26
27	King Abdulaziz University	Saudi Arabia	73.7	27
28	The University of Wisconsin-Madison	USA	73.0	28
29	The University of Western Australia	Australia	72.1	29
30	The University of Bologna	Italy	71.2	30

no	Name of the university	Country	2022	Ranking
31	Washington State University	USA	71.2	31
32	Iowa State University	USA	71.0	32
33	The University of Chinese Academy of Sciences	China	70.9	33
34	The University of Hohenheim	Germany	70.4	34
35	The University of Milan	Italy	70.0	35
36	The Swiss Federal Institute of Technology, Zurich	Switzerland	69.6	36
37	The University of Sydney	Australia	69.6	37
38	Texas A&M University-College Station	USA	69.5	38
39	Ohio State University-Columbus	USA	69.4	39
40	The Catholic University of Leuven	Belgium	69.1	40
41	The University of British Columbia	Canada	69.0	41
42	The Swedish University of Agricultural Sciences	Sweden	68.1	42
43	Fujian Agriculture and Forestry University	China	67.9	43
44	The Technical University of Munich	Germany	67.7	44
45	Universiti Putra Malaysia	Malaysia	67.6	45
46	The University of Minnesota-Twin Cities	USA	67.6	46
47	Rutgers, The State University of New Jersey-New Brunswick	USA	67.0	47
48	Kansas State University	USA	66.9	48
49	Aarhus University	Denmark	66.7	49
50	South China Agricultural University	China	66.4	50

Appendix 2

CLASSIFICATION OF UNIVERSITIES ACCORDING TO THE OCCURRENCE IN THE LIST OF THE TOP 25 OF EACH OF THE FOUR RANKINGS

Nº	Name of the university	QS	THE	ARWU	U.S. News	Amount	Group
1	Cornell University	X	X	X	X	4	First
2	The University of Illinois at Urbana-Champaign	X	X	X	X	4	First
3	Wageningen University & Research	X		X	X	3	Second
4	The University of California, Davis	X		X	X	3	Second
5	China Agricultural University	X		X	X	3	Second
6	Michigan State University	X		X	X	3	Second
7	Ghent University	X		X	X	3	Second
8	The University of Queensland	X		X	X	3	Second
9	The University of British Columbia	X	X	X		3	Second
10	The University of Copenhagen	X		X	X	3	Second
11	Nanjing Agricultural University	X		X	X	3	Second
12	The Swedish University of Agricultural Sciences	X		X		2	Third
13	ETH Zurich - The Swiss Federal Institute of Technology	X	X			2	Third
14	The University of California, Berkeley	X	X			2	Third
15	Purdue University	X			X	2	Third
16	The University of Wisconsin-Madison	X	X			2	Third
17	Iowa State University	X		X		2	Third
18	The University of Guelph	X			X	2	Third
19	The University of Tokyo	X	X			2	Third
20	The National University of Singapore		X		X	2	Third
21	Northwest A&F University			X	X	2	Third
22	Huazhong Agricultural University			X	X	2	Third
23	Zhejiang University			X	X	2	Third
24	The University of Florida			X	X	2	Third
25	The University of Sao Paulo			X	X	2	Third
26	Norwegian University of Life Sciences	X				1	Fourth

Nº	Name of the university	QS	THE	ARWU	U.S. News	Amount	Group
27	The University of Reading	X				1	Fourth
28	Texas A&M University	X				1	Fourth
29	The University of Hohenheim	X				1	Fourth
30	Oregon State University	X				1	Fourth
31	University of Göttingen	X				1	Fourth
32	Harvard University		X			1	Fourth
33	Stanford University		X			1	Fourth
34	Princeton University		X			1	Fourth
35	Yale University		X			1	Fourth
36	Columbia University		X			1	Fourth
37	The University of Pennsylvania		X			1	Fourth
38	The University of Toronto		X			1	Fourth
39	The University of California, Los Angeles		X			1	Fourth
40	Duke University		X			1	Fourth
41	The University of Michigan Ann Arbor		X			1	Fourth
42	The University of Washington		X			1	Fourth
43	The University of Edinburgh		X			1	Fourth
44	The University of Hong Kong		X			1	Fourth
45	The University of Melbourne		X			1	Fourth
46	The Technical University of Munich		X			1	Fourth
47	KU Leuven		X			1	Fourth
48	McGill University		X			1	Fourth
49	Paris-Saclay University			X		1	Fourth
50	The University of Western Australia			X		1	Fourth
51	The University of Montpellier			X		1	Fourth
52	Aarhus University			X		1	Fourth
53	Institut Agro			X		1	Fourth
54	The South China University of Technology				X	1	Fourth
55	The Jiangnan University				X	1	Fourth
56	The University of Massachusetts Amherst				X	1	Fourth

Nº	Name of the university	QS	THE	ARWU	U.S. News	Amount	Group
57	The University of Valencia				X	1	Fourth
58	The State University of Campinas				X	1	Fourth
59	Nanchang University				X	1	Fourth
60	University College Dublin				X	1	Fourth