Transitions in Intellectual and Technological needs in Ukraine: impact on the university and Ukraine’s traditional economic strengths

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Rector,
National University of Life and Environmental Sciences of Ukraine
Fig. 1. MAIN STAGES OF THE EVOLUTION OF NATIONAL UNIVERSITY OF LIFE AND ENVIRONMENTAL SCIENCES OF UKRAINE
FIG. 2. GEOGRAPHY OF STRUCTURAL SUBDIVISIONS OF NATIONAL UNIVERSITY OF LIFE AND ENVIRONMENTAL SCIENCES OF UKRAINE
• During the last years according to the rating results NUBiP of Ukraine takes 1\textsuperscript{st} place among 21 Agricultural Universities of Ukraine and is in the Top-10 Ukrainian Universities;

• Educational activity of the University has public character and is protected from interference of political parties as well as religious organizations.
Activities and Development Strategy of NUBiP of Ukraine

Ukrainian Agricultural Academy (1985)

Educational System

Research System

Implementation System of Scientific and Technological Progress

Production Area

Typical scheme of the University educational, scientific and service activity types interaction (by 1985)

National Agrarian University (1994)

- Education and Research Institutes, Centers
- Faculties
- Departments
- Colleges
- Research Farms
- Technical Schools

Educational System

Research System

System of Innovative Activities

Production Area

Formation of autonomous Higher Educational Establishment with integrated activity types within its structural subdivisions (by 1994)

National University of Live and Environmental Sciences of Ukraine (2008)

- Research Institutes
- Problem Laboratories
- Research Stations
- Post-doctoral studies
- Post-graduate studies

Basic Institution of NUBiP of Ukraine
(Research, Educational and Innovative Center)

Regional Educational Universities and Research Institutes

Regional Colleges, Technical Schools

University management system according to the principle of Educational-Scientific-Production Corporation, Concern, Technological and Scientific Park (by 2010 and for the future)
Structural Units of NUBiP of Ukraine

- **Education and Research Institutes** – 12
  - **Faculties** 21
  - **Education and Research Centers** 39
  - **Colleges** 8
  - **Technical Schools** 2
  - **Research Laboratories** 157
  - **Research Institutes** 14
  - **Departments**
  - **Educational Laboratories**
  - **Innovative Projects**
Education and Research Institutes of NUBiP of Ukraine:

- ERI of Natural Sciences and Liberal Arts
- Ukrainian ERI of Bioresources Quality and Life Safety
- ERI of Animal Science and Water Bioresources
- ERI of Forestry and Park Gardening
- ERI of Plant Science, Environment and Biotechnologies
- ERI of Land Resources and Law
- ERI of Veterinary Medicine, Quality and Safety of Animal Products
- ERI of Business
- Technical ERI
- ERI of Energetics and Automatics
- Ukrainian ERI of Dataware and Telecommunicational Support of Agroindustrial and Nature-Conservative Branches of Economy
- ERI of Continuing Education
Education
Nowadays there are:

- **Over 39,126 students** (including Basic Institution of the University (Kyiv) - over 17 700), namely:
  - **Junior specialists** - 8,684 students in 32 specialties (in Separate Subdivisions (SS) of NUBiP of Ukraine);
  - **Bachelors** - 22 520 (including SS of NUBiP of Ukraine - 15,668) for 28 majors (16 – in SS of NUBiP of Ukraine);
  - **Specialists** - 3,009 (including SS of NUBiP of Ukraine - 2 230) in 27 specialties and 50 specializations (15 – in SS of NUBiP of Ukraine);
  - **Masters** - 4913 (including SS of NUBiP of Ukraine - 328) in 43 specialties and over 100 majors (9 – in SA of NUBiP of Ukraine “CATU");
- **Postgraduate students** - 560 in 72 specialties;
- **Postdoctoral students** - 29 in 68 specialties.
1990
Training of Professionals of EQL "Specialist"
1. Agronomy
2. Agro-chemistry and Soil Science
3. Plant Protection
4. Zoo-Engineering
5. Veterinary Medicine
6. Economics of Enterprise
7. Accounting and Audit, Finance
8. Economic Cybernetics
9. Forestry
10. Mechanization of Agriculture
11. Electrification of Agriculture
12. Automation of Agricultural Production
13. Fruit and Vegetable Growing and Viniculture

2011
Training of Professionals of EQL "Master"
14. Technology of Production and Processing of Animal Products
15. Technology of Meat Production, Preservation and Processing
16. Technology of Fish and Marine Products Production, Preservation and Processing
17. Water Bioresources
18. Technology of Fermentative Production and Wine-making
19. Technology of Fats and Fat Substitutes
20. Quality, Standardization and Certification
21. Information Management Systems and Technologies
22. Ecology and Environment Protection
23. Ecobiotechnology and Bioenergetics
24. Selection and Genetics of Agricultural Crops
25. Finance and Credit
26. Marketing
27. Taxation
28. Management and Administration of Organizations
29. Management of Foreign-Economic Activity
30. Administrative Management
31. State Service (Public Administration)
32. Land Management and Cadastre
33. Jurisprudence
34. Social Pedagogics
35. Pedagogics of Higher School
36. Management of Educational Institutions
37. Park-Gardening
38. Woodworking Technology
39. Equipment for Forestry
40. Energetics of Agricultural Production
41. Machinery and Equipment of Agricultural Production
42. Electro-technical Systems of Power Consumption
43. Automated Management of Technological Processes
44. Traffic Organization and Control
45. Organization of Transportation

Fig. 4. RANGE OF SPECIALTIES AVAILABLE IN NUBIP OF UKRAINE (IN 20-YEAR TIME LAP)
FIG. 5. THE GROWTH OF MASTER DEGREE STUDENTS’ NUMBER IN NUBIP OF UKRAINE
### Master Degree Study (by directions of training)

<table>
<thead>
<tr>
<th>Main professional by directions within specialty</th>
<th>Specific Categories (by specialty)</th>
<th>Public Administration (by specialty)</th>
</tr>
</thead>
<tbody>
<tr>
<td>industry-oriented (analogue of former Specialist)</td>
<td>8.000005 &quot;Pedagogics of Higher School&quot;</td>
<td>8.000007 &quot;Administrative Management&quot;</td>
</tr>
<tr>
<td>research-oriented</td>
<td>8.000001 &quot;Quality, Standardization and Certification&quot;</td>
<td>8.150001 &quot;Public Administration&quot;</td>
</tr>
</tbody>
</table>

For people with basic economic education  
For people with basic non-economic education
Training of specialists in 2010-2011 in the Basic Institution NUBiP of Ukraine has 11 programs for Bachelors and 9 – for Masters with courses tough in English

<table>
<thead>
<tr>
<th>Program</th>
<th>Level and years of studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Management</td>
<td>Bachelor’s 1 - 4 Master’s 1</td>
</tr>
<tr>
<td>2. Administrative management</td>
<td>Master’s 1 - 2</td>
</tr>
<tr>
<td>3. Veterinary medicine</td>
<td>Specialist 1 - 5 Master’s 1 - 2</td>
</tr>
<tr>
<td>4. Agronomy</td>
<td>Bachelor’s 1 - 4 Master’s 1 - 2</td>
</tr>
<tr>
<td>5. Plant protection</td>
<td>Bachelor’s 1 - 4 Master’s 1 - 2</td>
</tr>
<tr>
<td>6. Biotechnology</td>
<td>Bachelor’s 1 - 4 Master’s 1 - 2</td>
</tr>
<tr>
<td>7. Ecology, environment and resources management</td>
<td>Bachelor’s 1 - 4 Master’s 1 - 2</td>
</tr>
<tr>
<td>8. Accounting and auditing</td>
<td>Bachelor’s 1 - 2 Master’s 1</td>
</tr>
<tr>
<td>9. Finance</td>
<td>Bachelor’s 1 - 2 Master’s 1</td>
</tr>
<tr>
<td>10. Philology (translation)</td>
<td>Bachelor’s 1</td>
</tr>
<tr>
<td>11. Geodesy, cartography and land management</td>
<td>Bachelor’s 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Years</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of faculty members with English language of instruction</td>
<td>62</td>
<td>73</td>
<td>85</td>
<td>97</td>
<td>105</td>
</tr>
<tr>
<td>Number of courses with English language of instruction</td>
<td>132</td>
<td>197</td>
<td>256</td>
<td>298</td>
<td>306</td>
</tr>
</tbody>
</table>
International Master’s Programs with an opportunity to receive double diploma:

1. **Iowa State University**, USA: “Quality and Safety of Agricultural and Food Products and Environment”, “Bioeconomics, “Bioenergetics”


3. **Humboldt University of Berlin**, Germany: “Process and Quality Management”


5. **Weihenstephan University of Applied Sciences**, Germany: Masters of Business Administration in Agriculture (MBA)

6. **Anhalt University of Applied Sciences**, Germany: Master of Food and Agribusiness (MFA).
NUBiP of Ukraine signed the Memoranda of Understanding about mutual recognition of educational systems with the following Universities:

- Iowa State University (USA), 1996, 1998, 2011;
- Louisiana State University (USA), 1998, 2009;
- Humboldt University in Berlin (Germany), 2002;
- Ghent University (Belgium), 2002;
- Wageningen University (Netherlands), 2006.
<table>
<thead>
<tr>
<th>Studies and participation in international activities by students</th>
<th>150 persons / 20 countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation in International practical training programs for students</td>
<td>700 persons / 810 countries</td>
</tr>
<tr>
<td>Scientific and pedagogical staff participated in training courses abroad</td>
<td>50 persons / 15 countries</td>
</tr>
<tr>
<td>Visits to foreign institutions</td>
<td>300 persons / 30 countries</td>
</tr>
<tr>
<td>Foreign students who currently study in NUBiP of Ukraine</td>
<td>60 persons / 15 countries</td>
</tr>
<tr>
<td>Professors and scientists visited NUBiP of Ukraine</td>
<td>400 persons / 30 countries</td>
</tr>
<tr>
<td>Cooperation within International association agreements</td>
<td>162 universities and organizations / 43 countries</td>
</tr>
<tr>
<td>International projects and programs for cooperation</td>
<td>50</td>
</tr>
<tr>
<td>International conferences, seminars, workshops</td>
<td>50</td>
</tr>
<tr>
<td>International exhibitions, University’s scientific and pedagogical staff participated in</td>
<td>20</td>
</tr>
</tbody>
</table>
MEMBERSHIP OF NUBIP OF UKRAINE IN INTERNATIONAL ORGANIZATIONS

- FAO UN
- UNESCO
- GCHERA
- IUFRO
- EAVA
- FVE
- WAVA
- WAIVM
- TPSA
- NACEE
- SAE International
- EUROSCIENCE

• ICA: IROICA, AGRIMBA
• Horse International Federation
• The Rectors' Council of Leading Agrarian Universities of CIS Countries etc.
University preparation for International Accreditation

The main principles of the University’s readiness for the international accreditation are:

• Transparency of educational process, University’s mission and objectives
• International educational standards
• Improvement of education quality
• International recognition
The main directions of scientific activities of NUBiP of Ukraine are the following:

- Biologization and Ecologization of Agriculture and its Sustainable Development;
- Sustainable Society Development, Ecobiotechnology and Environmental Protection;
- Quality, Biosafety, Standardization and Certification of Food and Agricultural Production and Technologies;
- Organic Agriculture;
- Economics, Marketing, Management and Biosocial Economics of Rural Areas;
- Modern Management and Finance of Agricultural Production;
- Technics, Energetics and Automatics in Agroindustrial Complex and Nature Protection Area;
- Innovative Activities and Life Quality International Standards;
- Forestry and Park Gardening;
- Phytomedicine and Veterinary Medicine;
- Information and Telecommunication Support of Agroindustrial and Nature Protection Area of Economy;
- Law and Land Resources Management.
Research Institutes of NUBiP of Ukraine:

RI of Natural Sciences and Liberal Arts
- RI of Plant Science and Sustainable Nature Management
- RI of Technology and Quality of Animal and Fishery Products
- ERI of Forestry and Decorative Horticulture
- RI of Land Use and Juridical Regulations of Property and Land Relationships
- RI of Animal Health
- RI of Economics and Management of Agroindustrial Production
- RI of Techniques and Technologies
- RI of Electrical Power System
- RI of Information Technologies in Nature Management

- Scientific and Research Project Institute of Standardization and Technologies of Ecosafe and Organic Products
- Ukrainian Laboratory of Quality and Safety of AIC Products
- Ukrainian RI of Agricultural Radiology
- RI of Seeds Science (Southern Affiliate of NUBiP of Ukraine “CATU”)
- RI of State Regulation and Advisory in the Fields of AIC and Nature Protection
Scientific Potential of NUBiP of Ukraine

**Total Faculty members**
- **2050**
- **Full Professors**
  - **302**
- **PhD candidates and associate professors**
  - **1192**

**Including**
- **Academicians of NAS of Ukraine and NAAS of Ukraine** – **24**
- **Corresponding Members of NAS of Ukraine and NAAS of Ukraine** – **34**

**p.5 and 6 of Research University criteria – Full Professors (no less than 150) and PhD candidates (no less 500) on average over the last 5 years**
<table>
<thead>
<tr>
<th>Educational and Research Activities of Faculty Members</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varieties and hybrids of agricultural plants created</td>
<td>7</td>
<td>11</td>
<td>5</td>
</tr>
<tr>
<td>Varieties given to State Variety Testing Services</td>
<td>11</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Developed:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- New technologies and technological processes</td>
<td>169</td>
<td>190</td>
<td>100</td>
</tr>
<tr>
<td>- New kinds of machinery, equipment, devices etc.</td>
<td>118</td>
<td>100</td>
<td>110</td>
</tr>
<tr>
<td>- Vaccines, serum and drugs</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Chemically created substances</td>
<td>24</td>
<td>30</td>
<td>32</td>
</tr>
<tr>
<td>Introduced new developments</td>
<td>97</td>
<td>85</td>
<td>93</td>
</tr>
<tr>
<td>Applications to register inventions and useful models</td>
<td>341</td>
<td>263</td>
<td>341</td>
</tr>
<tr>
<td>Received confirmation on obtaining patents</td>
<td>278</td>
<td>383</td>
<td>271</td>
</tr>
<tr>
<td>Received certificates and patents</td>
<td>285</td>
<td>376</td>
<td>240</td>
</tr>
<tr>
<td>Defended:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctor / PhD Theses</td>
<td>2/82</td>
<td>6/87</td>
<td>16/78</td>
</tr>
</tbody>
</table>
Organic Agriculture and Food safety in Ukraine: integrated approach

consumer

products

crops

soils
Regions of Ukraine, suitable for organic crop production

1 – Northern-Poltava
2 – Vinnytsa-Near-Carpatian
3 – Southern-Podilla
4 – Northern-Eastern Lugansk
Ukraine has very favorable conditions for ecologically safe and organic production

Broad areas of ecologically clean soils (15 mln ha)

High level of potential soil fertility

High scientific and technical potential for standardization and certification of all production levels

A concept of organic (biological) agriculture

EU's decision to purchase environmentally friendly products
Prerequisites for obtaining of ecologically safe products – ecological expertise of production chain:

- Soil cover
- Technologies of crop growing
- Products
- Storage
- Transporting
- Processing
- Selling
Key points of the Concept of ecologically safe production

**NECESSARY:**
- Clean soils
- Territorial management
- Technologies of organic crops growing
- Soil fertility reproduction

**FORBIDDEN:**
- Synthetic pesticides
- Mineral fertilizers
- Genetically modified organisms
- Radiation irradiated organisms
Technologies of crop growing

- Soil tillage
- Fertilizers application
- Seedling
- Care of crops
- Harvesting
Ukrainian Laboratory of Quality and Safety of Agricultural Products

- Ukrainian Laboratory of Quality and Safety of Agricultural Products (ULQSAP) of the NUBiP of Ukraine was created in October, 2nd, 2003
- Director – Sergiy D. Melnychuk

- ULQSAP is certified by All-Ukrainian State Research and Production Center for Standardization, Metrology, Certification and Protection of Consumers’ Rights (Ukrmetrteststandart), which testifies conformity to criteria of certification of the measuring laboratories of state metrological system.

- Principles and bases of ULQSAP development concerning the requirements to management system were formed taking into account the requirements of international standard ISO 9001:2000.
Main tasks of Ukrainian Laboratory of Agricultural Products Quality and Safety

- Creation of market conditions for the formation of safe and qualitative products
- Independent examination of agricultural products quality and safety in accordance with national and international standards
- Investigation of environmental impact and efficiency of fertilizers, pesticides, other agrochemicals, biologically active substances and additives use in agriculture, forestry
- Detection of transgenic agricultural products materials and pathogens of viral, bacterial and mycological diseases
- Development, assessment and application of genetic, molecular biological, analytical and other modern diagnostic methods of plant and animal diseases
ULQSAP

Ukrainian Laboratory of Quality and Safety of Agricultural Products

ULQSAP is certified by All-Ukrainian state research and production center for histopathological analysis, veterinary inspection and adaptation of veterinary medicine. It is certified by the Kyiv Regional State Sanitary and Epidemiological Service of Ukraine and certified by the Ministry of Agriculture and Food of Ukraine.

The quality management system of the laboratory is developed according to the requirements of GOST R ISO 9001:2008, which is identical to the International Standard ISO 9001:2008.

The laboratory is accredited by the All-Ukrainian Scientific Research Institute of Laboratory Diagnostics, Pathology and Environmental Protection of Animals (in accordance with the requirements of GOST R ISO 17025:2008), and in 2007, ULQSAP successfully passed the re-accreditation.

The laboratory is equipped with modern equipment and meets all the requirements of the International Standard ISO 9001:2008.

The laboratory has a highly qualified staff and is equipped with modern equipment and meets all the requirements of the International Standard ISO 9001:2008.

According to the order of the Ministry of Agriculture and Food of Ukraine, the laboratory is designated as an additional laboratory for the analysis of agricultural products. The laboratory is equipped with modern equipment and meets all the requirements of the International Standard ISO 9001:2008.

Laboratory’s News

17/07/2011 – Ukraine has approved the export of U.S. meat to Japan.
17/07/2011 – China is ready to import U.S. meat from Ukraine.
20/07/2011 – Ukraine has identified 10 cases of African swine fever.
20/07/2011 – Ukraine has been granted the right to export meat to China.
24/07/2011 – Ukraine has been granted the right to export meat to Brazil.
30/07/2011 – Ukraine has been granted the right to export meat to Russia.

News of Agriculture

25/07/2011 – Ukraine has signed an agreement with the EU on the export of meat to Ukraine.
25/07/2011 – Ukraine has been granted the right to export meat to Russia.
26/07/2011 – Ukraine has been granted the right to export meat to Brazil.
26/07/2011 – Ukraine has been granted the right to export meat to China.
27/07/2011 – Ukraine has been granted the right to export meat to Japan.
27/07/2011 – Ukraine has been granted the right to export meat to Russia.
30/07/2011 – Ukraine has been granted the right to export meat to Brazil.

News of Stabilization, Certification and Quality

27/07/2011 – Ukraine has been granted the right to export meat to China.
28/07/2011 – Ukraine has been granted the right to export meat to Russia.
29/07/2011 – Ukraine has been granted the right to export meat to Brazil.
• Under favorable conditions Ukraine can become a major exporter of environmentally safe products to Western Europe, to improve economic and environmental security!
2011

- The Corporation “International Scientific Park “Environmental Biosafety and Life Quality” is being established on the basis of the NUBiP of Ukraine.

- The financial organizations which are the participants and partners of our Scientific Park have allocated significant financial funds for its functioning.
Corporation “International Scientific Park “Environmental Biosafety and Life Quality”

1. Founding documents are being prepared

2. The key objectives and development conception of Scientific Park are defined

3. Negotiations with potential partners and investors are being conducted.
"THE FARM OF XX1 CENTURY"
The key aim of the Forum: to discuss the issue of increasing Ukraine's role in world food resources enlargement by combination of public (university) and private capital owned by domestic and foreign businesses.
The main ways of Forum’s goals achievement are the following:

- creation on the basis of Research Farms of NUBiPU permanent International Demonstration Center for Global Scientific, Innovative and Business Achievements in Agricultural, Processing and Environmental Areas;
- implementation of joint scientific research, testing of new plant varieties, animal breeds techniques and technologies, agrochemicals, including medicines and plant protection products etc., their efficiency and safety;
- development of modern educational, research and social basis for student practical training, professional development and retraining of specialist in the area of agricultural and life sciences;
- setting up business incubators, scientific and technological parks, concerns, complexes, trade and service centers for new techniques and technology; new plant varieties and hybrids and animal breeds distribution, as well as wide implementation of new environmental management tools and remediation of contaminated soils, air and water;
- mobilization of business capital, as well as financial funds of the World Bank, FAO, UNO, EU to achieve common goals.
International Research and Innovative Projects that will be developed on the basis of NUBiP of Ukraine
1. Reduction of Risk of Trans-boundary Migration of Radionuclide With Smoke During Forest Megafire Event in the Chornobyl Exclusion Zone

2. Agro-innovative Center “Eurofarm XXI Century”
3. Modern Ecobiotechnologies of Forestry, Wood Processing and Biofuel Production

4. “John Deere Ukraine” – NUBiP of Ukraine: present time and future

6. Environmentally safe food technologies, processing and packaging of livestock and crop products

7. Development of Essential Oil Branch in Crimea peninsula

8. Support for Extension Development (e-Extension) in Ukraine with the University of Nebraska, USA

10. Molecular Diagnostics of Diseases and Biotechnologies in Livestock and Veterinary Medicine

11. Legal Support Center for Agricultural and Natural Resources’ Sectors
12. Creating Center for the Applied Genetics, Biotechnology and Reproduction of Animals

13. Creating a Centre for Applied Genetics, Biotechnologies and Animal Reproduction

14. Initiation of Modern Plant Breeding and Transgenes Technology Center
15. Satellite Data for Agriculture and Environment Monitoring

16. Organization of Modern Equestrian-Sporting Complex “GOLOSIEVO" on a Base NUBiP of Ukraine

17. Forecasting of Food and Agricultural Resources Development, Biosocial and Environmentally Safe Economics and Management in Rural Areas
NUBIP OF UKRAINE IN PICTURES (1)
NUBIP OF UKRAINE IN PICTURES (2)
NUBIP OF UKRAINE IN PICTURES (3)
THANK YOU FOR YOUR ATTENTION!