Institute of Soil Science and Plant Cultivation
State Research Institute

150 years of agricultural research in Puławy
Historical background
(1772-1920)

We recently celebrated 150 years of agricultural research in Puławy. The Institute of Soil Science and Cultivation has a rich history. To understand this history and development of the Institute, it is important to link it to the history of Poland and the changing political and economic factors which helped to shape not only the Institute itself, but generally Polish culture, science and also agriculture.

The mid-18th century was without a doubt the most disastrous in the history of Poland. The once vast and powerful Polish-Lithuanian Commonwealth, with a population of over ten million and with its territories stretching from the Baltic to Black Sea, was in deep trouble. A combination of economic and political factors put it in a state of anarchy.

Surprisingly, in this dark age, an extraordinary renewal was taking place in public life. Political and social thoughts of the Enlightenment were put into place to regenerate the state intellectually and materially through the re-education of society. The reforms were dominated by a few political thinkers and the last Polish King Stanisław August Poniatowski.

The Polish state, which was undergoing many positive and deep changes, was hit by a tragedy – the partitions of the Commonwealth. The absolute monarchies of Russia, Prussia and Austria dismembered its territories during the 1772, 1792 and 1794 partitions. For over 120 years, Poland lost its independence. After the fall of Napoleon and the Treaty of Vienna, in 1815 a Kingdom of Poland was carved out of all three partitions. The new Polish state, referred to also as the Congress Kingdom, with the Tsar of Russia being the King of Poland, was by no means a continuation of the Commonwealth. It possessed only 20% of its original territories with a population of three million. However, it consisted of some of the historic heartland of Poland and the capital city of Warsaw. With the population growing to six million, in the mid-19th century, and over ten million, in 1910, it remained in spite of much hardship, the centre of the Polish Nation.

Between 1815-1830, Russia delegated the administration of the Kingdom to the Poles. The reforms and the revival of the late 18th century continued. In 1816, Stanisław Staszic was appointed Director of the Department of Industry. He created the necessary conditions for the industrialization of the Kingdom. New institutions like the University of Warsaw, the Warsaw Polytechnic, the Agricultural Institute in Marymont, the Veterinary School, the Society of Friends of Learning and the Main School of Music provided a high standard of education.

The reforms were cut short after the fall of the 1830 November Uprising. The Constitution of the Kingdom was abolished, many educational establishments closed, thousands of families were sent to Siberia with their estates being confiscated. Many artists, writers and political figures went into exile. Further restrictions followed after the fall of the January Uprising proclaimed in 1863. The Kingdom of Poland was changed by the Tsar to the “Vistula Province” and severe repressions began. Thousands of young people were sent to Siberia. All Polish institutions were abolished. The Warsaw Main School was shut down and replaced by a Russian University. Russian became the teaching language even in elementary teaching schools. The era of hard Russification began.

With this information in mind, we can begin to explore how the Institute changed during the years of the partitions. We later move on to an analysis of what happened to the Institute during the First World War (after which Poland regained independence), then during the War with the Bolsheviks (where Poland held back the Communist front with only a small army), the Second World War, during Poland’s communist era and finally during its modern days.
The Agronomical Institute in Marymont (1816-1862)

The Agronomical Institute in Marymont was founded in 1816 by Stanisław Staszic and Stanislaw Potocki; the first Director being Jerzy Beniamin Flatt. Initially the Institute educated economists and property managers.

After its reorganization in 1822, the Institute provided two levels of education: higher for future economists, property managers and sons of land owners as well as an elementary level for future qualified labourers, shepherds and distillers.

In 1824 the lower level class was abandoned and the newly opened Veterinary School joined the Institute, providing an education in the treatment and hot shoeing of horses.

As a result of the failure of the 1830 November Uprising, the Russian authorities closed all higher schools of education as well as all of the trade schools in the Polish Kingdom, including the Agronomical Institute, which was only reopened in 1836.

In 1840, the school was reorganized again with the addition of the Forestry Faculty. Now, the Institute only accepted students who had completed at least six classes of middle school. Michał Oczapowski was the director from 1836-1853; one of his students being Adam Asnyk (a famous Polish poet). (Michał Oczapowski (1788-1853) is the forefather of modern Polish agriculture, as well as one of the most prominent representatives of Polish Agriculture Studies in the 19th century.)

The traditions of this Institute have impacted not only the Warsaw University of Life Sciences (SGGW), but also the Centre of Agricultural Research in Puławy.

From 1857, the Agronomical Institute accepted only graduates from middle and higher schools. From 1841-1861, the Institute included an Agricultural as well as a Forestry Division which educated students from clerical, aristocratic and upper-class urban backgrounds.

In 1861, as a result of a reorganization of schooling methods, the Institute in Marymont was closed. Its resources and equipment were moved to the newly founded Polytechnic Institute of Agriculture and Forestry in Puławy, previously known as the New Alexandria.
Polytechnic Institute of Agriculture and Forestry (1862–1869)

As a result of the reformation of schooling in the Polish Kingdom conducted by Aleksander Wielkopolski, in 1862, the Agronomical Institute in Marymont was moved to Puławy. The Polytechnic, Agricultural and Forestry Institute was created in the palace, previously inhabited by the Czartoryski Princes aristocratic family.

The Polytechnic Divisions of Civil Engineering, Mechanical Engineering and the Mining-Chemical Division admitted in total 188 students. The Agricultural Division comprised of 105 students, of which 34 originally came from Marymont. Amongst the 50 students in the Forestry Division, 15 of them continued their studies from Marymont. This shows that there is a direct link between the school in Marymont founded in 1816 and the Institute in Puławy.

The Agricultural and Forestry Divisions were stocked with the equipment of the laboratories and workshops from Marymont including chemical, mineralogical, zoological, botanical and forestry apparatus as well as an extensive library. The school acquired many agricultural areas including Kępa (Mokradki), Końskowola and Pożóg. Posts in the Institute in Puławy were undertaken by Antoni Zieliński, Władysław Dudrewicz, Karol Martin, Teofil Cichocki and Otton Kubicki.

The Institute admitted students who had obtained a matriculation certificate. The courses took three years to complete in the Polytechnic Divisions, two years in the Agricultural and Forestry Divisions and both were to be supplemented by a year-long internship.

In 1863 with the start of the January Uprising, the students organized a rally by the Sybilla Temple. On the night of the 22nd January they swore: “brotherhood and battle for life and death against the Tsar” and then marched under the leadership of Karol Świdziński to Leon Frankowski’s party in Kazimierz. The courses at the Institute were suspended.

Nevertheless, various research was still being carried out by the Institute. For example, the chemical workshop was opened which analysed the quality of crops, soils, fertilizers and water (including the mineral waters from Nałęczów and Busk). The workshop is thought to be the first chemical-agricultural station in Poland.

The Directors of the Polytechnic Institute of Agriculture and Forestry Institute were Dominik Okniński (1862–1863) and Antoni Zieliński (1863–1869).
After the failure of the January Uprising, the authorities of the Tsar gradually started the Russification of the Polish Kingdom. Aleksander II opened the Institute of Rural Husbandry and Forestry on the 8th June 1869.

The Institute became a school without any academic status, with Russian as the teaching language and was accessible to candidates across the whole of the Russian Empire.

Immediately after the Uprising, the Institute was still predominantly Polish. The lecturers were mostly Poles, although the Director's position was held by a Russian, Iwan Tiutczew.

In 1870, among the 17 teaching staff, 15 were Poles (of those all were professors). In 1880 there were 20 Poles among the staff and in 1892 the 18-man personnel comprised of only two Poles. A similar observation could be made throughout the students; initially there were mainly students of Roman Catholic origin i.e. Poles. In 1878 they made up 80% of the total students and in 1892 only 41%. The rest were Orthodox Christians and students from other religious denominations. The education process of the Institute was of a relatively high standard. From the beginning the teaching resources remaining from the Polytechnic, Agriculture and Forestry Institute were made full use of including the farms, laboratories, workshops and library. These resources were continuously being expanded. For example, a veterinary clinic was opened and in 1871 a weather station was established, which is still in use today.

Study in the Rural Husbandry and Forestry Institute took three years to complete after which the students graduated. The diploma, which gave one the title of “agronomist” or “forester”, was only given after a supervised internship and thesis, and after theoretical and practical exams were completed. Graduates of the Institute usually went on to work in private property management.

In 1890 reform began of the courses taught at the Institute in Puławy. This task was undertaken by a worldwide respected geologist and soil scientist – Wasyl Dokuczajew.

During this time the Directors of the Agriculture and Forestry Institute were: Iwan Tiutczew (1869-1876), Wasilij Dobrowolski (1876-1882), Alieksiej Bażanow (1882-1883) and Paweł Ejmont (1883-1892).
Institute of Rural Husbandry and Forestry
(1893-1914)

The reformed Institute began its research and teaching duties in 1893. Courses now lasted four years and during the summer period after each year of study, a 6-week internship was mandatory.

In agreement with the regulation of the 24th June 1894, the Institute became a fully academic school. The diploma obtained gave the graduates a “higher status” and they became “honorary citizens”.

The two divisions of Agriculture and Forestry comprised of 22 departments, which were led by 11 professors and 11 assistants. The school owned a well-equipped chemical and physical laboratory as well as 20 departments, amongst them those of soil science, mineralogy, botany, zoology, land surveying, general crop and soil management, animal production, veterinary and forestry. The Institute library comprised of 75 thousand books. In addition to the previous farms, in 1895 the Institute obtained the Ruda forest.

In 1893 the first worldwide independent Department of Soil Science was established in Puławy. The subjects of chemistry, physics, geology, botany, zoology, soil science, land surveying, engineering, economics and law were shared between the two divisions.

The Agricultural Division gave lectures on general and specific crop management, animal produce, agricultural technology, mechanical engineering, horticulture and study of grasslands. The Forestry Division gave lectures on the plantation and use of forests, forestry machinery, dendrology and hunting practices.

The Institute of Rural Husbandry and Forestry in Puławy educated students from the whole of the Russian Empire. During the first years of the 20th century there were around 200 students and before the First World War this number increased to 525 of which Poles only made up 12-15% of the total number of students.

In 1914, after the start of the First World War, the school was moved to Kharkiv (Ukraine). The dwellings of the Rural Husbandry and Forestry Institute in Puławy were taken over by the Poles and a caretaker was appointed to look after the buildings.

Directors of the Rural Husbandry and Forestry Institute during this time were: Wasilij Dokuczajew (1892-1895), Aleksiej Potylicyn (1895-1899), Włodymir Bielajew (1901-1902), Piotr Budrin (1902-1905), Aleksandr Skworcow (1905-1907), Anton Sanockij (1907-1914).
From autumn 1915 discussions began about the future of the palace in Puławy. It was decided that the Research Institute of Rural Husbandry would be located there. Its role would be to find solutions to current agriculture, horticulture and forestry problems in Poland through detailed research.

The organization of the Institute discussed by Ignacy Kosiński and other members of the Central Agriculture Society in Warsaw was planned and drawn-out by Stefan Surzycki.

The ruling to declare the establishment of the Research Institute of Rural Husbandry in Puławy was signed by the Lublin Governor, General Stanisław Szeptycki. The organization scheme and the status of the Institute were confirmed on the 26th September 1917; there were five faculties made up of 19 branches.

The structure of the faculties and their branches can be seen below:

<table>
<thead>
<tr>
<th>Faculty of Agricultural Production</th>
<th>Faculty of Animal Production</th>
<th>Faculty of Forestry</th>
<th>Faculty of Horticulture</th>
<th>General</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>Morphology</td>
<td>Silviculture</td>
<td>Gardening</td>
<td>Soil Science</td>
</tr>
<tr>
<td>Plant Breeding</td>
<td>(Genetics)</td>
<td>Forest Restoration</td>
<td>Genetical Breeding</td>
<td>Land Amelioration</td>
</tr>
<tr>
<td>Agricultural Machinery</td>
<td>Rearing and Nutrition of Animals (Physiological)</td>
<td>Measurement of Forest Quality</td>
<td>Horticultural Products</td>
<td>Meteorology</td>
</tr>
<tr>
<td>Hygiene and Treatment (Veterinary)</td>
<td>Use of Forests (division inactive)</td>
<td></td>
<td></td>
<td>Plant Protection</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Economics</td>
</tr>
</tbody>
</table>

The Institute was looked after by the Board of Trustees. It also had a Scientific Board and the management of the Institute dealt with administration and upkeep problems.

In 1917 the Institute acquired the following farms: Końskowola, Mokradki with the Upper Puławy Niwa, Sadłowice, Michałówka and the forestry farm in Ruda.

The Director of the Research Institute of Rural Husbandry was Leon Marchlewski and the principal of the Board of Trustees was Professor Stefan Surzycki.
In 1920 after the successful war with the Bolshevists the organizational structure of the Institute was re-thought. On 28th October 1921, the Institute was given a new status and name: The State Research Institute of Rural Husbandry. So by the new definition: “the Institute’s role is to conduct research to encourage the development of agriculture and other areas which are influenced by it and to implement these findings to positively impact science and the economy in Poland”.

The authorities of the Institute comprised of: a Scientific Board, the Director (or their deputy) and the heads of faculties, branches and sub-branches. The Institute was subordinate to the Ministry of Agriculture and National Property Management. The President of the Republic of Poland after consultation with the Scientific Board would appoint the Director, heads of faculties, branches and sub-branches of the Institute. The Board of Trustees of the Institute were often used for guidance when important decisions were made. It comprised of representatives from higher schools of agriculture, major agricultural organizations, the Ministry of Agriculture and Property Management, the Ministry of Religious Affairs and Public Education as well as the Director and selected members of the Institute. The organization of the Institute into heads of faculties, branches and sub-branches remained more or less the same. In 1926 the Department of Agricultural Economics was founded with its headquarters in Warsaw. Pułki and Borowina were now part of the Institute as well and in 1926 an animal produce station was started there. From 15th July 1927, the Institute acquired: the State Research Institute in Bydgoszcz, the Botanical and Agricultural Experimental Station in Lvov, the National Department of Orchards in Zaleszczyki and the Marine Fishery Laboratory in Hel.

The table below shows the locations of the different departments and divisions of the Institute:

<table>
<thead>
<tr>
<th>Location</th>
<th>Faculties</th>
<th>Branches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Puławy</td>
<td>Soil Science, Agriculture, Plant Breeding, Horticulture, Plant Protection, Rearing of Animals, Nutrition (and Use) of Animals, Serology</td>
<td>Breeding and Genetics of Cereals, Fodder Crops, Experimental Morphology, Workshop dedicated to Cultivation of Fruit-bearing Plants, Wicker and Bee-keeping (Apiculture)</td>
</tr>
<tr>
<td>Bydgoszcz</td>
<td>Agricultural Chemistry, Plant Diseases, Zoohygiene</td>
<td>Land Reclamation, Dairy Products, Economy and Organisation of Fisheries, Fishery Laboratory</td>
</tr>
<tr>
<td>Warsaw</td>
<td>Economics of small-area farms (organised by Professor Franciszek Bujak)</td>
<td>Botanical and Agricultural Research Experimental Station – a Branch of the Agricultural Faculty specializing in cultivation of Meadows and Pastures</td>
</tr>
<tr>
<td>Lvov</td>
<td></td>
<td>Marine Fishery Laboratory</td>
</tr>
<tr>
<td>Hel</td>
<td></td>
<td>Department of Horticulture (only belonging to the Institute until 1932)</td>
</tr>
<tr>
<td>Zaleszczyki</td>
<td></td>
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</tr>
</tbody>
</table>

Along with the faculties the Institute also comprised of 22 independent branches.

The Directors of the Institute were: Emil Godlewski (1921), Feliks Jaroszyński (1922-1925), Józef Sypniewski (1925), Tadeusz Mieczyński (1926-1928), Stefan Kopeć (1928-1930) and Tadeusz Mieczyński (1931-1934).
Another reorganization of the Institute was conducted in 1934-1936. The new status of the Institute, quite different to what it was before, was confirmed by the Board of Ministers on the 15th May 1937. The role of the Institute was to:
— Research solutions to problems that were to impact state agriculture;
— Lead studies connected with the needs of Polish agriculture;
— Be available to aid in research and analysis to local authorities, social agricultural organizations, research and experimental workshops as well as to individuals conducting research;
— Conduct agricultural studies and research to further develop agricultural knowledge and education.

The Institute was subordinate to the Ministry of Agriculture and Land Reformation with which it had to agree 3-year plans of studies and file yearly update reports. The Director of the Institute was appointed by the Minister of Agriculture and Land Reformation for 3 years at a time. The functions of the Scientific Board did not change, but the Board of Trustees ceased to exist. New additions to the Institute included Departmental Boards. The Heads of faculties and branches were appointed by the Minister who was advised by the Scientific Board on these decisions.

Seven faculties were created as presented in the table:

<table>
<thead>
<tr>
<th>Faculties</th>
<th>Branches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil Science</td>
<td>Mineral Soils, Meadows and boggy soils, Hydrology of Soils</td>
</tr>
<tr>
<td>Agricultural</td>
<td>Fodder and Industrial Crops, Cereal Crops, Management of Meadows and Pastures Plant Chemistry, Agricultiral Microbiology, Cultivation and Fertilisation, Department of Practical Plant Breeding</td>
</tr>
<tr>
<td>Horticulture</td>
<td>Vegetable Produce, Orchard Produce, workshop Department of Breeding of Trees, Bushes and the Huntington willow (the willow used for the weaving of baskets and containers)</td>
</tr>
<tr>
<td>Diseases and Pests of Plants</td>
<td>Plant Diseases, Plant Pests, Protection of Plants</td>
</tr>
<tr>
<td>Animal Produce</td>
<td>Biochemistry, Breeding Biology Animal Nutrition, Animal Breeding, Fishery</td>
</tr>
<tr>
<td>Veterinary</td>
<td>Research, Production, Parasite, Exploratory</td>
</tr>
<tr>
<td>Agriculture of small-scale</td>
<td></td>
</tr>
<tr>
<td>farms (located in Warsaw)</td>
<td></td>
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</tbody>
</table>

The number of researchers of the Institute increased up until the year 1939. The quality of the equipment of the faculties also improved and the Osiny site was acquired.

During the German occupation the Institute survived, however it was under the name of “Landwirtschaftliche Forschungsanstalt des Generalgouvernements in Pulawy”. The organisational structure of the Research Institution was in close relation to that which it was prior to 1939. Although the authoritative positions in the Institute were taken by Germans, the main research tasks were still led by Poles. Many researchers found shelter in Pulawy after their institutions were closed. In July 1944, as a result of the progressing front line, part of the Institute was evacuated to Skierniewice. A significant part of the apparatus, equipment and books were taken to Germany.

After the war, in 1945-1950, the Institute experienced dynamical growth. Divisions in Bydgoszcz, Poznań, Gorzów Wielkopolski, Wrocław, Kraków and Warsaw as well as new research stations and workshops were created. Field research tasks were once more encouraged. In 1945 the Veterinary Department was developed into the State Veterinary Institute.

Directors of the Institute were: Stanisław Minkiewicz (1934-1935), Henryk Małarski (1935-1936), Lucjan Kaznowski (1937-1950).
In 1950 the State Research Institute of Rural Husbandry was dissolved, but based on its structure individual institutes were founded, which included the Institute of Soil Science and Plant Cultivation (in Polish Instytut Uprawy Nawożenia i Gleboznawstwa – IUNG) with headquarters in Pulawy. New faculties, laboratories and experimental stations were created in IUNG.

The table below show the locations of different departments of the Institute:

<table>
<thead>
<tr>
<th>Location</th>
<th>Departments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Puławy</td>
<td>Soil Science, Water Management, Microbiology</td>
</tr>
<tr>
<td>Wrocław</td>
<td>Cultivation and Rotation of Crops, Ecology and Management of Weeds (founded a bit later on)</td>
</tr>
<tr>
<td>Poznań</td>
<td>Fodder and Oilseed Plants</td>
</tr>
<tr>
<td>Warsaw</td>
<td>Nutrition and Fertilisers, Grasslands and Potatoes</td>
</tr>
<tr>
<td>Skierniewice</td>
<td>Vegetable Produce</td>
</tr>
</tbody>
</table>

There were also divisions in Bydgoszcz, Gorzów, Kraków, Poznań and Wrocław

In the 60’s and 70’s in accordance with the decision of the Agricultural Minister, IUNG gave up the research facilities in Skierniewice, Bydgoszcz, Poznań, Gorzów Wielkopolski and Kraków as well as the experimental stations in Małyszyn and Przebędów to other institutions. The Institute however acquired a laboratory researching soil erosion from IMUZ (Instytut Melioracji i Użytków Zielonych – the Institute for Land Reclamation and Grassland Farming).

After political changes in 1989-1990 and with the creation of the 3rd Republic of Poland, fundamental transformations of the structure and functions of the Institute occurred: the Institute was awarded full independence. The statutory changes included the election and defined the length of term in office of the Director and of the Scientific Board members. The responsibilities of the Director included drawing up the statutes of the Institute, makes decisions on its organisation and statutory activities, after having sought guidance from the Scientific Board. The restructuring of the Institute resulted in a significant decrease in the recruitment numbers and put limits on research activities, especially those related to field experiments.

After many changes and structural transformations the Institute conducted research projects in its departments in Pulawy and Wrocław.

In 2005, after the decision of the Board of Ministers, the Institute acquired the status of a State Research Institute.

Currently, the statutory activities of the Institute are fulfilled accordingly to the program of “Sustainable development of crop production and management of agricultural areas in Poland”.

The Institute passes on the results of the research to be used in practice in agriculture through agricultural advice centres. It also works for Government offices and local authorities through creating integrated information systems which can be used by those bodies for decision-making on policies regarding agriculture and rural areas.

IUNG offers advice based on the research results of its numerous studies. Examples of the work are outlined below:
— Recommendations concerning crop production and production technologies for cereals, fodder crops, tobacco and hops. Recommended technologies differ by the level of their intensity and take into account the varying economic situation of the relevant farms.
— Farms are advised on how to achieve the required quality of products.
— Unique long-term experiments involving crop rotation schemes, comparison and evaluation and of organic and integrated farming systems against the conventional system.
— Precision farming studies
— The creation of an integrated information system containing data about different soils, agroclimates and vegetation cover across the whole country. Digitally recorded data regarding the different types of soils include information about: geomorphological characteristics, agrochemical status, the degree of susceptibility to degradation (especially erosion), contamination with heavy metals and sulphur as well as with some harmful organic substances. The information is representative of every region in Poland. Digital maps differing in scale and in territories covered are widely used to help manage agricultural land across the whole country.

IUNG owns the modern Main Laboratory of Chemical Analysis (Główne Laboratorium Analiz Chemicznych). The well-equipped Conference and Training Centre is used for conducting educational and training activities as well as hosting conferences. The employees of the Institute have great experience in organising and arranging farms, making farming more environmentally-oriented as well as managing problematic and protected land. The Institute also specializes in providing information on the effects of agriculture and industry on the environment as well as assessing the suitability of mineral and organic waste to be used as fertilizers.

The recent, most important achievements of the Institute are:
— Creation of the integrated information system regarding agricultural areas.
— Assessment of the level of contamination of soils.

The Institute conducts large-scale international collaborations in numerous fields of research. The employees of IUNG participate in international projects and coordinate some of them. The achievements of the Institute, its extensive access to data resources, the potential of its research staff and state-of-the-art research equipment are the guarantee for the successful completion of both national and international projects.

IUNG Directors: Seweryn Kukuła (2005-2010) and Wiesław Oleszek (from 2010).
The elaboration on the basis of historical materials: dr Grażyna Hołubowicz-Kliza

The graphic design: dr Grażyna Hołubowicz-Kliza

English translation: Zuzanna Maria Żukowska

Photo: The archive of the Central Agricultural Library in Pulawy, the archive IUNG-PIB, and historical web page www.dawnepulawy.pl