

Agricultural research and higher education in Estonia

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Summary

In a small country both research and higher education have peculiar features. Additional peculiarities connected to specific historical reasons, economic changes and to the overall «global change» in agriculture arise in agricultural research.

In Estonia the biggest player in agricultural research and the only provider of agricultural higher education is the Estonian University of Life Sciences (Eesti Maaülikool, EMU, the former Estonian Agricultural University).

The presentation gives a short overview of the environment of agricultural research and higher education in Estonia, describing the specific features and major problems. As an example of the scope of changes the reforms at EMU are described.

The most important determinants of the Estonian research system are the following:

- total R&D spending is low;
- the share of business-based funding is very low and government funding is still prevailing;
- the biggest part of funding is oriented to basic research;
- “customers” of applied research are weak;
- R&D funding system is rather complicated; funding is almost totally project-based, whereas the share of stable institutional funding is insignificant, or almost lacking;
- research projects are small in size and their number is big.

Agricultural research has its own specific features that stem from the following reasons:

a) Historical background

Agricultural research in the USSR was mostly of the applied nature, which aimed to increase animal and plant production in big farms by using low-quality machinery under state-controlled economy. The result was a weak orientation to basic research. Contemporary research funding is based on scientific excellence in basic research, but the re-orientation of focus is slow in several areas. There are very limited measures to build up competitive groups in such areas where the competence has weakened or lost altogether.

b) Organisation

Shortage of researchers scattered between several institutions have effectuated the integration of research institutes and universities. Today most of the agricultural research is aggregated into one university (academic staff 440) and two state research institutes (academic staff 60). Internal integration is still under way. The system of applied research in this field— the national program for applied agricultural research (2004-2008 under the Ministry of Agriculture) — was recently established, but it is weak both in funds and in research policy-making and does not include all renewable resources (e.g. fisheries and forestry).

c) Changes in economy and land use

Dramatic changes in the economy and land use during the last decade have cast its shadow, influencing the status and prestige of agricultural research and higher education. The share of agricultural sector in GDP has dropped almost three times. The decline in arable land use during the last twelve years has been perhaps unprecedented in the world. The area of field crops has decreased more than twice. Also the «global change» in focus of agriculture (from agricultural production to sustainable management of diverse natural resources) has had its influence on the research priorities and gives new opportunities for both the researchers and the farmers.

Tendencies in agricultural higher education

Changes in agricultural production are also reflected in agricultural vocational and higher education. The beginning of 1990-s saw a dramatic decline in the number of students specialising in agriculture in vocational education. Since 2001 the number of state-commissioned places in vocational education (agriculture, forestry, fisheries) has increased from 442 (in 2001) to 802 (in 2004). The problem here is that the number of secondary school graduates willing to continue their studies in agriculture does not suffice for the state-commissioned places, and very often they remain vacant.

The same tendency can be followed in the admission of new students at Eesti Maaülikool (EMU). In agricultural specialities the competition is minimal. As compared to other subjects studying agriculture is unpopular and non-prestigious. Still, up to now the EMU has not had to hold additional admissions. Nevertheless, a further decline in the age group of secondary school leavers will, in a year or two, bring about a non-compliance with the state-commissioned places. In order to guarantee the sustainability of higher education in agriculture, studying agriculture should be better marketed and the curricula should be adjusted to the changes in society, changes in value judgements, etc in such a way that agricultural specialities retain attraction among the younger generation.

Practicians have criticised some of the curricula for being too specialised. Therefore the EMU has started to revise its curricula by increasing the common elements and basic subjects in Bachelor studies, leaving specialisation for Master studies.

In 2004/2005 the EMU reformed its doctoral studies, doing away with its divisibility and renewing the defence requirements. All specific fields of agriculture were aggregated into one doctoral program called Agriculture. The choice of speciality modules guarantees the specialisation within the program. The quality of the doctoral thesis is assured by the fact that at least three of the PhD student's publications should have been published or accepted for publication in a pre-reviewed cited scientific journal.

Reforms at the EMU

In order to solve the biggest problems in research and higher education at the Estonian Agricultural University, a major reform was executed in 2005 after a long planning period. The reform topped with the change of the university name. The basic features of the reform are the following:

- Integration of research and teaching (The number of structural units decreased from 14 to 5);
- Increase of the status of academic structural units (basic structures- research institutes);

The reform increased status and responsibility of academic leaders, increased the academic requirements, brought about a decrease in their administrative load, contributed to the more centralised management of study programs, helped to increase the share of IT in university management and follow the planned infra-structural development. Shift in the focus of the university is echoed in the change of its name.

Conclusion.

In order to fulfil the functions of a state, Estonia has to keep and develop its national higher education and research system, covering a broad spectrum, including agricultural fields. Both higher education and research are inherently open activities that are evaluated according to the international quality standards. For a very small country international co-operation is essential in order to survive and develop in the diverse areas of research maintaining the quality at the same time.