

Evaluation report

Evaluated point	Grade	Comments
Scientific impact of research	Very good	<p>The scientific impact of agricultural research performed at the University of Tartu is very good. One particular focus shared by all the research groups involved in agricultural research is the need to understand the environmental impact of agriculture, forestry, and fisheries. This is important in order to prevent loss of biodiversity as well as understanding the impact of climate change on both production and environment. The volume of research at the University of Tartu directly related to agricultural sciences is limited. A budget of about 1.5 million Euros for the period 2010-2015 compared to the total budgets within the departments engaged in agricultural science research is low. Because, however, of the high level of competence of scientists grounded in basic science within the departments it is possible to perform high quality research.</p> <p>The Tartu scientists engaged in agricultural sciences have been extremely successful in gaining funds to participate in large European projects. This means that the exchange of ideas and new impulses for changing research directions has created momentum within many groups. They have been very successful in establishing an excellent reputation for scientific proficiency and are highly sought partners for international collaboration.</p> <p>The main research activities in agriculture and veterinary science are based in the Faculty of Science and its Institutes such as the Institute of Ecology and Earth sciences. There is no question that the Faculty and its relevant institutes are doing cutting edge research pertinent to the many global issues faced by agriculture in such areas as biodiversity, environmental concerns in forestry, fisheries ecology, biodiversity, conservation and environmental sustainability. The Faculty is addressing contemporary and future issues in plant biology, physiology and biodiversity where the understanding of the unexpected consequences of both climate and environmental changes require the new knowledge being generated by this research. Their aim is to be ahead of the curve. A good example of this is the research on the plant stomatal signalling and plant ecophysiology; studies on the response of plants to climate change by experimental manipulating of humidity in a controlled air humidity simulation in forests (FAHM) ; use of synthetic biology to create in vitro cell farms for bioengineering.</p> <p>The driver for agriculture is no longer the farmer. It is the science underpinning such issues as biodiversity, environmental ecology, plant biology and climate change that is part of a new wave of thinking about what constitutes</p>

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		agriculture in the 21st Century. This new approach is one being pioneered by the scientists in Tartu University. This needs to be recognised at both strategic and policy levels.
Sustainability and potential of research	Very good	<p>There is great potential for continued high quality agricultural research at the University of Tartu. Scientists work both in applied and basic science and this means that they can turn their efforts to particular problems in agriculture, forestry, and marine systems. They also have good research groups dealing in plant stomatal signalling, antibiotic resistance and plant molecular biology. It is certainly possible for these groups to turn to plant breeding, problems of antibiotic resistance in animal husbandry, and bioprocessing. The future directions for these groups will be dependent on funding opportunities. That all research is grounded in more basic and theoretical work means that scientific competence is sustainable.</p> <p>The staff have a strong record in securing external funding to support their research. Through the impetus given to the Faculty's research by recent reorganisation in Tartu University's academic structure together with their capacity to generate external funding for research there is clearly a strong potential for sustained research activity.</p>
Societal importance of research	Very good	<p>The faculty has considerable capacity for societal impact. This is evident by the development of the Conservation Biology group as a national centre for forest management, environmental monitoring for the National Environmental agency and input into fisheries management at the state level and through input into fishermen's organizations through the Fisheries Information Centre. Many of the staff hold key advisory roles in national organizations in Estonia's agriculture and fisheries science base.</p> <p>Many scientists participate in policy information. Scientific results are presented in such a way that policy makers can weigh the consequences of different management options. This is not confined to Estonian policy. Scientists are also very active within the Baltic sphere as well as the European Union. Exchange and dialogue with stakeholders is also a priority area for those engaged in research within the area of agricultural sciences. This contributes greatly to the societal importance of the research.</p>
Scientific basis in the field is sufficient to conduct doctoral studies. (This question should be answered only if:		<p>Yes, the level of the scientific basis in the field of agricultural sciences is sufficient to conduct doctoral studies.</p> <p>The quality of supervision and PhD candidates appears to be high at the University of Tartu. One negative point, however, is that all PhD students are not receiving the same type of yearly evaluations. There is a tendency to sign off on students performing well and not to have a face-to-face evaluation. It</p>

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<p>a) institution being evaluated is conducting doctoral studies and; b) The field being evaluated is proposed to grant positive evaluation. If these conditions are met then: a) If the level of scientific basis is sufficient for conducting doctoral studies in every structural unit being evaluated, then the answer should be „yes“; b) If the scientific basis is not sufficient in some structural units, then those units should be listed.)</p>		<p>is suggested that yearly evaluations are always performed at a meeting with student and supervisors present. A representative of the institute or faculty should also participate in order to guarantee that the student is receiving the supervision and resources necessary to do their job.</p> <p>The Faculty has a strong record in provision of PhD training and support for potential Doctoral students. However, there needs to be a far more professional approach to establishing a stronger culture of formal mentoring and financially supporting ALL postdoctoral students not just those lucky enough to be formally attached to larger groups. A postdoctoral position should be a proper job, with remuneration and formal supervisory structures so that ALL students are treated equally and mechanisms in place to ensure success and timely completion of PhD thesis. A PhD training is not an apprenticeship. Schemes for funding travel to international laboratories and even short periods of placement outside of Estonia would do much to improve the confidence, aspirations and competitiveness of the PhD students.</p>

Summary assessment

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<p>Areas of special note as appropriate (Where necessary indicate sub-fields, assessment criteria, and/or structural units which, in the committee's opinion, were of a notably high level.)</p>		<p>Units working with conservation biology were of a notably high level. Also work with climate change, particularly in relation to forestry, was at a high level. The current process of selecting and identifying projects for potential PhD students has been successful. However it needs to be more professional in approach and one which ensures that ALL students feel that they are being treated equally.</p>
<p>Areas in need of improvement as appropriate (Where necessary indicate sub-fields of the field being evaluated, assessment criteria, and/or structural units, which, in the committee's opinion, revealed significant shortcomings.)</p>		<p>No significant shortcomings were noted in any of the research groups. Efforts are being made to better integrate fisheries research with more traditional units at the University of Tartu. This work should continue and the scope for using the monitoring data collected by the Estonian Marine Institute for scientific studies, particularly involving modelling of populations, should be explored.</p> <p>The current practice for selection and appointment of supervisors and identifying projects is sound but needs to be more formalised in terms of reporting, monitoring and mentoring of the students. A director of Graduate Studies should be appointed to ensure scientific well-being and proper mentoring of PhD students.</p>
<p>Assessment proposal to the Minister of Education and Research</p>	<p>To grant positive evaluation</p>	<p>Agricultural and Veterinary science research at the University of Tartu is generally of high quality and has great potential for continuing and expanding their efforts. The academic restructuring of recent years and the success of the Faculty in securing substantial EU structural funds for equipment has provided a healthy environment for Doctoral studies. State funding for the PhD programmes remains far below what would be the norm in other countries and attention needs to be given to this.</p>

Feedback

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<p>Feedback for institution (This question should be answered only if the institution asked for feedback from the evaluation committee in the self-report (about up to three specific areas of R&D which it finds to be currently important, e.g., related to its development plan).)</p>	<p>The institution asked for feedback in two areas. The first was for an opinion on whether or not sustainability is an area where agricultural sciences should develop in Estonia. This is definitely an important area of research for the future. Sustainability means that both production and environmental goals should be considered in research. The University of Tartu has done a great deal of very good work in the area of environment and conservation biology. It is essential for sustainability studies that production of food and wood are also considered. One paradigm that would fit well for the University of Tartu is that called "Ecological Intensification". This means that there is a good understanding of ecosystem services and this knowledge can be applied to secure stability of production in an environmentally friendly management scheme.</p> <p>The second question had to do with agricultural sciences often being found in the grey zone between the Ministry of the Environment and the Ministry of Rural Affairs. Unfortunately this problem is not unique to Estonia. One would hope that communication between ministries would be at a level able to deal with problem. From the university a way to facilitate such communication might be to invite both ministries to take part in a dialogue with the scientists.</p>
<p>Suggestions for unit, institution, state etc. (As appropriate, committee can give additional feedback for the structural unit, the institution, or the State (please specify whom feedback is directed to) according to the directive assessment criteria for regular evaluation (article 7).</p>	<p>There was evidence of differential treatment of PhD students. Yearly evaluations were not conducted in the same manner for all the students. In addition there did not seem to be any presence of a neutral person, for example someone from the Dean's office, at the yearly evaluations. This could be important if there is some difference of opinion in how to solve problems or adjust study plans. Both students and supervisors can sometimes need help with resolving issues.</p> <p>Although the percentage of women among scientists was reported as 45% in 2015 it was noted that this is not the case among senior staff. Perhaps when recruiting new senior staff some special thought should be given to contacting qualified women and encouraging them to apply. Another way of looking at this for the future is to try to determine how the younger female staff can be mentored in order to succeed in gaining funding and utilizing successful publication strategies. This is, of course, something that should be supported not only by the different research groups, but also at the highest level of the university.</p>

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	There is a need to recognize that the PhD students have taken a career choice in some cases at considerable personal costs. They are the scientific seed corn of Estonia and deserve a proper level of financial support rather than the minimal wage and in some cases less than a minimal wage.