

Evaluation report

| Evaluated point | Grade | Comments |
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| Scientific impact of research | Satisfactory | <p>The scientific impact of research performed at the Estonian Crop Research Institute is satisfactory. This is an improvement over the last evaluation. The institute was formed in 2013 after a merger between the Estonian research Institute of Agriculture and the Jõgeva Plant Breeding Institute. One of the goals was to increase the scientific potential of the institutes. A great deal of work has been undertaken to improve the scientific output of the institute. The research output in number of peer-reviewed publications is still low, but somewhat better than previously. It is, however, difficult to judge in relationship to the budget information given. Although this is a research institute many of the tasks performed by the staff are not designed to generate traditional scientific output. Other indicators of scientific impact should therefore be discussed in the future. The budget of the institute should be more clearly broken down into activity areas. At present there are many activities related to outreach. These are downstream activities designed to encourage implementation of scientific findings. These activities will not always result in publication; a possible indicator could be adoption rate. The record of the institute in bringing forward new cultivars that attract buyers among farmers is an indication of impact.</p> <p>Funds dedicated to agricultural research are only about one third of the total budget, but this does not seem to be accounted for in estimating full-time equivalents (FTE) for research staff. The number of peer-reviewed publications per FTE is very low. If, however, activities not expected to result in publications are removed from the estimate of FTE then this statistic is improved and can be seen as satisfactory for an organization in transition. The ECRI is not a strictly academic institution as its activities are at the downstream side of basic research. They deal with the application of research and development of basic research in the context of application of basic research to the real life problems in the breeding, selection and growth of crops This also involves communication of science to the end user of seed and plants for important crops. Examples are development of crops of winter wheat, understanding their genetics of disease resistance and others. There are three major departments dealing with plant breeding, plant protection measures and phenotypic and genotypic characterisation of different strains of cereal and vegetable crops. The Institute is an essential interface in the continuum between the basic research in plant sciences and the agri-industries and farmers. If the Institute did not exist this opportunity to engage in translational science would be lost to the detriment of Estonian agriculture and its worldwide impact. The institute is a key player in the bioeconomy, biodiversity, and capacity of Estonia to deal with environmental issues such as crop growth and development and climate change .</p> |

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| Sustainability and potential of research | Good | <p>The research institute has implemented several strategic measures in order to improve both quality and quantity of scientific research. Among these measures is the hiring of scientists who already have established research profiles, mostly in more basic subject areas. An increase in collaboration with Estonian universities is also evident as well as more participation in international research projects.</p> <p>The institute is in need of better facilities and this absence of state of the art facilities has surely meant that research efforts could not reach full potential in relation to well-equipped university laboratories. New facilities are planned and some new equipment has recently been added. These efforts will make the institute more attractive as a partner for universities and the possibility of attracting students to do Masters and PhD work at the institute will also increase.</p> <p>In addition to the above the staff are dedicated to improvement of their research profiles.</p> <p>The sustainability is dependent on continued funding. They have been successful in securing approx. 7.8M euros from national and international funding sources. They have no funding from targeted funding or the Estonian Science funding. This reflects the balance of the Institutes' applied strengths compared to academic research. The Institute has excellent facilities and capacity for carrying out large field scale trials of different crop strains for the benefit of farmers. This is evidenced by their involvement in a PFI funding with agroindustry and other Nordic countries. Despite their necessary focus on applied research there are a significant numbers of staff scientists engaged in fundamental research with publications in high impact journals.</p> |
| Societal importance of research | Very good | <p>Plant breeding to produce varieties of crops that will be suitable and successful in future agricultural production are being developed at the research institute and this certainly is of high societal importance. It should be noted that international contacts are an integral part of Gene Bank cooperations. These contacts will certainly result in new research cooperation and directions. Field trials and close cooperation with stakeholders is important for the development and implementation of agricultural innovations based on scientific results. The research institute has the potential to be a leader in future directions for agriculture by refining and improving its current dialogue with stakeholders. For instance, there is great scope of expanding the production of fruits and vegetables (and important contribution to good health and environmental welfare) in Estonia. The institute should work on assuming leadership in these areas.</p> <p>The ECRI has a key role in the communication of plant R and D. This involves a good level of advice to agroindustry and</p> |

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| | | <p>farmers both in the form of publications in trade journals, organizing meetings lectures, workshops and seminars to the user communities. They are making excellent use of gene bank accessions and participate in international crop research and breeding programmes. Their outreach programmes also involve local schools to a small extent. The institute is active in the distribution of seed and crop varieties within Estonia and in foreign countries. The annual royalty income from the use of varieties has been about 200 000 euros during last years. The royalty income is invested into variety breeding and plant breeding research. The Institute provides essential support to the advisory system in crop development and in the development of legislation for national regulatory authorities.</p> |
| <p>Scientific basis in the field is sufficient to conduct doctoral studies. (This question should be answered only if: 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>The institute does not, in itself conduct doctoral studies but provides supervision and facilities for doctoral students from universities. The level of scientific basis (competence of supervision) is sufficient for conducting doctoral studies together with universities.</p> <p>Although the ECRI cannot formally award higher degrees they nonetheless play an important part in joint PhD training with Universities. There are approx. 7-8 doctoral students /per annum working with staff in the ECRI. Some of the staff are also involved in teaching on University courses in agriculture as the University Departments lack the expertise in some area. There is a good level of interaction between the ECRI and various university Departments. Consideration should be given to establishing joint teaching appointments with Universities.</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>Collaborations within Northern Europe and the Baltic are very good and there seems to be planning for expanding these efforts. The Gene Bank and long-term field experiments have potential to expand international collaboration. New staff working molecular biology in plants seem to be settling in well and have projects and publications in the pipeline.</p> <p>The reorganization of the institute from the former Estonian Research Institute and the former Jõgeva plant breeding Institute has had a very positive effect. This is evidenced by the increase in number of publications, development of critical mass and intellectual climate in the Institute. Overall, the institute has a well working, cohesive and focused expertise.</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>There should be more effort made to create a scientific dialogue within the institute. Although there are seminars this does not necessarily encourage intellectual exchange. Staff should arrange journal clubs in order to discuss new literature. Discussion on publication strategies should be encouraged and possibly led by senior staff. This can also be encouraged for project proposals and grant writing. The staff need to be encouraged to publish in higher impact journals. Conference proceedings and abstracts are inherent in all published papers and not a substitute for proper peer reviewed outputs. This is important for an institute like ECRI which needs to recognize that getting their research published in the mainstream journals (where appropriate) is the best route to improving their overall profile and value to the wider international scientific community in this field. Getting the research better known leads to better institute recognition and boosts international competitiveness. This needs to be repeatedly emphasized so that it becomes and inherent part of the staff culture.</p> |
| <p>Assessment proposal to the Minister of Education and Research</p> | <p>To grant positive evaluation</p> | <p>Steady and purposeful work towards improving the scientific environment at the institute has given results and the level of scientific quality and output has increased. The Institute is valuable asset to Estonian agriculture and stature of Estonia in this field.</p> |

Feedback

| Evaluated point | Comments |
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| 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).) | No feedback was requested. |
| 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). | A structured dialogue should be entered into to clearly define the mandate of this institute. Research should not be used as a catch-all name for activities such as extension information, contract work for industry and outreach activities. Indicators for success in research as well as other activities should be discussed and agreed upon so that the goals of the institute and the activities to reach the goals are understood by all parties. |