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# Evaluation of the impact of 2014-2020 Lithuanian Rural Development Programme measures on enhancing farm viability and competitiveness of all types of agricultural activities and promoting innovative farm technologies

## SUMMARY OF THE EVALUATION



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**Purpose and task of the Evaluation.** The purpose of the Study was to evaluate the contribution of measures contributing to the implementation of the Lithuanian Rural Development Programme's (RDP) 2<sup>nd</sup> priority. This evaluation will contribute to enhancing the viability and competitiveness of the agriculture and forestry sectors and to promoting innovative farm technologies, and will provide recommendations for the efficient and effective use of EU support. In order to achieve this purpose, the main task of the Study was implemented: to evaluate RDP's performance in achieving the 2<sup>nd</sup> priority's goals.

**Scope of the Evaluation.** The scope of the Study covered measures that directly and indirectly contribute to the implementation of RDP's 2<sup>nd</sup> priority. Accordingly, these measures contributed to increasing the viability of farms and the competitiveness of all types of agricultural activities and to the promotion of innovative farm technologies in the period 2014-2021. Measures that directly contributed to the mentioned goals included investments in RDP's 2<sup>nd</sup> priority focus areas 2A "Improving the economic performance of all farms and facilitating farm restructuring and modernisation, notably with a view to increasing market participation and orientation as well as agricultural diversification"; 2B "Facilitating the entry of adequately skilled farmers into the agricultural sector and, in particular, generational renewal"; and 2C+ "Improvement of economic value of forestry and development of forest areas". Measures that indirectly contributed included investment and area support from RDP's other priorities, Common Agricultural Policy's Pillar I support, and national budget support. Considering the broad scope of the Study and limited time for carrying it out, most attention in this Study was paid to analyzing investments that directly contribute to RDP's 2<sup>nd</sup> priority implementation. Meanwhile, analysis of investments that indirectly contribute to RDP's 2<sup>nd</sup> priority realization was limited to what was necessary to uncover the complexity of RDP's 2<sup>nd</sup> priority investments, and efficiency of the administrative support-provision system in the achievement of RDP's 2<sup>nd</sup> priority objectives and goals. The scale of analyzed RDP 2<sup>nd</sup> priority investments is presented below.

The total scale of RDP 2<sup>nd</sup> priority investments between 2014 and 2021 amounted to 1,016,382,895 EUR. Within the frames of focus area 2A, 4,616 unique supported beneficiaries (of which 4,286 have already finished implementing the investment projects) from 2014 to 2021 carried out a total of 6,089 modernization projects (sub-measure M04.1 "Support for investments in agricultural holdings"). Support under the focus area 2A was provided to small-scale farms (sub-measure M06.3 "Business start up aid for the development of small farms"). Thanks to sub-measure M06.3 investments, a total of 5,176 projects were supported and carried out by 5,120 unique support beneficiaries (2,698 beneficiaries have already finished implementation of investment projects) from 2014 to 2021. Investments directed at stimulating cooperation supported 90 projects, which encouraged small-scale farm cooperation (sub-measure M16.3 investments "Cooperation among small operators"). Focus area 2B priorities were attempted to be responded by support for young farmers – sub-measure M06.1 "Business start up aid for young farmers" investments in total supported 2,097 young farmers (of which 1,077 have already finished implementing the investment projects) from 2014 to 2021. Focus area 2C+ priorities were mostly responded by sub-measure M08.6 "Investments in forestry technologies" investments, thanks to which 168 forestry technology installation projects were supported from 2014 to 2021. Comparing the distribution of investments among support sectors, most funds (both private and public) were directed at the livestock sector (more than 449 million EUR). A significant share of investments went to the crop production sector (more than 337 million EUR). Support for other sectors was lesser: the gardening sector received a little over 66 million EUR; the horticulture sector received 8.8 million EUR; the forestry sector received more than 27 million EUR of support.

RDP's 2<sup>nd</sup> priority investments were also directed at the development of infrastructure. Most infrastructural investments were implemented within the frames of activity M04.3.2 "Support for agricultural water management": a total of 288 water management projects were supported, with the total investment amount exceeding 80 million EUR between 2014 and 2021. 19 projects contributed to forest infrastructure, and

these investment expenditure amounted to a little over 2 million EUR. 2.7 million EUR were invested into land consolidation, thanks to which 5 land consolidation projects were implemented.

**Evaluation methodology.** The main qualitative and quantitative methods applied for the Study are the **analysis of strategic documents, secondary sources, semi-structured interviews, and quantitative questionnaire survey data analysis.** **Analysis of strategic documents** was employed to gather information concerning the context of analyzed investment implementation and defined goals. **Analysis of secondary sources** formed the methodological foundation for the Study, supplemented the quantitative analysis by qualitative insights, and helped form the conclusions and the Study's recommendations<sup>1</sup>. **Information gathered during interviews** supplemented quantitative analysis with qualitative insights and helped formulate conclusions and recommendations of the Study.

In order to analyze the largest investment<sup>2</sup>, **questionnaire surveys** were conducted, and the analysis of survey material made it possible to measure the effects of analyzed investments on support beneficiary's agricultural activities' aspects, which could not be examined by quantitative analysis: such as the quality and variety of production, wage sizes, aspects of environmental sustainability, development of innovation and cooperation<sup>3</sup>. Questionnaire surveys also supplemented quantitative analysis with qualitative insights concerning the display of the deadweight loss effect among analyzed investments and the (non-)resistance to the consequences of the COVID-19 pandemic among the supported beneficiaries.

Quantitative methods in this Study included: **performance analysis of the RDP and its projects, counterfactual impact evaluation, micro-level data extrapolation analysis, and socio-economic indicator analysis.** **Program performance analysis** made it possible to measure the success of the analyzed RDP's 2<sup>nd</sup> priority investments realizations in respect of focus area products and target-indicators. **Project performance analysis** measured how successful supported beneficiaries / supported focus groups were in realizing their planned goals of economic performance improvement. For project performance analysis, the efficiency of achieving the indicators was also analyzed, i.e. the amount of public investment that was used to produce one unit of the indicator<sup>4</sup>. **The counterfactual impact evaluation** was used when analyzing the largest (in terms of investment scope and number of beneficiaries) sub-measure M04.1 "Investment in agricultural holdings". This method made it possible to calculate the net effect of modernization investments on beneficiaries' holdings by comparing the latter's economic size of (economic size of holding hereinafter – HES) development with those of identical holdings that did not receive support, as well as strengthening the project performance analysis.

**The micro-level data extrapolation analysis allowed** to calculate the contribution of sub-measure M04.1 to the increase of labor productivity in agriculture and the contribution of the largest investments in focus area 2A (i.e. sub-measures M04.1, M06.3 and M16.3) to the increase of agricultural factor incomes and agribusiness income. **The purpose of the analysis of socio-economic indicators was twofold.** On the one

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<sup>1</sup> A total of 14 interviews were held with social partners, representatives from the Ministry of Agriculture and the National Paying Agency, and innovation experts.

<sup>2</sup> Sub-measures M04.1, M06.1, M06.3, M04.3.2, M08.6, M16.3.

<sup>3</sup> In the cases of the largest sub-measures in terms of investment sizes and the number of beneficiaries (M04.1, M06.1, and M06.3) surveys were representative. In the cases of sub-measures M04.1 and M06.3, the error of answers was 5%, and in the case of M06.1 it was 10%. It is important to note that the tendencies of results from non-representative surveys essentially matched the answers from representative surveys.

<sup>4</sup> It is important to note that this efficiency calculation does not capture the net impact of the investment and the net efficiency of the investment implementation. For example, the level of net profit or any other indicator may depend not only on the success of the investments, but also on various external factors (i.e. weather in a given year, the market situation in the purchasing sector, the price of energy sources, etc.). As such, the calculated investment performance indicator reflects not only the impact of the investment itself on the indicator, but also the impact of other factors that may inflate or deflate the indicator's values.

hand, the combination of the analysis of the contextual CMEF indicators for each of the RDP Priority 2 target areas with the analysis of the investments carried out earlier allowed to identify whether the specific problems and/or needs and/or objectives in the target areas concerned were met by the investments implemented.

On the other hand, the analysis of socio-economic indicators formed the basis for the **competitiveness index**, which allowed comparing the development of Lithuanian agriculture's competitiveness with agriculture's competitiveness of other EU countries in the period 2014-2021<sup>5</sup>. The competitiveness index was composed of three dimensions: **sustainability of farming** (this dimension was subdivided into the separate sub-indices of sustainability of farming and farming practices), **competitiveness of farming resources** (this dimension was further subdivided into the separate sub-indices of material base, farming conditions and human resources), and **competitiveness of the performance of farming activities**. The significance of the individual indicators and the impact (weights) on the value of each sub-index, dimension and the final index were calculated using principal component analysis. After calculating the values of each sub-index, dimension and the overall index in Lithuania and in other EU countries, Lithuania's performance was compared with that of other EU countries. This allowed to determine Lithuania's position for each sub-index, dimension and final index in the EU context.

**Results of the Study.** Project performance analysis and questionnaire survey findings have shown that RDP's 2<sup>nd</sup> priority investments have been effective in seeking RDP's 2<sup>nd</sup> priority goals. Analysis of focus area 2A showed that the level of CMEF product indicator achievement is high, which indicates that the planned indicator values will be achieved by 2025. Focus area 2A target-indicator (Percentage of agricultural holdings that receive RDP support for restructuring or modernization investments) analysis showed that the number of supported holdings is also high (2.14%), which in turn indicates that the planned target-indicator values (2.88%) will be achieved by 2025. **The analysis of questionnaire survey results and project performance analysis evaluation results revealed that focus area 2A investments (sub-measures M04.1, M06.3, and M16.3 investments) have significantly contributed to the improvement of supported beneficiaries' economic activity results. In the cases of most supported beneficiaries the values of real total production, income level, net profitability, and economic size exceeded planned indicator values, as the performance of these economic activity indicators exceeded 100%. A significant part (40% and more) of supported beneficiaries also claimed that focus area 2A investments had a significant positive impact on the variety of production, its quality, and the increase in wage.**

A more detailed analysis of the performance of projects in the largest sub-measure M04.1 showed that while the highest project performance is observed in the medium and small farms groups, the large farms group is the most efficient in the use of support<sup>6</sup>. **Thus, based on the analysis of project performance, it can be concluded that large farms are the most efficient and small farms the least efficient (large farms achieve the highest values of the project indicators with the lowest amount of support).**

**The results of the counterfactual impact assessment confirmed the results of the project performance analysis, with large farms showing the highest increase in HES as a result of the**

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<sup>5</sup> All indicators used in the index for Lithuania and other EU countries are readily available in the FADN, CMEF and EUROSTAT databases.

<sup>6</sup> Small farms - agricultural holdings with a HES of up to EUR 25 000, medium farms with a HES of between EUR 25,000 and EUR 100,000, and large farms with a HES of more than EUR 100,000. This grouping was chosen in order to maintain continuity with previous studies (e.g. ESTEP (2018) "Evaluation Report on the Implementation of the Lithuanian Rural Development Programme 2014-2020 in 2014-2018" or Vitunskienė and Jazepčikas (2016) "Significance of investment and direct support measures for farms' investments: the case of Lithuania").

**support, small farms the lowest, and both small, medium and large farms showing a positive and higher increase in HES than non-supported farms.** While it is understood that large farms receive significantly more support than small and medium-sized farms - large farms have a significantly higher volume and capital intensity of operations, which requires more investment to cover the depreciation of the capital used in the operation of the farm. The evaluators' analysis has shown that investment support for large farms may exhibit deadweight loss<sup>7</sup>, as evidenced by the questionnaire surveys, interview material and analysis of secondary sources. **However, despite the presence of a deadweight loss effects, the analysis of the investments of sub-measure M04.1 showed that the investments have made a significant contribution to the improvement of the beneficiaries' competitive position and economic performance.**

**When evaluating focus area's 2A infrastructural investments, we noticed that activity M04.3.1 "Support for land consolidation" investments, directed to land consolidation, successfully contributed to the rationalization of land use in consolidated holdings.** Rationalized land areas became more compact, better used, and more easily accessible. This means that farmers waste less time and have lesser fuel costs when cultivating and fertilizing the fields. On the other hand, project performance analysis has shown that in the cases of most target-indicators, the planned objectives of land consolidation were not achieved due to a small number of consolidated land areas (most result indicators' performance did not exceed 50%), while the average land holding size in the country is still behind the sizes aimed for in strategic documents. **Taking this data into account, we state that the input of land consolidation in land use rationalization is limited throughout the entire country.**

**Activity M04.3.2 investments that were dedicated to improving water management significantly contributed to the improvement of melioration systems' conditions, which determined a better situation of competitiveness in farms that use the improved melioration systems.** As the analysis of project performance shows, the actual values of the various indicators significantly exceeded the target values (performance above 100%). **Although the investments were successful and helped solve melioration issues in the areas where the projects were implemented, the investments did not create a country-wide breakthrough.** Based on the 2020 calculations and data from the State Land Fund, over 1 billion EUR of investment is necessary to renovate the entire melioration infrastructure, which is in bad condition. Since RDP water management investments consisted (in total) of a little over 83 million EUR from 2014 to 2021, these investments only allowed to meet 8% of the total necessary funding. **This means that even though the analysis shows that M04.3.2 investments are well-timed, effective, and allow for a successful renovation of outdoor drainage infrastructure in rural areas, the scale and quantity of these investments are too little for a country-wide breakthrough in the improvement of water management.**

**Focus area 2B analysis has shown that the level of CMEF product indicator achievement is high, which indicates that the planned product indicator values will be achieved by 2025. In total, 2,097 holdings received young farmers' support, and 1,077 young farmers have finished their projects. Taking these figures into account focus area 2B target-indicator (Farm holdings that prepared a business development plan following the RDP / received investments for young farmers) implementation value is 46%, 2014-2021 target-indicator value is 0.54% and planned value for 2025 is 1.17%.** Sub-measure M06.1 project performance analysis has shown that in the cases of all beneficiaries the real indicator values of net profitability, income, and holding economic size have exceeded

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<sup>7</sup> Deadweight loss effect occurs when funding is provided to beneficiaries who would have made the same choice (i.e. made the same investment) even without the aid. In such cases, the results cannot be linked directly to the aid provided and the amount of aid paid to the beneficiary has no impact. Thus, the part of the expenditure that gives rise to the deadweight effect is, in principle, ineffective as it does not contribute to the objective.

planned indicator values (in the cases of all indicators, performance exceeds 100%). **Taking these project performance analysis results into account, we can assert that sub-measure M06.1 investments have considerably contributed to the improvement of farms' performance and viability. Likely, without young farmers' support the viability of newly established farms would be significantly lower.**

**Focus area 2C+ analysis has shown that the level of CMEF product indicator achievement is considerably high (planned indicator targets for 2025 are being successfully implemented). Focus area 2C+ target-indicator (jobs created in supported projects) achievement is high. More jobs have been created than anticipated in RDP's indicator plan (215 jobs have been created, while 185 were planned for 2025).** Sub-measure M08.6 project performance analysis has shown that net profit, maintained jobs, newly created jobs, and income from sales performance indicators are respectively 142%, 97%, 198%, and 133%. **Taking this into account we can conclude that sub-measure M08.6 investments significantly contributed to the improvement of support beneficiaries' competitiveness and economic performance.** Focus area's 2C+ infrastructural investments also had a positive effect on support beneficiaries as they improved the infrastructure of forest roads. Activity M04.3.3 "Support for forest infrastructure improvement" investments' performance in the cases of all indicators has reached or exceeded 100%, which shows that support had a positive effect on the improvement of support beneficiaries' performance. On the other hand, as mentioned in the activity M04.3.3 analysis, even though the support had a positive effect on the development of its beneficiaries, a country-wide breakthrough was not reached, as the investments made it possible to renovate less than 1% of all forest roads.

**Although micro-level analysis indicates that RDP's 2<sup>nd</sup> priority goals are being successfully implemented, the socio-economic indicator analysis has shown that from 2013 to 2020 the situation of some target groups has worsened in Lithuania.** The Study has shown that **small-scale farms' and most livestock sub-sectors' viability, and the development of productivity have worsened or were worse compared to other farm-size groups or supported sectors.** For example, small-scale farm production level in 2020 varied from 7,092 EUR (HES group 4,000-7,999 EUR) to 20,153 EUR (HES group 15,000-24,999 EUR) and from 2013 decreased by accordingly 28% and 5%. At the same time, mid-sized and large-scale farms' production levels varied from 42,427 EUR (HES group 25,000-49,999 EUR) to 705,273 EUR (HES group over 250,000 EUR) and since 2013 have increased accordingly by 3% and 11%. A significantly improved production level of mid-sized and large-scale farms led to these groups having greater profitability without direct payments and VAT deductions. Profitability before VAT deductions and direct payments varied from 3% (HES group 25,000-49,999 EUR) to 21% (HES group over 250,000 EUR) and since 2013 has increased accordingly by 1 pp and 11 pp. At the same time, small-scale farm profitability before direct payments and VAT deductions varied from -22% (HES group 4,000-7,999 EUR) to -24% (HES group 15,000-24,999 EUR) and since 2013 has decreased accordingly by 23 pp and 24 pp. Although VAT deductions and direct payments adjust the profitability situation of small-scale farms (profitability becomes positive), the high dependency on direct payments and VAT deductions among small farms indicates that the viability situation of small-scale farms has worsened from 2013 to 2020. During the same period, the viability of mid-sized and large-scale farms has improved. **A paradoxical situation, as the beforementioned high performance on the micro-level does not transform into an overall improvement of viability among small farms and the entire agricultural sector, can be explained by the small scale of investments. On the assumption that the average number of small-scale, mid-sized, and large-scale farms from 2015 to 2021 was accordingly 36,748, 9,323, and 3,486<sup>8</sup>, the analyzed**

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<sup>8</sup> Based on the data from the Agricultural Information and Rural Business Centre (only including holdings with HES larger than 4,000 EUR). Only including holdings with HES larger than 4,000 EUR because only such holdings could receive RDP's 2<sup>nd</sup> priority investments (minimum HES of 4,000 EUR).

focus area 2A support only reached 17% of all small farms, 19% of all mid-sized farms, and 46% of large-scale farms.

**The worsening situation of viability was also noticeable in the cases of livestock sub-sectors.** Profitability before direct payments and VAT reductions in pigs and poultry, dairy and herbivorous livestock sub-sectors in 2020 was +5%, -6%, and -36%, and since 2013 have accordingly decreased by 8, 20, and 20 pp. At the same time the profitability of the grain and canola sub-sector increased by 22 pp and in 2020 was 20%. Profitability in crop production, gardening and horticulture sectors accordingly decreased by 9 pp and 15 pp, and in 2020 was 3% and 10%. **This paradoxical situation when high micro-level performance and large-scale investments in the livestock sector do not transform into an increase in competitiveness and viability on the scale of the whole agricultural sector can be explained by the limited success of the support system to address the problems and issues of the whole livestock sector. Although the livestock sector received most of RDP's 2<sup>nd</sup> priority investments, these were not enough to improve the situation of the entire sector, when compared to other supported sectors.**

**In conclusion, we can state that despite various administrative means, which encouraged higher accessibility to support for small-scale farms and the livestock sector, the scale of provided support and the performance of these target group support beneficiaries were not satisfactory enough for these target groups' position to improve on the level of the entire agriculture sector between 2013 and 2020. Although the situation of these target groups did not improve and capital self-sufficiency among all sectors also decreased (capital self-sufficiency in all farms with a HES over 4,000 EUR<sup>9</sup> decreased 24% from 2013 to 2020 and was 26,510 EUR in 2020). The situation of competitiveness and viability in the entire agricultural sector improved, which indicates a successful sum implementation of analyzed investments and the response to focus areas' needs.** Shared production of all farms per one unit of labor from 2013 to 2020 grew by 38% and amounted to 25,373 EUR in 2020. Profitability before direct payments and VAT deductions also grew by 3 pp and was 7% in 2020. The investments also allowed to lessen the gap of various competitiveness indicators in comparison to the EU average. **The analysis showed that even though Lithuania is still considerably behind the EU in terms of labor productivity in the agricultural sector (CMEF monitoring indicator C14 "Labor productivity in agriculture"), sub-measure M04.1 investments are diminishing this gap.** In 2017, when the effect of sub-measure M04.1 investments was starting to be seen, labor productivity in agriculture was 7,527 EUR. In 2020 labor productivity was 9,186 EUR and was 4% higher compared to a scenario without sub-measure M04.1 investments (8,823 EUR). If sub-measure M04.1 investments had not been implemented, Lithuania's agricultural sector's labor productivity, compared to the EU average, would have been 43% and would have been 2 pp lower than the real figure in 2020 (45%). **The investments also contribute to the growth of agricultural production factors' and agricultural business' income** (corresponding CMEF context indicators C25 "Agricultural production factors' income" and C26 "Agricultural business' income"). This analysis indicates that if sub-measure M04.1, M06.3, and M16.3 investments had not been implemented, corresponding indicator values would have been 4% lower in 2020 (in 2020, agricultural production factor value was 6,527 EUR, and agricultural business income value was 5,435 EUR) and the gap between Lithuania and the EU average would have been 2 pp larger (In 2020, Lithuania's agricultural production factors compared to EU average was 39%, while agricultural business income was 38% of EU average).

It is important to mention that the development of analyzed socio-economic indicators remained unchanged even during the COVID-19 pandemic. The Study has shown that most beneficiaries and, also, the

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<sup>9</sup> Only taking farms with a HES larger than 4,000 EUR, because only such and larger farms could apply for RDP's 2<sup>nd</sup> priority support.

entire agricultural sector were considerably resistant to the economic troubles caused by the COVID-19 pandemic. The study showed that agricultural COVID-19 from RDP and national initiatives was effective in meeting the needs for working capital and investment funds, and in mitigating the shocks in input prices.

**Investments have also been successful in mitigating the decline in the number of holdings and increasing employment in rural areas.** In 2021, the number of registered agricultural holdings reached 150,583. Between 2015 and 2021, the number of registered holdings decreased by 18% (from 184,473 in 2015 to 150,583 in 2021). Thanks to the focus area 2B investments, 2,097 new holdings were established, and we can say that the decrease in the number of holdings was at least somewhat mitigated. Had sub-measure M06.1 investments not been implemented, the number of agricultural holdings between 2015 and 2021 would have been on average 0.28% smaller, and the number of holdings in 2021 would have been 1.41% smaller (there would have been 148,486 holdings in 2021). The setting-up of young farmers contributed to the generation renewal in the countryside. From 2015 to 2021, the share of young farmers among all agricultural holding owners gradually increased (from 11% in 2015 to 12% in 2021). The active use of farm development support under Objective 2A by young farmers is also a positive stimulus to generational change. In the period 2015-2021, the share of young farmers benefiting from support for investments in agricultural holdings and for business start-up investments in small farms was higher than planned in the RDP, accounting for 63% (or 2,908 young farmers who have already finished implementing or still implementing their projects (out of which 2700 young farmers have already finished implementing their projects)) and 52% (or 2662 young farmers who have already finished or still implementing their projects (out of which 1403 young farmers have already finished implementing their projects)) of beneficiaries in these fields of action, compared to a planned share of less than half (40%). Adding together the young farmers who have received support from sub-measures M04.1, M06.3, M06.1 and controlling for the fact that the beneficiaries may have received support from more than one of the three sub-measures, it can be concluded that almost 36% of the total number of young farmers active in the year 2021 were supported<sup>10</sup>.

The setting-up of young farmers also encouraged the rise in employment in rural areas. Newly set-up farmers create jobs for themselves and also hire people from countryside. Had focus area 2B investments not been implemented, the employment level in rural areas would have been 0.6 pp lower (or 3,146 fewer jobs in rural areas) in 2021. This would have also led to a larger gap between employment in the rural areas compared to the rest of the country.

**Investments in the forestry sector also contributed to the mitigation of the labor productivity gap in the forestry sector compared to the EU average.** In 2020, labor productivity in the forestry sector was valued at 19,481 EUR and amounted to 45% of the EU average. Even though this Study did not analyze in detail the effect of investments in lessening the gap between Lithuania and the EU, it is likely that the investments at least partially contributed to the 12 pp decrease in the gap (in 2014, labor productivity in Lithuania's forestry sector only amounted to 33% of EU average).

**Looking at the progress of Lithuania's agricultural competitiveness at EU level over the period 2014-2021,** the evolution of the indicators of **the sustainability dimension of competitiveness index** indicates that Lithuania's position in the EU context has improved: Lithuania moved from 6th position in 2014 to 5th position in 2020 among the 26 EU Member States<sup>11</sup>. The improvement in Lithuania's position indicates that Lithuania's sustainability performance in terms of various sustainability indicators (pesticide use, GHG and ammonia emissions, etc.) has improved at a faster pace compared to most EU countries. Lithuania's position

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<sup>10</sup> RDP's 2<sup>nd</sup> priority investments supported in total 6770 young farmers out of 18601 registered young farmers in 2021.

<sup>11</sup> Malta was removed from the analysis because of structural differences in various indicators compared to other EU countries.

has also improved in the competitiveness of farming resources dimension of competitiveness index Lithuania moved from 19th position in 2014 to 16th position in 2020. The improvement in Lithuania's position indicates that the state of Lithuania's farming competitiveness resources, as measured by the state of human resources in the agricultural sector and the material condition of farms, has been improving at a sufficiently rapid pace to bring it closer to the EU average.

On the other hand, Lithuania's position in the **competitiveness of the performance of farming activities dimension** has declined, dropping from 21<sup>st</sup> in 2014 to 24th position in 2020. The decline in Lithuania's position indicates that Lithuania's agricultural performance, measured in terms of output per agricultural worker, per farm, per hectare, has not grown as fast as in a significant proportion of EU Member States. The deterioration of Lithuania's position in the competitiveness performance dimension has led to a deterioration of Lithuania's position in the overall competitiveness index at EU level (from 18<sup>th</sup> place in 2014 to 20<sup>th</sup> place in 2020). Thus, although Lithuania's agricultural sustainability and resource conditions have been improving and investments under RDP's 2<sup>nd</sup> priority have contributed to this improvement, the breakthrough has not been sufficient to increase Lithuania's competitiveness performance (i.e. productivity, level of output) at a faster rate than in the majority of EU Member States. However, it is important to note that the improved state of sustainability and agricultural competitiveness resources creates the preconditions for faster growth of various competitiveness performance indicators.

**Findings and recommendations.** The results of the Study indicate that RDP's 2<sup>nd</sup> priority support successfully contributes to the improvement of the supported beneficiaries' competitiveness situation. However there are areas in Lithuanian agriculture that are falling considerably behind EU leading member states and the improvement of these areas would further encourage the convergence of competitiveness. For example, to this day the potential for cooperation in Lithuania is still not employed. Significantly greater cooperation between farms, especially between small-scale farms, would allow for reduced costs of economic activity, contribute to the development of sustainability. Also, it would allow increase the share of added value in the agricultural product supply chain. Given this, it is recommended to continue to provide support for various cooperation initiatives in the future: among small-scale farmers, between scientist-consultants, and farmers.

Greater effort is also needed in the field of innovation. This analysis showed that most beneficiaries invested support funds into new and modern machinery. Even though the acquisition of such machinery is considered an innovation on the farm level (or beneficiary level) these investments are considered innovation neither on a national, nor on a regional scale. Considering this it is recommended to continue to provide support and increase the level of cooperation amongst research institutions, farmers, and advisors. Further development of the TITRIS system (i.e., The Applied Innovation Research and Results Information System) could also contribute to innovation development. The existence of such a system would help to address innovation duplication problems, increase the awareness of available innovation information amongst farmers and potentially lead to greater cooperation between scientists and farmers. Greater access to advisory services and quality assurance of advisory services, as well as the introduction of more advanced technologies and the digitalization of farming, could also contribute to the development of innovation. As such, it is recommended to further provide priority points to farms that commit to investing in digitalization.

The process of farm modernization and capital self-sufficiency could also improve. The analysis shows that capital self-sufficiency within farms has been declining between 2013 and 2020. As capital self-sufficiency has been declining and the scale of modernization is insufficient, the risk of labor productivity decline in the future has increased. As such, it is recommended to continue ensuring the availability of investment instruments to a wide range of actors in the agricultural sector. This is particularly the case for young farmers who face a lack of capital funding early in their business development.

Certain aspects of the administration of the support system could also be improved. The analysis revealed signs of deadweight loss effect in the case of large-scale farm support. In response to this, it is suggested to assess the possibility of providing different forms of support for different size farms. We recommend providing more investment support for large-scale farms in the form of loans and also considering the possibility of reducing the intensity of the support for these farms. The performance rate among projects on large-scale farms, their return rate, and overall viability of these farms is high, which indicates that the application of financial engineering instruments to this farm group would likely prove successful. An increasingly larger share of support in the form of loans would allow ensuring the recovery of funds and their repeated use, their accessibility for different target groups, and a higher project performance rate. We also recommend reviewing the support administration instruments for small-scale farms in the future, thus seeking to increase the accessibility of investments for these farms. Furthermore, we recommend reviewing the use of support administration instruments for the livestock sector to respond to the need for increasing the significance of this sector in Lithuania.

Even though the state of sustainability in Lithuanian agriculture is considerably high, a future risk emerges that with the increase in agricultural productivity and the scale of production, the overuse of natural resources may be encountered. In light of this, it is necessary to ensure sustainable farming that is as environmentally neutral as possible. Faster development of innovations in the agricultural sector, ensured support for technological equipment, which ensures sustainable farming practices, and accessibility of support for the forestry sector (which is an important sector for ensuring the bioeconomic development in the country), could all contribute to achieving this goal.

Even though the investments into water management were appropriate and successful, the scale of the investments is not sufficient to solve melioration issues throughout the country. Given this, it is important to seek solutions in the future, which would allow responding to the need for larger investments in the water management sector.