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Transformation of the Education System in Agricultural Advisory towards Sustainability—A Case Study in Slovenia

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Abstract: The new role that agricultural advisory plays in innovation processes and the development of agriculture towards sustainability requires the improvement of its performance. The basic prerequisite for realizing the potential of agricultural advisory in the areas mentioned is a strongly developed education system that will enable the development of strong advisory capacities. This survey is based on three areas of the education system: organization of education, satisfaction with educators, and evaluation of education and the potential of individuals in the organization. The basic principles on which the education system is based are outdated and, therefore, inadequate for developing the performance that the new role of agricultural advisors in innovation processes requires. Multiple regression analysis results indicate that a greater evaluation of education and the potential of individuals in the organization implies greater involvement of agricultural advisors in the selection of topics that will be provided to them through education and more advanced performances of educators responsible for educating. One-factor analysis of variance (ANOVA) determined that there are no statistically significant differences, at the p < 0.05 level, in the level of perceived competence of advisors for sustainable agricultural practices depending on the frequency of attending education.

Keywords: agricultural advisory; agricultural advisor; education system; advisory capacities; sustainable education; sustainable agriculture



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1. Introduction

The authors of numerous studies emphasize the importance of improving agriculture in the direction of sustainability [1–4]. The need for sustainable agricultural solutions that are based on a balance between economic, ecological, and social aspects is becoming more and more pronounced.

Research and innovation are recognized as the main drivers of sustainable development and represent the foundation of the "Europe 2020" growth strategy. The growth strategy aims to make Europe a smart, sustainable, and inclusive economy [5]. In the context of synchronizing the agricultural sector with the adopted growth strategy, the reform of the Common Agricultural Policy took place in 2013 [6]. The renewed CAP emphasizes the strengthening of knowledge transfer and highlights the importance of the role of the agricultural advisor in the improvement of agriculture [7]. The important role and significant potential for improving the development of sustainable agriculture is beginning to be seen in agricultural advisory services [3,4,8–10]. The advisory service is included as an important segment in the creation of the agricultural innovation system (AIS). The new role, which agricultural extension receives in the innovative process, encourages the need for numerous changes at the individual, organizational, and systemic levels [8]. All this brings with it the need and opportunity for innovating the agricultural advisory system and strengthening advisory capacities.

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The role of agricultural advisors has changed over time [11,12]. The linear approach to knowledge transfer has been replaced by a participatory approach. The advisor is now expected to help farmers in a way that makes it easier for them to introduce innovations, to find new solutions for existing problems in agricultural practice together with farmers and other relevant actors in the agricultural knowledge and innovation system (AKIS), and actively participate in the process of creating innovations [10]. All of this requires that the advisors master new knowledge and skills, which will empower them to respond adequately to the wide range of demands placed before them [13]. In addition to mastering innovative technical knowledge, advisors need to master the skills of managing social processes [8,10]. In the context of the new role of advisors in the innovation process, the authors [8] say that capacity gaps should be identified at the individual, organizational, and system levels, and curricula should be examined to determine their suitability for the needs of agricultural advisory staff.

Previous research has found slightly or moderately strong positive perceptions of advisors toward sustainable agricultural practices [1,3,9]. However, numerous studies have found slight to moderate competence of advisors in the field of sustainable agriculture [1,14]. Sisk [14] states that if advisors show insufficient knowledge and skills for work, it is questionable whether the state, as an organizer of education, performs this work adequately. In support of this, a lack of education and training was noted, which would enable the advisory staff to acquire the necessary competencies for spreading sustainable approaches to agriculture [1,2,4,15].

Agricultural education and training have a major role in building the capacities that the new era and the concept of sustainable agriculture require from extension workers [8]. Accordingly, it is necessary to pay more attention to improving the education of agricultural advisors [2,9,16].

The re-examination of the education of agricultural advisors, prompted by the phenomenon of multiplication and diversification of the necessary knowledge, competencies, and attitudes that advisors need to possess to effectively perform their work, pointed to certain phenomena in the training practices of agricultural advisors. Existing limitations in the education of advisors and the strategies used for their training have been highlighted [17–19]. The traditional, hierarchical, and weakly flexible character of the training strategy was identified [17], criticisms were made regarding the content and methodology of the training, and discursive training that prioritized conceptual knowledge over practical knowledge was emphasized [20–22]. Training is based on behaviorist or diffusion pedagogy, where valid knowledge is in the hands of those who teach, and advisors are expected to simply absorb the knowledge that is imparted [20]. The concept and scope of education and training of advisors are expanding, but without the appearance of a new and complete model to approach it [20].

There is a consensus among the authors that there is a need for transformation, expansion, and strengthening of the training of agricultural advisors [20,21]. Considering all the above, there is a need to examine the elements on which the existing education system is based, which produces the existing results in the training of agricultural advisors. Illumination and understanding of the basic principles on which the education system rests are of key importance for the process of transformation and innovation of the education system of agricultural advisors.

The analysis of AKIS [23] provided insight into the functioning of agricultural advisory services in EU member states, identifying areas of weakness. This analysis contributed to the development of a comprehensive strategy for meeting needs in specific areas through the National Rural Development Program for the period 2014–2020. The state of the Public Agricultural Advisory Service in Slovenia revealed a lack of competence among advisors in the technological, economic, and environmental areas. It was also observed that specialized advisory services are lacking and there is a need for their development toward sustainability [24]. Despite the identified need for capacity improvement through education, it was not prioritized in the Rural Development Program 2014–2020. This

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decision was based on the fact that the advisory service is mainly funded by the state budget (80%), with a portion of those funds allocated for advisor training [24].

The importance of improving education in the agricultural advisory continues to expand through the new Common Agricultural Policy (CAP) 2023–2027, thereby emphasizing the need to integrate the improvement of education into the strategic plans of EU member states for the CAP 2023–2027. The analysis of the state of agricultural advisory in Slovenia, published at the end of 2021 as part of the Strategic Plan CAP 2023–2027 [25], pointed to a lack of specialized knowledge in the areas of introducing new technologies and digitalization, farm management, financial skills and entrepreneurship, adaptation and mitigating the effects of climate change, plant and animal health, and preservation and protection of natural resources and biodiversity. In the above-mentioned report, it is also stated that the education of agricultural advisors in the areas of the modern methods of knowledge transfer, production, and processing technology, was assessed as insufficient.

Considering the established weaknesses in advisory capacities and services from 2013 and then from 2021, the effectiveness of the existing education system in agricultural advisory in Slovenia is brought into question. Furthermore, noted weaknesses in the practice of education of agricultural advisors (in the areas of the modern methods of knowledge transfer, production, and processing technology) point to the need to examine the functioning of the existing education system for agricultural advisors.

The fact is that a well-established system of education for advisors is the foundation of strong advisory capacities and a wide range of quality advisory services. If a strong system of education in agricultural advisory is not established, the potential possessed by agricultural advisors will remain insufficiently developed and used for the development of agriculture in the direction of sustainability. Accordingly, the research focuses on the functioning of the education system for agricultural advisors within the Public Agricultural Advisory Service.

Objectives of the paper:

- To present and analyze perceptions collected from agricultural advisors regarding
 the functioning of the current education system, comparing observed occurrences
 in agricultural advisor education with findings from existing research in the field of
 advisor training.
- II. To highlight the basic principles on which the functioning of the existing education system is based.
- III. To examine the importance of evaluating education and the potential of individuals in the organization.
- IV. To determine the effectiveness of the education system in strengthening advisory capacities in the field of sustainable agricultural practices.

2. Materials and Methods

The Public Agricultural Advisory Service in Slovenia operates independently within the Chamber of Agriculture and Forestry of Slovenia (CAFS). It operates through 8 district subsidiaries and 53 local units belonging to them, which are located throughout the territory of Slovenia. Advising is performed in three areas: technological, economic, and environmental. It is divided into basic and specialized advising.

The focus of this research was to investigate the perceptions of agricultural advisors regarding the functioning of the education system, which is organized by the Public Agricultural Advisory Service (CAFS) and funded by the state. The Public Agricultural Advisory Service does not have a specific department solely dedicated to the development of human resources and education organization. The annual program of education for agricultural advisors is created by the sector for professional affairs and the transfer of knowledge in agriculture, within the scope of CAFS, with headquarters in Ljubljana. The professional group distributes the education needs according to the professional areas covered by the advisory service, studies the issues, and agrees on the content of the education that will be carried out in the following year.

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2.1. Data Collection and Analysis

2.1.1. Questionnaire

A survey method was used to examine the perceptions of agricultural advisors. The survey questionnaire was created using the 1 ka (https://www.1ka.si/d/en, accessed on 14 May 2020. 1ka is an open-source application that enables services for online surveys. The development takes place at the Centre for Social Informatics, at the Faculty of Social Sciences, University of Ljubljana) research tool. The questionnaire consisted of four sections related to sustainable agricultural practices and advisory capacities, satisfaction with education, cooperation with other AKIS actors, and demographic characteristics.

In the first section, the degree of awareness of advisors about the importance of sustainable agricultural practices and the degree of readiness for additional education in the field of sustainable agriculture were examined. Additionally, the level of personal competence for twelve sustainable agricultural practices was evaluated. The list of sustainable practices was created based on the concept of Good Agricultural Practice (GAP), which relates to eleven principles of sustainable management. The eleven principles are related to eleven elements of sustainable management, including soil, water, crop production, plant protection, livestock production, animal health, animal welfare, harvesting and on-farm processing, energy and waste management, human welfare and safety, and environment and landscape protection. One sustainable practice was selected for each of the mentioned elements, with the exception of soil, for which two practices were included. The aim was to assess advisors' competency in sustainable agricultural practices, particularly those that are pertinent to the initial stages of transitioning to sustainable agriculture and which can be implemented by agricultural producers irrespective of their production scale.

In the second section, three segments were examined regarding the functioning of the education system: organization of education, satisfaction with educators, and evaluation of education and the potential of individuals in the organization. The questions in this section were formed using existing literature [26] in the field of education management in the organization.

The third section addressed issues related to cooperation with other actors in the AKIS system, which were formed based on the available literature [27]. Since the results of this section are not presented in this paper, we will not delve into a more detailed analysis of this section.

Finally, the fourth section aimed to examine the demographic characteristics of agricultural advisors, including gender, age, work experience, workplace, and education.

A Likert scale was used in the research that examined the perceptions of agricultural advisors because its use offers advantages in terms of easy data collection on participants' attitudes, opinions, and beliefs, providing numerical values for quantitative analysis and result comparison. Additionally, this scale provides multidimensionality and flexibility in measuring various aspects of the research, facilitating result interpretation and drawing conclusions. Perceptions were measured using multi-item scales. One denotes the lowest degree, and five denotes the highest degree. The five-point Likert scale was chosen because it allows for greater accuracy and more nuance in the results. Reliability as a measure of the scale's internal consistency was established using Cronbach's alpha. Reliability values were 0.863 for the personal competence of agricultural advisors for sustainable agricultural practices. For the examined three segments of the education system, the reliability values were: organization of education (0.800), satisfaction with educators (0.922), evaluation of education and personal potential in the organization (0.845).

2.1.2. Sampling

For research purposes, a stratified sample was used. The basic group was divided into strata according to their advisory level and the scope of the activities they include. Field and specialist advisory complement each other and represent the capacities available at the level of the advisory service.

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The number of agricultural advisors at the beginning of our research was 293, which is the size of the population in which we performed the sampling. The ratio of field advisors to specialist advisors is 2:1. Therefore, we considered it essential that the percentage of field advisors to specialist advisors in the sample corresponds to their ratio in the population. The number of advisors included in the sample was n = 54. Therefore, we included about 18.5% of the total population in the sample.

The survey tool allowed us to monitor the response percentage of specific categories of respondents (field advisors and specialist advisors) to ensure that the sample corresponded to the defined strata. Once we determined that the sample's achieved ratio corresponded to the population's ratio, the survey was concluded. Of 54 agricultural advisors, 48 indicated their workplace category (32 field advisors and 16 specialist advisors), while 6 did not declare their category. Since it was necessary for the sampling that the ratio of the two categories of respondents in the sample corresponds to the ratio in the population, this was achieved with the obtained number of respondents, 48. It was decided that it was essential for the research to keep the mentioned six respondents in the sample (who could not be classified into strata due to the incompleteness of the answers) since they answered the key questions.

The questionnaire for agricultural advisors was sent by e-mail to the head of the sector for agricultural advising and the coordinator of the Public Service for Agricultural Advisory within the CAFS. He then forwarded the questionnaire to the leaders of all institutes to pass on to their advisors. The questionnaire was also published on the official website of the advisory service. The survey lasted from 4 October 2020 to 4 January 2021.

In addition to the conducted research based on the survey technique, an in-depth interview was conducted with the head of the sector for agricultural advising and the coordinator of the Public Service for Agricultural Advisory within CAFS, Anton Jagodic. The interview was conducted on 17 March 2022 at CAFS Ljubljana. The interview consisted of two parts. The first part covered general issues related to the functioning of agricultural advisory and education of advisors in Slovenia, and the second part included an analysis of the results of this research by the director. Since the above-mentioned responsible person is the head of the agricultural advisory service, an interview with him is particularly important for understanding why advisors perceive the education system as determined in the research. This helped us to get a clearer picture of the functioning of the education system and determine its characteristics.

The collected data were processed in the SPSS program using the methods of descriptive statistics: mean, standard deviation, and frequencies. The one-way analysis of variance (ANOVA) was used to determine whether there were any statistically significant differences between the means of independent groups.

To determine the influence of the perceptions of agricultural advisors for segments 1 (education organization) and 2 (satisfaction with educators) on the perceptions of segment 3 (evaluation of education and the potential of individuals in the organization), we used the multiple linear regression method.

3. Results and Discussion

The structure of this section aligns with the objectives outlined in the introductory section of the paper.

- 3.1. Perceptions of Agricultural Advisors: Presentation and Analysis
- 3.1.1. Perceptions of Agricultural Advisors Related to Sustainable Agricultural Practices

Over 90% of the advisors surveyed (n = 54) stated that they mostly agree (50%) or completely agree (42.6%) that sustainable agricultural practices are important and should be applied. The percentage of advisors who mostly disagree (3.7%) or partially agree (3.7%) with the statement is much lower. In general, advisors show a high level of awareness of the importance of applying sustainable agricultural practices (4.31 \pm 0.722). Over 90% of the advisors surveyed agreed that they are mostly (40.7%) or completely (48.1%) ready for additional education in the field of sustainable agriculture, while the percentage of partially

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ready advisors is lower (11.1%). In general, advisors expressed a high level of readiness for additional education in the field of sustainable agriculture (4.37 \pm 0.681). Therefore, a significant potential was found in agricultural advisors for the improvement of agriculture in the direction of sustainability. Positive perceptions of advisors related to sustainable agricultural practices, found in previous research, were defined as mild or moderately strong [1,3,9].

3.1.2. Perceptions of Agricultural Advisors Regarding the Degree of Personal Competence for Sustainable Agricultural Practices

Degree of personal competence of advisors for sustainable agricultural practices Advisors expressed the highest level of competence for agricultural practices related to the sustainable management of livestock production: proper handling of manure (4.09 \pm 0.830), respect for the largest number of animals per unit area (4.02 \pm 1.019), a balanced relationship between the number of animals on the farm and available agricultural land (4.00 \pm 1.082) (Table 1). By doing so, they show that they are mostly competent in the above-mentioned practices. The practices for which they consider themselves partially to mostly competent are soil conservation (3.30 \pm 0.944), keeping records of animal diseases, treatment, and mortality (3.43 \pm 1.109), cultivation of autochthonous varieties of plants (3.59 \pm 0.765), mulching (3.61 \pm 0.920), collection of agricultural products under agrotechnical terms and terms of use of phytopharmaceutical products (3.83 \pm 0.986). Advisors perceive their lowest level of competence in sustainable plant nutrition management (2.89 \pm 0.945), water management (2.85 \pm 1.106), marketing of agricultural products (2.81 \pm 1.183), and energy management and waste (2.76 \pm 1.132). The range of their expressed personal competence levels varies from mostly not competent to partially competent.

Table 1. Degree of personal competence of agricultural advisors for sustainable agricultural practices (n = 54).

Sustainable Agricultural Practices	1 %	2 %	3 %	4 %	5 %	Personal Competence of Advisors (M, SD)
a. Soil conservation.	3.7	11.1	48.1	25.9	11.1	3.30 ± 0.944
b. Utilization of microbiological fertilizers.	7.4	24.1	44.4	20.4	3.7	2.89 ± 0.945
c. Utilization of soil moisture sensors.	9.3	31.5	33.3	16.7	9.3	2.85 ± 1.106
d. Cultivation of autochthonous varieties of plants.	0	9.3	29.6	53.7	7.4	3.59 ± 0.765
e. Mulching.	1.9	11.1	24.1	50.0	13.0	3.61 ± 0.920
f. A balanced relationship between the number of animals on the farm and the available agricultural land.	7.4	0	13.0	44.4	35.2	4.00 ± 1.082
g. Keeping records of animal diseases, treatment, and mortality.	9.3	7.4	27.8	42.6	13.0	3.43 ± 1.109
h. Respecting the largest number of animals per unit area.	5.6	1.9	11.1	48.1	33.3	4.02 ± 1.019
i. Collection of agricultural products under agrotechnical terms and terms of use of phytopharmaceutical products.	5.6	1.9	18.5	51.9	22.2	3.83 ± 0.986
j. Utilization of biomass as a source of renewable energy.	14.8	25.9	35.2	16.7	7.4	2.76 ± 1.132

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Sustainable Agricultural Practices	1 %	2 %	3 %	4 %	5 %	Personal Competence of Advisors (M, SD)
k. Conclusion of contracts with cooperatives and retailers to ensure product placement.	11.1	35.2	25.9	16.7	11.1	2.81 ± 1.183
Proper handling of manure (disposal, storage, use).	1.9	0	18.5	46.3	33.3	4.09 ± 0.830

Scale: 1—not competent, 2—mostly not competent, 3—partially competent, 4—mostly competent, 5—very competent.

As animal husbandry is Slovenia's most important agriculture sector, it is understandable that advisors express a higher level of competence in this area. However, what is also observed is a higher competence for sustainable agricultural practices that are based on theoretical/conceptual knowledge (Table 1—practices: f, h, i) and a lower competence for sustainable practices that imply practical knowledge (Table 1—practices: a, b, c, j, k). Based on this, we can conclude that through education, priority is given to theoretical/conceptual over practical knowledge, which has also been observed in the current practice of education in agricultural advisory [21,22]

Overall, advisors consider themselves to be partially to mostly competent (3.43 \pm 0.637) in sustainable agriculture practices. Similar findings have been found in existing studies, which found slightly to moderately [1,14] perceptions among agricultural advisors regarding their personal competence levels for sustainable agricultural practices. The description difference exists because they measured the degree of competence using a four-point scale (1 = not competent, 2 = slightly competent, 3 = moderately competent, and 4 = competent) while we used a five-point scale.

3.1.3. Perceptions of Agricultural Advisors on the Functioning of the Education System within the Public Agricultural Advisory Service (CFHS)

First Segment: Organization of Education

Frequency of attending education The largest number of advisors attend education organized by CFHS once every six (45.3%) and three months (30.2%); that is, two to four times a year. The percentage of those who participate in education once a year is lower (9.4%). However, the percentage of those who receive education once a month is the lowest (5.7%). The proportion of advisors who did not indicate their preference for any of the four frequency types of education offered above is 9.4% (Table 2).

Table 2. Frequency of attending education organized by CFHS (n = 53).

Frequency of Education	Percentage of Advisors
Once a month.	5.7%
Once every three months.	30.2%
Once every six months.	45.3%
Once a year.	9.4%
Other.	9.4%

These results show how often advisors attend training created within the annual training program for agricultural advisors by the sector for professional affairs and the transfer of knowledge in agriculture (CAFS). From the annual training program for agricultural advisors, we note that the number of educations defined by the plan by year included 29 (2019), 43 (2020), and 48 (2021) different educational activities [28].

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During the interview, Jagodić stated that advisors could attend training from other training providers when the scope of work and their superiors in the organization approve. The group of professionals in charge of planning the education of agricultural advisors considers the existence of this education, but it is not included in the annual training program. Within the draft CAP Strategic Plan, it is stated that during 2018/2019, 214 different educational activities and 109 demonstrations of good practices were carried out in the country and abroad [25]. This information was gathered through an internal research process involving the collection of travel records pertaining to all educational activities attended by the advisors during that period.

The fact that agricultural advisors attend training from other providers is commendable and indicative of their willingness to receive additional education. However, it also highlights the need for a greater ability of the organization to meet the needs of advisors through its education programs. Although the number of education programs is increasing yearly, it is essential to consider whether the content is adequate in meeting the needs of agricultural advisors, as more than 50% of advisors reported that they receive education only twice a year or less often.

The frequency of certain forms of education According to the perceptions of agricultural advisors, the frequency of the mentioned forms of education ranges from rarely to sometimes. Courses and lectures at the faculty (3.02 \pm 0.665), training with a combination of theory and practice (2.92 \pm 0.730), and seminars (2.96 \pm 0.919) exhibit slightly higher frequencies compared to other forms of education mentioned (Table 3).

Table 3. Frequer	cy of certain	forms of education	(n = 53).
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Forms of Education	1 %	2 %	3 %	4 %	5 %	The Current Frequency of Forms (M, SD)	Preferred Frequency (%)
Training with a combination of theory and practice.	0	28.3	52.8	17.0	1.9	2.92 ± 0.730	77.4%
Professional internships abroad.	35.8	47.2	13.2	1.9	1.9	1.87 ± 0.856	64.2%
Professional practices in the country.	13.2	22.6	50.9	11.3	1.9	2.66 ± 0.919	52.8%
Training in research institutes.	20.8	34.0	28.3	17.0	0	2.42 ± 1.008	45.3%
Courses and lectures at the faculty.	0	18.9	62.3	17.0	1.9	3.02 ± 0.665	37.7%
Seminars.	5.7	22.6	45.3	22.6	3.8	2.96 ± 0.919	22.6%
Tours of fairs.	3.8	37.7	45.3	13.2	0	2.68 ± 0.754	17%
Professional conferences.	13.2	30.2	45.3	11.3	0	2.55 ± 0.867	13.2%

Scale: 1—never, 2—rarely, 3—sometimes, 4—often, 5—very often.

Advisors expressed their preferences for increasing the frequency of the mentioned forms of education (Table 3). The highest percentage of positive perceptions was noted for the theoretical–practical approach (77.4%), the organization of professional internships abroad (64.2%), and their own country (52.8%), while a modest number of advisors expressed a desire for increased frequency in the use of seminars (22.6%), fairs (17%), and conferences (13.2%) as forms of education.

In the annual training programs for agricultural advisors is a noticeable dominance of theoretical over practical approaches [28], which probably contributes to a lower level of competence in sustainable agricultural practices requiring practical knowledge (Table 1). Therefore, as observed in the previous practice of agricultural advisor education, conceptual knowledge is prioritized over practical knowledge [21,22]. What is lacking is the development of the ability to learn and creatively apply acquired knowledge for the development of innovations in their work with farmers. Since advisors mostly expressed positive perceptions of approaches that include practical training, it can be concluded that the current

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learning processes represented in education do not meet their needs in the right way (Table 3). Engel [29] states that it is precisely the uniformity of social and institutional learning processes that slows down the development of innovations in agriculture.

Topics offered through education According to the responses of agricultural advisors (n = 53), their opinion is predominantly perceived as having no influence or only partial influence (2.70 \pm 0.911) on the selection of topics provided to them through education. However, their level of satisfaction with the offered topics (3.43 \pm 0.605) can be considered as ranging between partial satisfaction and mostly satisfaction.

Based on the interview results, it is evident that the decision-making system does not prioritize a participatory approach but rather a hierarchical one, which puts field advisors in a disadvantageous position in terms of meeting their educational needs. Since the education system is designed to have the expert group manage the education of advisors and ensure the dissemination of new knowledge, it is clearly based on a behaviorist or diffusionist pedagogy. This approach assumes that good knowledge is always in the hands of those who train, while advisors are expected to absorb the knowledge imparted to them [20].

Draves [30] states that adult students are much more satisfied with educational programs if what they acquire through them is applicable in everyday experience, practical and current. During the interview, Jagodic stated that he has cognizance that advisors, especially older ones, notice that educational programs offer them little new knowledge and that through education, they repeat a lot of what they already know. Taking into account the previous observation, the determined frequency of attending education organized by CAFS (more than 50% of advisors attend twice a year or less often), and significant interest in attending education provided by external organizers, we can conclude that the level of satisfaction with the topic expressed by the advisors (3.43 \pm 0.605) may indicate that the content of what is provided through education helps work with farmers, but does not fully meet their needs. Moreover, we believe that the degree of satisfaction with the education content may also depend on the advisor's expectations when it comes to education.

Previous research has also observed the traditional, hierarchical approach in the practice of education of agricultural advisors [17,20]. Citing the assertion of the author Rogers, "trainees learn more from how they are taught than from what they are taught", the authors [20] ask the following questions: "How can extensionists trained according to these parameters facilitate horizontal processes of co-construction of knowledge when all the training they have received has been conducted using the opposite rationale? How will they generate participatory dynamics when the training structure they received was hierarchical?" In summary, the professional group responsible for organizing education needs to consider adopting a more participatory approach to education, enabling advisors to participate in the co-construction of knowledge. This approach will encourage horizontal processes and generate participatory dynamics, leading to better outcomes for agricultural advisors.

Development of advisory skills through education According to the perceptions of agricultural advisors (n = 53), their previous education did not provide significant opportunities for the development of advisory skills (3.28 \pm 0.690). Based on the interview results, it is evident that the previous education programs organized by CAFS did not offer an adequate number of training opportunities focused on the development of advisory skills. These were mostly trainings that educated advisors about andragogy methods. It can be said that significant progress has been made since 2015, when CAFS brought in the international standard CECRA (Certificate of European Consultants in Rural Areas) and trained two trainers, who, in the period from 2019 to 2021, trained the first group of 16 advisors. Since the total number of advisors was 293, it is a low percentage of training concerning the total number of advisors. However, it should be taken into account that the introduction of the certificate is in its infancy, that in addition to the existing two, two more trainers are being trained, and that it is planned that all advisors go through this type of training [31].

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Second Segment: Satisfaction with Educators

Agricultural advisor's perceptions of educators Advisors expressed the highest degree of agreement with the statement, "They are professional" (3.84 \pm 0.809). They expressed a medium degree of agreement with statements related to teaching skills and work methods used by educators (mean values between 3.27–3.51). For the statement "They are motivated to work with advisors" (3.20 \pm 0.849) and "The knowledge they offer us is aligned with our needs" (3.10 \pm 0.855), advisors expressed a lower degree of agreement. The advisors expressed the lowest degree of agreement with the statement, "They are familiar with the real needs of agricultural advisors in working with farmers" (2.88 \pm 0.887), which implies that they perceive advisors as insufficiently familiar or completely unfamiliar with their needs in working with farmers (Table 4).

Table 4. Degree of agreement of agricultural advisors with statements about educators (n = 51).

Statements about Educators	1 %	2 %	3 %	4 %	5 %	M, SD
They are professional.	2.0	2.0	23.5	54.9	17.6	3.84 ± 0.809
They are skilled in transferring knowledge to others.	2.0	5.9	37.3	49.0	5.9	3.51 ± 0.784
They encourage participants to actively participate in education.	2.0	9.8	45.1	33.3	9.8	3.39 ± 0.874
The knowledge they offer us is practical for use in working with farmers.	2.0	9.8	51.0	29.4	7.8	3.31 ± 0.836
They use modern educational methodology.	3.9	11.8	45.1	31.4	7.8	3.27 ± 0.918
At the beginning of the work, they agree with the participants on the way of work.	3.9	19.6	29.4	39.2	7.8	3.27 ± 1.002
They are motivated to work with advisors.	2.0	13.7	54.9	21.6	7.8	3.20 ± 0.849
The knowledge they offer us is aligned with our needs.	2.0	17.6	56.9	15.7	7.8	3.10 ± 0.855
They are familiar with the real needs of agricultural advisors in working with farmers.	3.9	29.4	45.1	17.6	3.9	2.88 ± 0.887

Scale: 1—I disagree, 2—I mostly disagree, 3—I partially agree, 4—I mostly agree, 5—I agree.

In summary, it can be asserted that agricultural advisors are partially to mostly satisfied with the educators responsible for training. The educators possess the necessary expertise, but there is room for improvement in the effectiveness of their approach and methods. However, it is important to mention that there is a lower satisfaction among advisors regarding the educators' familiarity with their needs in working with farmers (around 80% of advisors believe that educators are insufficiently familiar or completely unfamiliar with their needs). Summarizing the survey and interview results, we can find an explanation for the perceptions found in the following: the lack of a participatory approach in the management of education and the absence of a methodological approach for monitoring the needs, interests, and progress in the development of advisors within CAFS. Since experts specializing in human resource development and the organization of education are not hired to organize education, but experts for specific areas of agricultural production oversee it, it is clear why the situation is as it is. It is interesting how organizations such as advisory services, which rely on human resources for their success, have overlooked the importance of developing the potential of their resources and the role of education in that process. However, the realization of the new role of agricultural advisors in innovation processes is leading to the establishment of a new evaluation system in agricultural advisory services.

Third Segment: Evaluation of Education and Potential of Individuals in the Organization

Perceptions of agricultural advisors on the evaluation of education and the potential of individuals in the organization The statement "I am motivated for education"

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received the highest level of agreement among the advisors (3.57 \pm 1.100), which means that they are partially to mostly motivated for education. This aligns with previous research [16]. Advisors expressed a slightly lower degree of agreement with the statements, "Managers in the organization value the professional development of individuals" (3.20 \pm 1.059), "The organization encourages advisors to express their potential" (3.16 \pm 1.027), and "The organization supports the personal actions of individuals to improve advisory services" (3.06 \pm 0.881). The above-mentioned perceptions indicate that the evaluation of education and the potential possessed by advisors in the organization is not emphasized to a significant extent. This is followed by the statements for which the advisors expressed the lowest degree of agreement, "Education enables me to earn better" (2.02 \pm 0.969) and "Education enables me to have a better position in the work team" (2.37 \pm 1.131). This indicates that attending education does not bring special benefits to advisors (Table 5).

Table 5. Degree of agreement of agricultural advisors with statements about the evaluation of education and the potential of individuals in the organization (n = 51).

Valuation Statements	1 %	2 %	3 %	4 %	5 %	M, SD
Managers in the organization value the professional development of the individual.	7.8	13.7	39.2	29.4	9.8	3.20 ± 1.059
The organization encourages advisors to express their potential.	5.9	19.6	35.3	31.4	7.8	3.16 ± 1.027
The organization supports personal actions of individuals to improve advisory services.	2.0	25.5	41.2	27.5	3.9	3.06 ± 0.881
Education enables me to have a better position in the work team.	25.5	33.3	23.5	13.7	3.9	2.37 ± 1.131
Education enables me to earn better.	35.3	35.3	23.5	3.9	2.0	2.02 ± 0.969
I am motivated for education.	7.8	5.9	25.5	43.1	17.6	3.57 ± 1.100

Scale: 1—do not agree at all, 2—mostly disagree, 3—partially agree, 4—mostly agree, 5—completely agree.

Intrinsic motivation is internal motivation that arises from within a person, driven by their interest, enjoyment, and satisfaction in engaging in a specific activity. On the other hand, extrinsic motivation is external motivation that stems from rewards, recognition, or avoiding punishment [32–34]. The perceptions of agricultural advisors (Table 5) indicate a limited presence of rewards and recognition as forms of extrinsic motivation, leading us to conclude that their motivation for education stems from intrinsic motivation. According to the author Thomas [35], there are four main intrinsic rewards: a sense of meaningfulness, a sense of choice, a sense of competence, and a sense of progress.

Based on the interview results, it is observed that due to the volume of work for which advisors are in charge, daily priorities often outweigh important long-term matters, such as education. The advisory service defines its work program by the agricultural policy measures of the state, which also finances them. Following that, the advisory service devotes much of its time to administration, support, and assistance to farmers to obtain the right to cash payments from the state. The content of education is adapted to this. This significantly reduces the possibility for the advisory service to express the primary purpose of its existence, which is to support farmers in innovating agricultural systems and developing agriculture in the direction of sustainability. Taking the aforementioned into consideration, it becomes clear why advisors do not perceive a greater degree of valuing education and personal potential in the organization. A shift in the perception of the role of agricultural extension services may lead to greater recognition of the value of education and individual potential.

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3.2. Basic Principles of the Education System

Illumination and understanding of the basic principles on which the education system rests are of key importance for the process of transformation and innovation of the education system of agricultural advisors. The analysis of agricultural advisors' perceptions and understanding of their existence (Section 3.1) has provided us with an opportunity to observe phenomena in the functioning of the education system for agricultural advisors. By comparing the observed phenomena in the functioning of the education system with the phenomena in the training practices of agricultural advisors indicated by previous research [17,20–22] (Section 3.1), we have recognized that the system is more suitable for developing advisory capacities for the traditional role of agricultural advisors rather than for enhancing the performance required by the new role of agricultural advisors in innovation processes. These insights are observed in the following:

- 1. The education system teaches advisors using a linear approach while they are expected to apply a participatory approach.
- 2. The education system views advisors as reproducers of knowledge, while they are expected to be co-creators of knowledge in their work.
- 3. The education system tends to view advisors in isolation when developing training strategies, while developing required performance for a new role in innovation processes requires their inclusive development.

The old role of agricultural extension involved the transfer of technology that marked the Green Revolution. To fulfill that role, it was adequate to use a linear approach both in the education of agricultural advisers and in the work of advisers with farmers. The advisors, therefore, acquired knowledge which they then reproduced to the farmers. However, the agricultural advisor's new role requires a different performance than the old one. Advisors are no longer reproducers of knowledge but creators of knowledge. Therefore, the education system that taught them what to think (not how to learn, think, and use the acquired knowledge for creative expression in working with farmers) needs to be revised. Developing new performances of agricultural advisers requires an entirely different approach to the education of agricultural advisers. The development of the more advanced performance of a device requires the development of new, more advanced technology. It is the same with people; advisors cannot be expected to develop new advanced performances only through "embedding conceptual knowledge", but paying attention to their inclusive development is necessary. Changes in agricultural extension practice will not be achieved by intervening only at the cognitive level or by helping to develop the capacity to establish different types of relationships [20]. What is necessary are more remarkable changes in the advisors as conscious human beings (reflected in a change in worldview, identity, and source of self-esteem), which must be considered when developing a training strategy [36]. When creating training programs for agricultural advisors, there is often a lack of consideration for the nature and behavior of individuals, resulting in the neglect of this important aspect in the development of the training strategy. All the above unequivocally indicates the need for forming a sector of experts who will exclusively deal with the development of human resources and the organization of education in agricultural advisory.

3.3. Importance of Evaluating Education and the Potential of Individuals in the Organization

The current perception of education and agricultural advisors plays a crucial role in determining the extent to which education is evaluated and how much potential individuals are recognized. This perception is further reflected in the organization of education and the performance of educators.

To determine the influence of the perceptions of agricultural advisors of the organization of education and satisfaction with educators on their perceptions of the evaluation of education and the potential of individuals in the organization, we used the multiple linear regression method.

Table 6 shows the independent and dependent variables that were used. It was found that the independent variables, "Satisfaction with the topic offered through education",

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"The possibility of developing the skills needed in advisory work through education", and "Frequency of certain forms of education", do not have a statistically significant impact. For this reason, the mentioned variables were excluded from the model.

Table 6. Input data list.

Independent variables	1. The influence of advisors' opinions on the selection of topics that will be offered through education.
	2. Satisfaction with the topic offered through education.
	3. The possibility of developing the skills needed in advisory work through education.
	4. Frequency of certain forms of education.
	5. Satisfaction with educators.
Dependent variables	Evaluation of education and potential of individuals in the organization

Table 7 presents a regression model that includes the influence of independent variables that are statistically significant. Correlation coefficient values (R = 0.739) show strong relationships between variables included in the models. Adjusted R-square values show that the model explains 52.8% of the variance of the dependent variable. Durbin–Watson coefficient values are 1.763, which explains that there is no problem of autocorrelation in the models. According to the value of conducted F-tests (28.934, p < 0.01), the VIF (Variance Inflation Factor) coefficient is 1.085 and the Tolerance analysis is 0.922, which represents the good quality of the model.

Table 7. Regression model.

Independent Variables	Coefficient β	Std. Error	<i>t-</i> Test	Sig
The influence of advisors' opinions on the selection of topics that will be offered through education.	0.379	0.086	3.746	0.000
Satisfaction with educators.	0.537	0.115	5.309	0.000
Constant	0.009			
R	0.739			
Adjusted R Square	0.528			
F	28.934 *			
Durbin-Watson	1.763			

^{*} *p* < 0.001.

Multiple regression analysis results showed that in the case of an increase in satisfaction with educators by 1%, there would be an increase in advisors' perceptions of the evaluation of education and potential of individuals in the organization by approximately 5.37%, with unchanged values of the other influencing variables included in the model. In the case of an increase in the influence of advisors' opinions on the selection of topics that will be offered through education by 1%, there would be an increase in advisors' perceptions of the evaluation of education and potential of individuals in the organization by approximately 3.79%, with unchanged values of the other influencing variables included in the model.

The results indicate that a greater evaluation of education and the potential of individuals in the organization implies greater involvement of agricultural advisors in the selection of topics that will be provided to them through education and more advanced performances of educators who are in charge of conducting education. Therefore, the educational organization's characteristics and the educators' performance are indicators of the degree of evaluation of education and the potential of individuals in the organization.

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3.4. Effectiveness of the Education System in Strengthening Advisory Capacities in the Field of Sustainable Agricultural Practices

One-factor analysis of variance (ANOVA), based on the perceptions expressed by agricultural advisors, investigated the influence of the frequency of attending education on the degree of personal competence of agricultural advisors for sustainable agricultural practices. The subjects were divided into five groups according to the frequency of attending education they reported (Table 2). The analysis found that there are no statistically significant differences, at the p < 0.05 level, in the level of perceived competence of advisors for sustainable agricultural practices between the observed groups. The difference between the mean values of the groups expressed using the Eta square is 0.04, which is described as small.

The analysis (Table 8) found that there are no statistically significant differences in the competence of agricultural advisors depending on the frequency of attending education organized by CFHS. Education in the field of sustainable agriculture is less represented within the annual education program. Their share increases from year to year, but not to an extent that can be considered significant [28]. Accordingly, it is clear why a higher frequency of education cannot ensure a significantly higher level of competence for advisors in the field of sustainable agriculture.

Table 8. The influence of the frequency of attending education on the degree of personal competence of agricultural advisors for sustainable agricultural practices (n = 53).

		ANOVA			
Sum Competence	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.791	4	0.198	0.467	0.759
Within Groups	20.306	48	0.423		
Total	21.097	52			

Summarizing the found perceptions of agricultural advisors about the education system, we conclude that it is a traditional or outdated way of functioning, which has not undergone the transformation process that the trend of time requires. Based on everything shown and stated (results of survey research, in-depth interviews and secondary sources of information, static analysis, and existing literature), we state that it is the education system that is not able to respond adequately to the tasks and challenges that are set before it with its performance.

Considering the research need expressed by the authors [8], we can identify three gaps within the Public Agricultural Advisory Service in Slovenia at the organizational and systemic levels.

First, lack of time for education. Things of long-term (strategic) importance, such as education, are neglected due to the volume of work that is considered a daily priority. The Public Agricultural Advisory Service devotes most of its time to advising in relation to the technological, economic, and environmental aspects of agricultural activity (30%), advising in the preparation of development plans for agricultural holdings (25%), and 14% of its time is devoted to management, coordination, and training of advisors. Other tasks take up 31% of the time (implementation of agricultural policy measures, participation in the preparation of regulations in the field of agriculture and related fields, advising breeding organizations, and tasks according to the minister's price list) [25].

Second, insufficient financial resources for education. There is an insufficiency when it comes to financing education from the state budget. Part of the funds intended for the functioning of the advisory service is intended for the education of advisors. However, there is no certain amount that is intended exclusively for education, but a certain part of total funds (which are also intended for employees' salaries and other expenses of the organization) is used for that purpose. This means that in the event of a greater allocation

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of financial resources for the education of advisors, the ability to cover the costs incurred by the organization would be reduced.

Third, the basic principles on which the education system is based are outdated and, therefore, inadequate for developing the performance that the new role of agricultural advisors in innovation processes requires.

It is important to note that this is a significant moment for change, as there is a generational shift occurring in the Public Agricultural Advisory Service. The incoming young professionals need to develop their skills and unlock their potential to contribute to the sustainable development of agriculture.

The search for innovative, sustainable solutions is vital to our short- and long-term survival [10]. The modernization of the fundamental principles underlying the functioning of the education system and the adoption of the concept of continuous professional development for employees is crucial for the success of the Public Agricultural Advisory Service in Slovenia. According to the author Srinivasacharlu [37], Continuous Professional Development (CPD) can be comprehensively defined as a process involving ongoing and diverse activities (formal, non-formal, and informal) aimed at developing the intellectual abilities (cognitive domain), self-confidence, attitudes, values, and interests (affective domain), as well as skills and competencies (psychomotor domain) to enhance one's personality and effectively fulfill the responsibilities of the teaching profession in accordance with the changing times and needs of prospective educators and society.

For an education system to be able to support and present innovations in the field of sustainable agriculture, the system itself must rest on the foundations of innovation and sustainability. This requires the system to undergo a transformation, which will improve and strengthen it. Therefore, we cannot expect the analyzed system of education to transform advisors into leaders of sustainable development of agricultural systems if it does not itself undergo transformation and modernization but continues to function in the way it has been.

4. Recommendations for the Transformation of the Education System in the Direction of Sustainability

The first step in transforming the education system is defining new principles to sustain its functioning. Recommendations and guidelines will be presented below to assist in this process.

Humans, as conscious beings, have at their disposal the possibility of using their capacities (mental, physical, and spiritual aspects) for creative expression that contributes to the evolution of our species. The increase in the level of awareness of a human being is the wheel that drives the individual's will to express himself creatively and contribute to a particular area. Education in this context is a tool that enables a human being to improve his creative expression by developing his capacities. Therefore, educators must provide an individual and a group of associated individuals with what they need to improve their creative expression, which implies the necessity of building a two-way relationship between the organizer of the education and the one for whose needs the education is organized and implemented. The fundamental prerequisite for building a sustainable education system is the building of values that rest on the foundations of the sustainability of education.

In the context of sustainable education, it is vital to help agricultural advisors develop the habit of using the opportunities provided by developing a sustainable knowledge platform at the European level (EU-FarmBook) and the increasing development of artificial intelligence. In this way, agricultural advisors will, whenever needed, use the opportunities available to them to improve their creative expression and cooperation with other actors. Thus, they will naturally develop a habit (pattern of behavior) to educate and improve themselves daily. Such an approach will teach farmers the same way of behavior. The goal is for actors in innovation processes to see each other as co-creators who help each other achieve what they want (express themselves creatively, create innovations and new solutions). It is a process where the actors do not depend on each other but are aware

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of everyone's importance and joint action for achieving the progress of society and the development of civilization.

There is potential for agricultural advisors to actively contribute to the development of agriculture in the direction of sustainability by participating in innovation processes. This role will manifest the true nature and essential purpose of agricultural advisory. However, this requires agricultural advisors to unlearn old patterns of behavior that do not serve them and learn new ones that will serve them. Some performances that the new role of an advisor requires are self-awareness, open-mindedness, creativity, empathy and emotional intelligence, curious attitude, broad interest, critical thinking, a good overview of the situation and problem-solving, technical knowledge in agriculture, motivational skills, active involvement, teaching skills, skills to facilitate the adoption of innovations, management and organizational skills, mobility, ability to find a way to new information, and personal and professional development [10]. All this points to a new paradigm in the education of advisors, which the development and expansion of the concept of sustainable agriculture require. A paradigm that implies an inclusive approach to the education of advisors and emphasizes the importance of developing and using the potential that exists in them.

Changes in agricultural extension practice will not be achieved by intervening only at the cognitive level or by helping to develop the capacity to establish different types of relationships [20]. What is necessary are greater changes in the advisor as a conscious human being (reflected in a change in worldview, identity, and source of self-esteem), which must be considered when developing a training strategy [36]. In agreement with the above, we state that it is of key importance to achieve the sustainability of education and to consider a person as a whole (mind, body, and spirit). According to the authors [38,39], a human being has three types of intelligence: rational (what I think), emotional (what I feel), and spiritual (who I am). The authors categorize intelligence into three forms of capital—material, social, and spiritual—highlighting that without the foundations of spiritual capital, no other form of capital can function fully. We agree with the authors and believe that the development of the spiritual aspect, by which we mean the growth of awareness about who we are and how life works, determines the level to which a person develops and uses the potential available to him.

Future research in the field of education in agricultural advisory should examine the importance of developing different aspects of awareness to improve agricultural advisors' performance and develop sustainable agricultural innovations. Furthermore, research should continue to assimilate existing knowledge and experience for development in that area to create practical guidelines and recommendations for integrating the development of different aspects of awareness into training strategies for agricultural advisors.

5. Conclusions

The basic principles on which the functioning of the education system is based have been identified as follows:

- 1. The education system teaches advisors using a linear approach while they are expected to apply a participatory approach.
- 2. The education system views advisors as reproducers of knowledge, while they are expected to be co-creators of knowledge in their work.
- The education system tends to view advisors in isolation when developing training strategies, while developing required performance for a new role in innovation processes requires their inclusive development.

The current perception of education and agricultural advisors plays a crucial role in determining the extent to which education is evaluated and how much potential individuals are recognized. It is interesting how organizations such as advisory services, which rely on human resources for their success, have overlooked the importance of developing the potential of their resources and the role of education in that process.

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Multiple regression analysis results showed that in the case of an increase in satisfaction with educators by 1%, there would be an increase in advisors' perceptions of the evaluation of education and potential of individuals in the organization by approximately 5.37%, with unchanged values of the other influencing variables included in the model. In the case of an increase in the influence of advisors' opinions on the selection of topics that will be offered through education by 1%, there would be an increase in advisors' perceptions of the evaluation of education and potential of individuals in the organization by approximately 3.79%, with unchanged values of the other influencing variables included in the model.

Therefore, the educational organization's characteristics and the educators' performance are indicators of the degree of evaluation of education and the potential of individuals in the organization. The results indicate that a greater evaluation of education and the potential of individuals in the organization implies greater involvement of agricultural advisors in the selection of topics that will be provided to them through education and more advanced performances of educators who are in charge of conducting education.

One-factor analysis of variance (ANOVA), based on the perceptions expressed by agricultural advisors, investigated the influence of the frequency of attending education on the degree of personal competence of agricultural advisors for sustainable agricultural practices. The analysis found that there are no statistically significant differences, at the p < 0.05 level, in the level of perceived competence of advisors for sustainable agricultural practices between the observed groups. Education in the field of sustainable agriculture is less represented within the annual education program. Their share increases from year to year, but not to an extent that can be considered significant. Accordingly, it is clear why a higher frequency of education cannot ensure a significantly higher level of competence for advisors in the field of sustainable agriculture.

Since the focus of this paper is the education of agricultural advisors within the Public Agricultural Advisory Service, we can identify three gaps in agricultural advisory in Slovenia at the organizational and systemic levels. First, lack of time for education. Second, insufficient financial resources for education. Third, the basic principles on which the education system is based are outdated and, therefore, inadequate for developing the performance that the new role of agricultural advisors in innovation processes requires.

Therefore, we cannot expect the analyzed system of education to transform advisors into leaders of sustainable development of agricultural systems if it does not itself undergo transformation and modernization but continues to function in the way it has been. The first step in transforming the education system is defining new principles to sustain its functioning. To help in this process, we have defined recommendations and guidelines in the paper.

Humans, as conscious beings, have at their disposal the possibility of using their capacities (mental, physical, and spiritual aspects) for creative expression that contributes to the evolution of our species. The increase in the level of awareness of a human being is the wheel that drives the individual's will to express himself creatively and contribute to a particular area. Education in this context is a tool that enables a human being to improve his creative expression by developing his capacities. Therefore, educators must provide an individual and a group of associated individuals with what they need to improve their creative expression, which implies the necessity of building a two-way relationship between the organizer of the education and the one for whose needs the education is organized and implemented. The fundamental prerequisite for building a sustainable education system is the building of values that rest on the foundations of the sustainability of education.

It is important to note that this is a significant moment for change, as there is a generational shift occurring in the Public Agricultural Advisory Service. The incoming young professionals need to develop their skills and unlock their potential to contribute to the sustainable development of agriculture.

The results of the research indicate that improving the education of agricultural advisors should be classified as a priority area of the Rural Development Program of

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Slovenia for the period 2023–2027. Through its activities in the field of education for agricultural advisors, CAFS contributes to improving its capacities to a certain level. To be able to provide a higher level of strengthening of advisory capacities, it is necessary to introduce innovations into the education system. We believe that the independent actions of the organization to achieve this goal will not produce significant results. Achieving such an important goal requires the active engagement and synergistic action of the state as a financier and creator of agricultural policy, scientific and educational institutions, research centers, and other relevant actors.

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