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A Study on Educational and Training Needs Assessment of Professionally Active Agronomists in the Area of Central Macedonia, Greece

Evgenia Efthymiadou[1], Efthymios Valkanos[2], Marios Koutsoukos[3], Maria Sytziouki[4]

[1]Adult Educator, Agronomist MSc., MA in Adult Education University of Macedonia, Greece
[2]Professor, University of Macedonia, Greece. E-mail: evalkan@uom.edu.gr
[3]Agronomist-Adult Educator, Ph.D., Hellenic Open University, Greece. E-mail: koutsoukos.marios@gmail.com
[4]Assistant Professor, University of Macedonia, Greece. E-mail sitziouki@uom.edu.gr
Correspondence: Evgenia Efthymiadou. E-mail: eefthy@afs.edu.gr

Abstract

The aim of this study was to investigate the educational and training needs of agronomists in the region of Central Macedonia in Greece, a region with significant contribution to the Greek agricultural economy. Data was collected through an electronic survey by a sample of 127 agronomists. A quantitative survey with a non-probability sampling was conducted, snowball sampling method was applied and descriptive tools were used to present the results in the form of means, percentages, standard deviations, analysis of variance and correlation analysis. Conclusions indicate differences in gender as they prioritize educational needs and a positive linear correlation between professional experience and the number of training programmes attended. High need of training declared in the subjects of Precision agriculture, Precision livestock farming & Use of new technologies. Low need for training declared in the subjects of Livestock production and farm animal disease control, Dairy farming, Protected agriculture, Floriculture management, Poultry farming and Fish farming technologies.

Keywords: Agronomists, Education, Educational Needs, Lifelong Learning, Training Needs, Training Programmes

1. Introduction

Agriculture and rural economy in Greece contribute to a percentage of 4.3% to the total GVA. GVA is the economic productivity metric, which is higher in Greece in the agricultural sector, if it's compared with the average European GVA that reaches the percentage of 1.6%. Even during the financial crisis in Greece from 2009 to 2013 and the health issue crisis due to the Covid-19 pandemic from 2019 to 2022, the agricultural sector in Greece has shown great resistance and managed to efficiently supply quality agricultural products to consumers (Klonaris, 2021).

In Greece, the agricultural sector plays an irreplaceable role as a key economic factor, providing employment for a large part of the society, ensuring the necessary social cohesion and regional development. The percentage of rural population in the Greek sector is maintained at higher levels throughout the time in comparison to the rest of the European Union members (Paschalidis et al., 2021). It is also a fact that agriculture in the Mediterranean region in general, faces various challenges and the main reason is the existence of constant interplays between productional factors such as traditional agricultural practices, change in the climate, size of the land holdings, aging of rural population and the environmental and social need for engaging with sustainability issues by all the participants of the agricultural sector (Iakovidis et al.,2023).

Due to current challenges as mentioned above, agronomists should include in their objectives the prospect of continuous vocational training on sustainable development agricultural subjects, technology and innovation matters and to reform their approaches from sales oriented to advisory centered in order for the farmers, who are the final recipients of the agronomical guidance, to alter their aspects of farming accordingly (Iakovidis et al.,2023). The contribution of agronomists plays a crucial role in rural development and the success of the agricultural services they offer through counseling is mainly dependent on their training (Shah et al., 2013).

Additionally, agronomists, must keep up with the increased demands of modern times. This is reflected by the existence of many relevant distance training courses organized by universities both in Greece and abroad, such as the Agricultural University of Athens, the National and Kapodistrian University of Athens, the University of Patras, the Hellenic Open University, as well as other private institutions (Kazana et al., 2019). The Geotechnical Chamber of Greece, which is the competent body for the professional establishment of agronomists, has occasionally carried out courses for the training of agronomists. The educational programmes are on a fee basis and lead to the issuing of a certificate. There is online information on these actions which goes back to 2008, as it can be ascertained from the official website of the Geotechnical Chamber of Greece https://www.geotee.gr/. In 2021, within the framework of funding programmes of the European Union the "Training and Certification of Skills and Competences of Workers in the field of agricultural waste management and in hygiene, safety and food quality control" programme was carried out, as it can be seen by the official webpage of the action https://katartisi.geotee.gr/. Also, the contribution of the American Farm School of Thessaloniki to the agricultural education of agronomists in the Greek region, is also of great importance. All programmes aim to promote knowledge and skills among adults in an innovative and interactive approach. The American Farm School specializes in Agricultural Adult Education and agronomists attend trainings in order to improve their competitiveness as it can be seen by the official website https://www.afs.edu.gr/.

Lack of information concerning the educational and training needs of agronomists is an important issue and affects the efficiency of the training programmes (Msuya et al., 2017). The improvement of professional skills and the job efficiency enhancement of agronomists are both connected with the implementation of the training they receive in compliance with their training needs (Chizari et al., 2006) and in order to have educational and training programmes that meet the needs of agronomists, is a priority to identify the educational needs so as to achieve the educational goals, efficiently and soon as possible (Saleh et al., 2016).

In the previous decades, research on the educational and training needs of professionally active agronomists had been done only to a limited extent. Specifically, in 2012, Gerakari Chrysoula published her dissertation "The training needs of the Agricultural employees of the Public Sector: an empirical investigation in the Regional Unit of Pella of the Region of Central Macedonia, based on their perceptions". According to the results of the survey, the participating agronomists acknowledged the importance of training and expressed the opinion that the training programmes they had attended were lagging behind in terms of practical applications and experiential learning methods.

Regarding the most recent studies identified, it is worth noting that the samples of the surveys are not focused on professionally active agronomists. Thus, the most recent research identified was the study of Charatsari et al. (2023) titled "Competencies Needed for Guiding the Digital Transition of Agriculture: are Future Advisors Well-Equipped?". The sample of the study consisted of undergraduate students at a Greek Agronomy

Department University and the findings of the survey revealed that future agronomist's skills regarding the digital transformation of agriculture and technology issues were considerably low.

Therefore, in order to comply with the contemporary demands, it is crucial to focus even more thoroughly on the educational and training needs of agronomists in the Greek region in order to enhance their skills and expertise. In order for this to be implemented methodically, it is necessary to have previously investigated the educational and training needs of agronomists and this is the main goal of the present study. The originality of the present study resides to the fact that its sample consists of professionally active agronomists and the rarity of similar studies highlights its significance.

The choice of the region of Central Macedonia as the main study area, is justified by the importance of the specific area in terms of crop and livestock production on a national level and on its major contribution to the agricultural economy of Greece. It is also worth mentioning that the region of Central Macedonia is the largest and second most populous region in Greece (Maniati et al., 2022). The significance of the topic, due to the pivotal role of agronomists concerning the growth of the countryside economy, the development of the manufacturing procedures in the agrifood chain, as well as the fact that the specific sector has not been studied in depth in Greece during recent years, lead to the conclusion that there is urgent need the specific topic to be investigated vigorously. As a consequence of all the above, the present study was undertaken to identify the educational and training needs of professionally active agronomists in Central Macedonia, Greece.

The objectives of the research are:
• To investigate whether the respondents have already attended training programmes and to determine the number of them,
• To explore their point of view regarding the subjects in which they would like to be trained,
• To determine if educational and training needs differ in relation to gender, age, education and years of work experience on the agrifood sector.

2. Methodology

The survey was carried out in Central Macedonia and it was based on a questionnaire designed by Prof. of Agricultural extension, Kshash Bassim Haleem from Al-Qasim Green University, Agricultural College in Babylon, designed to investigate the training needs of agronomists working as extension agents in a particular area in Iraq. Content validity of the questionnaire was established by a panel of experts in the field of agriculture and a pilot study was conducted to establish the reliability of the instrument (Kshash,2018). Written permission to use the questionnaire was requested, as well as a copy of the questionnaire structure. After the positive response of the researcher, the double and reverse translation of the questionnaire was done.

The population of the present study consists of 127 agronomists who are professionally active in Central Macedonia. The questionnaire reliability was tasted by 5 agronomists located in Central Macedonia and during this pilot study some extra training items were suggested by the colleagues to be included in the questionnaire. The instrument of the research is a three-part questionnaire. It includes 5 demographic questions, 30 Likert scale questions and 1 open-ended question. A Cronbach's alpha reliability coefficient of 0.96 was established, indicating the reliability and validity of the instrument. Training needs were measured on a 5-point Likert-type scale of very highly needed (4), highly needed (3), moderately needed (2), slightly needed (1), and not needed (0).

Initially, the questionnaires were sent electronically through personal contacts to fellow agronomists professionally active in the area of Central Macedonia. Further contacts were made to confirm the receipt of the questionnaires and to make a personal request for their completion. Then the snowball sampling method was applied to collect a sufficient number of responses from colleagues professionally active in Central Macedonia and data was collected from 25th July 2022 to 1st September 2022.

Data was analyzed using IBM SPSS Statistics 28.0. Descriptive tools were used to present the results in the form of means, percentages and standard deviations. Furthermore, the study utilized inferential analysis such as one-

way analysis of variance to explore the differences among extension agent's interest in participating in training regarding their personal attributes.

3. Results

3.1 Characteristics of agronomists

127 agronomists that are professionally active in Central Macedonia have completed the questionnaires and the description of the sample is shown at Table 1. The variables the study was focused on, are the following: Gender, Age, Highest level of education completed, Years working in the agricultural sector and Number of training programmes attended by the participants.

Table 1: Description of the sample

Variables	Variable Analysis	Percentage
Gender	Male	36%
	Female	64%
Age	20-29 Yrs.	18.1%
	30-39 Yrs.	28.3%
	40-49 Yrs.	44.9%
	Above 50 Yrs.	8.7%
Highest level of education completed	Master's Degree	56,7%
	University Department Degree	25,2%
	Technological Educational Institute Degree	11%
	Ph.D	5,5%
	Postdoctoral Research	1.6%
Years working in agricultural sector	Less than 1 year	15%
	1-5 Yrs.	28,3 %
	6-10 Yrs.	24,4%
	11-20 Yrs.	26,8%
	21-30 Yrs.	3,9%
	Over 30 Yrs.	1,6%
Number of training programmes attended	0	18,9%
	1-5 Programmes	63%
	6-10 Programmes	12,6%
	11-15 Programmes	3,9%
	Over 15 Programmes	1,6%

As per their gender 36 % were men while 64% were women. Most of the agronomists in the survey belong to the age group of 40-49 years with their percentage amounting to 44.9%. This is followed by the 30-39 age group with a percentage of 28.3%.

Regarding the participants' education level, they were asked to mark the highest educational level to which they belong. Most of them hold a Master's degree with their percentage reaching 56.7%. Lower percentages are occupied by those who have completed a Ph.D. with a percentage of 5.5% and finally those who have completed postdoctoral research, holding a percentage of 1.6%.

Regarding professional experience and years of service in agricultural sector, 6 classes were created. The largest percentage 28.3% has to 1-5 years of experience, 26.8% has 11-20 years of experience and 24.4% has 6-10 years of experience. The smallest percentage 1.6%. appears in the previous service of more than 30 years. It is worth emphasizing the high percentages of respondents, 43.3% in total, having "Less than 1 year" and "1-5 years" of

experience, a percentage for their employment that is justified by the short-term contracts which consist a common form of employment occupation in the agricultural sector in the Greek region. (Karamanis et al., 2022).

Regarding the training programmes attended by the agronomists in the sample: 63% of respondents have attended 1-5 training programmes, 18.9% of respondents have not attended any programme, while 12.6% of the participants have attended 6-10 programmes. Furthermore, 3.9% of respondents have attended 11-15 programmes and 1.6% of the sample have attended 15 programmes or more. We therefore conclude that there is a positive attitude towards training, a fact that also coincides with Gerakari's (2012) research on agronomists in the Greek region.

3.2 Educationaland training needs of agronomists

With respect to agricultural sectors in which agronomists need education and training, data is presented in Table 2 according to their rank order. In the highest ranking order, participants declare their need for education and training in the subjects of Precision agriculture- Precision livestock farming & Use of new technologies, followed by the subjects of Planning and implementation of agricultural advisory programmes, Certification of rural and food products, Marketing of agricultural products, Organic farming, Climate change, Environmental protection and sustainable management of ecosystems, Agricultural aid and subsidies in the agricultural sector, Added value of agricultural products, Integrated plant protection and Food Industries.

In the medium ranking order, educational and training needs are reported in the following subjects: Organic livestock farming, Farm management, Soil management and soil conservation, Determination of farmer's training needs, Information and Communication Technology (ICT), Beekeeping, Postharvest technology, Reduced tillage methods, Integrated Pest Management (IPM), Digital skills and use of social media for professional purposes, Management of fruit and vegetable crops, Irrigation systems and water resources management, Management of vegetable crops, Soil management and soil conservation, Determination of farmers training needs.

However, the least important educational and training needs are reported in the following subjects: Livestock production and farm animal disease control, Dairy farming, Protected agriculture, Floriculture management, Poultry farming, Fish farming technologies.

Table 2: Weighted mean and level of educational & training needs in agricultural areas

Agricultural sectors in which Agronomists need education & training	Weighted Mean
Precision agriculture- Precision livestock farming & Use of new technologies	3,61***
Planning and implementation of agricultural advisory programmes	3,54***
Certification of rural and food products	3,54***
Marketing of agricultural products	3,48***
Organic farming	3,46***
Climate change	3,45***
Environmental protection and sustainable management of ecosystems	3,45***
Agricultural aid and subsidies in the agricultural sector	3,45***
Added value of agricultural products	3,38***
Integrated plant protection	3,36***
Food industries	3,30***
Organic livestock farming	3,28**
Farm management	3,27**
Soil management and soil conservation	3,26**

Determination of farmer´s training needs	3,24**
Information and Communication Technology (ICT)	3,16**
Beekeeping	3,16**
Postharvest technology	3,15**
Reduced tillage methods	3,14**
Integrated Pest Management (IPM)	3,11**
Digital skills and use of social media for professional purposes	3,09**
Management of fruit and vegetable crops	3,08**
Irrigation systems and water resources management	3,06**
Management of vegetable crops	3,02**
Livestock production and farm animal disease control	2,95*
Dairy farming	2,94*
Protected agriculture	2,92*
Floriculture management	2,83*
Poultry farming	2,69*
Fish farming technologies	2,46*

***= high; **=medium; *=low.

According to research that has been carried out in the past, it is concluded that the agricultural education system in Greece, is not particularly focused on enriching agronomists with practice-oriented knowledge or with the contemporary requirements of the agrifood sector (Koutsouris& Papadopoulos, 2000). As it is presented in Table 3, the conclusion of this survey supports the need for practice-oriented subjects, since 33.1% of our sample declared that more training is required in subject "Management of fruit and vegetable crops", 30.7% declares that more training is required for the subject "Farm Management" and 30.7% declares more training is needed in the subject "Irrigation Systems and water resources management"

Table 3: Percentage per subject for Practice Oriented Subjects

TRAINING NEEDED	Management of fruit and vegetable crops	Farm Management	Irrigation systems and water resources management
Not needed	12.6%	11%	8.7%
Slightly needed	18.1%	15.7%	26%
Moderately needed	33.1%	30.7%	30.7%
Highly needed	21.3%	20.5%	19.7%
Very highly needed	15%	22%	15%

Furthermore, regarding training needs on Sustainability oriented subjects, as it can be noticed by Table 4, 29.9% of the respondents stated that they training is "Very highly needed" in the area, "Environmental Protection and Sustainable Management of Ecosystems" which is also confirmed by research that concludes that agricultural education in Greece does not enhance the ability of agronomists to specialize in issues related to sustainability (Österle et al., 2016). The percentages of the need for training regarding the subject "Climate change" are also high, since 26% of the agronomists declared this subject in high need for training and 26.8% stated as a "Very highly needed" training area, a result that also agrees with the conclusions of Kshash (2018) research on agronomists, where the need for training for the specific subject is stated to a great extent. As far as Organic farming is concerned, 28,3% described it as a "Very highly needed" subject.

Table 4: Percentage per subject for Sustainability Oriented Subjects

TRAINING NEEDED	Environmental Protection and Sustainable Management of Ecosystems	Climate change	Organic farming
Not needed	7.9%	7.9%	6.3%
Slightly needed	18.1%	18.9%	18.9%
Moderately needed	25.2%	20.5%	25.2%
Highly needed	18.9%	26%	21.3%
Very highly needed	29.9%	26.8%	28.3%

Regarding training needs on subjects that focus on the added value of agricultural products, it is worth noting that the subject entitled "Certification of agricultural products and food" is of high interest according to 31.5% of our sample and the subject "Marketing of agricultural products" gathered 29.1% of the sample stating that in terms of training is a "Very highly needed" subject. The subject that gathers a remarkable percentage in terms of the need for training is the subject of "Postharvest technology" where 40.2% of the agronomists of the survey answered that they moderately need training, a result that also complies with the conclusions of the research of Kshash (2018) regarding agronomists. In this particular research is stated that the prevention of post-harvest production loss has multiple dimensions and training programmes as well as further training in this area is necessary to be applied. This is explained by the fact that one of the challenges faced by farmers in many cases is post-harvest product losses, 10% and 22% of the products are downgraded before reaching the final consumer due to insufficiency of technical knowledge (Taiwo& Bart, 2016). However, the provision of services in the field of postharvest handling procedures is highly dependent on the knowledge of agronomists regarding postharvest handling of fresh agricultural products (Del Carmen, 2016).

Table 5: Percentage per subject for Added Value Oriented Subjects

TRAINING NEEDED	Certification of agricultural products and food	Postharvest Technology	Marketing of agricultural products
Not needed	3.9%	3.1%	6.3%
Slightly needed	22.8%	24.4%	16.5%
Moderately needed	19.7%	40.2%	29.1%
Highly needed	22%	18.9%	18.9%
Very highly needed	31.5%	13.4%	29.1%

Subjects related to animal production are less popular between agronomists, as it can be seen by Table 6. The subject "Fish farming technologies" gathered low interest percentages from the agronomists in terms of the degree of training and 36.2% of the respondents answered that they do not need training on this field. Also, 19.7% of the respondents answered that they do not need training on "Dairy farming", 26% rejected training needs on "Poultry farming" and 22.8% on "Animal production and disease control of farm animals".

Table 6: Percentage per subject for Animal production Subjects

TRAINING NEEDED	Fish farming technologies	Dairy farming	Poultry farming	Animal production and disease control of farm animals.
Not needed	36.2%	19.7%	26%	22.8%
Slightly needed	16.5%	20.5%	18.9%	15.7%
Moderately needed	23.6%	22.8%	29.1%	22.8%
Highly needed	11.8%	19.7%	11.8%	20.5%
Very highly needed	11.8%	17.3%	14.2%	18.1%

The set of answers at the open-ended question is of particular interest, noteworthy are answers that refer to modern concepts such as regenerative agriculture, biodynamic agriculture, agroforestry systems, energy crops, but also subjects such as the mental health of the rural population. The subject of "Teaching agricultural courses"

was also mentioned, which indicates that many agronomists are occupied in the field of education in Greece, a topic that was mentioned by Miltiadou (2012), investigating the educational needs of the specific professional sector.

Regarding the answers to the open-ended question, it can be concluded, based on the variety of answers, that the professional subjects that agronomists are occupied with, present a wide variation. This particular situation does not facilitate the specialization of agronomists on a specific professional agricultural field (Ingram and Morris, 2007). It is worth focusing on the answer that refers to the outdated knowledge taught in Universities in the Greek region and the need for individual action in terms of upskilling, a point of view that also converges with the conclusion of Gerakari's research (2012), mentioning that although the level of scientific knowledge is high, the agronomists lag behind in modern knowledge as well as in new techniques and they strongly express the desire to update their knowledge in order to be informed about recent developments in their scientific field. Almost a decade later, is worth mentioning that the opinions of the respondents are quite similar as it can be concluded by the present study.

3.3 Statistical relationship between selected characteristics of agronomists and educational and training needs

In order to determine the statistical relationship between the educational and training needs score of each of the respondents and selected characteristics of the agronomists, correlation analysis was conducted. One of the main research questions of the study aims to investigate whether and to what extent the educational needs of agronomists differ, depending on Gender, Age, Studies and Professional experience as agronomists. To achieve the above goal, Analysis of Variance (ANOVA) was applied, with the dependent variables being the educational objects of the questionnaire and the independent variable being in each analysis separately: a) Gender, b) Age and c) Studies d) Professional experience as an agronomist.

The data that showed statistically significant differences are presented below. The analysis and explanation of the statistical analysis at Table 7, is entitled "Descriptives" where the descriptive statistics are presented such us Means and Standard Deviations. Analysis of Variance (ANOVA) at Table 8, is listed for each variable, showing through the analysis of variance, the p-value, which if <0.050, indicates that there is a statistically significant difference. Regarding the gender of the sample, the results obtained, $(F_{(1,125)} = 3,914, p=0,05)$ show statistically significant differences regarding the training of the items "Planning and Implementation of Agricultural Advisory Programmes" and women seem to be more interested (Mean=2.70, S. D=1.21) than men (Mean=2.26, S. D=1.20) in the specific subject.

Table 7: Planning and Implementation of Agricultural advisory Programmes/ Descriptives

	N	Mean	Std. Deviation	Std.Error	Lower Bound	Upper Bound	Min.	Max.
Man	46	2.26	1.219	0.180	1.90	2.62	0	4
Woman	81	2.70	1.209	0.134	2.44	2.97	0	4
Total	127	2.54	1.226	0.109	2.33	2.76	0	4

Table 8: Planning and Implementation of Agricultural advisory Programmes/ Anova

	Sum of squares	df	Mean Square	F	Sig.
Between Groups	5.753	1	5.753	3.914	0.050
Within Groups	183.758	125	1.470		
Total	189.512	126			

Also, as shown in the Table 9 and Table 10, statistically significant differences in terms of the sample's gender appears to exist in the educational subject " Precision agriculture- Precision livestock farming & Use of new technologies" where $(F_{(1,125)} = 5.793, p=0.018)$. Women seem to be more interested (Mean=2.80, S. D=1.077) than men (Mean=2.26, S. D=1.43) in the specific subject.

Table 9: Precision agriculture- Precision livestock farming & Use of new technologies/ Descriptives

	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Min.	Max.
Man	46	2.26	1.437	0.212	1.83	2.69	0	4
Woman	81	2.80	1.077	0.120	2.56	3.04	0	4
Total	127	2.61	1.242	0.110	2.39	2.82	0	4

Table 10: Precision Agriculture- Precision Livestock & Use of new technologies/Anova

	Sum of squares	df	Mean Square	F	Sig.
Between Groups	8.606	1	8,606	5,793	0,018
Within Groups	185.709	125	1,486		
Total	194.315	126			

The Analyzes of Variance with independent variables the age, studies, years of experience did not show statistically significant differences in relation to the educational objects, which means that the opinions of the agronomists, regarding their training needs in the specific educational objects converge. Also, from the Table 11 of Correlations, is observed that there is a positive linear correlation between "Professional Experience" with the "Number of training programmes attended", where Pearson Correlation is r= 0,284, that means that as professional experience increases it can be observed that the number of training programmes attended by agronomists also increase.

Table 11: Correlations

		Number of training programs attended	Professional Experience
Number of training programmes attended	Pearson Correlation	1	,284**
	Sig.(2-tailed)		,001
	N	127	127
Professional Experience	Pearson Correlation	,284**	1
	Sig.(2-tailed)	,001	
	N	127	127

** Correlation is significant at the 0.01 level (2-tailed)

4. Discussion

The agrifood sector is traditionally considered one of the most dynamic and economically growing sectors in Greece. Especially in recent years, it has been characterized many times as one of the main economic pillars of the Greek countryside (Paschalidis et al., 2021). To a very large extent, the course of the agrifood sector depends on the contribution of agronomists, holding a pivotal role in the development of the specific sector through their active role providing consultancy as well as their contribution to the processing chain of raw materials. Acquiring modern and up-to-date knowledge is nowadays of the utmost importance and agronomists must be receptive to innovation (Lefèvre et al., 2014) while they also need to expertise in a variety of traditional technical issues (Gómez et al., 2015), thus training is a prerequisite for their professional development. In order for this to be implemented methodically, it is necessary to have previously investigated the educational and training needs of the agronomists and this is the main goal of the present research.

From the results of the present research, it can be concluded that, as regards to the educational and training needs, the majority of the respondents declared their need of training in the subjects of Precision agriculture- Precision livestock farming & Use of new technologies, followed by the subjects of Planning and implementation of agricultural advisory programs, Certification of rural and food products, Marketing of agricultural products, Organic farming, Climate change, Environmental protection and sustainable management of ecosystems, Agricultural aid and subsidies in the agricultural sector, Added value of agricultural products,

Integrated plant protection as well as Food Industries. At medium level need are the following topics: Organic livestock farming, Farm management, Soil management and soil conservation, Determination of farmer's training needs, Information and Communication Technology (ICT), Beekeeping, Postharvest technology, Reduced tillage methods, Integrated Pest Management (IPM), Digital skills and use of social media for professional purposes, Management of fruit and vegetable crops, Irrigation systems and water resources management, Management of vegetable crops, Soil management and soil conservation and Determination of farmers training needs. However, the subjects in which they require low level training are the following: Livestock production and farm animal disease control, Dairy farming, Protected agriculture, Floriculture management, Poultry farming, Fish farming technologies. Worth mentioning is the fact that a percentage of 63% of the respondents have attended 1 to 5 training programmes while a percentage of 18.9% of the respondents have not attended any programme at all. The high percentage, however, of respondents who have not attended any programme can be explained by the fact that most training programmes in Greece are subjected to fees of participation as mentioned above.

The Analysis of variance with the independent variables of age, studies, years of work experience did not feature statistically significant differences in relation to the training subjects, which means that the opinions of agronomists, regarding their training needs in the specific educational subjects converge. The variable "Gender" presented a statistically significant difference with the training subjects "Planning and implementation of agricultural advisory program" and "Precision agriculture- Precision livestock farming & Use of new technologies". By the variety of answers at the open-ended question, it can be concluded that the professional interests of agronomists present a wide variation, to the point that it is difficult for the agronomists to be specialized in a specific field. This particular finding comes to an agreement with the statement that agronomists in order to perform this role effectively, need to acquire a broad understanding of the agroecosystem (Ingram and Morris, 2007) and the intention to be educated on several topics on the agricultural sector in order to develop a new professional mindset that emphasizes in multiple skills and mental transformation through continuous learning procedures (Charatsari et al., 2018). The fact that as professional experience increases the number of training programmes attended by agronomists also proliferate, complies with the fact that in an environment that is constantly evolving and in which professional needs are constantly increasing, lifelong learning and education plays a major role in order for the agronomists to keep abreast of developments in current professional environment.

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