
Economia agro-alimentare / Food Economy

An International Journal on Agricultural and Food Systems

Vol. 25, Iss. 1, Art. 6, pp. 1-22 - ISSN 1126-1668 - ISSNe 1972-4802

DOI: 10.3280/ecag2024oa16697



Advisors and inspectors for the development of organic agriculture in Italy

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Abstract

The advisory services play a pivotal role in addressing the challenges of the European green transition and enhancing the quality of services along the organic agricultural supply chain. However, there is limited evidence regarding the role and current working conditions of professionals supporting organic farming. The present study aims to fill this gap by investigating the working characteristics and job satisfaction levels among Italian organic advisors and inspectors. The analysis of selected variables encompassing interviewee characteristics, work activities, and satisfaction metrics provides insights into the perspectives of advisors and inspectors on their roles and working conditions. The findings reveal that while technicians generally express satisfaction with their remuneration and opportunities for personal and professional growth, they also report significant stress levels and workload. Identifying variables influencing satisfaction levels was pursued to measure the association between variables. This research establishes a foundation for developing strategies to enhance the well-being and effectiveness of organic farming advisors and inspectors, thereby promoting agricultural knowledge and innovation. One potential avenue for further investigation is monitoring agricultural technicians' operational activities at both the national and regional levels.

Article info

Type:

Note

Submitted:

23/10/2023

Accepted:

11/05/2024

Available online:

07/06/2024

JEL codes:

J28, J43, Q01, Q57

Keywords:

Organic farming
Advisory services
Organic
Certification
Job Satisfaction
Online Survey

Managing Editor:

Maurizio Canavari

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Introduction

The European Green Deal has attributed great importance to the development of organic agriculture due to its ability to support farmers' incomes while protecting biodiversity, soil fertility, and water resources (EC, 2022; Polidori, 2003; Reganold & Wachter, 2016; Seufert & Ramankutty, 2017). The European Union's target for 2030 is to dedicate 25% of its utilised agricultural area (UAA) to organic farming. Italy has made substantial progress towards this objective, with organic agriculture increasing from just over 1 million hectares of UAA in 2008 to almost 2.3 million in 2022, representing 18.7% of the overall national UAA. The number of operators nearly doubled during the same period, going from 47.7 thousand to 92.8 thousand (Ismea, 2022; Sinab, 2023a,b; Willer *et al.*, 2022).

It is worth noting that the development of organic agriculture is closely linked to environmental and social factors (Zanoli *et al.*, 2018). To meet future challenges, organic agriculture must invest in its human capital by constantly acquiring new knowledge and skills (Rahmann *et al.*, 2017). The European strategy has been working in this direction for some time, promoting knowledge and innovation in agriculture (EC, 2022; Eyhorn *et al.*, 2019; Klerkx, 2020; Raina, 2020; Sanders *et al.*, 2011) through the Agricultural Knowledge and Innovation System (AKIS¹), defined as the partnership between all stakeholders engaged in the sector's development through technology, innovation, and the promotion of human capital (Christoplos, 2010; Davis & Sulaiman, 2014; Masaf, 2021).

The support role of professionals in the organic supply chain is to assist in decision-making processes (EC, 2019), promote a better understanding of production techniques, and facilitate communication with those responsible for controls (Canavari *et al.*, 2010). Indeed, some Italian wine producers highlight the value of a well-established organic network, acting as an essential innovation cluster that assists sustainable farming transformation (da Rocha Oliveira Teixeira *et al.*, 2023).

The literature underscores the need for farmers to access consultancy and extension services providing viable solutions to their agronomic issues (Arbenz *et al.*, 2017) and covering technical, economic, social, and environmental aspects (Baloch & Thapa, 2019; Faure *et al.*, 2012; Ingram, 2008; Kassem *et al.*, 2021; Landini *et al.*, 2022; Swanson & Rajalahti, 2010).

1. The Agricultural Knowledge and Innovation System (AKIS) is a collection of agricultural organizations and/or people, and the links and interactions between them, engaged in the generation, transformation, transmission, storage, recovery, integration, dissemination and use of knowledge and information, with the aim of working synergistically to support decision making, problem solving and innovation in agriculture (Röling, 1990).

Pascucci & De Magistris (2011) conducted research with Italian farmers, revealing a preference for specialised, targeted, and continuous extension services that offer a holistic view of farm strategies, adapting to different agri-food chains (EC, 2019; Van Oost, 2019).

The farmers' needs and the heterogeneity of the Italian agricultural system confirm the importance of having an efficient assistance network at the national level. In this regard, the European Commission (EU, 2024) highlights the pivotal role of advisors in tackling the challenges of organic farming. They are involved in a wide range of activities (Cristiano *et al.*, 2020), including providing practical training to organic farmers and encouraging the growth of new entrants into the sector (Birke *et al.*, 2022; Cristiano *et al.*, 2020).

The satisfaction of advisors with their job activities can be a driving force for increasing the effectiveness of services. The topic of worker satisfaction has extensive references in the literature, starting from the work of Locke (1969), in which satisfaction is defined as a positive emotional state resulting from an evaluation of the job. Hulin and Judge (2003) describe satisfaction as a set of psychological responses related to work, including cognitive, affective, and behavioural components. Other authors have explored subjective and organisational aspects (Bakker & Demerouti, 2017; Rhodes, 1983; Yadav *et al.*, 2022). In the agricultural field, one strand of this literature is interested in the degree of satisfaction of farmers (e.g., Kolstrup, 2012; Meyerding, 2017), often concerning their mental and work health (Jones-Bitton *et al.*, 2019; Logstein, 2016; Lopez- Garcia *et al.*, 2019).

A considerable number of studies focus on individuals occupying different roles within the AKIS, exploring their attitudes, skills, and experiences (Kaur *et al.*, 2021; Musshoff, *et al.*, 2013; Sastoque, 2015). Proietti and Cristiano (2023) emphasise the importance of consultants possessing cross-cutting, management, and methodological skills and positive personal attitudes to provide adequate support. Angsukanjanakul *et al.*, 2019 show how high experience and knowledge and minimal work overload, as well as sufficient levels of work autonomy (Deci & Ryan, 2008; Gagnè & Deci, 2005; Hofmans *et al.*, 2013; Moran *et al.*, 2012) can positively influence advisors' job satisfaction and, in turn, their work performance. The job satisfaction of these professionals allows them to transfer their wealth of experience efficiently and improve farmers' performance (Alotaibi *et al.*, 2021; Angsukanjanakul *et al.*, 2019; Faure *et al.*, 2012).

The literature on advisory and assistance services in Europe is rich in studies. However, there is limited evidence regarding the role of organic farming advisors and inspectors and their current working conditions.

To our knowledge, this topic still needs to be addressed in the scientific field, specifically for advisors operating in the Italian organic farming industry. The present study aims to address this gap through a quantitative investigation. Therefore, the relationships between the objective and subjective characteristics of work activities and the level of job satisfaction experienced by advisors and inspectors were examined.

The study is organised as follows: The following section illustrates the data collection and data analysis methodologies. The result section illustrates respondents' observed characteristics and job satisfaction, while the last two sections discuss the results, and provide conclusions, and implications for policymakers.

1. Materials and methods

The research was conducted in two phases. In the first phase, qualitative interviews were held with leaders of the ATBio National Association (Association of Organic Technical Inspectors and Technical Consultants) National Association. The Association aims to represent and protect the common interests of Italian technical advisors and inspectors, the latter carrying out control activities to certify production processes. These investigations revealed that job satisfaction among organic technicians is sporadically adequate.

Therefore, a second phase of the research focused on a quantitative investigation of the job satisfaction levels of advisors and inspectors. Additionally, the study delved into their subjective characteristics, the organic farms they served, and their relationships.

In this paper, the focus is on five different ways of understanding job satisfaction:

- a) economic satisfaction (or dissatisfaction);
- b) satisfaction (or dissatisfaction) with job autonomy;
- c) personal and professional satisfaction (or dissatisfaction) related to the valorisation of personal and professional skills (e.g., the tasks performed, the relationships with customers, the work environment, the feedback received, the emotions that everyone draws from their work, and personal growth);
- d) satisfaction (or dissatisfaction) with perceived stress levels;
- e) satisfaction (or dissatisfaction) with the responsibilities assumed.

Data was collected through an online questionnaire between 19 April and 19 May 2022. The web-based Google form tool was used to create and send the survey. The questionnaire comprised 42 questions and was organised into sections covering personal data, geographical area of operation, level

of activity specialisation, and workload sustainability and evolution. Job satisfaction was measured using a Likert-type scale.

The research group prepared and tested the questionnaire by administering it to the association's leaders. This collaboration facilitated the questionnaire's distribution and encouraged technicians' participation, reducing the risk of a low response rate.

During the fieldwork, we solicited the respondents two times to reach a significant number of responses. Additionally, we requested participating technicians to forward the questionnaire link to other technicians, not association members, promoting a snowball effect.

At the end of the field investigation, 116 advisors and inspectors participated in the electronic survey. Unfortunately, the total number of technicians involved in organic farming in Italy (either as advisors or as inspectors) is unavailable. The Association counts about 150 advisors and inspectors, while estimates provided by the Association count 1300 technicians nationally, so we can estimate to have collected the opinions of about 9% of the technicians.

Subsequently, the responses provided by respondents were collected in an Excel file and subjected to data cleaning to guarantee the accuracy and reliability of the data.

The literature examined (Angsukanjanakul *et al.*, 2019, in particular) informed the focus on three types of variables for data processing. According to the previously listed meanings, there were variables relating to the characteristics of the interviewees, variables relating to workloads, and variables relating to the degree of satisfaction or dissatisfaction with the job. In Table 1, we report the variables selected and analysed.

Table 1 - Analysed variables (variable name, question, nature) of the survey

Variable name	Question	Variable nature
Respondents' characteristics and work activities		
Educational Qualification	Define your educational qualification	Ordinal
Specialisation area	Define the area of specialisation of your major	Nominal
Professional activities	What professional activities do you usually do? (possible multiple choice)	Ordinal
Working localisation	Is your work activity performed in one region?	Dichotomous
Specialisation of activities	Is your professional activity about a specific value chain?	Nominal

Variable name	Question	Variable nature
Workload evolution	How much have the workloads changed over the years?	Ordinal
Workload hours per week	On average, how many working hours per week do you devote to your job?	Ordinal
Workload sustainability	Are current workloads sustainable over time?	Dichotomous
Satisfaction levels		
Job remuneration	The job satisfies me economically	Likert Ordinal
Job autonomy	I am satisfied with the level of job autonomy	Likert Ordinal
Personal/professional satisfaction	The job entails a valorisation of personal and professional skills	Likert Ordinal
Job stress	The job entails a high level of stress	Likert Ordinal
Responsibility	The job entails a high level of responsibility	Likert Ordinal

Source: Our online survey.

During the data processing phase, the frequencies of each level for each attribute were calculated. Attention should be paid to the variable relating to professional activities because all interviewees work as freelancers, and many carry out multiple activities simultaneously. Therefore, the absolute frequencies of professional activities are higher than the number of respondents, resulting in a total percentage higher than one hundred. A derived variable was also calculated about this aspect, which quantifies the number of activities carried out by each interviewee and their degree of work specialisation.

Referring to the literature (e.g., Angsukanjanakul *et al.*, 2019), we found it challenging to consider the five questions related to job satisfaction as items of a single construct. However, we carried out some checks on a routine basis about it, computing the value of Cronbach's alpha.

Finally, we examined the degree of association between 40 pairs of variables. We combined the 8 variables related to the interviewees' characteristics and workloads with the 5 variables related to their degree of job satisfaction/dissatisfaction. The verification was mainly based on calculating traditional statistical indicators, Pearson's chi-square and the chi-square likelihood ratio, to verify a generic association for all pairs of variables. Furthermore, we calculated statistical indices by considering the variables' nominal, dichotomous, or ordinal nature. The contingency

coefficient, Phi (coefficient), Cramér's V, Lambda, Goodman and Kruskal's tau, and the uncertainty coefficient were calculated for nominal or dichotomous variables. We calculated Gamma, Kendall's tau-b, Kendall's tau-c, and Somers'd for ordinal variables.

The indicators above were calculated using the IBM® SPSS® software.

2. Results

2.1. The characteristics of the respondents

Regarding educational background, we can first observe how over three-quarters of the respondents have a university degree (Table 2). Furthermore, most respondents held a license or a degree in agricultural sciences.

As already mentioned, more than one professional activity can be carried out. 78.4% of the respondents work as technical inspectors, while 50% carry out consultancy activities exclusively or with other activities. The plurality of activities carried out by the freelancers who responded to the questionnaire is confirmed by the fact that 18.9% carry out training activities as instructors on organic farming topics. In comparison, 25.8% of respondents carry out "other activities". Among the latter, the most frequently cited are those of instructors and farmers. Considering the numerous professional activities, 42.2% of those interviewed carry out a single activity (either as advisors or inspectors). Some equally numerous technicians carry out two activities, and the number of those who carry out three or four activities is significant, too (15.6%). Approximately 60% of respondents operate in vast areas, while the remaining share carries out their activity only in a single region, mainly Emilia-Romagna, Tuscany, and Sicily.

The activities carried out only rarely refer to a single production chain. Specifically, 15.5% of those interviewed performed their activity on specific production processes, mainly supporting farms. The farms that most frequently resort to the services of technicians are specialised in arable land, fruit growing, viticulture, and olive growing. These production processes have seen the most growth in invested surfaces in recent years (Sinab, 2023a,b). 49.1% of the technicians carry out cross-cutting activities. 35.3% of them have developed multiple skills and provide consultancy to farms and companies across different agricultural productions.

Table 2 - Technicians' characteristics and professional activities: relative frequencies

Sample characteristics	% of 116 respondents
A. Educational Qualification	
PhD	6.0%
Master's degree	70.7%
Bachelor's degree	5.2%
High school degree	16.4%
Other	1.7%
B. Specialisation area	
Agricultural science	74.1%
Animal production	7.8%
Forestry and environmental sciences	6.0%
Food technology	5.2%
Other	6.9%
C. Professional activities (*)	
Technical inspector	78.4%
Technical Advisor	50.0%
Other activities (instructors or farmers)	25.8%
Organic agriculture trainer	18.9%
D. Working localisation	
Activity performed in a single region	40.5%
Activity performed in several regions	59.5%
E. Specialisation of activities	
Yes, the activities are production chain-specific	10.3%
Yes, even if the activities are not production chain-specific	5.2%
No, the activities are cross-functional	49.1%
No, the activities are production chain-specific, but I acquired different skills/professional expertise	35.3%

Note: Some interviewees carry out multiple activities simultaneously. As a result, the absolute frequencies of the "professional activities" (*) variable are higher than the number of respondents, and the total percentage exceeds one hundred.

Source: Our elaboration on online survey data.

The respondents were asked to indicate how much their workload had changed over their working years. Around 75% of the technicians reported an increase over the years. Half of the respondents' workload has risen substantially, while 25.9% report a moderate increase in the load itself (Table 3). On the contrary, only 13.8% of technicians report a reduced workload (9.5% moderate reduction and 4.3% considerable reduction of 4.3%).

Table 3 - Technicians' view about workload: relative frequencies

Sample characteristics	% of 116 respondents
A. Workload evolution	
Large increase	50.0%
Moderate increase	25.9%
Unchanged	10.3%
Moderate reduction	9.5%
Large reduction	4.3%
B. Workload hours per week	
> 50 h	31.9%
30-50 h	62.1%
< 30 h	6.0%
C. Workload sustainability	
Current workloads are sustainable over time	69.8%
Current workloads are unsustainable over time	30.2%

Source: Our elaboration on online survey data.

Regarding the weekly working hours, the determination of the specified ranges (< 30h / 30h-50h / > 50h) was contingent upon various factors resulting from interviews with the association leaders. The respondents primarily comprise freelance professionals who frequently contend with seasonal employment opportunities. Consequently, we aimed to ascertain the extent to which the actual working hours of the respondents deviated from the conventional 40-hour weekly standard.

In particular, the results show that 62.1% of technicians declare that they work between 30 and 50 hours on average and are within a normal range. 6.0% of technicians say they work less than 30 hours per week, while 31.9% work more than 50 hours per week, constituting a potential critical element.

Regarding the long-term sustainability of the current workload, 30.2% of technicians define it as unsustainable. Even if it involves a minority of

the technicians interviewed, this symptom of dissatisfaction should not be underestimated, as it reveals an inefficiency of the AKIS, as pointed out in the discussion session.

Technicians highlighted the leading causes of unsustainable workloads, and the most frequent factor was increased bureaucracy. Additionally, their proposed solutions included administrative simplification, business reorganisation, and staff recruitment.

2.2. The job satisfaction

The reliability analysis did not support the possibility of considering the five variables relating to job satisfaction as items of the same construct. When calculated on the raw data, Cronbach's alpha was unacceptable (.258). By transforming the values relating to the job stress and job responsibility variables (reverting hi-lo values), Cronbach's alpha took on a higher but still questionable value (.656).

After that, considering the five variables related to job satisfaction one by one, we had mixed results. The phrase "work satisfies me economically" has mainly gathered support. In particular, 54.3% of technicians somewhat agree with this sentence, while 12.1% fully agree with the same statement (Table 4). Those who declared themselves dissatisfied in terms of salary represent 20.7% of those interviewed (18.1% moderately dissatisfied and 2.6% completely dissatisfied), while those who declared themselves neither agree nor disagree represent 12.9%.

Table 4 - Technicians' views on job satisfaction: relative frequencies

Satisfaction levels and survey questions	Completely agree	Moderately agree	Neither agree nor disagree	Moderately disagree	Completely disagree
Job remuneration	12.1%	54.3%	12.9%	18.1%	2.6%
Job autonomy	26.7%	53.4%	12.1%	5.2%	2.6%
Personal/professional satisfaction	26.7%	52.6%	15.5%	5.2%	0.0%
Job stress	14.7%	35.3%	27.6%	14.7%	7.7%
Responsibility	20.7%	36.2%	24.1%	12.1%	6.9%

Note: Refer to Table 1 for the complete questions.

Source: Our elaboration on online survey data.

The frequency analysis highlights how economic satisfaction is significantly associated with two variables relating to the characteristics of the respondents and the activities carried out (Table 5, and Tables A1 and A2 in the appendix for detailed information). Pearson's chi-square highlights a non-random distribution of frequencies when considering, on the one hand, the opinion expressed on remuneration and, on the other, the number of professional activities carried out, as well as views relating to sustainability during the current workloads. The data examination highlights how salary satisfaction is mainly associated with the performance of a single professional activity and with a judgment of the sustainability of the current workloads.

Table 5 - Association between variables related to job satisfaction and respondents' characteristics and work activities: Pearson Chi-Square

Satisfactions	Respondents' characteristics or work activities	Pearson Chi-Square	Likelihood Ratio
Job remuneration	Professional activities	18.98	
Job remuneration	Workload sustainability	9.64*	10.23*
Job autonomy	Specialisation of activities	21.06	21.49*
Personal/professional satisfaction	Workload sustainability	14.19**	14.07**
Job stress	Workload evolution	33.15**	35.63**
Job stress	Workload sustainability	25.97**	27.28**
Responsibility	Workload evolution	27.88*	27.57*
Responsibility	Workload h/w	17.68*	18.63*

Note: Only values with a significance higher than .90 are shown. * Significance higher than .95. ** Significance higher than .99.

Source: Our elaboration on online survey data.

Regarding job autonomy, 80.1% of technicians agree (moderately or definitely) that their job “allows them autonomy over decisions about activities, how and when to carry them out”. In contrast, negative ratings were only 7.8%. Satisfaction with work autonomy is associated only with the specialisation of the consultancy activity. In this case, Pearson's chi-square has a significance greater than 0.9, and the Goodman & Kruskal tau index (reported in the appendix) is highly significant. In this regard, data analysis highlights how those focusing on specific production chains are more frequently satisfied with their working autonomy.

The satisfaction that technicians feel for the possibility of enhancing their personal and professional qualities is widely shared. Approximately 80% of technicians agree with this assessment, while only 5.2% express their moderately negative assessment. The judgment is strongly associated with the evaluation regarding the sustainability of the current workload, and Pearson's chi-square is significant above .99. Examining the database, we observe how technicians who are satisfied from a personal and professional perspective evaluate the current workloads as sustainable. This judgment is further strengthened as the level of satisfaction increases.

The assessments relating to stress levels somewhat overshadow the favourable assessments observed so far. Indeed, 50.0% of those interviewed complained that their work involves excessive stress (35.3% moderately and 14.7% definitely). Furthermore, perceived stress is associated with several variables relating to the characteristics of the interviewees and their work activities. The values reported in Table 5 highlight significant associations with the increase in workload and its sustainability over time, as well as the training background and the average hours worked per week (indices in the appendix). Surprisingly, among those who complain of work stress, relatively more technicians declare that they work between 30 and 50 hours a week, i.e., a regular or almost regular number of hours.

57.0% of technicians feel the burden of excessive responsibility (36.2% only moderately and 20.7% definitely), and only 19.0% believe their job involves low commitment. Also, in this case, the level of satisfaction is associated with assessments relating to the evolution of workloads and indications regarding the average number of hours worked per week. The database confirms that technicians who complained of excessive responsibility recorded an increase in their workload in most cases.

3. Discussion

Technical advisors and inspectors are committed to supporting organic farming and disseminating knowledge and information to meet farmers' needs. This commitment is confronted with an operational reality that needs to be discovered and analysed. The study combines a review of existing scientific literature (e.g., Alotaibi *et al.*, 2021; Angsukanjanakul *et al.*, 2019; Birke *et al.*, 2022; Faure *et al.*, 2012; Landini *et al.*, 2022; Pascucci & De Magistris, 2011) with field research to shed light on the daily challenges faced by technicians and their job satisfaction. This is particularly important in light of the European Union's objectives for developing the organic production system. The survey provides an original contribution to understanding the working conditions of professionals who support farms and companies operating in organic agriculture.

The first aspect to underline is that technicians often carry out multiple activities in parallel, but this does not appear to be associated with higher salary satisfaction. A complex issue regarding remuneration arises, which is difficult to define because technicians work as freelancers. Moreover, such a question of remuneration does not seem to constitute an exception in the (national) labour market, where training and human capital enrichment activities often find it hard to receive higher remuneration (Mußhoff *et al.*, 2013). However, it should be underlined that the diversity of roles assumed in this case may lead to a conflict of interest. This should be avoided to guarantee the credibility of the production system that revolves around organic agriculture.

A second issue that emerged concerns the types of activities carried out. Specifically, it has been observed that individuals who engage in cross-functional activities complain of dissatisfaction with work autonomy. This topic warrants further exploration, although the current observations appear to confirm the findings of Moran *et al.* (2012). They suggest that having high expectations concerning job autonomy is associated with more stimulating work activity characteristics. It may be appropriate to hypothesise that cross-cutting activities are burdened by bureaucratic and routine work, which should be lightened or automated. This would allow technicians to dedicate their energy and skills to supporting organic production.

The third issue concerns the low consistency of some answers. Most of those interviewed reported an increase in their workload in recent years. However, this did not result in an excessively high working hours per week. In fact, around two-thirds of those interviewed declared that they worked between 30 and 50 hours per week, which is partially in line with the standard working hours (40 hours per week), especially given the seasonal nature of agricultural production.

Evaluations of the sustainability of current workloads also provided a positive picture of the working situation of technicians. Overall, there are two possible explanations for the apparent contradiction between these values: a) the growth in workloads has allowed the full employment of technicians who were previously underemployed, and b) the productivity of the technicians themselves has grown over time. However, upon detailed analysis of the responses, it becomes clear that around a fifth of the interviewees express positions that differ from the 'average' ones. They complain about solid growth in the workload, working hours exceeding 50 hours per week and the unsustainability of the current workload over time. These technicians represent a critical area for the production system, and finding ways to enhance their skills and reduce their stress levels is imperative. The bivariate analysis confirmed a connection between declared work stress and workload.

The survey results confirm the importance of verifying technicians' job satisfaction levels, which can influence the quality and effectiveness of their work performance, as highlighted in the literature (Angsukanjanakul *et al.*, 2019).

4. Conclusions

The quantitative investigation allowed for a first 'subjective' vision of the agricultural technicians' work. The results can serve as a basis for analysing the strengths and limitations that must be addressed to improve the technicians' relationship with their work and, consequently, with the agricultural enterprise.

The results allow us to hypothesise some strategic areas of action that can add value to the technician's role. Possible reorganisations could concern: 1) the planning of educational activities (training and life learning) to provide more specialised knowledge and skills for organic farming, 2) the development of methods to optimise one's activities, and 3) the identification of more effective and relevant tools to improve the relationship between technicians and farmers.

The study allowed some characteristics of the technicians, activities carried out, and levels of job satisfaction to emerge. However, the study's limitations must be acknowledged. The lack of qualitative analysis has made it impossible to evaluate causal links between the variables considered with certainty.

Another limitation is the representativeness of the sample. As previously stated, no national list of technicians providing organic farm services is available. A registry is necessary to implement a sample selection procedure and estimate the representativeness of those interviewed. The estimated 1,300 technicians provided by the association involved in the investigation is plausible if we consider that, based on social security data, there would be around 12,300 freelance consultants supporting agriculture in Italy. However, consolidating the list of organic farming technicians would strengthen the analysis results.

A third limitation arises from the separate consideration of job satisfaction according to five different meanings. The lack of an "overall" evaluation regarding the technicians' level of satisfaction results from a choice made in defining the survey methodology. In particular, we tried as much as possible to elicit immediate responses, avoiding respondents adopting strategies to ensure the answers' internal consistency. This was useful in highlighting some disparities in the perception of satisfaction, but it did not allow us to assess overall satisfaction levels.

The study revealed that a more comprehensive investigation is feasible. However, fundamental information is required to obtain more reliable results. The findings provide a basis for further quantitative and qualitative research to enhance the efficiency of consultancy services and promote agricultural knowledge and innovation. This may require the regular monitoring and evaluation of the operational activities of agricultural technicians, accompanied by the implementation of adjustments to existing policies to address emerging challenges and opportunities at the national and regional levels. Furthermore, this could result in formulating policies designed to support the freelance profession and enhance their working conditions and stability.

Acknowledgements

The authors would like to express their gratitude to the anonymous reviewers for their constructive comments and suggestions, which have improved this work.

Furthermore, the authors would like to acknowledge the ATBio association for allowing them to contact respondents and all Italian technical advisors and inspectors who participated in the research.

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Table A1 - Statistical indicator of the association between variables (nominal x ordinal)

Satisfaction levels	Respondents' characteristics or work activities	Lambda	Goodman & Kruskal tau	Uncertainty Coefficient	Phi	Cramer's V	Contingency Coefficient
Job remuneration	Workload sustainability	.21*	.35*	.288*	.288*	.288*	.288*
Job autonomy	Specialisation of activities	.68**	.78*	.426*	0.246*	0.392*	
Personal/professional satisfaction	Specialisation area	.55					
Personal/professional satisfaction	Workload sustainability	0.44	.03**	.05**	.35**	.35**	.33**
Job stress	Specialisation area	.55.80					
Job stress	Workload sustainability	.05**	.08**	.47**	.47**	.43**	.43**

Note: Only values with a significance higher than .90 are shown. * Significance higher than .95. ** Significance higher than .99.
Source: Our elaboration on online survey data.

Table A2 - Statistical indicators of the association between variables (ordinal x ordinal)

Satisfaction levels	Respondents' characteristics or work activities	Somers'd	Kendall's tau-b	Kendall's tau-c	Gamma	Spearman Correlation	Pearson's R
Job remuneration	Professional activities	-.18*	-.18*	-.16*	-.28*	-.21*	-.22*
Job stress	Workload evolution	.25**	.24**	.21**	.33**	.27**	.26**
Job stress	Workload h/w	.19	.16	.15	.25	.18	.19*
Responsibility	Workload evolution	.20*	.19*	.16*	.26*	.21*	.18

Note: Only values with a significance higher than .90 are shown. * Significance higher than .95. ** Significance higher than .99.

Source: Our elaboration on online survey data.

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