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Skills and training needs relating to the use of computers and the Internet among agricultural producers in the Małopolskie Voivodeship

Umiejętności i potrzeby szkoleniowe w zakresie korzystania z komputerów oraz Internetu wśród producentów rolnych z województwa małopolskiego

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Abstract. The paper discusses the issues concerning the skills of using a computer and the Internet, and the needs for training to acquire or improve such skills, among farmers operating in the Małopolskie Voivodeship. The data used in the study were gathered from a survey carried out in 2013 on a group of farmers taking part in the trainings conducted by the University of Agriculture in Krakow. The information was obtained from 160 persons. For analyses, the respondents were divided into groups according to the area of agricultural land possessed by a farm. It was found that four-fifth of the research sample used a computer, and a similar proportion of the farmers used the Internet. The calculated correlation coefficient did not reveal any relationships between the area of a farm and the level of computer or Internet skills. Only one-fourth of the farmers declared the use of specialised computer software in their agricultural activity, with the most popular application being Office Suite.

Keywords: use of a computer • use of the Internet • farmers • skills • training needs

Streszczenie. W opracowaniu poruszono problematykę umiejętności i potrzeb szkoleniowych w zakresie korzystania z komputera oraz Internetu przez rolników działających w województwie małopolskim. Dane do analizy pochodziły z badań ankietowych przeprowadzonych w 2013 r. wśród rolników biorących udział w szkoleniach realizowanych przez Uniwersytet Rolniczy w Krakowie. Informacje pozyskano od 160 osób. Analizę przeprowadzono w podziale gospodarstw według powierzchni posiadanych użytków rolnych. Stwierdzono, że w badanej zbiorowości cztery piąte osób obsługuje komputer; podobny udział mają w niej osoby korzystające z Internetu. Obliczony współczynnik korelacji nie wykazał zależności między powierzchnią gospodarstwa a poziomem umiejętności w za-

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kresie obsługi komputera oraz Internetu. Tylko co czwarty rolnik wskazał, że w toku prowadzenia działalności korzysta ze specjalistycznych programów komputerowych, przy czym najpowszechniej wykorzystywany był pakiet Office.

Słowa kluczowe: korzystanie z komputera • korzystanie z Internetu • rolnicy • umiejętności • potrzeby szkoleniowe

Introduction

The way of running agricultural production undergoes dynamic changes. Technical and technological progress occurs not only in the areas directly connected with the production (machinery, equipment, production system, management, crop protection measures, seed grain used, etc.), but also in the domains that have an indirect influence on the production, such as the way and speed of accessing information (Aker, 2011). By and large, the computer revolution is not reserved exclusively for the largest entities operating on a global scale. In order to efficiently develop their business activity, every small producer, including those involved in agricultural production, needs to have access to the information concerning changes, news, facilitations, or improvements (Matysik-Pejas and Wojewodzic, 2009). Farmers must adjust to the changes and take advantage of the news as they appear. Only such approach will enable them to remain competitive, especially in an era of knowledge-based economy (Sawicka, 2010).

It is therefore worth asking oneself questions as to how skilled the agricultural producers are in the use of digital services, and, hence, identifying their needs for training to acquire or improve such skills. Are the farmers able to efficiently use such a tool as a computer? Do they use the Internet? Or perhaps is it so complicated that they need to be trained in using such tools?

The problems often addressed by many authors investigating the social and economic sphere of life include broadly understood social exclusion (Matysiak-Błaszczyk and Słupska, 2013; Wójcik-Żołądek, 2012), one of its aspects being e-exclusion. Although we are now called "information society", the issues concerning the access to telecommunications and IT services and the problem of e-exclusion remain important. Currently, it is necessary to use certain technologies in everyday life, so a person who lacks proper skills and experience in that respect faces growing e-exclusion and social exclusion. Computers and the Internet have become indispensable working tools, and the means of communication, knowledge acquisition, trading, or participating in entertainment and culture (Batorski, 2009). Getting ready access to banking services, which is a must for certain business entities according to the provisions of the relevant laws (Szafrańska and Matysik-Pejas, 2010), including e-banking in particular; acquiring knowledge about the changes in legal regulations; preparing and sending documents; exchanging goods – those are only some of the tasks that can be done with the use of a computer or the Internet, if only one is capable of employing such tools.

The main objective of the work was to present the opinions of selected agricultural producers about their skills in using computers and the Internet, and about the resulting training needs. The study was also aimed to determine whether the farmers

use specialised applications while conducting their agricultural activities. Possessing computer skills and ability to use the Internet appears to be particularly valuable in the context of having easy access to information, including information about prices, supply and demand, and market trends. The demand for those skills will continue to increase considering such factors as, among others, the planned introduction of the income tax in agriculture, and consequently, the possibility of keeping electronic records of economic events.

Material and methods

The source material was gathered through a questionnaire survey carried out in 2013 among farmers from the Małopolskie Voivodeship who took part in the trainings in agricultural farm finances and farmer and agricultural farm insurances conducted by the University of Agriculture in Krakow under the Rural Development Programme for 2007–2013, Measure 111 "Vocational training for persons employed in the agriculture and forestry sectors". The information was obtained from 162 producers, but two questionnaires were rejected due to their incompleteness or contradictory responses, so an analysis covered the data obtained from 160 respondents. The questions included in the questionnaires related to the state as of the day of conducting the survey.

The additional information necessary for performing the analysis came from the literature on the subject and the extensive Internet sources. To achieve the research objectives, a descriptive method, a comparative method, and a statistical method (a correlation coefficient) were used. The tabulated results were presented for the respondents classified according to the area of agricultural land possessed by the farms.

Characterisation of the study population

The age of the agricultural farm owners averaged 47 years. Among all the respondents, 64% were male. Most of the respondents had a vocational education (44.4%) or a secondary school education (36.9%). Only 7% of the respondents were university graduates. Six out of 10 agricultural producers in the study group conducted mixed agricultural production, 21.3% of the respondents run stock production as a dominating type of agricultural activity, and 19.4% produced mainly crops. Only one farmer was active in a special branch of agricultural production.

The majority of farms were those with an agricultural land area of 5.01 to 10.00 ha AL (40%) or those possessing 2.01 to 5.00 ha AL (30%). The smallest farms, having 1.00 to 2.00 ha AL, were run by 9.4% of the respondents; the ones with 10.01 to 20.00 ha AL, by 15.6% of the farmers; and the largest ones (AL area exceeding 20 ha), by 5.0% of the study group. The area of a farm in the study group averaged 7.95 ha AL. This size can be considered satisfactory as compared to the average size of an agricultural farm in the Małopolskie Voivodeship, being 3.92 ha AL in 2013 (Agency for Restructuring and Modernisation of Agriculture [ARMA], 2014).

Results

The respondents were asked to assess the level of their skills and proficiency in the use of computers by choosing one of the following options: "very good", "good", "moderate" or "poor" (Table 1). The answer "other" was meant as an option for those who had no experience in using computers, which may have resulted from the lack of interest in developing this type of skills even though a computer was available in the household, or from the lack of a computer at home and the impossibility to develop such skills elsewhere. It should be mentioned that the respondents claiming to have computer skills did not need to possess a computer, but could use it in public places (e.g. libraries or rural community centres)[1].

Table 1. Structure (%) of answers to the question: How do you rate your skills in using computers?
Tabela 1. Struktura (%) odpowiedzi na pytanie: Jak oceniasz swoje umiejętności w zakresie korzystania z komputerów?

Answer Odpowiedź	Farms by area in ha AL Gospodarstwa wg powierzchni w ha UR					Total farms Gospodarstwa ogółem
	1.00–2.00	2.01–5.00	5.01–10.00	10.01–20.00	> 20.00	
Very good Bardzo dobrze	6.8	4.2	7.8	8.0	12.5	6.9
Good Dobrze	13.3	12.5	15.6	24.0	12.5	15.6
Moderate Średnio	40.0	29.2	35.9	28.0	50.0	33.8
Poor Słabo	13.3	20.8	26.5	24.0	25.0	23.1
Other Inne	26.6	33.3	14.2	16.0	0.0	20.6

AL – agricultural land / UR – użytki rolne

Source: Author's study
Źródło: Badania własne

[1] The equipment of agricultural farms with computers and access to the Internet has not been the subject of the present study. Those interested in this issue may refer to the following works: Czekaj M., Wykorzystanie komputerów w wybranych gospodarstwach rolnych województwa małopolskiego [The use of computers on selected farms in the Małopolskie Voivodeship], *Zagadnienia Doradztwa Rolniczego*, 3/2013(73), 88–97; and Czekaj M., Internet jako źródło pozyskiwania informacji w gospodarstwach rolnych województwa małopolskiego [Internet as a source of information on agricultural farms in the Małopolskie Voivodeship], *Marketing i Rynek*, 2/2014, 28–34 (CD).

Not a single member of the group of farmers running the largest agricultural farms (agricultural land area of over 20 ha) had no experience in using a computer. Among those producers, the most frequent answer to the question about the level of their skills in using computers was "moderate" (50% answers). The remaining groups contained a certain proportion of farmers without computer skills, from only 14.2% (for the owners of farms with 5.01 to 10.00 ha AL) to as much as one-third (for those possessing farms with 2.01 to 5.00 ha AL). The group of farm owners with 10.01 to 20.00 ha AL rated their skills definitely highest: the answers "very good" and "good" were given by 32% of those respondents. The worst group in this respect was the users of farms with 2.01 to 5.00 ha AL: the answers "very good" and "good" were selected by 4.2% and 12.5% of the respondents, respectively (16.7% in total). In all farm acreage groups, the largest proportion of the respondents rated their skills in using a computer as "moderate". The relationship between the AL area of a farm and the subjectively-perceived level of skills in computer use, however, appeared to be non-significant. The coefficient of correlation between the two characteristics was 0.17 (to compute the correlation coefficient, the answers to be selected by the farmers were assigned numbers from 4 for "very good" to 0 for "other").

Next, the farmers were asked a question about their needs concerning the participation in trainings aimed to improve the competences in the use of computers. The respondents could choose the answers from the following list: "Yes, I would like to undergo training in that respect"; "Yes, but there are no such trainings in my neighbourhood"; "I took part in such training and I'm satisfied"; "I took part in such training and I'm dissatisfied"; and "No, I don't need that type of training".

Most of the persons in the study group stated that they did not need to take part in computer skills trainings (Table 2). It should be mentioned that those respondents could have either been people who already possessed certain skills in this field, or persons who had no such skills but were not interested in acquiring the relevant knowledge. Two-third of the respondents from the group of farmers running the smallest farms answered "No" to the question about their need to participate in the trainings. The proportion of the respondents who answered "No" was lowest in the group that ran agricultural farms with 5.01 to 10.00 ha AL (40.6%). The same group showed the largest proportion of positive answers to the above question, more than 56% in total ("Yes" – 32.8%, and "Yes, but there are no such trainings in my neighbourhood" – 23.4%).

Only a few persons in the entire study group selected the answers "I took part in such training and I'm satisfied" or "I took part in such training and I'm dissatisfied" (1.9% per each answer). Those were the farmers who used agricultural farms with 2.01 to 5.00 ha AL and the owners of farms with 5.01 to 10.00 ha AL.

The respondents were also asked to assess their skills and proficiency in using the Internet. As for the question about the computer skills, they could choose from among the following answers: "very good", "good", "moderate" or "poor" (Table 3). The answer "other" defined a group of the respondents who had no experience in using the Internet, which may have resulted from reasons similar to those mentioned in the analysis concerning computer skills.

For most of the farm acreage groups, the persons who rated their computer skills as "very good" considered their experience and proficiency in using the Internet to

Table 2. Structure (%) of answers to the question: Do you need a computer skills training?
Tabela 2. Struktura (%) odpowiedzi na pytanie: Czy potrzebujesz szkolenia z zakresu obsługi komputera?

Answer Odpowiedź	Farms by area in ha AL Gospodarstwa wg powierzchni w ha UR					Total farms Gospodarstwa ogółem
	1.00–2.00	2.01–5.00	5.01–10.00	10.01–20.00	> 20.00	
Yes / Tak	26.7	20.8	32.8	16.0	12.5	25.0
Yes, but there are no such trainings in my neighbourhood Tak, ale w mojej okolicy nie ma szkoleń tego typu	6.7	8.3	23.4	24.0	25.0	17.5
I took part in such training and I am satisfied Uczestniczyłem (-am) w tego typu szkoleniu i jestem z niego zadowolony (-a)	0.0	2.1	1.6	0.0	0.0	1.9
I took part in such training and I am dissatisfied Uczestniczyłem (-am) w tego typu szkoleniu i nie jestem z niego zadowolony (-a)	0.0	4.2	1.6	0.0	0.0	1.9
No / Nie	66.6	64.6	40.6	60.0	62.5	53.7

Source: Author's study
Źródło: Badania własne

Table 3. Structure (%) of answers to the question: How do you rate your skills in using the Internet?
Tabela 3. Struktura odpowiedzi (%) na pytanie: Jak oceniasz swoje umiejętności w zakresie korzystania z Internetu?

Answer Odpowiedź	Farms by area in ha AL Gospodarstwa wg powierzchni w ha UR					Total farms Gospodarstwa ogółem
	1.00–2.00	2.01–5.00	5.01–10.00	10.01–20.00	> 20.00	
Very good Bardzo dobrze	6.8	4.2	6.3	8.0	12.5	6.3
Good Dobrze	26.6	12.5	18.8	24.0	25.0	18.8
Moderate Średnio	26.6	25.0	34.4	36.0	37.5	31.3
Poor Słabo	13.3	16.7	23.4	16.0	0.0	18.1
Other Inne	26.6	41.6	17.1	16.0	25.0	25.5

Source: Author's study
Źródło: Badania własne

be at the same level (Tables 1 and 3). The only exception was the group of people running farms with 5.01 to 10.00 ha AL in which the proportion of the respondents who declared possessing very good computer skills was larger than that of those who rated their skills in using the Internet as very good.

What is important is that the answer "other" appeared in all the groups, which means that each of them included persons having no experience in using the Internet. Comparison of the proportions of respondents who selected the answer "other", shown in Tables 1 and 3, indicates that some of the farmers with certain computer skills were unable to use the Internet even at an elementary level.

The group of farmers running the largest farms rated their skills in using the Internet the highest: in total, 37.5% of them chose the answer "very good" or "good", compared to 33.4% of the respondents using the smallest farms, and 32.0% of those having farms with 10.01 to 20.00 ha AL.

In order to evaluate the relationship between the size of an agricultural farm, expressed as the area of agricultural land in hectares, and the level of skills in using the Internet, the coefficient of correlation between the two characteristics was calculated (to compute the correlation coefficient, the answers to the question about the skills in using the Internet were assigned numbers from 4 for "very good" to 0 for "other"). The correlation coefficient assumed a value of 0.18, which indicates a weak positive relationship (non-significant; $\alpha = 0.05$). Hence, the Internet skills of the study population appeared not to depend on farm size.

To gain supplementary information on farmers' skills in using the Internet, the respondents were asked to indicate their training needs (Table 4). Although the proportion of farmers who declared a lack of experience in using the Internet was larger as compared to that of persons lacking computer skills (answer "other" in Tables 1 and 3), more respondents answered "No" to the question about their need to undergo training in using the Internet (60.0%) than they did in the case of a similar question concerning computer skills (53.8%). This suggests that the Internet skills and the needs for training in this field are less important to the respondents than the computer skills and training are. This may be caused by their unawareness of the functions offered by the Internet (for example, fast access to the information about new sources of funding, about new production technologies, or about new trends on the market), on the one hand, and the readiness to use a computer, on the other. It should be remembered that the answer "No" could have also been given by the persons whose knowledge and skills in using the Internet were so well developed that they did not require any training.

The needs for training in the use of the Internet were not covered for nearly half of the producers running farms with 5.01 to 10.00 AL: the answers "Yes" and "Yes, but there are no such trainings in my neighbourhood" were selected by 46.9% of those respondents in total (25.0% and 21.9%, respectively). This group was followed by the owners of farms with 10.01 to 20.00 ha AL: the two positive answers together were selected by 40.0% of them. The group of largest farmers appeared to be the least interested in participating in the Internet-related trainings (25.0% of positive answers in total). Only two persons from the study group declared having taken part in that type of trainings in the past; of those, one was satisfied with the results of the training, and the other one was dissatisfied.

The last issue discussed in this paper is the use of computer software on agricultural farms. The respondents were provided with a list of various types of software that could be used while conducting agricultural activity, and were asked to indicate the software they would use. Most of the farmers did not choose any item from the list; only one-fourth of the study group declared the use of that type of software. Among the latter, those running the largest farms were the most active in this respect (half of them used such software), whereas the owners of farms with 2.01 to 5.00 ha AL were the least active (18.8%).

The software used the most frequently by the surveyed farmers was Office Suite, which may be attributed to the fact that its solutions are the most universal, readily available, and relatively easy to learn (Table 5). The respondents running the largest farms, the farms with 2.01 to 5.00 ha AL, and those with 5.01 to 10.00 ha AL used also accounting software. A few farmers running farms with above 2.01 ha AL used nutrition software or other software adjusted specifically to the needs of an agricultural farm.

Table 4. Structure (%) of answers to the question: Do you need an Internet skills training?
Tabela 4. Struktura (%) odpowiedzi na pytanie: Czy potrzebujesz szkolenia z zakresu obsługi Internetu?

Answer Odpowiedź	Farms by area in ha AL Gospodarstwa wg powierzchni w ha UR					Total farms Gospodarstwa ogółem
	1.00–2.00	2.01–5.00	5.01–10.00	10.01–20.00	> 20.00	
Yes / Tak	26.7	27.1	25.0	16.0	12.5	23.8
Yes, but there are no such trainings in my neighbourhood Tak, ale w mojej okolicy nie ma szkoleń tego typu	6.7	4.2	21.9	24.0	12.5	15.0
I took part in such training and I am satisfied Uczestniczyłem (-am) w tego typu szkoleniu i jestem z niego zadowolony (-a)	0.0	0.0	1.6	0.0	0.0	0.6
I took part in such training and I am dissatisfied Uczestniczyłem (-am) w tego typu szkoleniu i nie jestem z niego zadowolony (-a)	0.0	2.1	0.0	0.0	0.0	0.6
No / Nie	66.6	66.6	51.5	60.0	75.0	60.0

Source: Author's study
Źródło: Badania własne

Table 5. Percentage of respondents using various types of computer software (only those who actually used software were considered)
Tabela 5. Odsetek respondentów korzystających z różnych programów komputerowych (wzięto pod uwagę tylko osoby rzeczywiście ich używające)

Type of software Rodzaj programu	Farms by area in ha AL Gospodarstwa wg powierzchni w ha UR					Total farms Gospodarstwa ogółem
	1.00–2.00	2.01–5.00	5.01–10.00	10.01–20.00	> 20.00	
Office Suite Pakiet Office (Word, Excel, PowerPoint)	100.0	88.9	61.1	71.4	75.0	73.2
Accounting software Programy rachunkowo-księgowe	0.0	11.1	22.2	0.0	50.0	17.1
Nutrition software Programy żywieniowe	0.0	22.2	16.7	14.3	0.0	14.6
Software dedicated to agricultural farms Programy przygotowane dla gospodarstw rolnych	0.0	22.2	11.1	14.3	25.0	14.6
Other Inne	0.0	0.0	5.6	0.0	0.0	2.4

Note: The percentages do not always add up to 100% because respondents could choose more than one category.
Uwaga: Wartości procentowe nie zawsze sumują się do 100%, ponieważ respondenci mogli wskazać więcej niż jedną kategorię.

Source: Author's study
Źródło: Badania własne

Summary and conclusions

The survey revealed considerable differences among the respondents in the assessment of their skills in using computers and the Internet and their need to improve such skills. A part of the farmers shows interest in new solutions and is perfectly capable of effectively employing modern tools that support production on an agricultural farm. At the same time, persons with poorer skills and experience in this respect are interested in developing their competences. Since the average age of a farmer taking part in the research was 47 years, it is not surprising that such persons would hardly be inclined to start or continue their education. Besides, the older a person in need of training, the lower his/her interest in taking part in such training. What is important here is that inadequate computer and Internet skills could cause problems in the future as the existing computer and Internet solutions evolve fast, and with time become more and more sophisticated.

No statistically significant relationships were found between the size of a farm and the computer or Internet skills. This result prompts worries, especially in the situation of growing competition on the agricultural market. The larger entities should be more prone to take advantage of leading-edge solutions which would not only accelerate the information-acquisition and -processing works, but also lower their costs.

The survey showed that only one-fourth of the farmers use computer software while running their agricultural activity, and the vast majority of them do not employ it. Supposedly, a part of the farmers is not aware how important the use of such tools is for achieving improvement in the efficiency and rate of work. On the other hand, some of the farmers do not have a possibility, knowledge or skills to use computer software.

It should be mentioned that the group of respondents for the survey was selected in such a way as to serve the purpose of the research (persons who took part in trainings, which implied that they wished to learn and develop their skills in certain fields). Nevertheless, the study found that the level of skills in using modern information technologies on farms in the Małopolskie Voivodeship remains low, so further trainings in this respect are necessary.

References

Agency for Restructuring and Modernisation of Agriculture (ARMA). (2014). *Średnia powierzchnia gospodarstwa*. Ogłoszenie Prezesa Agencji Restrukturyzacji i Modernizacji Rolnictwa z dnia 17 września 2014 r. w sprawie wielkości średniej powierzchni gruntów rolnych w gospodarstwie rolnym w poszczególnych województwach oraz średniej powierzchni gruntów rolnych w gospodarstwie rolnym w kraju w 2014 roku [*Average Area of a Farm*. Announcement of the President of the Agency for Restructuring and Modernisation of Agriculture of 17 September 2014 on the Average Area of Agricultural Land in an Agricultural Farm in Individual Voivodeships, and the Average Area of Agricultural Land in an Agricultural Farm in the Country in 2014]. Retrieved from: http://www.arimr.gov.pl/dla-beneficjenta/srednia-powierzchniagospodarstwa.html

Aker, J.C. (2011). Dial "A" for agriculture: Using information and communication technologies for agricultural extension in developing countries. *Agricultural Economics*, *42*(6), 631–734. doi: 10.1111/j.1574-0862.2011.00545.x

Batorski, D. (2009). Wykluczenie cyfrowe w Polsce. Społeczeństwo informacyjne [E-exclusion in Poland. Information society]. *Studia BAS*, *3*(19), 223–224.

Matysiak-Błaszczyk, A., Słupska, K. (2013). Wybrane problemy społeczne środowisk wiejskich (ze szczególnym uwzględnieniem kwestii edukacji młodego pokolenia wsi) [Selected social problems of rural areas (with special emphasis on the education of the young generation). *Studia Edukacyjne*, 25, 171–193.

Matysik-Pejas, R., Wojewodzic, T. (2009). Rola kanałów przepływu informacji w marketingu terytorialnym [The role of information channels in territorial marketing]. *Acta Scientiarum Polonorum. Oeconomia*, *8*(3), 78.

Sawicka, J. (2010). Internet jako instrument wspierania rozwoju przedsiębiorczości na obszarach wiejskich – teoria i praktyka [Internet as an instrument of support for the development of entrepreneurship in rural areas – Theory and practice]. *Acta Scientiarum Polonorum. Oeconomia*, *9*(1), 97–98.

Szafrańska, M., Matysik-Pejas, R. (2010). Rozliczenia bezgotówkowe MSP z sektora agrobiznesu [Non-cash settlements of SMEs from the agribusiness sector]. *Zeszyty Naukowe SGGW – Ekonomika i Organizacja Gospodarki Żywnościowej* [*Scientific Journal of Warsaw University of Life Sciences – Economics and Organisation of Agri-Food Sector*], 85, 120–121.

Wójcik-Żołądek, M. (2012). Ubóstwo i wykluczenie społeczne w Polsce [Poverty and social exclusion in Poland]. *INFOS Zagadnienia społeczno-gospodarcze* [*INFOS Socio-Economic Issues*], *4*(118), 1–4. Retrieved from: www.ceeol.com/aspx/getdocument.aspx?logid=5&id=154ee44994984663a94c08dfd97d0bb0

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