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## HENRYK RUNOWSKI\*, PAULINA KRAMARZ\*\*

\*Warsaw University of Life Sciences – SGGW, Poland \*\*State Vocational University in Ciechanów, Poland

# THE PERCEPTION OF POLISH AGRICULTURE BY FOOD CONSUMERS

Key words: agriculture, information, trust-building, farmers, consumers

ABSTRACT. The aim of the study was to determine the factors determining the perception of Polish agriculture by food consumers. With intensive changes in the methods of agricultural production, the progressive digitalization of agriculture, more and more frequent discussion of the issue of social responsibility of agriculture (in the context of caring about the condition of the natural environment or ensuring the welfare of farm animals), streams of much, often contradictory, information appearing in the media make some consumers unable to express their opinions on the condition of Polish agriculture unequivocally. The research has shown that factors such as trust, the state of knowledge or feeling of being properly informed about the course of agricultural production have a clear influence on the formation of a consumer's positive or negative attitude towards Polish agriculture, as well as on the assessment of its modernity. The key in shaping respondent opinions turned out to be the possession of information and the inclination to obtain it.

## INTRODUCTION

Changes in agriculture, taking place along with general socio-economic development, have ensured a prominent increase in agricultural production [Runowski 2014]. At the same time, they have caused an increased, generally unfavourable, impact of agriculture on the environment and animal welfare. Parallel to this process, the awareness of these adverse effects has increased among food consumers. This has made them more and more interested not only in the consumption of high-quality food products, but also in reducing the adverse impact of agriculture and other sectors of the economy on the natural environment, including its biodiversity, or counteracting climate change. The ecological awareness of consumers and their sensitivity to the conditions of keeping and handling farm animals is systematically increasing.

Contemporary agricultural production processes are often subject to criticism in mass media, scientific debates and discussions among consumers [Birner 2012]. It concerns the directions of structural changes in agriculture and the evolution of production systems, the progressing concentration and industrialisation of agricultural production processes, the state of food safety and food security, their impact on the environment and animal welfare, or climate change. Structural changes in agriculture were often accompanied by changes in the spatial organisation of production and changes in applied plant and animal production technologies in connection with specialisation and intensification processes and the automation and robotisation of technological processes in agriculture. The use of genetic engineering achievements and digital technologies in agriculture is becoming increasingly frequent and raises both hopes and concerns. All this takes place in conditions of growing competition on global markets of agricultural products, which additionally increases pressure on the growth of production concentration and productivity in agriculture.

These changes are causing concern on the part of consumers, particularly in view of their lack of information on the conditions and course of production processes in agriculture, particularly in livestock production. The ethical sensitivity of consumers is increasing. Their interest in the conditions of keeping and handling animals is increasing [Poland 2020].

In highly developed countries, studies on the food consumers' perception of agriculture have been conducted for many years [Bitkom 2015]. In Poland these are less advanced so far. However, consumer interest in agricultural issues is systematically growing and this, in turn, translates into the level of food consumer trust in farmers and agriculture. Trust is a fundamental component of social life [Sztompka 2002, Sztompka 2007, Domański 2009]. It is conducive to the reduction of transaction costs, i.e., costs of control, the procedure of contracts without the need to use legal procedures [Mularska-Kucharek 2011]. Trust also increases the sense of security and comfort in life. Trust stimulates learning processes by generating social ties that constitute informal communication channels, expanding the scope of perceived responsibility or enlarging the area of potential learning opportunities [Paliszkiewicz 2014] and helps people overcome the uncertainty gap in relation to other people, organisations or brands [Breunig, Ermann 2017]. It plays an important role in various areas of socio-economic life, including agriculture. Due to the development of new agricultural production technologies and ongoing processes of intensification, new problems and threats have emerged, especially of environmental and health, but also ethical nature [Majewski 2008, Runowski 2004]. Climate changes, environmental degradation, increasing competition of non-agricultural sectors for land and water, increasing long-term prices of energy and other industrial inputs, as well as the high costs of implementing innovations, or climatic disasters and livestock diseases occurring from time to time, have caused an increase in risk and uncertainty in agriculture and food trade. The consequence of these phenomena are problems connected with maintaining consumer confidence in farmers, agriculture and food.

In view of the occurring developmental conditions, it has become purposeful to recognize the current perception of Polish agriculture by food consumers and the state of consumer trust in farmers and agriculture, as well as to get to know their opinions within the scope of their knowledge on the ways of agricultural production, animal welfare and the technology of production of particular agricultural products.

## MATERIALS AND METHODOLOGY OF RESEARCH

The aim of the study was to determine the way Polish agriculture is perceived by food consumers from the perspective of its modernity and the degree of trust in farmers and agriculture expressed by them, as well as to indicate selected determinants shaping this trust.

The survey, among food consumers, was carried out using a survey questionnaire available online in March 2021. The choice of this route to elicit the views and opinions of food consumers was determined by the state of the COVID-19 outbreak, which prevented face-to-face interviews with respondents. This means that the survey mainly involved people who perceive the Internet as a leading source of information, i.e., younger and better educated people. The survey was carried out on a group of 117 respondents. Among the respondents, mainly people under 30 years of age (respondents in the age group 18-30 constituted in total 83% of the surveyed group), almost 60% declared higher education. In the course of the questionnaire survey, the respondents presented their own perception of modernity of Polish agriculture, their assessment of the level of trust in farmers and agriculture, as well as the manner and scope of informing them as food consumers about the course of agricultural production processes with particular emphasis on production methods, the conditions of keeping and handling animals (animal welfare) and technologies of producing individual agricultural products at a farm level.

The analysis of research results was conducted in the group of all respondents and in sub-groups separated due to the respondents' perception of the level of modernity of Polish agriculture and the level of trust in farmers and agriculture declared by the respondents. The results of the research were presented using tabular statistics.

## RESULTS

The research shows that only 1/3 of the people taking part in the research considered Polish agriculture to be modern (Table 1). In the opinion of 37.60% of respondents, Polish agriculture does not have modern features and 29% of respondents had no opinion on this issue. Polish agriculture was definitely more commonly perceived to be modern by people living in rural areas than in urban areas (46.15% of rural residents, against 26.92% of urban residents). The perception of modernity of Polish agriculture also differed depending on

Specification	In your opinion, can Polish agriculture be considered modern? [% of answers given]		
	yes	no	no opinion
Total respondent group	33.33	37.60	29.00
Respondents living in rural areas	46.15	30.77	23.08
Respondents living in cities	26.92	41.03	32.05
Respondents with a secondary education	40.42	31.91	27.66
Respondents with a higher education	28.57	41.43	30.00

Table 1. The perception of modernity of Polish agriculture by respondents in the surveyed
group in general and depending on the place of residence and level of education

Source: own elaboration

the education of respondents. Modernity was attributed to Polish agriculture by 40.42% of respondents with a secondary education and 28.57% of those with a higher education.

In comparison to evaluations from the previous period, there has been an improvement in the image of Polish agriculture from the point of view of its modernity. For example, a survey conducted in 2002 by the Public Opinion Research Centre (CBOS) revealed a critical assessment of Polish agriculture in terms of its modernity. At that time, as many as 52% of respondents assessed Polish agriculture as backward and inefficient. Respondents linked the chances of overcoming the problems of agriculture and the possibilities of its modernisation to European Union accession - 46% of respondents were of the opinion that Polish agriculture will benefit from integration with the EU. Negative opinions on the state and future of Polish agriculture were more frequent among people with a higher education, city dwellers, pupils and students [CBOS 2002]. Since then, the perception of the situation of Polish agriculture has been changing, and intensely progressing globalisation processes and technological progress create new perspectives for its development. In research conducted by the BST Group and EU-Consult in 2020, the assessment of Polish agriculture seems to be relatively better. Polish agriculture was assessed as backward by 20% of respondents, while 41% admitted that it is modern [MRiRW 2020]. By comparison, in Germany two thirds of consumers expressed a positive attitude towards German agriculture. Good quality and product safety are highly valued. Only 6.5% of respondents expressed a negative opinion on German agriculture, citing arguments such as low production and supply of organic food, low quality and food scandals that appear from time to time [Runowski 2022].

Specification	Total [%]	Can Polish agriculture be considered mode [% of answers given]			
		yes	no	no opinion	
Do you have confidence in farmers and agriculture?					
Yes	49.57	71.79	34.09	44.12	
No	29.06	17.95	43.18	23.53	
I have no opinion	21.37	10.26	22.73	32.35	
Do you have a positive attitude towards Polish agriculture?					
Yes	55.56	74.36	47.73	44.12	
No	20.51	17.95	29.55	11.76	
I have no opinion	23.93	7.69	22.72	44.12	
Do you have sufficient knowledge about agricultural production methods?					
Yes	20.51	30.77	22.73	5.88	
No	68.38	61.54	68.18	76.47	
I have no opinion	11.11	7.69	9.09	17.65	

Table 2. The perception of modernity of Polish agriculture and the level of confidence and knowledge of respondents on the methods of agricultural production

Source: own elaboration

Own research shows that people perceiving Polish agriculture as modern simultaneously declared trust in farmers and agriculture to a high degree, almost 72% of them expressed such a view (Table 2). In the group of respondents, in general, such an opinion was expressed by half (49.57%) of those participating in the study. Among respondents who stated that Polish agriculture is not modern, trust in farmers and agriculture was confirmed by 34.09%. Those, in turn, who did not declare trust in farmers and agriculture constituted 43.18% of all respondents. This means that the perception of the level of modernity of agriculture translates into a declared level of trust in farmers and agriculture. Among people who did not have an opinion on the modernity of agriculture, trust in farmers and agriculture was confirmed by 44.12% and a lack of trust by 23.52% of respondents.

A positive attitude towards Polish agriculture was confirmed by more than half of the respondents (55.56%). One in five respondents had an opposing opinion and nearly one in four respondents did not have a clear opinion. A positive relation was found between the perception of modernity of Polish agriculture and the declared attitude towards it. Almost 75% of respondents assessing agriculture as modern declared a positive attitude towards Polish agriculture. In the group considering it as non-modern, the frequency of such indications was lower (at the level of 47.73%). This means that almost every second

person who considers Polish agriculture to be non-modern declares a positive attitude towards it. Similarly, people who did not have an opinion on the modernity of Polish agriculture most often had positive attitudes towards this sector (44.12%) or remained neutral (44.12%).

The attitude towards Polish agriculture may have resulted from the respondents' level of knowledge on agricultural production methods. The self-assessment of respondents on the level of knowledge in this field, which results from the survey, is quite low. Only 20.51% of respondents participating in the survey assessed their knowledge of agricultural production technology as sufficient. 68.38% of respondents were convinced they do not have such knowledge.

The same research shows that very low assessments of their knowledge in this area were made by those who did not tend to seek information on the course of processes related to agricultural production. Among such respondents, only 8.82% declared having sufficient knowledge about agricultural production methods. It should be noted that both in the group seeking and not seeking information about agricultural production methods, the percentage of people assessing their knowledge as insufficient was similar and amounted to about 70%. This may mean that the information available to consumers is insufficient to obtain a full picture of the phenomena related to agricultural activities. People assessing their knowledge as sufficient declared that they mainly get information from such sources as the Internet (87.50%), TV programmes (50%) and training (45.83%). The popularity of the Internet was, in the case of this group, higher than among the respondents in general, where the Internet was indicated by 67.52% of the respondents. Also, trainings were less popular (22.22%), while TV programmes were more popular (44.44%). These data allow us to draw the conclusion about the special role of the Internet in disseminating information on the functioning of the agricultural sector and agricultural holdings. In the group of people claiming that they do not have enough knowledge or are not able to assess it unambiguously, the percentage of indications of the Internet as a source of knowledge was at a level of 62.37%. Lower than among the respondents in general was also the percentage of people participating in trainings (16.13%).

As many as 62.39% of respondents declared they would like to have online access to information about farms and their agricultural production. Slightly more than 60% of respondents would expect the possibility to observe livestock using IT technologies, and more than half (52.14%) would expect the possibility to observe agrotechnical procedures performed on fields using cameras [Kramarz, Runowski 2021]. Access to information by consumers is conducive not only to increasing their knowledge or ability to make more rational purchase decisions, but also translates into the level of their confidence in farmers and agriculture. This is confirmed by the research results presented in Table 3.

Respondents who are inclined to seek information on agricultural production methods in 54.22% stated that they trust agriculture and farmers and in 36.14% that they consider

Specification	Total [%]	Groups of respondents divided by trust in farmers and agriculture [% of answers given]			
		holding trust	not holding trust	no opinion on trust	
Do you feel that	Do you feel that you are properly informed about agricultural production methods?				
Yes	20.52	27.59	8.83	20.00	
No	46.15	41.38	55.88	44.00	
No opinion	33.33	31.03	35.29	36.00	
Do you think you are properly informed about livestock conditions (animal welfare)?					
Yes	19.66	25.86	14.71	12.00	
No	57.26	46.55	67.65	68.00	
I have no opinion	23.08	27.59	17.64	20.00	
Do you feel that you are adequately informed about the production technologies of different agricultural commodities?					
Yes	20.51	27.59	11.76	16.00	
No	65.81	58.62	79.41	64.00	
No opinion	13.68	13.79	8.82	20.00	
Are you interested in "insights" into agricultural work via social media?					
Yes	53.85	46.55	67.65	52.00	
No	27.35	27.59	23.53	32.00	
No opinion	18.80	25.86	8.82	16.00	

Table 3. The assessment of trust in farmers and agriculture vs. th	e feeling of being informed
about aspects of agricultural activity	

Source: own elaboration

Polish agriculture to be modern. Among the respondents not searching for information on the ways of agricultural production, their trust in agriculture and farmers was expressed by 38.24% and only one in four of them (26.47%) was convinced that Polish agriculture is modern.

The relationships between the respondents' trust in farmers and agriculture and the assessment in terms of their information about agricultural production methods, livestock living conditions (animal welfare) and technologies of production of individual agricultural commodities were interesting (Table 3). The study shows that there was a predominant belief among the respondents that they were inadequately informed about agricultural production methods, production technologies of individual agricultural commodities and livestock living conditions (animal welfare). Respondents overwhelmingly felt that they

were not properly informed about any of these three areas of agricultural management. The most frequently indicated was a lack of proper information on technology (ways) of producing individual agricultural articles (65.81% of respondents).

As far as the applied methods of agricultural production, welfare of farm animals and technology of production of individual agricultural articles are concerned, 46.15%, 57.26% and 65.81% of respondents considered themselves to be inadequately informed, respectively. This type of assessment was, at the same time, accompanied by a small percentage of respondents unable to assess whether they were properly informed or not, in terms of the technology of production of individual agricultural commodities (13.68% of respondents). This was lower by 20 and 10 percentage points, respectively, than in the case of respondents' opinions about informing them about the agricultural production methods used and informing them about animal living conditions (animal welfare). This may suggest that it is the aspect of farm functioning in terms of applied technologies for producing individual agricultural commodities, associated with their direct impact on food quality, that constitutes the most important motivation for seeking information on this subject. The second most important area in terms of misinformation turned out to be farm animal welfare. This is consistent with the observed trend of increasing concern for the proper treatment of animals on farms.

A similar direction of evaluations in terms of proper information about agricultural production methods occurred in all groups of respondents separated by the expressed degree of trust in farmers and agriculture, with the difference that the groups of respondents in which a lack of proper information was particularly strongly accentuated were respondents placing no trust in farmers and agriculture and respondents with no opinion on this issue.

In the group of people having no trust in farmers and agriculture, as many as 79.41% stated that they are not properly informed about technologies of production of particular agricultural commodities. More than 2/3 of respondents (67,65%) from the same group considered that they are not properly informed about livestock conditions (animal welfare) and more than half of respondents (55,88%) consider that they are not properly informed about agricultural production methods. The percentage of people assessing that they are properly informed about farming in relation to the three aspects of agricultural production mentioned above was very similar, but at a rather low level (20.52%, 19.66% and 20.51%, respectively). In the group of people with no confidence in agriculture, the highest percentage, but still low (14.71%), of those convinced that they were well informed, occurred with regard to their information on livestock welfare. This is another indication that may point to the need of receiving or a greater willingness of respondents to seek information among those distrustful of farmers and agriculture mainly in this area. On the other hand, among those with no opinion on trust in farmers and agriculture and those with no trust in this area, the highest scale of misinformation occurred in relation to the aspect of animal welfare (68.00%) and 67.65%, respectively). The obtained research results lead to the conclusion that a lack of proper information can effectively reduce the level of food consumers' trust in farmers and agriculture [Balkrishna, Deshmukh 2017]. The results of a study conducted among German consumers lead to similar conclusions [Bitkom 2015].

The main source of acquired knowledge about agriculture was the Internet. It is noteworthy that more than half of respondents (53.85%) were interested in "insight" into agricultural work through social media and more than one in four of them declared no such need (27.35%). Significant progress in this area can be provided by the development of digitalization in agriculture [White et al. 2014, Balkrishna, Deshmukh 2017, Runowski 2020].

## CONCLUSIONS

The formation of consumer opinion on agriculture is a complex process. In their perception of the course of agricultural production processes, consumers combine knowledge of the technological aspects of production, emotional considerations related to their feeling of concern for the welfare of animals and the state of the natural environment, and care for ensuring access to food of the highest quality and safety. At the same time, the multiplicity of information imposed on consumers by the media and changing trends may make it difficult for them to make fully rational, knowledge-based judgments. This may happen especially in the case of consumers who are not inclined to seek information on their own about the course of agricultural production processes.

During the questionnaire study, the respondents presented their perception of modernity of Polish agriculture, their assessment of the level of trust in farmers and agriculture, as well as the manner and scope of informing them as food consumers about the course of agricultural production processes. The study shows that a positive attitude to Polish agriculture was confirmed by more than half of the respondents. Every fifth respondent was of an opposing opinion and every fourth respondent had no clear opinion on the matter. Only 1/3 of those taking part in the study considered Polish agriculture to be modern. Polish agriculture was definitely more often perceived as modern by people living in rural than in urban areas (almost half the rural residents, compared to more than 1/4 of urban residents). The level of assessment of the modernity of Polish agriculture may be influenced by the respondents' knowledge of it, which was relatively low. Only one in five of those taking part in the study assessed their knowledge of agricultural production as sufficient. A very low level of their knowledge in this scope was perceived by people who did not tend to search for information on the course of processes connected with agricultural production. This may mean that the information available to consumers is insufficient for obtaining a full picture of the phenomena related to agricultural activity. The amount of information available is one of the determinants shaping the level of food consumers' trust in farmers and agriculture. It is confirmed by occurring relations

between respondents' trust in farmers and agriculture and their evaluation in the scope of their information on agricultural production methods, animal welfare conditions and technologies of producing particular agricultural products. The study shows that there was a dominant certainty among the respondents that they were insufficiently informed about the mentioned aspects of agricultural management. A key factor in shaping the respondents' opinion on agriculture is the possession of information and the inclination to obtain it. It should be stressed that the food consumer's opinions about farmers and agriculture presented by them may be due to insufficient consumer knowledge about the principle and basics of farming. Reducing occurring knowledge gaps on this subject may take place through the development of digital technologies. The digitalization of agriculture and the resulting possibility to communicate with consumers in a fast, convenient and transparent way may facilitate building trust in the agricultural sector and become a proper tool for boosting their knowledge.

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## POSTRZEGANIE POLSKIEGO ROLNICTWA PRZEZ KONSUMENTÓW ŻYWNOŚCI

# Słowa kluczowe: rolnictwo, informacja, budowanie zaufania, rolnicy, konsumenci żywności

## ABSTRAKT

Celem badań było określenie czynników determinujących sposób postrzegania polskiego rolnictwa przez konsumentów żywności oraz wyrażanego przez nich stopnia zaufania do rolników i rolnictwa i determinant kształtujących to zaufanie. Badanie wśród konsumentów żywności przeprowadzono z wykorzystaniem kwestionariusza ankiety, udostępnionego online w marcu 2021 roku. Przy intensywnie zachodzących zmianach w sposobach produkcji rolnej, postępującej cyfryzacji rolnictwa, coraz częstszym podnoszeniu problematyki społecznej odpowiedzialności rolnictwa, strumienie wielu, często sprzecznych ze sobą informacji pojawiających się w mediach, powodują, że część konsumentów nie potrafi jednoznacznie wyrazić swojej opinii na temat stanu polskiego rolnictwa. Badania wykazały także, że czynniki, takie jak zaufanie, stan wiedzy i poczucie bycia właściwie informowanym na temat przebiegu produkcji rolnej mają wyraźny wpływ na ukształtowanie się pozytywnego lub negatywnego stosunku konsumentów do polskiego rolnictwa, a także na ocenę stopnia jego nowoczesności. Z przeprowadzonych badań wynika, że tylko 1/3 osób biorących udział w badaniu uznało polskie rolnictwo za nowoczesne. Kluczowe w kształtowaniu opinii respondentów okazało się posiadanie informacji i skłonność do ich pozyskiwania.

## AUTHORS

### HENRYK RUNOWSKI, PROF. DR HAB.

ORCID: 0000-0002-6150-1891 Warsaw University of Life Sciences – SGGW 166 Nowoursynowska St., 02-787 Warszawa, Poland e-mail: henryk\_runowski@sggw.edu.pl

## PAULINA KRAMARZ, PHD

ORCID: 0000-0002-6980-7158 State Vocational University in Ciechanów 9 Gabriela Narutowicza St., 06-400 Ciechanów, Poland e-mail: p-kramarz@wp.pl

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