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for **AGRIBUSINESS**
and **RURAL ECONOMY**

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Conference: 21–22 September 2020

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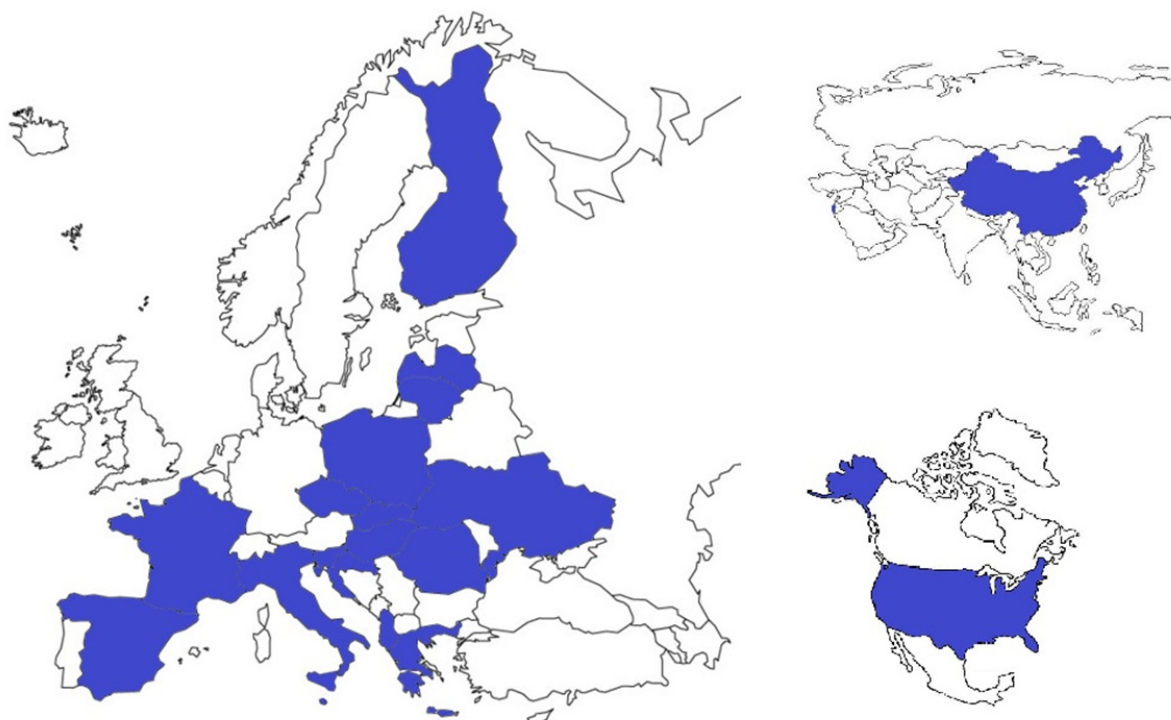
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Publication of Ethics and Malpractice Statement for the International Scientific Conference 'Economic Sciences for Agribusiness and Rural Economy'

While upholding the highest form of ethical correctness, the Editorial Board ensured that the authors included in the publication of the papers, adhered to the ethical standards established by the Programme Committee. Each author was obliged to sign and present an editorial statement on the originality of the paper, and not publish any part or the whole paper before. The statement prepared for the authors required indicating all authors of the submitted paper and confirming their contribution to the study submitted to the editorial staff. In addition, while ensuring the correct use of sources during the preparation of the paper, the authors confirmed the demonstration of all citations used in the paper. The entire publication was planned and prepared in accordance with the highest standards of: the European Charter for Researchers, ensuring compliance with ethical standards over national standards, Polish legislation, ensuring ethical standards for publishing at the national level of the editorial office and the publisher, as well as maintaining the highest ethical standards of the institution represented by the editors of the publication – the Institute of Economics and Finance (formerly: Faculty of Economic Sciences) of the Warsaw University of Life Sciences – SGGW. Under the leadership of the Editor-in-Chief, the entire editorial team, the scientific and organisational committee, as well as reviewers and authors applied the best practices in terms of their duties and ethics. All editorial staff members were introduced to the Code of Conduct and Best Practice Guidelines for Journal Editors of the Committee on Publication Ethics (COPE). In accordance with the COPE Code of Conduct and the Strategic Plan of 2016–2018 promoting integrity in research and its publication, a list of responsibilities and responsibilities were drawn up, necessary to meet the highest standards of ethical behaviour for all parties involved in the act of publication. The Scientific Council and the Editors were responsible for the high level of substantive content, a high rate of internationalisation of publications, implementation of good and better practices in the editorial process and maintaining the highest possible publishing standards.

DUTIES OF EDITORS

Publications decisions

The editorial responsibilities under the direction of the Editor-in-Chief varied depending on the stage of publication. The editors were responsible for maintaining high standards from the point of receiving the articles all the way through to the publication of the study. In mid-2017, the Editor-in-Chief, guided by the '*summum bonum*' of the planned publication, appointed experts with vast scientific and professional experience, as well as achievements in the international field. Thus, the appointed Scientific Council of the publication, consisted of the highest ranking experts for the planned thematic sections of the conference and publication at the same time. The Editors and the Organising Committee were appointed based on the experience of their members, knowledge and acquired skills. A diversity of views was ensured by the appointment of the Editorial Board, consisting of renowned experts from abroad, representing highly-rated scientific institutions. In the decision-making field, it was crucial to appoint reviewers to direct the papers submitted by the authors to the relevant substantive and recognised reviewers. The professionalism of scientists and their unblemished reputation were used as a guideline during the selection process. After obtaining two independent reviews at the discretion of the Editor-in-Chief, the decision on accepting or rejecting the submitted paper remained, however the scale of responsibility for this decision varied depending on the opinions issued by the reviewers. In special cases, the decision of the Editor-in-Chief was addressed to a third, independent review. The editors were responsible for deciding about the need for the author to introduce corrections. The decisions made were comprehensive, considering the fact that 131 papers were sent to the Editorial Office. Since the beginning of work on the publication, editors have been guided by the principles of ethics and responsibilities resulting from current legal requirements regarding such aspects as defamation, copyright infringement and plagiarism.

Fair play

The Editor-in-Chief asked for an assessment of papers based on their substantive content regardless of the origin of the author, the institution represented by them, race, sex, sexual orientation, religious beliefs, ethnicity, citizenship or political philosophy. Total impartiality also concerned the selection of reviewers as well as members of the Scientific Council, the Organising Committee and the Editorial Board. The development of the Fair Play principle can be found below in the Confidentiality section.

Confidentiality

The Editor-in-Chief and every member of the editorial office could not disclose any information about the submitted report to third parties. In order to maintain the highest standard of the Editor's decision, the submitted articles were sent directly to one person from the Editorial Office, which then removed the personal data of the authors before referral for review and further proceedings. Thus, only the Editor-in-Chief and a designated representative for personal data had knowledge of the personal data of the authors. The given report, with the personal data removed, was then submitted to the reviewers appointed by the Council, who possessed no knowledge about the authors of the paper and about each other. The results of the blind, double review were directed to the authors without the disclosure of the personal data of the reviewers.

Disclosure and conflicts of interest

The submitted papers are the intellectual property of the authors and co-authors before, during and after the publication. The members of the Editorial Staff and all persons related to publishing the publications have no right to use them under their own name. In the event of a possible conflict of interest, the Editor-in-Chief issued preventive orders to protect and place the good of the author of the paper above others.

DUTIES OF REVIEWERS

After the deletion of personal data of authors and co-authors, each submitted report was referred for a double, blind review. In situations of contradictory reviews, by decision of the Editor-in-Chief, the paper was sent for a 'super' third review. The editors' policy was to refer the paper to the reviewer from another institution and, if possible, from another city. Referral of the submitted paper to reviewers working in the same unit as the author was forbidden. It was seen as good practice to provide one reviewer for each paper, from a country other than that of the author's. In situations of the third 'super' review, it was the decision of the Editor-in-Chief that the final choice be made by outright experts in a given field, often awarded with an honorary doctorate.

Contribution to editorial decisions

The Editor-in-Chief made decisions about the acceptance or rejection of a paper on the basis of two professional, blind reviews. In some cases the authors also recommended that the paper should be corrected, with the aim of protecting the best interests of the authors of individual papers as well as the good of the entire publication.

Promptness

A professional computer system, the 'Online Journal System' was set up by the Editor-in-Chief prior to the planned work on the publication. This enabled each reviewer selected by the Editor to be granted a request for a review and receive information about the date of acceptance or rejection of the review, as well as a date for its completion. If it was impossible to complete the review within the time frame of the deadline set by the Editorial Board, the request was rejected and the decision required justification. The designated reviewer had 5 days to agree to the review and then 14 days for its implementation. In the case of a reviewer's request for an extension to the deadline, the Editor-in-Chief, taking into consideration the good of the author, decided to extend the deadline for the review to up to 21 days.

Confidentiality

The reviewers were informed of the necessity to maintain confidentiality in the reviewing process and all dissemination of information about the report was forbidden. The reviewer could not show or consult the paper with anyone other than the Editor-in-Chief or the person indicated by him.

Standards of objectivity

Each paper was subject to an unbiased and objective review. No personal criticism of the reviewer was allowed. Every opinion, either positive or negative, had to be supported by arguments concerning the content of the paper. In the case of an unsatisfactory justification, the reviewer was requested to elaborate upon his comments so as to prevent any reservations of the Editor with regard the content and opinion of the review.

Acknowledgement of sources

In the interests of the highest good of science and its creators, reviewers were required to identify situations in which parts of the paper were taken from other sources without this being mentioned by the authors. Any use of the work of other authors should be accompanied by appropriate quotations, which the authors were informed about when completing the statement prepared by the Editorial Board. The reviewer was obliged to draw the Editor's attention to significant similarity between the discussed paper and any other document or publication. It was seen as good practice to use the 'random' function in the database to draw a paper in a unbiased way, that would then be checked by the anti-plagiarism system.

Disclosure and conflict of interest

Each reviewer was obliged to immediately report any cases where the review could be related to the work of the reviewer, or give competitive advantage in any way associated with the reviewer or their work.

DUTIES OF AUTHORS

Reporting standards

All authors and co-authors were required to present original contents, not previously published in fragments or in their entirety. In the case of work based on own research, they were required to present in their research in detail, its time and place, justification for its implementation, and any successes and failures. In the case of a paper based on secondary research, all authors and co-authors were required to provide as detailed information as possible about the origin of the data, their availability and use. All work was required to be presented in detail, in a way that would allow other scientists to use it for the purposes of their future research. All dishonest practices were forbidden and it was part of the editors' and reviewers' responsibility to identify and remove them with the consequences. In projects whose author was a participant and the paper was completed due to the researcher's participation in it, they were obliged to present information about the project in the section of the paper dedicated for such a purpose.

Data access and retention

All authors who based their papers on their own research are required to store a database of such data for a period of at least 5 years from the date of publication of the paper. It is a good practice for the authors to make the database available for research and educational purposes at the request of governmental and non-governmental institutions.

Originality and plagiarism

The authors and co-authors attested the originality of their works in consideration of the protection of intellectual property, good name of science and editorial policy. The statement of originality of the paper, the quotation and presentation of any sources used in the creation of the work were provided in the bibliography together with the content of the paper and sent to the Editor. In addition, papers were selected in a random manner using the 'random' function and checked by a special anti-plagiarism program. Every effort was made to verify the presence of sources for citations and their correctness.

Multiple, redundant or concurrent publication

By submitting a paper to the Editorial Board of the conference 'Economic Sciences for Agribusiness and Rural Economy', the author and co-authors have stated that they have not published, and are not in the process of intending to send the same paper or any part of it to any other editorial office. Publication of a paper based on the same data is considered unethical by the editorial office and is unacceptable.

Acknowledgement of sources

The authors, by drawing on other publications and sources in their papers, were obliged to display their utmost diligence in ensuring the correct quotation of the works that they used to create their own papers. The use of various sources to create own work is the basis for the development of the world of science, which is why the entire editorial team has made every effort to prevent unethical behaviour. A specially prepared review sheet was used containing detailed questions about the correctness of citations and bibliography. Thus, all reviewers were obliged to do their utmost to verify all sources on this basis.

Authorship of the paper

The author who sent the paper was obliged to present all the people who contributed to the creation of the work and list them as co-authors. All co-authors had to sign a statement attached to the paper. The statement contained information about the requirement to list all those who significantly contributed to the creation of the paper and agreed to send it to our editorial staff. It was perceived as good editorial practice to send the collected reviews to both the authors and co-authors.

Hazards and human or animal subjects

In cases when research involved the use of chemical compounds, behaviours or equipment associated with a possible threat to the health or life of animals or people, the author was obliged to clearly identify this threat in the paper.

Disclosure and conflicts of interest

Financial support for creating a paper resulting from cooperation with or membership of a project group should be demonstrated in a specially prepared section of the paper. Regardless of any conflict of interest, the authors preparing the papers were obliged to present the full truth to prevent the spread of unethical behaviour in the world of science.

Fundamental errors in published works

In the case of finding any error, every author and co-author of the submitted and published paper is obliged to immediately contact the Editor-in-Chief in order to withdraw the publication and correct it. Editors also give third parties the right to report errors or any ambiguities in the published publication. Any information about a possible error has always been, is and will be considered with respect to the good of science.

Editor-in-Chief *Mariusz Maciejczak*

Foreword

Dear Readers,

This year, our conference was extraordinary. We have combined our annual 'Economic Sciences for Agribusiness and Rural Economy' conference with our distinguished partners from the Department of Bioeconomy and System Analysis – BIOECON from the Institute of Soil Cultivation, Fertilization and Soil Science – National Research Institute in Puławy, organising the 'Strategies for Bioeconomy in Central and Eastern Europe' meeting. This activity allowed us to expand the subject of the meeting with new topics, many interesting lectures and even more participants.

International Scientific Conference 'Economic Sciences for Agribusiness and Rural Economy' created for the third time a platform for the exchange of views of the scientific community with practitioners, both national and abroad, whose research interests focus on the contemporary needs of the economy. The main topic of the third edition of the conference were **challenges for the bioeconomy**, its strategic options for Poland and also for the countries of Central and Eastern Europe.

In the first plenary session entitled '**Sustainable agriculture for bio-based economy**' we had a great opportunity to listen lectures given by our distinguished guests from **Italy, Spain, Greece and Poland**. In the second plenary session entitled '**Strategies for bioeconomy in Poland and the CEE countries**', we had a great opportunity to listen to scientific papers prepared by distinguished guests from **France, Slovenia, Croatia and Greece**.

Papers were presented in five thematic sessions: State and deployment of bioeconomy in the CEE countries, Adaptation processes to climate change, Socio-economic aspects of local development, Sustainable agriculture for the bioeconomy, Sustainable production and consumption.

An integral part of the conference was a seminar on 21 September 2020 devoted to the discussion of young scientists. The seminar for young scientists is a continuation of the Polish National Scientific Conference '**Challenges of the modern economy from the perspective of young scientists**', which has been organized at our institute periodically since 2014.

This years, I have the impression of a well done job by raising an extremely important and timely topic. I am also proud of the involvement of PhD students and young scientists, who were involved both scientifically and organisationally in the event.

Ending up, I would like to emphasise that in **2023** our Institute of Economics and Finance (formerly: Faculty of Economic Sciences) will be celebrating its 70th anniversary, but right now I would like to cordially invite you to participate in this special edition of our conference '**Economic Sciences for Agribusiness and Rural Economy**'.

Yours faithfully
Mariusz Maciejczak

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PAPERS

SOURCES OF INFORMATION ON PRO-ECOLOGICAL BEHAVIOUR OF STUDENTS OF THE FACULTY OF ECONOMICS OF THE WULS-SGGW

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ABSTRACT

The research aimed to verify the sources of information used by students of the Faculty of Economics of the Warsaw University of Life Sciences – SGGW (WULS-SGGW) in shaping their ecological attitudes. The research issues have been reduced to answering the following questions: which sources of information on the desired pro-ecological behaviour were most often indicated by the respondents? and is there too much information on appropriate behaviour towards nature in the public space?. The survey technique was used in empirical research. The sample consisted of 119 students of all fields, levels, and forms of study at the Faculty of Economics of the WULS-SGGW. The research shows that this information was rather easily accessible to the respondents, and the main source was social media and Internet portals. In the opinion of the respondents, the analysed issues are not excessively exposed in the media, as evidenced by the limited traceability of pro-environmental campaigns.

Key words: pro-ecological behaviour, students, media, information sources

JEL codes: D83, Q56, Q57

INTRODUCTION

The terms 'ecology', 'ecological' and even 'eco' are very often used in public space, everyday language, market messages, and scientific publications. The subject of scientific research is most often ecological awareness, pro-environmental behaviour, and the relationship between these areas. One cannot forget what is also emphasized by *miechowska*, *Newerli-Guz* and *Kol* (2009) that the necessary condition for the existence of social consciousness is knowledge, without which it is impossible to talk about the

other components of this consciousness. It can take the form of information, scientific judgments, and views and opinions from various sources. The knowledge of the society is based on stereotypes related to the views, value systems, and beliefs of individual social groups and categories. Knowledge comes from both formal (school and academic education) and informal sources. Information sources supplement formal education and sometimes even replace it. The research of *Escher* and *Petrykowska* (2015) shows that it is not possible to improve the quality of the natural environment without proper environmental education. Often,

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research on environmental awareness emphasizes the role of reliable information (Patrzalek, 2017). Moreover, research conducted among students also shows insufficient ecological awareness resulting from the lack of knowledge (Bednarek-Gejo et al., 2012).

The premise for the implementation of this research was primarily the importance of the analysed problem and, unfortunately, a large discrepancy between knowledge and behaviour in the field of protection, care, and respect for the natural environment. In the literature, one can come across the view that cosmopolitan units, being more open to the world's problems, are more sensitive to nature and seek information on the possibility of its protection (Kenichi, Leungb and Huang, 2020). Young people, especially those who study, often exhibit cosmopolitan attitudes, which is particularly important in the case of concern for the environment, which is, or at least should be, global in nature. It might seem that in the era of universal access to the media and the high popularity of pro-environmental issues due to, *inter alia*, 'School strike for climate' or Greta Thunberg, there is more than enough information on the proper use of nature. However, various scientific studies emphasize that the demand for knowledge about human-nature interactions at the level of individuals and entire populations is still growing (Gaston et al., 2018). Ellen (1994) emphasizes that 'objective knowledge is only significantly related to committed recycling behaviours, whereas perceived knowledge is positively associated with committed recycling, source reduction, and political action behaviours'. Therefore, this article is devoted to verifying the sources of information on pro-ecological behaviour used by students of the Faculty of Economics of the Warsaw University of Life Sciences (WULS-SGGW) – a university with over 200 years of experience and traditions in the field of natural environment education.

MATERIALS AND METHODS

The research aimed to verify the sources of information used by students of the Faculty of Economic Sciences of the WULS-SGGW in shaping their environmental attitudes.

The following research problems were adopted in the research:

1. Which sources of information on the desired pro-ecological behaviour were most often indicated by the respondents?
2. Is there, in the opinion of the respondents, too much information on appropriate behaviour towards nature in the public space?

In the research, the diagnostic survey method was used, including participant observation and the survey technique. The questionnaire was prepared on the webankieta.pl platform and the link to it was shared during classes with students of the Faculty of Economics (formerly Economic Sciences) of the Warsaw University of Life Sciences – SGGW. The questionnaire was completed by students, who expressed such a desire, in their free time. The survey used closed-ended, scale, and open-ended questions. The group of respondents consisted of people from all fields of study at the faculty (economics, finance, and accounting, logistics, tourism and recreation, management), both forms and levels. The sheet was quite extensive and also included the issues of tourist and ecological behaviour, but these were the subject of analyses presented in other studies (Bali ska, Gabryjo czyk and Zawadka, 2019a, b). This study focuses on (yet unpublished) sources of information about environmental behaviour used by respondents. The research was conducted in 2019. 119 correctly completed questionnaires were obtained out of a total of approx. 3 thousand students, therefore the sampling error was 9% for the confidence level of 95%. Thus, due to the overall number of forms and students of all fields' different participation rates, research cannot be considered fully representative.

RESEARCH RESULTS AND DISCUSSION

The majority of the respondents were women (72.3% of the sample). Most of the respondents were residents of Warsaw (68.1%) or the surrounding area, i.e. the area up to 30 km from the capital (21.9%).

According to the respondents, information on pro-ecological behaviour is rather easily available (indicated by 52.1% of respondents) and easily accessible (21.0%). Individuals believe that such information

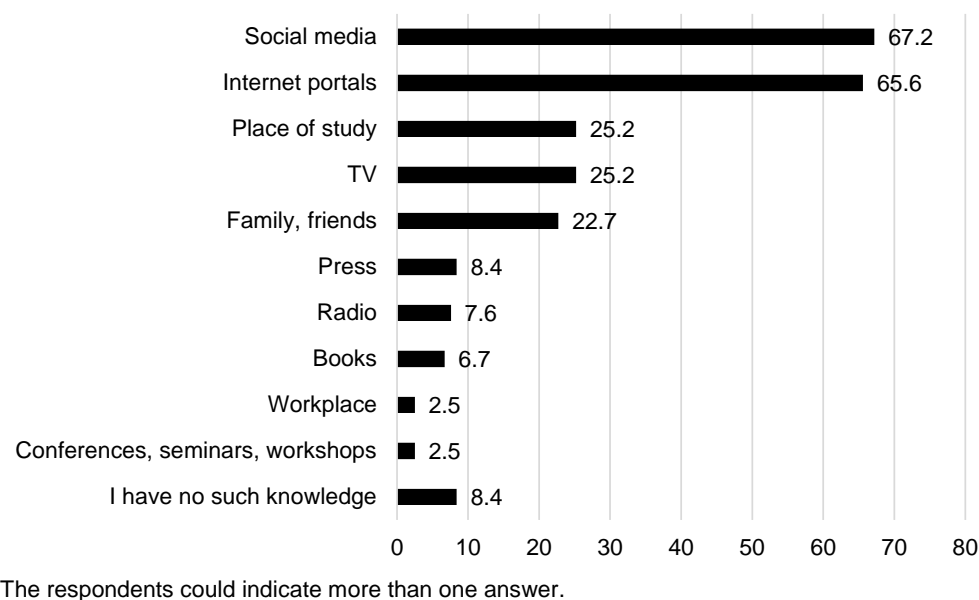


Figure 1. Sources of information on pro-ecological behaviour (%)

Source: own empirical research.

is difficult or very difficult to find (9.2%). The main research issues concern the sources of information used by respondents in this area (Fig. 1).

For the vast majority of respondents, the main source of information on pro-ecological behaviour were social media and Internet portals, and for every fourth respondent television and educational institutions. These results are partially confirmed in the report prepared by PBS Ltd. and BR Ltd. for the Ministry of Climate and Environment (Ministerstwo Klimatu i środowiska, 2020). They show that the main source of information for people aged 19–24 in 2020 was the Internet (for 90% of respondents), followed by: radio (38%), television (29%), press (23%), school/university (11%) family and friends (10%), books (3%) and general media (2%). Also, in the opinion of students from Olsztyn, it appears that the mass media (53.8%) had the greatest impact on shaping their attitude towards the natural environment, followed by the school (41.3%) and family (31.4%) (Szulborski, 2001).

In research conducted among young people from Bełchatów and its vicinity, one of the most polluted places in Poland, the broadly understood Internet

was the most frequently indicated source of information (indicated by 74% of respondents), followed by: social media (58%), own observations (56%), educational institutions (44%), mass media (38%), parents (28%), books (21%), influencers and eco-bloggers (18%), environmental organizations (18%), acquaintances and friends (17%) (O rodek Dział Ekologicznych ‘ródła’, 2019). The research by miechowska, Newerli-Guz and K kol (2009) also shows that the Internet is very popular as a source of information. However, according to consumers, the information posted on the Internet has different credibility, and such perception depends on the age of the respondents. Younger people (i.e. aged 19–30) perceive them as more reliable than people over 30. The research by Kuci ska (2009) also shows that the sources of pro-ecological information among young people are to a lesser extent educational institutions, and to a greater extent television, radio, the Internet, and the press.

The subject of environmental burdens and the need to care for the natural environment is very popular in the media. Therefore, it was verified whether this topic is too exploited. In the opinion of only 11.8% of

the surveyed students of the WULS-SGGW, this subject is excessively present in the media, and 13.5% of the respondents indicated that it may be so. The majority (52.9%) believed that it was not an over-exploited subject. Unfortunately, the knowledge of the campaigns promoting pro-ecological behaviour among the respondents from the Faculty of Economics the WULS-SGGW was low. Only 25.2% indicated that they had contact with such campaigns and WWF was most often mentioned in the open question (cited by 5.9%). The others were mentioned only by individuals and were, among others: 'earth hour', 'cleaning the world', 'Warsaw tap water', 'car-free day', 'park and drive', 'drink here without a straw', 'be a veg for 30 days'.

CONCLUSIONS

Shaping proper pro-ecological attitudes is possible thanks to access to information. In the case of young people, the main source of information, not only in the field of ecology, is the broadly understood Internet, including thematic portals and social media. The respondents do not feel overwhelmed by the excess of information on appropriate pro-ecological behaviour. The vast majority of them use the Internet, which is typical behaviour, confirmed in the results of other authors' research. However, it is worth noting that for every fourth respondent the university is one of the sources of information. In the opinion of the authors of this study, this indicator is distinctly too low, especially in a university with a leading agricultural profile, and the WULS-SGGW is, after all, such a university. Due to the importance of the analysed issues and the unfavourable environmental changes, it seems justified to strengthen the topics related to the possibilities of environmental protection in the study programs. However, it should be a systemic action. The analysis of the available literature also showed that this research topic was more popular at the beginning of this century. Currently, there is too little research on this subject, which is a pity, because due to the changing socio-economic situation, entering the market of new generations and the development of technology, research of this types should be carried out periodically.

The problem in the implementation of this research was a small research sample, which makes it impossible to formulate generalizations on all students in Poland. The research also allowed to obtain feedback on the research tool itself, which should be improved in case of repeating or expanding further studies.

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QUO VADIS ORGANIZATION OF THE FRUIT AND VEGETABLES MARKET IN POLAND? STATE OF ORGANIZATION OF THE POLISH FRUIT AND VEGETABLES MARKET

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ABSTRACT

The article aimed to present the state of the organization of the fruit and vegetable market in Poland in 2020. Based on a library query and available registers, changes in the number of producer groups and organizations, their members, and the selected organizational form and category of products offered in Poland in 2004–2020 were presented. After the introduction of legislative changes in 2012, limiting the co-financing of the market organization process, a chronic decrease in both the number of existing fruit and vegetable producer organizations and their members is noticeable. Such a long-term trend may lead to a decline in the market organization and bargaining power of domestic producers. To prevent further disintegration of producer groups and organizations, it is suggested that they should be provided with institutional support that would be long-lasting and stable.

Key words: fruit and vegetable market, integration, competitiveness

JEL codes: Q13, Q18, D2

INTRODUCTION

In Poland, groups and organizations of fruits and vegetables producers operate pursuant to the Act of 19 December 2003 on the organization of the fruit and vegetable markets and the hop market (Ustawa z dnia 19 grudnia 2003 r.). After Poland acceded to the European Union, Polish gardeners were included in the Common Agricultural Policy program aimed at reducing the differences between fruit and vegetable producers from various European Union countries. The desirability of horizontal integration of producers is justified by the need to increase competitive-

ness in the market, which is characterized by integration asymmetry. With a large agrarian fragmentation, producers have a weaker bargaining position to more closely integrated recipients, such as, for example, retail chains or processing plants. The process of the organization on the fruits and vegetables market was the goal of researchers' interests, therefore in 2011, the evaluation of the organization was presented by K. Krzyanowska, in 2013 by W. Sobczak, L. Jabłowska and D. Olewnicki, in 2014, Ł. Kopski and E. Czernyszewicz. The research conducted so far with A. Matuszczak concluded the observations of the integration process on the fruit and vegetable market

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in 2017. They showed that Polish gardeners dynamically started the process of organizing the fruit and vegetable market after the introduction, in 2007, of the Common Agricultural Policy program promoting the establishment of groups and organizations of fruits and vegetables producers in the countries of the so-called new union. However, after the introduction of legislative changes limiting the level of support, inhibition of this process was noted. This study aims to present, based on the literature on the subject and data from government agencies, the status of the organization of fruit and vegetable producers in Poland in 2020.

THEORETICAL BACKGROUND

Nowadays, there are two ways of developing one's competitiveness – functioning independently or together with others. In the conditions of globalization, the concept of independent operation of producers is experiencing a crisis. If the producer does not want to be a small local supplier, only the way of cooperation is promising. Building various relationships between market entities is conducive to creating competitive advantages and is a manifestation of striving to strengthen their competitiveness (Glabiszewski and Sudolska, 2009). Cooperation is an important factor influencing the development of the fruit and vegetable sector, which enables building sustainable competitive advantages. In the development strategy of Polish agriculture, an important place was assigned to activities related to horizontal integration, such as groups and organizations of fruit and vegetable producers, and vertical integration, resulting from the involvement of sector participants and the willingness to achieve common goals. Achieving the goal, especially in conditions of very strong competition, is possible only when using the potential of other enterprises as part of the implemented cooperation.

For several years, Polish producers of fruit and vegetables, using the instruments of the Common Agricultural Policy, have been integrating creating groups and producer organizations. The growing concentration and intensification of the market power of buyers motivated to develop integration processes on the part of suppliers. The distribution system in Poland has evolved and forced the supply side to change the standards of the

sales policy, forcing concentration among producers. Development and concentration among recipients still force changes on the part of producers, therefore, an important role in the development of cooperation between entities in the supply chain should be played by producer groups and organizations, their associations, and interbranch organizations. Glabiszewski and Sudolska (2009) note that building various links between an enterprise and other entities on the market is a sign of strengthening their competitiveness, and the market trends observed by them allow us to conclude that long-term and strategic cooperation to a large extent contributes to creating a competitive advantage. To increase competitiveness in the market, it is important to promote the idea of merging producers. To be successful, producers should offer higher, certified quality, produce local varieties using traditional methods, or use their branding (Guth, Bieniek-Majka and Maican, 2019). However, the economies of scale occurring in agricultural production are not without significance, as they enable larger entities to rationalize costs and a stronger bargaining position, and thus condition the possibility of obtaining larger, less risky income.

In many countries, farmers, seeing opportunities for themselves resulting from shortening the food supply chain by taking over the role of an intermediary, began to take various initiatives to improve their position. One of such initiatives is the cooperation of farmers within producer groups, consisting mainly in organizing joint sales of products produced on their farms (Kozłowska-Burdziak and Przygodzka, 2019). Unfortunately, as noted by Krzyanowska (2017), the weak point of Polish agriculture is the very low level of organization of producers into groups and organizations. Farmers produce good quality agricultural products and sell them most often to intermediaries who have mastered a large part of the market. Producers are in a losing position by selling in an unorganized way, including to processing plants and trading companies.

In many European countries, associations and organizations of garden professionals are a marker of the development of this market. For example, thanks to its well-organized and highly developed garden industry, Germany boasts some steadily growing

associations, which, importantly, often include representatives of supermarkets and independent garden centre owners. Compared to other European countries, Germany has an unusually large number of associations for professionals in specific market sectors. In the UK the horticultural industry is represented by several major organisations for high-caliber professionals (Fajerski, 2011). In Denmark, the very high (nearly 100%), economic organization of farmers has contributed to the dynamic development of agriculture. In France, on the other hand, cooperatives bring together about 90% of farmers. In the Netherlands, cooperatives are consolidated and also associate almost 100% of agricultural producers. It should be noted that in the Netherlands commodity exchanges operating in the form of cooperatives are very popular, which market 70–100% of products such as fruits and vegetables, milk, fish, ornamental plants, flower bulbs, flowers. Cooperatives in the Netherlands control more than 90% of the fruit and vegetable market, 80% of the milk market, and more than 50% of the grain market (Ciszewski, 2017).

The effect of aid activities as noted by Zielińska-Szczepkowska and Kisiel (2016) is that unions of agricultural producers and processors have become a permanent and socially acceptable element of the EU agrarian structure. They have significantly influenced its modernization, as well as developed various forms of production cooperation in agriculture.

MATERIALS AND METHODS

Based on a library query and data obtained from the Ministry of Agriculture and Rural Development and the Agency for Restructuring and Modernization of Agriculture, changes in the state of organization of the fruit and vegetable market in Poland after 2004 are presented in a graphical, tabular, and descriptive manner.

The choice of the research period was influenced by previous studies conducted by researchers in Poland (K. Krzyżanowska in 2011, W. Sobczak, L. Jabłońska and D. Olewnicki in 2013, Ł. Kopski and E. Czernyszewicz in 2014, M. Bieniek-Majka, A. Matuszczak in 2017) and the fact that in the current organizational and legal form fruit and vegetable producer groups and organizations in Poland have been functioning since 2004.

RESEARCH RESULTS AND DISCUSSION

During the period in question, the macroeconomic situation in Poland affecting the functioning of fruit and vegetable producer groups and organizations was relatively favourable. The value of GDP from year to year (excluding 2020, where the economic effects of the COVID-19 pandemic are preliminarily included in the national accounts) was increasing (Fig. 1). It should be noted that during the financial crisis period

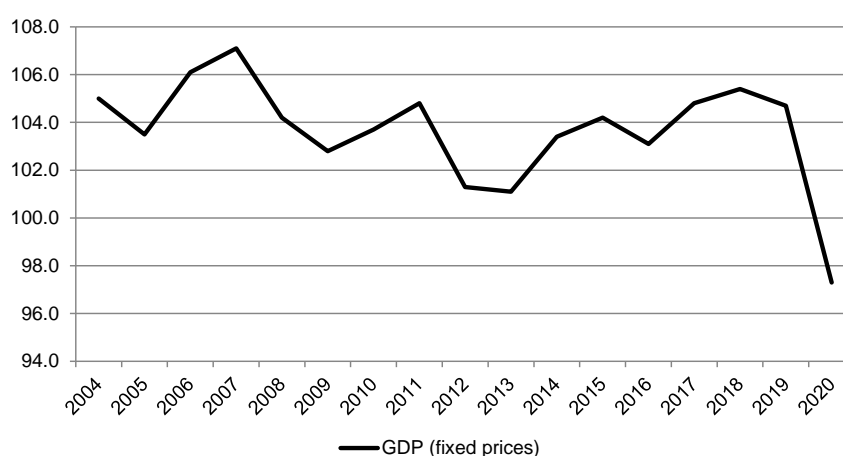


Figure 1. GDP in 2019–2020 (%)

Source: own study based on data of the Statistics Poland (GUS).

in 2007–2009 when there was a decrease in the dynamics of GDP growth, it was a period of dynamic development for the process of organizing the fruit and vegetable market in Poland (Fig. 2).

In Poland, under the Act of 19 December 2003, on the organization of the fruit and vegetable markets and the hop market. In 2004, groups and organizations of fruit and vegetables producers began to appear. Earlier, before Poland acceded to the EU structures, Polish gardeners could establish producer organizations under the Act of 15 September 2000, on agricultural producer groups and their associations, or the Act of 29 November 2000, on the organization of fruit and vegetable markets, hops, tobacco market and dried fodder market. However, it was only the inclusion of Polish farmers in CAP programs, and especially in those aimed at them directly that contributed to the popularization of this form of cooperation.

Stagnation of the integration process can be noticed since 2012, the year in which the European Commission introduced several changes in the rules for granting financial aid to fruit and vegetable producer groups, resulting in a limitation of the amount of aid received by newly established entities.

On 5 April 2012, the Commission Implementing Regulation (EU) 302/2012 entered into force concerning the fruit and vegetables and processed fruit and vegetables sectors, where the European Commission introduced restrictions on support for producer groups (Szalczyk, 2013). Legislative changes have been reflected in the behaviour of fruit and vegetable

producers, which can be seen in the data presented in Figure 2 or Table 1.

It is disturbing that the limitation of financial support is directly reflected in the existing and forecast number of functioning groups and organizations of producers of fruit and vegetables. You can push for the idea of organizing a market where there will be a small number of organizations associating many members, which we can see, for example, in the countries of Northern Europe, but as we can see, this does not apply in the Polish reality. As late as 2017, we could see an increase in the number of members with the decreasing number of existing groups and organizations (Table 2).

In 2020, however, only in the case of fruit and vegetable producers from the Mazowieckie and Pomorskie voivodeships we can see an increase in the number of members, with a decreasing number of producer groups and organizations. In other cases, both the number of producer groups and organizations and the number of members associated with them decreased.

The reduction in the number of members was also influenced by the dissolution of associations, i.e. the most numerous organizations of fruits and vegetables producers. As can be seen from the data presented in Table 3. Fruit and vegetable producers most often operate as a limited liability companies.

Analysing the data on the profile of activity of producer groups and organizations until 2017, it could be concluded that the diversification of the

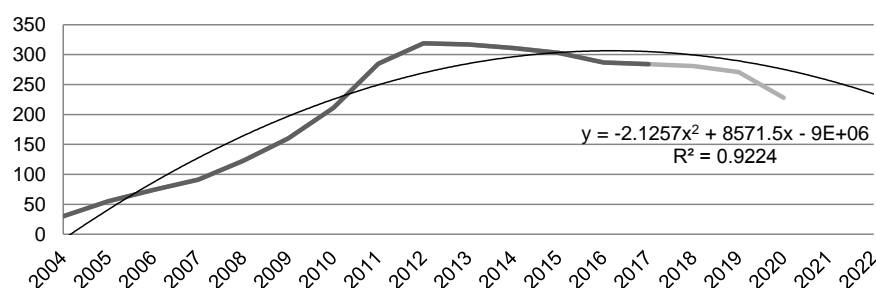


Figure 2. Number of producer groups and organizations in 2004–2020 with a forecast for the next five years based on the trend

Source: own study based on data of the Agency for Restructuring and Modernisation of Agriculture (ARiMR) and the Ministry of Agriculture and Rural Development (MRiRW).

Table 1. Number of producer groups and organizations by voivodship

Voivodship	Number of producer groups and organizations by year				
	2004	2011	2014	2017	2020
Mazowieckie	2	62	95	86	78
Wielkopolskie	8	35	46	46	29
Kujawsko-pomorskie	8	34	43	39	23
Lubelskie	9	25	34	29	24
Małopolskie	0	12	12	11	11
Łódzkie	1	15	20	18	17
wi tokrzyskie	0	9	16	14	11
Lubuskie	1	6	6	5	3
Pomorskie	0	6	11	7	7
Opolskie	0	4	6	5	5
Podlaskie	0	3	3	1	1
Podkarpackie	0	3	6	6	6
Dolno l skie	0	2	11	10	7
Warmi sko-mazurskie	1	2	2	2	2
l skie	0	2	5	4	3
Zachodniopomorskie	0	1	2	1	1
Total	30	221	318	284	228

2011 – as of 16.02.2011, 2014 – as of 05.05.2014, 2017 – as of 02.01.2018, 2020 – as of 24.07.2020.

Source: own study based on Krzy anowska (2011), Kopi ski and Czernyszewicz (2014) and and ARiMR (s.a.).

Table 2. Number of members associated with fruit and vegetable producer groups and organizations

Voivodship	Number of members			
	2004	2011	2017	2020
Mazowieckie	–	1 077	1 984	2 087
Wielkopolskie	–	901	760	502
Kujawsko-pomorskie	–	592	592	231
Lubelskie	–	877	1380	790
Małopolskie	–	801	445	372
Łódzkie	–	652	419	404
wi tokrzyskie	–	264	638	483
Lubuskie	–	62	48	17
Pomorskie	–	51	83	89
Opolskie	–	20	28	28
Podlaskie	–	10	6	6
Podkarpackie	–	94	135	132
Dolno l skie	–	6	58	43
Warmi sko-mazurski	–	10	10	10
l skie	–	10	23	17
Zachodniopomorskie	–	5	5	5
Total	1 155	5 432	6 614	5 216

2011 – as of 16.02.2011, 2014 – as of 05.05.2014, 2017 – as of 02.01.2018, 2020 – as of 24.07.2020.

Source: own study based on on Krzy anowska (2011), Kopi ski and Czernyszewicz (2014) and ARiMR (s.a.).

Table 3. Groups and organizations of fruit and vegetables producers according to legal forms

Legal forms	Number of producer groups and organizations			
	2011	2014	2017	2020
Limited liability company	168	267	234	189
Cooperative	23	24	23	20
Association	30	27	27	19
Total	221	318	284	228

2011 – as of 16.02.2011, 2014 – as of 05.05.2014, 2017 – as of 02.01.2018, 2020 – as of 24.07.2020.

Source: own study based on Krzyżanowska (2011), Kopyński and Czernyszewicz (2014) and ARiMR (s.a.).

offer facilitates functioning on the market, as there was an increase in the number of producer groups and organizations offering both fruit and vegetables, with a decreasing number of organizations offering either fruit or vegetables. However, in 2020 we are not entitled to make such a conclusion. In 2020, compared to 2017, the number of groups and organizations in total decreased by 20% (Table 4). In the same period, the number of fruit and vegetable producers decreased by 28%, and the number of producers offering only fruit by approx. 15%. The smallest drop was recorded among producers offering only vegetables – approx. 8%.

These data confirm the variability of the conditions in which producers of fruit and vegetables operate. Manufacturers' decisions are often determined by exogenous factors beyond their control. For the organization of the fruit and vegetable market in Poland not to decrease further, institutional solutions that would be stable and long-lasting should be introduced.

CONCLUSIONS

Paying attention to the premises indicating the benefits of integration, it is disturbing that the process of organizing the market is stopped, which may have an impact on the reduction of its bargaining power. It seems, therefore, that a good path of development for Polish producers would be institutional support allowing for the adoption of the model of integration of producers characteristic for Northern Europe (geographically closer), where a smaller number of producer groups/organizations has a larger number of members and thanks to the economies of scale they achieve greater benefits. It would be possible thanks to institutional solutions supporting groups. This policy should be long-term and become an element of the rules of the agricultural market organization. The established rules of operation should be clear and, above all, stable. Because, as noted by Kozłowska-Burdziak and Przygodzka (2019), the biggest problem of currently functioning groups is the changing

Table 4. Groups and organizations of fruit and vegetables producers by product category

Product	Number of producer groups and organizations			
	2011	2014	2017	2020
Mushrooms	15	22	22	18
Herbs	2	3	3	1
Fruit	45	83	68	58
Vegetables	50	93	65	60
Fruit and vegetables	109	117	126	91
Total	221	318	284	228

2011 – as of 16.02.2011, 2014 – as of 05.05.2014, 2017 – as of 02.01.2018, 2020 – as of 24.07.2020.

Source: own study based on Krzyżanowska (2011), Kopyński and Czernyszewicz (2014) and ARiMR (s.a.).

and incomprehensible law. This policy should be outlined in the form of a development program for producer groups and their associations, which will include goals, means of achieving them, and the method of financing.

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