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Risk Assessment for Social Practices in Small Vegetable farms in Poland as a Tool for the Optimization of Quality Management Systems

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Abstract: Globalization of the food market is associated with the possibility of selling products into newer markets. However, it is also associated with the necessity to ensure proper quality products. Quality defined by the ISO 9001:2015 standard consists of factors that are part of customers' expectations concerning the safety of products and the technology of their manufacture. Currently, consumers are looking for products with defined and reproducible sensory properties, in which the content of harmful substances is below the critical values specified by legislation. This is observable particularly in developed countries. The second quality factor is the use of a production technology where negative environmental impacts are reduced. Recently, issues associated with protecting workers' rights and social needs have also become very important. In successive versions of quality management systems, such as GLOBAL G.A.P. or SAI Platform, social issues are becoming more and more important. The aim of this study was to assess the role of risk analysis for social practices in small farms in building a quality management system. Surveys were conducted in 2018. The surveys covered 62 vegetables or fruit farms with a cultivated area of up to 20 ha. Their lack of staff was due to the character of production. Where mechanic production is possible in small farms, family members can secure workforce demand. To achieve the research objective, a risk analysis was carried out for the implementation of social practices according to the guidelines of the ISO 31000:2018 standard. The criteria and inventory of identified risks were carried out, based on the guidelines of GLOBAL G.A.P. Risk Assessments on Social Practice (GRASP). Based on the identified risks, the areas relating to social practices, which require improvement in order to satisfy compliance with the GLOBAL G.A.P. standard, were indicated. The results of the conducted research pointed to a high risk of good social practices not being carried out and not meeting compliance with the requirements of the GLOBAL G.A.P. standard. The most important identified problems are associated with the deficiency of competent workers as well as the lack of facilities where workers can rest, eat and drink. A considerable problem is the conformity of employment contracts with local legislation and ensuring that work time and rest time are consistent with the law. In conditions of small farms in Poland, the problem with ensuring compliance with the standard in question is often the small number of workers. Creating an organized quality management system in the area of social practices is difficult in these cases, and sometimes even impossible.

Keywords: GLOBAL G.A.P.; GRASP; quality management systems; certification; primary production; social practice

1. Introduction

The conditions of the modern food market of products are associated with the necessity to increase the effectiveness of the use of the means of production and to reduce the negative impact on the natural environment. The need for rationalization of land use, work, and depletable environmental resources result, on one hand, from the need to lower the costs of food production, and on the other hand, from the needs of the consumer who seeks food with specific quality. Quality is one of the most important factors that influence consumers' choices. It is very often more important than product price, particularly in developed countries. It is one of the most important factors of achieving a competitive advantage. According to the used definition in management systems, quality relates to the degree of customer satisfaction. In the case of agricultural products, the idea of quality has been changing. This has influenced societies and the economic potential of consumers [1].

At the beginning of the first half of the 20th century, quality of agri-food products was identical with their price. In that period, the most important problem in the world was to provide developing societies with an adequate amount of food. Increasing the production efficiency was based mainly on the intensification of fertilization and on increasing the amount of production-boosting chemicals. The consequence of such a strategy of production (both plant and animal) was the emission of a considerable amount of pollutants into the environment, which led to soil and water degradation, as well as air pollution. The second, and very important, effect of agricultural intensification was the deterioration in the quality of products in terms of their chemical composition. The biggest problems included high content of pesticides, nitrates, and heavy metals in plant products, and in the case of animal products, a high content of hormones and pharmaceuticals. Due to the development of agricultural sciences and changes in consumer awareness, the quality of products is more and more associated with the technology of their production. This quality factor has been expressed in the idea of sustainable development of agriculture. Quality is also associated with the way a product is packed and presented [2].

Traditional agriculture has a negative impact on the natural environment—both water, soil, air, and on consumer health [3]. In the 1990s, formalized quality systems in primary production began to develop in developed countries. Those systems took into account the production principles leading to an improvement in food safety at the stage of producing raw materials intended for food or fodder purposes. In that period, the concepts of sustainable production systems for biomass crops began to appear [4]. The fundamental assessment criterion of a given technology in this case is the energy fixation potential of plants, taking into account the expenditure incurred on production. Another important aspect is the issue of the possibility of producing food in areas intended for cultivation of energy crops. According to the adopted ideology, the introduction of specific principles of a system should lead to an improvement in the quality of products, in terms of their safety and chemical composition [5]. Moreover, the principles of modern systems of quality management in agriculture have involved issues associated with rational utilization of soil resources, water resources, and issues connected with decreasing energy consumption in the entire production process [6,7]. The efficient implementation of quality management systems in food production is also associated with creating no-waste or low-waste technologies, as pointed out by Sikora et al. [8]. More and more attention has been paid to the optimization of logistic processes, not only at the production stage, but in the entire supply chain. Optimization of logistic processes is an important part of improving economic efficiency, which was highlighted by Xiao et al. [8], as well as Cupiał et al. [9]. As regards to food safety, many countries have safety assurance systems, created and administered at a national level. They can vary both in scope, as well as in the level of requirements, which result from economic, cultural,

climatic, or political conditions [10]. The differences concern mainly environmental and societal issues in production. Therefore, there is a threat that products generated in compliance with local law will not fulfill qualitative criteria requested by consumers in target countries [11]. This applies particularly to the issues connected with environmental and social aspects in developing countries. Food production, compliant with local law of these countries, is very often insufficient to satisfy a conscious consumer. Therefore, one of the main factors of developing agricultural production and the possibility of exporting products, is the implementation of quality management systems in primary production.

One of the most popular quality management standards in primary production in agriculture is the GLOBAL G.A.P. (Good Agriculture Practice) system. It is an independent, optionally-implemented system of assuring product quality and safety in primary agricultural production. The standard was introduced into the market in 1997 under the name EUREPGAP. It was elaborated by members of EUREP (Euro-Retailer Produce Working Group) organization. The purpose of the standard was to develop principles that would be common for the entire primary production, aimed at ensuring compliance with Good Agricultural Practice (GAP) and ensuring food safety. The GLOBAL G.A.P. standard was introduced in exchanged for EUREPGAP on 7 September 2007.

One of the primary objectives of the standard was to minimize the use of fertilizers and plant protection products, so as to limit the negative impact of agriculture on the environment, and also to make sure that good soil culture on areas intended for agricultural production is maintained. One of the most frequently described problems associated with implementation of quality management systems in primary production is a failure to adapt them to small farms [12,13]. Inadequate support from state institutions and non-governmental organizations is a factor that limits the development of quality management systems [14]. To accommodate these problems, the certification system and the manner of implementing the principles of the GLOBAL G.A.P. standard at a farm level were adapted to small farms. Certification is possible within option 1 and 2. In the case of option 1, an individual producer intends to certify their own products in compliance with the requirements of GLOBAL G.A.P., in the scope associated with specific activities. Option 2 relates to the certification of a group of producers (e.g., cooperatives or organizations of producers). In this case, certification concerns agricultural products, in accordance with the requirements of the used range of GLOBAL G.A.P., complemented with requirements pertaining to managing through the implementation of the Quality Management System (QMS). In this option, a certificate is issued for the leading organization, which guarantees that the requirements of the standard are observed by producers that are members of the group. Due to the higher effectiveness of means of production, producer groups have a bigger and bigger share in primary production in Poland. A properly organized quality management system at the level of the producer group allows for the efficient management of quality for all members [5,15]. Within the certification of a producer group, an audit is conducted for the management system in the context of system tools, and the efficiency of communication with particular group members, as well as the effectiveness of identifying non-conformities and monitoring corrective actions. Such a solution makes it possible to minimize the risks associated with the fragmentation of farms and the scattering of production sites [16]. Due to these factors, small producers can be included into the global supply chain, which facilitates the development of small family farms. Including small farms as a part of supply chain, not only on local markets, but also on international scale, is an important part of a sustainable development of rural areas. This is of great importance in developing countries, where plants are cultivated on small areas [17]. However, such an approach associated with certification poses a threat to product quality in the case of an ineffective system of controlling the members of the producer group by head office, which implements the quality management system. GLOBAL G.A.P. is a standard that is based on ethical principles of the producers participating in the system [18]. The aim of this study was to assess the role of risk analysis for social practices in small farms, in building a quality management system.

2. Research Methods

To meet the set objective, surveys were conducted in 2018 in small family farms in Poland, in the following provinces: Świętokrzyskie (11 farms), Mazovia (18 farms), Łódź (19 farms), Lublin (6 farms), and Wielkopolska (8 farms). The research was conducted using the direct interview method. The study involved farms, in which the buyers of products reported the need to implement the GRASP standard. The surveys covered 62 vegetables or farms that grow berry plants, with a cultivated area of up to 20 ha. Among the examined farms, 37 of them grew vegetables, while 25 were growing berry plants. Nearly 30% of the surveyed farms declared that they did not employ workers. These farms were excluded from further analysis, due to the lack of possibility of attaining the GLOBAL G.A.P. GRASP standard. Almost half of the farms employed local workers and family members. Approximately 10% of the farms hired only foreign workers, and 15% hired foreign and local workers Table 1. Other farms employ seasonal workers, mainly citizens of the Ukrainian Republic.

Table 1. Employment structure in the surveyed farms.

Research Group No.	Specification	Number of Farms	Average Farm Area in the Group
1	Lack of workers	17	5.19
2	Local workers, close or extended family	28	9.32
3	Foreign workers	7	14.89
4	Foreign and local workers	10	15.26

Workers were employed on employment contracts only in 10 farms. For separated research groups, a risk analysis was carried out for the implementation of social practices according to the guidelines of the ISO 31000:2018 standard. Inventory of identified risks was carried out based on the guidelines of GLOBAL G.A.P.

In the conducted research, the strategic goal was to adjust the management policy of social practices on the farm to GLOBAL G.A.P. GRASP standards. Based on the conditions in the surveyed farms, (the size and assortment of production, infrastructure equipment, cultural factors, and the mentality of farmers). The matrix used for risk analysis is included in Table 2. According to this table, the level of risk in a three-level scale is defined as small, medium, and large. The identified risks are presented in Table 3. Two values have been identified for each identified risk factor; the probability of risk occurrence and the threat to the strategic goal (compliance with the GLOBAL G.A.P. GRASP standard) in the case of risk.

Table 2. Matrix used for risk assessment.

The Probability of Occurrence of a Risk Factor	The Consequences of Risk		
	Low	Medium	High
Low	L	L	M
Medium	L	M	H
High	M	H	H

H—high risk, M—medium risk, L—low risk.

3. Results and Discussion

The implementation of quality management systems, both at state and private level, is widely considered to be a factor that increases the profitability of farms, as well as a method for reducing the environmental effects associated with agricultural production. Bibliographic data presented by other researchers point to a relationship between the implementation of a quality management system and the amount of income [18,19]. Positive effects are perceived also in relation to the effectiveness of

using natural resources in agricultural production. One of the weak points of quality management systems in primary production is associating them with the amount of earnings and workers' lifestyle. Oya et al. [18] draw attention to this problem and point to the need of putting more emphasis on social issues in food production at farm level. Despite the fact that quality systems in primary production, such as Organic Farming, GLOBAL G.A.P., Integrated Production, or sales network quality systems take social aspects into account in their principles. Nevertheless, they can rarely guarantee that farm owners will satisfy workers' social needs. That is the reason why, in many cases, it is essential to certify producers for compliance with the principles of social systems [20]. In recent years, social aspects have permanently entered the range of parameters that are part of the notion of food product quality. The basic components of the quality of agri-food products include:

1. Product safety associated with microbiological, chemical, and physical threats
2. Confirmation that the production principles applied in the used technology are compliant with the principles of sustainable development.
3. Confirmation that, during production, basic principles associated with hygiene and safety of workers have been met.
4. Confirmation that, during production, social practices consistent with principles of good social practices and with principles of international labor conventions have been applied.

All these factors shape the quality of agricultural products and their implementation is connected with incurring costs for technical infrastructure, consultancy, and for administering the system. The surveyed farms are associated in producer groups, and the implementation of the GRASP standard was necessary in order to win a new market in Great Britain. Prior to making a decision about implementing the GRASP standard, a risk analysis was carried out. GRASP is a voluntary, additional module, which is not part of the accredited GLOBALG.A.P. certification. It completes the requirements of the standard with respect to good social practices. GRASP certification is only possible when producers are certified for compliance with the GLOBALG.A.P. system or certified in compliance with an equivalent system subjected to benchmarking. The interpretation of GRASP control points depends on the country in which activities are conducted. According to the principles of the standard, the requirements of national legislation replace the GRASP requirements when appropriate legal regulations are more demanding of the GRASP requirements. If there are no legal regulations or if the law is not as demanding, GRASP principles provide minimum compliance criteria.

The foundation of the GRASP standard is a structural organization of a farm that will allow it to eliminate the influence of the management on the workers' representatives. According to the standard, an enterprise must have people acting as the workers' representatives. The workers' representatives are obliged to represent their interests. These representatives should be independent and not work in a position associated with managing the company. The introduced system should guarantee regular meetings between the workers' representatives and the Board, where workers' issues are addressed. Transcripts of these meetings should be made available in company documentation. Workers' representatives should be chosen through voting. They should be chosen by workers and recognized by the Board. A representative can be nominated only in exceptional circumstances. The voting or nomination must take place in the current year or season. Workers' representatives should be aware of their role and rights, and they should be able to have discussions with the Board regarding complaints and suggestions. They should also have knowledge about current legislation and principles of international labor conventions. A quality management system in a farm should be armed with an effective procedure of filing complaints and motions. The manner of filing complaints should be clear and should not generate sanctions for the person who files a complaint or for the workers' representatives who speak for the said person.

Table 3. Risk assessment for social practice in the researched farms.

Specification	Group of Farms			
	1	2	3	4
Selection of the workers' representative	n.a.	H	H	H
Establishing the date of selecting workers	n.a.	H	H	H
Adapting the issue of employee discrimination	n.a.	L	L	M
Adapting the issues relating to contracts with workers	n.a.	H	L	M
Adapting the issue of minimum wages and equal salary	n.a.	H	L	M
Adapting the issues connected with documenting the work time, as well as the level of remuneration connected therewith, overtime hours	n.a.	H	M	M
Adapting the issues relating to employing minors	n.a.	H	L	M
Adapting the issues connected with ensuring proper social conditions for workers living on the farm	n.a.	L	M	H
Total risk	n.a.	H	M	M

H—high risk, M—medium risk, L—low risk, n.a.—not applicable.

Assuring the above identified principles of the standard in the surveyed farms is problematic for objective reasons. In the farms which employ workers, nominating a potential worker's representative eventuated as the biggest problem. The organizational structure of most farms are based on the management and production workers. Among the seasonal workers, it is very difficult to find a person who can assume the responsibility of representing workers' interest and who is knowledgeable of the principles of labor law that are in force in Poland and who knows about international labor conventions. In the majority of the surveyed farms, the only workers who possess the necessary knowledge are those connected with the owner. Establishing the date of selecting the workers' representatives might also be problematic. Therefore, the risk in this respect was assessed as high Table 3. The harvest season is short in the majority of the surveyed farms, and before the season, a limited number of workers are hired. If the election is carried out at the beginning of the vegetation season, then the workers hired in the harvest season will not have the ability to choose their representative. If the election is carried out after hiring pickers, in the period from the beginning of the vegetation season to harvest, the workers' representatives will not operate. In both cases there is a risk that the principles of the standard will not be observed and the certificate will not be granted.

Another principle of the GRASP standard is signing and implementing a declaration to ensure that good social practices and the observance of human rights for all employees. Such a declaration should contain the obligation to comply with the ILO (International Labor Organization) convention with respect to discrimination, legal working age, and the eliminating forced labor. The declaration should have an obligation regarding the acceptance of the rights to freedom of association and to equal remuneration.

In all the studied farms, the risk associated with signing and implementing a declaration of good social practices was assessed as low. Medium risk was determined in farms that employ both foreigners and local population Table 3. An identified risk associated with this field of activities were issues of equal remuneration and minimum wages. To this extent, the functioning systems generally needed improvement, although, to a smaller extent in farms employing foreign workers Table 3.

One of the most significant sources of risk to implementing the GRASP standard was the issue of contracts with workers. According to the principles of the standard, each worker should be employed on a contract consistent with the legislation of the country where activities are carried out. The contract must be signed, should include a full name, nationality, description of work position, date of birth, date of commencing work, working time, remuneration and employment period. For foreign

workers—their legal status and work permit. In the case of farms that employ only foreign workers, the risk for the area in question was estimated as low, due to Polish law regarding hiring foreigners. In the case of seasonal local workers, issues associated with employment contracts were assessed at a high level Table 3. During harvest and other activities associated with production, neighbors or both nuclear or extended family members are often hired. Due to the seasonal nature of production and problems with acquiring workers, the turnover of people employed in the farm is very high. In such a situation, the reorganization of the human resources management system would be very difficult and entail incurring additional costs. In addition, adapting employment to legal regulations in many cases may be connected with difficulty in finding employees.

Employing minors on farms is part of a tradition of small farms in many countries [21]. Among the surveyed farms, in group no. 2 that uses local labor force, minors are very frequently hired as help. This particularly applies to producers growing strawberries and raspberries. Because of the harvest period which takes place during school summer holidays, pupils are often hired for the harvest. In these farms, resigning from this source of labor is associated with an increase in costs incurred on production and with the risk of a shortage of workers.

Assurances of adequate social conditions for workers living on the premises of the farm is key to good social practices in agriculture. The parameters of assessment of housing conditions for seasonal workers should be selected by taking into account the workers' nationality and cultural identity that lead to their specific needs [22]. Regardless of the workers background, providing basic social needs is essential to ensuring proper quality of life and conditions for rest. Ensuring adequate housing conditions in farming, particularly in the case of seasonal workers, is a crucial factor associated with social practices on farms, and regardless of the place of agricultural production, which was highlighted by Vallejos et al. [23], Rima et al. [24]. On the other hand, the possibility of living on a farm is a factor which makes it easier to obtain seasonal workers. As a result of the conducted risk analysis, in compliance with the guidelines of the ISO 31000:2018 standard, the risks associated with the scope of these activities was assessed as low in farms using local labor force and medium in the group of farms that offer apartments to their employees Table 3. All the surveyed farms, that offer apartments to their employees, carry out actions for the improvement of housing conditions as this is what employees expect. In the case of farms with low income, adjusting housing conditions to the requirements of the standard can be a considerable strain.

The implementation of quality systems in primary production is associated with the necessity of incurring high costs, consisting of charges incurred on the certification, consultancy, infrastructural changes, as well as changes in production technology, which are frequently related with increasing cost intensity. These factors restrict, and sometimes prevent, the implementation of quality management systems, particularly in countries where small farms with a small production scale are dominant. A consequence of the development of quality management systems in primary production, and of increasing market demand for certified products can be the restructuring of agriculture towards creating large commercial farms, where the implementation of a quality management system is easier. Such changes might be disadvantageous in social and societal terms, particularly in countries where the efficient functioning of small farms is part of local tradition [25,26]. Despite the image benefits and facilitation of selling products from certified farms, economic factors play a key role when deciding to implement a quality management system [27,28]. One of the main problems of the certification of quality management systems is their mal-adjustment to the producer market based on small farms [12,29]. The results of the conducted surveys point to a high risk associated with implementation of the GRASP standard in the group of the smallest farms which use local labor force as well as family. In these cases, the benefits of owning a certificate may not cover the costs arising from implementation of the standard. In bigger farms, which employ foreign workers, the risk associated with the implementation was assessed as medium Table 3. When analyzing the current situation in the market, at a high level of risk, implementation of the GLOBAL G.A.P. GRASP standard is unreasonable. In the case of the medium risk, the decision about implementing the standard should be made basing

on a risk analysis carried out for an individual farm. Due to the changing requirements of retail chains, one should expect an increase in farmers interest in the GLOBAL G.A.P. GRASP. Based on the obtained results, it was found that they need to continue in the conditions of small commercial farms.

4. Summary

The results of the conducted surveys point to a substantial level of risk associated with the implementation of the GRASP standard in small vegetable and horticultural farms in Poland. The effective implementation of the standard can be problematic, due to there being no one who fulfils the criteria for workers' representatives. Another problem is establishing a proper date for choosing the workers' representative because of considerable staff rotations during the vegetation season. The obligation to conclude employment contracts or civil law agreements, and to create a system for recording workers' work time is a problem for a lot of farms. Ensuring proper housing conditions is a factor preventing the implementation of the GRASP standard for some farms. In approximately 35% of the surveyed farms, the workers are people from local communities who do not want to work based on civil law agreements. It is the traditional model of purchasing labor in small farms in Poland. Adapting the system to the requirements of the standard would involve the necessity to build, from scratch, a system for managing human resources in farms. This may be problematic, not only in terms of costs, but also because it would require changing the mentality. The results of the conducted surveys indicate a high risk associated with reorganizing the surveyed farms. Based on the conducted risk analysis, it was established that the implementation of the standard in the surveyed farms, which use the local labor force, is currently unreasonable. In the case of bigger farms, which use foreign workers, making a decision about certification should be preceded by an individual risk analysis carried out for a specific farm.

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