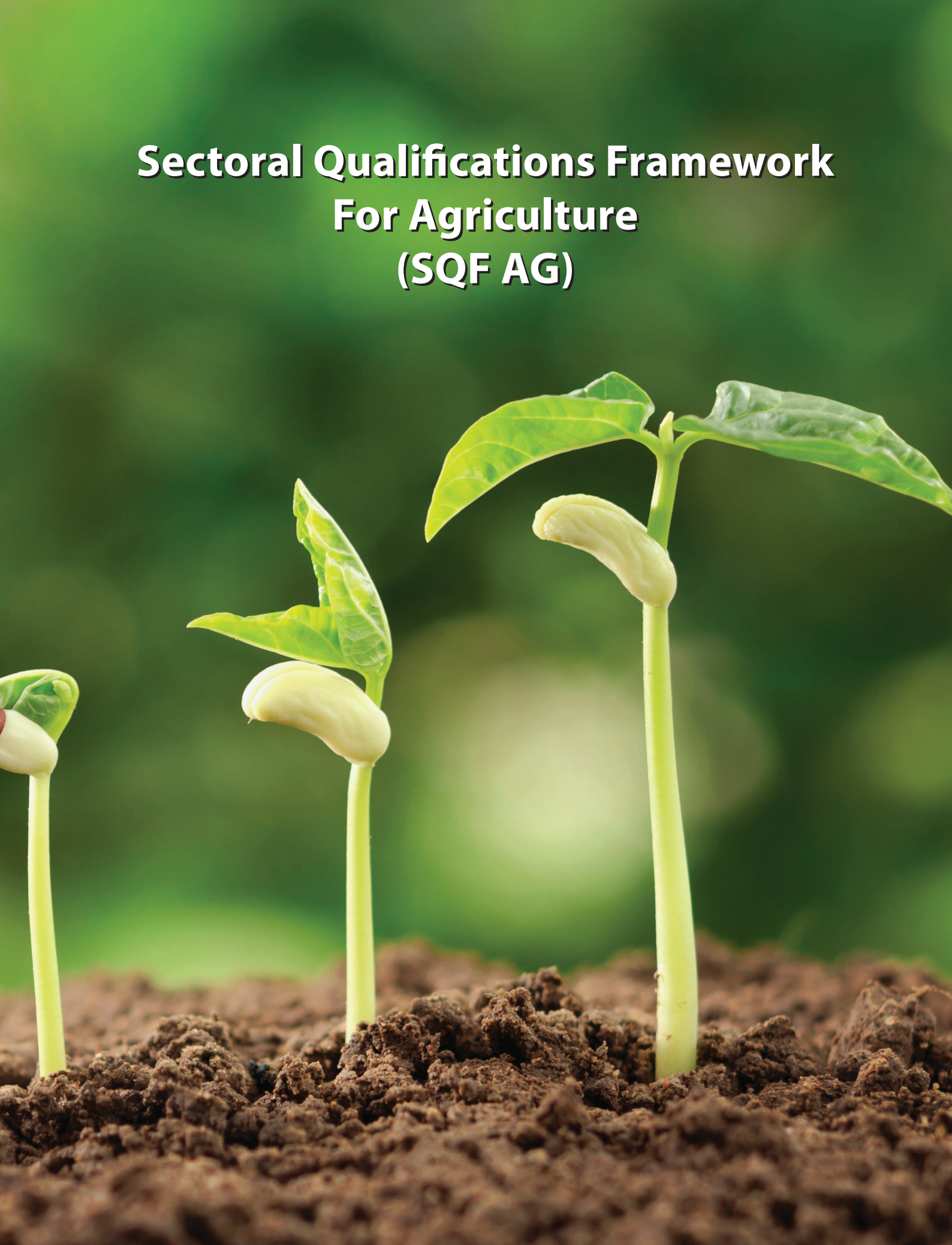
Sectoral Qualifications Framework For Agriculture (SQF AG)



European Funds
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Sectoral Qualifications Framework for Agriculture (SQF AG)

Warsaw 2020

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Introduction

The development of civilization, which has lasted for over ten thousand years, has been possible mainly thanks to agriculture (Toffler, 1997). Over consecutive centuries, we can observe its continuous development in providing food and raw materials for successive generations. Agriculture has made the greatest works of humankind possible, enabling its successful functioning from antiquity to the present day.

The various habitats in which agricultural activity is conducted, the unequal access to new technologies, and the diverse types of crops and livestock result in constant competition and the lack of monopolies. These factors have also influenced the social context of this sector for centuries and linked it to the broadly understood concept of knowledge (Klepacki, 2008; Pałosz, 1998). Despite a certain conservatism in production (Tłuczak, 2011), farmers operating under competitive conditions represent a specific ethos, in which the continuous acquisition and development of knowledge, skills and social competence concerning agricultural activity is the foundation for success. This aspiration, which determines agricultural activity, expresses an essential characteristic of humans – adapting to conditions through intended learning (Fontana, 1998; Illeris, 2009).

After a period of technological stagnation resulting from government policies before 1990, Polish agriculture is seeking its place in the free market realities of the European and global economy. These efforts were intensified with Poland's accession to the European Union in 2004. Today, agricultural sector representatives and government authorities are aware that achieving the business objectives set by farmers depends to a large extent on the skilful implementation of modern technologies and the principles of work organisation, which in turn requires the constant improvement of the competences and qualifications of people in agriculture.

Data on the Polish labour market indicate that the developing economy is struggling with a shortage of adequately qualified workers. This causes prolonged recruitment processes and a significant increase in their cost, which is seen in most industries (Polska Agencja Rozwoju Przedsiębiorczości, 2019). Already in 2008, over 50% of surveyed employers recruiting new workers reported difficulties in finding employees meeting the requirements of the vacant job position (Infor.pl, 2018). This is not a temporary situation and constitutes a significant problem in Poland's economy today.

The negative situation in the labour market observed these days indicates that traditional school and university education is not enough to keep up with the pace of economic changes. This is why it is so important to support workers and promote modern education, including the concept of lifewide lifelong learning (LLL). Its main principles include, among others, the valuation of learning in various forms and places at every stage of life; the confirmation of learning outcomes regardless of the way, place and time of their achievement; as well as investing effectively in learning and making it a universal endeavour (Council of Ministers, 2013).

In the case of Poland, the direct expression of state policy supporting modern educational processes is the "Strategy for Responsible Development to 2020"

(with a perspective to 2030) (hereinafter 2020 Strategy) adopted by the Council of Ministers on 14 February 2017 (Monitor Polski, 2017) and the "Integrated Skills Strategy 2030" (hereinafter ISS 2030) being prepared for acceptance and currently consulted in various communities (Ministerstwo Edukacji Narodowej, 2020). Ensuring citizens with an appropriate quality of education to improve qualifications and competences is one of its primary objectives. For this reason, human resource development programmes are planned, focusing on the achievement of specific learning outcomes, i.e. the knowledge, skills and social competence desired in a given sector of the economy.

In accordance with the premises of the 2020 Strategy, the human development aims are to be achieved by supporting vocational education both within formal education as well as non-formal education, which includes courses and training. This document refers not only to competences acquired in the non-formal education system already mentioned, but also those obtained through informal learning, e.g. webinars, online guides, by working independently with available resources, as well as through the accumulation of experience gained in a given field (Monitor Polski of 2017, item 260). Thus, it has been recognised that the education system should be oriented towards learning outcomes and not – as has been to date – on how they are obtained.

In terms of ISS 2030, the premises of the 2020 Strategy are to be maintained by strengthening LLL processes – increasing the participation of adults, including those with low levels of qualifications or basic skills, in LLL, understood as formal and non-formal education as well as learning at work (Ministerstwo Edukacji Narodowej, 2020). In accordance with the premises of ISS 2030, one of the main partners in achieving these aims is the Educational Research Institute.

Efforts are currently underway in Poland to adapt the existing forms of transferring and verifying knowledge and skills to the approach described above. The educational system's focus on learning outcomes is in line with the qualifications structure of the European Qualifications Framework (EQF), adopted by the European Union in 2008. Its current version is described in the Council Recommendation of 22 May 2017 on the European Qualifications Framework for lifelong learning (OJ EU 2017/C 189/03). The EQF contains a universal structure of qualification levels, making it possible to compare the qualifications systems of individual EU countries. In Poland, the institutional premises of such a system are defined in the Act of 22 December 2015 on the Integrated Qualifications System (Journal of Laws of 2020, item 226).

One of the main tools of the Integrated Qualifications System (IQS) is the Polish Qualifications Framework (PQF):

> *The PQF has eight levels of qualifications, like the European Qualifications Framework. Each PQF level is described by general statements about the learning outcomes required for a given qualification level. In determining a qualification's PQF level, it does not matter whether its required learning outcomes are attained within a structured education system or in another way. PQF level descriptors describe the full range of qualifications' required learning outcomes in the categories of knowledge, skills and social competence. The descriptors of*

successive PQF levels reflect the increasing requirements in these areas. (Chłoń-Domińczak et al., 2017)

The Integrated Qualifications System is the institutional foundation enabling the concept of LLL to be implemented. The system does not create barriers to any form of learning, and makes it possible to systematise the various qualifications that can be attained in Poland. Until now, qualifications had been awarded by different bodies, institutions and organisations on the basis of different regulations and laws, so it was difficult to correlate or compare them using uniform criteria. The IQS is especially valuable in its ability to now include those qualifications operating in the free market, to describe them in the language of learning outcomes and to have them guaranteed by the state (based on the general principles of the inclusion and functioning of qualifications in the system) through the rules on validation and quality assurance. The functioning of the IQS should therefore encourage lifelong learning and facilitate the development of competences in line with one's own interests or labour market demand.

In accordance with art. 11 of the IQS Act, second stage PQF descriptors typical for vocational qualifications can be further elaborated by developing sectoral qualifications frameworks (SQF). The sectoral qualifications framework is defined in the IQS Act as the description of qualification levels functioning in a given sector or industry. SQFs are developed for those areas of activity when such a need arises.

The main idea adopted in the development of sectoral frameworks is that they are created "by the sector for the sector". This means that the widest possible range of stakeholders is involved in the process of developing the framework. These include companies active in a given sector, trade unions, chambers and industry organisations, representatives of higher education and vocational education and training, as well as regulatory institutions.

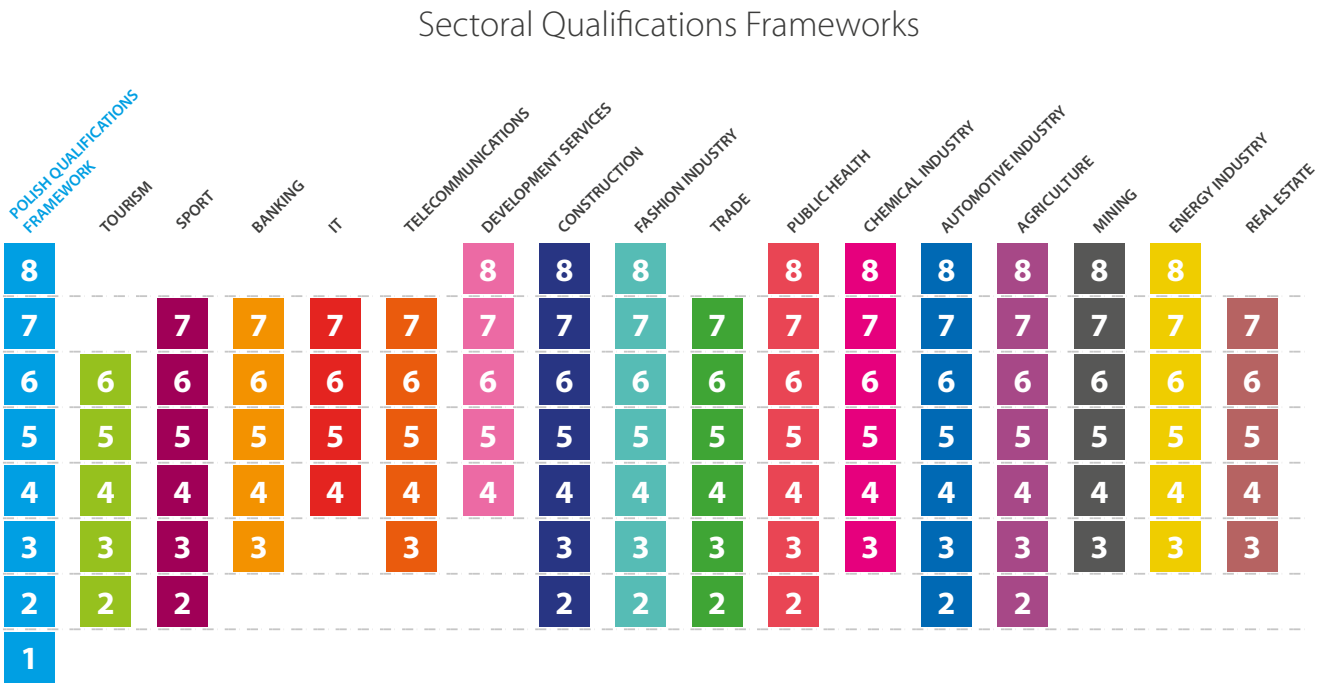
Developing a framework starts with discussions about the competences and qualifications needed in the given sector and allows for an exchange of information between the sector's representatives. Industry stakeholders are therefore both the creators as well as the recipients of the solutions in the resulting sectoral framework. A team of experts from the specific industry creates a draft SQF, which is then consulted within the sector.

One of the most important elements of the work on an SQF is defining the sectoral determinants, which present the competence areas important to the sector. This then helps in determining the descriptors of particular levels. The levels of an SQF must correspond to the relevant PQF levels, but the components of their description should reflect the specificity of the given sector. Theoretically, an SQF could include all levels of the PQF, but past work indicates that the final number of described levels depends on the sector.

To the end of 2020, work will have been completed on 16 proposed SQFs for the following sectors: banking, IT, sport, tourism, telecommunications, construction, development services, the fashion industry, trade, public health, agriculture,

chemical industry, automotive industry, energy, mining and real estate. The range of these frameworks' levels is shown in Figure 1.

Figure 1. Sectoral Qualifications Frameworks



Sectoral qualifications frameworks are included in the IQS by means of a regulation issued by the minister coordinator of the IQS (the minister responsible for education). The SQF inclusion process is begun by the minister with jurisdiction over the sector, either at his/her initiative or at the request of a Sector Skills Council or an interested party, if an initial assessment considers it advisable to include such a framework in the IQS (Journal of Laws of 2018, items 2153, 2245, art. 11, point 2). Thus far, the sectoral qualifications frameworks for the sport, tourism, construction and development services sectors have been included. Additionally, the IQS Stakeholders Council also positively assessed the inclusion of SQFs for banking, telecommunications and trade.

To summarise, one can say that there are many benefits to developing a sectoral qualifications framework. The most important of these is the fact that it is the result of dialogue among representatives of a given industry, allowing them to develop many new and universal solutions. This also improves the ability to describe and include qualifications in the IQS, as the SQF translates the language of the PQF into one specific to the industry. The SQF also makes it easier to understand how to relate PQF descriptors to the requirements of qualifications in a particular sector, which in turn facilitates the accurate assignment of a PQF level to a qualification.

It is worth noting that the concept of developing many sectoral qualifications frameworks and integrating them into the qualifications system in Poland emerged

as one of the first in Europe. Currently, a similar approach is being implemented in Latvia, while other countries are working on their own versions.

This publication presents information on the project to develop the proposed Sectoral Qualifications Framework for Agriculture (SQF AG). Its sections present, in turn, a description of the project's implementation, the structure of the framework, a glossary of the terms used, instructions on using SQF AG as well as recommendations on its use and implementation. The annex contains the SQF AG level descriptors. This publication was written as a result of the work on developing SQF AG conducted by a consortium of EPRD Biuro Polityki Gospodarczej i Rozwoju Regionalnego Sp. z o. o. [EPRD Office for Economic Policy & Regional Development Ltd.] and the Centrum Doradztwa Rolniczego [Agricultural Advisory Centre] in Brwinów.

1. Work on the SQF AG Project

1.1. Project Premises and Objectives

According to the data of Statistics Poland (GUS), there were more than 1,400,000 farms in Poland in 2019, with the vast majority of them (99.7%) being individual farms, i.e. operated by natural persons (Główny Urząd Statystyczny, 2020b). These data are correlated with the information provided by the 2019 Statistical Yearbook of Agriculture, which presents the number of people working in agriculture as over 2.3 million, of which about 100,000 are employed workers, and over 2.2 million are self-employed, mainly individual farmers (Główny Urząd Statystyczny, 2020a).

Although their average size is steadily increasing, Polish farms are still characterised by a high degree of fragmentation. The average size of agricultural holdings per farm was 10.4 ha in 2019 (Główny Urząd Statystyczny, 2020b). Significant differences from one voivodeship to another should be noted – from 4 ha of average land area in the Małopolskie Voivodeship to 28.68 ha in the Zachodniopomorskie Voivodeship.

As already mentioned, the last two decades have been a time of far-reaching changes in Polish agriculture. First of all, these changes were part of the political transformation to a market economy, and then to preparations for Poland's accession to the European Union in 2004, which involved including Polish agriculture in the common agricultural policy, gaining a broad stream of subsidies and better access to Member States' markets. The main changes to Polish agriculture are (after Matyka, Krasowicz and Kopiński, 2016):

- the reduction of land used for agricultural purposes (between 2000 and 2014, the total agricultural land area decreased by 21%, from 18.4 million hectares in 2000 to 14.6 million hectares in 2014);
- the improvement of the agrarian structure, i.e. increasing the concentration of land (from 2000–2013, the average area of a farm in the category of above 1 ha increased by an average of 2.3 ha);
- change in the agrarian structure also means a decrease in the number of farms (from 2000–2014, their number decreased by about 680,000).

Transformation processes in agriculture are linked to significant investments and the development of new forms of agricultural production, especially intensive, but also extensive – organic and traditional methods – as well as advances in automation and the use of the latest technologies, including geopositioning and robotisation (Czapniewski et al., 2012). All areas in which Polish agriculture is developing require specialist agricultural competences and qualifications. Most often, they cannot be passed on from the previous generations of farmers who traditionally operated a farm. In addition, the education or training offered by agricultural education institutions and

advisory centres is not always available or does not meet current expectations. Hence the growing importance of self-education among farmers, conducted on the basis of available literature, online knowledge resources and the innovative prototyping of solutions.

The Sectoral Qualifications Framework for Agriculture is a response to the needs of the sector in terms of supporting the development of education programmes relevant to the needs of its labour market, increasing the transparency of existing competences and qualifications awarded in the sector, and supporting farmers in planning their self-education processes.

The main aim of developing SQF AG was to build a tool that would clearly but flexibly indicate the needed elements of knowledge, skills and social competences to perform specific tasks in agriculture. Also important is for it to serve as a useful tool for individual farmers as well as the employers and employees of large farms. It is intended to provide them with information on the knowledge, skills and social competences needed to better perform their tasks, thus making it possible to plan the development of farms and agricultural enterprises.

1.2. Stages of Work on the Project

The development of the SQF for Agriculture project was commissioned by the Educational Research Institute to a consortium of EPRD Office for Economic Policy & Regional Development Ltd. and the Agricultural Advisory Centre in Brwinów.

EPRD Office for Economic Policy & Regional Development Ltd. is a consulting firm, which, has been providing consulting and training services to the public sector, multinational corporations, SME-sector companies and NGOs for over 20 years, using the industry knowledge of over 8,000 cooperating experts. Since its founding, it has been strongly associated with agricultural development activities in Poland and worldwide. Among the projects implemented by EPRD are: a pilot project to develop systemic solutions and establish regional and sectoral programmes for future SAPARD funding; execution of the methodologies and implementation techniques consistent with the principles of pre-accession and EU structural funds; technical assistance in adapting Polish agriculture to the requirements of the European Union; development of the Master Plan for the Agricultural and Industrial Park in Grodno (Belarus).

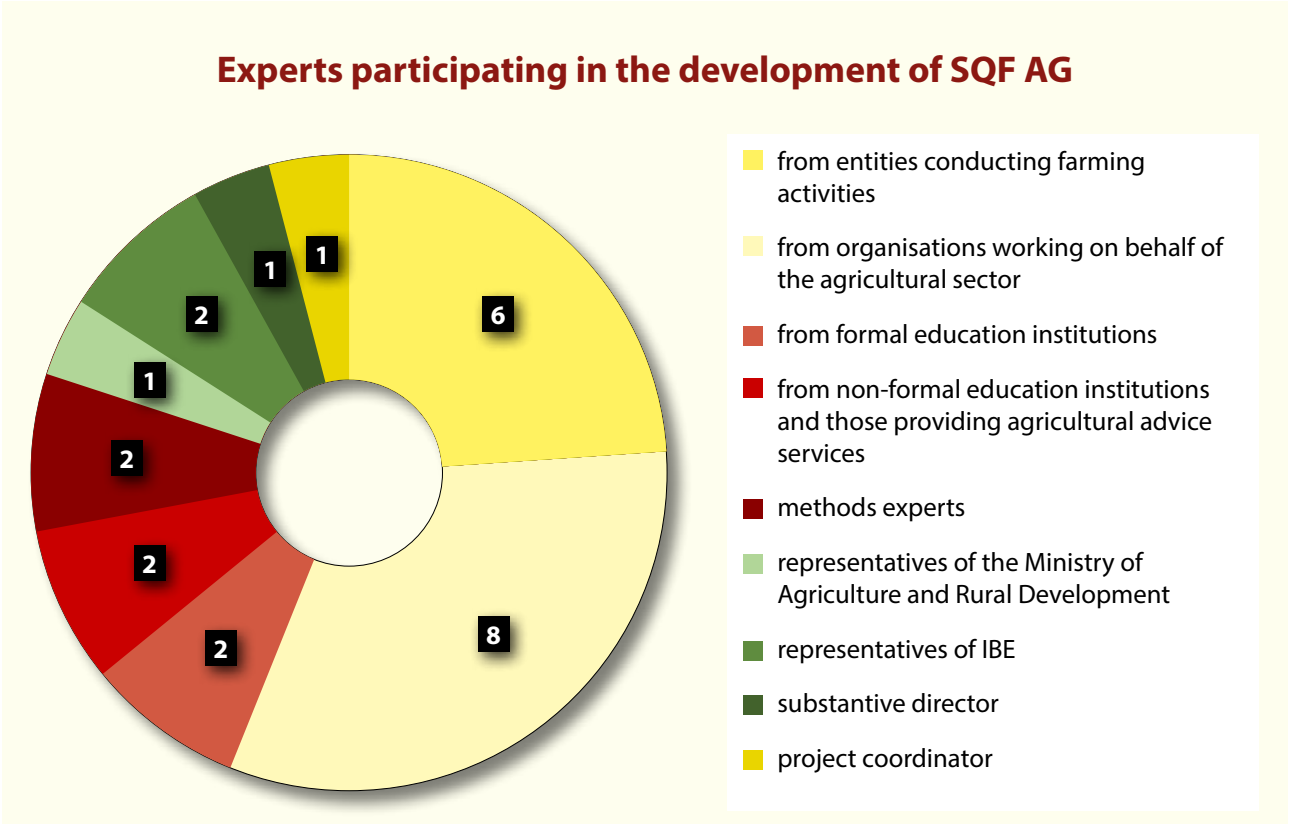
The Agricultural Advisory Centre in Brwinów is a state organisational unit reporting directly to the Minister of Agriculture and Rural Development. The Centre's tasks include the improvement of agricultural advisory staff, teachers of agricultural schools, representatives of agricultural institutions and organisations, local governments, Local Action Groups, farmers and rural residents by organising training courses, seminars, conferences, competitions and other forms of professional development. The Centre is involved in establishing a national network for innovation in agriculture, promoting the latest scientific achievements supporting the development of agriculture and rural areas, providing agricultural advisory

services and obtaining European Union aid funds. It operates a Small Processing Practical Training Centre (CDR O/Radom), where it trains advisors and farmers.

Experts with knowledge of the agricultural sector, its required competences and awarded qualifications were involved in developing the proposed SQF AG. The work of the expert team was headed by Prof. Sławomir Podlaski, Ph.D., from the Department of Plant Physiology of the Warsaw University of Life Sciences.

Methods experts, specialising in the implementation of the Integrated Qualifications System, were also involved in developing the SQF AG, especially those with experience in working on draft sectoral qualifications frameworks for other sectors. The methods expert team of Magdalena Słocińska and Anna Araminowicz, together with the project coordinator, Damian Kuznowicz (EPRD), supervised the course of the expert work and compliance of the SQF AG draft with the premises of the IQS. The structure of the expert team is presented in Figure 2.

Figure 2. Structure of the SQF AG expert team



In order to ensure the representativeness of the expert group, care was taken to invite persons specialised in different areas of agricultural production to work on the framework. In addition, they represented entities performing different functions, conducting direct agricultural activities as well as being involved in formal education (Warsaw University of Life Sciences and the Jadwiga Dziubińska Agricultural Training Centre School Complex in Zduńska Dąbrowa), non-formal education and advisory services for the agricultural sector (Agricultural Advisory Centre in Brwinów and voivodeship agricultural advisory centres). Moreover, representatives of organisations operating in the agricultural community and on behalf of the sector were also involved in the expert team: Świętokrzyskie Chamber of Agriculture, Federation of Branch Associations of Agricultural Producers, Polish Association of Beef Cattle Producers, Polish Association of Cereal Crop Producers, Polish Nurserymen's Association, Institute of Soil Science and Plant Cultivation in Puławy, Kujawsko-Pomorskie Association of Organic Producers, "WICI" Association of Rural Youth.

The list of experts and the stakeholder group they represent is provided in Table 1.

Table 1. SQF AG Experts

Group	No.	First and last name
Entities conducting agricultural activities	1.	Bartłomiej Kołacz
	2.	Mirosław Angielczyk
	3.	Łukasz Głuchowski
	4.	Marcin Gołębiewski
	5.	Małgorzata Kacperczyk-Kopcińska
	6.	Wiesław Szydło
Organisations acting in and on behalf of the agricultural sector	7.	Mieczysław Babalski
	8.	Prof. Jerzy Księżak
	9.	Monika Przeworska
	10.	Stanisław Olęcki
	11.	Karol Kliś
	12.	Wojciech Wróblewski
	13.	Piotr Doligalski
	14.	Ewa Borycka

Group	No.	First and last name
Institutions providing formal education in agriculture	15.	Stanisław Kosmowski
	16.	Prof. Jan Łabętowicz
Institutions providing non-formal education and advisory services in agriculture	17.	Ewa Bieńkowska
	18.	Joanna Borczyńska-Żbikowska
Experts with knowledge and experience in working on IQS implementation	19.	Magdalena Słocińska
	20.	Anna Araminowicz

The substantive work on the SQF AG project was conducted in three stages:

- Stage 1 – development of a preliminary draft of SQF AG,
- Stage 2 – consultations within the sector,
- Stage 3 – development of the proposed SQF AG

During the first stage of the work, the Educational Research Institute conducted an analysis of competences and qualifications functioning in the agricultural sector. Then, during meetings and workshops, the expert team expanded the results of this analysis. In this way, the key competences of the sector were identified and organised, and served as the basis for formulating the SQF AG level descriptors. The result of the work in the first stage was a preliminary draft of the Sectoral Qualifications Framework for Agriculture.

In the next stage of the work, the initial SQF AG draft was consulted with the industry. Sectoral representatives were invited to participate in seminars, answer questionnaires and submit comments directly to expert team members. During the consultations, two seminars with 30 participants and a summary seminar with 72 participants were organised. A questionnaire survey was conducted, in which 159 respondents participated. In addition, the preliminary SQF AG draft was presented at an industry seminar organised by the Educational Research Institute in Zielona Góra (5–6 September 2019). The seminar was attended by more than 20 representatives of the agricultural sector, including agricultural advisors, producers, and local government representatives.

In addition to farmers involved in plant and animal production, representatives of agricultural entities from throughout the country participated in the consultations, among others, from:

- the Ministry of Agriculture and Rural Development,
- voivodeship agricultural advisory centres,
- National Centre for Agricultural Education in Brwinów,

- Wrocław University of Life Sciences,
- Warsaw University of Life Sciences,
- University of Technology and Life Sciences in Bydgoszcz,
- University of Agriculture in Krakow,
- Institute of Agricultural and Food Economics – National Research Institute,
- Plant Breeding and Acclimatization Institute – National Research Institute,
- Institute of Soil Science and Plant Cultivation – National Research Institute,
- InHort Institute of Horticulture,
- Experimental Station in Skierniewice,
- sectoral schools.

The final stage of the work included an analysis of the comments made during the consultations in the sector and the introduction of appropriate modifications to the developed material. The result of the third stage of the work is the proposed Sectoral Qualifications Framework for Agriculture.

2. Developing SQF AG

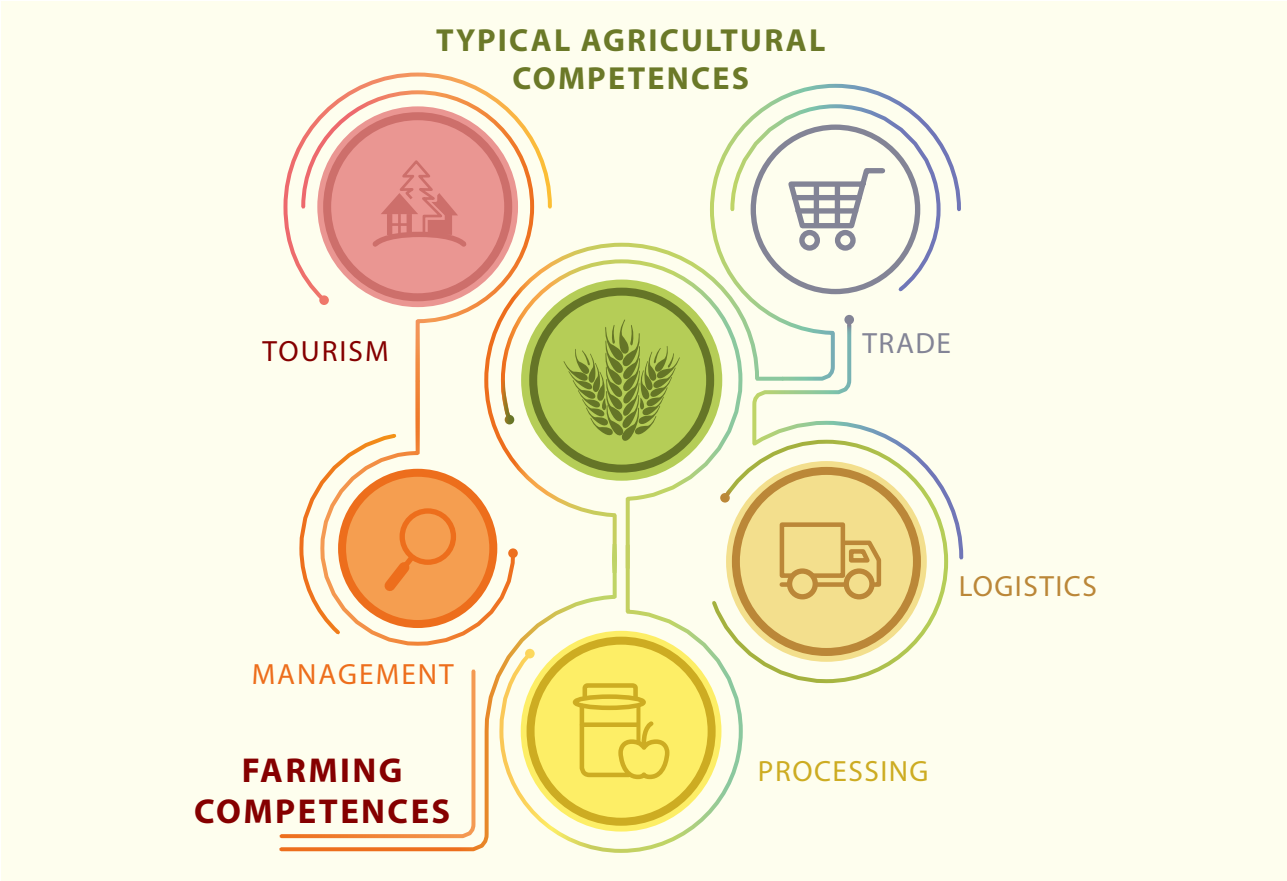
2.1. Determining the Scope of Competences in the Agricultural Sector

In its agricultural survey of Poland, Statistics Poland (GUS) defines an agricultural holding as "a single unit, both technically and economically, which has a single management (holder or manager) and which conducts agricultural activity". Additionally, GUS distinguishes individual farms, i.e. farms used by a natural person. In turn, individual farms can be divided into: (1) holdings with an area of 1 ha or more of agricultural land, (2) holdings with an area of less than 1 ha of agricultural land (including holdings without agricultural land), conducting agricultural production (crop and animal output) of a significant scale (determined by appropriate thresholds), together with special branches of agricultural activities.

In addition to holdings operated by natural persons, holdings of a legal person or an organisational unit without legal personality also exist. Their basic activity, according to the Polish Classification of Activities 2007, is included in Section A – agriculture, forestry, hunting and fishing, where Section 01 – plant cultivation, raising and breeding livestock, hunting and fishing – is the most important section. Worth noting here are the following groups: 01.1 – cultivation of non-perennial agricultural crops, 01.2 – cultivation of perennial crops, 01.3 – plant propagation, 01.4 – raising and breeding livestock, 01.5 – cultivation of agricultural crops combined with raising and breeding livestock (mixed farming), 01.6 – agricultural support services and post-harvest activities (especially class 01.61 – agricultural services supporting crop production [output]). This definition does not, however, allow the real boundaries of the sector to be precisely designated, which is needed in order to distinguish its specific competences and qualifications. The scope of activities in a rural holding traditionally identified with agriculture is very broad, as shown in Figure 3.

In accordance with its premises, the Sectoral Qualifications Framework for Agriculture encompasses competences that are specific to agricultural production. This does not mean that there are no other competences in agriculture than those included in SQF AG. Modern agriculture is an area of activity that requires a range of different skills and knowledge in many areas. In addition to breeding and raising animals and cultivation work, other activities are also conducted on farms, such as food processing, trade and agri-tourism. Supporting processes are also conducted, such as management, logistics and transport. All these activities require competences other than typically agricultural ones.

Figure 3. Competences used in a rural agricultural holding



Currently, as part of the activities relating to the implementation of the Integrated Qualifications System, sectoral qualifications frameworks are being developed, which group competences specific to particular areas of activity. So far, proposed SQFs have been developed, among others, for the trade and tourism sectors, which, as a supplement to SQF AG, can be used to identify competences required in agriculture (other than typically agricultural ones) and to describe related qualifications.

The final definition of the sector for the purpose of developing the SQF for Agriculture took the following form:

The SQF for Agriculture encompasses competences relating to breeding, cultivation and raising activities performed with the aim of producing plant or animal products in an unprocessed state, taking into account the rational use of natural resources, animal welfare, human safety as well as research and implementation activities in the sector.
The SQF for Agriculture entries in the section on the planning and management of plant production may also apply to the breeding and cultivation of mushrooms, algae and other things, for example.

2.2. Competence Areas in Agriculture

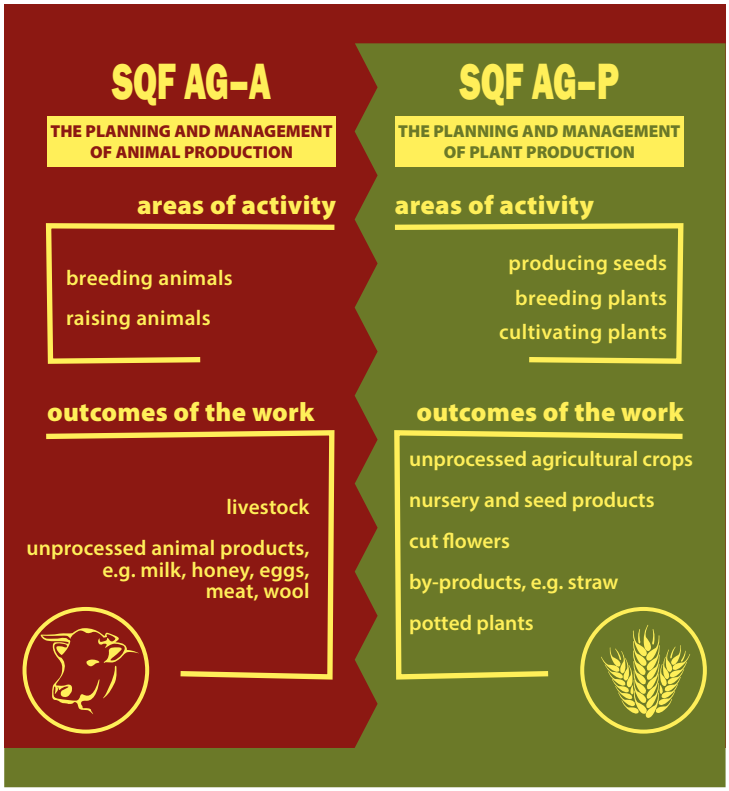
Due to the different nature of plant and animal production and the variety of processes implemented, it was decided to distinguish two areas within the Sectoral Qualifications Framework for Agriculture. This made it possible to avoid the formulation of overly general descriptors. The division was based on the type of production.

SQF AG–A encompasses the planning and management of animal production, i.e. activities relating to breeding and raising livestock. This area includes, among others, the competences of increasing stocks, ensuring animal welfare, assessing the condition of animals, procuring animal products as well as operating agricultural machinery and equipment

SQF AG–P encompasses the planning and management of plant production, i.e. activities relating to seed production, cultivating plants. This area includes, among other things, competences of acquiring new varieties, seed production, soil preparation, caring for and harvesting crops as well as operating agricultural machinery and equipment.

Both areas also include aspects relating to the quality of agricultural products, waste disposal, environmental protection, the integration of the farming community and safety.

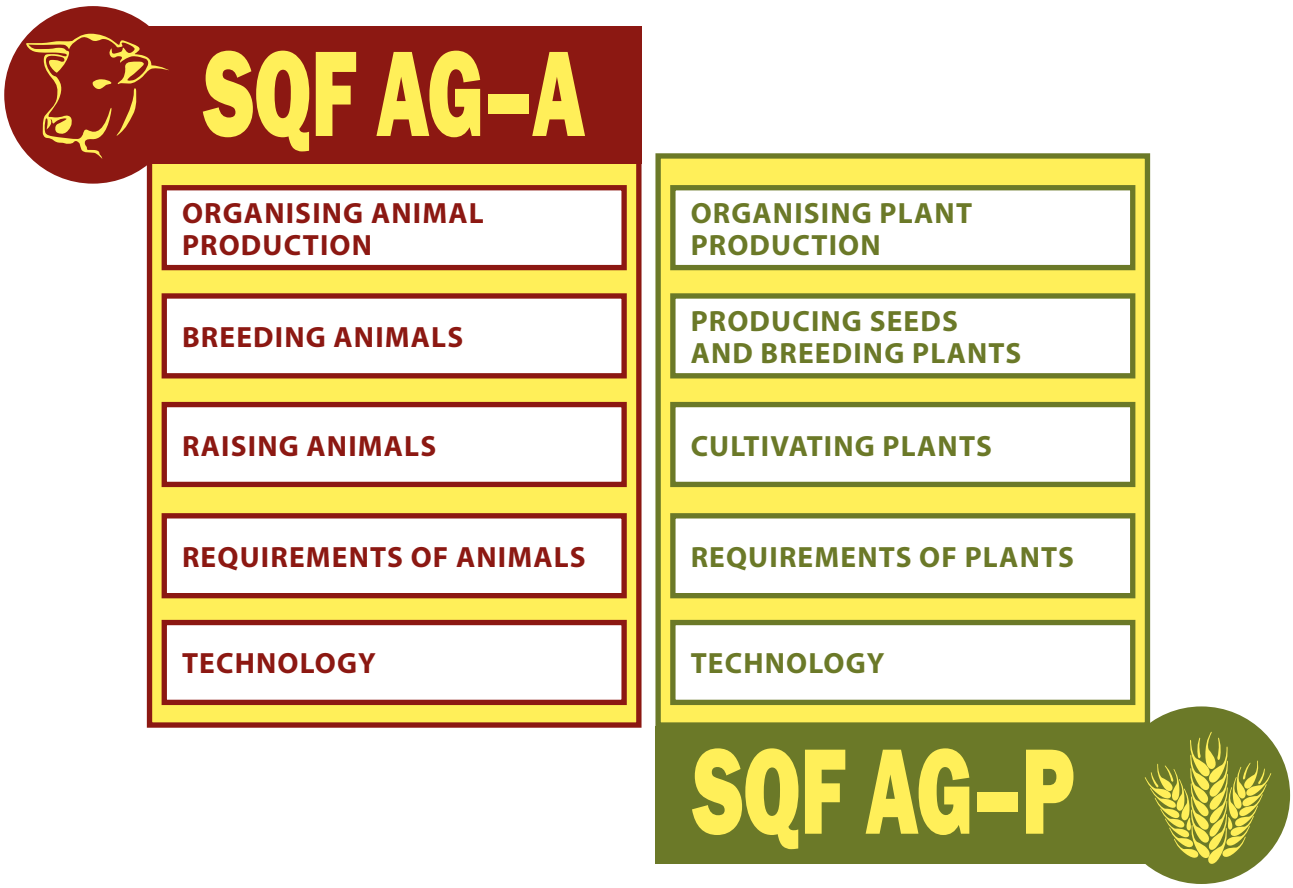
Figure 4. Competence Areas in Agriculture



2.3. Sectoral Determinants

Identifying sectoral determinants allows the key aspects of the sector to be ascertained. The selection of the determinants, which describe the agricultural sector in an optimal way, is based on a competence analysis, performed separately for area SQF AG–A and area SQF AG–P. The determinants formulated for each area are presented in Figure 5.

Figure 5. SQF AG Sectoral Determinants



The sectoral determinants in both areas of SQF AG have made it possible to ensure coherence and completeness within the sectoral qualifications framework. Competences from a given area are grouped, which makes searching for them intuitive. The description of the determinants serves as a key, making it possible to quickly find the entries one is looking for. Figure 6 presents the groups of competences that have been assigned to individual determinants.

Figure 6. Description of the SQF AG Sectoral Determinants

SQF AG–A

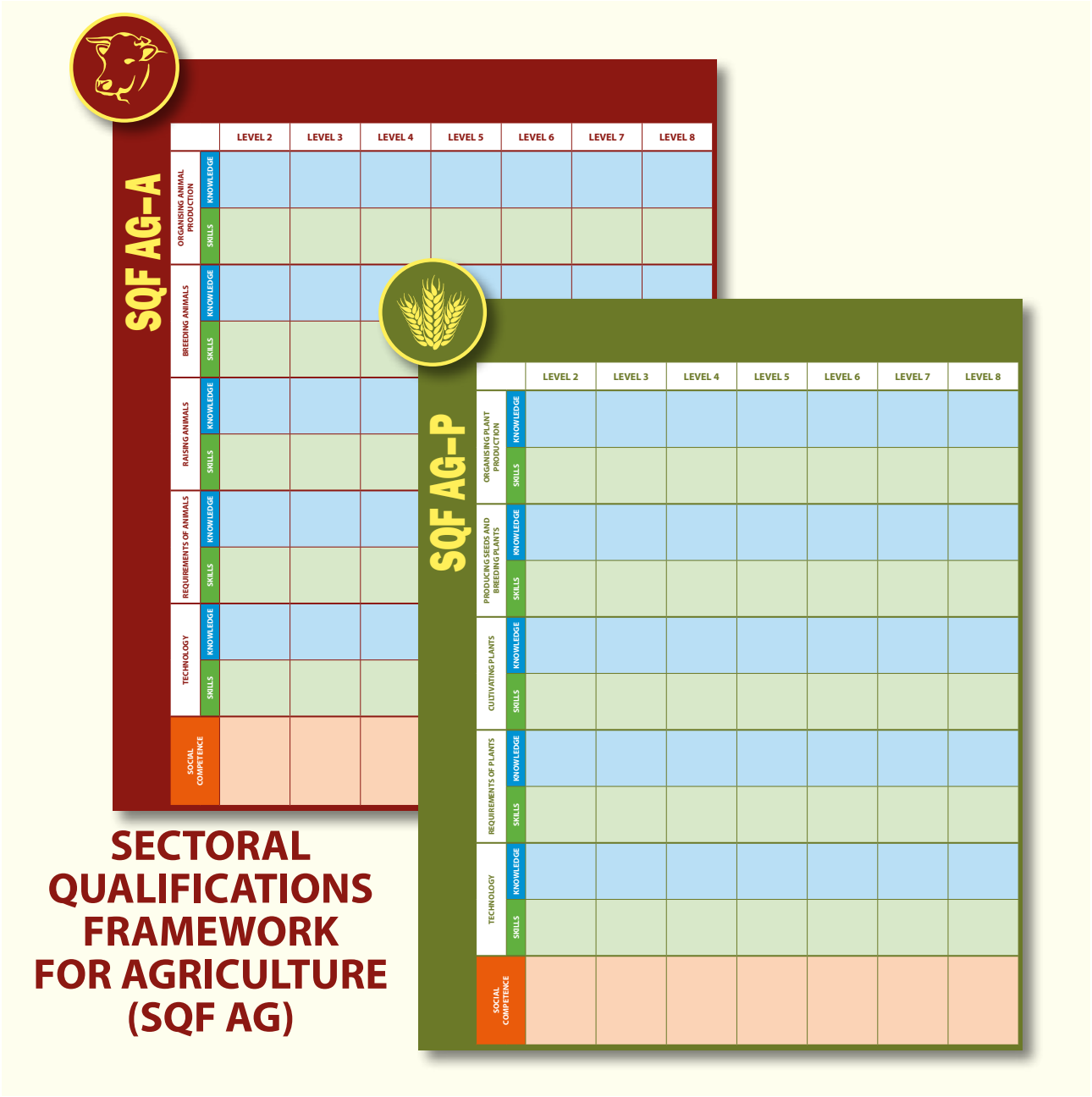
DETERMINANT	DESCRIPTION OF THE DETERMINANT THE DETERMINANT INCLUDES COMPETENCES RELATING TO:
ORGANISING ANIMAL PRODUCTION	• choosing the direction of the production, including animal species, breeds and production purposes as well as technologies • legal regulations on agricultural activities • calculating the costs and cost-effectiveness of conducting agricultural activities • taking advantage of the offer from external institutions supporting agricultural activities • the requirements of agricultural products customers and trends in the agricultural products market
BREEDING ANIMALS	• acquiring new animals (breeding) • acquiring breeding material • acquiring new breeds
RAISING ANIMALS	• providing living conditions • feeding animals • maintaining animals in good condition • securing animal products
REQUIREMENTS OF ANIMALS	• knowledge about animals, i.e. breeds, production purposes and their characteristics, requirements, morphology, behaviours • assessing the condition of animals, recognising problems in their appearance and behaviour
TECHNOLOGY	• operating machines, equipment and tools • choosing machines, equipment and tools

SQF AG–P

DETERMINANT	DESCRIPTION OF THE DETERMINANT THE DETERMINANT INCLUDES COMPETENCES RELATING TO:
ORGANISING PLANT PRODUCTION	• choosing the direction of the production, including species, varieties and technologies • legal regulations on agricultural activities • calculating the costs and cost-effectiveness of conducting agricultural activities • taking advantage of the offer from external institutions supporting agricultural activities • the requirements of agricultural products customers and trends in the agricultural products market
PRODUCING SEEDS AND BREEDING PLANTS	• acquiring new varieties • producing seeds and reproductive material
CULTIVATING PLANTS	• preparing for cultivation and preparing the soil/substrate • plant tending and protection activities • fertilising crops • waste disposal and management
REQUIREMENTS OF PLANTS	• knowledge about plants, i.e. species, varieties and their characteristics, requirements, structure • assessing the condition of plants, recognising problems in their appearance
TECHNOLOGY	• operating machines, equipment and tools • choosing machines, equipment and tools

SQF AG is structured so that corresponding knowledge and skills have been assigned to each determinant. The division of the descriptors by sectoral determinants was not retained for the category of social competence. Social competences have a universal nature within the sector, so there were similar ones within the different determinants. Therefore, it was decided to develop a catalogue of social competences relevant to the entire area without assigning them to specific determinants. The structure of SQF AG by sectoral determinants is shown in Figure 7.

Figure 7. Structure of the Sectoral Qualifications Framework for Agriculture



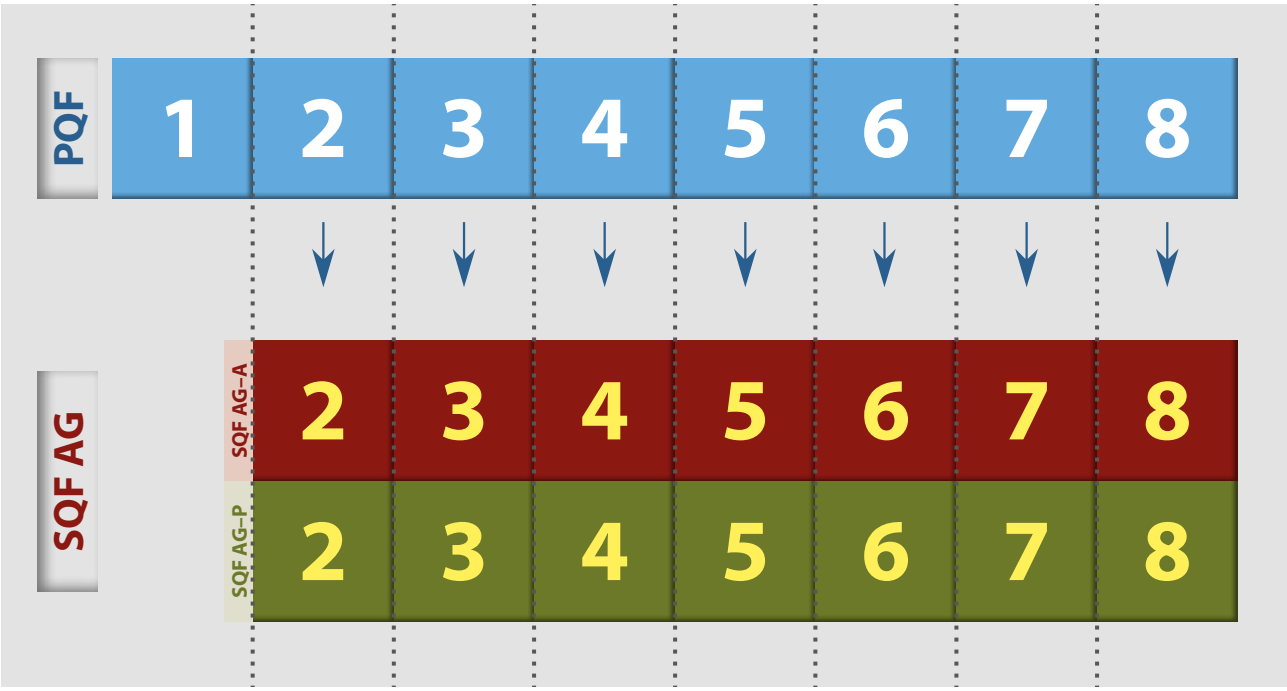
	Sectoral Determinants	Description
SQF AG–A	organising animal production	The determinant includes the competences of planning and organising animal production, starting with the selection of species, breeds and the production purpose of animals. It includes the competences of deciding on the choice of management or production technologies. The determinant takes into account knowledge of local conditions and the ability to assess them for agricultural purposes. It takes into account issues relating to legal regulations governing agricultural activity and organisational solutions, e.g. maintaining the necessary documentation. Competences of calculating the profitability of agricultural activities are described, also taking into account the possibilities of using external sources of financing specific to the agricultural sector. Competences concerning knowledge and skills relating to market trends and customer requirements for agricultural animal products are also described.
	breeding animals	The determinant includes the competence of acquiring new animals, including the acquisition of new breeds, the production of breeding material and the reproduction of already known breeds.
	raising animals	The determinant describes the knowledge and skills required to ensure animal welfare. It encompasses issues on the provision of proper living conditions, animal nutrition, care and securing products. The requirements take into account the methods used to perform professional tasks, the use of raw materials (e.g. feed) and waste disposal and management.
	requirements of animals	The determinant includes the knowledge and skills relating to the knowledge of animals, their characteristics, requirements, morphology, behaviour as well as the ability to assess their condition and identify anomalies.
	technology	The determinant includes the competence requirements of operating the machinery, equipment and tools used in animal production.

	Sectoral Determinants	Description
SQF AG–P	organising plant production	The determinant includes the competences of planning and organising plant production, starting with the selection of plant species and varieties. It includes the ability to make decisions on management choices and production technologies. The determinant encompasses knowledge of local conditions and the ability to assess them for the purpose of agricultural activities. Issues relating to legal regulations on agricultural activities and organisational arrangements for, among others, maintaining necessary documentation are taken into account. Competences for calculating the profitability of agricultural activities are described, taking into account the specific possibilities of using external sources of financing specifically for the agricultural sector. Competence in knowledge and skills on market trends and customer requirements for agricultural plant products is also taken into account.
	producing seeds and breeding plants	The determinant includes competences in plant breeding and the production of reproductive material, including the acquisition of new varieties and species.
	cultivating plants	The determinant encompasses the requirements of plant cultivation, including knowledge and skills in the selection of appropriate technology to care for the soil/substrate, prepare it for cultivation, sowing and planting tasks, fertilisation, plant care and protection and harvesting. The requirements take into account the methods of performing professional tasks and using raw materials (e.g. fertilisers, plant protection products) as well as waste disposal and management.
	requirements of plants	The determinant includes knowledge and skills relating to the knowledge of plants, their characteristics, requirements (food, water, oxygen, etc.), morphology and the ability to assess their condition.
	technology	The determinant encompasses the competence requirements of operating the machinery, equipment and tools used in plant production.

2.4. Structure of the SQF AG Level Descriptors

SQF AG consists of competences corresponding to Polish Qualifications Framework levels 2–8, and these levels have been described for both SQF AG–A and SQF AG–P. The layout of the levels of individual sectoral determinants is presented in Figure 8.

Figure 8. Referencing SQF AG to the Polish Qualifications Framework



Competence series are groups of descriptors on successive levels describing the requirements that pertain to a particular issue. SQF AG competences for a single series are always presented in the same row, so that it is possible to trace the progression of requirements. An example of an SQF AG competence series is shown in Figure 9.

Figure 9. Example of a competence series in the category of skills, area SQF AG–A, sectoral determinant "raising animals"

Figure 10. Example of a competence series in the category of skills, area SQF AG–P, sectoral determinant "cultivating plants"

3. Glossary of SQF AG Terms

3.1. Concepts Used in Constructing SQF AG

The definitions below are based on the publication *Słownik Zintegrowanego Systemu Kwalifikacji* [Glossary of the Integrated Qualifications System] (Sławiński, 2017).

- Polish Qualifications Framework level descriptors – a set of descriptions characterising the knowledge, skills and social competences required for qualifications at a given level. The Polish Qualifications Framework (PQF) distinguishes eight levels, which are referenced directly to the eight levels of the European Qualifications Framework. This term has not been defined in the IQS Act.

- Learning outcomes – encompass knowledge (what a person knows and understands), skills (what a person is able to do) and social competence (the attitudes they present, readiness to perform specific tasks and preparation to fulfil specific obligations). In the IQS Act: "knowledge, skills and social competence attained through the learning process" (art. 2, item 4).

- European Qualifications Framework (EQF) – the reference system for national qualifications frameworks in the EU, including the Polish Qualifications Framework. It enables the indirect comparison of qualifications attained in different countries. In the EQF, the framework levels are defined by means of learning outcomes descriptors in the categories of knowledge, skills and personal and social competence. The IQS Act refers to the term European Qualifications Framework once in the context of the PQF.

- Competences – refer to the broadly understood ability to undertake specific activities and tasks using learning outcomes and one's own experiences. This term has not been defined in the IQS Act.

- Social competence – one of three categories of learning outcomes. This is the ability to shape one's own development as well as the autonomous and responsible participation in professional and social life. Social competence takes into account the ethical context of one's own behaviour. In the IQS Act: "the ability developed during the learning process to shape one's own development, as well as the autonomous and responsible participation in professional life and society, taking into account the ethical context of one's own behaviour" (art. 2, item 7).

- Qualification – a defined set of learning outcomes whose attainment is assessed in a validation process and formally confirmed by an authorised institution.

3.2. Characteristic Concepts in the Agricultural Sector

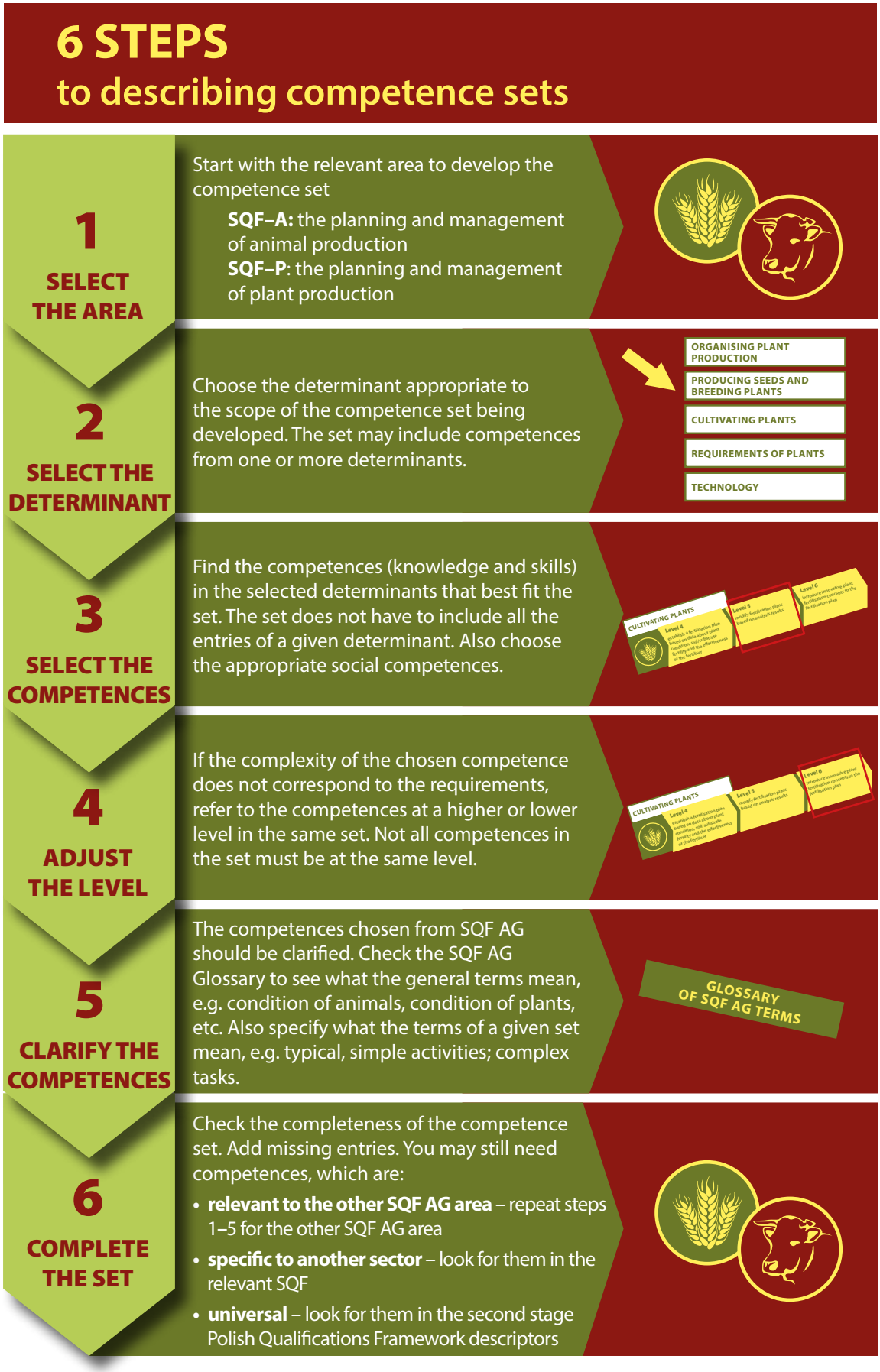
- Condition of animals – weight, physiological condition, appearance, behaviour, health, performance.
- Condition of plants – appearance, size, fertility, resistance to pests, pathogens and climate conditions.
- Plant products – unprocessed agricultural crops, nursery and sowing material, cut flowers, potted plants, by-products of plant production (e.g. straw). The SQF AG entries in the area of the planning and management of plant production may also refer to the breeding and cultivation of fungi, algae and other things, for example.
- Animal products – livestock and unprocessed animal products, e.g. meat, milk, eggs, honey, wool.
- Substrates – the underlying material or other types of growing media used in plant cultivation (np. hydroponics, aeroponics).

4. Using SQF AG

4.1. Selected Examples of Using SQF AG

The SQF AG, by adapting its provisions to the specificity of the sector, is a tool for determining sets of competences that can be the basis for developing descriptions of qualifications, jobs, training programmes or self-study plans. The design of SQF AG allows for a very simple, intuitive selection of the competences required in a set. The whole process of describing competence sets with SQF AG takes place in a few simple steps, which are described in Figure 11.

Figure 11. Diagram of developing competence sets using SQF AG



4.2. Proposals for Using SQF AG in Practice

A repeatedly cited benefit of the development and planned implementation of the SQF for Agriculture is bringing the Integrated Qualifications System closer to its recipients from the agricultural sector and facilitating the use of the solutions it offers. Particularly worth noting is the fact that a sectoral framework makes it easier to use the Integrated Qualifications Register, enabling qualifications in the sector to be organised and compared. Interest in the Integrated Qualifications System and becoming aware of its benefits will translate into the motivation to describe qualifications in the agricultural sector. SQF AG can be a tool to support the entities involved in the process of describing and including market qualifications in this field.

The SQF for Agriculture systematises the sector's competences. It is thus a tool that can be used to identify competence gaps or those needed to implement new agricultural production methods, for example. The identification of needs in this area will benefit farm and business operators and their employees, as well as advisors and training companies. The precisely described needs make it possible to develop a dedicated training programme and determine its desired effects, which increases the motivation of people working in agriculture to improve their competences. Describing the desired competences and identifying the demand for employees meeting specific requirements will also become an impetus for describing market qualifications. This may particularly apply to areas of agriculture that benefit more from hired workers. Market qualifications, on the one hand, will signal the expectations of people operating farms and agricultural enterprises, while on the other hand, they will indicate precisely which competences must be demonstrated by people wishing to obtain a given certificate. This will open up additional opportunities for people with professional experience who want to confirm their competences, while for pupils or students, it will make it easier to plan their educational and professional path.

The role of the SQF for Agriculture has also been recognised as a document serving as a reference point for the development of education programmes within formal education. The identification and systematisation of competences in the areas of knowledge, skills and social competence will promote an appropriate balance of learning among these categories during formal education at both the school and university level.

Persons operating and managing farms and agricultural enterprises will be able to benefit from the future inclusion of agricultural sector market qualifications in the IQS, as well as directly from the provisions of the SQF for Agriculture. The SQF AG descriptors can be useful in describing the competence requirements for performing specific professional tasks, thus enabling a more accurate allocation of responsibilities, easier recruitment, assessment of employees and their development planning.

The benefits of developing and implementing an SQF for agriculture vary depending on the specific characteristics of particular groups of people or entities. One such group is made up of representatives from public administration or

organisations working for the sector and making decisions affecting it. These are often people who personally do not work in farming and are not familiar with the specific features of all areas of agricultural production. The SQF for Agriculture will be a tool to help them familiarise themselves with the competence requirements of the whole sector and to understand them also in terms of required knowledge, skills and social competence.

An information campaign is essential to actually implement the SQF for Agriculture, which would disseminate the principles of the IQS and the sectoral qualifications framework as well as ensure a uniform understanding of the provisions of the SQF for Agriculture.

The Ministry of Agriculture and Rural Development and the agricultural advisory units – the Agricultural Advisory Centre and its regional offices – should be involved in information and promotion activities for the SQF for Agriculture. They have qualified staff and their network covers the whole country. The following institutions from the sector's community could also play an important role in promoting the SQF for Agriculture: chambers of agriculture, National Agricultural Support Centre, and the Agency for the Restructuring and Modernisation of Agriculture.

Promoting the SQF for Agriculture should include the provision of information via websites and social media. However, the importance of information seminars and training courses, which could be organised on the occasion of events such as fairs and exhibitions that bring together representatives of the sector, was stressed. Also recommended are materials traditionally used by agricultural advisory bodies, such as posters, leaflets and brochures.

Representatives of the sector were unanimous in pointing out that the Ministry of Agriculture and Rural Development is the entity that should take responsibility for the implementation of the SQF for Agriculture. The Agricultural Advisory Centre and the Voivodship Agricultural Advisory Centres should be involved in particular activities.

The proposed measures to support the implementation of the SQF for Agriculture include support, both substantive and financial, for the process of describing market qualifications. Such support, coordinated by the agricultural advisory centres, would make it possible to describe qualifications that meet the needs of the entire community, as well as those that would be appropriate for a specific, narrower area of activity in the sector.

Notwithstanding the above, consideration should be given to piloting the SQF for Agriculture. Given the specific nature of the sector, including the large number of small farms, the experience gained from the former or current pilot projects of sectoral qualifications frameworks in other sectors may not be adequate for agriculture. It would be appropriate to conduct a pilot in a selected or specific area of agricultural production and to include enterprises and farms of different sizes, operating within the framework of various legal forms.

An additional, desirable measure for the implementation of the SQF for Agriculture would be to have public administration units use the language of the

Integrated Qualifications System. Introducing criteria relating to the IQS should be considered when defining requirements during recruitment for administrative positions, specifying the selection criteria for service providers or setting forth the requirements for obtaining certain rights (e.g. the requirement to have a certificate confirming a specific qualification instead of presenting information just on a completed educational level or professional experience). Taking into account the fact that the principles followed by the administration in defining the above mentioned requirements and criteria are partly due to legal regulations, an appropriate legal analysis would need to be prepared. On the basis of this analysis, recommendations could be drawn up concerning changes in the regulations, which would make this aspect of the administration's operation more flexible.

Perspectives

The SQF for Agriculture was assessed in terms of its flexibility in the drafting process, both during the initial draft and the consultations. Experts and stakeholders considered whether the proposed provisions are so universal that they cover all current and future processes in the agricultural sector. However, given the speed of the changes taking place and the difficulty in predicting their consequences, it would be reasonable to review SQF AG within three to five years.

Both the experts participating in the development of the proposed SQF for Agriculture and those consulting the material pointed to the close link between the agricultural sector and food processing. Bearing in mind the usefulness of the SQF for Agriculture and the different nature of the professional tasks performed in the processing sector, competences in this area were not included in the draft framework. Nevertheless, there is a clear need to develop a sectoral qualifications framework covering agri-food processing, whether by expanding the SQF AG or developing a separate framework. This would allow agri-food processing to obtain similar benefits to those described for the agricultural sector. It would also make it easier to describe market qualifications that combine typical agricultural competences, for which the provisions of the SQF for Agriculture are appropriate, with competences in the area of processing.

Literature

Chłoń-Domińczak, A., Sławiński, S, Kraśniewski, A., Chmielecka, E. (2017). *The Polish Qualifications Framework. Knowledge, Skills, Social Competence.* Warszawa: Instytut Badań Edukacyjnych.

Council recommendation of 22 May 2017 on the European Qualifications Framework for lifelong learning and repealing the recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European Qualifications Framework for lifelong learning. OJ C 189, 15.6.2017, pp. 15–28.

Czapiewski, K. Ł., Kulikowski, R., Bański, J., Bednarek-Szczepańska, M., Mazur, M. and Ferenc M. (2012). *Wykorzystanie ICT w rolnictwie Mazowsza – ujęcie przestrzenne*. Warszawa.

Główny Urząd Statystyczny (2020a). *Rocznik Statystyczny Rolnictwa 2019*. Retrieved from https://stat.gov.pl/obszary-tematyczne/roczniki-statystyczne/roczniki-statystyczne/rocznik-statystyczny-rolnictwa-2019,6,13.html

Główny Urząd Statystyczny (2020b). *Rolnictwo w 2019*. Retrieved from https://stat.gov.pl/obszary-tematyczne/rolnictwo-lesnictwo/rolnictwo/rolnictwo-w-2019-roku,3,16.htm

Infor.pl. (2018). *Ponad połowa pracodawców ma problem ze znalezieniem pracowników*. Retrieved from https://www.infor.pl/prawo/bezrobotny/aktualnosci-rynku-pracy/2542300,2,Ponad-polowa-pracodawcow-ma-problem-ze-znalezieniem-pracownikow.html

Klepacki, B. (2008). *Przesłanki zmiany roli rolnictwa w gospodarce naro*dowej. Warszawa: Katedra Ekonomiki i Organizacji Przedsiębiorstw, Wydział Nauk Ekonomicznych SGGW w Warszawie, V Rolniczy Festiwal Nauki Warszawa–Brwinów, 10–11.09.2008.

Komisja Europejska (2020). *Wspólna polityka rolna w skrócie*. Retrieved from https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/cap-glance_pl

Matyka, M., Krasowicz, S., Kopiński, J. (2016). Zmiany produkcji rolniczej w Polsce w latach 2000–2014. W: *Studia BAS,* 4, 7–36. Retrieved from https://www.sejm.gov.pl/

Ministerstwo Edukacji Narodowej (2013). *Perspektywa uczenia się przez całe życie*. [*Perspectives for lifelong learning*] (2013). Annex to Decree no. 160/2013 of the Council of Ministers of 10 September 2013. Warszawa: Ministerstwo Edukacji Narodowej.

Ministerstwo Edukacji Narodowej (2020). *Zintegrowana Strategia SKILLS is able to 2030 – projekt skierowany do uzgodnień i konsultacji publicznych* [*Integrated Skills Strategy 2030 – draft for public consultation and agreement*]. Retrieved from https://bip.men.gov.pl/dzialalnosc/c36-programyprojekty/zintegrowana-strategia-umiejetnosci-2030-skierowana-do-konsultacji-publicznych.html

Polska Agencja Rozwoju Przedsiębiorczości (2019). *Rynek pracy, edukacja, kompetencje. Aktualne trendy i wyniki badań*. Warszawa: Polska Agencja Rozwoju Przedsiębiorczości.

Pałosz, T. (1998). *Podstawy produkcji rolniczej*. Koszalin: Wyd. Uczelniane Politechniki Koszalińskiej.

Sławiński. S. (2017). *Słownik Zintegrowanego Systemu Kwalifikacji*. Warszawa: Instytut Badań Edukacyjnych.

Tłuczak, A. (2011). *Prognozowanie w rolnictwie na podstawie wybranych modeli szeregów czasowych*. Opole: Wyd. Uniw. Opolskiego.

Toffler, A. (1997). *Trzecia fala* [*The Third Wave*]. Warszawa: PIW.

Uchwała nr 8 Rady Ministrów z dnia 14 lutego 2017 r. w sprawie przyjęcia Strategii na rzecz Odpowiedzialnego Rozwoju do roku 2020 (z perspektywą do 2030 r.). *Monitor Polski* (2017 r., poz. 260).

Ustawa z dnia 22 grudnia 2015 r. o Zintegrowanym Systemie Kwalifikacji (Dz.U. z 2020 r., poz. 226).

Annex. SQF AG Level Descriptors

Area SQF AG–A
THE PLANNING AND MANAGEMENT OF ANIMAL PRODUCTION

DETERMINANT		LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
ORGANISING ANIMAL PRODUCTION	KNOWLEDGE – knows and understands		the conditions required to breed and raise animals	the methods, systems, essential machinery and equipment required for animal production	the conditions under which methods, systems, machines and equipment are used for animal production			
				the factors determining the selection of animal breeds and production purpose				
				legal regulations on conducting agricultural activities as well as breeding and raising animals				
			the principles and requirements of documenting the tasks of breeding and raising animals	the principles of maintaining documentation on breeding and the registration of new breeds	the principles of maintaining registers and databases on breeding and raising animals			
			the basic principles of farm and agricultural enterprise cost calculations	the categories and types of farm and agricultural enterprise costs	the factors affecting the profitability of agricultural production	the economic effects of events taking place at a farm and agricultural enterprise		
			the current prices of agricultural products as well as the goods and services affecting farm and agricultural enterprise costs	the price trends of agricultural products as well as the goods and services affecting farm and agricultural enterprise costs	the factors shaping the price trends of agricultural products as well as the goods and services affecting farm and agricultural enterprise costs	the mechanisms shaping price trends in domestic and world markets for agricultural products as well as the goods and services affecting farm and agricultural enterprise costs		
			the types of institutions, organisations and programmes working for the development of rural areas and agriculture	the scope of services offered by institutions, organisations and programmes working for the development of rural areas and agriculture as well as the general principles of programmes operating for such development	at an advanced level, the detailed conditions under which institutions, organisations and programmes operating for the development of rural areas and agriculture provide support	the operating mechanisms and impact of systemic solutions supporting the development of rural areas and agriculture	the possibilities of using the systemic solutions of other public policy areas to support the development of rural areas and agriculture	
			customers' requirements of animal products	the prospective directions of change in customers' requirements of animal products	the factors affecting customers' requirements of animal products	the mechanisms shaping trends in customers' requirements of the domestic and world markets of animal products		
			the types of agricultural product customers and suppliers	the principles of cooperating with agricultural product customers and suppliers				

DETERMINANT		LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
ORGANISING ANIMAL PRODUCTION	SKILLS – is able to			specify the conditions required to safeguard the welfare of farm animals	analyse the determinants for animal production	design and modify the conditions for animal production		
				select the breeds and production purposes of animals for specific farm conditions and production technologies	select the technologies and systems for animal production	assess the effectiveness of the production technologies and systems used		
			document the professional activities of agricultural production	prepare the documentation for registering new breeds	maintain registers and databases on breeding and raising animals			
			understand recommendations, prescriptions, recipes and instructions for raising animals	maintain documentation on breeding and raising animals	prepare instructions and recipes for breeding and raising animals			
			calculate the costs of maintaining animals	calculate the costs of conducting agricultural activities	calculate the profitability of agricultural production and the financial result of a farm and agricultural enterprise	prepare a multi-year financial plan for a farm/agricultural enterprise	propose ways to optimise the agricultural production of a farm/agricultural enterprise and variants of the financial result	
			use available sources of information on the prices of agricultural products as well as the goods and services affecting the costs of a farm and agricultural enterprise	analyse the factors affecting the prices of agricultural products as well as the goods and services affecting the costs of a farm and agricultural enterprise	forecast the prices of agricultural products as well as the goods and services affecting the costs of a farm and agricultural enterprise			
			retrieve information on the services provided by institutions and organisations working for the development of rural areas and agriculture	prepare applications to obtain support for the development of rural areas and agriculture	supervise programme and project activities undertaken to support the development of rural areas and agriculture	propose systemic solutions to support the development of rural areas and agriculture	develop projects to support the development of rural areas and agriculture	develop multi-year programmes to support the development of rural areas and agriculture
				analyse information on customers' requirements of animal products	interpret study results on consumer needs and identify the needs of customers			
				identify the factors influencing customers' requirements of animal products	analyse the factors shaping customers' requirements and trends in local and national agricultural product markets	analyse the factors shaping customers' requirements and trends in the global agricultural product market	forecast the trends in local and national agricultural product markets	forecast the trends in the global agricultural product market
			retrieve basic information on local suppliers and customers	determine the conditions of cooperating with suppliers and customers	analyse the possibilities and principles of cooperating with suppliers and customers			

DETERMINANT		LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
BREEDING ANIMALS	KNOWLEDGE – knows and understands		the principles of conducting the basic activities of animal insemination	the typical and frequently used methods of animal insemination	non-routine methods of animal insemination			
				the principles and criteria of individual selection	the principles of inheriting traits	the methods of modifying traits	advanced biotechnological methods of animal breeding	the latest global methods of animal breeding
			the methods of monitoring animal fertility					
			the methods and systems of assessing use and breeding value					
			the methods of collecting, preserving and storing semen					
			the typical course of pregnancy and parturition	the symptoms of abnormalities during pregnancy and parturition				
	SKILLS – is able to		perform animal insemination activities	perform tasks to assess semen quality	perform complex animal breeding tasks	perform complex animal breeding tasks using biotechnological methods		
				assess the use and breeding value of animals	perform the genetic selection of individuals possessing desired traits	develop the premises for the genetic selection of individuals	develop long-term animal breeding programmes	develop innovative animal breeding programmes
					monitor the course of pregnancy and parturition, diagnose abnormalities in the course of pregnancy and parturition			
RAISING ANIMALS	KNOWLEDGE – knows and understands		the conditions for raising animals resulting from legal principles and regulations	the effect of living conditions on the welfare of animals				
		the principles of providing food	the dietary components of the food used in animal nutrition	the effect of dietary components on the welfare of animals and quality of animal products				
		the basic types, composition and properties of typical feeds used in animal nutrition	the basic types, composition and properties of typical food used for feeding sick animals and those with non-routine requirements					
				the principles of combining dietary components and diet composition	the principles and concepts of animal nutrition	at an advanced level, the theories on animal nutrition that improve the condition of animals and the quality of the products obtained	in-depth, the theories about animal nutrition that improve the condition of animals and the quality of the products obtained	innovatively, the theories used in the world on animal nutrition
			the principles of performing basic care and hygiene procedures	the principles of performing specialised care and hygiene procedures	the effect of care and hygiene procedures on the appearance and condition of animals			

DETERMINANT		LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
RAISING ANIMALS	KNOWLEDGE – knows and understands			the typical methods and techniques of performing basic care and hygiene procedures	the typical methods and techniques of performing specialised care and hygiene			
		types of preventive and curative procedures	the principles of performing basic preventive and curative procedures	the principles of performing specialised preventive and curative procedures				
				the effects of basic pharmaceutical products used in raising animals				
			the courses of action to take when typical symptoms of animal diseases appear	the courses of action to take when the lives of animals are threatened	the methods of treating typical animal diseases			
			typical behaviour of animals resulting from their nature	the factors affecting the behaviour of animals	the effect of intentional human actions on the process of shaping the behaviour of animals	at an advanced level, the theories explaining animal behaviour and relating to its formation and modification	in-depth, the theories explaining animal behaviour and relating to its formation and modification	the latest global theories explaining animal behaviour and relating to its formation and modification
			the principles of handling animals	routine methods and techniques of shaping behaviours typical for a given species	the methods and techniques of treating routine behavioural disorders	the methods and techniques of treating non-routine behavioural disorders and the formation of atypical behaviours		the latest global trends in the field of animal behaviour science
		the basic methods and principles of obtaining animal products	the methods and principles of obtaining animal products	the methods and principles of taking samples and testing the parameters of animal products				
			the basic characteristics of animal products	the physical and physico-chemical parameters of animal products				
			the principles of handling animal products	the parametric requirements of animal products	the factors affecting the quality of animal products			
		the basic principles for handling products intended for consumption	food safety requirements	the legal regulations on food safety				
		the basic principles of waste management on farms	the principles and methods of the utilisation and processing of farm waste	the legal regulations on the utilisation and processing of farm waste				
	SKILLS – is able to	perform basic activities to maintain the appropriate living conditions of animals	perform activities to operate automatic systems ensuring the living conditions of animals	select living conditions in accordance with the needs and condition of animals	analyse the effect of living conditions on the condition of animals			
		provide food and water to animals	prepare food based on recommendations	establish a feeding plan based on data on the characteristics and condition of the animal and the results of animal testing	analyse the effect of the dietary components on the condition of animals and modify feeding plans based on the results of the analysis	introduce innovative animal nutrition concepts to the feeding plan	develop new concepts of feeding animals	develop long-term strategies of feeding animal populations

DETERMINANT		LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
RAISING ANIMALS	SKILLS – is able to				select methods and techniques of administering food and monitoring food intake and assimilation	adapt the methods and techniques of administering food and monitoring food intake and assimilation		
		perform basic care and hygiene procedures	perform specialised animal care and hygiene procedures	plan animal care and hygiene procedures				
					select the methods and techniques of performing care and hygiene procedures for the typical needs and condition of animals	adapt the methods and techniques of performing care and hygiene procedures for the non-routine needs and condition of animals	modify the methods and techniques of performing care and hygiene procedures	develop new methods and techniques of performing care and hygiene procedures
			administer pharmaceutical products to animals as directed	provide animals with first aid in situations threatening their lives or health	plan preventive activities to protect the health of animals			
			identify abnormalities in the behaviour of animals	diagnose the causes of abnormalities in the behaviour of animals	plan activities to shape the behaviour of animals	plan the treatment of animal behaviour disorders		
					perform activities to shape the behaviour of animals	perform tasks to treat animal behaviour disorders		
					select the methods and techniques of shaping typical behaviours and treating typical behavioural disorders of animals	adapt the methods and techniques of shaping non-routine behaviours and treating atypical behavioural disorders of animals	modify the methods and techniques of shaping the behaviours and treatment of behavioural disorders of animals	develop new methods of shaping the behaviours and treatment of behavioural disorders of animals
			perform activities to obtain animal products (honey, milk, eggs, wool, etc.)	plan activities to obtain animal products				
			take samples of animal products for testing	test the parameters of animal products	analyse and assess the parameters of animal products			
		perform activities to utilise farm waste	classify farm waste	plan the management and processing of farm waste				
REQUIREMENTS OF ANIMALS	KNOWLEDGE – knows and understands	the species, breeds and production purposes of animals and their basic traits	the traits of individual breeds and production purposes of animals for breeding and production	the anatomical structure, life functions and development cycle of animals				
		the basic living and nutritional needs of animals	the typical requirements of animal species and breeds	the non-routine requirements of animals resulting from their condition and production purposes				
		a given species' typical behaviours and traits, which indicate the health of the animals	the common diseases and their symptoms typical of a given species	the diseases and their symptoms typical of a given species	the disease-causing factors of the diseases typical of a given species	the incidence and prevalence of diseases typical of a given species		
	SKILLS – is able to	recognise abnormalities in the condition of animals	recognise the symptoms of common diseases typical of a given species	recognise the symptoms of diseases typical of a given species	assess animals' state of health and diagnose diseases typical of a given species	assess the risk of typical disease outbreaks in animal populations		

DETERMINANT		LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
TECHNOLOGY	KNOWLEDGE – knows and understands	the basic principles of operating simple machines and equipment as well as the principles of using workplace tools	the operating principles and basic parameters of machines and equipment used in breeding and raising animals	the parameters, application and operation of machines and equipment used in breeding and raising animals	the parameters, application and mode of operation of computer-controlled machines and equipment used in breeding and raising animals			
					the principles of selecting machines for typical processes in breeding and raising animals	the technical innovations in the field of the machines used in breeding and raising animals	the premises and possible ways of using innovative technologies in breeding and raising animals	global innovations in breeding and raising animals
	SKILLS – is able to	perform the basic activities of operating the basic machinery and equipment used in feeding and obtaining products	perform activities relating to the operation of machinery and equipment used in feeding and obtaining products	perform activities relating to the basic operation of computer-controlled machines used in breeding and raising animals	program computer controlled systems, machines and equipment used in breeding and raising animals	select systems, machines and equipment for precision agricultural production	design complex precision systems for raising animals	develop the premises for developing innovative systems for breeding and raising animals
		use tools to perform tasks in maintaining the cleanliness of animals' surroundings, obtaining products and performing basic care and hygiene procedures	use tools to perform tasks in animal insemination, medical treatments as well as specialised care and hygiene procedures	select the tools required to perform tasks relating to breeding and raising animals				
SOCIAL COMPETENCE is ready to		follow the principles in force and instructions received to safely perform simple activities relating to raising animals	act in accordance with occupational health and safety principles, instructions and legal regulations relating to raising animals	act diligently with respect to one's own occupational health and safety and that of subordinate workers when performing tasks relating to raising animals	perform activities to increase safety in one's workplace			
			act in accordance with the legal regulations in force and good practices in agriculture	comply with the principles arising from legal regulations and good practices in agriculture	monitor changes in legal regulations and good practices in agriculture			
		establish and maintain contacts with co-workers and supervisors to enable the performance of simple activities relating to raising animals	establish and maintain essential relationships with co-workers and supervisors to enable the performance of activities relating to raising animals	establish and maintain cooperation with other agricultural producers and contractors to increase the effectiveness, quality and safety of performing tasks in agriculture	shape relationships in the community of agricultural producers, establish long-term cooperation with other producers to increase the effectiveness and quality of performing tasks in agriculture	promote cooperation among agricultural producers, integrate the community of agricultural producers	establish relationships and cooperation in the community of agricultural producers to promote good practices and implement innovative solutions in agricultural production	initiate and develop national and international cooperation in the community of agricultural producers and the scientific community to transfer innovative solutions in agricultural production
			establish and maintain relationships with co-workers and superiors to enable the development of professional competences in breeding and raising animals	establish and maintain relationships with other agricultural producers, contractors and agricultural advisors to enable the development of professional competences in raising and breeding animals				
				establish and maintain relationships with local communities and organisations working for the development of rural areas and agriculture	establish long-term cooperation with local communities and organisations working for the development of rural areas and agriculture	promote cooperation with local communities and organisations working for the development of rural areas and agriculture	shape relationships and establish conditions for cooperation with local communities and organisations working for the development of rural areas and agriculture	

DETERMINANT	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
SOCIAL COMPETENCE is ready to		communicate with co-workers and supervisors about performed tasks relating to breeding and raising animals	communicate with contractors and customers of animal products				
	control the quality of professional activities relating to raising animals	control the quality of performed professional tasks and assess their effect on the quality and safety of animal products	accept responsibility for one's own actions and those of a subordinate team affecting the quality and safety of animal products	promote attitudes of being particularly diligent with respect to the quality and safety of animal products	promote attitudes of being particularly diligent with respect to the quality and safety of agricultural products in the community of agricultural producers	create models exhibiting particular diligence for the quality and safety of animal products	initiate actions to disseminate activities aimed at improving the quality and safety of animal products
			perform professional tasks with respect for the natural environment	promote attitudes of respect for environmental protection and the natural environment in one's workplace	promote attitudes of respect for environmental protection and the natural environment in the community of agricultural producers	create models exhibiting attitudes of respect for environmental protection and the natural environment and promote the concept of organic farming and sustainable agricultural production	initiate actions to disseminate activities minimising the negative effect of agriculture on the environment and to promote integrated agricultural production
			perform professional tasks diligently with respect to animal welfare	promote attitudes of the humane treatment of animals in one's workplace	promote attitudes of the humane treatment of animals in the community of agricultural producers	create models exhibiting attitudes of the humane treatment of animals	initiate actions to promote activities aimed at improving animal welfare
	take into account the direct and deferred effects of using agricultural machinery	take into account the direct and deferred effects of using agricultural machinery under variable conditions relating to the instability of natural conditions					
		perform professional tasks under changing circumstances relating to the instability of natural conditions, including atmospheric conditions and the dynamics of processes occurring in living organisms		make decisions under changing circumstances relating to the instability of natural conditions, including atmospheric conditions and the dynamics of processes occurring in living organisms	make decisions in difficult situations relating to adverse natural conditions, including atmospheric conditions and the non-routine course of processes occurring in living organisms	make decisions in high-risk situations threatening the life or health of animals	

Area SQF AG–P
THE PLANNING AND MANAGEMENT OF PLANT PRODUCTION

DETERMINANT		LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
ORGANISING PLANT PRODUCTION	KNOWLEDGE – knows and understands		the conditions required to breed and cultivate plants	the methods and systems of plant production	the conditions under which the methods and systems of plant production are used			
				the factors determining the selection of plant species and varieties				
			the principles of crop rotation	the influence of crop rotation on the effectiveness of agricultural production				
				the legal regulations on agricultural activity as well as plant breeding and cultivation				
			the principles and requirements of documenting the tasks of plant breeding and cultivation	the principles of maintaining documentation on breeding and the registration of new varieties	the principles of maintaining registers and databases on plant breeding and cultivation			
			the basic principles of farm and agricultural enterprise cost calculations	the categories and types of farm and agricultural enterprise costs	the factors affecting the profitability of agricultural production	the economic effects of events taking place at a farm and agricultural enterprise		
			the current prices of agricultural products as well as the goods and services affecting farm and agricultural enterprise costs	the price trends of agricultural products as well as the goods and services affecting farm and agricultural enterprise costs	the factors shaping the price trends of agricultural products as well as the goods and services affecting farm and agricultural enterprise costs	the mechanisms shaping price trends in domestic and world markets for agricultural products as well as the goods and services affecting farm and agricultural enterprise costs		
			the institutions, organisations and programmes working for the development of rural areas and agriculture	the scope of services offered by institutions, organisations and programmes working for the development of rural areas and agriculture as well as the general principles of programmes operating for such development	at an advanced level, the detailed conditions under which institutions, organisations and programmes operating for the development of rural areas and agriculture provide support	the operating mechanisms and impact of systemic solutions supporting the development of rural areas and agriculture	the possibilities of using the systemic solutions of other public policy areas to support the development of rural areas and agriculture	
			customers' requirements of plant products	the prospective directions of change in customers' requirements of plant products	the factors affecting customers' requirements of plant products	the mechanisms shaping the trends in customers' requirements of the domestic and world markets of plant products		
			the types of agricultural product customers and suppliers	the principles of cooperating with agricultural product customers and suppliers				

DETERMINANT		LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
ORGANISING PLANT PRODUCTION	SKILLS – is able to			specify the conditions required to cultivate plants	analyse the determinants for plant production	design and modify the conditions for plant production		
				select the species and varieties of plants for specific farm conditions and production technologies	select the technologies and systems for plant production and feed production on grasslands and arable land	assess the effectiveness of the plant production technologies and systems used		
				determine the rotation of crops in accordance with climate and soil conditions	develop multi-year crop rotation plans			
			document the performed professional activities of plant cultivation	prepare the documentation on breeding and registering new varieties	maintain registers and databases on plant breeding and cultivation			
			calculate the costs of plant cultivation	calculate the costs of plant production	calculate the profitability of producing plant products and the financial result of a farm and agricultural enterprise	prepare a multi-year financial plan for a farm/agricultural enterprise	propose ways to optimise the agricultural production of a farm/agricultural enterprise and variants of the financial result	
			use available sources of information on the prices of agricultural products as well as the goods and services affecting the costs of a farm and agricultural enterprise	analyse the factors affecting the prices of agricultural products as well as the goods and services affecting the costs of a farm and agricultural enterprise	forecast the prices of agricultural products as well as the goods and services affecting the costs of a farm and agricultural enterprise			
			retrieve information on the services provided by institutions and organisations working for the development of rural areas and agriculture	prepare applications to obtain support for the development of rural areas and agriculture	supervise programme and project activities undertaken to support the development of rural areas and agriculture	propose systemic solutions to support the development of rural areas and agriculture	develop projects to support the development of rural areas and agriculture	develop multi-year programmes to support the development of rural areas and agriculture
				analyse information on customers' requirements of plant products	interpret study results on consumer needs and identify the needs of customers			
				identify the factors influencing customers' requirements of agricultural plant products	analyse the factors shaping customers' requirements and trends in local and national agricultural product markets	analyse the factors shaping customers' requirements and trends in the global agricultural product market	forecast the trends in local and national agricultural product markets	forecast the trends in the global agricultural product market
			retrieve basic information on local suppliers and customers	determine the conditions of cooperating with suppliers and customers	analyse the possibilities and principles of cooperating with suppliers and customers			

DETERMINANT		LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
PRODUCING SEEDS AND BREEDING PLANTS	KNOWLEDGE – knows and understands			the basic principles of inheriting traits	the premises for selecting and cross-breeding plants	the theories of inheriting traits	the development trends in biotechnology and plant genetics	the latest global achievements in biotechnology and plant genetics
				the methods of assessing breeding material	the methods of breeding new varieties of specific plant species	advanced biotechnological methods of plant breeding	the methods and techniques used in different fields that can be applied in plant breeding	the latest global methods of plant breeding
		the basic principles of planting seed production	the specificity of cultivating plants for planting seed	the methods of producing and preparing planting seed	the systems of controlling and assessing planting seed			
					the basic principles of using licences, patents and the results of research conducted as part of R&D activities	the basic principles of copyright and intellectual property law	national and international legal regulations on copyright and its protection as well as the use of intellectual property	
	SKILLS – is able to			perform selection and cross-breeding in a population of plants	develop the principles of performing selection and cross-breeding in a population of plants	identify and isolate genotypes having specific genes in a population	develop a breeding programme for a new variety of a specific type of plant with defined parameters	develop innovative programmes of breeding new varieties of plants
		clean planting seed	prepare a site for field reproduction	select the site and cultivation treatments for field reproduction				
				perform the tasks of seed production	perform the tasks of pollinating and cross-breeding plants	perform complex breeding tasks with the use of biotechnological methods		
					select plant breeding methods	select transgenic plant breeding methods		
CULTIVATING PLANTS	KNOWLEDGE – knows and understands		the factors affecting the structure of the soil/substrate	the habitat factors conditioning plant production and the possibilities of their regulation				
		the types of nutrients in the soil/substrate	the effect of soil/substrate nutrients on the condition of plants					
		the basic types of soils/substrates	the basic properties and parameters of the basic types of soils/substrates	the agrochemical properties and parameters of various types of soils/substrates	methods of assessing soil parameters			
			basic tillage procedures	methods and systems of tillage	the effect of tillage procedures on the structure and fertility of the soil/substrate and on the condition of plants			

DETERMINANT		LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
CULTIVATING PLANTS	KNOWLEDGE – knows and understands	the types, purpose and basic principles of fertiliser application	the properties and scheduling of fertiliser application	the way fertilisers work and how to dose them	the effect of fertiliser components on plant condition, soil/substrate structure, product safety and the natural environment	at an advanced level, the theories on how fertilising plants influences improved plant condition and the quality of obtained plant products	in depth, the theories on how fertilising plants influences improved plant condition and the quality of obtained plant products	
			the methods of obtaining organic fertilisers					
			the methods of preparing seed for sowing/planting	the methods and conditions of sowing/planting				
			the scheduling of sowing and planting plants					
		the types of care and protection treatments	the scheduling and ways of performing care and protection treatments	the effect of care and protection treatments on the condition of plants				
		the properties and use of basic plant care and protection products	the types, scheduling and basic properties of plant protection products	the way plant protection products work and how to determine their dosage	the effect of plant protection products on plant condition, agricultural product safety and the natural environment			
			the methods and techniques of harvesting, storing and transporting plant products					
		the basic principles of handling products intended for consumption	food safety requirements	the legal regulations on food safety				
		the basic principles of waste management on a farm	the principles and methods of utilising and processing farm waste	the legal regulations on utilising and processing farm waste				
CULTIVATING PLANTS	SKILLS – is able to	perform simple tasks in preparing a site and soil for cultivation	perform tillage operations	select tillage operations, assess the suitability of the soil for cultivation	analyse the effect of tillage operations on the structure and fertility of the soil and on the condition of the plants	diagnose errors in tillage operations		
			take soil/substrate samples for agrochemical testing	assess the degree of water and wind erosion as well as surface runoff	analyse the agrochemical properties of the soil/substrate and interpret its agrochemical test results			
		perform simple activities in the preparation, dosing and storage of fertilisers	prepare fertilisers based on recommendations and instructions	select fertiliser type and dosage depending on the type of soil/substrate, species and condition of plants as well as the effectiveness of the fertiliser	analyse the effect of fertilisation on plant condition	diagnose the causes of errors in cultivation resulting from fertilisation		

DETERMINANT		LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
CULTIVATING PLANTS	SKILLS – is able to			establish a fertilisation plan based on data about plant condition, soil/substrate fertility and the effectiveness of the fertiliser	modify fertilisation plans based on analysis results	introduce innovative plant fertilisation concepts to the fertilisation plan	develop innovative concepts of plant fertilisation	
			select the scheduling, technique and density of sowing/planting	assess seed/planting material quality				
		perform simple sowing and planting activities	perform sowing and planting activities	perform activities to prepare seeds/planting material for sowing/planting				
		perform simple activities in the care and protection of plants	perform specialised treatments in the care and protection of plants					
			determine the scheduling and select the techniques of performing care and protection treatments	establish and modify a care and protection treatment plan	analyse the effect of care and protection treatments on the condition of plants			
				select the type and dosage of plant protection products	monitor the effects of plant protection products			
		perform simple activities in harvesting, storing and preparing plant products for transport	determine the schedule for harvesting plants and assess the suitability of plants for harvesting	determine the conditions for storing and transporting plant products				
		perform activities in utilising farm waste	classify farm waste	plan the management and processing of farm waste				
REQUIREMENTS OF PLANTS	KNOWLEDGE – knows and understands	the basic species, varieties and production purposes of plants	the requirements, development phases and agro-technical requirements of plants	the structures and functions of the morphological parts of plants	issues relating to the anatomy, genetics and embryology of plants	at an advanced level, issues relating to the anatomy, genetics and embryology of plants		
			typical and often occurring pests of a plant species as well as the habitats of the pests and the symptoms of their foraging	typical pests of a plant species and their habitats as well as the symptoms of their foraging				
			typical and often occurring diseases of a plant species and their symptoms	typical diseases of a plant species and their symptoms				

DETERMINANT		LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
REQUIREMENTS OF PLANTS	SKILLS – is able to	identify abnormalities in the condition and course of the life processes of plants	identify the symptoms of nutrient deficiencies	identify the lack of nutrients	analyse the factors affecting the condition of plants	diagnose the causes of the poor condition of plants resulting from pest infestations, pathogens and errors in cultivation and fertilisation		
			identify the symptoms of plant diseases and pests typical for a species	identify the typical diseases and pests of plants				
			identify weeds	assess the degree of weed infestation				
TECHNOLOGY	KNOWLEDGE – knows and understands	the basic principles of operating machinery and equipment used in plant cultivation as well as the principles of using tools in plant cultivation	the principles of operating and basic parameters of machines and equipment used in plant cultivation	the parameters, application and ways of operating machines and equipment used in plant cultivation	the principles of operating and parameters of machines and equipment used in precision agriculture	the parameters, mode of operation and application of machines and devices used in precision agriculture		
					the principles of selecting machines for typical plant cultivation processes	the technical innovations in the machines used in plant cultivation	the premises and possible ways of using innovative technologies in plant cultivation	global innovations in the machinery and equipment used in plant cultivation
	SKILLS – is able to	use tools to perform simple tasks in plant cultivation	use tools to perform tasks in plant breeding and cultivation	select the tools required to perform tasks in plant breeding and cultivation				
			understand recommendations and instructions on plant cultivation	maintain documentation on plant cultivation	develop instructions and recommendations on plant cultivation	collect and elaborate data relating to precision agriculture		
		perform simple activities in the operation of basic machinery and equipment used in plant cultivation	perform activities in the operation of basic machinery and equipment used in plant cultivation	perform activities in the basic operation of computer-controlled machines and systems used in plant cultivation	program computer-controlled systems, machines and equipment used in plant cultivation	select systems, machines and equipment for precision agriculture	design complex precision agriculture systems	
SOCIAL COMPETENCE is ready to		act in accordance with the principles in force as well as the instructions and directives received to safely perform simple activities relating to plant cultivation	act in accordance with occupational health and safety principles, instructions and legal regulations relating to plant cultivation	act diligently with respect to one's own occupational health and safety and that of subordinate workers when performing tasks relating to plant cultivation	perform activities to increase safety in one's workplace			
			act in accordance with the legal regulations in force and good practices in agriculture	comply with the principles arising from legal regulations and good practices in agriculture	monitor changes in legal regulations and good practices in agriculture			

DETERMINANT	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
SOCIAL COMPETENCE is ready to	establish and maintain contacts with co-workers and supervisors to enable the performance of tasks relating to plant cultivation	establish and maintain essential relationships with co-workers and supervisors to enable the performance of tasks relating to plant cultivation	establish and maintain co-operation with other agricultural producers and contractors to increase the effectiveness, quality and safety of the performance of tasks in agriculture	shape relationships in the community of agricultural producers, establish long-term cooperation with other producers to increase the effectiveness and quality of the performance of tasks in agriculture	promote cooperation among agricultural producers, integrate the community of agricultural producers	establish relationships and cooperation in the community of agricultural producers to promote good practices and implement innovative solutions in agricultural production	initiate and develop national and international cooperation in the community of agricultural producers and the scientific community to transfer innovative solutions in agricultural production
		establish and maintain relationships with co-workers and superiors to enable the development of professional competences in breeding and cultivating plants	establish and maintain relationships with other agricultural producers, contractors and agricultural advisors to enable the development of professional competences in breeding and cultivating plants				
			establish and maintain relationships with local communities and organisations working for the development of rural areas and agriculture	establish long-term cooperation with local communities and organisations working for the development of rural areas and agriculture	promote cooperation with local communities and organisations working for the development of rural areas and agriculture	shape relationships and establish conditions for cooperation with local communities and organisations working for the development of rural areas and agriculture	
		communicate with co-workers and supervisors about performed tasks relating to breeding and cultivating plants	communicate with contractors and customers of plant products				
	control the quality of professional activities relating to plant cultivation	control the quality of performed professional tasks and assess their effect on the quality and safety of plant products	accept responsibility for one's own actions and those of a subordinate team affecting the quality and safety of plant products	promote attitudes of being particularly diligent with respect to the quality and safety of plant products	promote attitudes of being particularly diligent with respect to the quality and safety of agricultural products in the community of agricultural producers	create models exhibiting particular diligence for the quality and safety of plant products	initiate actions to disseminate activities aimed at improving the quality and safety of plant products
			perform professional tasks with respect for the natural environment	promote attitudes of respect for environmental protection and the natural environment in one's workplace	promote attitudes of respect for environmental protection and the natural environment in the community of agricultural producers	create models exhibiting attitudes of respect for environmental protection and the natural environment and promote the concept of organic farming and sustainable agricultural production	initiate actions to disseminate activities minimising the negative effect of agriculture on the environment and to promote integrated agricultural production

DETERMINANT	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6	LEVEL 7	LEVEL 8
SOCIAL COMPETENCE is ready to	take into account the direct and deferred effects of using agricultural machinery	take into account the direct and deferred effects of using agricultural machinery under variable conditions relating to the instability of natural conditions					
		perform professional tasks under changing circumstances relating to the instability of natural conditions, including atmospheric conditions and the dynamics of processes occurring in living organisms		make decisions under changing circumstances relating to the instability of natural conditions, including atmospheric conditions and the dynamics of processes occurring in living organisms	make decisions in difficult situations relating to adverse natural conditions, including atmospheric conditions and the non-routine course of processes occurring in living organisms	make decisions in high-risk situations relating to particularly unfavourable conditions threatening cultivated plants	

The Sectoral Qualifications Framework for Agriculture (SQF AG) is a tool to support professional development and skills acquisition in the agricultural sector. It can be used, regardless of the type of production specialisation, by family farmers as well as by the owners and employees of large agricultural entities. The presented Sectoral Qualifications Framework aims to improve the self-education and knowledge acquisition of all farmers, to support the human resources activities of agricultural companies, and to make it easier for the sector's employees to set their own career and professional development paths.

The publication presents information on the project developing the proposed Sectoral Qualifications Framework for Agriculture, including: the group of experts developing SQF AG, a description of project implementation and methodology, the structure of the framework, recommendations for implementing and using SQF AG in Poland, a glossary of relevant terms, as well as a description explaining how to use the Sectoral Qualifications Framework for Agriculture. The most important element is the matrix of SQF AG level descriptors presented in the annex – the set of general statements characterising the required knowledge, skills and social competence of agricultural sector qualifications at a given level.

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