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## **STIMULATING INNOVATIVENESS IN RURAL AREAS AS PART OF THE “COOPERATION” MEASURE WITH THE ANCIENT GRAIN OPERATIONAL GROUP – A CASE STUDY<sup>1</sup>**

Key words: innovativeness, rural areas, agriculture, cooperation

**ABSTRACT.** The article aims at a preliminary evaluation of the performance of the “Cooperation” measure as part of PROW 2014-2020 which is to support innovativeness in the agri-food sector by accelerating the transfer of knowledge from scientific research institutions and the cooperation of farmers with consulting institutions, entrepreneurs and various social partners. Rural areas in Poland are a place of abode of a large part of society and agriculture is an important sector of the national economy. A serious problem of many agricultural family farms in Poland is low competitiveness on the international market of agricultural producers. It comes from e.g. no possibility of competing with large-size farms, which can benefit from the effect of the scale of production and which, frequently, enjoy better access to consulting, market and process information. The response to these problems can be provided by integration (horizontal and vertical) and triggering the innovativeness processes throughout the agribusiness sector. Two application acceptance dates, so far, addressed at Operational Groups have shown great innovative potential of Polish agriculture and a growing interest of scientists and entrepreneurs in innovations. A perfect example of such an Operational Group EPI is Ancient Grain, where innovation is a response to market needs and is to support food quality enhancement by optimising crop technology, processing and effective marketing. The aim of the operation is to launch the cultivation of original forms of wheat cultivars (Indian dwarf wheat and Persian wheat) with a higher nutritional value. The preliminary research results confirm that such wheat forms show a high content of macro- and microelements as well as essential amino acids and that consumers demonstrate much interest in the foodstuff to be developed based on these wheat forms.

## **INTRODUCTION**

Rural areas in Poland are a place of abode of a large part of society and agriculture is an important sector of the national economy. A serious problem of many agricultural family farms in Poland is low competitiveness on the international market of agricultural producers. It comes from e.g. no possibility of competing with large-size farms, which can benefit from the effect of the scale of production and which, frequently, enjoy better access to consulting, market and process information. The response to these problems

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can be provided by integration (horizontal and vertical) and triggering innovativeness processes throughout the agribusiness sector [Jabłońska-Porzuczek et al. 2016].

The definition of innovation is complex and extensive. According to many authors, innovation is a change introduced on purpose to replace the existing state, which is an idea or a product considered, by the entity acknowledging it, a novelty [Makarczyk 1971, Pietrasinski 1971, Rogers, Schoemaker 1971, Kasprzyk 1980, Przychodzeń 1991, Rogers 1995, Roman 2018]. It can be a new product launched on the market, the opening of a new market, acquiring new sources of materials, a new management method, a new management system, and a new social organization [van den Ban, Hawkins 1997, Roman 2014, Pomykalski 2001, cited after: Schumpeter 1960]. Currently, the European Union most commonly applies a homogenous definition of innovation developed by the Organization for European Economic Cooperation and Development (OECD) and signed in the so-called Oslo Manual [OECD 2018], defining innovation as the implementation of a new or substantial product, service or process, including the implementation of a new marketing or organizational method in economic practice [OECD 2018, Bomberski et al. 2019].

The aim of the article is a preliminary evaluation of the execution of the “Cooperation” measure as part of the 2014-2020 Rural Areas Development Programme (PROW 2014-2020) to support agri-food sector innovativeness by accelerating the transfer of knowledge with scientific research institutions and the cooperation of farmers with consulting institutions, entrepreneurs and various social partners. The paper provides an analysis of documents and a literature review as well as a scope of operations of the Operational Group (OG) EPI Ancient Grain, considering all the application acceptances made so far, this application has been considered the best by experts and is scored highest.

## WHAT IS THE “COOPERATION” MEASURE AND WHAT IS ITS PURPOSE?

The “Cooperation” measure, executed as part of PROW 2014-2020, is to create innovativeness in the agri-food sector. It has been planned to execute one of the key priorities of both the European Union and government, to increase farmer share in agricultural produce by introducing innovative agricultural practice solutions. The support granted as part of the “Cooperation” measure is to enhance the development of agricultural farms by developing innovative solutions thanks to the cooperation of farmers, entrepreneurs, scientific research facilities and social partners, agricultural consulting and local authorities as part of the operation of the Operational Groups (OGs) for innovation and introducing such solutions to agricultural practice.

As part of PROW 2014-2020, EUR 13.6 bln has been allocated to agriculture and rural areas [MRiRW 2014-2020]. The funds are allocated to e.g. enhance farm competitiveness, develop rural area entrepreneurship or the quality of rural life. PROW 2014-2020 also offers innovation implementation support. Measure 16 (M16) “Cooperation” supports the development and implementation of innovative solutions in agriculture, food production and rural areas. Thanks to “Cooperation”, it is possible to provide financial support for the active search of innovative solutions to problems identified in agricultural production, while engaging persons and entities with various experience and knowledge.

The execution of the measure aims at increasing the application of innovative solutions in Polish agriculture and rural areas, e.g. in the food production process. The results of respective projects are to serve a wide range of beneficiaries, not only single entities. The engagement of scientists in developing practical and innovative solutions is to enhance the link between agri-food and R&D sectors and strengthen the multi-sector transfer-of-knowledge and innovation implementation cooperation model.

The research and implementation projects can be executed by Operational Groups performing operations to:

- develop and implement a new and well-improved product provided for in Annex 1 to the Treaty on the Functioning of the European Union, or
- develop and implement new or considerably improved technologies or organization or marketing methods in terms of production, processing or market launch of the products provided for in Annex 1 to the Treaty on the Functioning of the European Union, or
- create or develop short supply chains or local markets in terms of production, processing or the market launch of products provided for in Annex 1 to the Treaty on the Functioning of the European Union.

Additionally, the project must lead to the accomplishment of the detailed objectives of the 2014-2020 Rural Areas Development Programme for the “Cooperation” measure, namely:

- (1A) Support innovativeness, cooperation and the development of the rural area development knowledge base,
- (1B) Enhance links between agriculture, food production, forestry, research and innovation, in particular, to ensure better environment management and better results, and one of the objectives:
- (2A) The enhancement of the economic results of all farms and the facilitation of the restructuring and modernization of farms, specifically to increase market participation and market-orientation, as well as agricultural production diversity,
- (3A) The enhancement of competitiveness of agricultural producers through their better integration with the agri-food supply chain by adding value to agricultural produce, local markets promotion and short supply cycles, producer groups and inter-sector organizations.

Having satisfied these conditions, the project, the cofounding of which the Operational Group is applying for, must be issued with an innovativeness opinion. The opinion is issued by the scientific facility provided for in the Science Financing Principles Act of 30 April 2010 which is not part of a given Operational Group and which enjoys scientific category A+, A or B. The innovativeness opinion must attest to operation, the cofounding of which the Operational Group is applying for, assuming the application of innovative solutions for the product provided for in Annex 1 to the Treaty on the Functioning of the European Union.

The budget for the whole 2014-2020 measure is EUR 67,998,186.

## THE FIRST (PILOT) “COOPERATION” MEASURE APPLICATION ACCEPTANCE

From 30 June 2017 to 31 July 2017, the first application acceptance was held for “Cooperation” covered by PROW 2014-2020. The pilot application acceptance has been allocated with EUR 20,000,000 (about PLN 84 mln), including EUR 3,042,000 (about PLN 12.5 mln) for the Mazowieckie Province.

As part of the application acceptance, the Agency for Restructuring and Modernisation of Agriculture (ARMA) in Warsaw received 90 applications. Upon the verification of formal requirements, supplementing missing documents and an expert evaluation, 20 applications were recommended for funding, including 5 applications from the Mazowieckie Province and 15 from other provinces. Compliant with the scoring received and due to a limited amount allocated to the execution of projects, as part of the pilot amount of the application acceptance for “Cooperation” for 3 Operational Groups, funds were missing. For that reason, 17 projects were listed as being welcome to sign a contract with the Agency.

The Operational Groups recommended for cofounding covered a wide range of entities, ensuring a multi-entity cooperation compliant with the EPI Groups objectives, and the participation of institutes and higher education provides guaranteed professionalism and a high level of scientific research.

In total, in 17 Operational Groups recommended for cofounding, the performance of the operations was declared by 64 farmers (in one OG – no farmers, in three OGs – 1 farmer in each, in another three OGs – 3 farmers each, in one OG – 4 farmers, in seven OGs – 5 farmers each, in one OG – 6 farmers, in one OG – 7 farmers) and 27 entrepreneurs. In 5 OGs the consortium members are Scientific Institutes, in 10 OGs – higher education providers, in 2 OGs – local authorities, as for 2 OGs the Provincial Centre for Agricultural Consulting participates. Besides, OGs also include associations, Local Action Groups and sectorial unions.

Finally, as a result of complex procedures of signing blank promissory notes by each partner of the Operational Group, only 10 groups signed a project execution contract for a total of PLN 28,539,770.

## THE SECOND “COOPERATION” MEASURE APPLICATION ACCEPTANCE

From 16 November 2018 to 14 January 2019, the second “Cooperation” measure cofounding application acceptance was held. As part of the second acceptance procedure, 90 applications were submitted. In total, OGs applied for the cofounding of PLN 244 mln, including 76 applications to cover detailed objective 2A, and 14 applications – detailed objective 3A.

The number of applications submitted from respective provinces was as follows: Mazowieckie Province: 20 (interestingly, the Mazowieckie Province, just as in the first acceptance date, had a separate pool of funds allocated to the applications submitted), Łódzkie Province – 11, Kujawsko-Pomorskie Province – 10, Lubelskie Province – 9, Wielkopolskie Province – 8, Małopolskie Province – 8, Dolnośląskie Province – 5, Podkarpackie Province – 5, Lubuskie Province – 4, Warmińsko-Mazurskie Province – 3, Zachodniopomorskie Province – 2, Śląskie Province – 2, Pomorskie Province – 2, Podlaskie Province – 1. No applications were submitted from the Opolskie and Świętokrzyskie Provinces.

In October 2019, the Department of Delegated Actions of the Agency for Restructuring and Modernisation of Agriculture (ARMA) announced a ranking of projects recommended for execution. On 6.12.2019, 24 operational groups were invited to sign an operations performance contract as part of the second application acceptance. A total amount allocated to “Cooperation” upon the announcement of the second application acceptance was PLN 296 mln.

The third application acceptance, as part of the measure “Cooperation”, was announced on 13 December 2019. The acceptance of assistance applications will be held from 13 January to 21 February 2020.

### OPERATIONAL GROUP ANCIENT GRAIN – A CASE STUDY

The operation was performed as “Innovations in cultivating, processing and the market launch of original forms of Indian dwarf wheat and Persian wheat with a higher nutritional value”. Cooperation has aimed at a joint effort to introduce new cultivation technologies, the treatment, processing and distribution, including marketing, of original wheat forms as well as their products. Project execution is scheduled for three years (2018-2021). The project value is PLN 1,803,799.42 (including the amount of cofounding of PLN 1,299,252.00) for the purchase of machinery and equipment, research costs and current expenditure.

The Operational Group EPI Ancient Grain is made up of the following entities:

- 1) the institution of science: the UTP University of Science and Technology in Bydgoszcz (the project leader),
- 2) a consulting institution: the Kujawsko-Pomorski Centre for Agricultural Consulting in Minikowo,
- 3) a local authority: the Kujawsko-Pomorskie Province (the Provincial Marshal’s Authority in Toruń),
- 4) food processing companies:
  - Food Production Cooperative (pol. Spółdzielnia Produkcji Spożywczej) “TOSTA”, Bydgoszcz, one of the biggest bakery and cake producers on the local market and the leading bread crumb producer in Poland,
  - Pasta Factory (pol. Wytwórnia Makaronu) BIO Aleksandra Babalska, Pokrzydowo; it provides organic products, especially pasta, groat grains, flour, grain coffee, bran and breakfast cereals.
- 5) the consortium also includes 5 organic agricultural farms.

The operations execute three primary objectives as part of which the following detailed objectives have also been determined:

- I – the development of new cultivation technologies in low-input integrated and organic farming systems (the evaluation of yielding, weed infestation, pest infestation, infection with plant pathogens during vegetation and the evaluation of grain after harvest),
- II – the development of new production processes and producing innovative foodstuff (a laboratory evaluation of the milling value of grain and flour baking value, production tests in agri-food processing companies, analysis of gluten-allergenic properties, the evaluation of grain nutritional value, including amino acids, vitamins, macro- and microelements),

III – the development of new marketing methods for innovative products of Indian dwarf wheat and Persian wheat with a higher nutritional value (a joint effort of consortium members including promotion, market research and consumer preference analysis, branding, building awareness and recognizability of the brand by promoting a common logotype, running the website, a Facebook profile and a YouTube channel).

Preliminary research results confirm an elevated nutritional value of foodstuff made from Indian dwarf wheat and Persian wheat, e.g. due to a higher content of macro- and microelements, as well as essential amino acids, compared with the contents of nutrients in ordinary wheat. A unique trait of such species is the highest accumulation of phenolic acids and alkylresorcinols with multiple health-enhancing properties [Skrajda-Brdak et al. 2020]. Also, preliminary results of research performed with consumers confirm a high interest in products made from such wheat, especially from organic plantations [Szczepanek et al. 2018]. Similarly, performed large scale actions promoting both the project itself and cultivating and processing original wheat cultivars with increased nutrition values are also undertaken. Numerous bread tasting events are held, e.g. at various fair events and exhibitions (e.g. the National Agricultural Exhibition, the International Agricultural and Industrial Fair AGRO-TECH, the International Fair of Ecology in Brodnica, the Festival of Flavors in Gruczno, the Fair of Organic Food in Toruń, Bydgoszcz Freimarkt and many others), competitions (e.g. the National Competition “Index for a Farmer”), conferences, symposia and workshops.

## CONCLUSIONS

The “Cooperation” measure, executed as part of PROW 2014-2020, is the first such pioneer action to motivate scientific facilities to close cooperation with the agri-food sector in introducing innovation in agriculture and enhancing agricultural farm competitiveness. Polish agriculture, without investments in innovations, will not be competitive on the international market. For that reason, the Ministry of Agriculture and Rural Development considers the effective implementation of the “Cooperation” measure a priority. The two application acceptance dates for Operational Groups have demonstrated huge innovation potential of Polish agriculture and a growing interest of scientists and entrepreneurs in innovation. Creating Operational Groups as part of the “Cooperation” measure is a big organizational challenge, and so the job of the middlemen providing mediation and engaging entities together is performed by innovation brokers of public agricultural services. As for innovation, we should not only associate it with high technologies but mostly with practical solutions to day-to-day problems in agriculture or searching for new solutions.

A perfect example of such an Operational Group EPI is Ancient Grain, where innovation is a response to market needs as well as a support enhancing food quality by controlled crop cultivation and production quality as well as effective marketing. All the OG partners are fully engaged in the project and see a joint objective of joint efforts. The Operational Group Ancient Grain case study shows that innovation also stands for a practical return to tradition, neglected crop species and cultivars, which are a precious source of nutrients and help enhance cultivar biodiversity.



A many-entire structure of Operational Groups EPI ensures the complementary performance of all project stages, starting from scientific research, introducing innovations to agricultural practice, to popularizing the effects of those actions by Agricultural Consulting Centers.

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Słowa kluczowe: innowacyjność, obszary wiejskie, rolnictwo, współpraca

### ABSTRAKT

Celem artykułu jest wstępna ocena realizacji działania „Współpraca” realizowanego w ramach PROW 2014-2020, które ma służyć wspieraniu innowacyjności w szeroko rozumianym sektorze rolno-spożywczym, przez przyspieszenie transferu wiedzy z instytucji naukowo-badawczych oraz współpracę rolników z instytucjami doradczymi, przedsiębiorcami i różnego rodzaju partnerami społecznymi. Obszary wiejskie w Polsce są miejscem życia dużej części społeczeństwa, a rolnictwo jest ważnym działem gospodarki narodowej. Dużym problemem wielu rodzinnych gospodarstw rolnych w Polsce jest ich niska konkurencyjność na międzynarodowym rynku producentów rolnych. Wynika ona między innymi z braku możliwości konkurencji z wielkoobszarowymi gospodarstwami, które mają możliwość wykorzystania efektu skali produkcji oraz mają lepszy dostęp do doradztwa i informacji, zarówno rynkowych, jak i technologicznych. Odpowiedzią na te problemy może być integracja (pozioma i pionowa) oraz pobudzanie procesów innowacyjności w całym w sektorze agrobiznesu. Przeprowadzone do tej pory dwa nabory wniosków w ramach działania „Współpraca”, skierowane do grup operacyjnych, pokazały ogromny potencjał innowacyjny polskiego rolnictwa i stale rosnące zainteresowanie innowacjami ze strony nauki i przedsiębiorców. Wzorcowym przykładem tego typu grupy operacyjnej EPI jest Ancient Grain, w której innowacja jest odpowiedzią na potrzeby rynkowe i która wspomaga procesy związane z podnoszeniem jakości żywności, przez optymalizację technologii uprawy, przetwórstwa oraz skuteczny marketing. Celem operacji jest wprowadzenie do uprawy pierwotnych odmian pszenicy (Indian dwarf wheat and Persian wheat) o podwyższonej wartości odżywczej. Wstępne wyniki prowadzonych badań potwierdzają, że pszenice te mają wysoką zawartość makro- i mikroelementów, jak również aminokwasów egzogennych oraz że wśród konsumentów występuje spore zainteresowanie produktami spożywczymi, które mają powstawać na bazie tych pszenic.

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