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## OBTAINING INCOME FROM THE PLANT BREEDER'S RIGHT IN POLAND

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**Abstract.** The aim of this article is to present the legal aspects of the usage, trade, and production of certified seed in Poland. It does not exhaust the subject, but merely presents formal organization of seed market in Poland. These issues are important for Polish agriculture because of the strategic importance of the seeds. Seed market understand as a breeding varieties, production and distribution of seeds is the core of modern rural production. Indirectly is also important for non rural sectors. Despite the importance of plant breeding, this sector is dependent on funding from the income market, in particular royalties and FSS (Farm Saved Seed). Because the low recoverability of these fees and the low use of certified seed compared to the EU, it is a problem and a threat to the Polish biological progress.

**Keywords:** certified seeds, plant breeders right

### INTRODUCTION

The essence of plant breeding and seed production is to drive the biological progress which means breeding to create new, increasingly better varieties of agricultural plants. Also, biological progress is among the most environmentally-friendly ways of agricultural development. New varieties, more fertile and more resistant to disease, enable increasing the production volumes while reducing costs without involving higher technical efforts or larger quantities of chemical agents. The more developed is the agriculture sector, the greater is the importance of biological progress. According to Podlaski

(2008), about 50% to 60% of yield growth is attributable to biological progress. Also, means of production are used more effectively by the new varieties.

In Poland, matters related to the use and marketing of certified seeds are governed by the Act of June 26, 2003 on Legal Protection of Plant Varieties (Ustawa..., 2003). The wording of multiple provisions of the aforesaid Act results from ratifying the International Convention for the Protection of New Varieties of Plants. Another legal act of relevance for the functioning the Polish seed market is the Seed Production Act of November 9, 2012 (Ustawa..., 2012) amending the Act on the Agricultural Market Agency and on the Organization of Some Agricultural Markets (Ustawa..., 2004), the Stamp Duty Act (Ustawa..., 2006), and the Act on the Research Center for Cultivar Testing (Ustawa..., 2010). Legal regulations governing the plant variety rights and seeds marketing were established in order to foster the adoption of biological progress in agricultural practices and to protect the breeder's interests which, in turn, is supposed to ensure the financing for continued biological progress. As demonstrated by Podgórski (2004), though the functioning systems of plant breeding and seed production differ in specific EU countries, they share a common goal to ensure the best possible varieties of arable crops for growers, and to secure the income for plant variety owners. The recovery of the plant breeding expenditure is supposed to enable the investments and breeding activities and, as a consequence, to create increasingly better varieties of arable crops.

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The Seed Production Act provides several definitions specific to seed production, such as the basic seed, certified seed and seed orchard. In addition to defining such terms as basic and certified seed, the Act specifies the scope of responsibilities of the Provincial Plant Protection and Seed Production Inspector. Also, the Seed Production Act defines the tasks of the Research Center for Cultivar Testing (COBORU).

## MARKETING AND USE OF CERTIFIED SEED

In Poland, growers may purchase certified seed for use in their own holdings or for resale from qualified entities. Records of seed traders are kept by the National Inspection Authority for Plant Protection and Seed Production, and the applications for entry are received by Provincial Plant Protection and Seed Production Inspectors. Registered entities become authorized traders but are also required to prevent and monitor outbreaks of harmful organisms, keep adequate records and comply with requirements provided for in the seed production regulations. Usually, these are seed companies and agricultural supply centers which, pursuant to the Act on Legal Protection of Plant Varieties, propagate seeds purchased from a breeding company or lawfully resell the seeds purchased.

The interest of the breeder, whether an individual or an institution, who incurred costs involved in breeding and marketing a new variety, i.e. the costs of biological progress implemented in plant production, is subject to legal protection (under the Act on Legal Protection of Plant Varieties). Pursuant to the Act on Legal Protection of Plant Varieties, the breeder may be granted with exclusive rights to a specific variety.

Exclusive right means the breeder's right to own the variety grown and to use it on a commercial basis. The exclusive right may be considered to be a related right to industrial property rights which protect the author's interest and ability to operate on a commercial basis, because industrial property also applies to agricultural products under the Paris Convention (Korzycka-Iwanow, 1990). In order for a plant variety to be covered by the exclusive right of the breeder, four conditions must be met which are defined in a similar way both in the Polish legislation (Act on Legal Protection of Plant Varieties) and in the Community legislation (Regulation (EC) No. 2100/94 of July 27, 1994 on Community plant

variety rights). The variety covered by the exclusive right of the breeder must be:

- distinctive: it has at least one feature which makes it clearly different from other varieties,
- uniform: it must preserve homogenous properties when propagated,
- stable: it must preserve its characteristics when propagated,
- new: the registered variety is assumed to be new, and therefore could not be available in the market prior to the submission of the application for granting the breeder with the exclusive right to that variety.

DUS (Distinctness, Uniformity, Stability) testing is performed by the Research Center for Cultivar Testing based on protocols issued by the Community Plant Variety Office (CPVO) and on guidelines from the International Union for the Protection of New Varieties of Plants (UPOV) (COBORU, 2015).

Purchasers of basic seed who intend to establish a seed orchard and sell certified seed in the next year are not only required to pay for the seed but are also charged with a fee under the license agreement. License fees are paid in the next year after the seeds are sown in function of the quantity of propagated seed. Certified seed costs almost twice as much as comestible seed. The reasons are the price paid for the properties of seeds of the variety concerned, as well as the operating costs of the seed orchard, and the certification, cleaning, treatment and packing costs which are much higher compared to forage seeds or comestible seeds. As a consequence of requirements for the cleanness of seed, especially when it comes to basic-grade seeds, during the cleaning process, around 15–20% of seed harvested become a by-product which can only be used as forage.

Depending on the variety, license fees are approximately PLN 20 per 100 kg of propagated seed, and are paid to the breeder as a remuneration for the costs incurred in order to breed, propagate and market the variety concerned.

According to Jerzak and Mikulski (2005), it takes 12 years and a total of PLN 4.4 million to grow a new variety of wheat. Assuming that the breeder's seed would be produced for five years, and the return on capital rate is 4%, they estimated that the new variety should generate an annual profit of PLN 917,000 in order to cover the breeding costs within five years.

The above profit should be generated from license fees which is consistent with the underpinning idea.

If a license fee of 17 PLN/dt is assumed for calculation purposes, seed companies would need to produce around 5,400 tons of certified seed of a specific variety on a yearly basis. To make this happen, seed orchards with a total approximate area of 795 ha must have been established in the previous year (assuming a yield of 8 t/ha and a loss rate of about 15% of harvested seed due to processing). Thus, the plant breeding company would need to produce and sell to seed companies 159 tons of basic seed of a specific variety (with a sowing rate of around 200 kg/ha). These calculations show how much time and effort does it take to reach the break-even point after growing a new variety.

In the 2011–2015 period, there were only 6 varieties of winter wheat seed cultivated in orchards with a yearly average area of 795 ha or beyond which, under the assumptions made above, would allow to recover the costs involved in growing the variety at a satisfactory level.

In addition to the formal license fee market, license fees under the agricultural exemption are another source for recovering the breeding costs. The 1961 International Convention for the Protection of New Varieties of Plants (UPOV Convention, Article 15, Para. 2) provides for the ability to restrict the breeder's right in order to facilitate the use of certified seed by farmers. This is a protection instrument for small farmers. These issues are governed by the Act on Legal Protection of Plant Varieties of June 26, 2003 and by the Council Regulation (EC) No. 2100/94 of July 27, 1994 on Community plant variety rights. In the Polish legislation, this instrument is referred to as agricultural exemption. An agricultural exemption allows to lawfully use seed (for the purposes of seeding) from the harvested material of a variety protected with an exclusive right, however only if harvested and intended to be sown in the holding of the same farmer. Therefore, agricultural exemptions do not cover the sale or exchange of harvested material for the purposes of seeding. Pursuant to the Act, eligible farmers are required to pay the breeder a fee equal to 50% of the license fee for the use of seed of a variety protected with an exclusive right. The agricultural exemption fee also depends on the area of agricultural land. In Poland, farmers who hold less than 10 ha of land, in the case of potato, or less than 25 ha of land, in the case of other species set out in the Act (Article 23, Para. 2, item 1 from a through p), are not required to pay the agricultural exemption fee. In other EU countries, these limits are less than 10 ha,

in the case of potato varieties, and less than 30 ha for other protected varieties of agricultural plant species. The list of species eligible for agricultural exemption is provided in Article 23, Para. 2 of the Act on Legal Protection of Plant Varieties, and is different from the list of protected varieties at Community level.

Referring to Marciniak (2006) and to his own previous work, Wicki (2008) estimated the yearly amount of the requested license fees paid to breeders to be around PLN 60 million, including approximately PLN 20 million of potential fees from the formal license fees market, and the remaining amount of PLN 40 million attributable to the agricultural exemption. Wicki noted that in Poland, the breeders' revenue from license fees and agricultural exemption may potentially reach as much as PLN 80 million on a yearly basis. The actual revenue of breeding companies from license fees and agricultural exemption is approximately PLN 20 million, as the license fee collection rate is poor. According to Wicki (2008), the license fee collection rate in the Polish formal market remains at the level of 70–80%. Meanwhile, the collection rate for agricultural exemption fees was only around 3%.

“The agronomic value of each variety tends to decrease over the years. It does not entirely, or not always, result from reduced levels of prolificacy and agri-technical value. Another reason is the continuous process of marketing new, increasingly better varieties of species” (Mazurek, 1993). The costs of growing a variety tend to significantly differ from one species to another. Breeding cereals is more costly than breeding legumes or grasses. In practice, most of the varieties remain on the market for much more than 5 years, i.e. as long as they preserve their characteristics and as long as demand for their seeds exists in the market. Some other varieties do not become widely adopted, and therefore make it impossible to reach satisfactory levels of license fee revenues. When breeding companies incur costs involved in growing, registering and maintenance breeding of a specific variety, there is no assurance that the variety will be successful enough to recover the expenses within satisfactory timeframes.

License fees play an important role as a financing engine for breeding and implementing biological progress in companies. However, putting that progress into practical use is also of utmost importance. In Poland, the use of certified seed represented only 15.7% (in the case of cereals) and 8.4% (in the case of potatoes) in the total

seed volume in 2014 (Oleksiak, 2015). According to the Polish Seed Chamber, the use levels of certified seed in the Polish agriculture are currently around 17% while the EU average is 50% approximately (PIN, 2015).

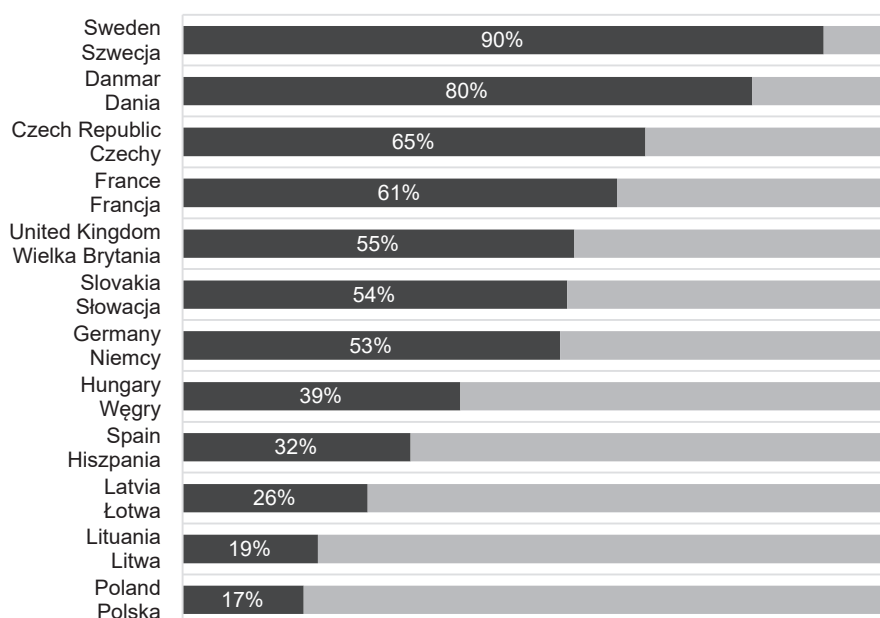
Such low use levels of certified seed in the Polish agriculture sector result from a high share of small holdings with low production volumes, and from the under-development of the seed sector (Arseniuk and Oleksiak, 2013). The fragmentation of the Polish agriculture is the very reason why potential agricultural exemption fees are twice as high as potential fees from the formal market (Wicki, 2008). Meanwhile, the control over, and the collection of, receivables from small farmers is much more difficult than in the case of large entities. This is why the collection rate for the agricultural exemption fees is only 3%, even though the infringement of agricultural exemption principles is subject to civil and criminal penalties under the Council Regulation (EC) No. 2100/94. Repeated infringements of the agricultural exemption principles may give rise to claims under civil law, as provided for in the Regulation (EC) No. 1768/95. The authorized entity (holder of the exclusive right) may seek to enforce its rights against the

infringing party. Pursuant to the Act of June 26, 2003 on the Recovery of Claims under Civil Proceedings, the party who infringed an exclusive right may be required to:

- cease the infringement,
- remedy the infringement,
- repair the damage incurred, e.g. by paying the full amount of the license fee due,
- deliver the profits obtained.

Also, the breeder may request a press announcement to be published. “Upon the breeder’s consent, the court may order an adequate amount of money to be paid to the breeder, if ceasing or remedying the breach would be disproportionately harsh on the infringing party” (Act on Legal Protection of Plant Varieties).

The exclusive right is governed as follows in the provisions of the criminal law: “Whoever infringes an exclusive right to a variety, or uses the name of a variety protected with an exclusive right to label seed or harvested material of another or unknown variety, shall be subject to a fine, restriction of personal liberty or imprisonment for a term of up to one year” (Act on Legal Protection of Plant Varieties).



**Fig. 1.** The use of certified seed in the European Union

Source: Estimates of Polish Seed Chamber (PIN, 2015).

**Rys. 1.** Stosowanie kwalifikowanego materiału siewnego w Unii Europejskiej

Źródło: Szacunki Polskiej Izby Nasionnej (PIN, 2015).



## THE SEED AGENCY

Prior to changes in plant breeding financing, 50% of costs involved in breeding a new variety were covered by budget subsidies (Marciniak, 2005). Changes to the financing for plant breeding and seed production resulted from the Poland's accession to the EU. As a consequence, the Polish plant breeding sector faced a new challenge which was financing the research with commercial revenue (Podgórski, 2005). From 2008, the breeding of new agricultural plant varieties can be financed solely with commercial revenue instead of public funds. In addition to the seed price, that role has to be played mainly by license fees (Marciniak, 2008), and by *de minimis* aid whose examples are subsidies for the use of certified seed. This is supposed to boost the demand and contribute to the increase of revenue of license fees. Without efficient financing measures for Polish plant breeders, the national agriculture is likely to become increasingly dependent on international companies (Podlaski, 2008). Using material other than certified seed is not the right solution because the Western European practice demonstrates that state-of-the-art varieties allow to increase the productivity and enable the development of agriculture. In 2003, Agencja Nasienna (the Seed Agency) was established in response to changes in breeding financing and to low use levels of certified seed compared to other EU countries. Created on the initiative of 7 Polish plant breeding companies, today it brings together 29 breeding enterprises, some of whom are related to international companies. The Agency reorganized the Polish seed market to the benefit of farmers, seed companies and breeders. Investments in the Polish breeding sector involve significant financial expenditure necessary to create and market new varieties. Without an institution to safeguard the interests of the Polish plant breeding sector in the absence of public aid, breeders would be unable to effectively fulfill their tasks, and the progress of the Polish agriculture would depend on foreign capital.

Tasks performed by the Agency include (Agencja Nasienna, 2016):

- monitoring the performance of license agreements on seed production and trade entered into between breeders and seed companies,
- monitoring the use of agricultural exemption and collecting the related fees,

- supervising the collection and control of information on the processing of seed of varieties protected with an exclusive right,
- supporting the compliance with exclusive rights and fighting against any infringements thereof.

What is also worth noting, in addition to the organizational and regulatory role of the Agency, is that in a broader perspective it contributes towards the development of Polish agriculture through its commitment to make wider use of biological progress in the Polish fragmented agriculture sector. Similar institutions are in place in most of the highly developed countries because innovativeness is among the key factors of competitiveness in every industry.

## SUMMARY

Seed production is a strategic part of agriculture. Biological progress made within the breeding process contributes to increasing the effectiveness and quality of plant production and, indirectly, of animal production and food industry. Together with the development of agriculture, biological progress in plant breeding accounts for a growing share of increased yields, and for the increasing effectiveness of other means of production. Biological progress means innovation in agriculture which has a significant impact on its competitiveness. Seed production and trading operations are governed by legal acts such as the Seed Production Act, the Act on Legal Protection of Plant Varieties and the equivalent European regulations. Varieties are owned by seed companies who created them and declared them in the applicable registry. The use of varieties protected with an exclusive right is subject to license fees which are supposed to compensate for the costs incurred by the breeders to grow a specific variety. Breeding a new variety is some kind of investment which may require many years to produce a return, or may not provide a return at all if the variety is not commercially successful. The recovery of breeding costs is matter of key importance for the operation of the breeder, for financing the research, and for investing to promote further progress. Farmers should sow their land with certified seed purchased from seed companies. This organization of seed use and trade is supposed not only to assure the recovery of breeding-related expenditure but also to enable the farmers, and the economy as a whole, to benefit from biological progress made in plant breeding, and to ensure financing

for that sector. This is the way the world's largest seed markets are organized. In Poland, the potential revenue from agricultural exemption is twice as high as the license fees from the formal license seed market. Although from 2008 plant breeding in Poland may no longer be financed from state budget, pursuant to the Agricultural Market Agency Act (Para. 3, Article 40c of the Act of March 11, 2004), farmers may apply for a subsidy when purchasing seed. This instrument is referred to as *de minimis* aid, and is an indirect form of financing plant breeding activities. As it increases the demand for certified seed, it contributes to increasing the value of license fees.

Despite *de minimis* aid, whose examples are subsidies for the use of certified seed, the use level of certified seed in Poland is among the lowest in the EU.

The reason for this situation is the fragmentation of the Polish agriculture which contributes to the low use levels of certified seed and makes it difficult to collect the license fees, especially as regards agricultural exemption. Another reason why the use of certified seed fails to produce adequate results in small holdings is the technology which often remains at a low development level. The consequences are the difficulties in financing the Polish plant breeding sector, and the poor adoption of biological progress in agricultural practice. This, in turn, results in lower yields, lower production quality, lower profitability and lower competitiveness of agricultural holdings (PIN, 2015). Despite so many positive objectives which are pursued with the legal regulations for the seed market and which underlie the activities of the Seed Agency, during the first years of EU membership, the activities aimed at alignment with European seed production standards were met with a negative reaction by Polish farmers. To address the concerns of Polish farmers, members of the Seed Agency published an open letter, explaining that the commercial transformation of the Polish seed production sector and a shift in attitude of the Polish farmers are necessary in order to compete with European and global agricultural markets (List..., 2012). Biological progress affects the competitiveness of agriculture in many ways. High yields mean high production volumes. Enhanced health properties are a factor that stabilizes the production and may enable savings on plant protection. This means not only lower production costs but also more environmentally-friendly production processes. A greater efficiency of fertilization (Podlaski, 2008) is a way to reduce the

quantity of fertilizers used, or to provide a higher yield increase and improved production quality with the same quantities of chemicals used.

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## UZYSKIWANIE DOCHODÓW Z TYTUŁU PRAWA DO ODMIANY W POLSCE

**Streszczenie.** Celem artykułu jest ocena prawnych aspektów stosowania i obrotu kwalifikowanym materiałem siewnym w Polsce, w tym szczególnie wynikających z tego możliwości pozyskiwania dochodów. W pracy oparto się na analizie kluczowych ustaw i rozporządzeń stanowiących prawny filar obrotu i stosowania kwalifikowanego materiału siewnego. Obliczenia własne oparto na danych historycznych oraz wynikach badań innych autorów. Pomimo strategicznego znaczenia hodowli roślin jest ona zdana na finansowanie z przychodów rynkowych, szczególnie opłat licencyjnych i opłat od rozmnożeń własnych. Jest to typowa organizacja rynku, która funkcjonuje w Europie Zachodniej i Stanach Zjednoczonych. W Polsce, przy niskiej ściągalności i niewielkim na tle Unii Europejskiej poziomie stosowania kwalifikowanego materiału siewnego, może to prowadzić do problemów z finansowaniem hodowli i stanowi zagrożenie dla postępu biologicznego. Świadczy o tym fakt, że w latach 2011–2015 tylko 6 z około 150 odmian pszenicy ozimej posiadało udział rynkowy liczony w kwalifikacji polowej wystarczający, aby z opłat licencyjnych pokryć koszty wyhodowania odmiany w zadowalającym 5-letnim okresie.

**Słowa kluczowe:** kwalifikowany materiał siewny, wyłączne prawo hodowcy

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