

Intellectual property rights for breeder's achievements in Bulgaria

Maria Markova

University of National and World Economy, Sofia, Bulgaria

E-mail: doz.markova@abv.bg

Abstract

Markova, M. (2018). Intellectual property rights for breeder's achievements in Bulgaria. *Bulgarian Journal of Agricultural Science, 24(6)*, 967–974

The aim of this article is to present the author's point of view and perspective on protection of the results of Bulgarian institutes, centers and other research units in the Bulgarian agriculture science as breeder's achievements, to present analytical results and to outline the trends in the field of agribusiness.

Subject of this article are research inventive achievements in the agribusiness area in Bulgaria, especially plant varieties and animal breeds. The special point of the subject of the study is the protection of these results as intellectual property, particularly new varieties of plants and new animal breeds under the Law for Protection of Plant Varieties and Animal Breeds (LPNPVAB) as legislative requirements for protection according to the Law, legal results - quantitative trends and a factor analysis, the list of the main right holders of the protected breeder's achievements. The practical focus of this article is the analysis of the registration activity of the Bulgarian researchers, scientific institutions and companies in agricultural biotechnologies for the period of 1999-2017 (acting new LPNPVAB) within the Bulgarian patent office as a national responsible authority in intellectual property rights.

Keywords: intellectual property rights; breeder's achievements; plant varieties; animal breeds; biotechnology in agribusiness

Introduction

The EU has a well-based strategy for building a knowledge-based bio-economy and a working framework program in the field of agribusiness under the name „Food, agriculture, fish farming and biotechnology“. The main objectives of this framework program are the following:

- sustainable production and management of biological resources from land, forests and water as an environment;
- operational program 'From fork to farm': food (including seafood), health and blogging;
- life sciences, biotechnology and biochemistry for sustainable non-food products and processes.

As an EU Member State, Bulgaria is implementing work programs in the following areas relevant to biotechnology in agribusiness: Maritime Affairs and Fisheries, Rural Development

Program, 2014-2020.

The aim of these programs and the correct positioning and development of Bulgarian agribusiness based on innovations is multifaceted in the following main directions:

- Creating and promoting resource efficiency innovative-ness;
- Innovative, competitive and knowledge-based crops in agriculture and aquaculture¹;
- A stable economic development (Miteva, 2017a; Miteva et al., 2017b);

Modern biotechnology in Bulgaria's agribusiness is based on the latest biotechnological techniques in the field of agriculture and animal husbandry and utilizing the latest achievements of genomics, genetic engineering, chemical

¹www.eufunds.bg

engineering and cell technology. This makes it possible to create new plant varieties and animal breeds that reduce the risk to agribusiness entities from adverse climatic conditions and negative factors such as parasites, make crops and livestock more sustainable and as a result they make economic gains.

The R&D work and the innovations of the Agricultural Academy of Bulgaria - the leading research center in the Bulgarian agribusiness, are implementing as a total number 172 projects, of which 117 on a bilateral basis. The institutes run 55 projects funded and supported by various international institutions - EU, Food and Agriculture Organization (FAO), International Center for Genetic Engineering and Biotechnology (ICCFB), Bio Cities International (Italy), International Atomic Energy Agency (IAEA), Corn and Wheat Improvement Center (SIMMIT), International Center for Agricultural Research for Dry Areas (ICARD), etc. At present, the Agricultural Academy institutes participate in 13 EU FP7 projects, mainly in priority is „Food, Agriculture, Fisheries and Biotechnology“².

Main participants in these projects are: AgroBioInstitute, Sofia; Dobrudzha Agricultural Institute, General Toshevo; Institute of Agricultural Economics, Sofia; Institute of Ornamental Plants, Sofia; Institute of Forage Crops, Pleven; Institute for Food Research and Development, Plovdiv; Institute of Animal Science, Kostinbrod; Institute of Cryobiology and Food Technologies, Sofia; Institute of Fruit Growing, Plovdiv; Institute of Mountain Stockbreeding and Agriculture, Troyan; Institute for Field Crops, Chirpan; Institute of Soil Science, Agrotechnology and Plant Protection „N. Pushkarov“, Sofia; Institute of Fisheries and Aquaculture, Plovdiv; Institute of Plant Genetic Resources, Sadovo; Institute of Fish Resources, Varna; Institute of Tobacco and Tobacco Products, Plovdiv; Institute of Agriculture, Kyustendil; Institute of Corn, Knezha; Institute of Vegetable Crops, Plovdiv; Institute of Agriculture, Karnobat; Institute of Agriculture and Seed Science „Obraztsov Chiflik“, Rousse; Agricultural Institute, Shumen; Agricultural Institute, Stara Zagora; Experimental Station on Rearing and Agriculture, Vratsa and Experimental Station of Apricot and Agriculture, Silistra.

These and other scientific projects also involve some universities and research centers: Faculty of Biology of the Sofia University „Kliment Ohridski“ – Departments of Biochemistry, Plant Physiology, Genetics; University of Forestry, Sofia; Agricultural University of Plovdiv; Regional agricultural parks – northwestern region – Vratsa; Central northern region – Pleven; Northeastern region – Shumen; Southeastern region – Karnobat; South Central region – Plovdiv; Southwest region – Sofia.

The results of their R&D work are called biotechnological achievements in agriculture. The biotechnological achievements as a result of biotechnological research activity are, by their very nature, intellectual products because these biotechnological products are creations of the human mind, intellect and professional expertise. Generally, they are the results of long-term research, experiments, inventive efforts and talent, significant investment in creating a modern research base, training and support for highly qualified staff. It is natural and logical to seek economic motivation and return on costs invested for the mentioned before subfields. For this purpose, a proven and well based mechanism is protection through the intellectual property system. This system has become an objective necessity and a catalyst for the development of biotechnology. These biotechnological achievements can find a protection as intellectual property through a legal or factual monopoly. In particular: through patent for invention, utility model certificate, certificate of breeder's achievements (new plant variety or new animal breed) or keeping under confidential information as a factual monopoly. The legal regulation of biotechnological achievements as intellectual property is realized through special legislation - conventions, laws, directives and other documents, at international, European and national levels³.

The aim of this article is to present the author's point of view on the topic of protection of these results of Bulgarian institutes, centers and other research units in the Bulgarian agriculture sciences as breeder's achievements, to present analytical results and to outline the trends in the field of the agribusiness area as a protected as intellectual property rights.

The subject of this article is research inventive achievements in the agribusiness area in Bulgaria, especially plant varieties and animal breeds. The special point of the subject of the study is the protection of new varieties of plants and new animal breeds under the Law on Protection of New Plant Varieties and Animal Breeds (LPNPVAB) as legislative requirements for protection according to the law, legal results as quantitative trends and a factor analysis, the list of the main right holders of the protected breeder's achievements. The practical focus of this article is the analysis of the registration activity of the Bulgarian researchers, scientific institutions and companies in agricultural biotechnologies for the period of 1999-2017 (acting new LPNPVAB) within Bulgarian Patent Office as a national responsible authority in intellectual property rights.

² www.agriacad.bg

³ more information for the objects of intellectual property system are accessible on the website: www.wipo.int

Research Methodology

Innovation in agribusiness as intellectual property rights

For innovations makers in agribusiness, also called breeder's achievements makers, it is economic based to look for legal protection for their achievements in the intellectual property system. The breeders' achievements, in general, are the products of the breeders' quests, their discovery creativity and development efforts. They are basically two types: plant varieties and animal breeds.

The essence and economic consequences of the legal protection of plant varieties and animal breeds as a subject matter are regulated as conditions and consequences for international protection in the UPOV Convention and on the national – in the Law on Protection of New Varieties of Plants and Animal Breeds (LPNPVAB, 1996).

Each country provides on its legislative system a special law for the legal regulation of the mentioned above area. In our country this specific regulation has occurred in 1996 with the adoption and entry into force of the Law on Protection of New Plant Varieties and Animal Breeds. This agribusiness achievements legislation is absolutely up to date and fully harmonized with European and international standards and supplemented by the following special laws: GMO Act, Food Law, Seed and Planting Law, Plant Law, and Medicinal Plants Act.

The focus of this article is the legal regime of the plant varieties and animal breeds as conditions and consequences for the protection of the breeders' achievements under the procedure of the National Bulgarian Patent Office and Executive Agency for Variety Testing, Field Inspection and Seed Control (IAVTASC) for PV and respectively Executive Agency for Selection and Reproduction in Animal Breeding (IASRAB).

The focus of the presentation of the legal regime will be the plant varieties as conditions and consequences for the protection of the breeders' achievements under the procedure regarding of the LPNPVAB.

Protection of biotechnological achievements as new plant varieties

Under the terms of the new plant variety (PV), the essence of the intellectual property "plant variety" is characterized by the following:

- has the general features of the genotype or a certain combination of genotypes;
- differs from any other plant group of at least one genotype;
- is considered as a unit with respect to its reproducibility in unaltered form.

In order for a plant variety to be protected, it must meet a number of conditions that apply cumulatively and are called protection criteria. They are the following: **novelty, distinctiveness, homogeneity and stability**.

The plant variety is **new** when, on the day the application for the certificate is submitted, the propagating material or the harvest thereof is not offered for sale, sold, subjected to another type of trade or offered with the consent of the breeder in the territory of the country for not more than 1 year or on the territory of another country for no longer than 4 years (6 years for trees and vines).

The plant variety must have **distinctness**. It is considered that the variety is distinct if it is clearly distinguishable from any other common variety as of the date of filing of the application at the Patent Office. Essential in defining distinctiveness are the terms: a well-known variety and a distinct variety.

A well-known variety is a variety for which one or a number of actions are carried out, such as: cultivation, marketing, or other conversion; subject to the right of breeder; entered in the registers of varieties; included in a collection; its exact description has become publicly available by posting in an article or otherwise.

Clearly distinct variety is a variety which has characteristics which enable it to determine the characteristics and distinctive features of the variety and which are subject to a precise description.

The plant variety must have **homogeneity**. It is considered that the plant variety is homogeneous if the plants are identical in their essential signs, despite slight deviations. Significant signs of the plant variety are similarity to the device, birth relations, propagation and distribution. This requirement also applies to the breeding of the plant variety - sexually or vegetative.

The plant variety must have **stability**. The variety is considered to be stable if it remains unchanged in its essential features after repeated reproduction or if, after the end of each breeding cycle determined by the breeder, the variety corresponds to the description given.

Legal protection for a plant variety is granted subject to a strictly defined application, expertise and registration procedure.

The application for a plant variety shall contain the following documents: application for the issue of a variety certificate; description of the variety; proposal for a variety denomination; completed technical questionnaire for the species; a priority certificate when claiming priority; a statement about the actual authors (creators) when they are not applicants; paid fees for requesting and publishing the application; Power of Attorney for an Intellectual Property Representative.

The application for a variety certificate shall be filed with the Patent Office.

According to Article 14 of the LPNPVAB, the right of application belongs to one of the three subjects:

- the author or his successor in title;
- the employer of an officially established variety;
- contracting authority in civil law relations;

The author of a variety under this law is called **breeder** if the creation, discovery or development of the variety is not the result of an employment or civil law relationship. The shape of the employer and the applicant appear under the conditions of a plant variety. The breeder is: the individual who, as a result of whose efforts and skills was created, discovered or developed the variety or the legal person/employer or employer, who is in employment or civil law relations with the person who has reached the breeders' achievement.

An application for a variety registered in the Patent Office is carried out in two stages: preliminary examination and substantive examination.

During the preliminary examination, the formality of the application, the content of the attached documents and the conformity of the name of the plant variety with the legal requirements for such a name shall be verified.

In the event of deficiencies in the application, the Patent Office shall notify the applicant in writing about them and provide it with a three-month period for their removal. If the applicant fails to do so, the request is deemed abandoned and the trial process is terminated. If the outcome of the preliminary examination of the application for a plant variety is favorable, the Patent Office shall publish the application in the official newsletter of the Patent Office and shall transmit the application within one month of the completion of the preliminary examination of the Executive Agency for Variety Testing, Approbation and Seed Control for carrying out expert examination.

Essentially, expertise of the criteria for protection of the PV is conducted at the Executive Agency for Variety Testing, Approbation and Seed Control (IAVTASC)⁴ – it lasts from two to four years, where necessary this period is subject to prolongation. The purpose of the expertise is essentially to establish the conditions for issuing a variety certificate: novelty, distinctness, homogeneity and stability. For the purpose of the expertise, IAVTASC performs testing of the variety requested at its testing stations, specialized laboratories and services and describes and demonstrates the signs that allow the new variety to be defined and distinguished. The applicant shall provide the seed and propagating material necessary for the study free of charge. Additional information and documentation may also be requested.

IAVTASC annually issues the official varieties list of the Republic of Bulgaria. IAVTASC provides the official varieties for information free of charge.

The current varieties include:

- varieties of field and vegetable crops, year 2018;
- cereals, oats, barley, rice, triticale, winter common wheat and winter hard wheat, corn and other;
- forage crops - lucerne, forage peas, fai, passion grass and others;
- oil and fiber plants - peanuts, rape, soybean, cotton, sunflower beet and other;
- vegetable crops, vegetable species;
- varieties of tobacco, vine, medicinal and aromatic, fruit and ornamental crops;

IAVTASC annually publishes the Official Variety List of the Republic of Bulgaria. It includes plant varieties, which can be traded on the territory of Bulgaria. In conformity with the Law on Seed and Propagating Material, the Official Variety List consists of List A and List B.

In List A there are enrolled varieties of cereals, forage crops, oil and fiber crops, beet, potatoes and fruit plants (local and foreign) which must be distinct, uniform and stable (DUS) and meet the VCU requirements (value for cultivation and use) for the soil and climatic conditions of the Republic of Bulgaria.

In the List B there are enrolled varieties of vegetables, ornamental, medical and aromatic plants and vine, which meet the requirements for DUS and VCU testing under the soil and climatic conditions of Republic of Bulgaria.

After the substantive examination in IAVSASC, a report is drawn up with the conclusion that the plant variety submitted for registration corresponds to the conditions for granting the certificate.

In the event that the outcome of IAVSASC's examination is positive, a certificate is issued for PV that certifies the exclusive right to new PV.

The **exclusive breeder's right** on a variety is time limited as follows: thirty years for varieties of trees and vines and twenty-five years for all other varieties.

The certificate shall certify the following:

- the presence of a registered plant variety meeting the requirements;
- the priority;
- the right to authorship;
- the exclusive right of the variety;

The breeder's exclusive right is a collective right covering the following actions:

- the right of use;
- the right to prohibit others from using the protected variety;
- the right of disposal;

⁴ www.iasas.government.bg

The right of use includes the following: production or reproduction, preparation for reproduction, offering for sale, sale or other trade, export, import, storage for the purpose of any of the above.

The right of disposal includes the possibility for the breeder to grant licenses to persons interested in the use of the protected variety.

The breeder's exclusive right to the protected variety is time-limited as follows: thirty years for varieties of trees and vines and twenty-five years for all other varieties.

Protection of biotechnological achievements as new animal breeds

An analogous legal regime in our countries has settled the question of protection of new animal breed (AB). The legal procedure starts with the application of the registration of new AB in BPO. The check for issuing a certificate for a new breed of animals is carried out at the Ministry of Agriculture and Foods units: Executive Agency for Selection and Reproduction in Animal Breeding (IASRAB)⁵ and the National Genetic Laboratory for DNA Analysis on the following indicators:

- breeding purpose;
- short description of the breeds;
- a description of the methods of breeding;
- product qualities and morphological characteristics of the breed;
- adaptive abilities and disease resistance;
- a number;
- a tribal and genealogical structure and distribution area.

A new animal breed containing the specified indicators to be protected by a certificate - similar to that of the new PV. This is exclusive protection with a certificate for a period of 30 years for the territory of Bulgaria. The same exclusive rights are granted for the new AB as the rights for the protected PV: the right of use; the right to prohibit others from using the protected animal breed; the right of disposal.

Complex analysis of the registration activity in the field of agricultural biotechnologies in Bulgaria

The complex analysis of the registration activity in the field of agricultural biotechnologies is based on the official information published of the official website of the Bulgarian Patent Office (BPO)⁶ – national authority responsible for the industrial property included patents for invention, utility models, plant varieties, animal breeds and other objects of intellectual property rights. The period of the complex analy-

sis is 1996-2017 as a period of acting of special protection in the field of agricultural biotechnologies started with the entry into force of new Law on Protection of New Plant Varieties and Animal Breed (LPNPVAB) (LPNPVAB, 1996). According to the legal procedures in this law – fully harmonized with the international legislation in this area, the first coming results of the expertise were published in 1999 in the Official Bulletin of the BPO.

The complex analysis (Markova, 2010) is being held for the indicators: number of the registered PV and AB, trend for this period, main subareas of the registration activity and main holders of intellectual property rights.

Producer's achievements and intellectual property rights in agribusiness in Bulgaria for the newly created PV and AB, are claimed as applications for obtaining a certificate as an intellectual property. The total number of newly created and protected with a certificate PV for the period 1999-2017 is 568, with 479 of them are vegetables, field crops and spices, and 89 are tobacco, vine, fruit, medicinal and aromatic crops (Table 1, Fig. 1, 2); one of the new PV is intellectual property (IP) of foreign citizens and 11 is IP of legal entities. As shown in the graph at Fig. 2, the trend in registration activity in new plant varieties is tentative, with peaks for the years 2001, 2010 and 2017.

Table 1. Registered new plant varieties for the period 1999-2017

Year	Vegetables and field crops, spices	Tobacco, vine, fruits, ornamental, medicinal and aromatic crops
1999	38	5
2000	16	0
2001	50	8
2002	16	9
2003	39	4
2004	17	0
2005	38	1
2006	21	0
2007	10	4
2008	15	2
2009	11	0
2010	53	12
2011	32	12
2012	27	15
2013	16	12
2014	12	1
2015	19	2
2016	12	2
2017	37	0
Total number	479	89

⁵ www.iasrj.eu

⁶ www.bpo.bg

PLANT VARIETIES AS TOTAL NUMBER OF REGISTRATION

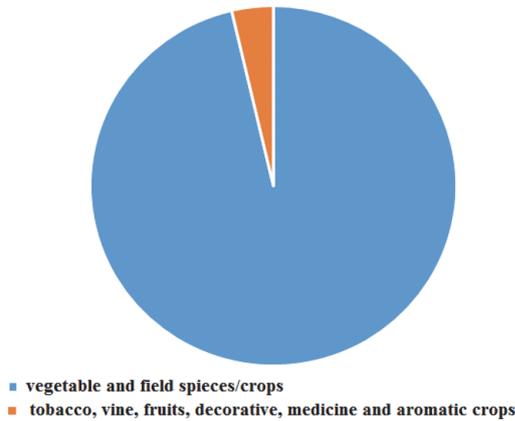


Fig. 1. Registered new plant varieties for the period 1999-2017

The total number of registered new AB for the period 2001-2017 is 22 (Table 2).

The factor analysis of registration activity shows the following:

- there is a time lag between the moment of application for the registration and the complete registration of a new

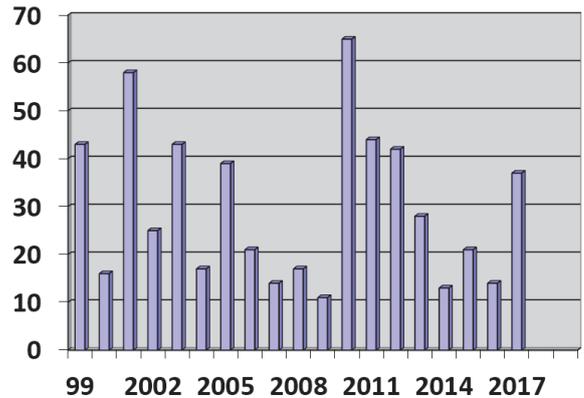


Fig. 2. Registration activity in new plant varieties for the period 2002-2017

plant variety about two years, which is regulated for the expertise as a substance;

- not all claimed new plant varieties meet the criteria for registration successfully for formal and substantial reasons;

- the high activation activity and respectively the registration of new PVs are conditioned by the natural duration of the research process in the field of crops.

Table 2. Registered animal breeds for the period 2001-2017

Year	Number	Animal breed	Owner
2001	1	Fish breed “Trakia 1”	Institute of Fisheries and Aquaculture, Varna
2002	3	Buffalo breed “Bulgarian mura” Silk butterfly	Agricultural Institute, Stara Zagora “Faleks” Vratsa, Agricultural Academy
2003	1	Mirror fish breed “Plovdiv”	Institute of Fisheries and Aquaculture, Varna
2004	1	Synthetic line pig’s type “Silistra”	Benko Benkov, Stefan Nikolov, Stefan Ivanov, Tihomir Kunev
2005	1	Sheep type “Synthetic Population Bulgarian Milk”	Agricultural Institute, Shumen
2006			
2007			
2008			
2009	6	Horse type „Karakachanski“ Sheep type „Sakarska“ Sheep type „Srednogorska“ Sheep type „Srednoplaninska“ Pigs type „Jambol“ Bulgarian pigeon without pump	Executive Agency for Selection and Reproduction (EASR), Sofia EASR, Sofia EASR, Sofia EASR, Sofia Breeder reproduction, Kalchevo Nonprofit organization, Provadia
2010	1	Silk butterfly	Agricultural Academy
2011	1	Silk butterfly	Agricultural Academy
2012	2	Silk butterfly	Agricultural Academy
2013	2	Silk butterfly	Institute of Plant Genetic Resources, Sadovo
2014	1	Pigeon	„Eski Zara 2010” Stara Zagora
2015	-		
2016	2	Silk butterfly	Agricultural Academy
2017	-		

As a summary, we can say that regardless of the transformations in the field of plant biotechnology in organizational and normative aspect, the Bulgarian researchers, scientists and professionals in this field create significant solutions for the Bulgarian and world agricultural science which receive adequate legal protection through new PVs according to the requirements of the LPNPVAB. The Bulgarian science in the field of plant biotechnology is worthy of its achievements in the global research area (Miteva, 2017b; Miteva et al., 2017a, b).

Bulgarian agricultural science focuses on research and scientific results in the field of vegetable and field spices/crops – 84% of the whole number. The share of research results (16%) in the area of vine, tobacco, aromatic and ornamental plants is small (Fig. 2).

The presented result can be explained by a number of factors and historical background, including ecological characteristics, traditions of Bulgarian agricultural science in the research in vegetable production and production of arable crops (oats, durum wheat, rice) the restrictive legal regime for tobacco and vines, relevant to the regulation of the GMO.

The main innovators and holders of intellectual property rights in the field of new plant varieties in our country are the following: Agriculture Academy, Bulgarian Academy of Sciences, AgroBioInstitute, Experimental Station of Apricot and Agriculture – Silistra, Varietal Seeds 'Elit' EAD – Sofia, Institute of Plant Genetic Resources – Sadovo, Institute of Corn – Knezha, Institute of Agriculture and Seed Science 'Obrazcov Chiflik' – Rousse; 'Dobrudzha' Agricultural Institute – General Toshevo; Institute of Genetics 'Doncho Kostov' – Sofia, Institute of Forage Crops – Pleven, Institute of Food Research and Development – Plovdiv, Geosemcomplekt – Sofia, Institute of Sugar Beet – Shumen, Complex Experimental Station – Haskovo, Bulgartabac Holding AD – Sofia; Agrotop 'Todor Hristov ET' – Gorna Oryahovitsa, Applied Services – Haskovo, Institute of Vegetable Crops 'Maritsa' – Plovdiv, Agrarian University – Plovdiv, Institute of Field Cultures – Chirpan, Institute of Agriculture – Kyustendil; Institute of Rose, Essential and Medical Crops – Kazanlak; Varietal Seeds 'Vardim EAD' – Vardim, Veliko Tarnovo.

The complex analysis of applied and registered new PV based on the information of the Official Bulletin of the Patent Office of the Republic of Bulgaria allows us to make the following conclusions:

- for the last 12-years period, there are no foreign applicants;
- the activity of the Bulgarian applicants is with peaks

and dips (for 2010 till June, there have been 51 applications for registration of new PV);

Licensing contracts are concluded (2 exclusive licenses) with subject: protected PV between Bulgarian persons; licensor: Dobrudzha Agricultural Institute – General Toshevo in both cases and licensees: Bulagrozemja, Ltd. – St. Zagora and Agrobiosiena, Sofia;

In the last 5 years of the analyzed period new owners were identified: Research Institute of Mountain Stockbreeding and Agriculture, Troyan; Institute of Ornamental Plants – Negovan;

There have been cases of suspended PV or AB certificates due to non-payment of the state fees - for 2009 they are 12 revoked registrations due to this reason.

Along with the serious number of research units, institutes and bases, holders of certificates for plant varieties, in the field of agro-biotechnology in the country also operate a number of commercial companies and non-profit organizations. The most important of these are:

– Commercial companies such as: BIOS Bulgaria EOOD, Rousse, „Semenarska Kashta Sadovo“ - Cheshanigirovo, 'Opal Zi' OOD – Plovdiv, Agrogiya OOD – G. Delchev, 'Bio Trizii' Ltd. – Sofia;

– Non-profit organizations: Association of producers of vine and planting material, Fruit company, company of the producers of propagating material, Association of producers of fruit propagation material, National association of producers of vine planting material, Association 'Mulflora' 2004.

An interesting aspect of the problem is that some essential oil crops, specially selected plant varieties, are intended to be incorporated into food supplements as part of the later developed functional foods are patented in their turn as products or methods. Thus, in the end, a synergistic effect of the presence of cumulative protection is realized: a registered plant variety first, then a patent for a product or a method incorporating the registered plant variety. Thus, in practice, a cumulative economic effect is obtained from the patented protection of new products or methods.

The analysis of the registration activity of the Bulgarian breeders in the field of new animal breeds outlines a weak and unsustainable trend in this area of research work and inventive activity. A number of factors are at the root of this conclusion.

Conclusions

The analysis of the intellectual property rights in the field of agricultural biotechnologies as certificates for protected

new plant varieties and new animal breeds shows that the experimental research work and results of the Bulgarian agribusiness researchers and organizations are serious and efficient; these achievements are at the level of scientific world importance, assessed as significant in the world and European agricultural science.

The national policy in agriculture should continue to support the creators of breed achievements and to maintain good conditions for retaining the results achieved in new plant varieties. The national policy in agriculture should stimulate the research activity in the field of new plant varieties and animal breeds including means for their protection as new plant varieties and animal breeds within the Bulgarian Patent Office. Thus, the results of long-term research, experiments, inventive efforts and financial investment will be economically justified and to be catalyzed for a new R&D work in agricultural biotechnology.

Received: April 4, 2018; *Accepted:* April 19, 2018; *Published:* December, 31, 2018

References

- LPNPVAB** (1996). Law for the Protection of New Varieties of Plants and Animal Breeds. *Darzhaven vestnik*, No. 84., www.lex.bg.
- Markova, M.** (2010). Biotechnology, intellectual property, bio-economy, UNWE, Sofia.
- Miteva, A.** (2017a). Farm management. IC ATL-50.
- Miteva, A.** (2017b). Opportunities of the green economy for the sustainable expansion of the organic production of grapes and wines in Bulgaria. IC ATL-50.
- Miteva, A., Doychinova, Yu. & Stoyanova, Z. et al.** (2017a). Green jobs - a tool for the greening of the Bulgarian economy. IM Holding, Sofia.
- Miteva, A., Stoyanova, Z. & Harizanova, H.** (2017b). Ecology and sustainable development. UNWE, Sofia. www.eufunds.bg
www.agricad.bg
www.bpo.bg
www.wipo.int
www.iasas.government.bg