

METHODOLOGICAL APPROACHES TO ASSESSING THE FEASIBILITY OF IMPORTING SEEDS FOR VEGETABLE PRODUCERS IN BELARUS

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Problem statement. The high level of import of vegetable seeds negatively affects the indicators of resource self-sufficiency of agricultural sectors. At the same time, the development of the vegetable seeds market requires significant financial investments in this segment and analysis of their further payback based on scientific approaches. *The purpose of the article.* To develop methodological approaches to assessing the effectiveness of import flows in relation to vegetable seeds. *The object of research* is vegetable seeds, the value chain in vegetable growing. *Methods used in research.* The theoretical and methodological basis for the study was the works of domestic and foreign scientists on import and import-substituting production. The following methods were used in the research process: monographic, abstract-logical, normative, synthesis and system analysis, etc. *The hypothesis of the study.* Import flows of vegetable seeds take place in the Republic of Belarus in the presence of a certain list of conditions, which requires justification of their expediency. *Presentation of the main material.* The article presents the author's position regarding the development of scientific and methodological approaches to assessing the feasibility of implementing import flows of vegetable seeds. *Originality and practical value.* The scientific novelty of the study consists in the development of a comprehensive assessment of the feasibility of zoning a certain variety of vegetables of Belarusian selection for individual management entities or its import on the basis of a number of factors and criteria. *Conclusions.* The development of the Belarusian market of vegetable seeds involves a comprehensive assessment of the effectiveness of seed zoning, which includes the costs of conducting scientific research and ending with the effectiveness of vegetable cultivation and their subsequent processing.

Key words:

vegetable seeds market, resource self-sufficiency, import flows in agriculture, economy.

ОЦІНЮВАННЯ ДОЦІЛЬНОСТІ ІМПОРТНОГО ЗАБЕЗПЕЧЕННЯ НАСІННЯМИ ТОВАРОВИРОБНИКІВ ОВОЧНОЇ ПРОДУКЦІЇ В БІЛОРУСІЇ

Постановка проблеми. Високий рівень імпорту насіння овочевих культур негативно впливає на показники ресурсного самозабезпечення галузей сільського господарства. Разом з тим розвиток ринку насіння овочевих культур вимагає суттєвих фінансових вкладень у даний сегмент та аналізу подальшої їхньої окупності на підставі наукових підходів. *Ціль статті.* Розробити методичні підходи до оцінки ефективності імпортних потоків стосовно насіння овочевих культур. *Об'єкт дослідження* – насіння овочевих культур, ланцюжок створення вартості в овочівництві. *Методологія, яка використана у дослідженні.* Теоретико-методичною основою для дослідження послужили праці вітчизняних та зарубіжних вчених з питань імпорту та імпортозамінного виробництва. У процесі дослідження застосовувалися такі методи: монографічний, абстрактно-логічний, нормативний, синтезу та системного аналізу та ін. *Гіпотеза дослідження.* Імпортні потоки насіння овочевих культур мають місце у Республіці Білорусь за наявності певного переліку умов, що потребує обґрунтування їх доцільності. *Виклад основного матеріалу.* У статті представлено авторську позицію щодо розвитку науково-методичних підходів до оцінки доцільності реалізації імпортних потоків насіння овочевих культур. *Оригінальність та практичне значення.* Наукова новизна дослідження полягає в розробці комплексної оцінки доцільності районування певного сорту овочів білоруської селекції за окремими суб'єктами управління або його імпорту на підставі ряду факторів та критеріїв. *Висновки та перспективи подальших досліджень.* Розвиток білоруського ринку насіння овочевих культур передбачає комплексну

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оцінку ефективності районування насіння, в якій закладено витрати на проведення наукових досліджень і закінчуючи результативністю обробітку овочів та їх подальшою переробкою.

Ключові слова:

ринок насіння овочевих культур, ресурсне самозабезпечення, імпорتنі потоки в сільському господарстві, економіка.

ОЦЕНКА ЦЕЛЕСООБРАЗНОСТИ ИМПОРТНОГО ОБЕСПЕЧЕНИЯ СЕМЕНАМИ ТОВАРОПРОИЗВОДИТЕЛЕЙ ОВОЩНОЙ ПРОДУКЦИИ В БЕЛАРУСИ

Постановка проблемы. Высокий уровень импорта семян овощных культур негативно влияет на показатели ресурсного самообеспечения отраслей сельского хозяйства. Вместе с тем развитие рынка семян овощных культур требует существенных финансовых вложений в данный сегмент и анализа дальнейшей их окупаемости на основании научных подходов. *Цель статьи.* Разработать методические подходы к оценке эффективности импортных потоков применительно к семенам овощных культур. *Объект исследования* – семена овощных культур, цепочка создания стоимости в овощеводстве. *Методы, используемые в исследованиях.* Теоретико-методической основой для исследования послужили труды отечественных и зарубежных ученых по вопросам импорта и импортозамещающего производства. В процессе исследования применялись следующие методы: монографический, абстрактно-логический, нормативный, синтеза и системного анализа и др. *Гипотеза исследования.* Импортные потоки семян овощных культур имеют место быть в Республике Беларусь при наличии определенного перечня условий, что требует обоснования их целесообразности. *Изложение основного материала.* В статье представлена авторская позиция в отношении развития научно-методических подходов к оценке целесообразности реализации импортных потоков семян овощных культур. *Оригинальность и практическое значение.* Научная новизна исследования заключается в разработке комплексной оценки целесообразности районирования определенного сорта овощей белорусской селекции по отдельным субъектам управления или его импорта на основании ряда факторов и критериев. *Выводы и перспективы дальнейших исследований.* Развитие белорусского рынка семян овощных культур предполагает комплексную оценку эффективности районирования семян, в которой заложены затраты на проведение научных исследований и заканчивая результативностью возделывания овощей и их последующей переработкой.

Ключевые слова:

рынок семян овощных культур, ресурсное самообеспечение, импортные потоки в сельском хозяйстве, экономика.

Formulation of the problem The market of vegetable seeds in the Republic of Belarus is formed by 90,0 % due to import flows. The relevance of the study lies in the fact that at this stage no unified approach has been developed on the feasibility of developing the vegetable seeds market in the Republic of Belarus in the conditions of competition in the seed market, as well as its partial monopolization in the economic aspect (China, Holland, France, India, etc.), which requires justification of the production and technological model of the formation of the value of vegetable seeds. In addition, it should be borne in mind that the main positions on the formation of instruments for the development of the vegetable seeds market (which will subsequently form a high resource potential of the vegetable growing industry) should affect, on the one hand, the households of the population, which are the dominant producers of vegetables with a low level of marketability; and on the other hand, agricultural organiza-

tions and peasant farms, which are key suppliers of vegetables for manufacturing organizations and trade structures.

Analysis of the latest trends and publications. The theoretical and methodological basis for the study was the works of domestic and foreign scientists on vegetable growing and the development of the market of vegetable seeds; among the researchers it is worth highlighting A.A. Outko, I.P. Kozlovskaya, V.I. Belsky, A.V. Pilipuk, N.N. Klimenko, V.I. Leunov, A.N. Khovrin, V.V. Ognev, I.M. Konovalenko.

The purpose of the article. To develop methodological approaches to assessing the effectiveness of import flows in relation to vegetable seeds.

Presentation of the main research material. The limiting factor in the development of the vegetable growing industry is dependence not only on imported vegetable seeds, but also on technologies [1-5]. Domestic producers of vegetable seeds cannot compete with foreign ones due to the high cost of machinery, energy





carriers, fertilizers, plant protection products from pests and diseases, the lack of guaranteed contracts with wholesale suppliers, proper economic support and state control of the development of the industry, the backwardness of the material and technical base, the complete cessation of the creation of insurance and transfer funds of varietal seeds [2, 6-10]. Seeds of foreign companies that are grown in favorable zones (conditions) seed production and technically better prepared, have advantages. The development of domestic seed production is negatively affected by the low profitability of production compared to the markets of developing countries, the pressure of major global producers such as Bayer + Monsanto (USA), DuPont (USA), Syngenta (Switzerland), ill-considered management, weather anomalies. Another limiting factor is the established low price of elite seeds compared to seeds of mass reproductions (a price difference of 2-3 times is necessary). We also need stable and differentiated prices in hybrid seed production for seeds of parental forms, biotypes with CMS (cytoplasmic male sterility), female lines.

In the Republic of Belarus, the seed market is represented by high-yielding varieties and hybrids from domestic and foreign companies and institutes - Agroholding «Poisk», FSBI FNTSO, ООО «Breeding Station named after N.N. Timofeev», Syngenta, Enza Zaden, LLC «KLM», LLC «Leda-Sids», RUE «Institute of Vegetable Growing of the National Academy of Sciences of Belarus», etc. As it was noted, the main breeder of vegetable crops is RUE «Institute of Vegetable Growing», some work is carried out by educational agricultural institutes and experimental stations [1, 2, 4, 5]. The state stimulates the production and turnover of high-quality seeds through the implementation of state scientific and scientific-technical programs, regulates seed production through the Ministry of Agriculture and Food of the Republic of Belarus, the State Institution «State Inspection for Testing and Protection of Plant Varieties», the State Institution «Main State Inspection for Seed Production, Quarantine and Plant Protection» and their territorial organizations. Thus, modern breeding is characterized by the following problems:

1) increasing climatic and phytosanitary risks of vegetable production both unprotected and protected soil (droughts, development of dangerous pests and diseases);

2) obsolescence of the material, technical and technological base, which does not allow to conduct the process of breeding and seed production at the modern scientific and technological level and to ensure the production of high-quality varietal seeds;

3) the lack of effective institutional transformations of the breeding and seed industry, which does not allow the creation of professional associations that can have a significant impact on the processes of seed production and turnover;

4) aggravation of problems in the system of personnel support for breeding and seed production («aging» of scientists and breeders, low level of training and retraining of personnel in agricultural universities).

In the course of research, it was found that for farms of all categories, the key issue is the provision of vegetable seeds in an assortment variety and an acceptable price, and the features of studying the seed market (from the standpoint of their organizational and economic component) are as follows:

- lack of unified databases on quantitative and qualitative accounting of seed production in the context of seed organizations;

- the quantitative and varietal consumption of seeds (both domestic and foreign) is not detailed when cultivating vegetables in the context of their types and categories of farms;

- the commodity code of foreign economic activity (12 09 91) allows you to evaluate only the indicators of quantitative and cost import of vegetable seeds, without detailing them in the context of species;

- self-sufficiency in vegetable seeds of domestic vegetable growing, both in quantity and in varietal composition, is at a low level – over 70,0 % of the seeds used are of imported origin;

- there is no well-established system, including networks for the sale, production of domestic seeds and seed farms engaged in the reproduction of seeds of domestic crops;

- implementation by the regional associations «Sortsemovosch» of the functions of realization in relation to seeds of vegetables of imported production.

- high dependence of the efficiency of cultivation of open-ground vegetables on the amount of costs for seeds, mineral fertilizers and plant protection products (the effectiveness of protected soil vegetables is more sensitive to

changes in the costs of fuel and energy resources, mineral fertilizers and protective equipment).

Taking into account the current situation on the market of vegetable seeds, we offer the following directions for increasing the production potential of vegetable seeds:

1) expansion of the sown areas of seed farms engaged in seed zoning when creating special breeding zones favorable from the standpoint of natural and climatic factors;

2) accelerated development of breeding and seed production, including the possibility of joining the current Russian Association of Independent Russian Seed Companies;

3) identification of import-substituting categories of vegetable seeds;

4) protecting the domestic market of vegetable crops and stimulating the development of the domestic market by creating favorable conditions for the development of breeding and seed production of vegetable crops, and, above all, by state subsidizing breeding programs in vegetable growing, regardless of the ownership forms of breeding organizations, expanding scientific research on the development of new breeding techniques, parameters of technological techniques, optimization of tax policy in breeding and seed production, preferential lending in this area.

An in-depth study of the current situation of vegetable seeds in the framework of identifying import-substituting categories of seeds allowed us to propose a methodology for assessing the feasibility of importing vegetable seeds to agricultural organizations and farms, including the following elements:

1) study and formation of sustainable demand for vegetable seeds in the context of their assortment positions;

2) an algorithm for substantiating the feasibility of zoning domestic seeds of a certain variety of vegetables (i.e. import substitution) and the purchase of imported seeds, taking into account the proposed system of criteria and factors (organizational, climatic, economic, etc.);

3) a scheme for building automated deliveries of vegetable seeds based on the harmonization of legislation in the field of seed production in the EAEU member states;

The study and formation of sustainable demand for vegetable seeds in the context of their categories is the main component of identifying potentially in-demand varieties of vegetable seeds from the standpoint of their functional properties (fresh consumption, processing, etc.). This should

comprehensively take into account the following components:

– the volume of wholesale and retail turnover (hypermarkets, specialized agromazagines and pavilions, agricultural markets, etc.) of vegetable seeds and its structure by types of vegetables;

– monthly questioning in winter periods and weekly questioning in spring and autumn periods of visitors of vegetable departments of super- and hypermarkets and fairs with obligatory marking of the following features: the holiday period, the period of diseases of the population, the period of home preparations, etc. So, based on surveys, we have identified the following specific criteria for evaluating vegetables, for example, for pepper: color, size, taste, keeping quality; cucumber: size; tomato: color, shape, unit weight, taste, etc.;

– the number of vegetable products produced by categories of farms (including greenhouse plants) with the identification of conditionally constant and conditionally variable parts of the volume of vegetables;

– constant interaction with producers of vegetables of open and protected soil and the study of seed germination under certain natural and climatic conditions of their cultivation and the technology used;

– the number of organizations of the vegetable processing industry, their production capacities and planned production volumes, taking into account the variability of market conditions.

The most complete information about the produced and consumed vegetables in the context of their species in the future allows us to substantiate the specific varietal characteristics of seeds and to determine the possibility of their zoning in the Republic of Belarus on the basis of the algorithm proposed by us to substantiate the feasibility of zoning a certain variety of vegetables of domestic selection (Figure 1). The essence of the development is to identify particularly significant (from the standpoint of providing vegetables to population groups, wholesale and retail trade organizations and processing industry enterprises) varieties of vegetable seeds and, if there is an imported component of them, a preliminary assessment of the possibility of replacing them with domestic analogues in the long and short term, taking into account the costs of their zoning and promotion, the possibility of achieving a favorable zoning regime of the variety; framework determination of the cost of vegetable production when changing external and internal factors and conditions of vegetable production, etc.





1. Study of the production and economic potential of the vegetable seed industry, including indicators of the duration, cost and labor intensity of breeding a sought-after variety, taking into account the results of research work already achieved, including in the EAEU countries in the context of varieties evaluated by criteria of the importance of vegetables for agriculture. Key indicators characterizing this stage:

D – the period of creation of the variety, including the period of its experimental development, days;

TE – the number of scientists involved in the experiments, taking into account the availability of an academic degree, people-days;

Zsort – the cost of creating a variety, thousand rubles.

Zsort.post – conditionally fixed costs for the creation of a variety, thousand rubles.

Zuch.variety – the cost of participating in the creation of the variety, thousand rubles.

Rfr – the cost of purchasing a franchise to create a variety, thousand rubles.

E – efficiency of cultivar creation, %

A – variant cultivar creation in the context of alternative groups of vegetables

2. Justification of the costs of zoning and promotion of the variety, determination of the cost of a unit of seeds and the allocation of special indicators for assessing the qualitative characteristics of reproductive seeds (germination, temperature of cultivation of crops); their characteristics of obtaining. Key indicators characterizing this stage:

Zraionirov. – the costs of zoning the variety;

Zprodvizhenie – the cost of promoting the variety;

VP – production of seeds of proper quality,

Ibl.mode – an integral index of achieving a favorable regime of zoning and propagation of the variety;

Seed seed – the cost of a unit of sale of the variety

3. Forecasting the cost of imported seeds (including risks and alternative opportunities for their acquisition, R) (Sed.seeds imp.), determining the cost of vegetable production taking into account the qualitative characteristics of seeds (Sovoshch. imp.)

4. Framework definition of the cost of vegetable production (With vegetables) taking into account changes in external and internal factors and conditions of vegetable production

5. Conclusion on the expediency of zoning vegetable seeds in comparison with their import in the short and long term

Figure 1 – Algorithm for substantiating the feasibility of zoning a certain variety of vegetables of domestic selection

Source: the drawing was compiled by the author

The scientific novelty of the presented method is a comprehensive assessment of the significance of the zoning of certain varieties of domestic breeding vegetables for individual subjects control:

at the state level from the point of view of import substitution (indicator – the number and value of imported vegetable seeds; important element seeds vegetables);

at the level of seed-growing farms from the position of a sufficient production and economic potential (the indicator assessing the potential production of seeds; the ability to achieve favorable conditions for the reproduction of seeds);

at the level of vegetable producers – from the position of competitiveness of vegetable products (evaluation indicator – the cost of veg-

etable production; yield and vegetable production volumes) for the provision of food industry organizations and consumers (evaluation indicator – the level of vegetable consumption, provision of vegetables with declared consumer properties, taking into account general and specific parameters).

The development is intended comprehensively for the chief specialists of the Ministry of Agriculture of the Republic of Belarus, researchers in the field of breeding and agricultural economics.

At the first stage of actions according to the presented algorithm for substantiating the expediency of zoning domestic seeds of a certain variety of vegetables, we identified the following criteria for the significance of seeds of certain vegetables for agriculture (Table 1).

Table 1 – Criteria for the significance of vegetable seeds for agriculture

Seed type	Defining criteria
they are of high importance for the vegetable market (the presence of two criteria)	<ul style="list-style-type: none"> – the specific weight of the analyzed vegetables in the processing structure is from 20,0 % and above; – the specific weight of the analyzed vegetables in the structure of trade turnover is from 30,0 % and above; – the share of import of seeds of analyzed vegetables is from 15,0 % and above; – the share of the cost of seeds in production costs for growing analyzed vegetables is over 40 %
they are of average importance for the vegetable market	<ul style="list-style-type: none"> – the specific weight of the analyzed vegetables in the processing structure is from 15,0 % and above; – the specific weight of the analyzed vegetables in the structure of trade turnover is from 20,0 % and above; – the share of import of seeds of analyzed vegetables is from 15,0 % and above; – the share of the cost of seeds in production costs for growing analyzed vegetables is over 20 %
do not have a significant impact on the vegetable market	<ul style="list-style-type: none"> – the specific weight of the analyzed vegetables in the processing structure is from 15,0 % and above; – the specific weight of the analyzed vegetables in the structure of trade turnover is from 20,0 % and above; – the share of import of seeds of analyzed vegetables is from 15,0 % and above; – the share of the cost of seeds in production costs when growing the analyzed vegetables is below 20 %

Source: compiled by the author on the basis of his own research

At the second stage of actions according to the presented algorithm, we have identified the following criteria as special indicators for assessing the qualitative characteristics of reproductive seeds:

- 1) the percentage of germination of seeds;
- 2) the probability of achieving a favorable regime of seed propagation and cultivation of vegetable crops (temperature, disease-resistant, wind-permeable, moisture-balanced, etc.);
- 3) obtaining general (yield) and specific parameters corresponding to the declared variety for evaluating the effectiveness of vegetable cultivation (acidity; safety indicators, that is, the absence of: lead, arsenic, mercury, copper, zinc; pesticides; nitrates; radionuclides; vitamin content; mass fraction of soluble solids in juice; microbiological indicators, for example, yeast, bacteria of the E. coli group, etc.).

At the third stage of actions according to the presented algorithm, we identified the risks of purchasing imported seeds: a change in the exchange rate, insufficient information on the presented seed variety, an increase in transport costs, changes in border crossing conditions (including customs clearance and tariff rates), adjustment of the possibilities of subsequent use of the variety

taking into account the list of plant diseases and the presence of pests, etc.

At the fourth stage of actions according to the presented algorithm, we have identified external and internal factors and conditions that affect the change in vegetable production:

- traditions of nutrition of the population;
- availability of specialized healthy nutrition programs taking into account a balanced vegetable diet;
- specialization of food processing enterprises of vegetables and their modernization;
- availability of vegetable storages and their area as a separate link of the logistics system;
- effective organization of harvesting vegetables from the population, as well as the logistics chain for the sale of vegetables;
- development of innovative, including resource-saving technologies;
- stimulating the introduction of systems for sorting and packing vegetables, taking into account the consumer specifics of their implementation in farms;
- state policy and support for vegetable production, including seed production systems;





– development of the movement of vegetable growers within the framework of the Union of Entrepreneurs of Belarus and the formation of forms of public-private partnership in the creation of varieties;

– elimination of barriers to the movement of varieties and their use for industrial purposes within the EAEU member states.

At the fifth stage of actions according to the presented algorithm, the decision on the expediency of zoning vegetable seeds is determined taking into account the following conditions:

1. In the short term (1):

– Δ – should be less than the period of potential demand for a particular variety;

– TE – the end of the creation of a variety forms the possibility of obtaining an academic degree;

$$\Delta = \frac{\Delta_1 + \Delta_2 + \Delta_3 + \Delta_{3/c} \times \text{ВП}_{\text{ов.}} + \Delta_{\text{с}}}{(3_{\text{перем.}} + 3_{\text{сорт. пост.}} \times A) + 3_{\text{р}} + 3_{\text{пр}}} \quad (1)$$

Δ – efficiency from creating a variety;

Δ_1 – efficiency due to additional production of vegetables;

Δ_2 – efficiency due to additional processing of vegetables;

Δ_3 – efficiency due to additional sales of vegetables and vegetable products;

$\Delta_{3/c}$ – material and monetary costs of seeds;

$\text{ВП}_{\text{ов.}}$ – gross production of vegetables;

$\Delta_{\text{с.}}$ – export volumes of vegetable seeds;

$3_{\text{перем.}}$ – variable costs;

The effect of the introduction of domestic varieties is determined in several stages:

1) due to the growth of additional production of vegetables to ensure balanced nutrition and capacity utilization, taking into account the consumer properties of vegetable products in accordance with the requests of food industry organizations and the population (Δ_1) (2):

– for the state (due to taxes):

$$\Delta_1 = \Pi_{\text{ов.}} \times (\text{ВП}_{\text{ов.1}} \times K1 - \text{ВП}_{\text{ов.2}}) \times H \quad (2)$$

$\Pi_{\text{ов.}}$ – selling price of vegetables;

$\text{ВП}_{\text{ов.1}}$ – gross production of vegetables produced from seeds of domestic selection;

$K1$ – compliance with consumer properties;

$\text{ВП}_{\text{ов.2}}$ – gross production of vegetables produced from imported seeds;

H – taxes on proceeds;

– for food industry organizations at full capacity utilization due to increased profits (3):

$$\Delta_2 = \Delta \Pi_1 \times K2, \quad (3)$$

$\Delta \Pi_1$ – profit from additional processing of vegetables;

$K2$ – the share of raw materials costs in the cost structure;

– for trade organizations by increasing their turnover (4):

$$\Delta_3 = \Delta \Pi_2 \times K3, \quad (4)$$

$\Delta \Pi_2$ – profit from the additional sale of vegetables;

$K3$ – the share of costs for the purchase of vegetables in the structure of trade;

1) by reducing the cost of vegetables material and monetary costs of seeds (5):

$$\Delta_{3/c} = \frac{31 \times K4}{y} - \frac{32}{y \times I_1}, \quad (5)$$

31 – material and monetary costs for imported seeds per hectare;

$K4$ – exchange rate adjustment factor;

32 – material and monetary costs for seeds of domestic selection per hectare;

I_1 – index of full use of seeds, taking into account their production characteristics;

y – vegetable yield

2) due to the possibility of exporting seeds (6):

$$\Delta_{\text{с}} = (S \times Y_{\text{с}} \times I_2 - C_{\text{с}}) \times \Pi_{\text{с}} \times K4, \quad (6)$$

$Y_{\text{с.}}$ – seed yield;

I_2 – index of favorable seed reproduction;

$C_{\text{с}}$ – domestic seed consumption;

$\Pi_{\text{с.}}$ – the selling price of seeds;

1. In the long term (7):

– Δ – should strive for a minimum;

– TE – the number of varieties that the scientist is working on in parallel is taken into account;

$$\Delta = \frac{(\text{Сс.имп.} \times K4 - \text{Сс.} \times I_1) \times \text{ВП} \times \Delta \text{ВП}_{\text{ов.}} \times \Delta \text{уд.вес.семян} \times \Delta (\text{Сов.} - \text{Сов.имп.}) + K_{\text{сорт.ов.}} \times \Delta_{\text{сорт}}}{(3_{\text{сорт}})} \quad (7)$$

In the absence of expediency of zoning a certain variety of vegetables

of domestic selection, we propose the functioning of a centralized system for providing seeds of vegetable crops «Logistician-Seeds»

(based on the Ministry of Agriculture of the Republic of Belarus with the supervision of regional association «Sortsemovosch»). This requires the creation of a unified database on seeds, which will be synchronized with the register of varieties, the Belarusian Universal Trade Exchange, information systems «Tenders» and will include electronic price lists and catalogs of seeds and hybrids of vegetable crops with a description of the unique and specific properties of seeds - increased yield, susceptibility to specific diseases and pests, the need for water, etc. At the same time, all business entities that cultivate vegetables and subsequently sell them in fresh, frozen and processed form will be required to purchase seeds only through this platform with the receipt of a certain certificate, which indicates the key characteristics of future vegetable products with the planned volume of production. This will not only control the quality of vegetables, but also legalize a number of seed suppliers working directly with farmers.

Conclusions and prospects for further research. The conducted studies allow us to conclude that the sustainable development of the vegetable seeds market in the Republic of Belarus involves optimization solutions to the structure of imported seed flows, taking into account the capabilities of domestic seed producers. In addition, it is necessary to take into account the differences between the qualitative characteristics of the original varieties (the productivity of vegetable cultivation is characterized by relatively low levels of yield with a high cost of plant protection products, but the possibility of obtaining reproductive seeds for the next production cycle) and hybrids (high levels of yield and product quality and the impossibility of obtaining seeds). In this regard, we have presented a methodology for assessing the feasibility of importing vegetable seeds to agricultural organizations and farms, which allows us to assess the effective levels of investment in domestic seed production, taking into account market conditions. At the same time, it is still necessary to solve a number of tasks that characterize the proper technical and technological support of seed production, taking into account the innovative development of agriculture.

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