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IMPORT SUBSTITUTION AS A FACTOR OF THE AGRICULTURAL DEVELOPMENT IN THE KALININGRAD REGION

Summary. This research project is devoted to the urgent problems of import substitution and food security in the Russian exclave (Kaliningrad region). It examines the stages and status of the development of the agriculture system in the region using a bifurcation analysis. This analysis reflects problematic zones, and the current crisis conditions of the (Russian) agro-industrial system. In an attempt to ensure food security, the research addresses the development and procedures of the agricultural sector in Kaliningrad. The development risks of the enterprises dealing with agriculture were evaluated and possible ways of development were offered and estimated. Prior to this study, the business-process of agriculture was created, thereby making the examination process on this topic easier.

Keywords: agriculture, exclave region, food security, import substitution, business-process.

SUBSTYTUCJA IMPORTU JAKO CZYNNIK ROZWOJU ROLNICTWA W REGIONIE KALININGRADZKIM

Streszczenie. Badania przedstawione w artykule są poświęcone problemom substytucji importu i bezpieczeństwu żywnościowemu w obwodzie Kaliningradzkim. W artykule rozpatruje się stan i status rozwoju systemu rolnictwa w regionie, przy wykorzystaniu analizy rozwidlonej. Analiza dotyczy problematycznych zagadnień i bieżącego kryzysu w rosyjskim systemie rolniczo-przemysłowym. Badania prowadzone są w celu zapewnienia bezpieczeństwa żywnościowego w Kaliningradzie. W artykule analizie i ocenie poddano także źródła ryzyka związane z analizowanym problemem. Opracowano także model procesu rolniczego w celu uproszczenia prowadzonych rozważań.

Słowa kluczowe: rolnictwo, bezpieczeństwo żywnościowe, enklawa, substytucja importu, proces biznesowy.

1. Introduction

The theme of food security is a crucial question for many countries and nations all over the world, especially for uniquely located territories.

Nowadays solving the problem of the food security in Russia is extremely important and necessary. Kaliningrad region particularly needs to develop and support its own agriculture and fishing industry due to the geographical separatism.

Almost all proposed projects and programs based on the strategy of import substitution might not give positive and expected results in a few years.

2. Bifurcation analysis of the agricultural

Agriculture of the Kaliningrad region is a system of the interconnected elements such as growing (breeding), laboratory researches, production, proceeding, distribution, marketing and etc. The further way of this system is unknown and unpredictable, it may be just forecasted. Different externalities are the reason of the system crisis state.

Bifurcation analysis of the development of agriculture of the exclave region reflects the main problem areas and crisis states of the agro-industrial complex as a system.

The point of bifurcation is a crisis extent of the system when it is in the most unstable state of the choice of further way among endless but limited alternatives.

The system's crisis state of agriculture and fishing industry of the exclave region is their point of bifurcation. The system can't exist any longer and the process of self-organization begins. The further way of the agricultural development may be forecasted taking into account endless but limited alternatives (ways).

The figure 1 represents bifurcation phases and points of bifurcation of the agricultural system (2010-2016).

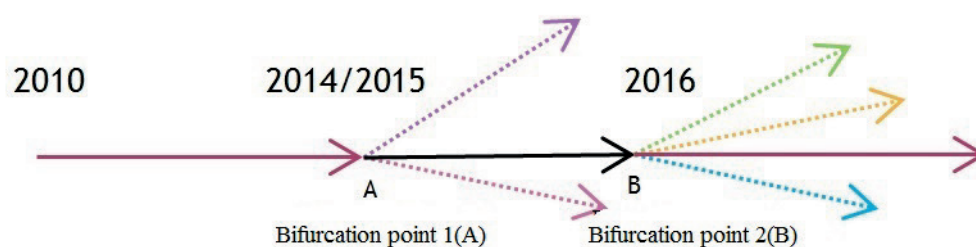


Fig. 1. Bifurcation phases and the point of bifurcation of the agricultural system (from 2010 to 2016)

Rys. 1. Fazy rozwidlenia i punkty rozwidlenia rolnictwa (od 2010 r. do 2016 r.)

Source: Own work.

The period of time from 2010 to 2014 is called pre-bifurcation period when the agricultural system was developing steadily without any variations or biases, i.e. externalities had not influenced it.

At the end of 2014 and at the beginning of 2015 food sanctions, embargo, WTO's accession had led the agricultural system of the Kaliningrad region to the bifurcation point.

The agricultural system will move to the third phase (after-bifurcation) in mid - 2016 when all subjects of agriculture will face with the consequences of cancellation of the preferential customs period of the Special economic zone (SEZ) in the Kaliningrad region. After that the system will move across one attraction (way of development) and eventually there will be an order. The year of 2016 will be the new point of bifurcation for the Kaliningrad agriculture (bifurcation point 2).

They may make conclude deducing the figure 1 that there will be lots of different ways of the agricultural development according to the bifurcation theory, namely:

- Import focusing (purchase of imported goods from Latin America).
- Partial import substitution (substitution of some imported products by domestic analogues).
- Total (absolute) import substitution (complete replacement of imported products by the domestic goods that may result in lack of some goods).

According to the doctrine of food security of the Russian Federation and the strategy of socio-economic development of the Kaliningrad region there is only one attraction (way) (at the bifurcation point 2) called import substitution. However, some political analysts and economists adhere to this point of view, deducing that total import substitution is necessary. But this development may lead to the negative consequences like shortages of goods, which can't be grown in the Kaliningrad region due to its climatic conditions. Russian President Vladimir Put in has claimed, that "[...] the import substitution - is not a panacea, we are not going to substitute in a pointless and unreasoned way". According to the president's opinion, the replacement of import goods should be "where we can be completely sure to have our own revived or recreated competence" [4].

3. Business-processes in the system of agriculture

Import substitution has to provide rational replacement of some agricultural products with high-quality analogues produced in the Kaliningrad region and sold at the average market prices.

The business process of the import-substitution in the Kaliningrad region is represented at the figure 2.

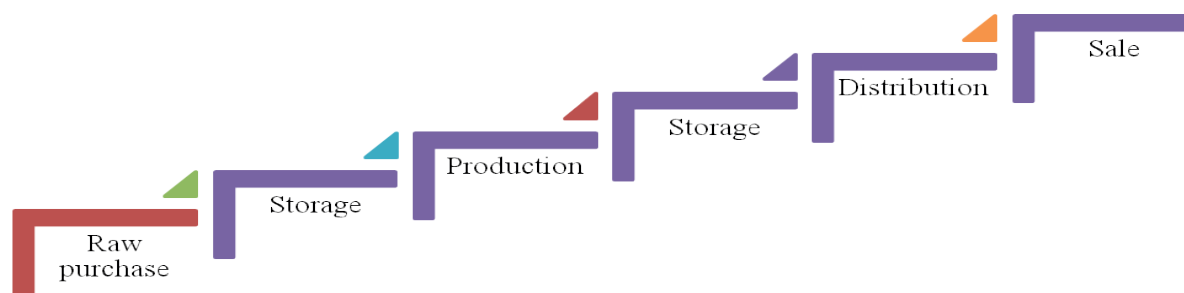


Fig. 2. The business process of the import-substitution in the Kaliningrad region

Rys. 2. Schemat procesu importu do obwodu kaliningradzkiego

Source: Own work.

According to the figure 1 they may conclude that business process of agriculture uses phases such as raw purchase, storage, production, distribution and sale. Buying of raw materials (seeds and livestock) are the main and the most important steps for import substitution. If raw materials are imported they can't be considered in the discussions about food security. It would be better for government and political decision makers to pay attention to solving the problem of purchasing raw materials.

Today the necessity of the food security provision of the exclave region is quite high and actual especially under conditions of import substitution. The table 1 represents the level of self-sufficiency of some food products in the Kaliningrad region (2015).

Table 1

Table for Kaliningrad region's self-sufficiency of some kinds off good in 2015

Name	The rate of consumption (1kg per person per year)	Consumption (personal, productive, losses) Kt	Produced in 2015 Kt	Self-sufficiency %, 2015
Potatoes	100	160,9	150	93
Vegetables	120	125,0	69,2	55
including				
Cabbage	15	20,3	15,8	78
Beet	6	10,4	9,4	90
Carrot	7	12,9	7,8	60
Garlic/onion	10	20,6	7,18	35
Tomatoes	20	19,2	4,5	23
Cucumbers	22	21,2	8,5	40
Fruit, berries	100	78,0	37,4	48
Dairy products	320	308,2	158,9	52
Pork	14	13,5	33,4	247
Beef	25	24,1	9,1	38
Poultry	30	28,9	26,6	92
Eggs, mln.	260	250,4	205	82

Source: The ministry of agriculture of the Kaliningrad region URL <http://mcx39.ru/> [7].

Kaliningrad region provides its citizens with meat and meat products particularly with pork (247%), potatoes (93%), cabbage (78%). It is necessary to pay attention to the increasing of cultivated area and to the growing of tomatoes, garlic, onion and cucumbers.

The extent of the socio-economic development of any Russian region may be analyzed according to the following statements:

- The value and composition of the consumer basket.
- The value of the subsistence minimum.
- The value of the minimum wage.

Consumer basket is a set range of goods, which characterizes the typical level and structure of the monthly (annual) consumption of an individual or family. Consumer basket represents the minimum set of food, non food goods and services that are necessary for the human health and life.

The cost of the consumer basket includes four components:

- costs of mandatory fees and charges(7.1%);
- services (23.7%);
- non-food products(23.5%);
- food products(45.6%).

The average cost of the consumer basket per capita in Russia is approximately 9673 rubles. For the working population it is about 10436 rubles, for pensioners 7951 rubles, for children 9396 rubles. In the Kaliningrad region the value of the minimum wage is 10000 rubles.

Table 2 shows the composition and volume (in real terms) of food consumption basket of the Kaliningrad region in 2015.

Table 2

Table for the structure and amounts (in the real terms) of the consumption basket of the Kaliningrad region in 2015

Name	Unit.	The average volume of consumption (1 person per year (working-age population) (227 FL)	Recommended volumes of consumption (Ministry of healthcare)
Bread	kg	126,5	95-105
Potatoes	kg	100,4	95-100
Vegetables	kg	114,6	120-140
Fruit fresh	kg	60	90-100
Sugar and sugar products	kg	23,8	24-28
Meat products	kg	58,6	70-75
Fish products	kg	18,5	18-22
Dairy	kg	290	320-340

cont. of table 2

Eggs	mln	210	260
Vegetable oil	kg	11	10-12
Other products (spices, salt)	kg	4,9	2,5-3,5

Source: Federal law from 27.07.2010 N 227-FZ "About changes of the certain legislative acts of the Russian Federation in connection with adoption of the Federal Law". About the organization of public and municipal services [1].

The may conclude deducing the data of the table 2 that the biggest share of the consumer basket reflects to dairy (24, 48%), bread (12, 42%), vegetables (11, 25%), and the smallest share – vegetable oil (1, 09%) and spices (salt) (0, 48%).

The following analyses (chart) is based on the data of the tables 1 and 2 that compares average volumes of consumption (1 person per year (working-age population) (227 FL) and recommended volumes of consumption (Ministry of healthcare).

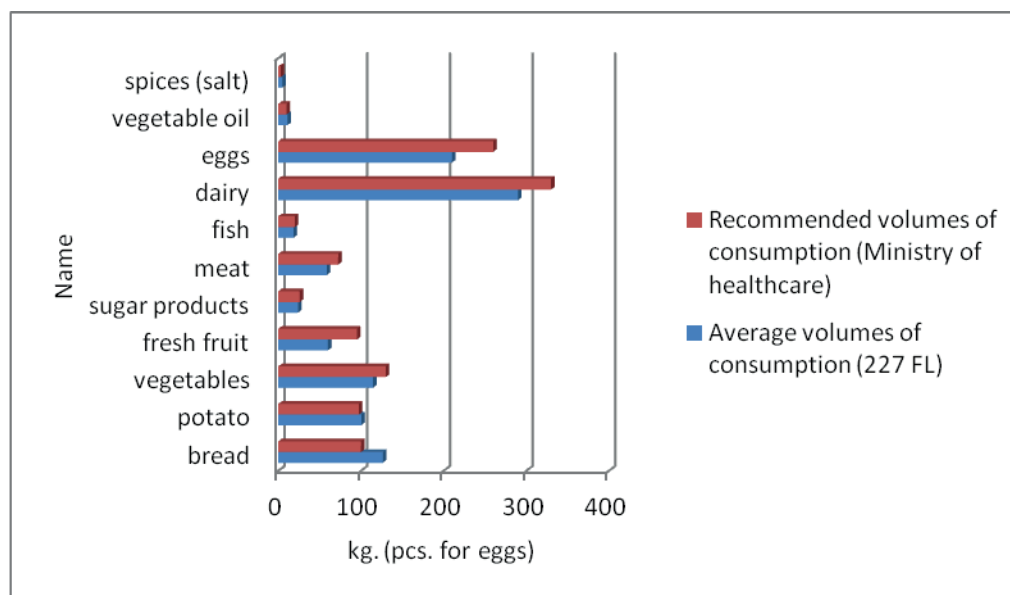


Fig. 3. Comparative analysis of the accordance of amounts of food consumption from different documents

Rys. 3. Analiza porównawcza zgodności wielkości konsumpcji artykułów spożywczych rekomendowanej i rzeczywistej

Source: Federal law from 27.07.2010 N 227-FZ "About changes of the certain legislative acts of the Russian Federation in connection with adoption of the Federal Law". About the organization of public and municipal services [1].

The figure 3 shows that the consumption of bread and bread products, vegetable oil and potatoes exceeds the established limits by the Ministry of Health. The situation is directly opposite for the other components of the food basket.

According to the table 2 and figure 3 every person has to consume about 346 g of bread and bread products, 275 g of potatoes, 313 g of vegetables, 164g of fresh fruit, 65 g of sugar, 160 g of meat products, 50 g of fish products, 794 g of milk and dairy products, 30 g of vegetable oil and margarine, 13 g of spices (salt) a day and should eat one egg every two days.

4. Main risks in the field of a agriculture

The table 3 represents the risks for enterprises working in the agricultural field.

Table 3

Table for the main risks for enterprises working in the field of agriculture

Risk category	Description of risks	Possible consequences	Measures and possibilities of mitigation
Production and infrastructure	High volatility of feed's prices	Extra expenses in the beginning of the new projects' realization	Vertical integration with producers of feed
	Low quality of the purchased feed	Decreasing profit, lack of the current assets	Hedging of the feed purchasing
	Lack of the employees' experience and low qualification of the main working labor (for example vets)	Low quality and low degree of the finished products' security	Investments in education and extra teaching for the working labor, usage of outsourcing
	Undeveloped infrastructure	Low competitiveness and market share's reduction	Plants' location at the territories with high-developed infrastructure
Investments and finances	Cancellation or reduction of operating subsidies to pay the interest on the loans due to the changes in policy	Low profitability of the return on cost of sales	Legally obligations' fixation of the Government, local authorities and the banking sector
	The increase of interest on loans	Losses or reducing profit, increase of the risk default on loans	
	Lack of the current assets due to the financial crisis	Lack of possibility to purchase the feed in time	
Politics	Reduction of the state financing	Higher interest rates and lack of the state co-financing	Planning with taking into account the increasingly tough import competition

Source: Tendall D.M., Joerin J. Food system resilience: Defining the concept/Global Food Security. 2015, p. 7 [5].

The may conclude that there are three main risk categories for agricultural enterprises: production and infrastructure, politics, investments and finances. Possible measures for risk mitigation are the following: vertical integration with producers of feed, hedging of feed purchases, investments in education and extra training for laborers, improvement in outsourcing management, increase of plants near territories with highly-developed infrastructure, planning and accounting for emerging import competitors.

Figure 4 reflects the main directions of agricultural development in the Kaliningrad region aiming at the provision of the food security.

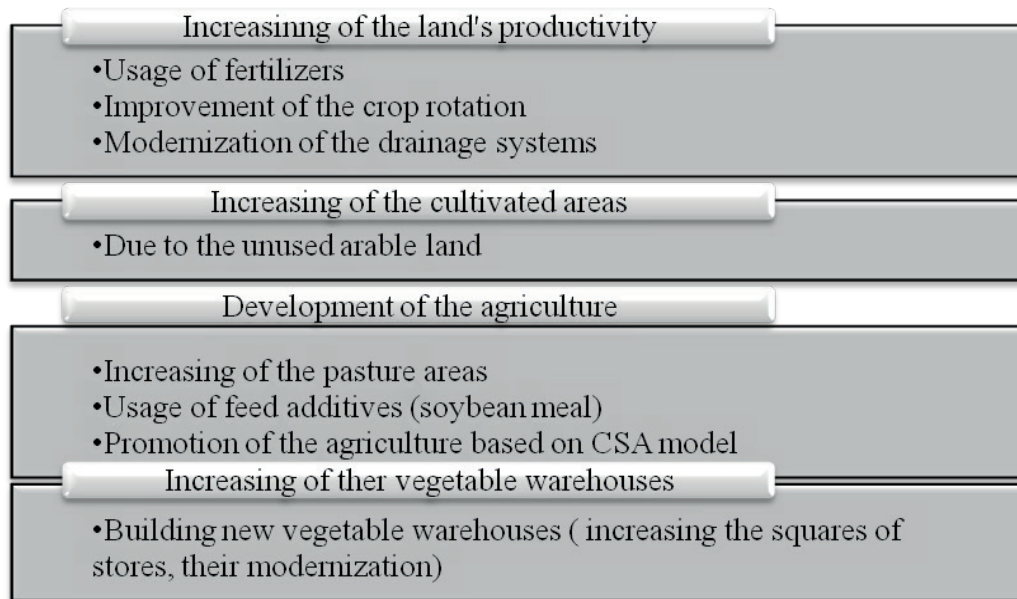


Fig. 4. Main directions of the agricultural development of the Kaliningrad region aiming at the food security

Rys. 4. Główne kierunki rozwoju rolnictwa w obwodzie kaliningradzkim, zakładające bezpieczeństwo żywnościowe

The main directions forward for ensuring food security are extensive. In order for development of the agricultural industry in the Kaliningrad region principal steps must be taken. This includes improvements in crop rotation, renovation of drain systems, efficient usage of feed (feed additives), construction of new produce stores (also increasing the areas of already available stores), and promotion of agriculture based on the CSA model used in the United States.

5. Conclusions

Thus, it is necessary to accelerate the development of the livestock, expanding and intensive usage of the potential of the aquatic biological resources and new technologies of the industrial cultivation, increasing the paces of structural and technological modernization of agricultural and fishing systems, the usage of feed additives for animals, improvement of crop rotation to increase oil fertility and yield, application of the system of the agriculture based on the model CSA. Also it would be better and more efficient for Kaliningrad government and political makers to pay attention to the solving the problem of raw materials' purchases because it is the main and the most important stage of agricultural production.

Bibliography

1. Federal law from 27.07.2010 N 227-FZ "About changes of the certain legislative acts of the Russian Federation in connection with adoption of the Federal Law". About the organization of public and municipal services".
2. Government Decree of the Russian Federation from 30.11.2015. No. 1291. "About the establishment of the living wage per capita and the main socio-demographic groups of the Russian Federation for the III quarter of 2015".
3. Order of the Ministry of healthcare of the Russian Federation from 02.08.2010 N 593n "About approval of the recommendations about rational standards that meet the modern requirements of a healthy supply of food consumption" (Registered in the Ministry of Justice 11.10.2010 N 18680).
4. Metsel M.: Putin about import substitution, business relations with the government and the foreigners in the public procurement system: the key statement of the head of state on the forum "Business Russia"/M. Metsel//TASS. - 26 May 2015 [electronic resource] URL: <http://tass.ru/politika/1995651> (reference date: 02/12/2015).
5. Tendall D.M., Joerin J.: Food system resilience: Defining the concept [Электронный документ]/Global Food Security. 2015, p. 7. <http://www.sciencedirect.com/science/article/pii/S2211912415300031>.
6. <http://kaliningrad.gks.ru/> - The territorial agency of the Federal State Statistics.
7. <http://mcx39.ru/> - The ministry of agriculture of the Kaliningrad region.

Omówienie

Główne kierunki zagwarantowania bezpieczeństwa żywnościowego powinny mieć ekstensywny charakter. W celu zapewnienia rozwoju rolnictwa w regionie kaliningradzkim należy podjąć natychmiastowe działania zorientowane na rozwój rolnictwa. Dotyczy to przede wszystkim wprowadzenia płodozmianu, odnowy systemów nawadniania, efektywnego wykorzystania żywności, budowy nowych sklepów spożywczych (w tym także zwiększenia powierzchni istniejących sklepów) oraz promocji rolnictwa na podstawie modelu CSA wykorzystywanego w Stanach Zjednoczonych.