RESEARCH ARTICLE

Actual issues of production of greenhouse vegetables in the process of implementation of the policy of import substitution (in the case of the Republic of Tatarstan)

Sabirova Ajgul Ilshatovna, R. V. Nagumanova

Department of Medicine, Institute of Fundamental Medicine and Biology, Kazan (Volga Region) Federal University, Kazan, Russia

Abstract

Aim and Scope: The article reveals the urgent issues of food production in greenhouses in the case of the Republic of Tatarstan. The factors that affect the policy formation of import substitution, as well as problems of producers and consumers arising in the process of the implementation of the policy, are considered. **Materials and Methods:** However, as market participants suggest, the deficit of greenhouse vegetables is mostly closed by supplies from non-European countries - Turkey, Iran, and China. Nevertheless, vegetables from these countries will be more expensive and they have often much higher rates of residual content of chemical plant protection. It is for this reason; greenhouse owners see another danger in an influx of new import: In their opinion, nowadays, we should not open the borders mindlessly to each import, we have to focus on import substitution in the branch of the industry, attracting investors, and own development. **Result and Discussion:** Taking into account the above factors, the potential segment of greenhouse vegetables in the Republic of Tatarstan with the organization of timely and effective arrangements is very large. However, the whole of Russia a breakthrough can give only target program for the development of greenhouses. **Conclusion:** The article highlights the main directions for the development of specific activities to develop a sub-sector of greenhouse production.

Key words: Agriculture, cost, food safety, food security, greenhouses, import substitution policy industry, market, profit, protected ground

INTRODUCTION

The Russian Federation has the few number of subjects where there is the simultaneous development of agriculture and industry, tourism and transport business. Having of fertile agricultural land, diversified economy, highly skilled workforce, unique natural, and recreational resources providing the development of almost all types of recreation, is only a part of the components of the investment potential of the Republic of Tatarstan. Modern administrative tools to facilitate investment activities are recognized as effective mechanisms of the state support of entrepreneurship, including agriculture.

Theory

The branch of protected ground - growing greenhouse vegetables and herbs is one of the most import-dependent in our country. Of 1.8 million tons of consumed greenhouse vegetables, only one-third which is about 600 thousand tons are grown in Russia (limited mainly tomatoes, cucumbers, and greens), the remaining part (bell peppers, eggplant, zucchini, etc.), to a greater extent, is imported from Europe: The Netherlands, Spain, Greece, and Poland. Practically, all imported fresh vegetables are grown, especially in greenhouses [Figure 1].

In the current political situation in Ukraine, as well as in connection with the Russian retaliatory sanctions in the

Address for correspondence:
Sabirova Ajgul Ilshatovna, Institute of Fundamental Medicine and Biology, Kazan (Volga Region) Federal University, Kazan, Russia.
E-mail: RVNagumanova@kpfu.ru

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form of a ban on the import of food products in the country, Russian farmers can take a chance in terms of organization and development of effective policies of import substitution, namely, in the greenhouse industry. However, the Russian government increasingly declares that the consumer should not suffer from the current situation that is necessary to provide protection against shortages and rising prices for sanction products.

Furthermore, it is necessary to create conditions for strengthening the domestic producers in their own markets through changes in state programs of agribusiness aimed at import substitution. Some media vividly discuss such changes as an opportunity to introduce compensation of direct costs for establishing genetic and breeding centers, livestock farms, and greenhouses.

According to Natalia Rogova, the chairman of the association "Greenhouses of Russia" to provide ourselves with greenhouse vegetables at least on 70–80%, domestic producers should increase doubly the area of protected ground, from the current 1900 to 4 thousand hectares. With regard to foreign countries, in this aspect, their indicators today are several times greater in the Netherlands about 11 thousand hectares, in Poland - 6.5 thousand, and in Turkey - 35th [Figure 2].

To date, the production of greenhouse vegetables in Russia is carried out mainly in St. Petersburg and Leningrad region. Almost the same numbers of aggregates are produced in the Republic of Komi, Vologda, Novgorod, Arkhangelsk, and Pskov regions [Figure 3].

In addition, the vast majority of existing greenhouse space in the Republic of Tatarstan is the old Soviet greenhouses, obsolete both physically and mentally, therefore, the yield which can be achieved is very far from international standards [Figure 4].

If we look at retrospect, it may be noted that the greenhouse statistics is hard enough: Before Perestroika in our country was 5 thousand hectares of winter greenhouses, and now, there are only 2 thousand, and the number of areas under greenhouses is not growing. Leaders of other greenhouses talk about the gradual closure of the old greenhouses due to their unprofitability: They are too energy intensive and are not into technology, i.e., does not allow to obtain high crops.

The profitability of the given greenhouses, according to experts, is from 0% to 15%.[1] In the new, modern greenhouses with high energy efficiency and a half to twice higher yield, the level of profitability can be 40–50%, and in the Republic to those ones can be included the Greenhouse complex "Mayskiy."

"Mayskiy" is among the 300 largest and most efficient working agricultural enterprises of Russia, it is a part of the group "Tatplodoovoschrom." At present, the area of winter industrial

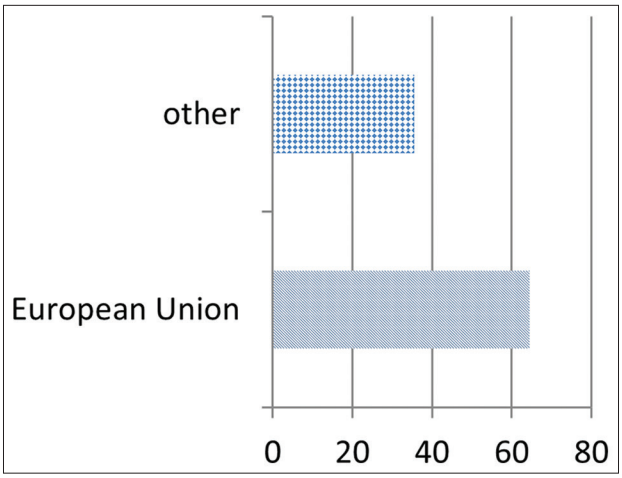

Figure 1: The share of greenhouses, which are located in the European Union in the European area in 2013, %

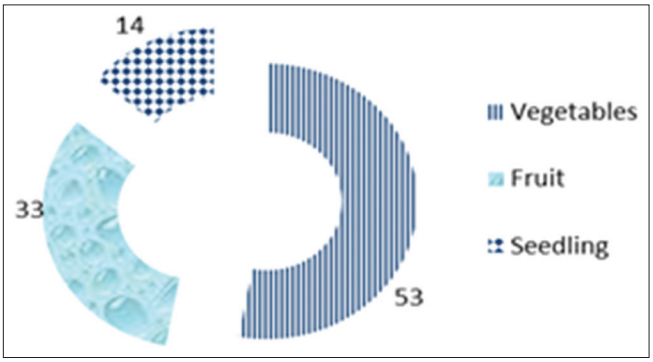

Figure 2: Structure of production of Canadian greenhouses by product, 2013, %

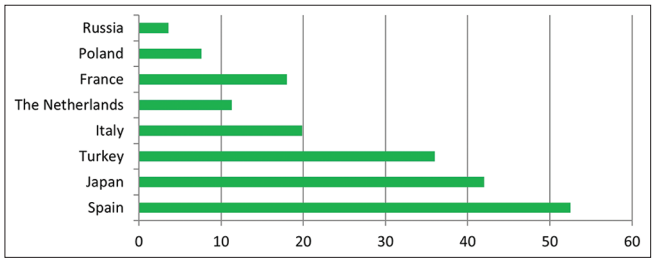

Figure 3: Greenhouse area in the comparative ratio by country, thousand sq. M. m

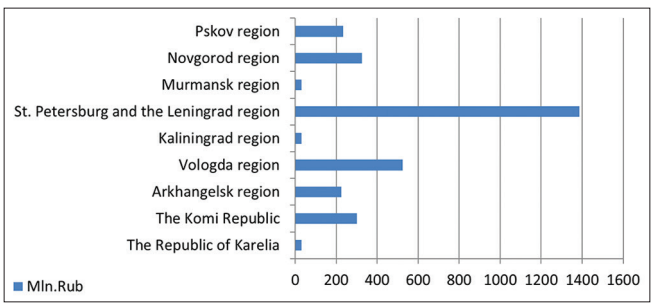

Figure 4: The production of greenhouse vegetables by major regions of the Russian Federation, million Rubles

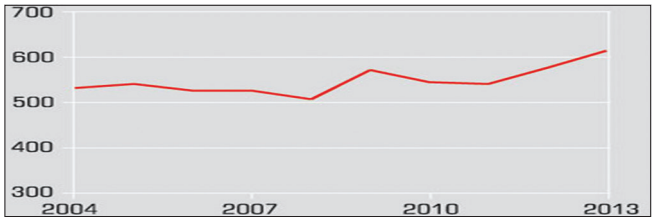

Figure 5: Gross harvest of greenhouse vegetables in Russia, thousand tons

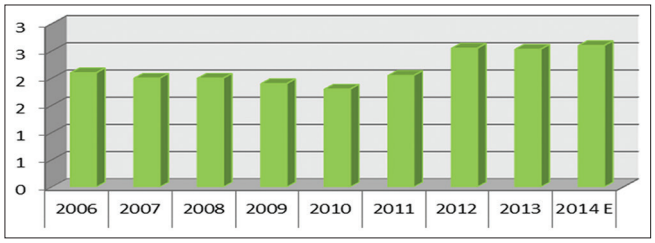

Figure 6: Dynamics of the total area of greenhouses in Russia in 2006–2014, %

greenhouses is over 50 hectares, which are divided into nine production plants with all accessory buildings and structures. Annually, the agro-industrial complex "Mayskiy" produces up to 15 tons of fresh vegetables (cucumbers, tomatoes, peppers, eggplants, green cultures, etc.) [Figure 5]. All greenhouse products are destined mainly for domestic sales of Tatarstan.[2] A large proportion of vegetables are sold through outlets in Kazan, also there works the itinerant trade in markets. Apart from branded stores, vegetables are sold by vegetable shops, cafes, canteens, and individual entrepreneurs throughout Tatarstan [Figure 6]. When there is the saturation of the market of the Republic, vegetables are taken in many regions of Russia: Moscow, St. Petersburg, Yekaterinburg, Samara, Izhevsk, and many others.[3]

RESULT AND DISCUSSION

First, allow to modernize existing enterprises, and second, will open the door for any investor who wants to enter the market and begin to build. Talk about the need to develop a special program for the development of the greenhouse industry conducted for the past 5 years.[4] However, unfortunately, the state program for 2013–2020 was adopted without a section of the greenhouse industry.

Thus, it is necessary to identify the main directions for the development of specific activities to develop a sub-sector of the greenhouse production:

- In our opinion, the paramount importance is the development of legislative acts (including local ones) with regard to establishing favorable conditions for cooperation between entrepreneurs and farmers with large retail chains of the Republic such as Auchan, X5 Retail Group, Magnit, Behetle, Essen, Temle and Polushka, and others;
- The update of the material, technical, and scientific basis, there should be revised standards of building greenhouses (investment period which is required for the construction of greenhouses and debugging of production lasts about 2 years). The construction of 1 ha of greenhouses requires about 160–180 million rubles, whereas in practice usually they built right around 10 hectares, the amount of initial investment is about 1.5-2 billion rubles. The average payback period is 8.12 years. Most of the funds are invested in the construction of the gas generator which alone produces energy for heating and lighting - the most important requirements for greenhouses.[5] Purchasing electricity from natural monopolies on existing rates is quite unprofitable. For example, for the construction of the new facility by issuing a loan of 1 billion to Rosselkhoz bank, the interest on the loan amount to 13.5% per annum, of which the state compensates only 8%. In terms of earnings, this 1 billion is possible to build 5–7 hectares of greenhouses, the income from which is for the year of approximately 20 million, and the bank must return the 250 million.

For example, in the Netherlands, where the greenhouses provide not only their small country but also the whole of Europe, the boiler room and fertilizers may be placed in the greenhouse, whereas in Russia the boiler, according to the safety requirements must be in a separate building at a certain distance from the greenhouses, fertilizers are in a separate stock, all increasing total costs.[6] Unfortunately, now leaders in greenhouse area are Dutch, Russian companies were founded on western technology 15 years ago and do not develop;[7]

- Development of special conditions of crop insurance, leasing for greenhouses equipment;
- Introduction of bio- and nano-development (including parts of fertilizers).

Some progress in this aspect, of course, there are: For example, in the territory of RFAU-MAA Timiryazev opened demo exposure nanotechnology solutions in the construction of greenhouses for agriculture. Implemented in the exposure process and the technical solutions can significantly increase the effectiveness of greenhouses, and as a result, the yield of products. For example, glass with a low-emissivity coating transmits light and limits the maximum flow of waste heat in the summer, keeping it in the winter. Penostekolny gravel for insulation is highly resistant to moisture and frost. The design of the lamps uses LEDs.[8] They can accelerate plant growth, wherein the compact, have low heat and serve 6–8 times longer than conventional lamps. Paints, primers, and fillings, include nanoparticles, have antiseptic and antibacterial properties. The composite rein for cement for strengthening the foundation save up to 35% of the cost of care facilities. The results of these technologies on the production plan compared to the classical greenhouses.

Provide for the payment of costs for energy (30–20%),[9] in particular, it is worth noting that the major greenhouse

accounted as industrial, and therefore, the reimbursement of the cost of electricity is not available. While the per hectare subsidy of 2.5 thousand. Rub./Ha gives 250 thousand. Rub./Year, there are also subsidies for the purchase of fertilizers. However, the amount of these subsidies is too small: Declaratively subsidies are, but their volume is negligible. Energy in greenhouse agribusiness - the main costly mechanism, which is about 45%. Therefore, greenhouse enterprises need subsidies in this area.

To calculate the need for energy for heating greenhouses, it is necessary to know the heat loss of a greenhouse, which can be calculated using the following formula:

HL=SA×k×TD (°C)

Where:
SA (surface area) - the entire outer surface of the greenhouse;
k - coefficient of thermal conductivity of the material. Watt/m2K;

TD (temperature difference) - the maximum temperature difference between the inside and outside temperature greenhouse.

- To provide an opportunity to sell electricity generated by mini power plants to housing stock (taken over from the world technology in enterprises with secure ground installed by mini power plants (an average of about 18 MW), which converts the gas into electricity, heat, and carbon dioxide), however, the Russian Federation output from these innovations are not as big as in other countries, where 15–20% of the cost of gas companies compensated by the state.[10,12] Moreover, European producers are connected to a common power supply system, there is an opportunity to sell their electricity housing, and it is beneficial to all. The generated energy is needed Agro complex primarily at night, and during the day, there is the opportunity to sell it to the city in which electricity is really not enough. However, it is impossible to break the monopoly of energy: Greenhouse farms offer to sell electricity at an unfavorable price;
- There is particularly acute problem with the regulation of issues related to bank financing: Increasing the period of subsidies and concessional lending, taking into account a long payback period, the revision of order of making and evaluating the pledge.[13-15] Herewith, there should be minimized the difficulties with pledges and their registration, as when obtaining a loan, the bank requires practically very much: Land, buildings, shares, and a personal guarantee of the founder, there dramatically increased the amount of discounts on bail; lending rates, which today can expect entrepreneurs in this sub-sector is 11-15% per annum and these loans are practically given only by two banks:[11] Sberbank and Rosselhozbank. In addition, funds for subsidies come from long delays, whereas banks often begin to demand repayment of principal from the 1st day.
- Organization of project financing at the regional level;
- There should be revised the strategy of concentration of greenhouses around the city due to the high cost of land near large cities;
- Creation of a logistics complex (transport, storage, and vegetable warehouses) allows to deliver quickly the finished product in different regions;
- To create social advertising, promote domestic products.

CONCLUSIONS

The market situation is also disposed to local investors: Russian greenhouse products will always be in demand in Russian networks (despite the fact that its price is on average 20% higher than imports) due to the simple factor - logistics.

On condition of the implementation of these measures in a timely manner, the existing potential of the Republic of Tatarstan (including climatic) can be implemented with a view to ensuring food self-sufficiency not only of the region but also the nearby subjects.

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