Food-Cluster Formation and Development

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Abstract. The article considers the main peculiarities of food-cluster formation and development. Food complex is one of the most important industries of the national economy. Key approaches to its formation and development are analyzed in terms of regional development and management. Taking into account foreign experience, integrated unions which play an important role in agro-business’ structure entering the food industry and competing with previously created businesses, are identified. The given techniques allow calculating potential indicators of the cluster approach in agricultural enterprises as well as analyzing the competitiveness level of its leading spheres. Basic instructions of the cluster approach usage in the sphere of food production industry are defined.

1. Introduction
These days transformation processes in economy are accompanied by the problems and difficulties of world economy instability, sanctions against Russia the solutions of which require essential macro- and micro-changes. One of these problems is the solution of provision and sustainable support of domestic enterprises competitiveness of food industry by the study of formation potential and effective functioning of food clusters.

2. Background
Food industry is one the most important industry of national economy. A demand of permanent growth in regional agro-industrial complex is determined by new goals and tasks relating to the choice and application of competitive development strategy of the region’s economy. This enables to use the potential available. The future of any economic system including food complex development depends on the choice of its development strategy.

The right chosen strategy gives an opportunity to combine interests of all participants of production. At this stage the development of food market, its structure and functions as well as its sphere of activities need great transformations and the application of definite approaches admitted by the world practice. One of such approaches is a cluster one which proves its effectiveness in...
developing economy within market conditions. Clusterization recently is becoming a real means of competitiveness rise both by enterprises of the regions as well as of the country as a whole.

3. Focus of the research
Cluster approach takes a leading position based on getting maximum synergy effect from enterprise systems of the territory functioning on the basis of close enterprises’ interrelation in different industries of economy sectors as well as by using competitive priorities of the territories in the modern economy within globalization’s conditions.

There are many works in economics written by foreign and domestic scientists, which are devoted to the problems of cluster formation and development [1-9]. The researches of clusters by the scientists are mostly done in terms of regional development and management.

The founder of cluster development is known to be M. Porter, one of the most prominent scholars in the world who considers a cluster as a concentration of interconnected businesses, organizations, establishments and related to them geographical and functioning national institutions, scientific establishments, different infrastructural entities working in a particular field with a particular aim [7-9].

Paying attention to the theory of clusters it should be mentioned an American scholar M. Enright suggested the definition of regional cluster as an economic agglomeration of businesses which works in one and some related industries located geographically close to each other [10-11]. M. Enright’s theory states that competitive priorities occur on the regional level but not on the national one as M. Porter suggests where historical basis of regions’ development plays a leading role, diversity of techniques of business, organization of production and etc.

Scholars E. Bergman and E. Feser give the following definition of regional industrial clusters as geographically concentrated clusters usually within the region, combining the idea that a spatial proximity of participants creates definite competitive preferences [12].

T. Anderson defines regional or localized cluster as a spatial agglomeration of the similar and related forms of enterprises which is a core of local environment enabling knowledge acquisition and stimulating different forms of study and adaptation [13].

As scholars G. Hospers and S. Beugelsdijk point out, cooperation in term of geographical concentration is a strategy of organized survival in highly competitive business sphere [14].

A group of domestic scholars suggests the systematization of regional resources by institutional indicators to assess sustainable development of regional economic clusters of territory social-economic system [15], and they also propose the methods and evaluation [16] of investments into agriculture. Using a complex approach scholars [17] considered the tutorial materials of the diagnostics of innovation cluster formation process.

The world practice testifies that national support of cluster initiatives gives a quick payback and an economic effect from national investments. Formation and development of clusters will speed up the process with the support of a nation and proper financial security. Taking into account the foreign experience, it should be noted that integrated businesses have an important role in the structure of agro-business entering the food industry and competing with previously created businesses.

4. Solutions, and recommendations
Clusterization development in food industry is defined by agrarian sector’s peculiarities, one of which is a seasonal factor. Considering these peculiarities, it should be noted that consumer costs formation in agrarian sector depends directly on climatic conditions and on a number of other things.

At the same time, food cluster development is a holistic dynamic process, which is a basis of food supply security of the region, and relatively, it raises the population life standards quality. Perspectives of food industry development are an independent economic phenomenon, closely related to regional specificity of agricultural complex and food market.

In contemporary conditions economic sustainability of food industry can be obtained only by
innovative industry development, application of resource and energy saving technics and technology, implementation of scientific resources, an optimal combination of market and government regulations of economy. All mentioned above factors can be used under the conditions of food production clusterization.

It should be stressed that in economics the subjects of market relations in goods supply from the producer to the consumer are enterprises-producers, procurement, processing, trade and catering businesses.

So, as a basis of clusters is a principle of competitiveness in the economic sector which appears when there is a competition in a definite sphere as well as a process of interaction between them. In practice there is the following: one industry influences positively or negatively on others and (or) pushes them forward or makes them follow it. Now then, interchange and cooperation are the most important elements of cluster groupings formation.

The goal of food clusters formation and development is to create conditions for expanding domestic production; increasing products competitiveness of sub-industries; integration ties formation and the improving mechanisms of industries and sub-industries management.

Moreover, according to the specialists, it is necessary to identify the role of the stipulated industries in the structure of region’s economy in terms of production volumes, population employment, labour productivity, foreign-economic orientation and others, wherein using a location coefficient. The given coefficient is an economic-statistics indicator which shows the level of possible or potential clusterization and competitiveness of the chosen industry in the region [18-20].

Here is a calculation method of the suggested generalized coefficient

\[ C_c = \frac{C_r}{C_n} \]  

where \( C_c \) – clusterization’s coefficient  
\( C_r \) – specific capacity of the given industry in the structure of region production  
\( C_n \) – specific capacity of the same industry on the nation level

Coefficient calculations of clusterization are executed by the same method and by other indicators of the given industry development, namely:

- \( C_{mgv} \) – manufactured goods volume clusterization indicator  
- \( C_{bpf} \) – size of basic production funds cost clusterization indicator  
- \( C_{mss} \) – main staff size clusterization indicator  
- \( C_{lp} \) – labour productivity clusterization indicator  
- \( C_{ra} \) – return on assets clusterization indicator  
- \( C_{ics} \) – size of investments in capital stock clusterization indicator  
- \( C_{sfa} \) – size of foreign investments attraction clusterization indicator  
- \( C_i^e \) and \( C_i^i \) – export and import clusterization indicator

To perform the mentioned above calculations, it is necessary to count specific capacity of production industries on the nation level. The application of this method lets calculating indicators of cluster approach potential of agro-enterprises and conducting an analysis of competitiveness level of its leading spheres.

Data about industries competitiveness are calculated by estimating location coefficients, the indicators of which are more than 1, in particular production industry lies in the basis of regional specialization. The analysis of this indicator is done on the basis of the definite events algorithm, if: if a location coefficient is higher1,25, the industry is said to be an export-oriented; if this coefficient is between 0,75 and 1.25, it means that the industry is an import-oriented one within the region[18-20].
The product received as a result of agricultural activity isn’t considered as a final stage of food goods technological process. The differences in scale activity, disposition, organization and technology of food goods production from the identical processes in the other production industries (in manufacturing in particular) are a stimulus to search the most appropriate form of agricultural businesses integration with procurement, processing, trade and other businesses.

Taking into account all mentioned above, there is a need of defining the main concepts of cluster approach application in the sphere of food goods production:

- innovation approach is required for efficient cluster functioning. A cluster is known to be an integrated form of enterprises interaction in production, procurement, processing, marketing, being under supervision and using advisory services of scientific establishments, the main goal of which is to create innovations and apply them into practice. Only innovations application will secure an efficient enterprise cluster development dynamically, their competitiveness in both the regional, national as well as in the world markets.

- procurement and sales enterprises as the mediators between the producers of agricultural raw materials and their consumers, should be included into a cluster grouping providing efficient goods enterprise-processors activity;

- the main goal of food cluster formation is to create conditions based on scientific and executed technological decisions to modernize production and attract investments;

- the main component of the regional food cluster should be enterprises providing export beyond the borders of the region. More often they are processing enterprises procuring economic success and sustainable competition position of all cluster grouping;

- efficient cluster functioning is caused by a business climate state. Business climate is a set of external factors (state regulation system, social conditions, technology, human resources and etc.) which enables to embody domestic competition of cluster’s enterprises;

- securing sustainability and development of a cluster grouping for a long-term perspective needs to support its activity by local authorities, by having government regulations or direct participation in cluster’s composition.

5. Conclusion
The experience generalization of integrated establishments testifies that in spite of the different forms of business activities, all of them achieve high financial results of their activity. First of all, integrated structures combine agricultural food production with its processing and sales of finished products ensure this. Under modern conditions economic sustainability of food sphere can be reached only on the basis of innovation industries improvement, application of energy saving techics and technology, application of scientific potential, an optimal combination of market and government regulations of the economy. Food clusters can develop and prosper only if social-economic policy makes an environment favourable to business developing.

The most successful economic systems and businesses showed that one of the most efficient form of competitiveness rise and a combination of all mentioned above factors is a cluster approach application.

Geographic proximity of processing enterprises, agricultural food producers, scientific, educational and research establishments, logistics businesses allow applying a cluster approach to develop food industry of the region and integrating its industries into the world labour division. The main stress is given to deepening the level and raising the complexity of agricultural goods processing at expense of production facilities modernization and increasing of products sales volumes.

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