MANAGEMENT OF COMPETITIVENESS OF AGRICULTURAL PRODUCTION IN THE CONTEXT OF FINANCIAL ECONOMIC DEVELOPMENT OF UKRAINE

Abstract. It is conducted an analytical estimation of theoretical and methodical principles for determining the competitiveness of agricultural products in this article; it is specified the system of indicators for the assessment of the competitiveness of products; it is determined the indicators that used for controlling the competitiveness of products; it is researched the dynamics of gross domestic product and agricultural production for 2012-2018; it is analyzed the influence of volumes of production of agricultural products on the dynamics of gross domestic product in both the short-term and long-term periods; a correlation field was developed for analyzing the relationship between the agricultural production index and economic growth in the long-term period for 2009-2017; it was established that an increase in the index of agricultural production by 1% will lead to an increase in GDP by 0.18%; The market of poultry production is researched, as one of the key components of agricultural production; it is determined the balance between demand and supply of Ukrainian poultry market, as well as the dynamics of its consumption for 2012-2017; it is calculated the concentration indexes on the market of poultry meat in Ukraine, that made it possible to identify the investigated market as oligopolistic; it is generalized a method of analysis of competitiveness taking into account peculiarities of poultry production; it is grounded the main directions of increasing competitiveness of poultry production in the context of financial and economic development of the industry and economy of Ukraine as a whole; it is revealed that increasing the competitiveness of Ukrainian poultry production should take place due to the growth of its quality; it is generalized indicators of the quality of poultry production; it is proposed the indicator of complex assessment of the quality of poultry products, which allows to account, to make analysis and control of costs to ensure its quality, which will enable to increase the competitiveness of the industry, which in turn will lead to financial and economic growth of the Ukrainian economy.

Keywords: competition, competitiveness, competitive advantages, informational and analytical support, products of poultry farming.

JEL Classification Q13, Q18

Formulas: 3; Tables: 6; Fig. 2; Ref.: 12
УПРАВЛІННЯ КОНКУРЕНТОСПРОМОЖНІСТЮ СІЛЬСЬКОГОСПОДАРСЬКОЇ ПРОДУКЦІЇ В КОНТЕКСТІ ФІНАНСОВО-ЕКОНОМІЧНОГО РОЗВИТКУ УКРАЇНИ

Анотація. В даній статті проведено аналітичну оцінку теоретико-методичних засад визначення конкурентоспроможності сільськогосподарської продукції; уточнено систему показників, для оцінки конкурентоспроможності продукції; визначено індикатори, що використовуються для управління конкурентоспроможністю продукції; досліджено динаміку валового внутрішнього продукту і виробництва сільськогосподарської продукції за 2012-2018 pp.; проаналізовано вплив обсягів виготовлення сільськогосподарської продукції на динаміку валового внутрішнього продукту як в короткостроковому, так і в довгостроковому періодах; побудовано кореляційне поле аналізу виду залежності між індексом виробництва сільськогосподарської продукції та економічним зростанням у довгостроковому періоді за 2009-2017 рр.; встановлено, що підвищення індексу виробництва сільськогосподарської продукції на 1% призведе до збільшення ВВП на 0,18%; досліджено ринок продукції птахівництва, як однієї з ключових ланок сільськогосподарського виробництва; визначено баланс між попитом та пропозицією українського ринку м’яса птиці, а також динаміку його споживання за 2012-2017 рр.; розраховані індекси концентрації на ринку м’яса птиці в Україні, що дали можливість ідентифікувати досліджений ринок як олігополістичний; узагальнено методику аналізу конкурентоспроможності з урахуванням особливостей продукції птахівництва; обґрунтовано основні напрями підвищення конкурентоспроможності продукції птахівництва в контексті фінансово-економічного розвитку галузі та народохозяйственного комплексу України в цілому; виявлено, що підвищення конкурентоспроможності продукції птахівництва українського виробництва повинно відбуватися за рахунок зростання її якості; узагальнені основні показники якості продукції птахівництва; запропоновано показники комплексної оцінки якості продукції птахівництва, який дозволяє здійснювати облік, аналіз та контроль витрат на забезпечення її якості, що дасть можливість підвищити конкурентоспроможність галузі, а це в свою чергу приведе до фінансово-економічного зростання економіки України.

Ключові слова: конкуренти, конкурентоспроможність, конкурентні переваги, інформаційно-аналітичне забезпечення, продукція птахівництва

Формул: 3; табл.: 6; рис. 2. бібл.: 12
УПРАВЛЕНИЯ КОНКУРЕНТОСПОСОБНОСТЬЮ СЕЛЬСКОГОСТОДАРСКОЙ ПРОДУКЦИЕЙ В КОНТЕКСТЕ ФИНАНСОВО-ЭКОНОМИЧЕСКОГО РАЗВИТИЯ УКРАИНЫ

Аннотация. В данной статье проведена аналитическая оценка теоретико-методических основ определения конкурентоспособности сельскохозяйственной продукции; уточнено систему показателей для оценки конкурентоспособности продукции; определены индикаторы, используемые для управления конкурентоспособностью продукции; исследована динамика валового внутреннего продукта и производства сельскохозяйственной продукции за 2012-2018 гг.; проанализировано влияние объемов производства сельскохозяйственной продукции на динамику валового внутреннего продукта, как в краткосрочном, так и в долгосрочном периодах; построено корреляционное поле анализа вида зависимости между индексом производства сельскохозяйственной продукции и экономическим ростом в долгосрочном периоде за 2009-2017 гг.; установлено, что повышение индекса производства сельскохозяйственной продукции на 1% приведет к увеличению ВВП на 0,18%; исследован рынок продукции птицеводства, как одной из ключевых звеньев сельскохозяйственного производства; определено баланс между спросом и предложением украинского рынка мяса птицы, а также динамику его потребления за 2012-2017 гг.; рассчитаны индексы концентрации на рынке мяса птицы в Украине, что позволило идентифицировать исследованный рынок как олигополистический; обобщенно методику анализа конкурентоспособности с учетом особенностей продукции птицеводства; обоснованы основные направления повышения конкурентоспособности продукции птицеводства в контексте финансово-экономического развития отрасли и народнохозяйственного комплекса Украины в целом; обнаружено, что повышение конкурентоспособности продукции птицеводства Украинского производства должно происходить за счет роста ее качества; обобщены основные показатели качества продукции птицеводства; предложено показатель комплексной оценки качества продукции птицеводства, который позволяет осуществлять учет, анализ и контроль затрат на обеспечение ее качества, что позволит повысить конкурентоспособность отрасли, а это в свою очередь приведет к финансовому-экономическому росту экономики Украины.

Ключевые слова: конкуренция, конкурентоспособность, конкурентные преимущества, информационно-аналитическое обеспечение, продукция птицеводства

Relevance of research topic. In modern conditions, due to the high globalization and the comprehensive growth of competition in domestic production of agri-food products it is necessary to spend a considerable part of the earned income for creation or acquisition of strategic values. The competitive advantages of products depend on many factors, among which the most important are that which affect the quality and price of products, namely: production costs, labor productivity and intensity of the last. In such conditions, it is growing the role of effective management of competitiveness of products, especially in the context of financial and economic development, as a separate industry, as well as the country as a whole [1].
Problem statement. The effective agricultural development in Ukraine has an important social and economic significance, because this branch of economy provides the population with food products and enterprises with raw materials. This makes the high demand for agricultural products. Under such conditions, the agriculture plays an important role in the process of financial and economic development of Ukraine.


Identification of unexplored parts of general problem. At the same time, their works do not fully reveal the issues of an effective system for managing the competitiveness of agricultural products and the impact of this indicator on the financial and economic development of the country.

Problem settlement. The research of the intensity of competitive relations in the Ukrainian market of agricultural products, identifying the main factors of increasing competitiveness and developing a methodology for the comprehensive assessment of product quality as the main factor of the raising the last in the context of effective agricultural management to ensure stable financial and economic development of the state's economy.

Presentation of main materials. The main purpose of the activity of any state is to ensure a high level of well-being and comfort of its population. In its turn, the level of financial and economic development of state is decisive in this process. The financial and economic development of state is characterized by a number of indicators, such as: gross domestic product (GDP), export, import, unemployment, inflation, etc.

The level of GDP depends on the level of production of all types of products in the country. In its turn, agriculture contributes to the above-mentioned indicator of financial and economic development.

The agricultural enterprises of Ukraine at the present stage of development, possessing the same technology, are provided with means of production which can be used to create competitive advantages at the initial stage of the new enterprise. However, over time, for a number of reasons, such enterprises will lose the benefits of better security through means of production. That is why, in our opinion, market competition should be regarded as a process of constant competition in the implementation by the subject of existing and the creation of new competitive advantages, at some time in order to achieve the goal [2].

In market conditions, the verification of good characteristics, which are laid by the manufacturer. As a result, the advantages and disadvantages of a particular product are compared with similar products of competitors at the same time. For this, the product must have the manufacturer's competitive advantages that he puts in competition.

In recent years, the dynamic development of agricultural production has shown the achievement of recommended by the Health Ministry norms of consumption per person. In this case, the further development of the branch is possible due to the development of export potential.

In its turn, in such conditions, the competitiveness becomes a key factor in the success of agrarian enterprises in the market. In modern conditions of financial and economic development of Ukraine, the question is urgently raised about the formation of new analytical approaches to ensuring the competitiveness of domestic agricultural products [3].

Nowadays in Ukraine there is an increase in the volumes of products which are under investigation.

The next stage of our research is the analysis of the dynamics of GDP and the index of agricultural production.

The agricultural product index is an indicator that reflects the level of changes in the physical volume of agricultural production produced over periods selected for comparison.

Figure 1 shows the dynamics of real GDP and agricultural production index for 2012-2018.
Fig. 1. Dynamics of real GDP and agricultural production index for 2012-2018
Source: calculated by the authors on the basis of the data of the State Statistics Service of Ukraine.

From this figure, we can see that for the researched period, the data indicators have significantly decreased.

The factors that led to this situation are, first of all, the annexation of the Crimea and the active conduct of hostilities in Eastern Ukraine.

As the data of figure 1 show, the comparison of quarterly indices of agricultural product index changes and volume of GDP, it is noticed a connection between these indicators. From this it follows the need for depth study of the direction and tightness of the relationship between these indicators.

The analysis of tightness of relationship and the direction of the impact of the agricultural production index on real economic growth in the short period will be based on the calculation of correlation coefficient that establishes the closeness of the relationship, and the determination coefficient, which determines the dispersion.

Output data for calculations are given in the Table 1.

Table 1.

Dynamics of production index of agricultural production (I agric.p.) and economic growth (GDP, %) for 2012-2018 (quarterly)

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>1q.</td>
<td>2,4</td>
<td>0,8</td>
<td>-1,3</td>
<td>18,2</td>
<td>-1</td>
<td>18</td>
<td>-16</td>
</tr>
<tr>
<td>2 q.</td>
<td>3</td>
<td>10,2</td>
<td>-1,2</td>
<td>27,4</td>
<td>-4,3</td>
<td>5,65</td>
<td>-14,5</td>
</tr>
<tr>
<td>3 q.</td>
<td>-1,3</td>
<td>-12,7</td>
<td>-1,1</td>
<td>34</td>
<td>-5,3</td>
<td>27,5</td>
<td>-7</td>
</tr>
<tr>
<td>4 q.</td>
<td>-2,4</td>
<td>-13,7</td>
<td>3,4</td>
<td>39,1</td>
<td>-14,4</td>
<td>15,4</td>
<td>-2,4</td>
</tr>
</tbody>
</table>

Source: calculated by the authors on the basis of the data of the State Statistics Service of Ukraine.

Based on the data of Table 1, we calculated the above indicators and received the following result:

1. Correlation coefficient = 0,214625
2. Determination coefficient = 0,046064

The analysis of the obtained coefficients shows that the relationship between the agricultural production index and economic growth in the short-term period (quarterly for 2012-2018) has a direct nature. The low level of determination determines the low significance of the relationship between them.

For the further study the relationship between the agricultural production index and economic growth, it should be investigated this relationship in the long term period. We need to find out whether the direction of dependence will change, as well as the closeness of communication between them, if we increase the time interval, for this we will use annual data (Table 2).
Table 2.

The dynamics of the agricultural product index (I a.p., %) and the economic growth (GDP, %) for 2009-2017

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamics of GDP</td>
<td>-14,8</td>
<td>4,2</td>
<td>5,2</td>
<td>0,2</td>
<td>1,9</td>
<td>-7</td>
<td>-10</td>
<td>1,5</td>
<td>2,5</td>
</tr>
<tr>
<td>I a.p.</td>
<td>-8,8</td>
<td>9,7</td>
<td>6,8</td>
<td>-19,7</td>
<td>41,3</td>
<td>-2,6</td>
<td>-3,8</td>
<td>11,6</td>
<td>-0,6</td>
</tr>
</tbody>
</table>

Based on the data of Table 2, we calculated the above indicators and received the following result:

1. Correlation coefficient = 0,43;
2. Determination coefficient = 0,19.

The analysis of the obtained coefficients is evidenced by the fact that the relationship between the agricultural production index and economic growth in the long-term period (annual data of 2009-2017) has a direct nature. In addition, the closeness and density of relationship in the long-term period in comparison with the short one has considerably increased.

For further analysis, let’s consider an econometric model with two variables in general form:

\[ Y = f(X) + u, \]

where \( Y \) — is a dependent variable (GDP level);
\( X \) — an explanatory variable (I a.p.);
\( u \) — a random component.

To determine the type of dependence, let’s construct a correlation field (the initial data for the field construction are given in the Table 2).

![Correlation field](image)

Source: calculated by the authors on the basis of the data of the State Statistics Service of Ukraine.

The trend formula that characterizes the available statistical data is following: \( Y = 0,18x - 2,49 \). The constructed linear function (Figure 2) clearly demonstrates a direct relationship between the agricultural product index and economic growth in the long time period. Thus, while moving along the trend line, an increase in the index of agricultural products by 1% will be accompanied by an increase in economic growth by 0,18%. It should also be noted that in addition to the considered factor. It should be noted: the determination coefficient is 19% and this gives reason to assert that this relationship is not statistically significant. That is, the GDP also has other factors that will need to be analyzed in subsequent researches.

Thus, we see that agriculture is one of the sectors of economy that determines the financial and economic development of Ukraine. In its turn, the poultry production is one of the key components of the agro-industrial complex as a whole. That is why we will dwell in more detail on the research of the competitiveness of domestic poultry production.

The balance of demand and supply on the Ukrainian poultry market for 2012-2017, as well as the dynamics of its consumption, is given in the Table 3.
Thus, it can be argued that the demand for poultry meat in our country is constantly increasing; the consumption of the mentioned products per capita is increasing (19.2 kg per year in 2012 versus 23.2 kg per year in 2017). It should also be noted that the effect of domestic production on the level of supply has increased significantly due to the increase in own production.

In addition, world demand for poultry has increased, which has had a positive impact on the level of export of the mentioned products.

The demand for poultry products is largely due to its level of quality, which is one of the most important characteristics of the product for the consumer.

The problem of forming a high level of quality is relevant to all Ukrainian enterprises, especially acutely in the context of financial and economic development of the Ukrainian economy [6].

Since Ukraine has chosen to integrate into the world community, its economy should be in line with the principles of the world market, and commodity producers - to provide production that meets European requirements for quality with low cost, which makes it possible to compete on international markets. In view of this, the issue of managing the quality of poultry products is quite acute.

Another important area of poultry farming is the production of eggs. In 2016, there were produced 19687,9 million eggs of all kinds in Ukraine. This is 9.6% more than in the previous year, indicating that shows trends in growth.

Thus, after analyzing the demand and supply on the Ukrainian poultry market, there are determined the main features of its development in the territory of our country; it is researched the dynamics of changes in the volume of export-import of these products.

For more complete study of the nature of competitive relations in the domestic poultry market, there were calculated some separate production concentration indices (Table 4).

From this table we see that the investigated market is characterized by oligopoly.

Table 4.

<table>
<thead>
<tr>
<th>Concentration Index</th>
<th>Year</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three-component Market Concentration Index (CR3)</td>
<td></td>
<td>51,5</td>
<td>57,3</td>
<td>60,4</td>
<td>66,5</td>
<td>64,9</td>
</tr>
<tr>
<td>Four-component Market Concentration Index (CR4)</td>
<td></td>
<td>53,4</td>
<td>59,3</td>
<td>62,4</td>
<td>68,6</td>
<td>66,4</td>
</tr>
<tr>
<td>Market Monopolization Index (MR)</td>
<td></td>
<td>55,1</td>
<td>61,2</td>
<td>64,1</td>
<td>70,0</td>
<td>68,0</td>
</tr>
</tbody>
</table>

Source: calculated by the author

For a more depth analysis of this market, we have calculated the following indices:

1. The dispersion of market shares:
   \[ G^2 = 0,057 \]

2. Herfindahl-Hirschman Index:
HHI = 2061.128.

3. Linda Indices:
   \( L_2 = 0.59, \ L_3 = 0.78 \)
   These indices confirm that the market under study has features of oligopoly.

   However, despite the above, at the present stage of the financial and economic development of Ukraine, the production and processing of poultry products is one of the most important sectors of the domestic agro-industrial complex.

   The foregoing determines the need to increase the competitiveness of Ukrainian poultry production in all markets. Increasing the competitiveness of Ukrainian poultry production should take place due to the growth of its quality.

   The current system of managing competitiveness in Ukrainian enterprises does not allow to comprehensively assess the quality of products. That is why there is an objective need to develop a system of information, analytical and financial tools that will provide complete information on the quality of products at all stages of the production cycle [6].

   It should be noted that Ukrainian poultry producers do not always keep records and quality control at all stages of the production cycle. That is why there was an objective need to develop and implement methods of financial and economic control and quality analysis throughout the production cycle which will enable to identify reserves for improving the competitiveness of the product under investigation, which will ultimately have a positive impact on the financial and economic development of the Ukrainian economy as a whole.

   Quality control should be carried out during the entire cycle of growing and fattening of poultry and the receipt of products.

   In order to comprehensively assess the level of quality of poultry products and to identify the reserves for its increase, both at the enterprise level and in the industry as a whole, we propose to introduce a comprehensive indicator of quality assessment, which takes into account all the factors affecting the quality of products (Table 5). The factors are evaluated separately on a five-point scale.

   Using the symbols (Table 5), we can calculate the indicator of complex quality assessment by the formula

   \[
   CEQ = \frac{Pa + O + C + Bone + Cons + DPR + SkC + P + F + C + TE + WC}{12}
   \]

   Thus, the indicator of integrated assessment of the quality of poultry meat expresses the average value of all factors affecting the quality of mentioned products.

   The main indicators of the quality of meat poultry production

<table>
<thead>
<tr>
<th>№</th>
<th>Indicator, units of measurement</th>
<th>Symbols</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Organoleptic parameters:</td>
<td></td>
</tr>
<tr>
<td>1.1.</td>
<td>Product appearance</td>
<td>Pa</td>
</tr>
<tr>
<td>1.2.</td>
<td>Odour</td>
<td>O</td>
</tr>
<tr>
<td>1.3.</td>
<td>Color</td>
<td>C</td>
</tr>
<tr>
<td>1.4.</td>
<td>Condition of the bone system</td>
<td>Bone</td>
</tr>
<tr>
<td>1.5.</td>
<td>Consistency of cooled meat</td>
<td>Cons</td>
</tr>
<tr>
<td>1.6.</td>
<td>Degree of plumage removal</td>
<td>DPR</td>
</tr>
<tr>
<td>1.7.</td>
<td>Skin condition</td>
<td>SkC</td>
</tr>
<tr>
<td>2.</td>
<td>Nutrition Indicators:</td>
<td></td>
</tr>
<tr>
<td>2.1.</td>
<td>protein content</td>
<td>P</td>
</tr>
<tr>
<td>2.2.</td>
<td>fat content</td>
<td>F</td>
</tr>
<tr>
<td>2.3.</td>
<td>carbohydrate content</td>
<td>C</td>
</tr>
<tr>
<td>3.</td>
<td>Toxic elements</td>
<td>TE</td>
</tr>
<tr>
<td>4</td>
<td>Water content</td>
<td>WC</td>
</tr>
<tr>
<td>5</td>
<td>Comprehensive evaluation of quality</td>
<td>CEQ</td>
</tr>
</tbody>
</table>

   Source: developed by the author [7, p. 156]
This indicator can be adapted to the quality of eggs and other egg products, taking into account their characteristics (Table 6).

Table 6. Symbols of all quality indices of eggs

<table>
<thead>
<tr>
<th>№</th>
<th>Indicator, units of measurement</th>
<th>Symbols</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Organoleptic parameters:</td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>eggshell</td>
<td>Sh</td>
</tr>
<tr>
<td>1.2</td>
<td>egg white</td>
<td>W</td>
</tr>
<tr>
<td>1.3</td>
<td>egg yolk</td>
<td>Y</td>
</tr>
<tr>
<td>1.4</td>
<td>air chamber</td>
<td>Air ch</td>
</tr>
<tr>
<td>1.5</td>
<td>the smell of egg content</td>
<td>S</td>
</tr>
<tr>
<td>1.6</td>
<td>egg mass</td>
<td>M</td>
</tr>
<tr>
<td>2</td>
<td>Microbiological indicators:</td>
<td>Mi</td>
</tr>
<tr>
<td>3</td>
<td>Toxic elements:</td>
<td>TE</td>
</tr>
<tr>
<td></td>
<td>Comprehensive evaluation of quality</td>
<td>CEQ</td>
</tr>
</tbody>
</table>

Source: developed by the author on the base of DSTU 5028 2008

Taking into account the above-mentioned symbols, the formula for calculating the CEQ will have the following form:

$$CEQ = \frac{Sh + W + Y + Air ch + S + M + Mi + TE}{8}$$

In addition to the above, the proposed methodology allows accounting, analysis and control of costs for quality assurance. Also, if we make changes to the statistical reporting of enterprises taking into account the integrated indicator of quality assessment, we will get an opportunity to increase the competitiveness of poultry production in the whole industry, which in its turn will lead to the financial and economic growth of the whole national economic complex of our state.

**Conclusion.** The level of GDP is crucial for the country's financial and economic development. In its turn, the production of agricultural products has an impact on this indicator. Taking into account the above, the development of the poultry industry is very important for the agro-industrial complex of Ukraine and ultimately for the financial and economic development of the country as a whole. In conditions of comprehensive growth of competition in the Ukrainian poultry market, the increasing importance of the competitiveness of Ukrainian producers is becoming increasingly important. This can be achieved, first of all, by improving information and analytical support for managing competitiveness.

The main factor in the competitiveness of poultry production is its quality. The proposed formula for calculating the complex quality index is quite convenient and easy to use and allows you to compare the quality in the dynamics and develop effective measures to improve it, which will ultimately positively affect the financial and economic growth of the Ukrainian economy.

**Література**

8. Сіряк М. Ринок курячого м'яса [Електронний ресурс] / М. Сіряк. – Режим доступу: www.ki.rada.crimea.ua
References


