RESEARCH ON THE WHEAT MARKET POTENTIAL IN THE REPUBLIC OF KAZAKHSTAN

Abstract. The article defines potentials of wheat for the Republic of Kazakhstan. Moreover, recommendations for developing the wheat market in Kazakhstan are offered in this work. The research purpose is to define theoretical bases and practical recommendations that may help to use economic mechanisms for developing the agrarian sector of the Republic of Kazakhstan. The research methodology is based on statistic, analytic, comparative and econometric methods. The research practical significance is to define the current state of the wheat market in the Republic of Kazakhstan. The research results show that Akmola and Zhambyl provinces hold strong positions in the internal market of wheat.

Keywords: wheat, winter wheat, spring wheat, harvested area, yielding capacity, Kazakhstan.

The global population is expected to grow by 8.6 billion by the middle of 2030-s [1]. Moreover, the number of people living in Kazakhstan is also expected to grow: by 2035 it may be more than 20 million residents [2]. Therefore, in both internal and external market it is expected to observe a rise in the demand for food commodities [3].

Growing wheat has high economic potentials as it may have many different options of usage [4]. For instance, wheat may be used as the raw material for producing different goods and commodities, e.g. bread, flour, etc.

![Diagram](image)

Figure 1 – The harvested area of grain in Kazakhstan by provinces in 2016.

Note: from the source 5.

The figure above illustrates that the highest harvested area in the Republic of Kazakhstan belongs to Akmola province - 3833801.33 ha.

On the other hand, wheat has been subject to selective domestication [6, 7]. Therefore, dietary value and bioactive components of the ancient types of the weed should have a difference with the modern ones [8]. The figure below shows contents of fibre in wheat cultivars.
Figure 2 – Contents of fibre in wheat cultivars, %

Note: from the source 9.

The figure above shows that the average level of fibre in the modern cultivars of wheat is around 15.1% which is nearly 162.36% higher than in einkorn. There are two examples of the ancient wheat that have high potential for selective improvement of the modern wheat: Verna (soft wheat) and Kamut (Khorasan wheat) [10, 11]. The figure below illustrates how much fibre was on wheat cultivars. Phenolic acid is another important factor while considering dietary and agricultural perspectives of growing wheat. The figure below illustrates consistence of this component for the same wheat cultivars as in the figure above.

Figure 3 – Total phenolic acid content in wheat cultivars, µg/g

Note: from the source 9.

The figure above illustrates that maximum content of phenolic acid for einkorn was 816 µg/g. The figure below shows folate concentration for the same type of wheat cultivars as in two figures above.

Figure 4 – Folate concentration in wheat cultivars, µg/g

Note: from the source 9.

The figure above illustrates that the highest average concentration of folate is in modern cultivars—15.1 µg/g. The figure below defines phytosterol content of four different wheat cultivars.
The figure above shows that the highest average level of phytosterol belongs to the einkorn – 1054 μg/g. On the other hand, the lowest minimum value belongs to the modern wheat cultivars – 241 μg/g.

The figure below illustrates concentration of alkylresorcinol for the same cultivars of wheat as in the figure above.

The figure above states that the lowest alkylresorcinol content if found in the modern wheat cultivars – 421 μg/g on average.

The figure below illustrates how much area of agricultural land was harvested for spring wheat in 2016.

Note: from the source 9.
The figure above shows that Akmola province is the leader for agricultural area dedicated to harvesting spring wheat - 3833741.33 ha. The second place is taken by Kostanay province – 3805229 ha.

The figure below illustrates the same indicator as in the figure above but for winter wheat.

Figure 8 – The area of agricultural lands dedicated to harvesting winter wheat in 2016 for the Republic of Kazakhstan

Note: from the source 5.

The figure above shows that Almaty province had the biggest area of lands dedicated to harvesting winter wheat in 2016 - 114018.19 ha.

The figure below illustrates how much grain was available on 1 December 2017 by types of usage in the Republic of Kazakhstan.

Figure 9 – Total volume of available wheat by types of usage on 1 December 2017.

Note: from the source 12.

The figure above states that 1293867 tonnes of wheat were available to be used as seeds for the first of December 2017.

The figure below illustrates the same indicator but only for enterprises in the milling sector of the Republic of Kazakhstan.

Figure 10 – The volume of wheat among legal entities of the milling industry by types of usage on 1 December 2017.

Note: from the source 12.
The figure above illustrates that 40181 tonnes of wheat were considered to be as fodder on 1 December 2017. The figure below illustrates the yielding capacity of spring wheat in 2016.

![Graph showing the yielding capacity of spring wheat in 2016 for different provinces of Kazakhstan, centner/ha.]

Note: from the source 5.

The figure above shows that Zhambyl province has the highest indicator – 20.5 centners of wheat per every hectare on average. On the other hand, the lowest indicator is illustrated by the city of Astana – 7.4 centner/ha.

The figure below illustrates the yielding capacity of wheat for 2016 in different provinces of the Republic of Kazakhstan.

![Graph showing the yielding capacity of winter and spring wheat by provinces of the Republic of Kazakhstan in 2016.]

Note: from the source 5.

The figure above illustrates that the highest crop yield in 2016 is noticed in Zhambyl province – 21.3 centners per hectare. The second place is taken by South Kazakhstan province – 21.1 centners per one hectare. The next place is occupied by Almaty province – 20 centners of wheat is collected from one hectare on average.

On the other hand, the lowest indicator is shown by the city of Astana, the capital of Kazakhstan – 7.4 centner/ha. The lowest indicator for the overall yielding capacity is 65.258% less than the highest indicator.

Figure 13 illustrates that the first quartile for the overall spring and winter wheat yield in 2016 for Kazakhstan equals to 10.28795 centners per hectare. On the other hand, the third quartile for the same indicator is 15.276 centner/ha.
The interquartile range for the yielding capacity of winter and spring wheat is 4.98805 centners per each hectare.

The figure above illustrates that the value of median for the yielding capacity equals to 12.735 centners per hectare.

The figure below illustrates how much wheat was produced by agricultural cooperatives in Kazakhstan for the period between January to September 2017.

![Graph showing wheat production by location](image)

Figure 13 – The overall productive capacity of agricultural cooperatives in Kazakhstan for January-September 2017

Note: from the source 13.

The figure above shows that 7027 tonnes of wheat were produced by agricultural cooperatives in the period from January to September 2017 which equals to around 185338 thousand tenge in the monetary value in the Republic of Kazakhstan. The figure below illustrates the yielding capacity of spring and winter wheat by different types of entities in 2016.

![Graph showing wheat yield by type and location](image)

Figure 14 – The yielding capacity of spring and winter wheat by types of entities in Kazakhstan in 2016

Note: from the source 5.

The figure above shows that South Kazakhstan province has the highest yielding capacity – 20.5 centners per ha. The table below illustrates macro environment analyses of the wheat industry in the Republic of Kazakhstan.
Table 1 – Summary of the main trends facing the wheat industry

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political</td>
<td>On 1 January 2015 Kazakhstan has joined the Eurasian Economic Union [14]. Members of this union are currently planning to enhance economic-political cooperation [15].</td>
</tr>
<tr>
<td>Economic</td>
<td>Tenge, the national currency of the Republic of Kazakhstan since the end of August 2015 has free-floating currency rate which caused its devaluation [16, 17]. The lower exchange of tenge gives the price advantage for wheat exporters [18].</td>
</tr>
<tr>
<td>Social</td>
<td>The population of Kazakhstan is expected to grow in the future which may increase demand for wheat in the internal market [19, 20]. Moreover, further growth of cattle breeding and poultry sector may increase use of wheat as fodder [21].</td>
</tr>
<tr>
<td>Technologic</td>
<td>Development in biotechnologies opens new horizons to improve wheat cultures [22].</td>
</tr>
<tr>
<td>Competitors</td>
<td>Russia, the biggest neighbours of Kazakhstan, is among top exporters of wheat [23]. Moreover, the European Union has a strong agrarian sector with the system of financial, legal and scientific support [24].</td>
</tr>
<tr>
<td>Customers</td>
<td>The world population is expected to grow in the near future [25].</td>
</tr>
<tr>
<td>Suppliers</td>
<td>Soil degradation, desertification, urbanization and worsening of the global ecology is decreasing the area of arable lands for wheat [26, 27, 28].</td>
</tr>
<tr>
<td>Labour force</td>
<td>Reforms of the President of the Republic of Kazakhstan has helped to create a new class of young and educated specialists [29]. Therefore, it is expected to have better educated labour force in the future.</td>
</tr>
</tbody>
</table>

Note: from the sources 14-29.

The figure below illustrates stakeholders of the wheat industry.

![Internal and external stakeholders of the wheat industry in Kazakhstan](image)

Figure 15 – Internal and external stakeholders of the wheat industry in Kazakhstan.

The figure above illustrates that internal stakeholders in the wheat industry of Kazakhstan are shareholders, employees, higher management in agricultural entities.

In conclusion, Akmola and Zhambyl provinces have strong positions in the wheat market. Moreover, the following actions can be taken to strengthen the wheat production in Kazakhstan:
- development of more efficient wheat cultures;
- investment in biotechnology;
- investing in the agrarian educational system;
- land recultivation;
- subsidies for farming entities.
REFERENCES


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ҚАЗАҚСТАН РЕСПУБЛИКАСЫНДАҒЫ БИДАЙ НАРЫНГЫНЫҢ ЭЛЕУЕТІН ЗЕРТТЕУІ

Аннотация. Макала Қазақстан Республикасы үшін бидай елеуін түсіндіреді. Бұлдан басқа өскі жұмысқа Қазақстанда бидай нарығының дамытуына әрі барлығың қағырлана жатыр. Зерттегі жұмысының мақсаты - ғылымыздың схемасын білу үшін арнайы қалпында өзгеру, қоғамдық қоғамның жоғарғы құмірлік қызметін қосқан. Зерттеудің нәтижелері қолданысу үшін тәрізді қалпы өзгертіледі.

Түйін сөзі: бидай тәрізді, ұмтылық, күнделік, нарығы, қоғамдық қоғам.

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ИССЛЕДОВАНИЕ ПОТЕНЦИАЛА РЫНКА ПШЕНИЦЫ В РЕСПУБЛИКЕ КАЗАХСТАН

Аннотация. Статья описывает потенциал пшеницы для Республики Казахстан. Кроме того, в данной работе даны рекомендации для развития рынка пшеницы в Казахстане. Целью исследования являются описание теоретической базы и практических рекомендаций, которые могут помочь использовать экономические механизмы для развития аграрного сектора Республики Казахстан. Методология исследования основана на статистических, балансовых и эконометрических методах. Практическая значимость исследования – это описание нынешнего состояния рынка пшеницы в Республике Казахстан. Результаты исследования показывают, что Акмолинская и Жамбылская области удерживают сильные позиции во внутреннем рынке пшеницы.

Ключевые слова: пшеница, озимая пшеница, яровая пшеница, уборочная площадь, урожайность, Казахстан.

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