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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.

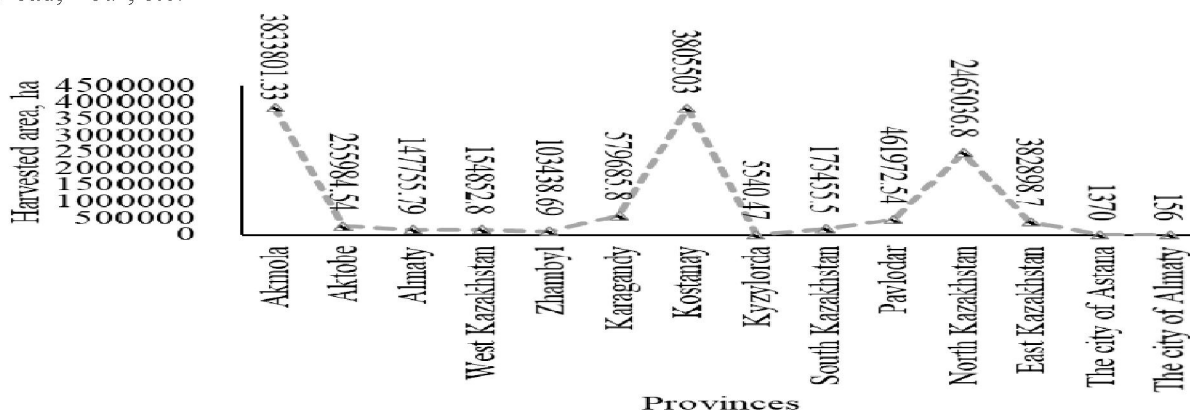


Figure 1 – The harvested area of grain in Kazakhstan by provinces in 2016.

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.

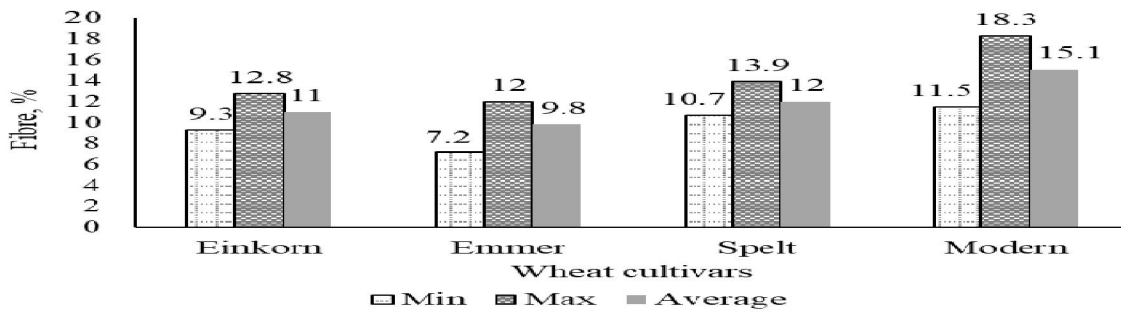


Figure 2 – Contents of fibre in wheat cultivars, %

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.

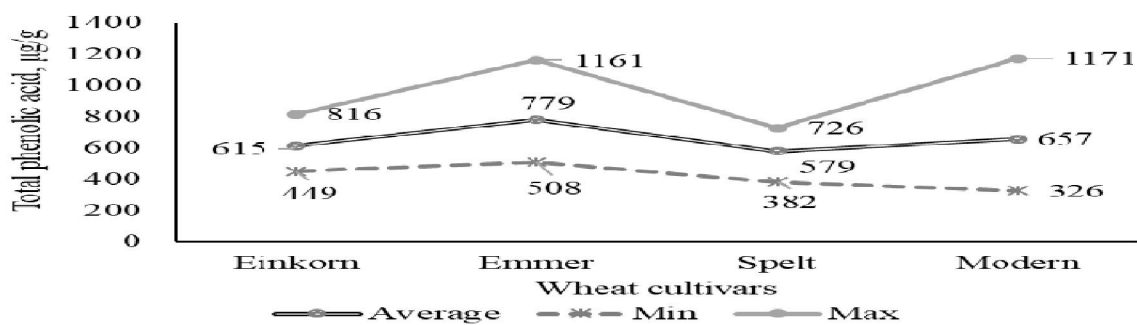


Figure 3 – Total phenolic acid content in wheat cultivars, µg/g

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.

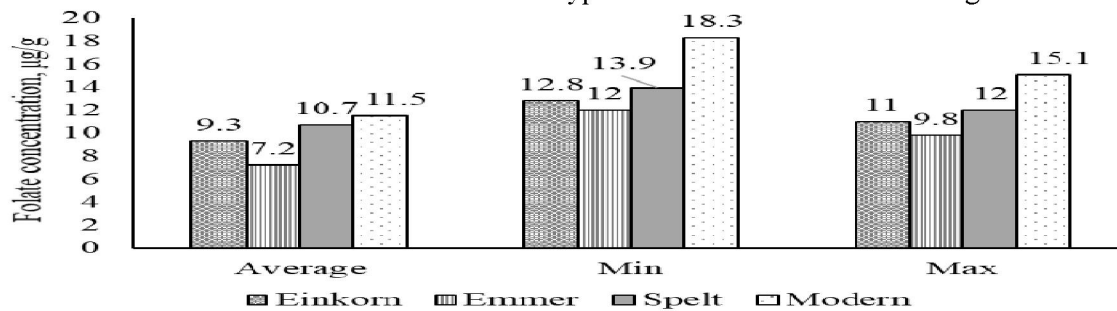


Figure 4 – Folate concentration in wheat cultivars, µg/g

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.

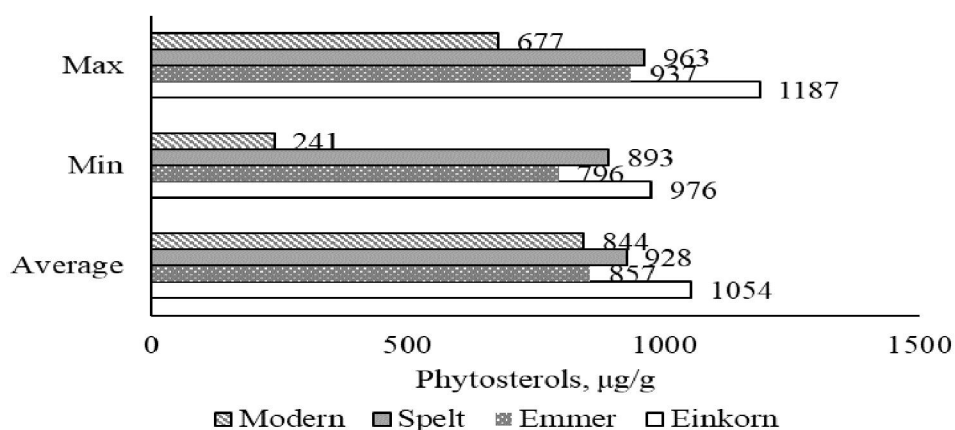


Figure 5 – Phytosterol in wheat cultivars, µg/g

Note: from the source 9.

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.

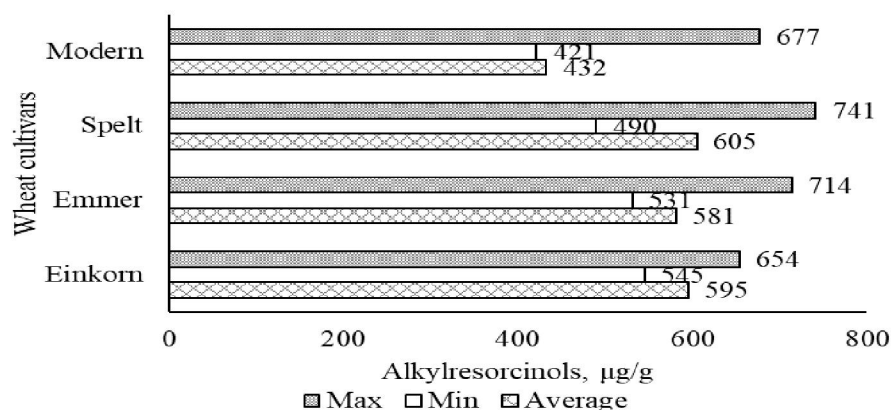


Figure 6 – Alkylresorcinol concentration in wheat cultivars, µg/g

Note: from the source 9.

The figure above states that the lowest alkylresorcinol content is 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

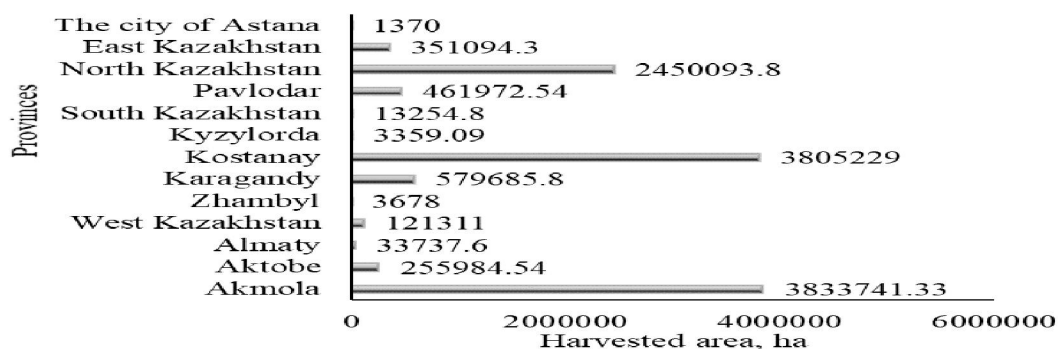


Figure 7 – The area used to harvest spring wheat in Kazakhstan in 2016.

Note: from the source 5.

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.

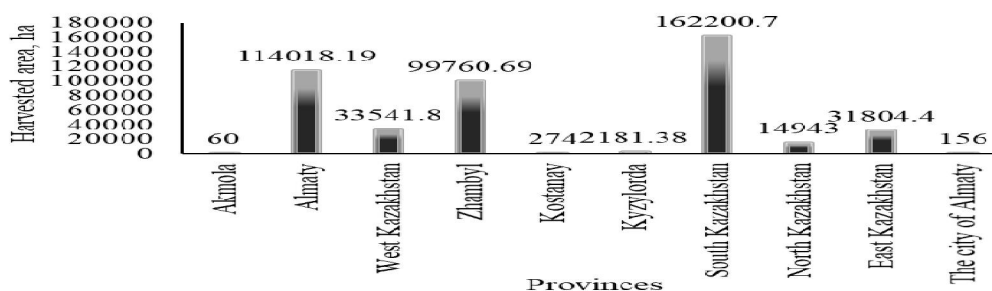


Figure 8 – The area of agricultural lands dedicated to harvesting winter wheat in 2016 for the Republic of Kazakhstan

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.

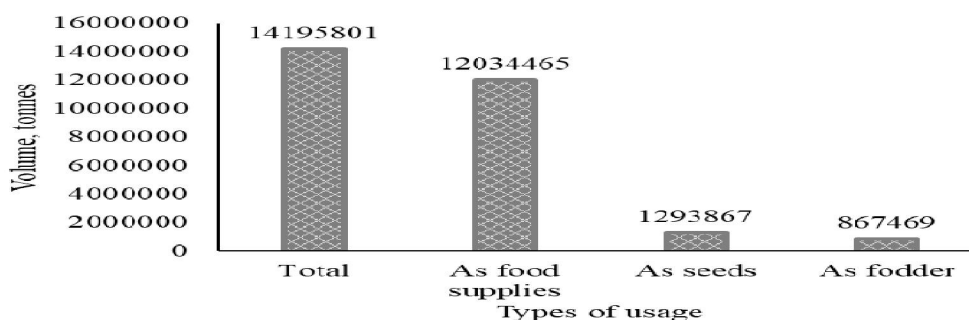


Figure 9 – Total volume of available wheat by types of usage on 1 December 2017.

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.

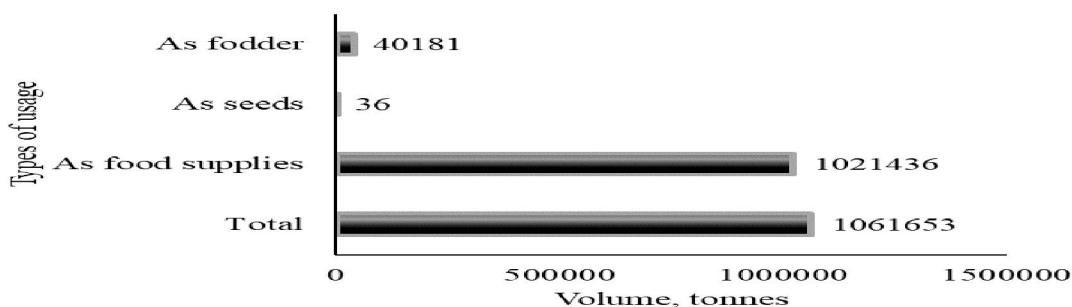


Figure 10 – The volume of wheat among legal entities of the milling industry by types of usage on 1 December 2017.

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.

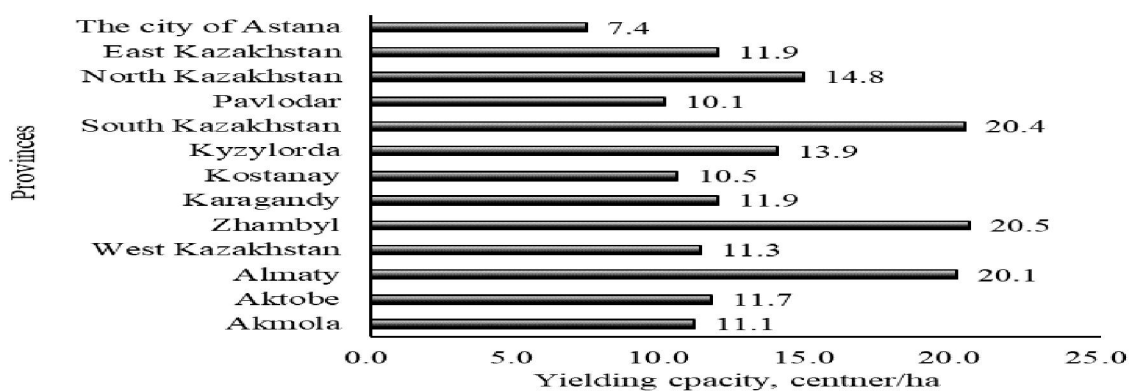


Figure 11 – The overall yielding capacity spring wheat in 2016 for different provinces of Kazakhstan, centner/ha.

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.

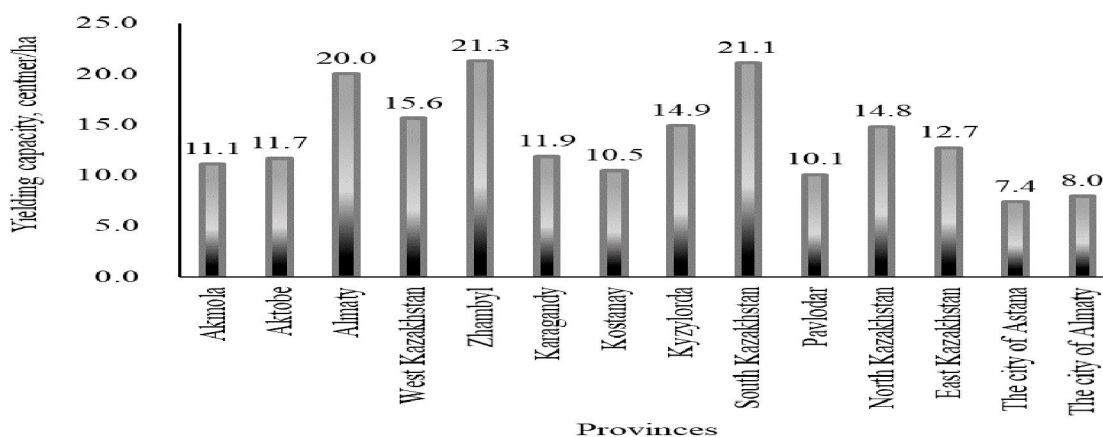


Figure 12 – The overall yielding capacity of winter and spring wheat by provinces of the Republic of Kazakhstan in 2016.

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.

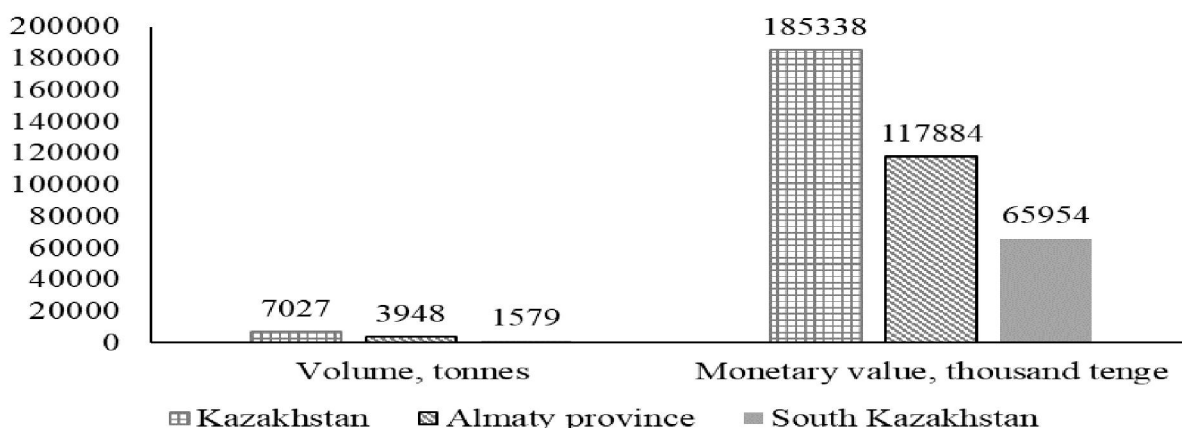


Figure 13 – The overall productive capacity of agricultural cooperatives in Kazakhstan for January-September 2017

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.

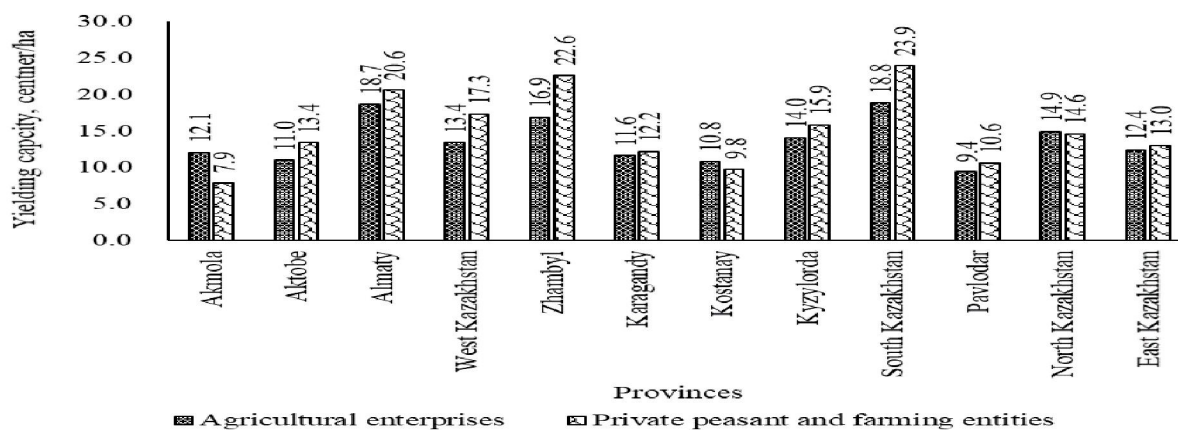


Figure 14 – The yielding capacity of spring and winter wheat by types of entities in Kazakhstan in 2016

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

Aspect	Trend
Political	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].
Economic	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].
Social	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].
Technologic	Development in biotechnologies opens new horizons to improve wheat cultures [22].
Competitors	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].
Customers	The world population is expected to grow in the near future [25].
Suppliers	Soil degradation, desertification, urbanization and worsening of the global ecology is decreasing the area of arable lands for wheat [26, 27, 28].
Labour force	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.
Note: from the sources 14-29.	

The figure below illustrates stakeholders of the wheat industry.

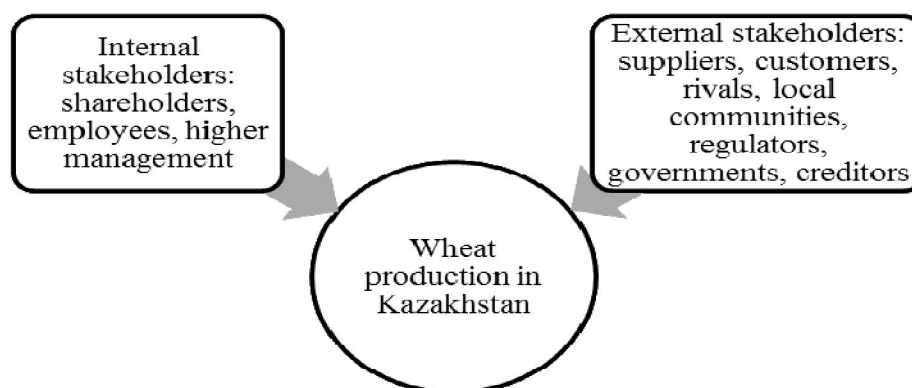


Figure 15 – Internal and external stakeholders of the wheat industry in Kazakhstan.

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

- [1] United Nations Department of Economic and Social Affairs. (2016) *World Population Prospects, Volume II: Demographic Profiles*. New York: United Nations.
- [2] United Nations Department of Economic and Social Affairs. (2016) *World Population Prospects, Volume I: Comprehensive Tables*. New York: United Nations.
- [3] Gilber, G. (2001) *World Population: A Reference Handbook*. Oxford: ABC Clío.
- [4] Carver, B. (2009) *Wheat: Science and Trade*. Ames, Iowa, USA: Wiley-Balckwell.
- [5] The Committee on Statistics, Ministry of National Economy of the Republic of Kazakhstan (2018) *Valovyi sbor 2016*. Available: <http://stat.gov.kz/getImage?id=ESTAT205410> [Accessed: 10 January 2018].
- [6] Yu, L. (2008) *Wheat Antioxidants*. Hoboken, New Jersey, USA: John Wiley & Sons, Inc.
- [7] Bushuk, W., & Rasper, V. (1994) *Wheat: Production, Properties and Quality*. London: Blackie Academic & Professional.
- [8] Marotti, I., Bregola, V., Aloisio, I., Di Gioia, D., Bosi, S., Di Silvestro, R., Quinn R., & Dinelli, G. (2012) Prebiotic effect of soluble fibres from modern and old durum-type wheat varieties on Lactobacillus and Bifidobacterium strains. *Journal of the Science of Food and Agriculture*, 92, pp. 2133-2140.
- [9] Shewry, P., & Hey, S. (2015) Do “ancient” wheat species differ from modern bread wheat in their contents of bioactive components? *Journal of Cereal Science*, 65, pp. 236-243.
- [10] Sofi, F., Ghiselli, L., Cesari, F., Gori, A., Mannini, L., & Casini, A. (2010) Effects of Short-Term Consumption of Bread Obtained by an Old Italian Grain Variety on Lipid, Inflammatory, and Hemorheological Variables: An Intervention Study. *Journal of Medicinal Food*, 13 (3), pp. 615-620.
- [11] Sofi, F., Whittaker, A., Cesari, F., Gori, A., Fiorillo, C., & Becatti, M. (2013) Characterization of Khorasan wheat (Kamut) and impact of a replacement diet on cardiovascular risk factors: cross-over dietary intervention study. *European Journal of Clinical Nutrition*, 67 (2), pp. 190-195.
- [12] The Committee on Statistics, Ministry of National Economy of the Republic of Kazakhstan (2018) *Presence grain and bean cultures on 1 December 2017*. Available: <http://stat.gov.kz/getImage?id=ESTAT243919> [Accessed: 10 January 2018].
- [13] The Committee on Statistics, Ministry of National Economy of the Republic of Kazakhstan (2018) *O deyatelnosti*. Available: <http://stat.gov.kz/getImage?id=ESTAT240939> [Accessed: 10 January 2018].
- [14] Dutkiewicz, P., & Sakwa, R. (2014) *Eurasian Integration – The View from Within*. London: Routledge.
- [15] Dragneva, R., & Wolczuk, K. (2017) *The Eurasian Economic Union: Deals, Rules and the Exercise of Power*. London: Chatham House, Royal Institute of International Affairs.
- [16] CNBC (2015) *Kazakhstan floats tenge, currency tumbles*. Available: <https://www.cnbc.com/2015/08/20/kazakhstan-floats-tenge-currency-tumbles.html> [Accessed: 10 January 2018].
- [17] RT (2015) *Free float sinks Kazakhstan’s currency*. Available: <https://www.rt.com/business/312913-kazakhstan-tenge-dollar-drop> [Accessed: 10 January 2018].
- [18] Steinberg, D. (2015) *Demanding Devaluation: Exchange Rate Politics in the Developing World*. Ithaca, New York, USA: Cornell University Press.
- [19] Дана Шаймерден. К 2030 году население Казахстана превысит 20,3 млн человек. 12.11.2014 // Капитал. URL : <https://kapital.kz/gosudarstvo/34980/k-2030-godu-naselenie-kazahstana-prevysit-20-3-mln-chelovek.html>
- [20] Atkin, M. (1995) *The International Grain Trade*. Cambridge: Woodhead Publishing Limited.
- [21] Erenstein, O., Thorpe, W., Singh, J., & Varma, A. (2007) *Crop-livestock Interactions and Livelihoods in the Indo-Gangetic Plains, India: A Regional Synthesis*. New Delhi: CIMMYT.
- [22] Smyth, S., Phillips, P., & Castle, D. (2014) *Handbook on Agriculture, Biotechnology and Development*. Cheltenham: Edward Elgar.
- [23] Workman, D. (2017) *Wheat Exports by Country*. World Top Exports. Available: <http://www.worldstopexports.com/wheat-exports-country> [Accessed: 10 January 2018].
- [24] Moussis, N. (2016) *Access to the European Union: Law, Economics, Policies*. Cambridge: Intersentia.
- [25] Lutz, W., Butz, W., & Samir, K. (2017) *World Population and Human Capital in the Twenty-First Century: An Overview*. Oxford: Oxford University Press.
- [26] Osman, K. (2013) *Soil Degradation, Conservation and Remediation*. Dordrecht: Springer Science + Business Media.
- [27] Kannan, A. (2012) *Global Environmental Governance and Desertification: A Study of Gulf Cooperation Council Countries*. New Delhi: Concept Publishing Company.
- [28] Hakeem, K., Akhtar, J., & Sabur, M. (2016) *Soil Science: Agricultural and Environmental Prospectives*. Cham: Springer Publishing Switzerland.
- [29] Ruby, A., & Hartley, M. (2017) *Higher Education Reform and Development: The Case of Kazakhstan*. Cambridge: Cambridge University Press.

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ҚАЗАҚСТАН РЕСПУБЛИКАСЫНДАҒЫ БИДАЙ НАРЫҒЫНЫҢ ӘЛЕУЕТІН ЗЕРТТЕУІ

Аннотация. Мақала Қазақстан Республикасы үшін бидай әлеуетін түсіндіреді. Бұдан басқа осы жұмыста Қазақстанда бидай нарығын дамытуына арналған ұсыныстар келтірілген. Зерттеу жұмысының мақсаты – бұл Қазақстан Республикасының аграрлық секторын дамытуына арналған экономикалық механизмдерді қолдануымен көмектесуі мүмкін теориялық базасын және тәжірибелік ұсыныстарын түсіндіру. Зерттеу әдістемесі статистикалық, талдау, салыстырмалы және эконометриялық әдістері негізінде құрылған.

Зерттеудің тәжірибелік маңызы – бұл Қазақстан Республикасындағы бидай нарығының қазіргі жағдайын бейнелеу. Зерттеу нәтижелері Ақмола және Жамбыл облыстары бидайдың ішкі нарығында күшті орындарды ұстап тұрғанын көрсетеді.

Түйін сөздер: бидай, күздік бидай, жаздық бидай, астық жиналатын танап, астық өнімділігі, Қазақстан.

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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, аналитических, сравнительных и эконометрических методах. Практическая значимость исследования – это описание нынешнего состояния рынка пшеницы в Республике Казахстан. Результаты исследования показывают, что Ақмолинская 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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