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THE CURRENT STATE OF THE RYE AND BARLEY MARKET IN THE REPUBLIC OF KAZAKHSTAN

Abstract. The article defines the current state of the rye and barley market in the Republic of Kazakhstan. Moreover, this work offers recommendations for improving the rye and barley sector of the agriculture in Kazakhstan. The research purpose is to define theoretical background and to offer recommendations that may help to apply economic mechanisms for developing the agricultural sector of Kazakhstan. The research methodology is based on graphical, analytic, comparative and statistic methods. The research practical significance is in making industry analysis of the rye and barley market of Kazakhstan. The research results show that land, biotechnology, machinery and policies are driving forces of the rye and barley market.

Keywords: rye, barley, harvested area, stakeholder analysis, power interest matrix, Kazakhstan.

Rye and barley have been known to the humanity for a long time [1, 2]. There is no doubt that rye and barley have their own significance for the global food consumption and production [1, 2]. Moreover, the Republic of Kazakhstan has a considerable amount of fertile lands that can potentially be used to grow these crops [3]. Therefore, there is a high potential for the rye and barley market in Kazakhstan [4].

The figure below shows how much rye was available on 1 December 2017 by types of usage.

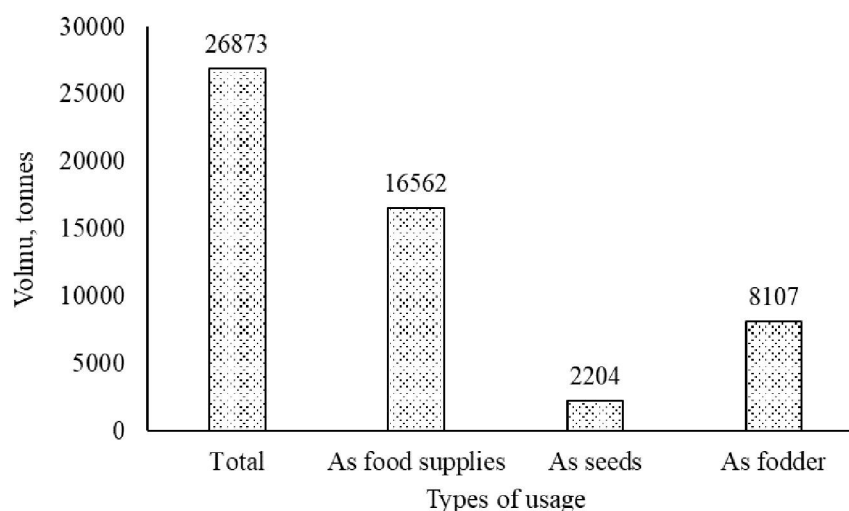


Figure 1 – Total volume of available rye by types of usage on 1 December 2017 [12]

The figure above illustrates that 2204 tonnes of rye were available for 1 December 2017 in Kazakhstan as seeds.

The figure below shows interests of stakeholders in barley and rye market of Kazakhstan.

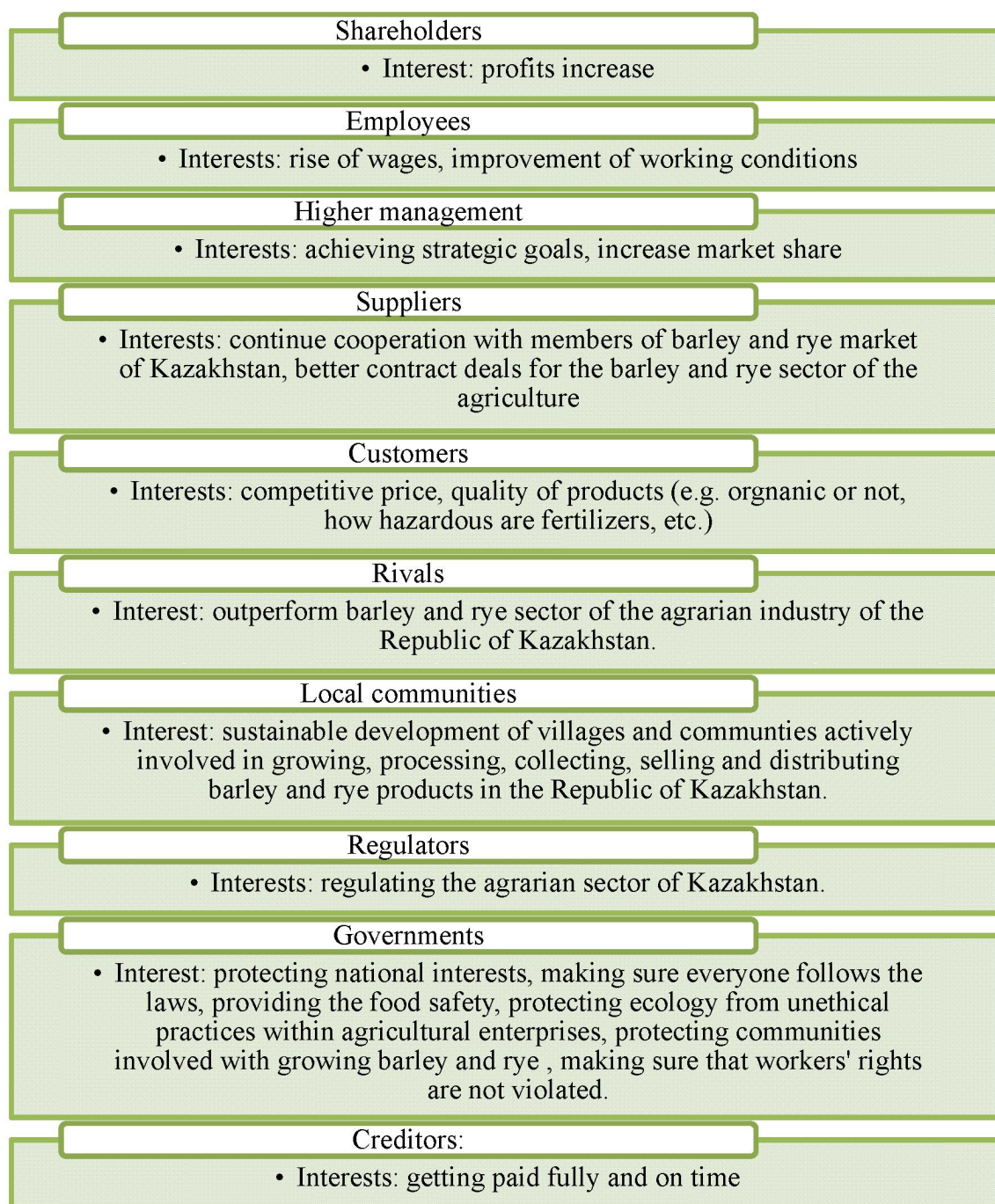


Figure 2 – Interests of stakeholders in the vegetable market of the Republic of Kazakhstan [6-10].

The figure above illustrates that various stakeholders have different interests while being active members of the agrarian market [11]. For instance, creditors within the vegetable sector of the agrarian market are mainly interested in getting paid on time.

The figure below shows power interest in the rye and barley market.

The figure above shows that governments, regulators and creditors as banks have a high influence on how the internal barley and rye market functions in the Republic of Kazakhstan. Even a private person may start growing barley and rye and start selling them. Therefore, there are no significant entrance barriers.

The figure below shows vegetable market driving forces in Kazakhstan.

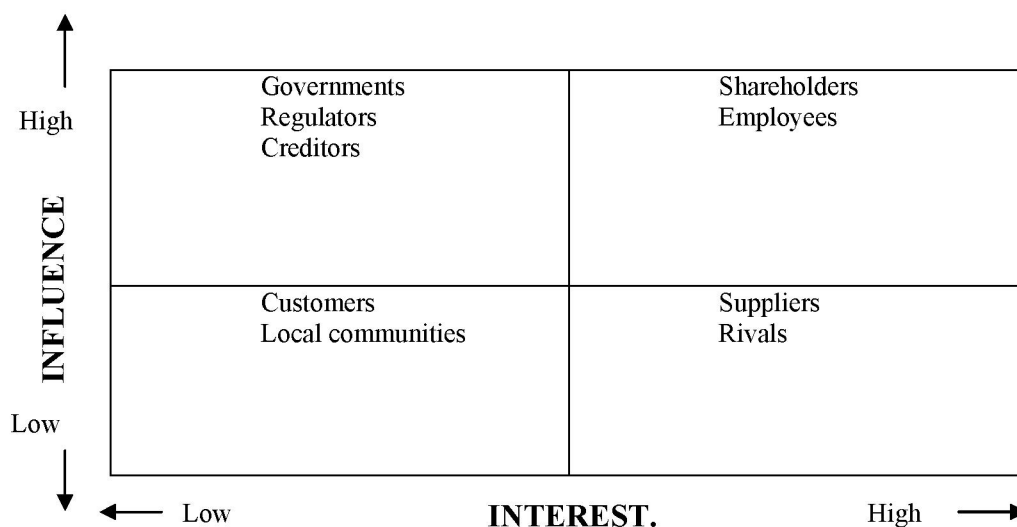


Figure 3 – Power interest matrix for agricultural entities involved in the barley and rye sector of agriculture within the internal market in Kazakhstan [12-14]

Table 1 – Rye and barley industry driving forces in Kazakhstan [15-20]

Industry driving forces	Explanations and implications
Land	Soil degradation and desertification are major issues.
Machinery	There are possibilities to get subsidies or join one of many state-funded programmes to get machinery such as tractors for anyone willing to grow barley and rye or to process them.
Biotechnology	Developments in biotechnology are opening new horizons in the agrarian sector: starting from more ways to create new seeds and ending with creating suitable environments to grow vegetables.
Policies	Kazakhstan has a wide range of programmes supporting agriculture.

The figure below illustrates how much area of land was used to harvest barley in the Republic of Kazakhstan in 2016.

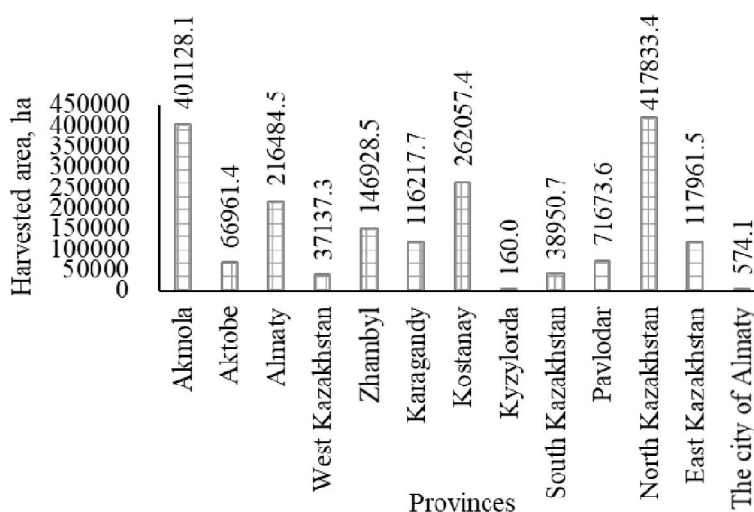


Figure 4 – The area used to harvest barley in Kazakhstan in 2016, ha [21]

The figure above shows that North Kazakhstan provinces have the highest indicator – 417833.4 ha. The figure below shows the summary report for the figure above.

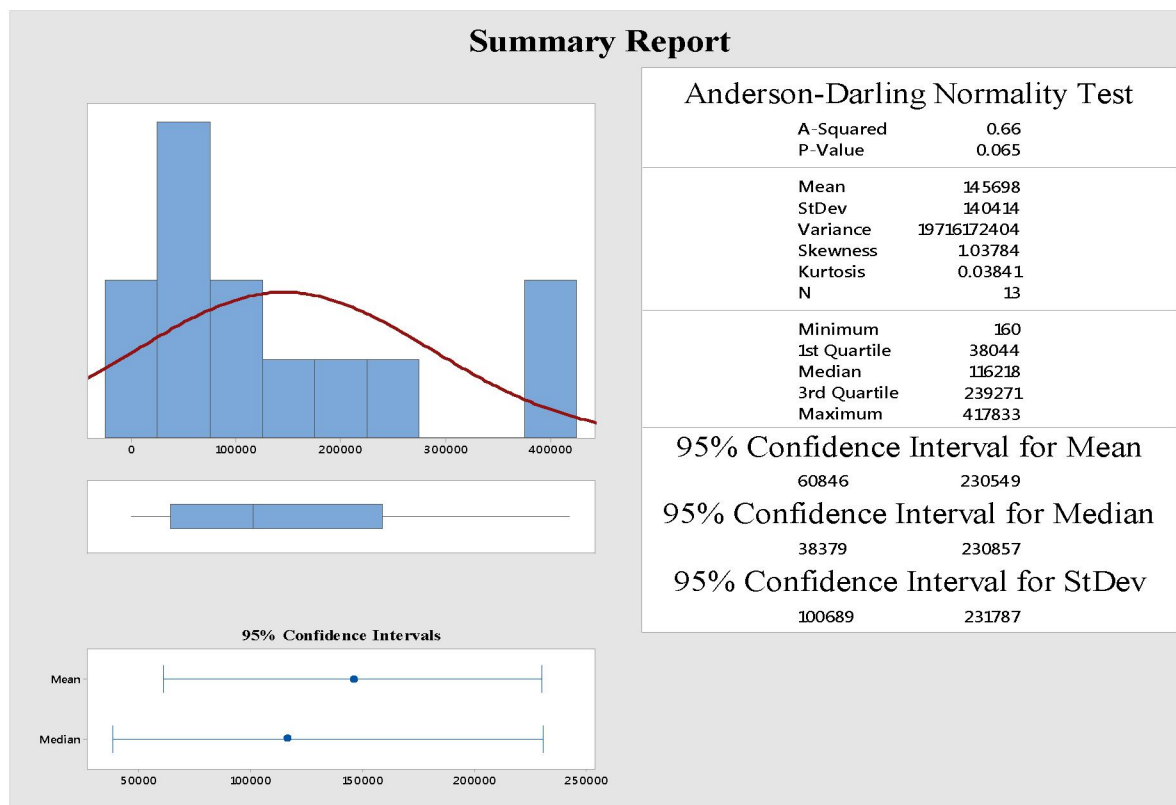


Figure 5 – The summary report for the total area used to harvest barley in 2016 [21]

The figure above defines that the standard deviation for the total area of agricultural lands used to grow barley in 2016 equals to 140 414 ha.

There are two main types of barley: spring and winter [22]. The figure below shows how much agricultural lands were used to harvest spring barley.

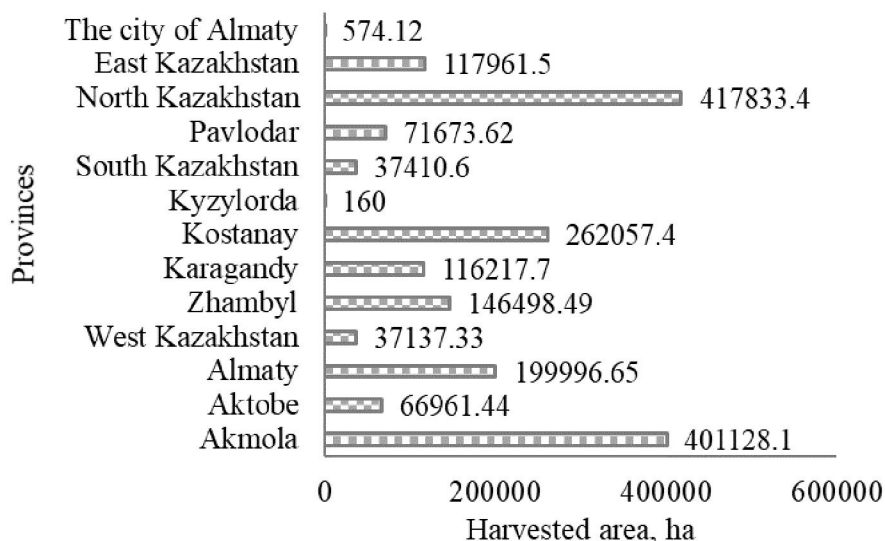


Figure 6 – The area of agricultural lands dedicated to harvesting spring barley in 2016 for the Republic of Kazakhstan, ha [21]

The figure below illustrates the summary report for the figure above.

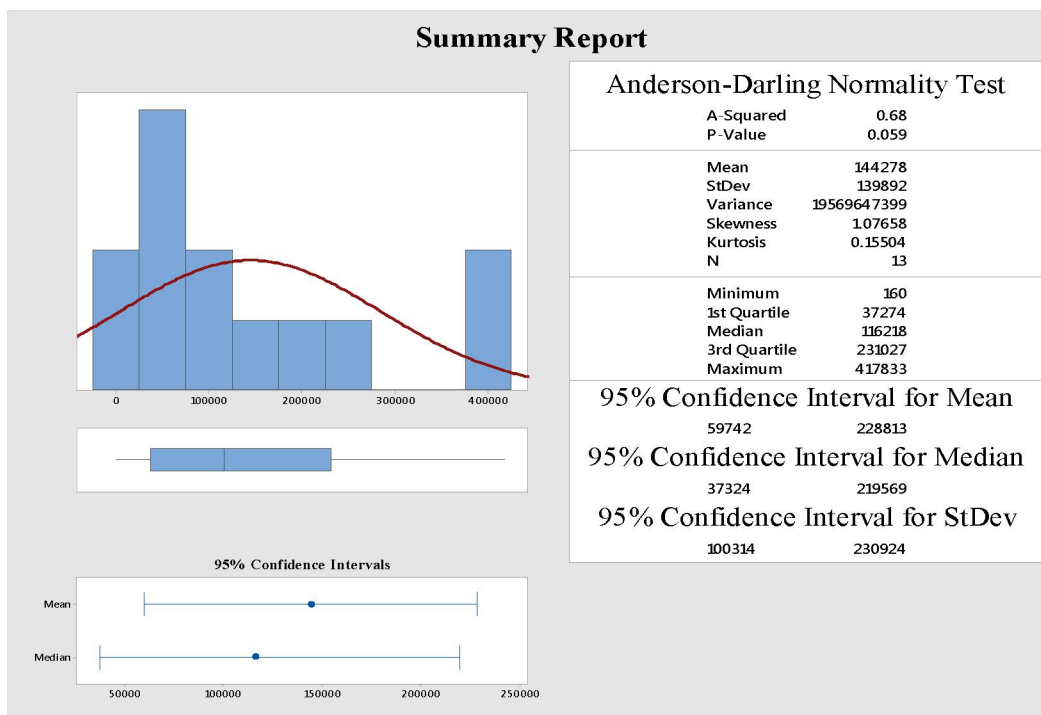


Figure 7 – The summary report for the total area dedicated to harvesting spring barley in Kazakhstan in 2016 [21]

The figure above shows that kurtosis for the total area used to grow spring barley equals to 0.15504 ha.

The figure below illustrates fitted line plot between the area of land used to grow barley and spring barley in 2016 by different provinces of the Republic of Kazakhstan.

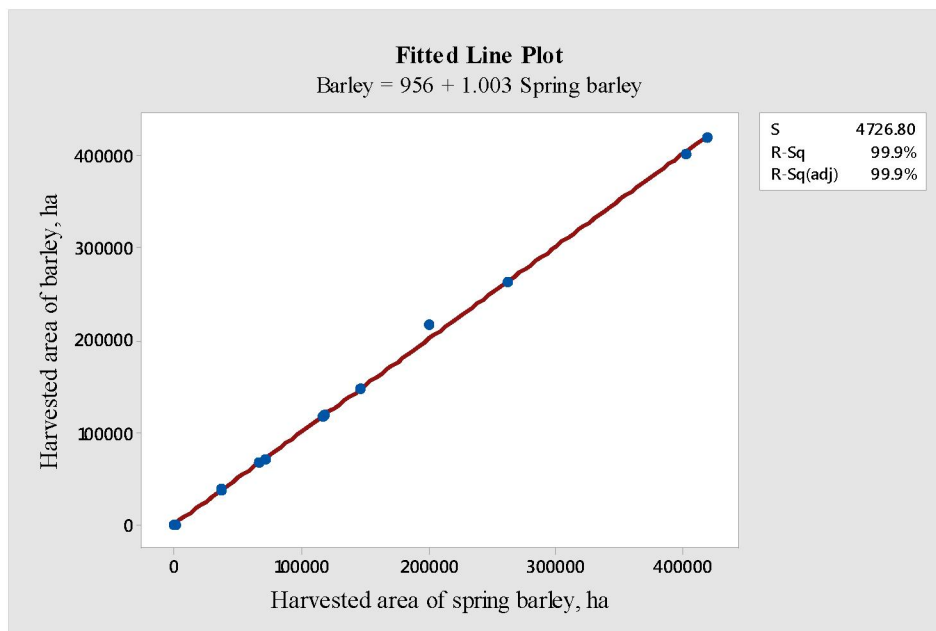


Figure 8 – The fitted line plot between harvested areas of barley and spring barley in 2016 in Kazakhstan [21]

The figure above shows that the formula is: “Harvested area of barley = 956 + harvested area of spring barley”. The figure below illustrates marginal plot for the same indicators as in the figure above.

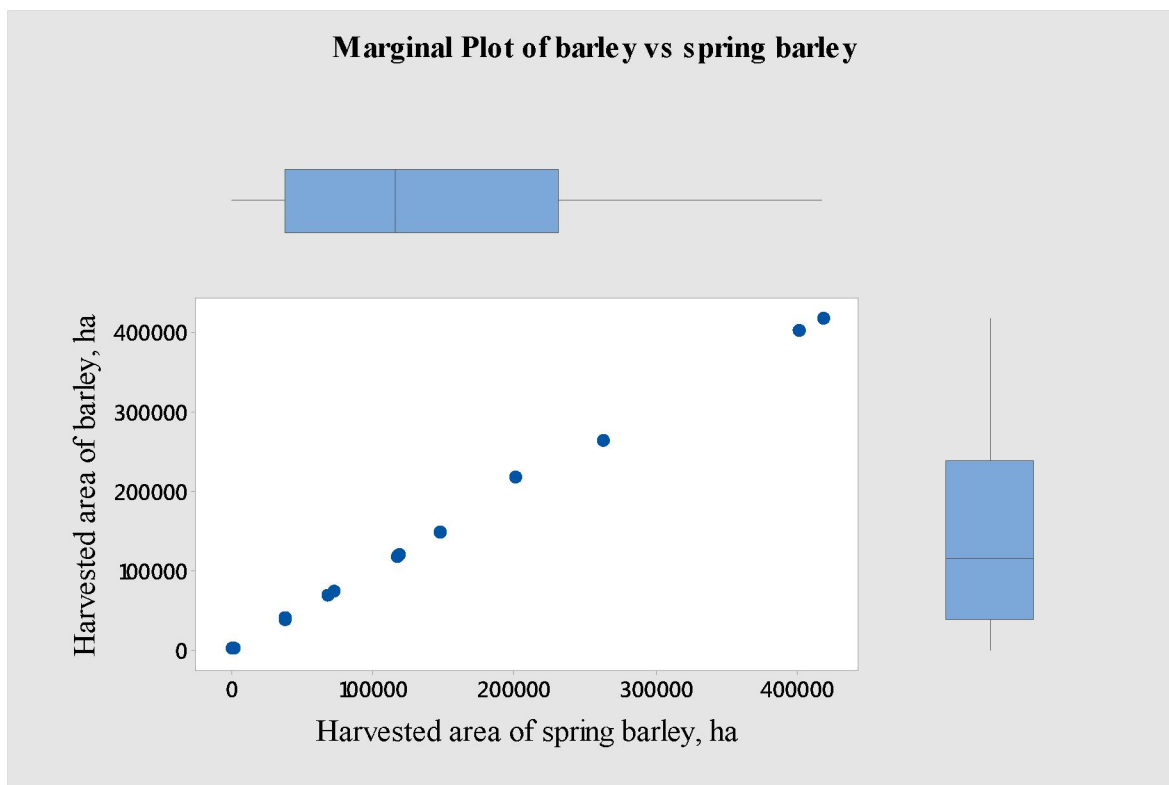


Figure 9 – The marginal plot how much land used to grow barley and spring barley in 2016 for Kazakhstan [21]

The figure above illustrates that the area of land used to grow barley fits well with the same indicator for spring barley.

The figure below illustrates how much area of land was used to harvest rye in Kazakhstan in 2016.

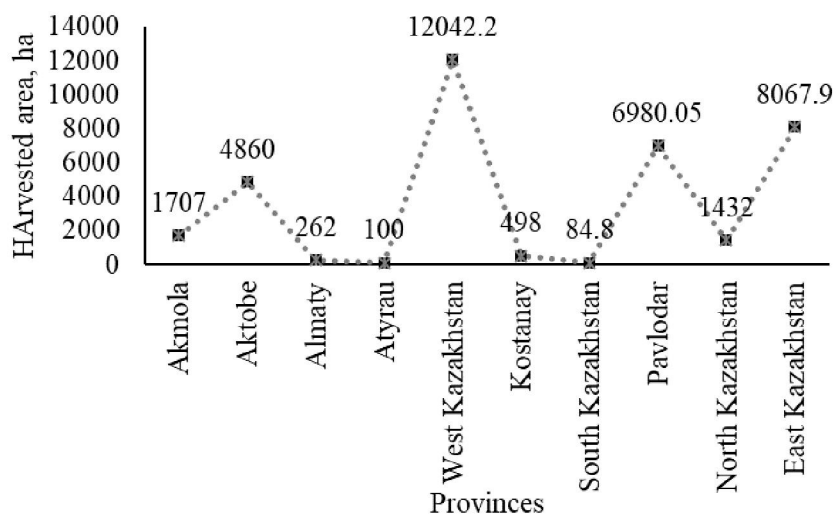


Figure 10 – The total area of agricultural lands used to harvest rye in Kazakhstan in 2016, ha [21]

The figure below illustrates the summary report for the figure above.

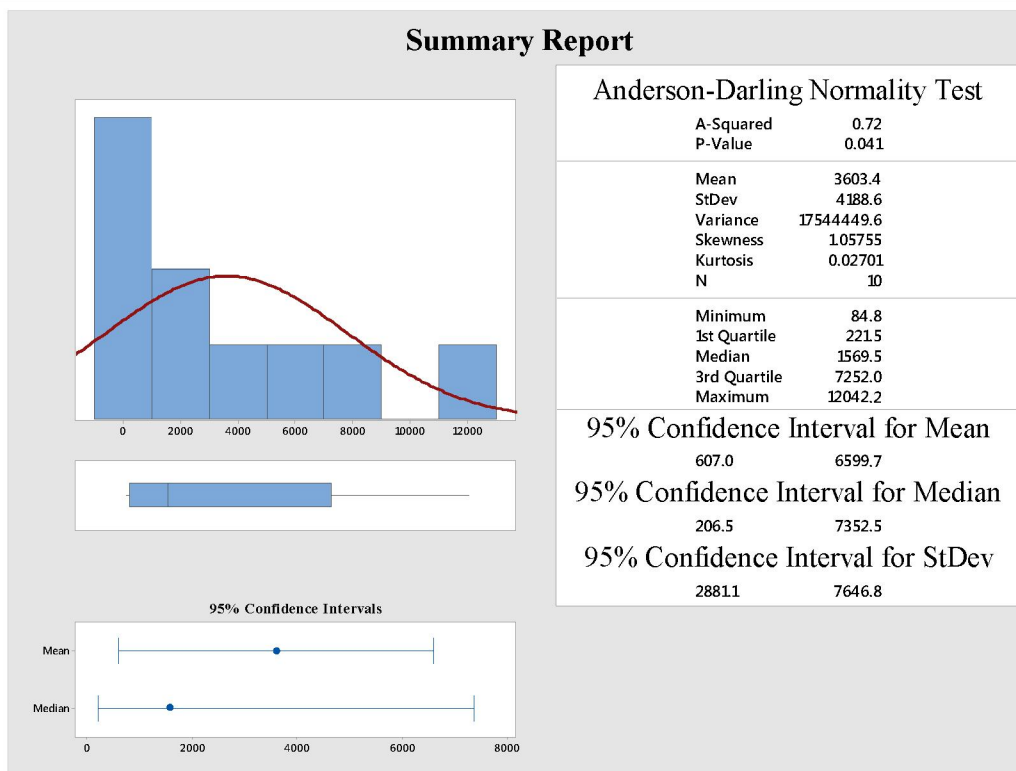


Figure 11 – The summary report for the harvested area of rye in 2016 in Kazakhstan [21]

The figure above defines that p-value at the 95% confidence interval for the harvested area of rye among provinces of the Republic of Kazakhstan in 2016 equals to 0.041.

The figure below illustrates how much lands were used to harvest winter rye.

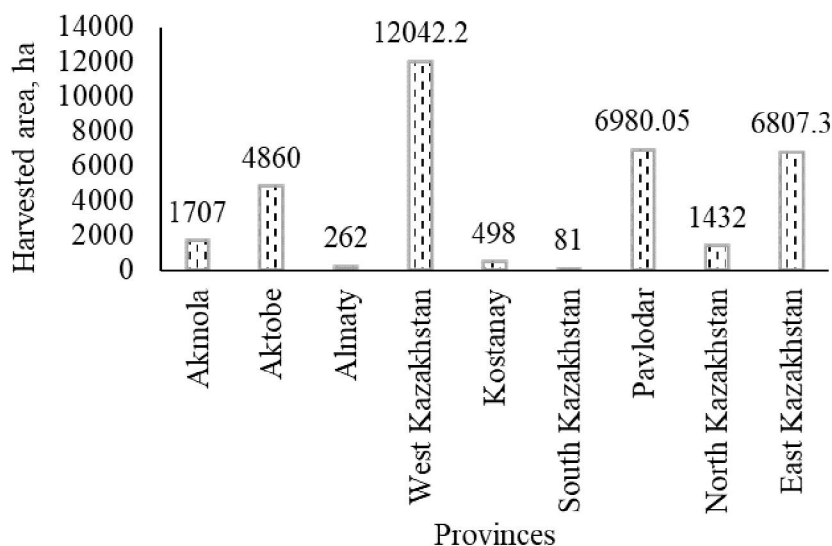


Figure 12 – The total harvest area of winter rye in Kazakhstan for 2016, ha [21]

The figure above shows that the highest indicator belongs to West Kazakhstan province – 12042.2 ha. The figure below illustrates the summary report for the figure above.

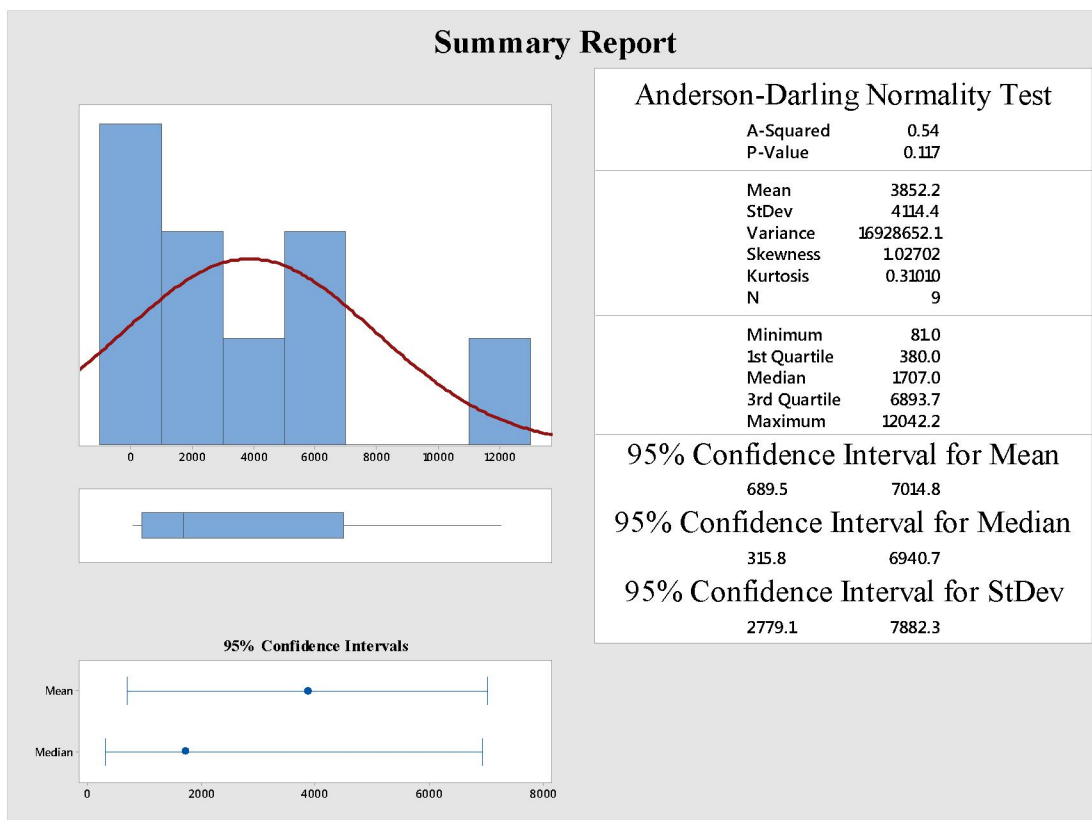


Figure 12 – The summary report for winter rye’s harvest area in 2016 [21]

The figure above states that the third quartile for the harvest area is 6893.7 ha. The figure illustrates the fitted line plot between harvest areas of rye and winter rye.

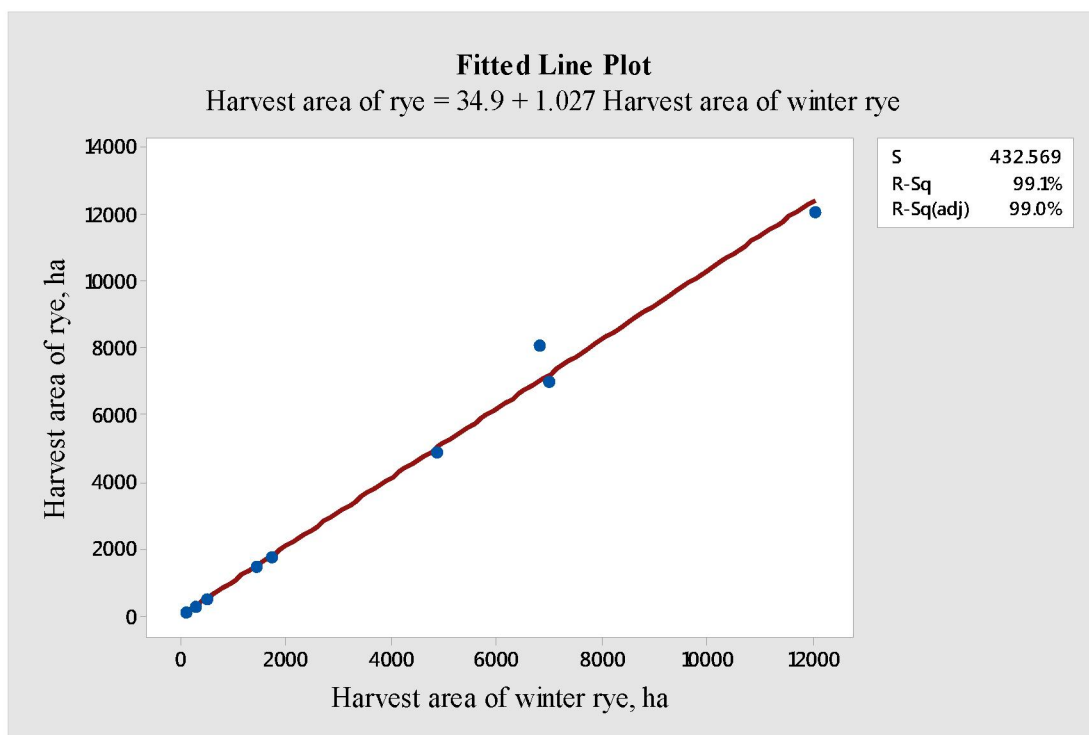


Figure 13 – The fitted line plot between how much lands were used to harvest rye and winter rye in Kazakhstan in 2016 [21]

The figure above shows that the formula is: “Harvest area of rye = 34.9 + 1.027 Harvest area of winter rye”.

The figure illustrates marginal plot for the same indicators as in the figure above.

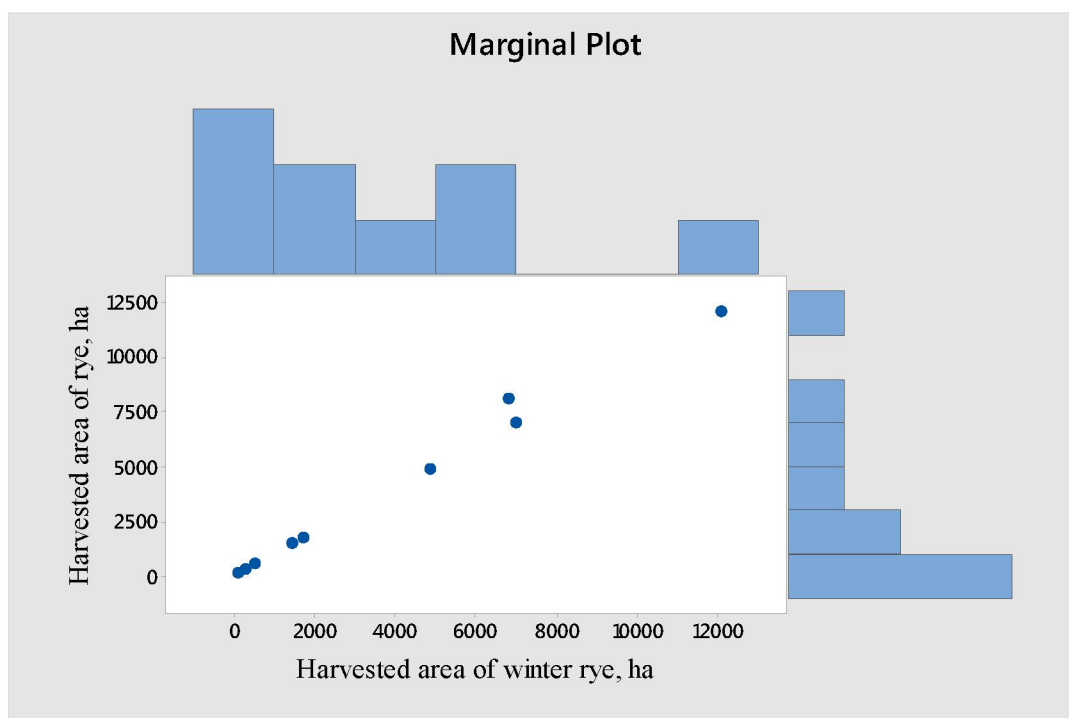


Figure 14 – The marginal plot of how much agricultural lands were dedicated to harvesting rye versus the same indicator for winter rye [21]

The figure above shows that harvested area of rye in 2016 has the high fitness for the same indicator of winter rye.

The figure below illustrates SMART technique applied for developing recommendations for the rye and barley market.

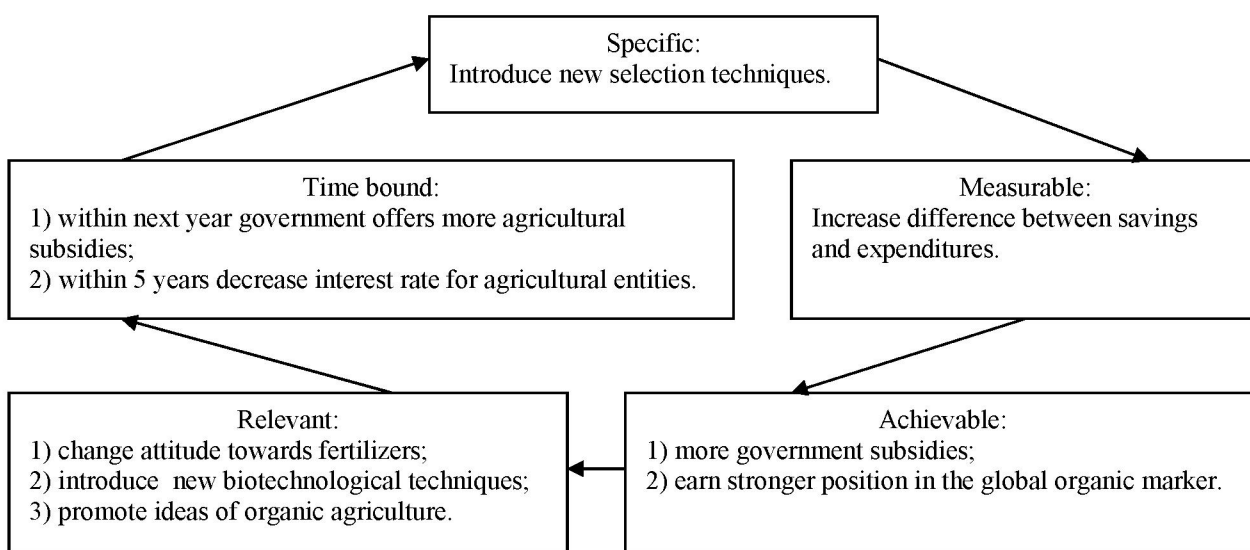


Figure 15 – Recommendations for the rye and ba [16]

The figure above shows that the government subsidies have a significant impact on developing the rye and barley industry.

In conclusion, North Kazakhstan has a strong position in the barley market and West Kazakhstan – in the rye market.

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ҚАЗАҚСТАН РЕСПУБЛИКАСЫНДА АРПА ЖӘНЕ ҚАРА БИДАЙ НАРЫҒЫНЫҢ ҚАЗІРГІ ЖАҒДАЙЫ

Аннотация. Мақалада Қазақстан Республикасында арпа және қара бидай нарығының қазіргі жағдайы сипатталған. Сонымен қатар бұл жұмыста Қазақстан Республикасының ауылшаруашылығында қара бидай мен арпа секторын жақсарту ұсыныстары ұсынылған. Зерттеу мақсаты теориялық негіздерін сипаттау және ұсыныстар ұсыну, осылар Қазақстан Республикасының аграрлық секторын дамуында экономикалық меха-

низмдерді қолдануға көмектеседі. Зерттеу методологиясы графикалық, аналитикалық, салыстырмалы және статистикалық әдістерге негізделген. Зерттеудің практикалық маңызы Қазақстанда арпа мен кара бидай нарығына талдау жүргізілуі. Зерттеудің нәтижесі көрсетті, арпа мен кара бидайдың қозғаушы күштері жер, биотехнология, машина құралдары, саяси шаралар.

Түйін сөздер: кара бидай, арпа, жинау алаңы, мүдделі тараптардың талдауы, мүдделі күштер матрицасы, Қазақстан.

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СОВРЕМЕННОЕ СОСТОЯНИЕ РЫНКА РЖИ И ЯЧМЕНЯ В РЕСПУБЛИКЕ КАЗАХСТАН

Аннотация. Статья описывает современное состояние рынка ржи и ячменя в Республике Казахстан. Кроме того, данная работа предлагает рекомендации по улучшению сектора ржи и ячменя сельского хозяйства в Республике Казахстан. Целью исследования является описание теоретической основы и предложение рекомендаций, которые могут помочь применить экономические механизмы для развития аграрного сектора Республики Казахстан. Методология исследования основана на графических, аналитических, сравнительных и статистических методах. Практическая значимость исследования в проведении индустриального анализа рынка ржи и ячменя Казахстана. Результаты исследования показывают, что земля, биотехнологии, машинное оборудование, политические меры являются движущими силами рынка ржи и ячменя.

Ключевые слова: рожь, ячмень, уборочная площадь, анализ заинтересованных кругов, матрица заинтересованных сил, Казахстан.