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THE EFFICIENCY RESEARCH OF THE OAT AND PROSO MARKET IN THE MODERN KAZAKHSTAN

Annotation

The article researches how efficient is the oat and proso market in the Republic of Kazakhstan. Moreover, this work offers recommendations to improve operational efficiency of the oat and proso market in Kazakhstan.

The research purpose is to offer theoretical and practical background that describe how to use economic mechanisms to develop the agrarian economy in Kazakhstan.

The research methodology consists of comparative, quantitative, econometric and analytic methods.

The research practical significance is to research the efficiency of the internal oat and proso market in Kazakhstan.

The research results show that Kostanay province is among the leaders in growing oats, and Pavlodar province – for proso.

Keywords: proso, oats, Kazakhstan, harvested area, gross collection, yielding capacity.

Providing food safety plays the significant role in maintaining the national security [1]. Therefore, growing vegetables that have potential for the food processing industry may bring economic growth [2]. Oats and proso are among agricultural cultures which may be used both for futher processing to create more complex food products or for the internal consumption by the local population [3,4].

The figure below shows how much oats were available on 1 December 2017 in Kazakhstan.

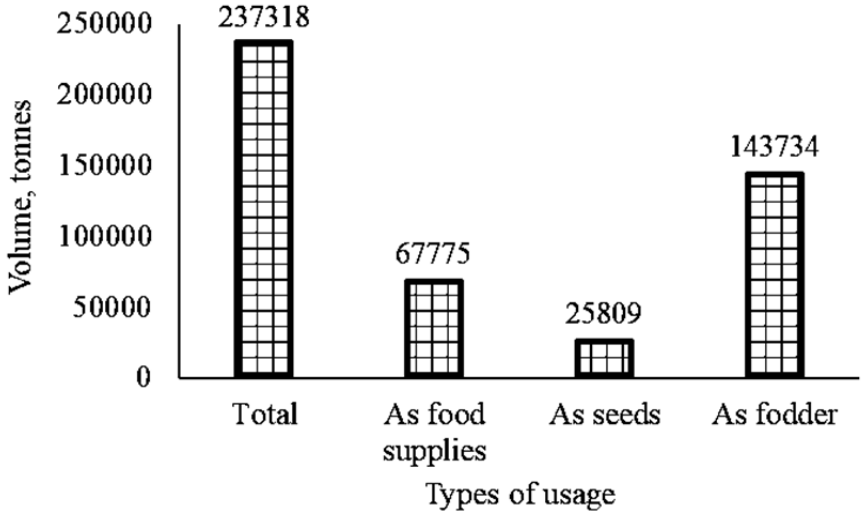

Figure 1 – Total volume of available oats by types of usage on 1 December 2017, tonnes.
Note: from the source 5.

The figure above illustrates that 143734 tonnes of oats were available as fodder on 1 December 2017.

The figure below shows how much area was used to harvest oats in Kazakhstan in 2016.

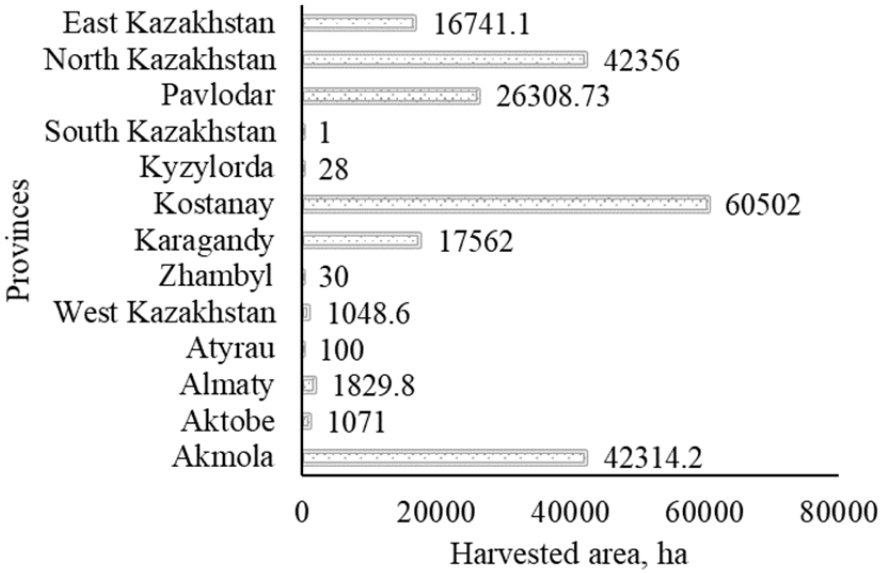

Figure 2 – Total harvested area of oats in different provinces of Kazakhstan in 2016, ha.
Note: from the source 6.

The figure above illustrates that the most harvested area for oats in 2016 was in Kostanay province – 60502 ha.

The summary report for the figure above is shown by the figure below.

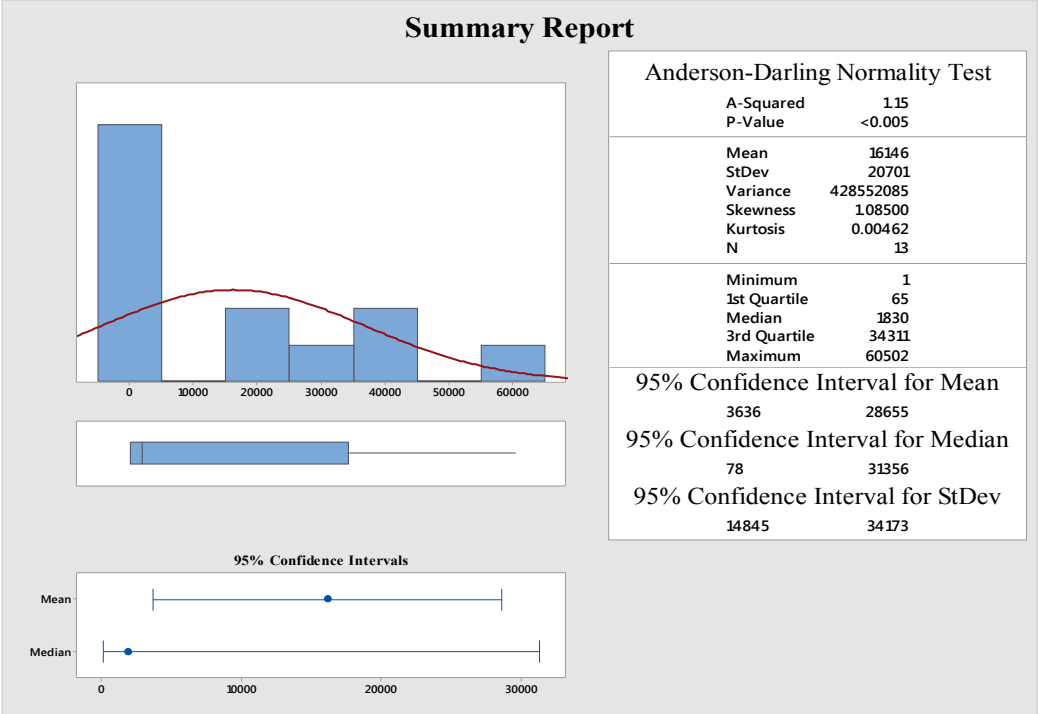

Figure 3 – The summary report for harvested area of oats in 2016.
Note: from the source 6.

The figure above illustrates that the value of skewness equals to 1.085.
The figure below shows gross collection of oats in Kazakhstan.

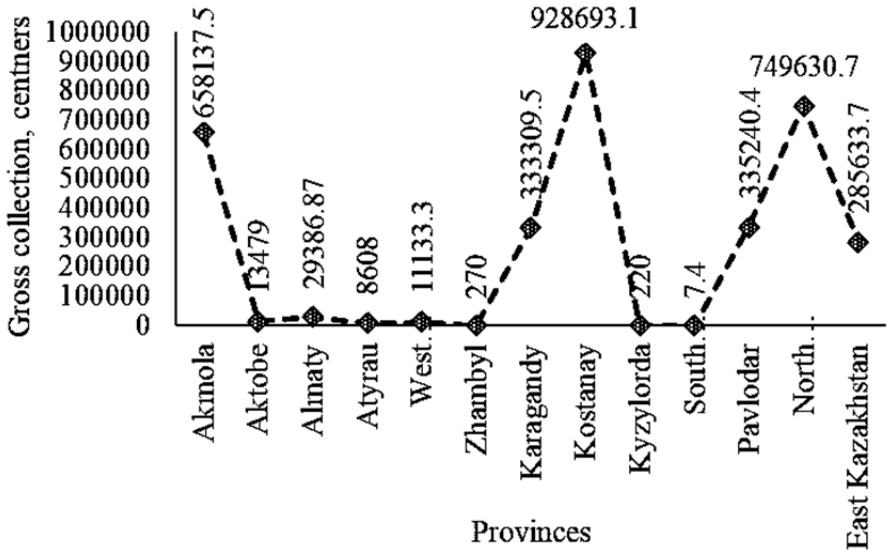

Figure 4 – The total gross collection of oats among different provinces of the Republic of Kazakhstan in 2016, centners.
Note: from the source 6.

The figure above illustrates that Kostanay province has the highest gross rate - 928693.1 centners.
The summary report for the figure above is shown by the figure below.

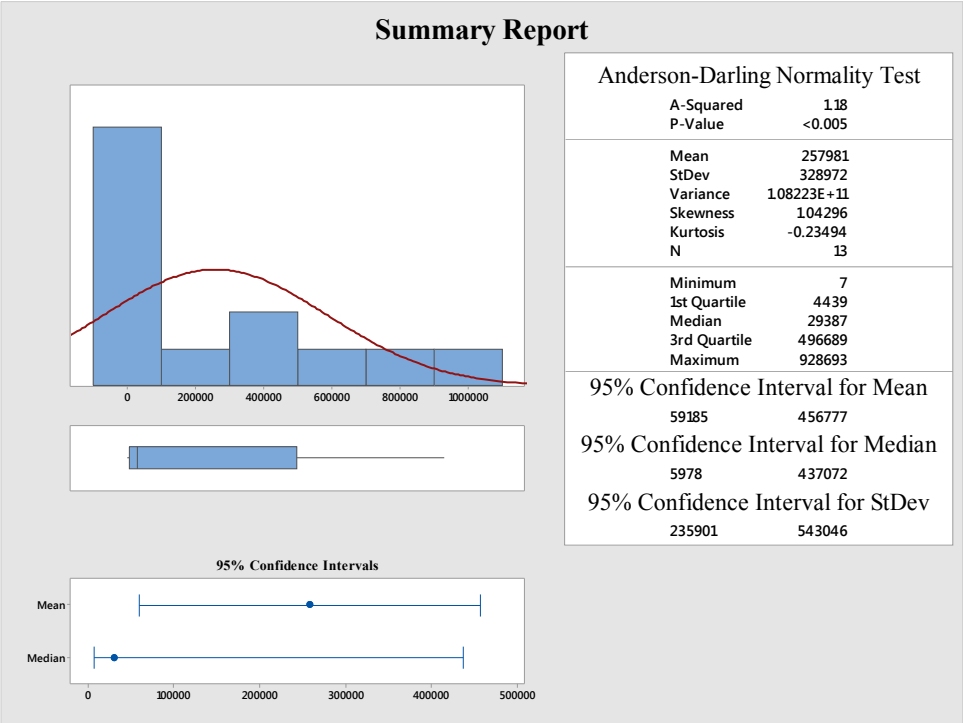

Figure 5 – The summary report for gross collection of oats in 2016.
Note: from the source 6.
The figure above illustrates that the value of skewness becomes equal to 1.04296.

The figure below shows the fitted line plot of how much land was used to harvest oats versus how much oats were collected.

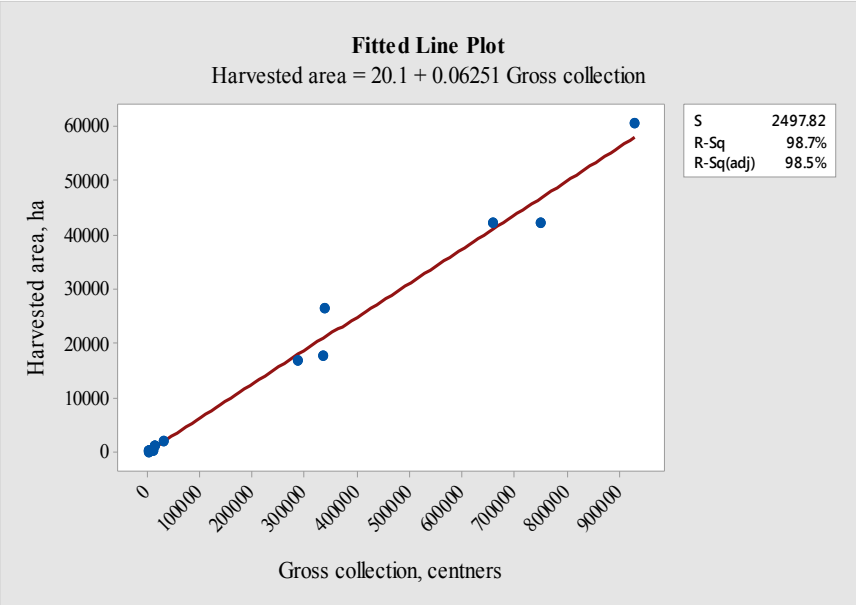

Figure 6 – The fitted line plot between the total amount of land used to harvest oats versus gross collection of the same plant.
Note: from the source 6.

The figure above illustrates that the linear regression model formula is “Harvested area = 20.1 + 0.06251 Gross collection”.

The marginal plot for the same indicators as in the figure above is shown by the figure below.

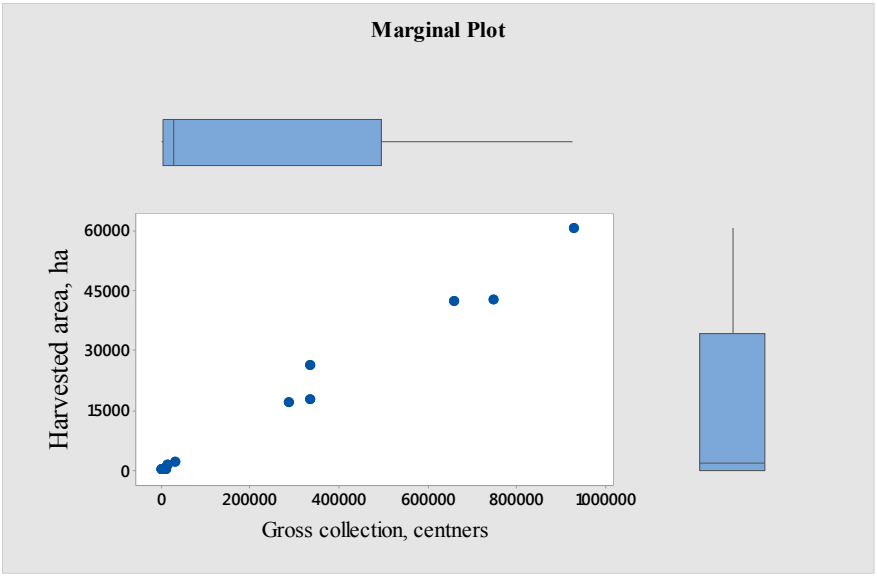

Figure 7 – The marginal plot of harvested area versus gross collection of oats in 2016.
Note: from the source 6.

The figure above illustrates that at 95% confidence interval there is direct link between how much land is used to harvest oats and how much oats were collected.

The figure below shows the yielding capacity of oats in 2016.

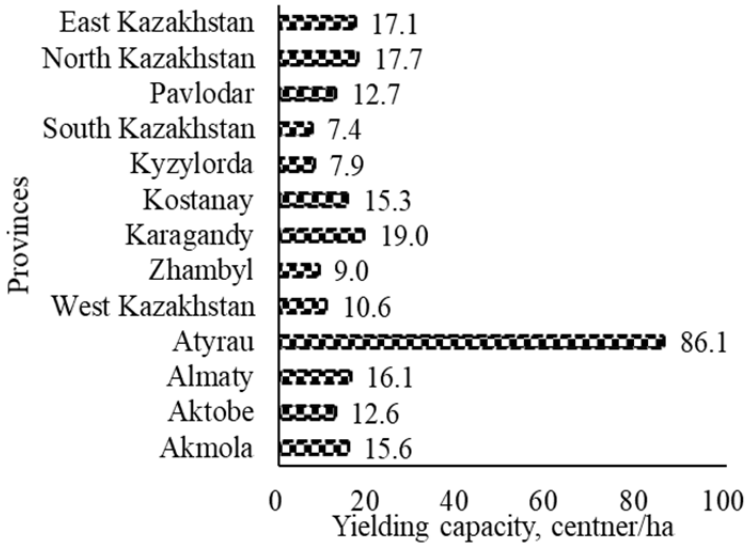

Figure 8 – The overall yielding capacity in 2016 for oats in the Republic of Kazakhstan, centner/ha.
Note: from the source 6.

The figure above shows that Atyrau province has the highest yielding capacity of oats – 86.1 centners on average from one hectare.

The summary report for the figure above is shown by the figure below.

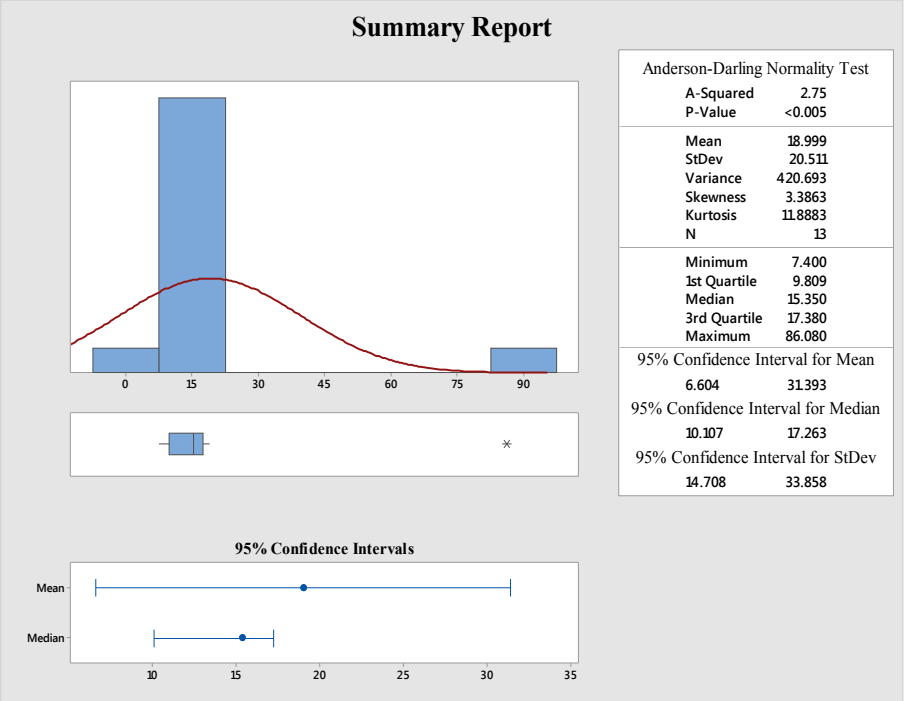

Figure 9 – The summary report for the volume of oat's yielding capacity, centner/ha.
Note: from the source 6.

The figure above illustrates that the value of kurtosis becomes equal to 11.8883.

The figure below shows how much agricultural lands were dedicated to harvest proso in 2016.

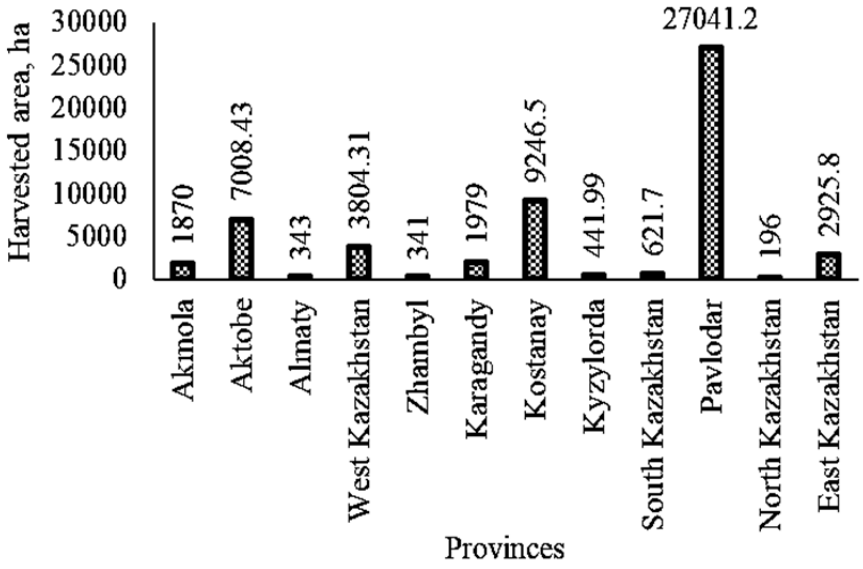

Figure 10 – Total harvested area of proso by provinces of Kazakhstan in 2016, ha.
Note: from the source 6.

The figure above illustrates that Pavlodar province has the highest indicator – 27041.2 ha.
The summary report for the figure above is shown by the figure below.

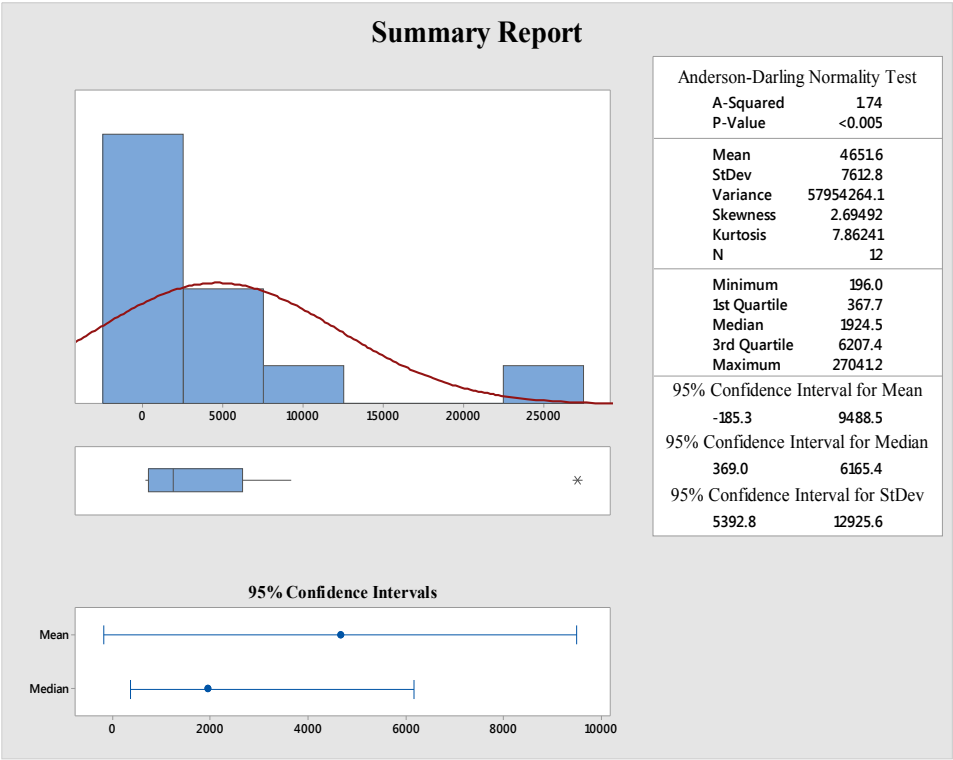

Figure 11 – The summary report for harvested area of proso in 2016.
Note: from the source 6.

The figure illustrates that the value of standard deviation is 7612.8.
The figure below shows how much proso was collected in 2016.

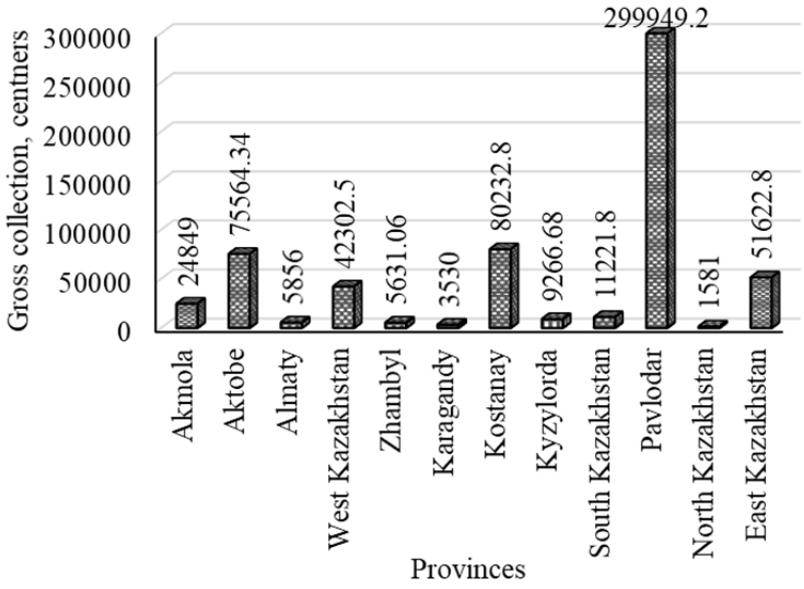

Figure 12 – The gross collection of proso in 2016 among different provinces of the Republic of Kazakhstan, centners.
Note: from the source 6.

The figure above illustrates that the biggest volume of proso was collected in Pavlodar province - 299949.2 cetners.
The summary report for the figure above is shown by the figure below.

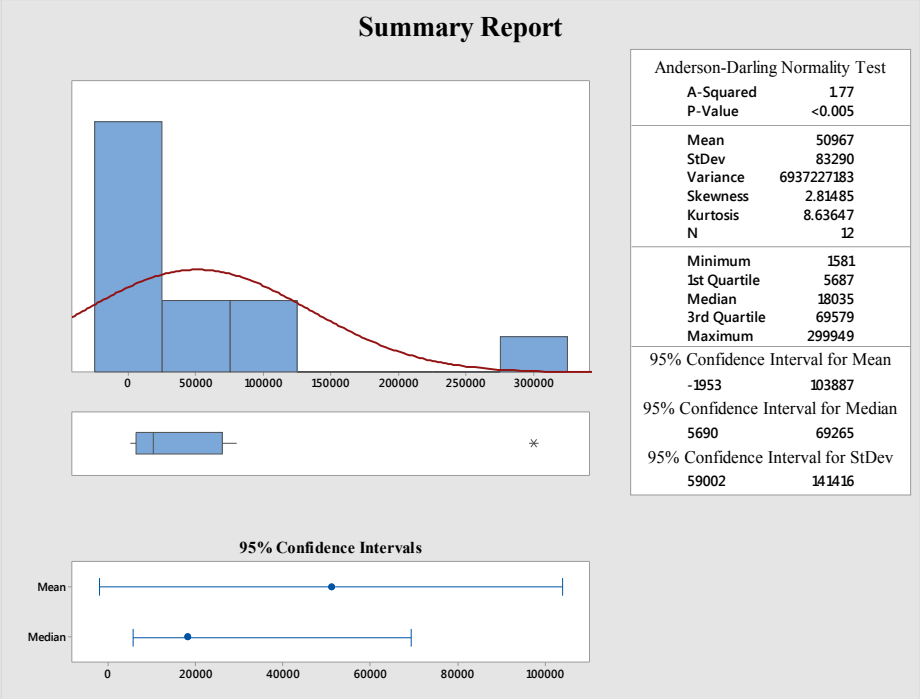

Figure 13 – The summary report for how much proso was collected in 2016.
Note: from the source 6.

The figure above illustrates that the value of the standard deviation is 83290.

The fitted line plot of proso's harvested area versus its gross collection is shown by the figure below.

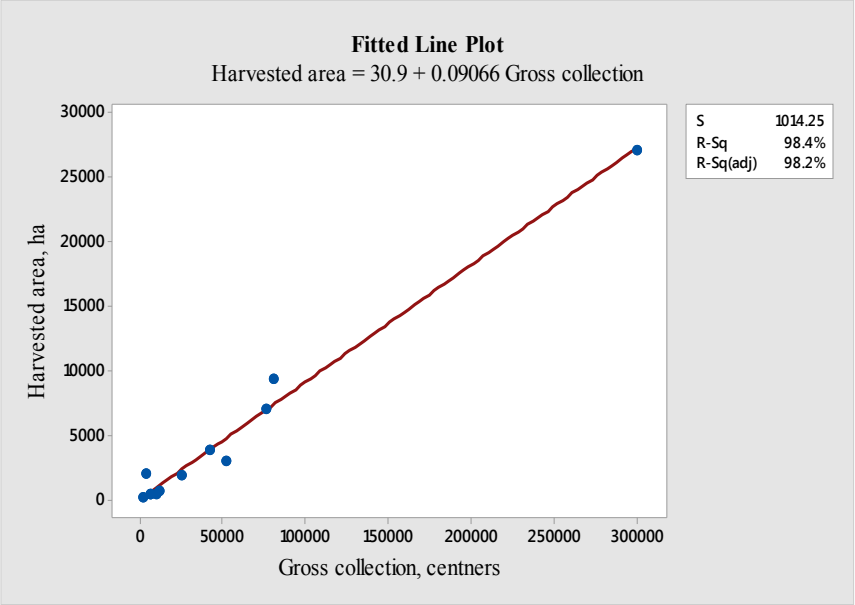

Figure 14 – The fitted line plot of proso's harvested area versus proso's gross collection.
Note: from the source 6.

The figure above illustrates that the linear regression model formula is "Harvested area = 30.9 + 0.09066 Gross collection".

In the figure below the marginal plot for the same indicators is shown by the figure above.

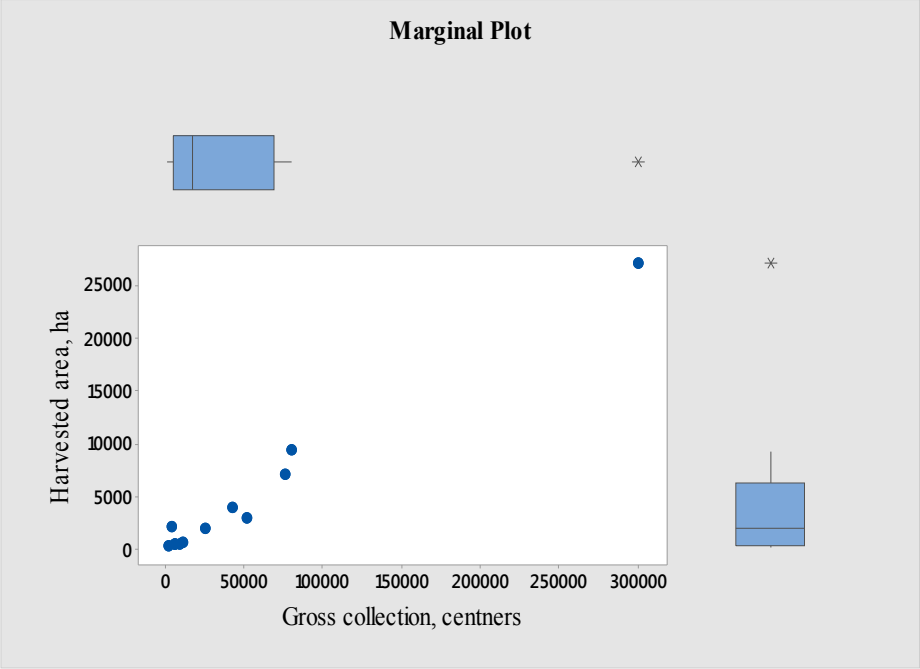

Figure 15 – The marginal plot of harvested area of proso versus its gross collection.
Note: from the source 6.

The figure above illustrates that at 5% significance level we cannot reject the presence of link between how much land was dedicated for harvesting proso and how much of this plant was collected.

The figure below shows how much yielding capacity was for proso in 2016.

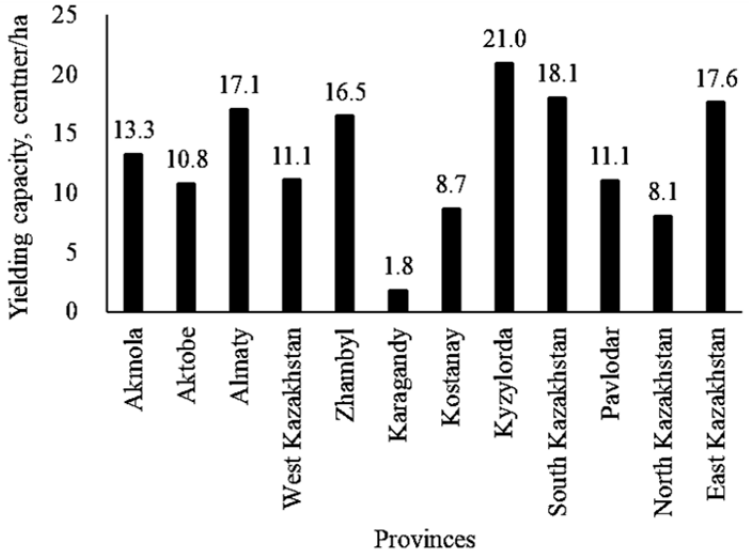

Figure 16 – The overall yielding capacity of proso in 2016 for the Republic of Kazakhstan, centner/ha.
Note: from the source 6.

The figure above illustrates that the highest indicator belongs to Kyzylorda province 21 centners per each hectare on average.

The summary report for the figure above is shown by the figure below.

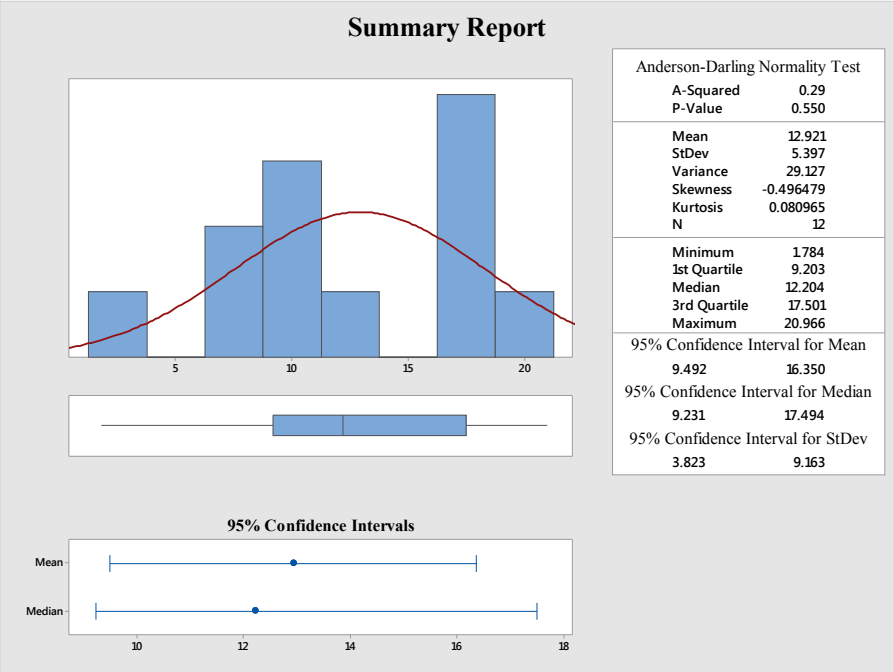

Figure 17 – The summary report for the yielding capacity of proso in 2016.
Note: from the source 6.

The figure above illustrates that the value of skewness equals to -0.496479.

The figure below illustrates Porter's five forces analysis for the oat and proso market.

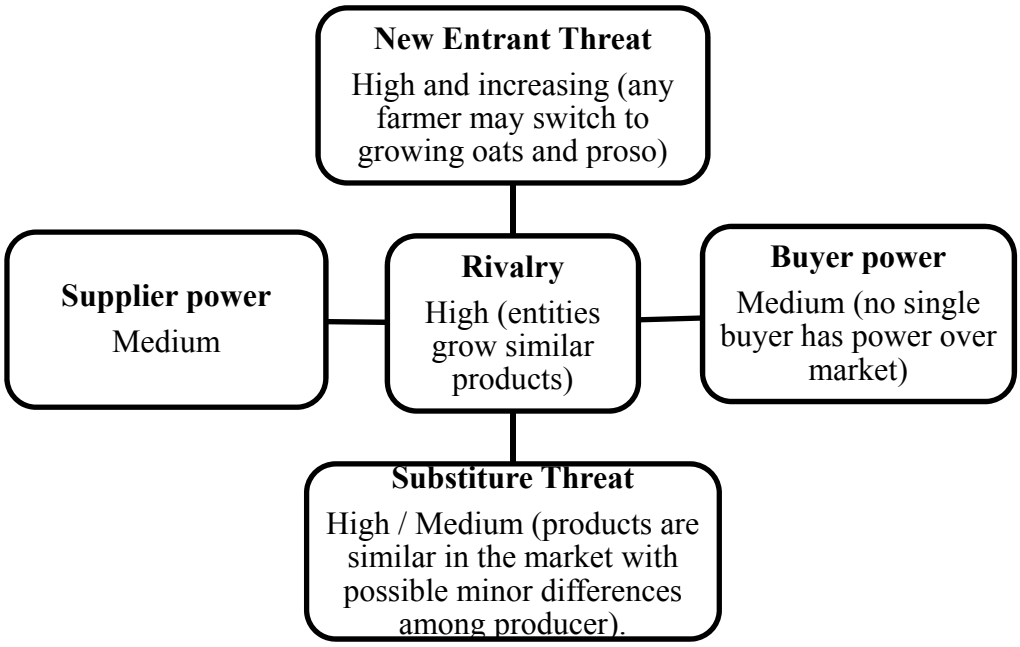

Figure 18 – Porter's five forces analysis of the current state in the oat and proso market.
Note: from the sources 7-9.

The figure above shows that there is very high entrant threat because there are no major barriers for agricultural entities to switch from growing one type of vegetables to oats and proso.

The figure below illustrates PESTLE analysis of the oat and proso market.

Aspect	Trend
Political	Competition in the oat and proso market increased after Kazakhstan had become a member of the Eurasian Economic Union.
Economic	The free-floating exchange rate of tenge may allow Kazakhstani exporters of proso and oat more smoothly adapt to the global market.
Social	The population of Kazakhstan is expected to grow which may potentially create more workforce available in the agrarian sector.
Technologic	Development in biotechnology and other sectors of science may help to create more efficient seeds and oat or proso growing techniques.
Competitors	The globalisation and improvements in the global logistics can make easier for new entrants from more far distance to gain access to the internal agricultural market of Kazakhstan.
Customers	Mass production of low quality and sometimes even dangerous for consumption agrarian products puts pressure on the agricultural sector worldwide.
Suppliers	More and more suppliers are moving the global scale.
Labour force	The industry is predicted to grow and demand more employees. Moreover, younger generation is expected to become more educated workforce than the older generation.
Note: from the sources 10-17.	

The figure above illustrates that the presence of unethical practices in the agrarian sector is expected to create enormous pressure on the agriculture worldwide.

In conclusion, Kostanay province is one of the leading regions for harvesting oats – 60502 ha, and Pavlodar province is the top region for proso.

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Адамгали А., Абралиев О.

ИССЛЕДОВАНИЕ ЭФФЕКТИВНОСТИ РЫНКА ОВСА И ПРОСА В СОВРЕМЕННОМ КАЗАХСТАНЕ

Аннотация

Статья исследует насколько эффективен рынок овса и проса в Республике Казахстан. Кроме того данная работа предлагает рекомендации, чтобы улучшить операционную эффективность рынка овса и проса в Казахстане.

Целью исследования является предложение теоретической и практической основы, которая описывает как использовать экономические механизмы, чтобы развивать аграрную экономику в Казахстане.

Методология исследования состоит из сравнительных, квантитативных, эконометрических и аналитических методов.

Практическая значимость исследования – это исследование эффективности внутреннего рынка овса и проса в Казахстане.

Результаты исследования показывают, что Костанайская область среди лидеров по выращиванию овса, и Павлодарская область – по просу.

Ключевые слова: просо, овес, Казахстан, уборочная площадь, валовый сбор, урожайность.

Адамғали А., Абралиев О.

ҚАЗАҚСТАНДА СҰЛЫ МЕН ТАРЫ НАРЫҒЫНЫҢ ТИІМДІЛІГІН ЗЕРТТЕУ

Аңдатпа

Мақалада Қазақстан Республикасында сұлы мен тары нарығының қаншалықты тиімділігі зерттелген. Сонымен қатар, бұл жұмыста тары мен сұлы нарығының тиімділігін жақсарту ұсыныстары берілген.

Зерттеу мақсаты Қазақстанның аграрлық саласын дамыту үшін экономикалық механизмдерді қолданудың теориялық және практикалық негіздері сипатталып жазылған.

Зерттеу методологиясы: салыстырмалы, квантитативтік, эконометрикалық және аналитикалық.

Зерттеудің тәжірибелік мәні – Қазақстанның ішкі рыногындағы тары және сұлының тиімділігін зерттеу

Зерттеу нәтижесі анықтады: Қостанай облысы сұлы, Павлодар облысы тары өсіруден жетекші орындарда тұр.

Кілт сөздер: тары, сұлы, Қазақстан, жиналатын егістік ауданы, жалпы өнім, дақыл түсімі.