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TRENDS IN THE WATERMELON AND MELON MARKET OF KAZAKHSTAN

Abstract. The article describes trends in the watermelon and melon market of the Republic of Kazakhstan.

Moreover, the internal analysis of the watermelon and melon market is made in this work. The research purpose is to describe theoretical and practical background which may help to use economic mechanisms to develop the agricultural sector of Kazakhstan.

The research methodology is based on graphical, comparative, econometric and statistic methods. The research practical significance is defining the internal state of the watermelon and melon market of Kazakhstan.

The research results show that South Kazakhstan province has the highest harvested area for watermelons and melons.

Keywords: watermelon, melon, agriculture, harvested area, yielding capacity, Kazakhstan.

Fruits, vegetables, berries and other member of the plant kingdom play the significant role in the dietary preferences of the humanity [1]. Watermelon and melon are among those plants which have wide diversity of tastes that may be accepted for consumption as the source of food [2, 3].

The market of watermelons and melons is present in the Republic of Kazakhstan [4]. However, the climatic conditions in Kazakhstan impact severely on availability on melons and watermelons [4].

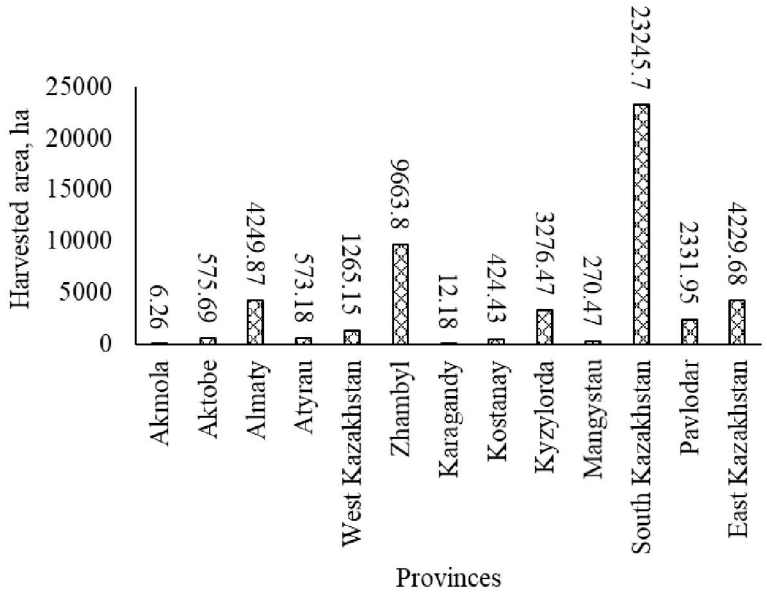

Figure 1 – The harvested area of watermelons in 2016 by provinces of Kazakhstan.
Note: from the source 5.

The figure above illustrates that the biggest area of agricultural lands dedicated to harvest watermelons in 2016 was located in South Kazakhstan province – 23245.7 ha.

The figure below shows the same indicator but for different types of entities.

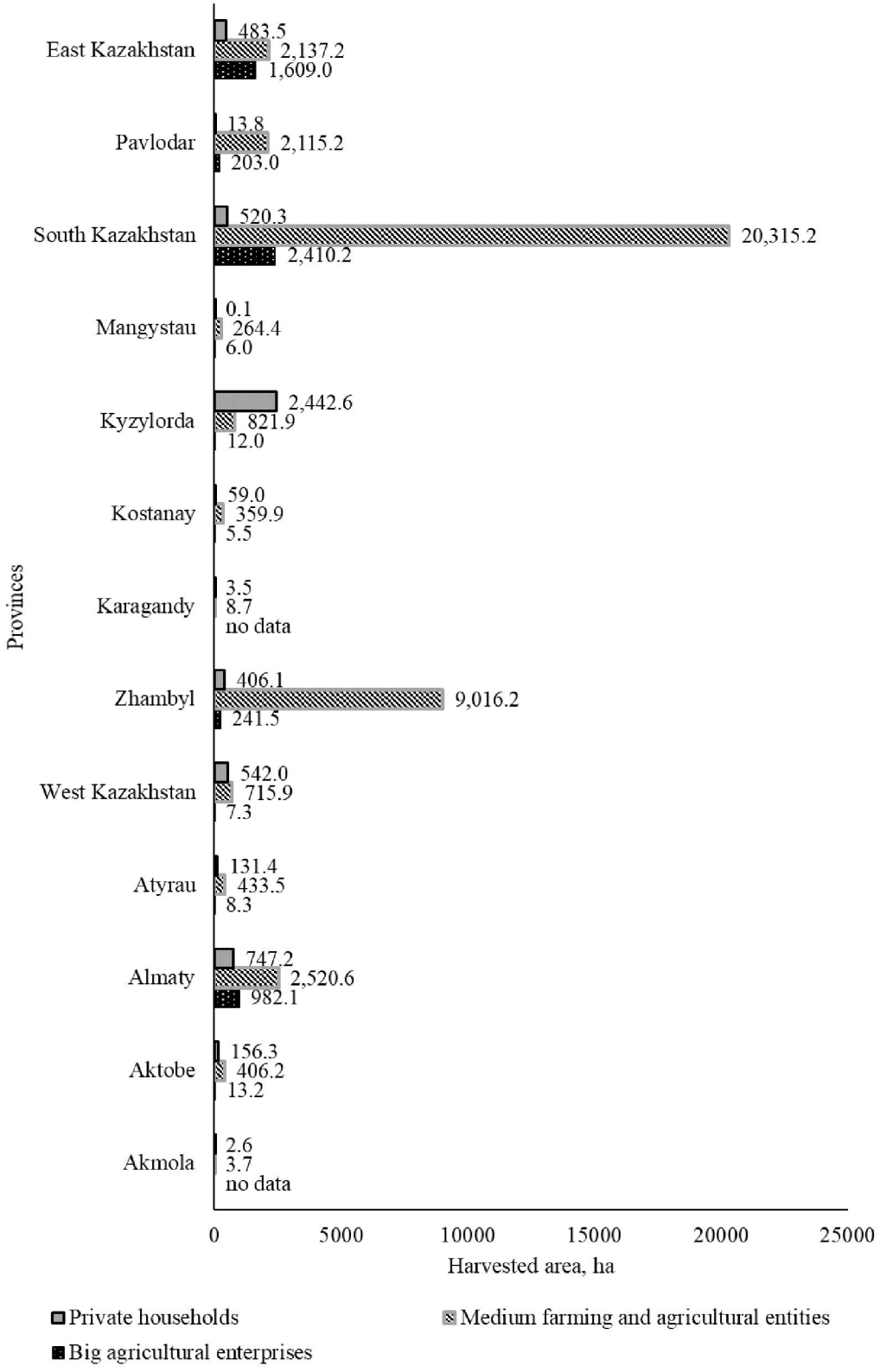

Figure 2 – The total harvest area of watermelons in 2016 by provinces of Kazakhstan.
Note: from the source 5.

The figure above illustrates that South Kazakhstan province had the highest area to harvest watermelons in 2016 among medium farming and agricultural entities – 20315.2 ha.

The figure below illustrates the summary report for total harvested area of watermelons in Kazakhstan.

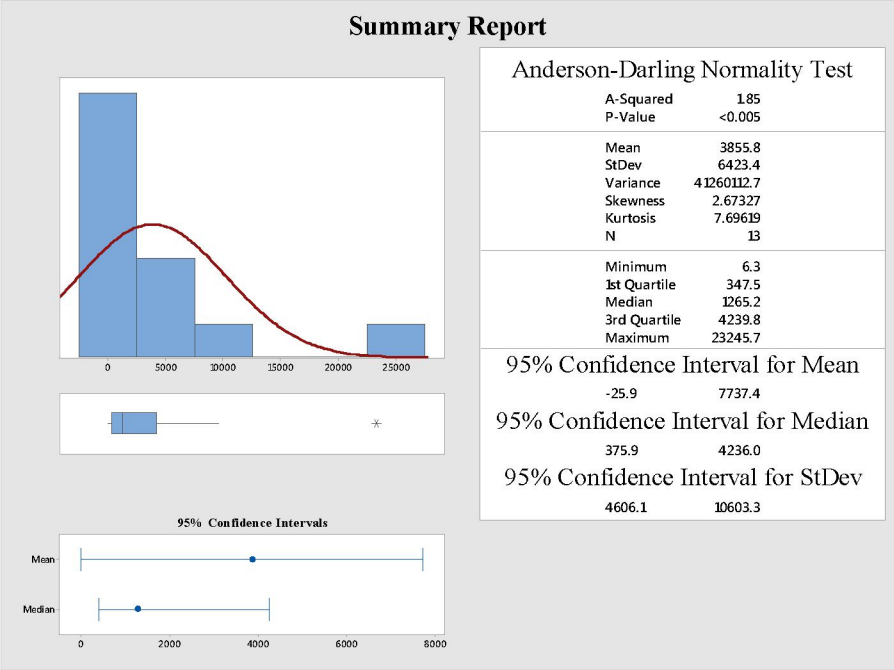

Figure 3 – The summary report for the area of agricultural lands dedicated to harvest watermelons in 2016 for the Republic of Kazakhstan.

Note: from the source 5.

The figure above shows that the kurtosis is 7.69619 ha. The figure below illustrates the summary report for the same indicator but only for big agricultural entities.

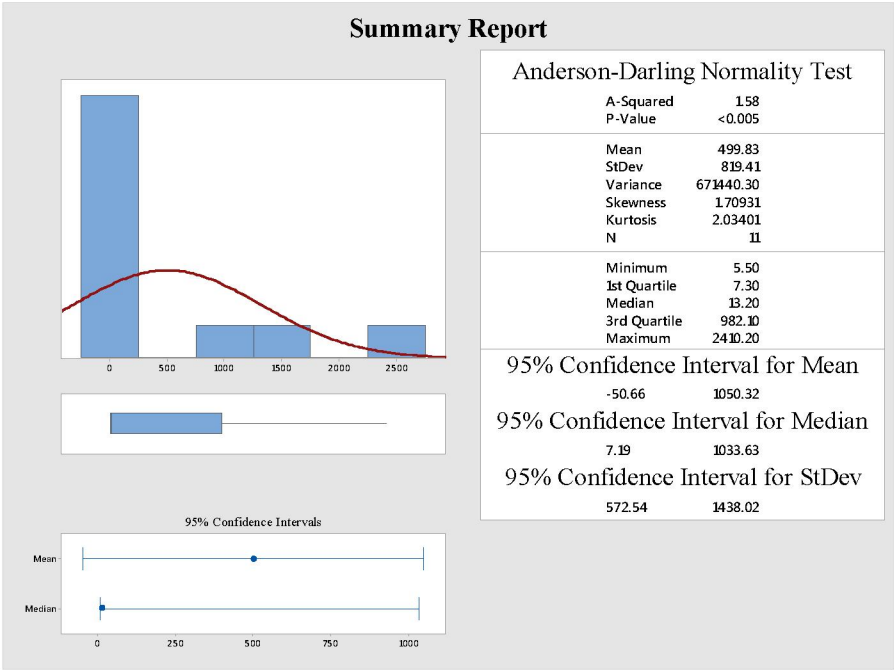

Figure 4 – The summary report for big agricultural entities' harvest area for watermelons in 2016 for Kazakhstan.

Note: from the source 5.

The figure above shows that the skewness equals to 1.70931.

The figure below illustrates the summary report for the same indicator as in the figure above but for medium farming and agricultural entities that grow watermelons.

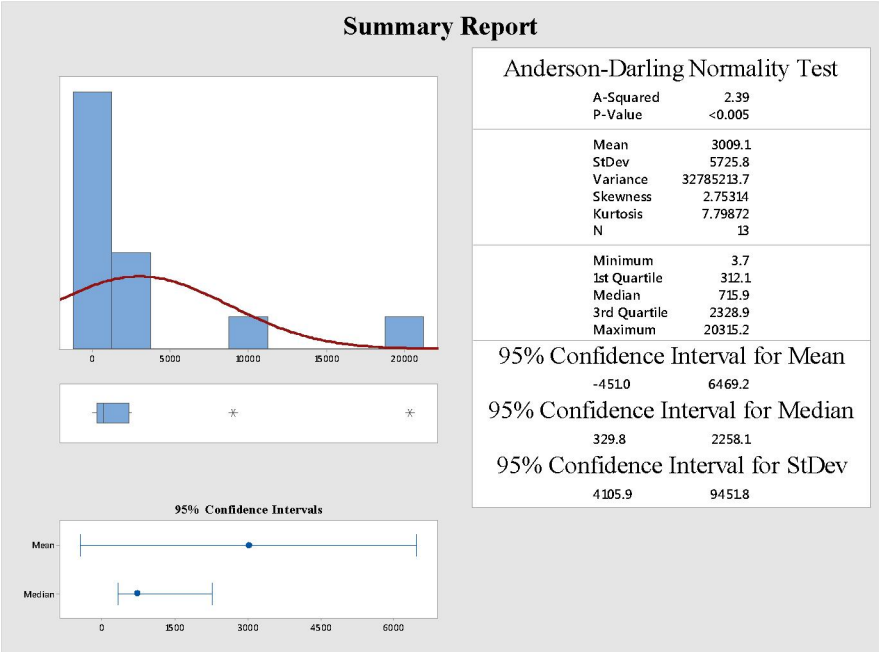

Figure 5 – The summary report for the harvested area of watermelons among medium farms and other forms of agricultural entities in Kazakhstan by provinces in 2016.

Note: from the source 5.

The figure above shows that the first quartile for medium farms is 312.1 ha.

The figure below illustrates the same indicator as in the figure above but only for the private households.

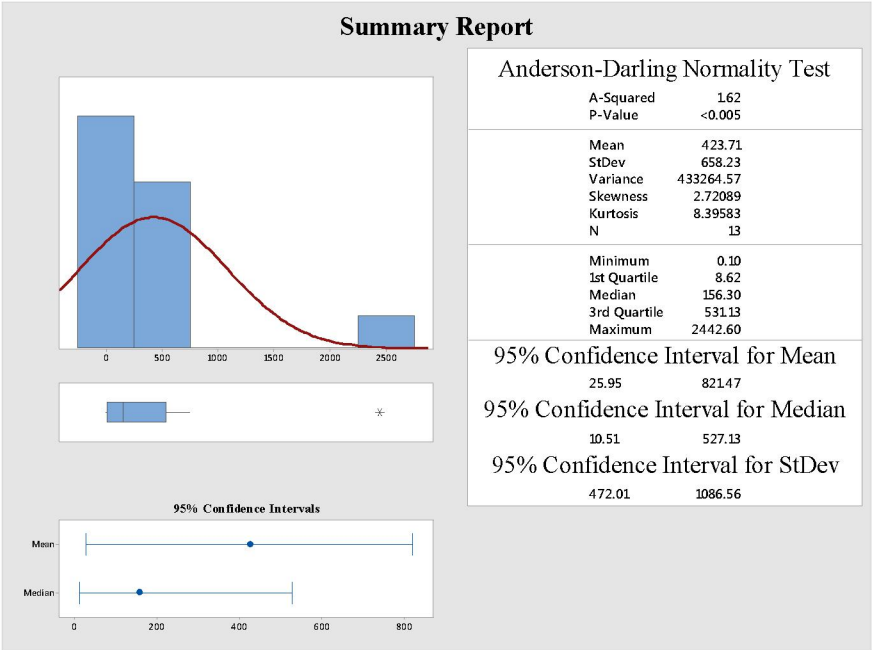

Figure 6 – The summary report for the total area dedicated by private households to harvest watermelons in 2016 for the Republic of Kazakhstan.

Note: from the source 5.

The figure above indicates that the kurtosis is 8.39583.

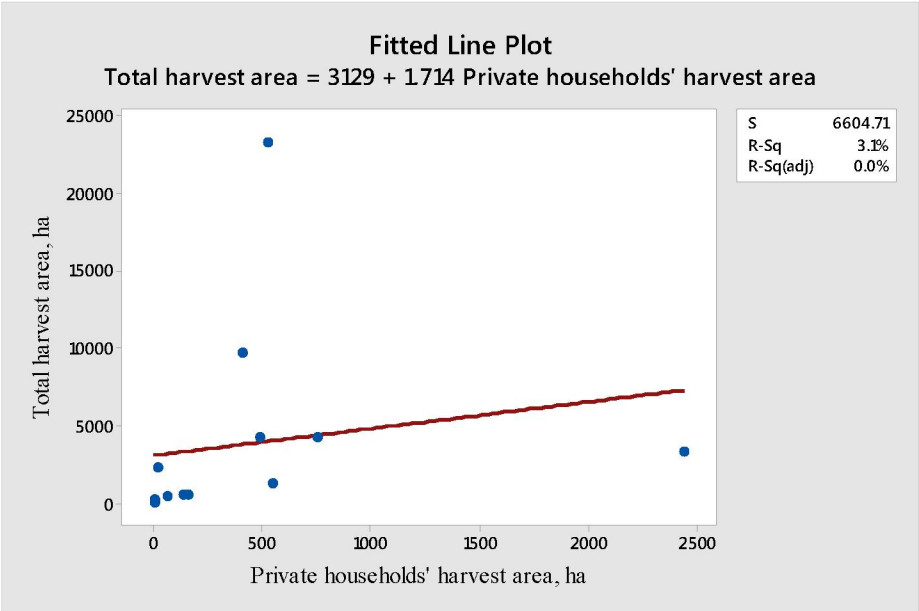

Figure 7 – The fitted line plot between the total harvest area and private households' harvest area for watermelons.
Note: from the source 5.

The figure above states that the formula is "Total harvest area = 3129 + 1.714 Private households' harvest area". The figure below shows the marginal plot for the same indicators as in the figure above.

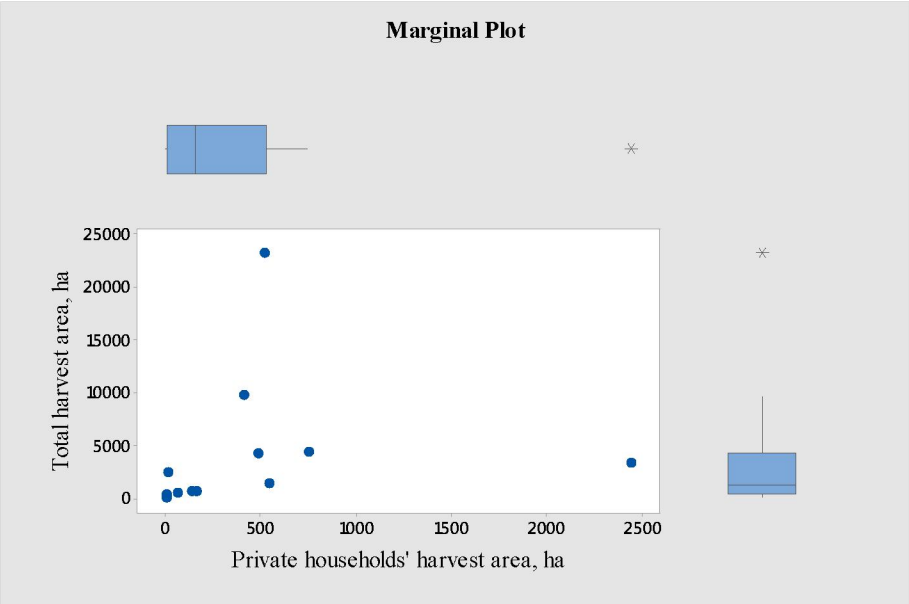

Figure 8 – The marginal plot of total harvest area versus how much area private households dedicate to harvest watermelons.
Note: from the source 5.

The figure above illustrates that total harvest area does not fit within the 95% confidence interval to the same indicator by the private households.

The table below shows analysis of the variance for the figure above.

The table above shows that there are 11 errors which may look strange, and, therefore, mean that the private owners do not have power to be the only power to determine how much land is going to be given to harvest watermelons.

Analysis of variance for figure 7

Source	DF	SS	MS	F	P
Regression	1	15277822	15277822	0.35	0.566
Error	11	479843531	43622139		
Total	12	495121353			

The figure below illustrates the fitted line plot of private households' watermelon harvest area versus the same indicator for the medium farming and agricultural entities.

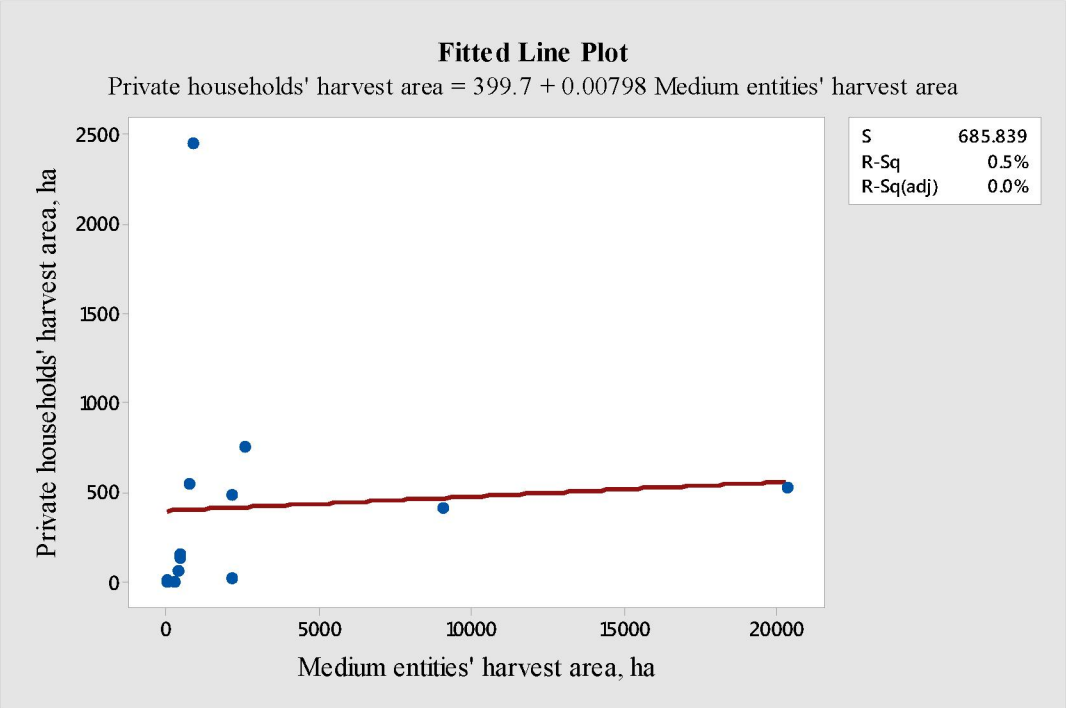

Figure 9 – The fitted line plot of private households' harvest area versus medium entities' same parameter.
Note: from the source 5.

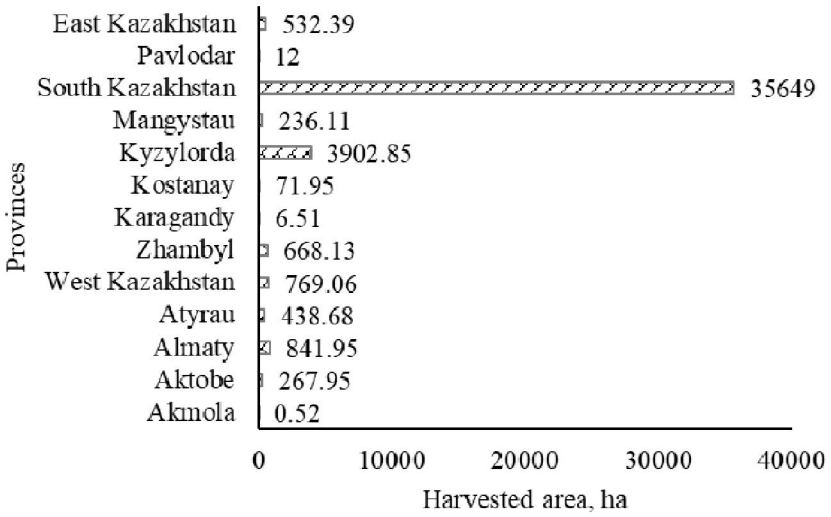

Figure 10 – The harvested area of melons among different provinces of Kazakhstan in 2016, ha.
Note: from the source 5.

The figure above shows that at the 95% confidence interval area of lands that are used by medium entities for growing watermelon are not directly determined by the same indicator for private households. The formula equals to "Private households' harvest area = 399.7 + 0.00798 Medium entities' harvest area".

The figure below illustrates how much agricultural lands was used to harvest melon in in different provinces of the Republic of Kazakhstan.

The figure below illustrates the summary report for the same indicator as in the figure above.

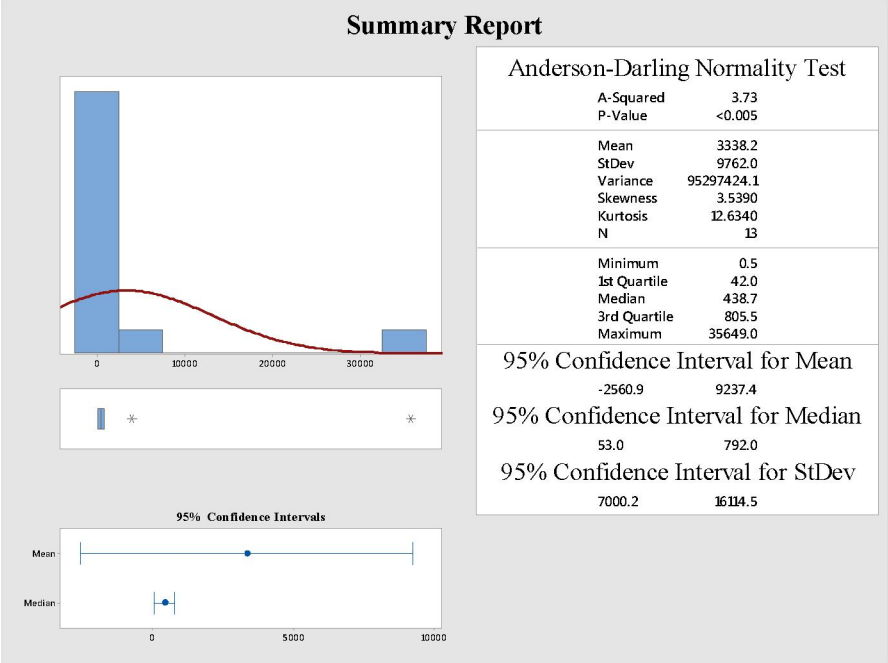

Figure 11 – The summary report for the total area used to harvest melons in Kazakhstan in 2016.
Note: from the source 5.

The figure above illustrates that the kurtosis is 12.6340.

The figure below illustrates the fitted lone between harvested area of watermelons versus melons in Kazakhstan.

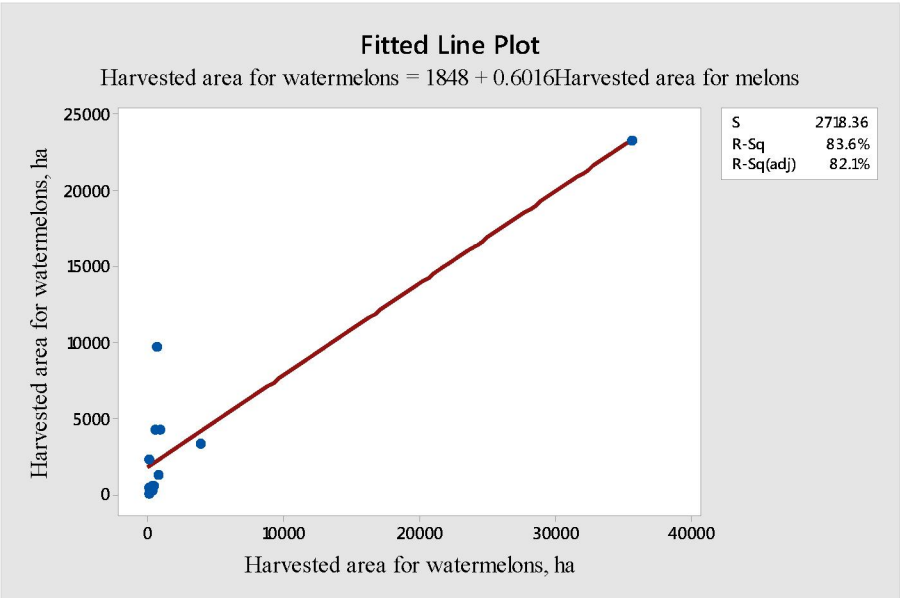

Figure 12 – The total harvest area for watermelons versus melons in Kazakhstan in 2016.
Note: from the source 5.

The figure above shows that the value of R-square is below 95%. Therefore, at 5% significance level the relationship between melons and watermelons are not strong enough to have direct impact on how much area of land are going to be dedicated to grow both of them.

The figure below illustrates how much lands private households used in 2016 to harvest melons.

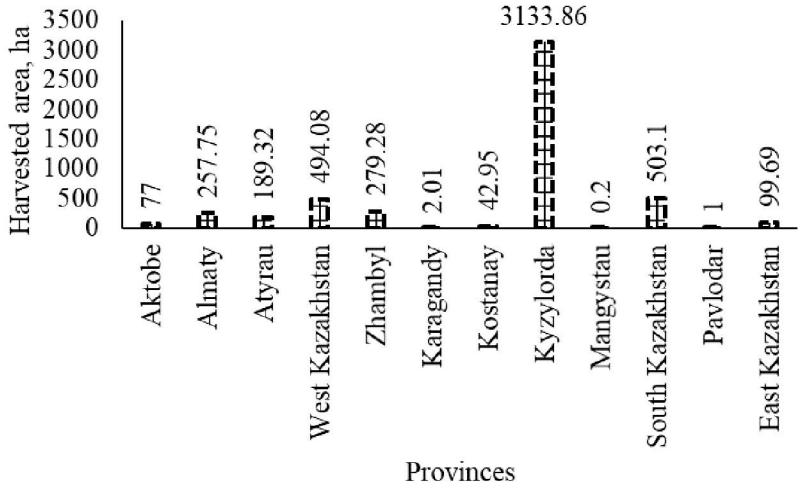

Figure 13 – The total area of harvested melons by the private households of Kazakhstan in 2016.
Note: from the source 5.

The figure above shows that the highest area belongs to Kyzylorda province – 3133.86 ha.

The figure below illustrates the yielding capacity of watermelons for 2016.

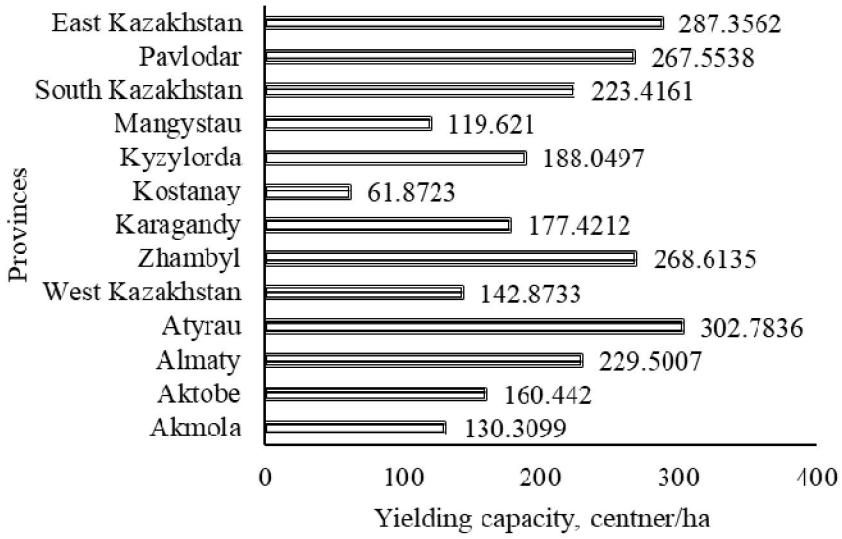

Figure 14 – The overall yielding capacity of watermelons by provinces of the Republic of Kazakhstan in 2016.
Note: from the source 5.

The figure above shows that the highest yielding capacity belongs to Atyrau province – 302.7836 centners per every hectare.

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

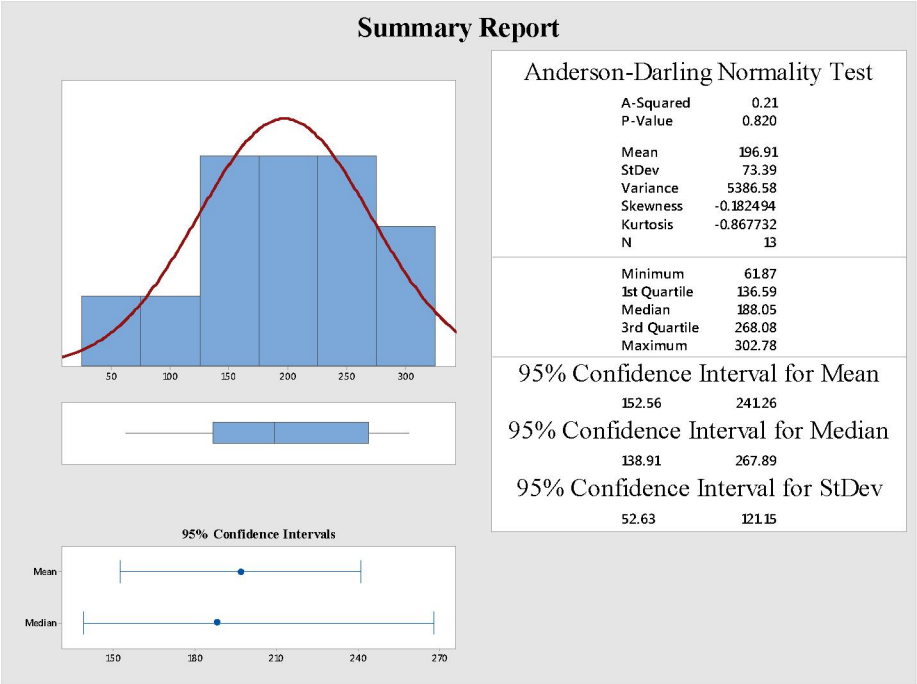

Figure 15 – The summary report for the yielding capacity of watermelons in Kazakhstan in 2016.
Note: from the source 5.

The figure above shows that the value of mean is 196.91 ha.
The figure below illustrates how much yielding capacity melons used to have in 2016.

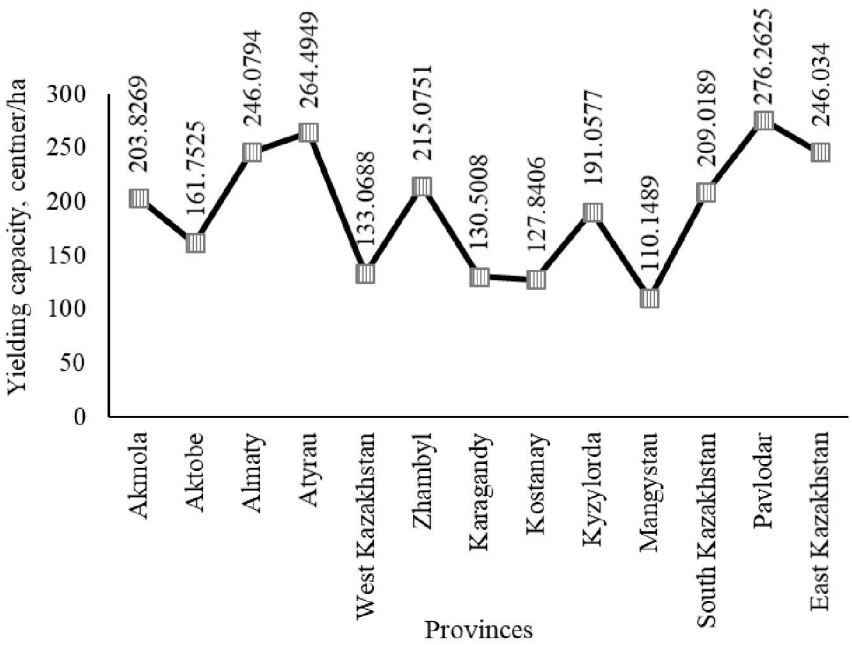

Figure 16 – Melons' yielding capacity in different provinces of Kazakhstan in 2016, centner/ha.
Note: from the source 5.

The figure above shows that the highest indicator is taken by Pavlodar province – 276.2625 centner per ha.

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

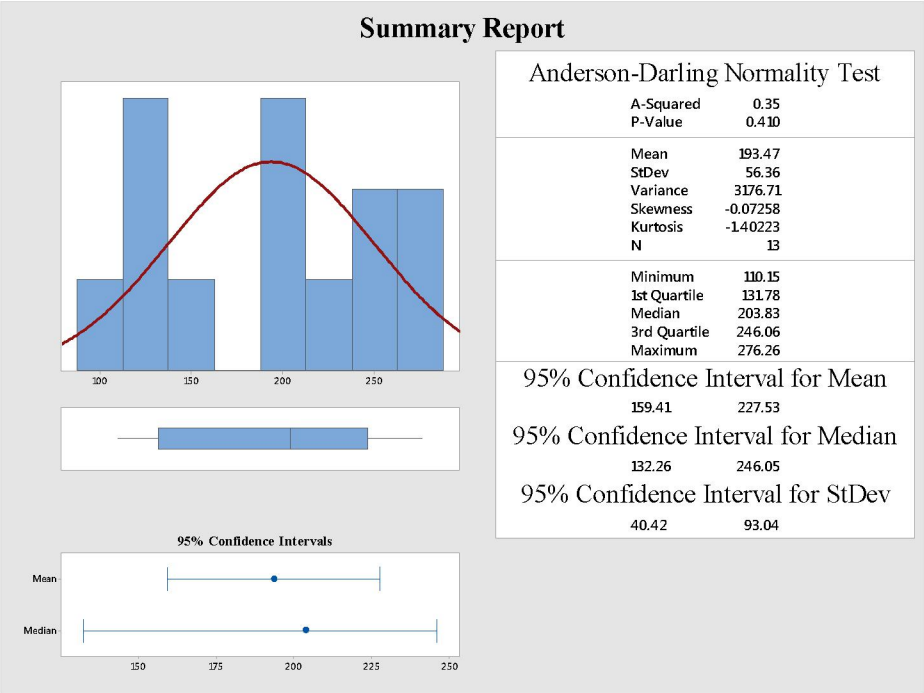

Figure 17 – The summary report for melons' yielding capacity in Kazakhstan in 2016.
Note: from the source 5.

The figure above illustrates that the skewness is -0.07258.

The figure below illustrates Porter's five forces analyses of the watermelon and melon market in Kazakhstan

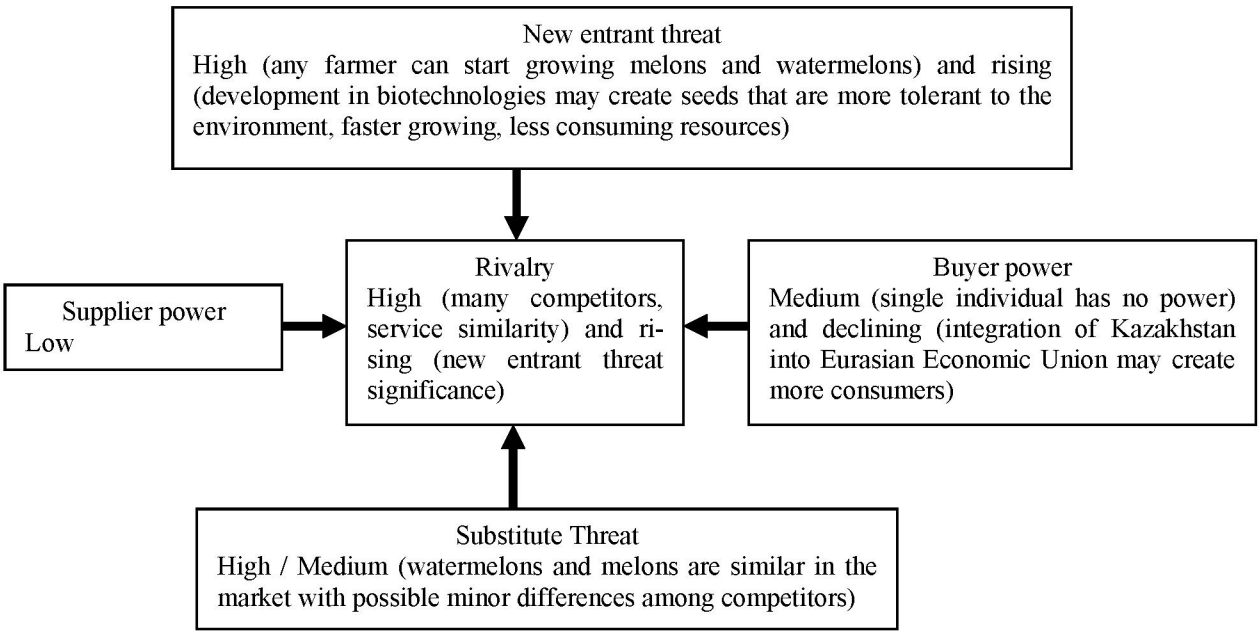

Figure 18 – Porter's five forces analysis for the watermelon and melon market of Kazakhstan

The figure above shows that the watermelon and melon market has high new entrant threat as any farmer may potentially start growing melons and watermelons.

In conclusion, South Kazakhstan province is among leaders of the watermelon and melon market because it has the highest harvested area for both of these plants.

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ҚАЗАҚСТАНДА ҚАРБЫЗ ЖӘНЕ ҚАУЫН НАРЫҒЫНДАҒЫ ТРЕНДІ

Аннотация. Мақалада Қазақстан Республикасында қарбыз және қауын нарығындағы тренді сиппатайды. Одан басқа, бұл жұмыста қарбыз және қауын нарығының ішкі талдауы жүргізілді. Зерттеу мақсаты – теориялық және практикалық негіздер, Қазақстанның аграрлық секторын дамытуда экономикалық механизмдерді қолдануға мүмкіндік береді. Зерттеу методологиясы графикалық, салыстырмалық, эконометрикалық және статситикалық әдістерден негізделген. Зерттеудің тәжірибелік маңызы Қазақстанды қарбыз және қауын нарығының ішкі жағдайы болып табылады. Зерттеу нәтижесі Оңтүстік Қазақстан облысы қарбыз және қауын жиналатын егістік алқаптарының басымды екендігін көрсетті.

Түйін сөздер: қарбыз, қауын, ауылшаруашылығы, жиналатын егістік алқаптары, түсімі, Казақстан.

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ТРЕНДЫ НА РЫНКЕ АРБУЗА И ДЫНИ КАЗАХСТАНА

Аннотация. Статья описывает тренды на рынке арбуза и дыни в Республике Казахстан. Кроме того, в данной работе сделан внутренний анализ рынка арбуза и дыни. Цель исследования – это описать теоретическую и практическую основу, которая может помочь использовать экономические механизмы чтобы развивать аграрный сектор Казахстана. Методология исследования основана на графических, сравнительных, эконометрических и статистических методах. Практической значимостью исследования является описание внутреннего состояния рынка арбуза и дыни Казахстана. Результаты исследования показывают, что Южно-Казахстанская область обладает наибольшей уборочной площадью для арбузов и дынь.

Ключевые слова: арбуз, дыня, сельское хозяйство, уборочная площадь, урожайность, Казахстан.