

# THE CROPS SUPPLY'S PROSPECTS IN MONGOLIA: PRODUCTION, IMPORT AND POLICY IMPLICATIONS

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**Abstract:** *Crop production has been always main important sector but relatively small part of the Mongolian economy. As of 2017, agricultural sector produced approximately 11 percent of total GDP, which of agricultural production is more than 80 percent of livestock sector and less than 20 percent of crop production (NSO, 2017). Mongolia has a vast area of territory (18<sup>th</sup>-largest country in the world). However, of the 80% of the land covered with grassland and pastureland, crops have never been produced on less than 1% of the total land area of Mongolia (FAO, 2014). This study reviews Mongolia's crop production' current situation, focusing on Mongolia's crops supply level, self-sufficient rate and government policy in the future. The results show that Mongolia's policies for ensuring food supply level will be increased and Mongolia will pay attention to more domestic production. Mongolia's crops self-sufficiency rate is 80 percent of flour and flour products, 107.7 percent of potato, 33.2 percent of vegetables and 0.7 percent of fruits and berries. By 2020, flour and flour products self-sufficiency rate are likely to increase to 100 percent, vegetables to 79 percent and fruits to 7.8 percent with associated government policy. However, fruits are still reliance on import.*

**Keywords:** *Crop production, import, food supply level, self-sufficient rate, government policy.*

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## 1. INTRODUCTION

Crop production is very important sector in Mongolia for food supply and food sufficiency. Until 1960, agriculture products (especially, meat and dairy products) dominated in diet of Mongolians. By implementing the first "ATAR-1" campaign in 1959, the diet of Mongolians was started to provide by crop production. A result of campaign, at the peak of crop production was harvested from 700 000 ha in between 1980 and 1990. Unfortunately, the country has adopted a free-market economy in 1990. Consequence of transition, crop production has failed, as well as population's food consumption has provided by import products (especially crop products). Mongolia has small population (3.2 million in 2017), that needs approximately 300.0 thous.tn wheat, 200.0 thous.tn meat and meat products, 180.0 thous.tn dairy products, 130.0 thous.tn potato, 180.0 thous.tn vegetables and 170.0 thous.tn fruits a year. Domestic production supplies 100% of meat and meat products, 100% of wheat and potato demand, 53% of vegetable demand and 0.7% of fruits and berries demand, respectively (NSO, 2017).

Nowadays, food security, food safety and sufficiency are considered as very important concept; as well, the consumption of consumer goods has been increasing. Therefore, we need to pay attention to the increase of food production that meets the food hygiene standard, its production increase and full supply of domestic consumption.

The main goal of this paper is to analyze Mongolia's crop market, crop's supply level and self-sufficient level. Also, to review government policy, policy implications in the future.

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The remainder of this paper is organized as follows: Section 2 summarizes current situation market for Mongolian crop production; Section 3 shows by Mongolian crop product's supply and demand projections, section 4 presents recent government policies and their results about the implementation of government policy for the future, and last section shows conclusions.

## 2. CURRENT SITUATION OF MONGOLIAN CROP PRODUCTION

### 2.1. Domestic production

The total sown area in Mongolia is 524.3 thousand ha in 2017, that is decreased by 33.4 percent- age ha in the 1990 year (Fig 1). From the grain area share approximately 75 percent was wheat production, 2.9 percent potato, 1.6 percent vegetables, 0.5 percent fruits and other 20 percent fodder and industrial crops. Potato, vegetables and fruits sown area was highest in 2005.

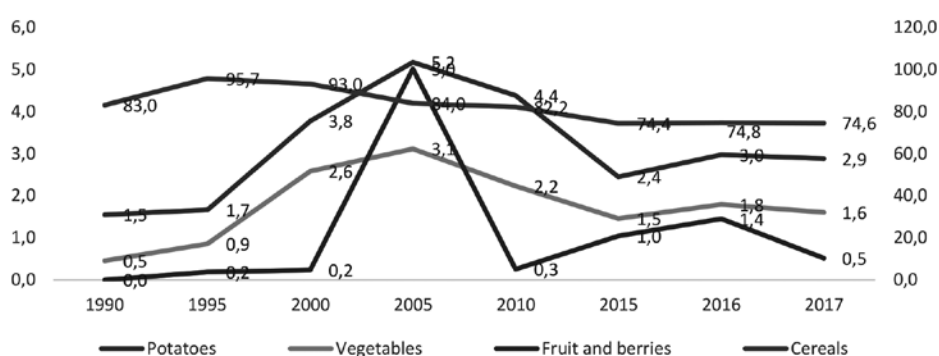


Figure 1. Share of sown area by type of crops, between 1990-2017.

Source: Mongolian statistical yearbook, 2017.

The collapse of production since 1990 has been accompanied by dramatic decreases in both the amount of land harvested and efficiency (Santiago, Bianca Marques, 2003). Overall, all crops sown area was increased until 2005, after that it fell gradually to about 0.3 percent for fruits, 2.2 percent for vegetables, 4.4 percent for potato and 82.2 percent for cereals in 2010.

Table 1 shows the crop domestic production between 1990-2017, some crop production of 2017 compared to 1990; cereals was almost 3 times decreased, or vice versa, vegetables were twofold increase.

Table 1. Total harvest, by type of crops, between 1990-2017.

	1990	1995	2000	2005	2010	2015	2016	2017
Cereals	718.3	261.4	142.1	75.5	355.1	216.3	483.5	238.1
Potatoes	131.1	52.0	58.9	82.8	168.0	163.8	165.3	121.8
Vegetables	41.7	27.3	44.0	64.2	82.3	72.3	94.4	82.1
Fruits and berries	-	-	-	-	0.6	1.4	1.6	1.5

Source: Mongolian statistical yearbook, 2017.

Consecutive severe drought in 2005, 2007, 2010, 2013 and 2015 lowered wheat production severely. Production rebounded in 2016, reaching 480 000 tones, but remained below the national requirement (Coslet, Cristina Palmeri, Fabio, Sukhbaatar, Jigjidpurev, Batjargal, Erdenebaatar, Wadhwa, Amit, 2017).

## 2.2. Import situation

We started to provide of food consumption by import products from 1995 associated with transition. Until the middle of the 1990s Mongolia was self-sufficient in wheat and an occasional exporter. As of 2017, total crop product's import was 155612.6 thousand dollars of which constitutes 40.5% flour and flour products, 31.7% of vegetables, 17.6% of cereals and 10.3% of fruit and berries. Table 2 shows the quantity of crop's import between 1995-2017.

Table 2. Total Import, by type of crops, between 1995-2017, by thous.tn

	1995	2000	2005	2010	2015	2016	2017
Wheat	-	92.2	97.5	66.2	21.1	158.4	13.7
Wheat flour	32.8	99.8	103.9	65.2	20.5	30.01	1.3
Rice	8.3	13.6	13.8	25.9	24.5	26.6	38.4
Potato	2.9	13.1	40.9	8.5	17.1	0.6	0.5
Vegetables	-	3.9	18.7	57.19	50.3	55.06	74.7
Fruits	-	11.3	22.5	15.3	28.5	33.5	22.4

Source: Mongolian customs statistical yearbook, 2017.

Last a few years, some crop import has been decreasing with associated government policy. For example, wheat, wheat flour and potato. But, quantity of import creates when the local production is reduced due to weather condition.

## 3. MONGOLIAN CROPS SUPPLY AND DEMAND PROJECTIONS

Markets in Mongolia have a particular importance for access to food since the majority of the population lives in urban areas and inhabitants are net-buyers of food. In rural areas, herders are generally self-sufficient in meat and dairy products, but need to purchase all other food products, in particular wheat flour, a key food staple (Coslet, Cristina Palmeri, Fabio, Sukhbaatar, Jigjidpurev, Batjargal, Erdenebaatar, Wadhwa, Amit, 2017). Mongolian people used to eat meat more than vegetables, which is essential part of Mongolian nomadic life style. However, last decades' citizenry's meal has been changing associated with urbanization and civilization. Also, citizenry became more used to have a balanced, nutrition and vitamin diet for better health.

According to statement of Minister of Health and Social protection (former name), a standard population's optimal consumption was identified by Nutrition research center in 1997. A year optimal consumption was identified: meat and meat products 63.9 kg, milk and milk products 63.9 kg, floor 36.5 kg, rice 28.5 kg, potato 51.1 kg, vegetable 73 kg, sunflower oil 9.1 kg and eggs 6.9 kg (NSO, 2017).

Also, a standard population's food supply 13 commodity groups<sup>3</sup> identified by National statistical organization, Ministry of Agriculture and food associated with Mongolian government announced "Food security year" of 2008. Since 2008, Mongolian National Statistical organization has been calculating Mongolian national food security indicators. Table 3 shows the selected crops consumption, import, supply level and self-sufficient rate in 2017.

<sup>3</sup> - There are including below commodity - meat and meat products, dairy products, flour and flour products, rice, potato, vegetables, fruits and berries, eggs, sugar and sweeteners, pulses and vegetable oil.

Table 3. Domestic production, import, supply level and self-sufficient rate, by thous.tn, 2017.

Type of products	Consumption	Domestic production	Import	Supply level (%)	Self-sufficient rate (SSR, %)
Flour and flour products	262.6	208.9	21.4	87.7	79.6
Rice	46.9	0	36.9	78.7	0
Potatoes	112.5	121.2	0.4	108.1	107.7
Vegetables	243.8	80.9	77.2	64.8	33.2
Fruit and berries	187.6	1.4	40.9	22.5	0.7

Source: Indicators for food security statistics, 2017.

Self-sufficient rate shows the how much a country can satisfy its food needs from its own domestic production. Mongolia's food self-sufficiency rate remained: for the flour products was 80 %, potato was 107.7%, vegetables was 33.2 % and fruits was 0.7 % in 2017 (table 3). Vegetables and fruit's self-sufficient rates were below level compared to flour and potato, due to small sown area. About the rice, Mongolia does not plant it, which is associated with extremely condition.

Table 4 shows the self - sufficient rate projections for 2020. We tried to calculate some crop's projections based on population's projections. Mongolian National Statistical office calculated estimation of population projections in 2017.

According to, book of "Renewed 2015-2045 population projection", Mongolian total population will be 3.3 million by 2020 (NSO, 2017). We calculated crop's food consumption and self-sufficient rate based on a standard population's optimal consumption identified by Nutrition research center in 1997. Therefore, quantity of domestic production calculated based on Mongolian food and agriculture policy and main target.

Table 4. Self-sufficient rate projections for 2020.

Type of products	Consumption, thous.tn	Self-sufficient rate %
Flour	96.7	100
Flour products	174.1	75
Rice	48.5	0
Potato	116.1	150.7
Vegetables	251.5	78.7
Fruit and berries	193.4	7.8

Source: Own calculation

By 2020, we need to require consumption of 270.8 thous.tn for flour and flour products, 48.5 thous.tn for rice, 116.1 thous.tn potato, 251.5 thous.tn vegetables and 193.4 thous.tn fruits and berries. Also, self-sufficient rate will be increased, for example, vegetables rate will be increased 78.7 % and fruits rate will be increased 7.8 %.

#### 4. POLICY IMPLICATIONS AND GOVERNMENT POLICY FOR CROP PRODUCTION SECTOR IN THE FUTURE

Crop production has always been an important but relatively small part of the Mongolian economy. The one of the most important policy was “Atar” campaign in crop production. Throughout the Mongolian agricultural history, the “Atar campaign” was organized twice, in 1959 and again in 1976 to increase the food support. Also, the Mongolian government has implemented the Atar -3 land rehabilitation campaign between 2008 and 2010 (Ministry of food and agriculture, 2009). According to this project, government is planning many effective programs, such as increase of the usage of agricultural land, enhance irrigation, improve seed quality, fertilize soil, prepare more fallow land, develop agricultural machinery, train more professionals etc. Table 5 shows brief of the Government policy for crop production.

Table 5. Government policy related to crop development in Mongolia.

Government policy	Year	Main objective, targets and results*
“Atar -3” campaign	2009-2012, 2016-2020	<p>The overall objective of the campaign is to intensify development of the arable land of Mongolia, by creating legally and economically favorable conditions for engaging in farming and steadily supplying the population with safe products (thus eliminating dependence on imports). The program started from 2008, the program appears to focus on land that has previously been in crop production with the goal of returning to levels seen during the 1980s. As a result of this program, total sown area has been increasing to 524.3 thousand hectares in 2017. Approximately 75 percent of all sown area are wheat production, while the remainder are potato, vegetables and fodder crops.</p> <p>Main targets and main activities for 2020:</p> <ul style="list-style-type: none"> <li>• Wheat production will be achieved to 680.0 thous.tn by 2020.</li> <li>• Wheat, potato, vegetable’s domestic production will supply 100 % of domestic consumption.</li> <li>• Yields per hectare will be increased by 30 percent.</li> <li>• Main activities and implications:</li> <li>• Legal environment reform</li> <li>• Technological innovation</li> <li>• Seed innovation</li> <li>• Optimal switch</li> <li>• Pesticide protection for herb</li> <li>• Price regulation</li> </ul>
“Food security” national program	2009-2016	<p>The overall goal of the Program is to ensure sustainable supply of nutritious, secure and accessible food, which enables healthy livelihood and high labor productivity of the population, involving participation of the citizens, government, public and private sectors.</p> <p>Main results:</p> <ul style="list-style-type: none"> <li>• National food security indicators were calculated by NSO.</li> <li>• Some laws signed by Mongolian parliament for food safety and food security</li> </ul>

Vegetables'' national program	2018-2022	<p>The purpose of the program is to support the development of vegetable production by promoting the production of vegetable growers and vegetable growers, and to sustain the domestic demand throughout the year.</p> <p>Main targets and main activities:</p> <ul style="list-style-type: none"> <li>• Vegetable sown area will achieve to 198 thous.tn harvest</li> <li>• Storage and sales</li> <li>• Processing factories</li> <li>• Irrigation system</li> <li>• Technical supply</li> <li>• Seed reform</li> <li>• Pesticide protection for herb</li> </ul>
Fruits'' national program	From 2017	<p>The purpose of the program is to increase the diversity of fruits and berries, to produce seagrass cultivation of 10 thousand hectares and other varieties of fruits and berries to 2 thousand hectares of land, to provide sustainable population and eco-friendly fruits, to reduce import and improve competitiveness in income generation.</p> <p>Main targets and main activities:</p> <ul style="list-style-type: none"> <li>• To establish supply chain for fruit and sea buckthorn</li> <li>• To increase sown area for fruit (target level 8000 ha and 15.0 thous.tn)</li> <li>• To increase export's income for fruit (for example, sea buckthorn oil)</li> <li>• Technical supply</li> <li>• Greenhouse</li> <li>• Storage and sales</li> <li>• Pesticide protection for herb</li> </ul>

Source: www.mofa.gov.mn, \*- brief information

## 5. CONCLUSION

The main goal of this study was analyzing current situation of crop market, crop's supply level and self-sufficient level. Also, this study reviewed government policy, policy implications in the future. Since 2008, National Statistical organization have estimated food supply indicators associated with national security concept. Nowadays, domestic production supplies 100% of potato demand, 33.2% of vegetable demand and 0.7% of fruits demand, respectively as well as self-sufficient rate. Mongolian government has been implementing many project and program for crop production. Also, national program for especially product (for example, vegetables and fruits) will be implementing in the future. By 2020, as a result of Mongolian government paying attention to this situation, self-sufficient rate is likely to increase to 100 percent, vegetables to 79 percent and fruits to 7.8 percent with associated government policy.



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