

Korean Grain Market Outlook

Korea Rural Economic Institute

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Agriculture in Korea

II

Production and Consumption

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Grain Market Outlook



1. Agriculture in Korea

1.1 Agriculture in Economy

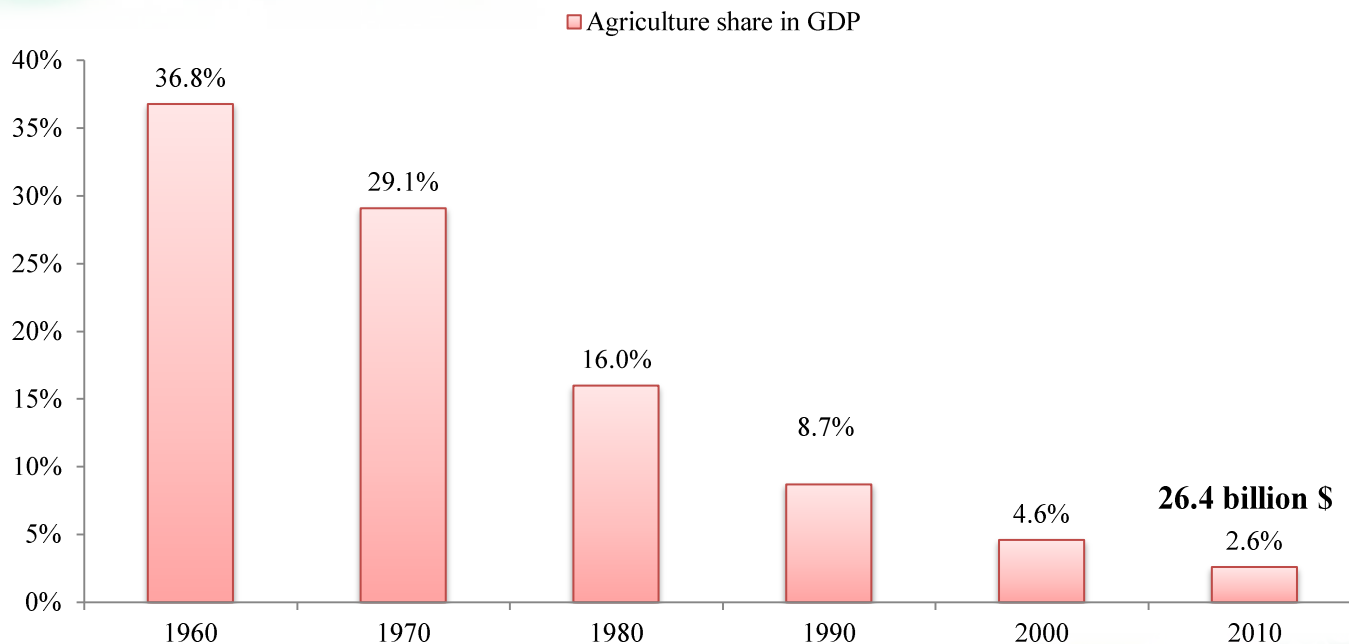
1.2 Agricultural Production

1.3 Farm Field



1.1 Agriculture in Economy

- **The share of Agriculture production has decreased to 2.6% of total GDP in Korea.**
 - From late 1960s, Korean economy have grown very fast and total GDP of Korea exceeded 1 trillion USD recently.
 - On the other hand, the share of agricultural production in total GDP decreased to 2.6% in 2010. The amount of value-added from agriculture is slightly over 26 billion USD.

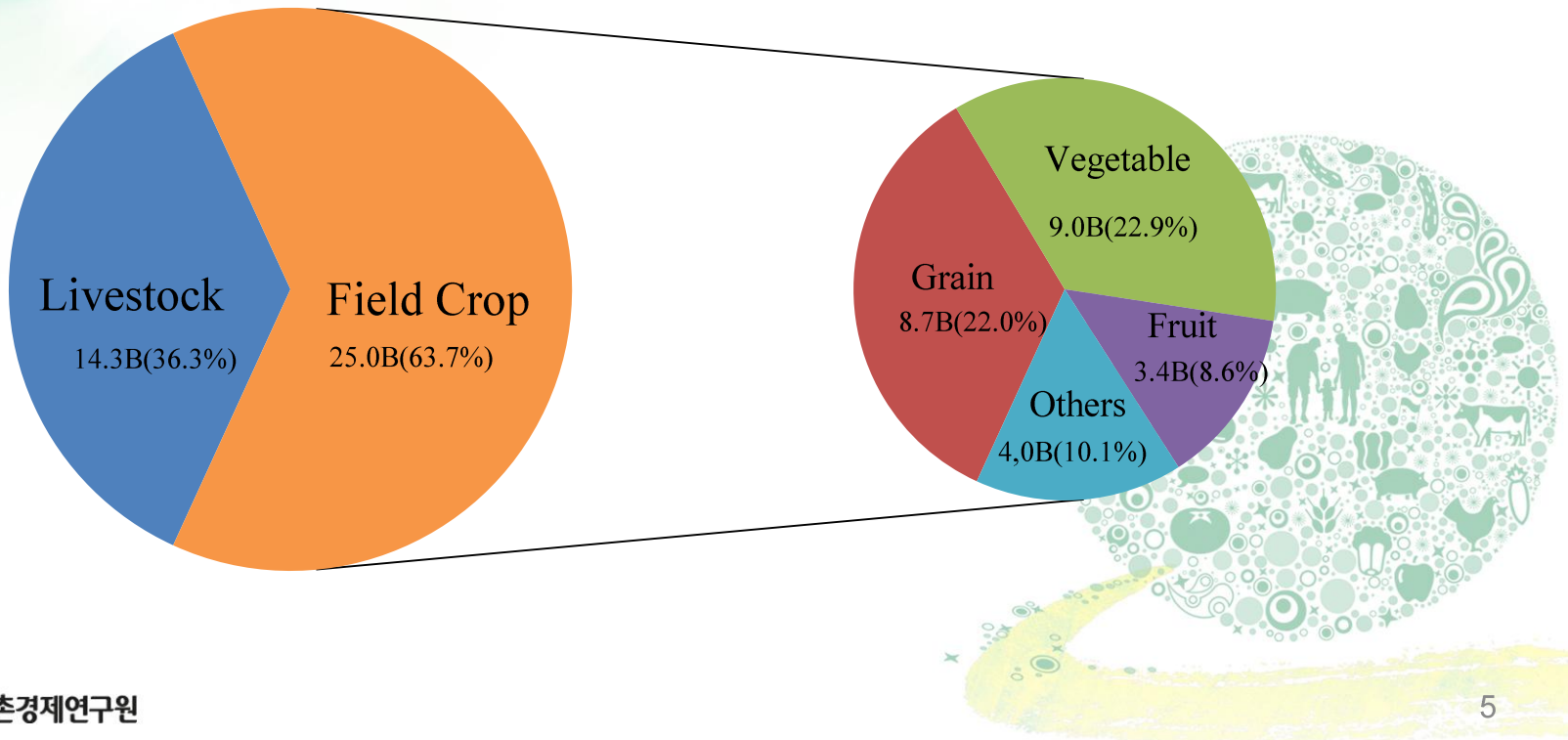


1.2

Agricultural Production

- ◆ Total production of agriculture is 39 billion USD.
 - Total grain production is 8.7 billion USD with 7.2 billion USD of rice

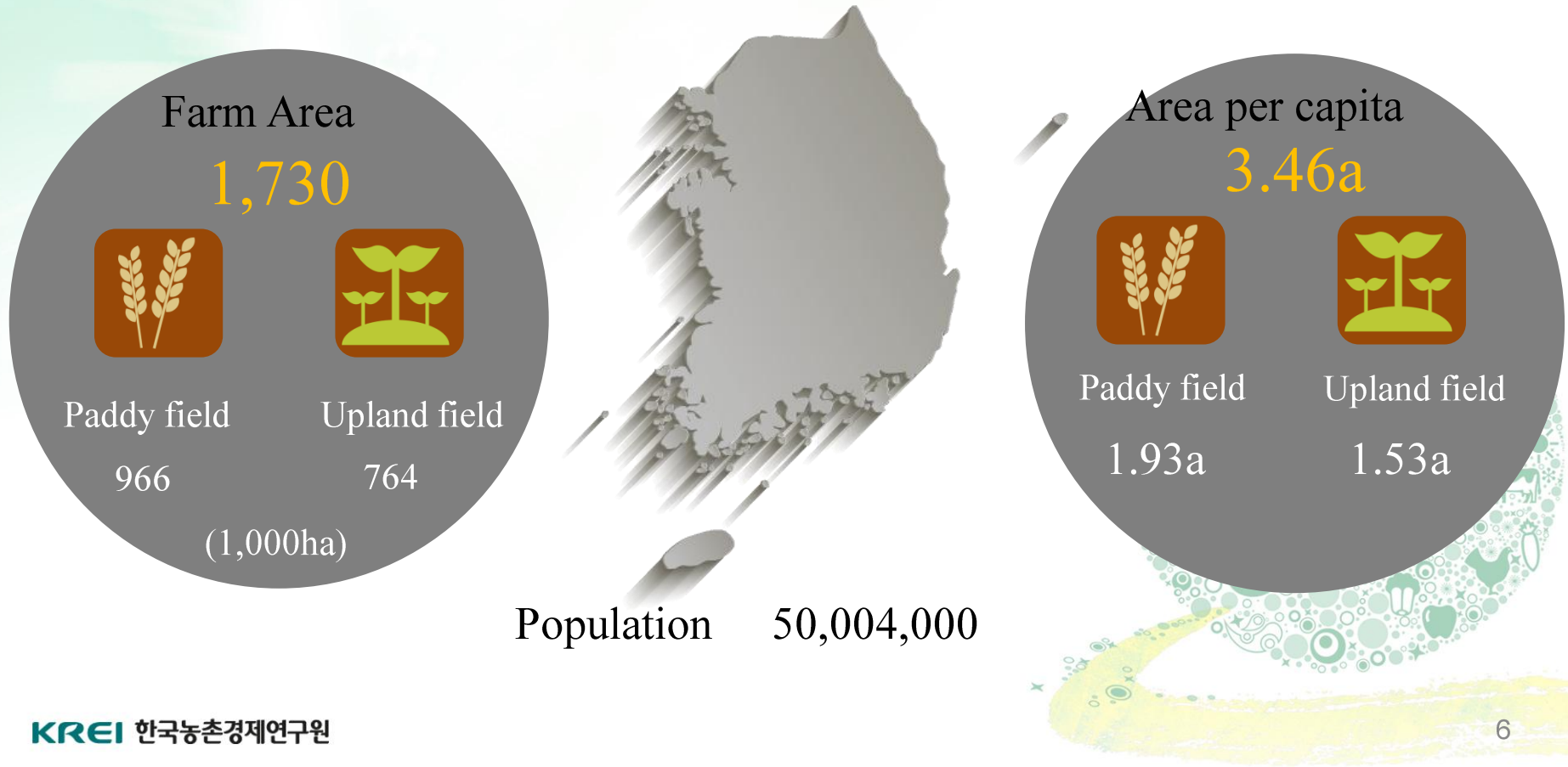
Agricultural Production in 2012



1.3

Farm field

- Most of Korean peninsula is covered by mountainous area and so farming land is very limited.
 - Total farming area: 1,730 thousand ha (Paddy-field: 966, Upland field: 764)
 - Farming field per capita: 3.46a (Paddy-field: 1.93a, Upland field: 1.53a)





2. Production and Consumption

2.1 Grain Production

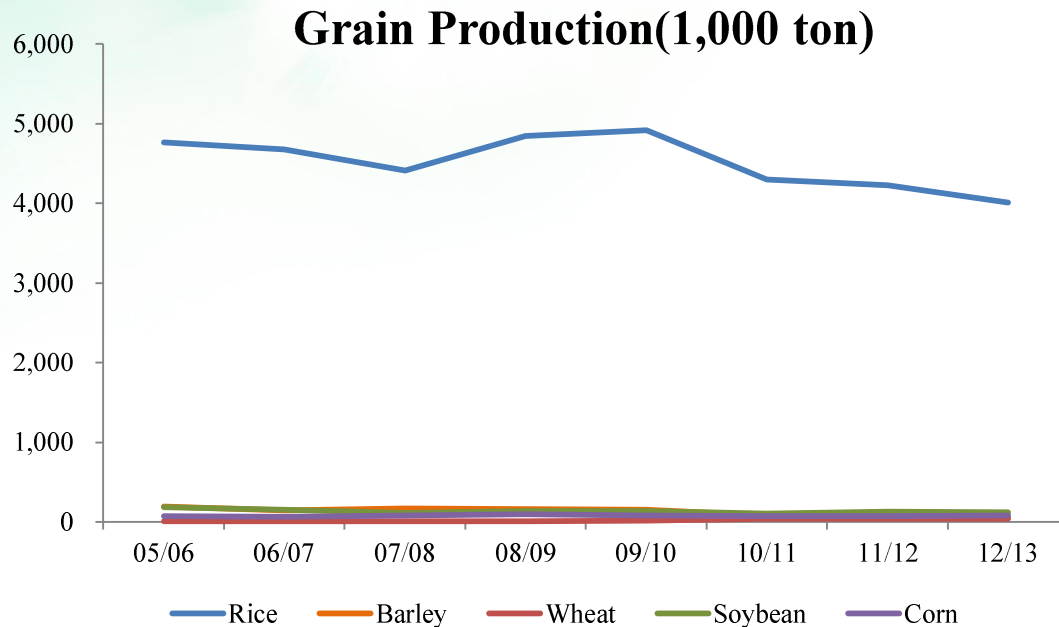
2.2 Grain Consumption

2.3 Self Sufficiency Ratio

2.4 Per Capita Consumption

2.1 Grain Production

- Rice is the only grain which is self-sufficient in Korea.
 - The amount of rice production is about 4,006 thousand ton in 2012/13 and its curve shows a decreasing trend.
- Production amounts of all other grains are very small.
 - Soybean: 123 (thousand ton in 2012/13), corn: 83, barley: 57 and wheat: 37 in 2012/13.



Unit: 1,000 ton

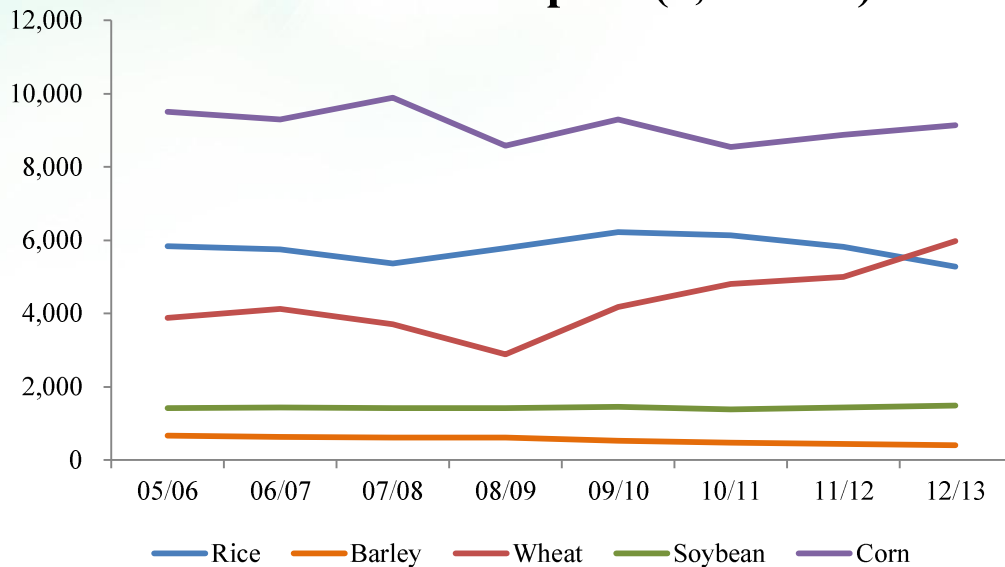
	2010/11	2011/12	2012/13
Rice	4,295	4,224	4,006
Barley	81	76	57
Wheat	39	44	37
Soybean	105	129	123
Corn	74	74	83

2.2

Grain Consumption

- Wheat consumption shows an increasing trend after 2008/09. On the other hand, consumption for rice has decreased at the same time period.
- Amount of consumption in 2012/13
 - Rice: 5,238(1,000 ton in 2012/13), Corn: 9,113, wheat: 5,983, soybean: 1,485

Grain Consumption(1,000 ton)



Unit: 1,000 ton

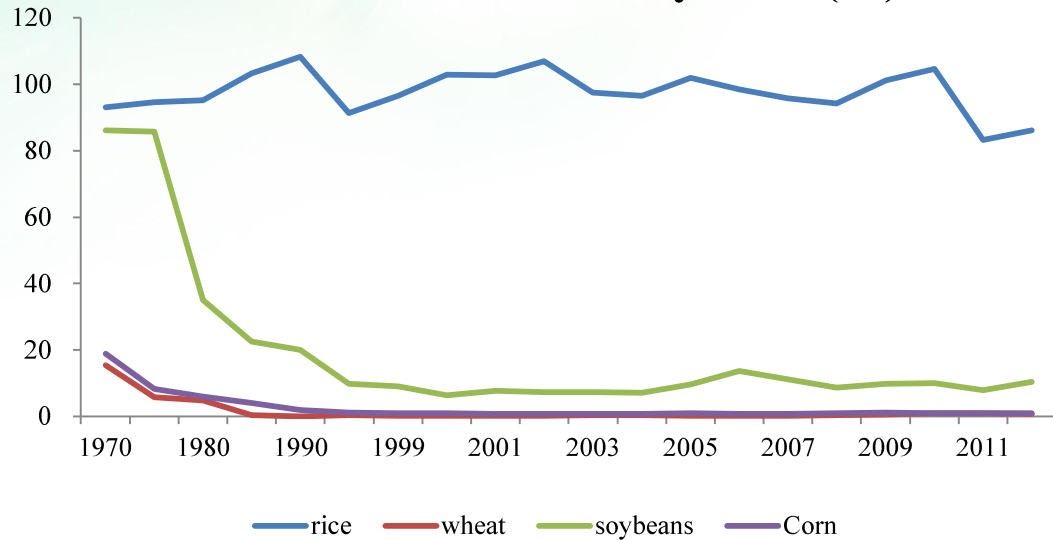
	2010/11	2011/12	2012/13
Rice	6,132	5,817	5,283
Barley	470	435	404
Wheat	4,814	4,998	5,983
Soybean	1,385	1,435	1,485
Corn	8,548	8,885	9,133

2.3

Self Sufficiency Ratio

- Self-sufficiency ratio of rice is around 100% but the ratios of all other grains are very low.
- Especially, almost all of wheat and corn are imported from abroad.

Grains Self Sufficiency Ratio(%)



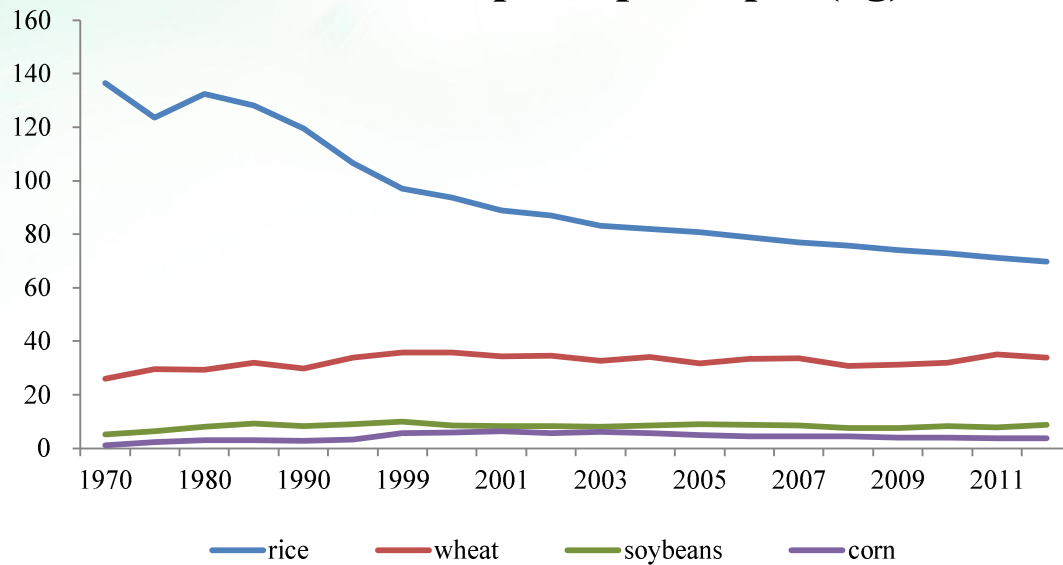
Unit: %

	2010/11	2011/12	2012/13
Rice	104.6	83.2	86.1
Wheat	0.9	1.0	0.7
Soybean	10.1	7.9	10.3
Corn	0.9	0.9	0.9

2.4 Per Capita Grain Consumption

- As dietary life is westernized in Korea, per capita consumption of rice, which is staple food for Korean, also have decreased.
- All other per capita grain consumption is very stable.

Grain Consumption-per capita(kg)



Unit: kg

	2010/11	2011/12	2012/13
Rice	72.8	71.2	69.8
Wheat	32.1	35.0	33.9
Soybean	8.3	7.8	8.8
Corn	3.9	3.7	3.7



3. Grain Import

3.1 Grain Import Origins

3.2 Wheat Import

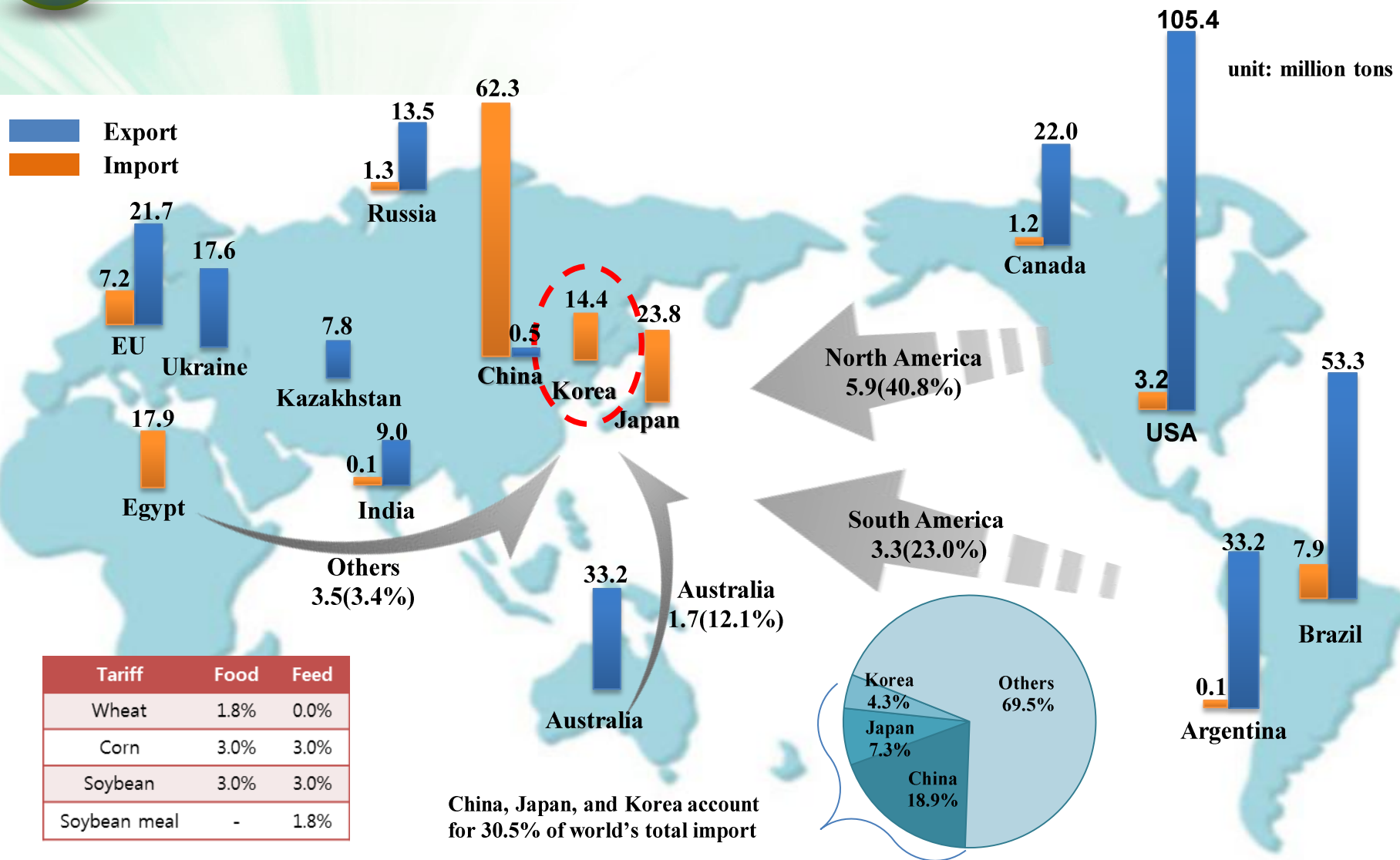
3.3 Corn Import

3.4 Soybean Import



3.1

Grain import Origins



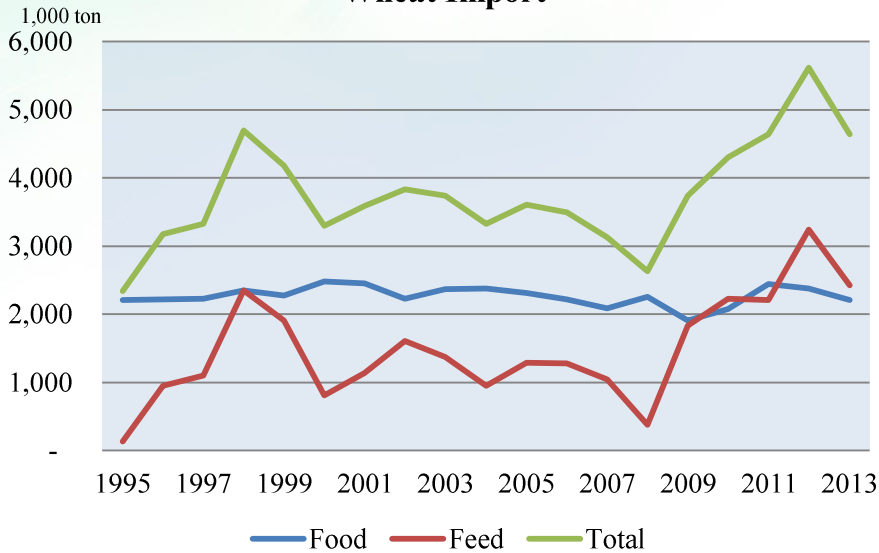
Source: FAO, Global Trade Atlas

3.2

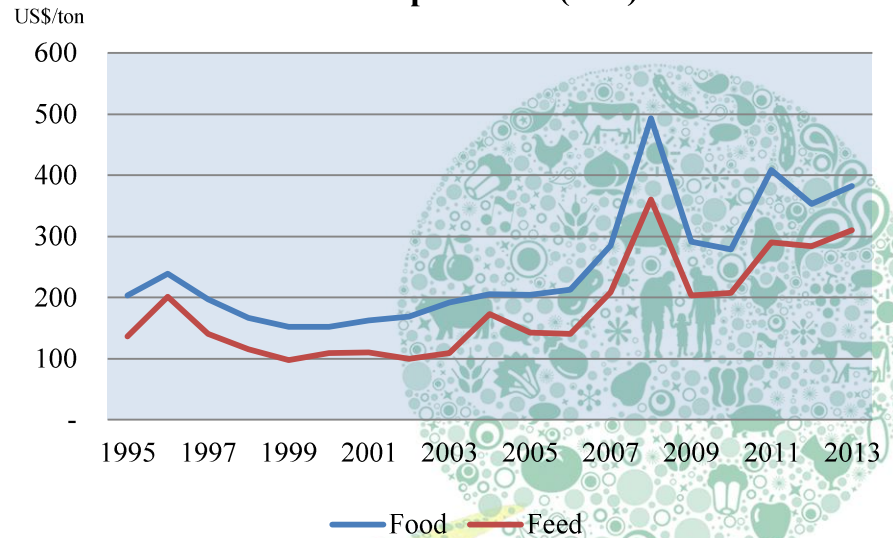
Wheat Imports(1)

- Total amount of wheat import is 4,636 thousand ton.
 - The amount of wheat import for food is 2,212 thousand ton in 2013 and this amount is very stable across years.
 - Wheat imports for feed are relatively volatile according to import prices.
- Because of world food price crisis, there was sharp rise in import price of wheat and sharp drop of wheat import for feed in 2008.

Wheat Import



<Wheat Import Price(CIF)>

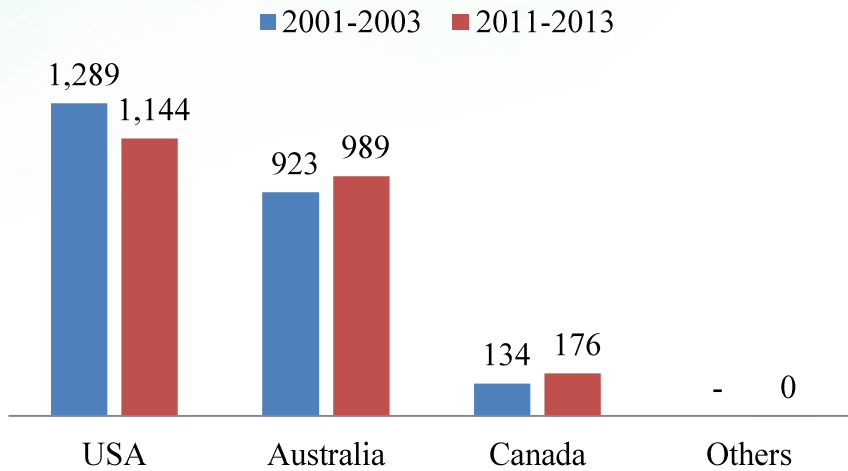


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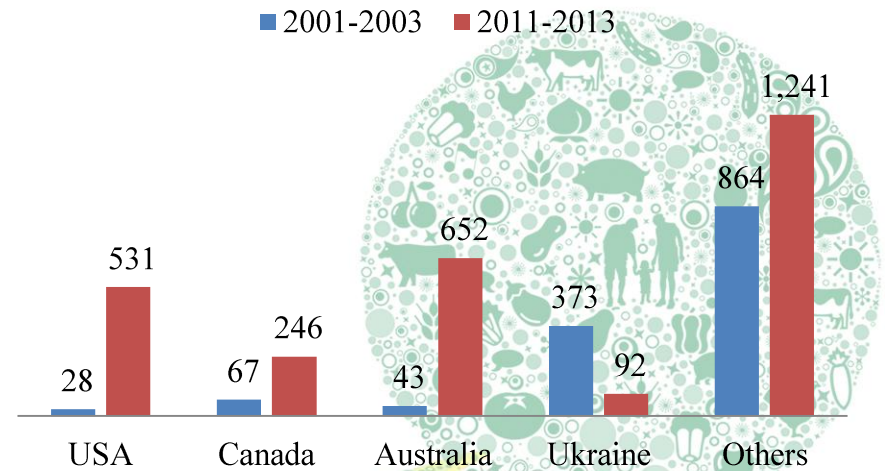
Wheat Import(2)

- Most of wheat for food was imported from USA and Australia.
- The origins of wheat import for feed are diversified and have changed year by year.

Wheat Import for Food(1,000ton)



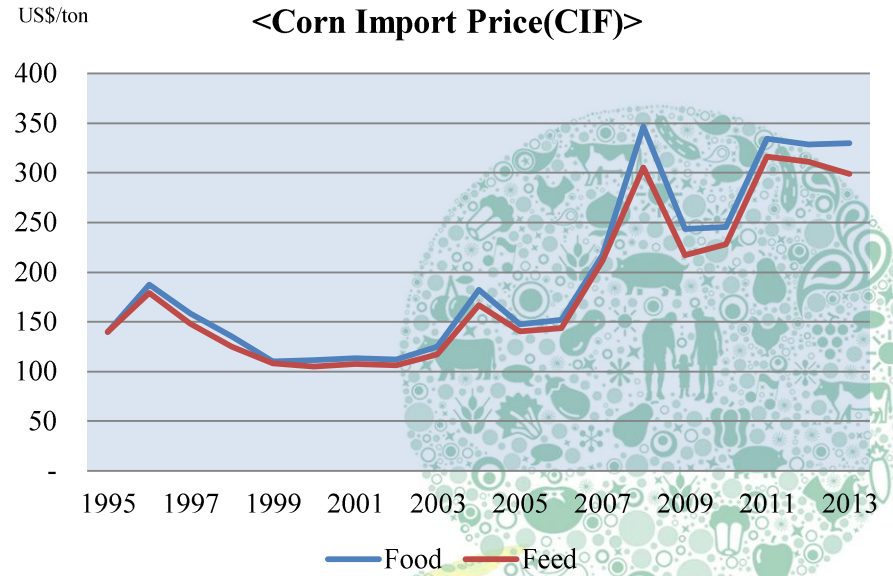
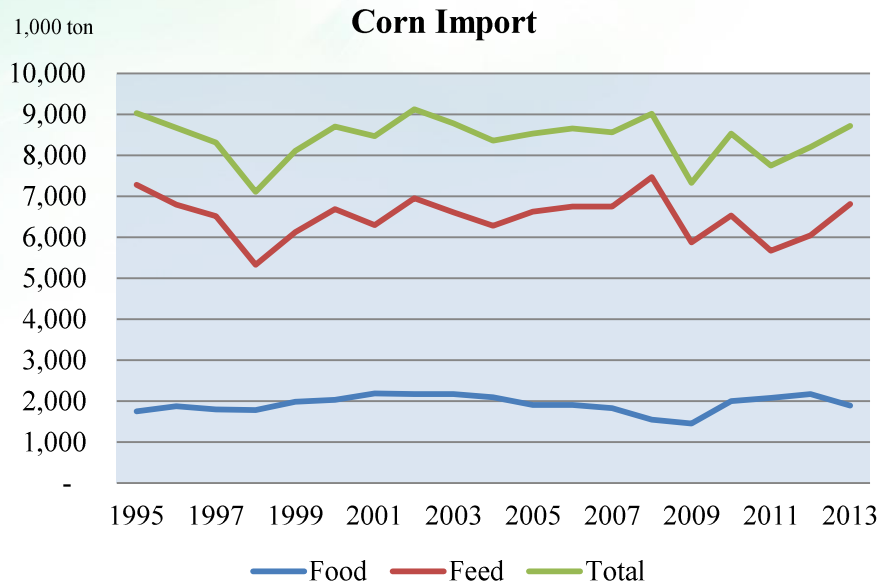
Wheat Import for Feed(1,000ton)



3.3

Corn Import(1)

- Total amount of Corn import is 8,713 thousand ton in 2013.
- The amount of corn import for food is about 1,894 thousand tons in 2013 and this amount is very stable across years.
- The quantities of corn import for feed are relatively volatile but the trend does not show a decreasing or increasing trend.

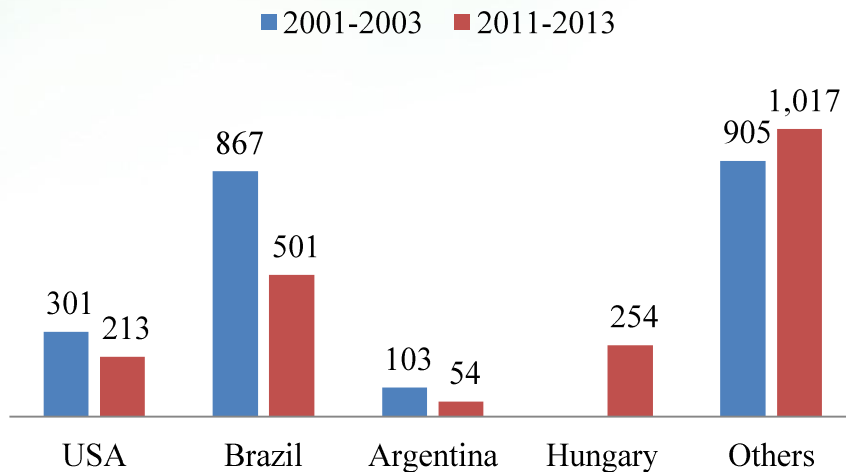


3.3

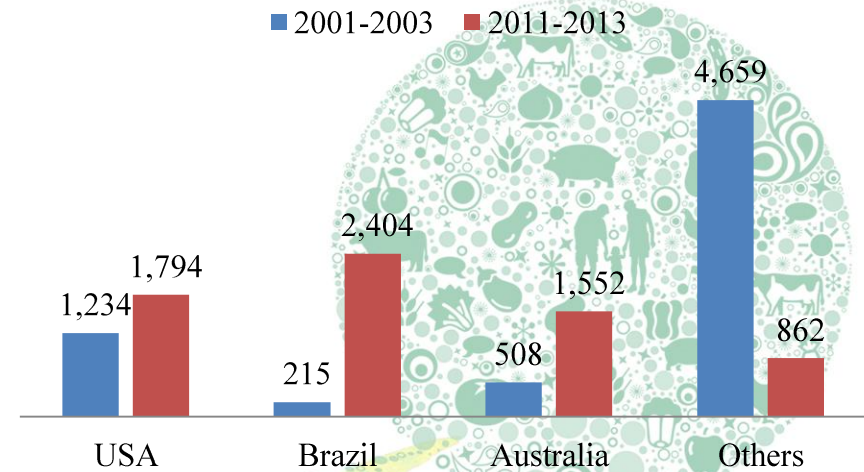
Corn Import(2)

- USA and Brazil are Korea's main origin countries for food-corn imports.
 - During 2011-2013, Korea had imported 54 thousand ton per year of food-corn from Argentina on average.
- The origins of corn import for feed were very diversified in early 2000s, but the shares of USA, Brazil and Australia have increase after 2010.

Corn Import for Food(1,000ton)



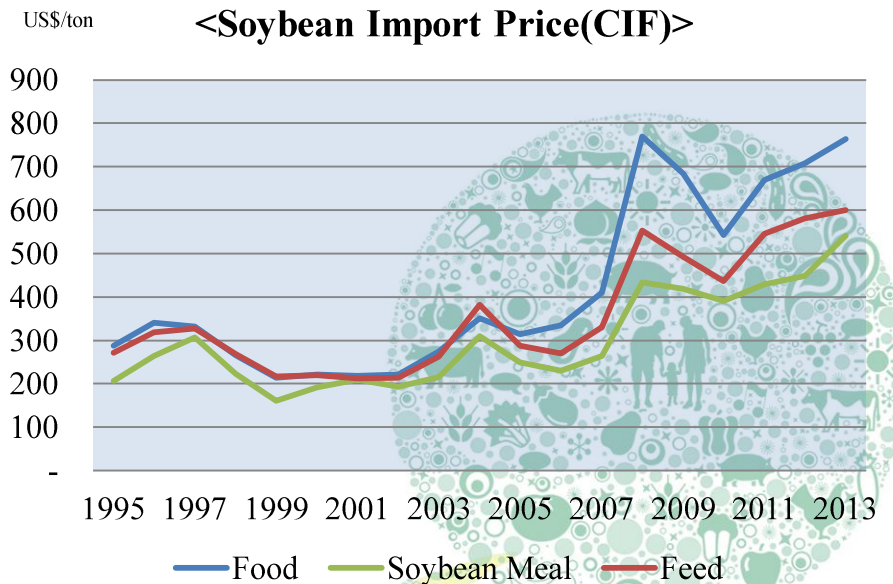
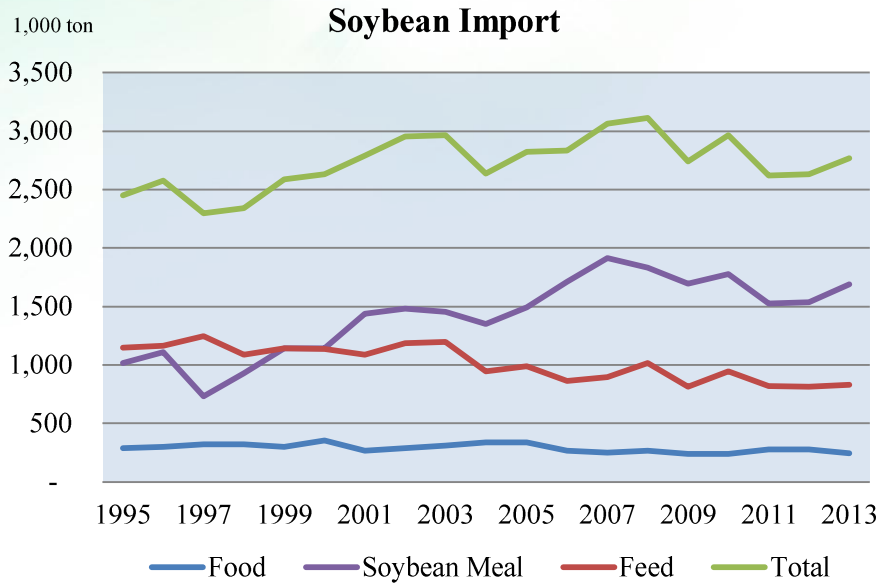
Corn Import for Feed(1,000ton)



3.4

Soybean Import(1)

- Total amount (food, feed and soybean meal) of soybean import have increased after late 1990s in Korea.
 - Especially the amount of soybean meal imports has increased during 1990s and 2010s.

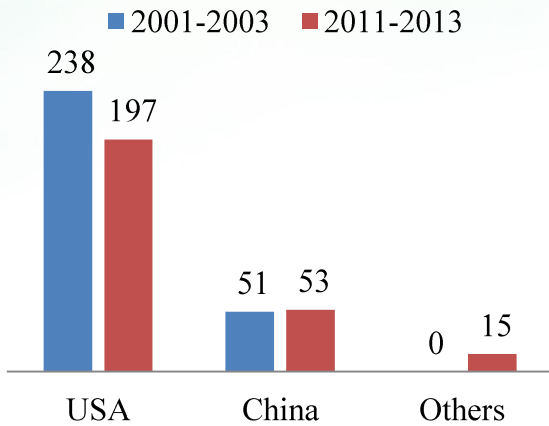


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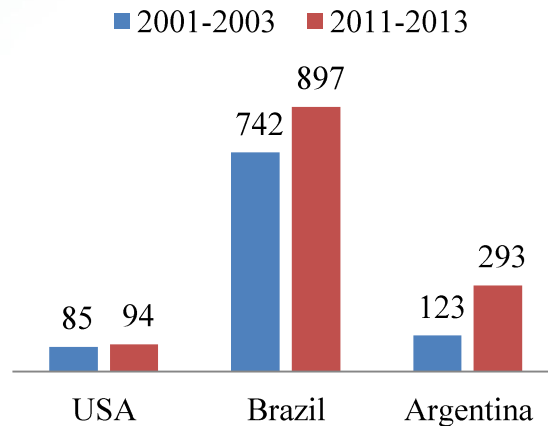
Soybean Import(2)

- Most of soybean for food are imported from USA and China.
- Brazil and Argentina are main origin countries for soybean meal.
 - The shares of Argentina have increased in early 2010s.
- The share of Brazil have increased in imports of feed-soybean after 2000 .

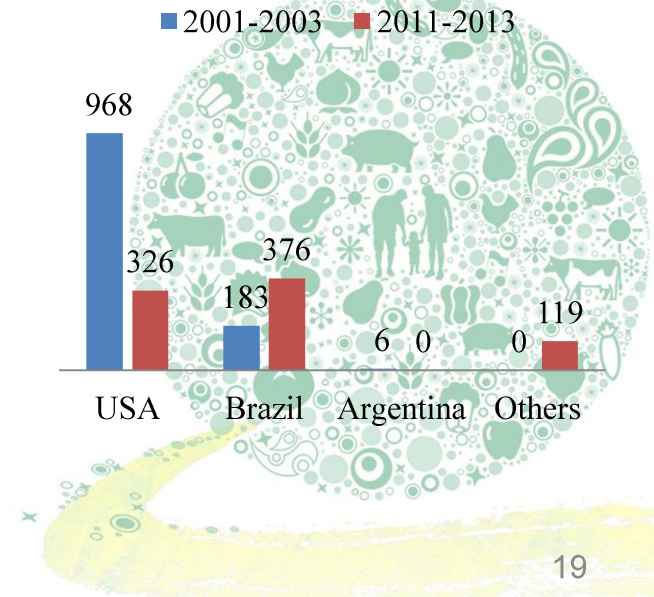
Soybean Import: Food(1,000ton)



Soybean Import: Soybean meal(1,000ton)



Soybean Import: Feed(1,000ton)





4. Grain Market Outlook

4.1 KREI-KASMO Model

4.2 Rice Outlook

4.3 Wheat Outlook

4.4 Corn Outlook

4.5 Soybean Outlook



4.1

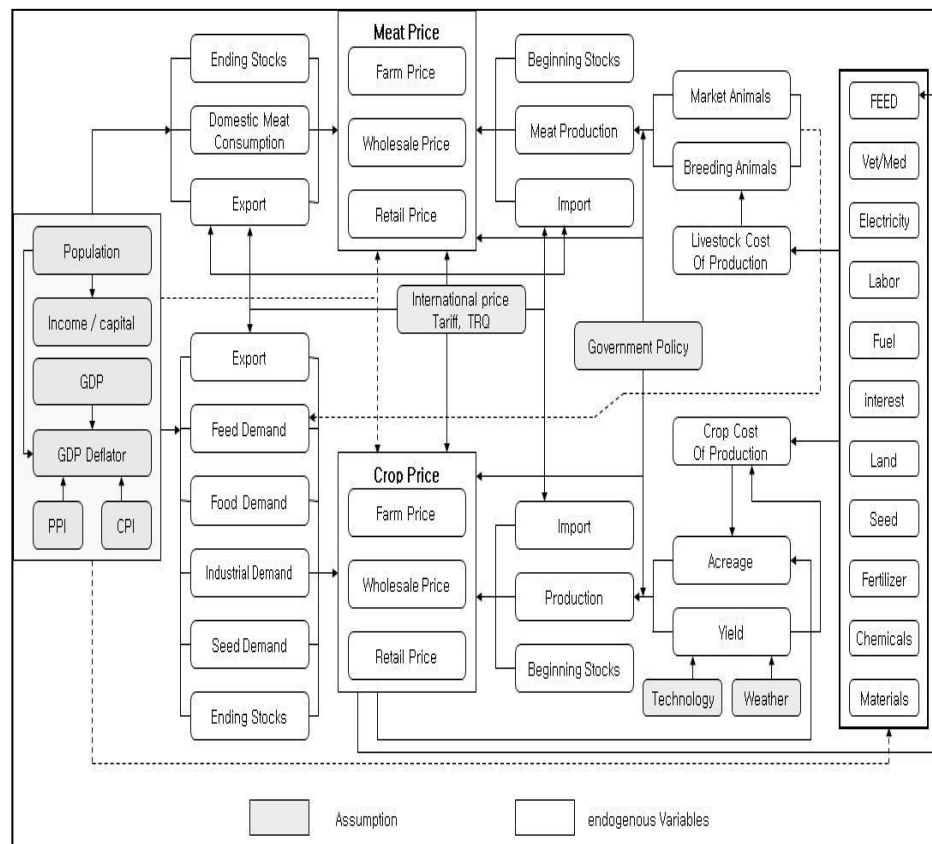
KREI-KASMO Model

- ◆ **KASMO is a large-scale modeling system and consists of five sectors that simultaneously interact with each other.**
 - Crops sector, livestock sector (54 commodities)
 - macro indices sector
 - input prices indices sector
 - agricultural sector indicators

- ◆ **It uses 3,299 equations and formulas and 312 exogenous variables.**

- ◆ **It covers 97 percent of the total agricultural sector based on the 2010 total production value.**
 - crop: 96.3%, livestock: 98.1%

KASMO Model Flow Diagram

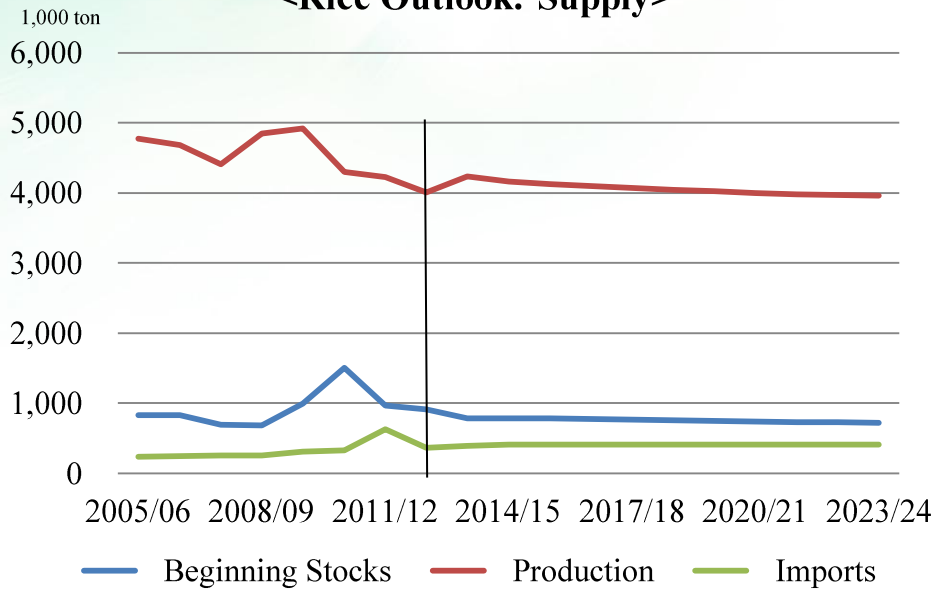


4.2

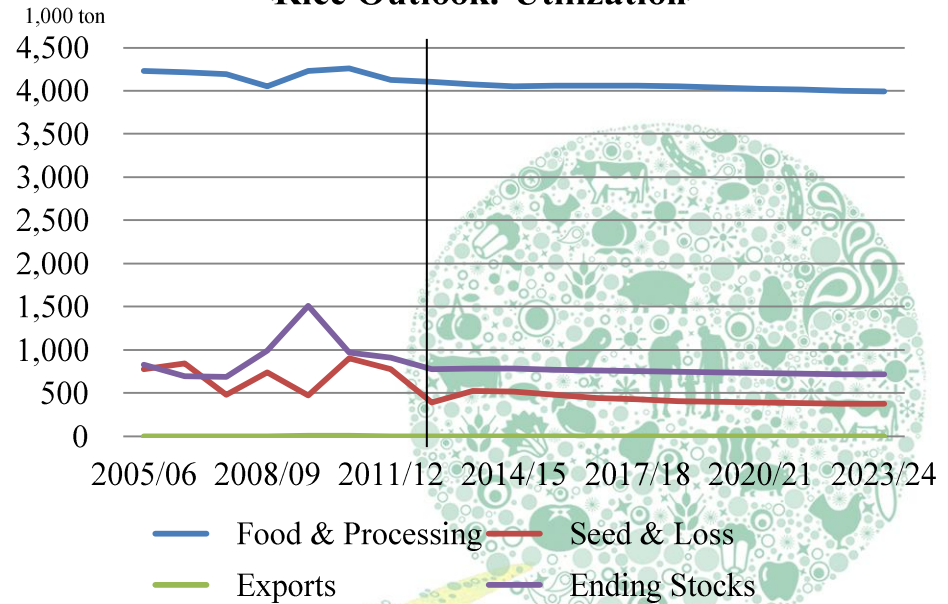
Rice Outlook(1)

- Because of decreasing arable land in Korea, rice production is forecasted as it has slow a decreasing trend.
- Rice consumption (food and processing) is forecasted as decreasing with very slow decreasing rate.

<Rice Outlook: Supply>



<Rice Outlook: Utilization>



4.2

Rice Outlook(2)

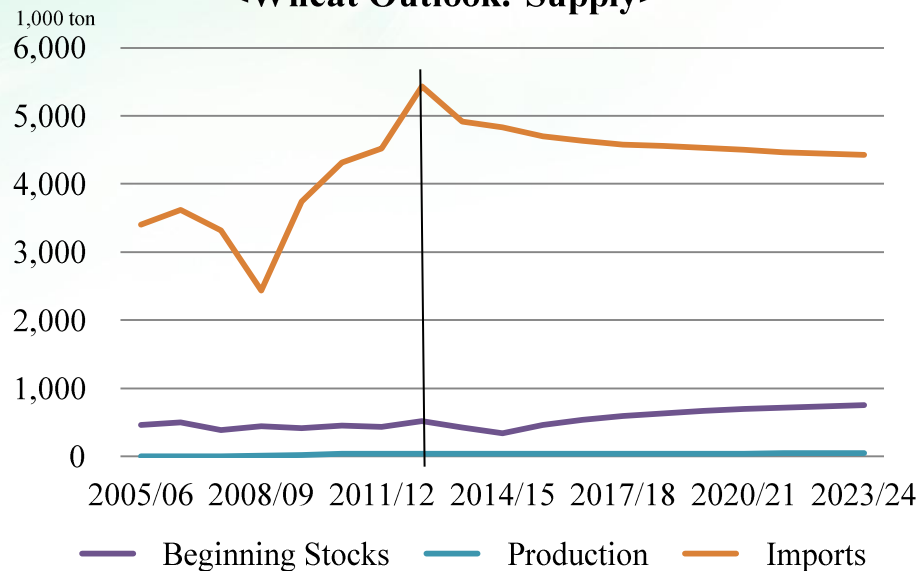
Unit: 1,000ton

Year	2013/14	2014/15	2017/18	2020/21	2023/24
Area(1000Ha)	833	831	804	780	764
Yield(Kg/10a)	508	501	507	513	518
Supply	5,398	5,358	5,245	5,149	5,090
Beginning Stocks	780	788	764	741	721
Production	4,230	4,161	4,072	4,000	3,960
Imports	388	409	409	409	409
Utilization	5,398	5,358	5,245	5,149	5,090
Food & Processing	4,077	4,048	4,059	4,025	3,993
-Food	3,462	3,414	3,315	3,210	3,102
-Processing	615	635	743	816	891
Seed & Loss	530	522	426	389	374
-Seed	36	35	34	33	32
-Loss	494	486	392	356	342
Exports	3	3	3	3	3
Ending Stocks	788	785	758	732	720

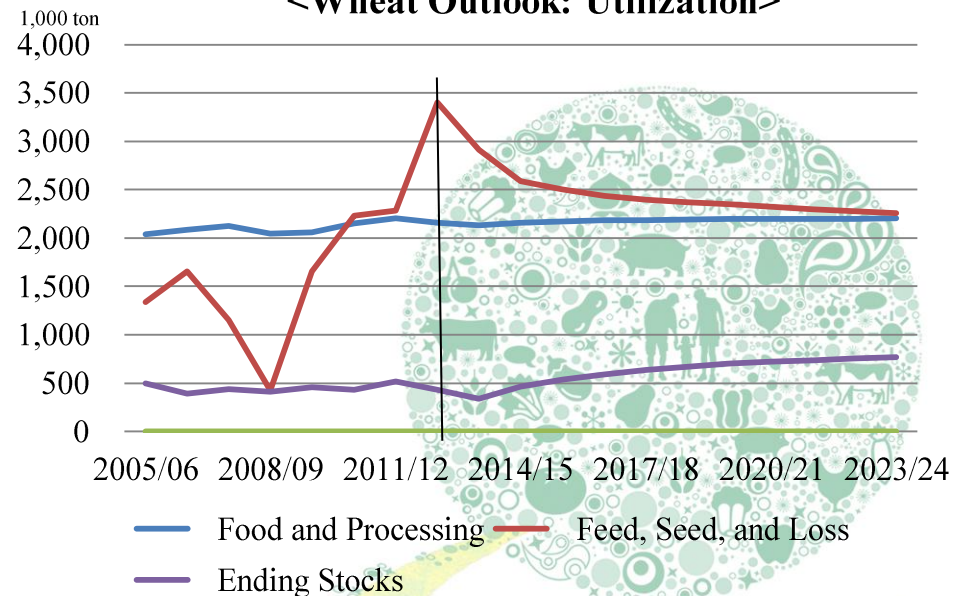
4.3 Wheat Outlook(1)

- ◆ Total wheat demand and supply are forecasted as they have decreasing trends.
 - Main reasons of the decreasing trend forecasts are decreases in imports and feed utilization.
- ◆ Wheat consumption for food and processing is forecasted as it has very stable level at slightly over 2 million tons.

<Wheat Outlook: Supply>



<Wheat Outlook: Utilization>



4.3 Wheat Outlook(2)

Unit: 1,000ton

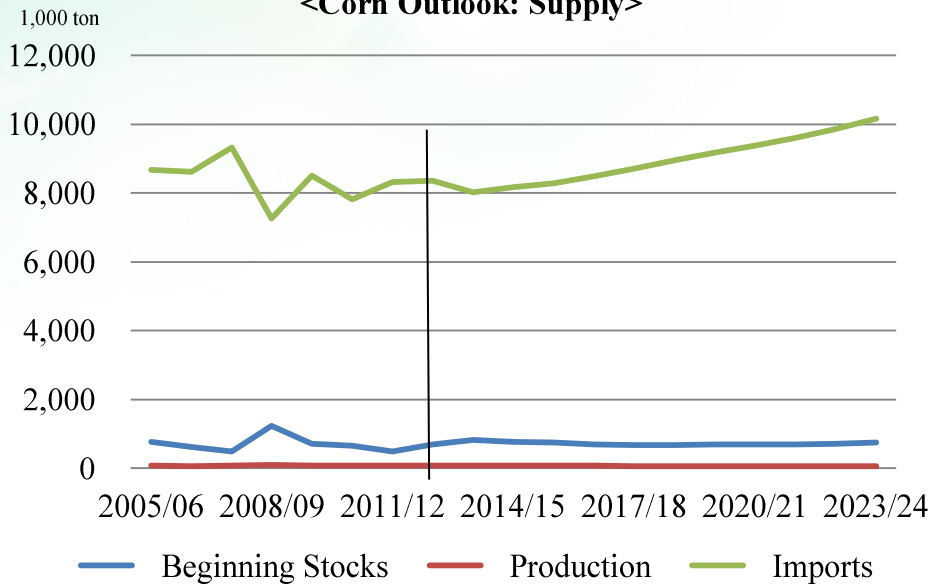
Year	2013/14	2014/15	2017/18	2020/21	2023/24
Area(1000Ha)	10.2	10.8	10.6	11.1	11.6
Yield(Kg/10a)	392	394	399	403	408
Supply	5,387	5,214	5,214	5,241	5,223
Beginning Stocks	429	340	592	699	753
Production	40	42	42	45	48
Imports	4,918	4,831	4,580	4,497	4,423
- US	1,484	1,492	1,515	1,538	1,560
- Others	3,434	3,339	3,065	2,960	2,862
Utilization	5,387	5,214	5,214	5,241	5,223
Food and Processing	2,134	2,161	2,187	2,197	2,201
Feed, Seed, and Loss	2,912	2,587	2,394	2,323	2,257
Exports	0	0	0	0	0
Ending Stocks	340	467	633	721	765

4.4

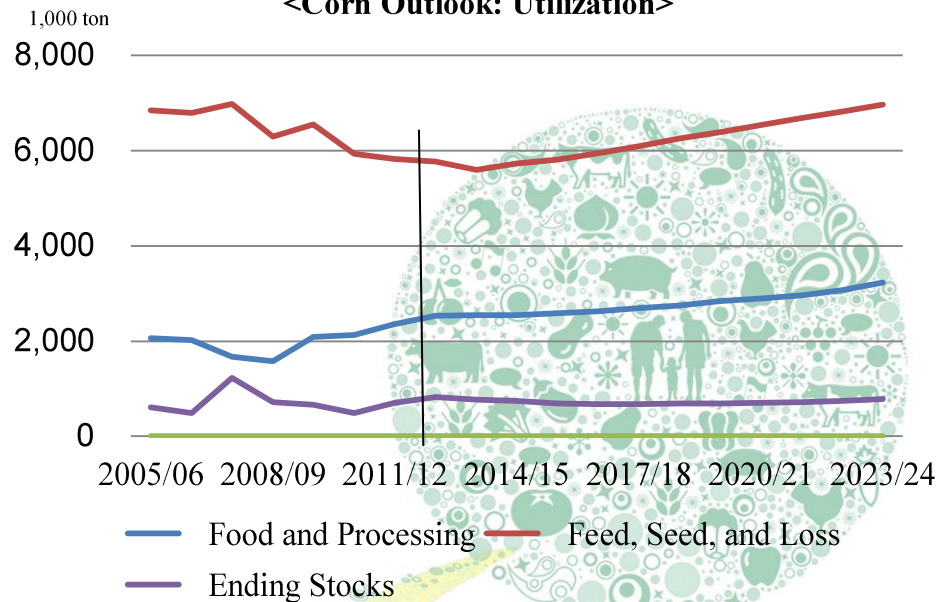
Corn Outlook(1)

- Total con supply will increase until mid 2020.
 - Imports are predicted as main sources of domestic supply.
- Because of an increasing trend of food and processing utilization, total demand of corn will also increase.

<Corn Outlook: Supply>



<Corn Outlook: Utilization>



4.4

Corn Outlook(2)

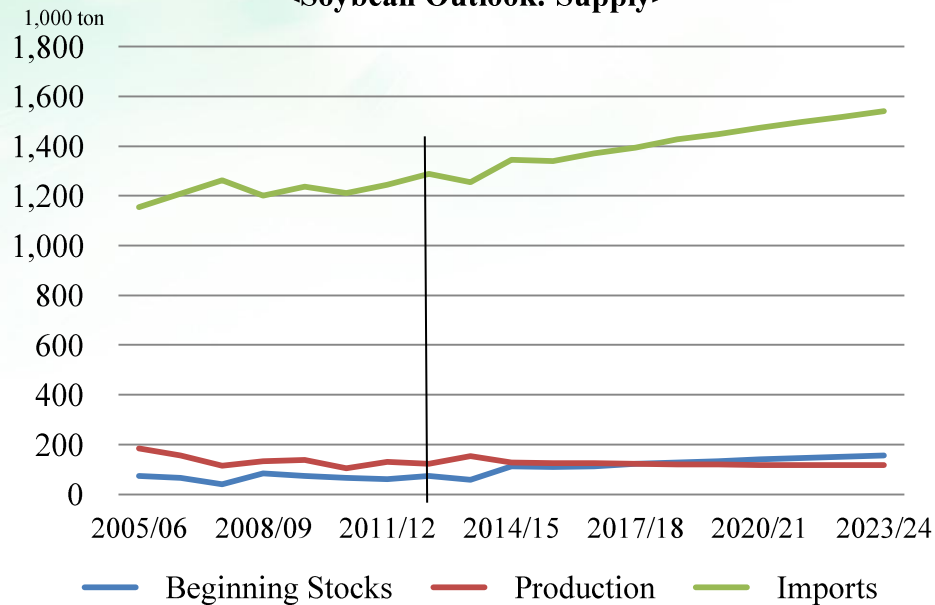
Unit: 1,000ton

Year	2013/14	2014/15	2017/18	2020/21	2023/24
Area(1000Ha)	16.1	15.6	14.0	12.7	11.8
Yield(Kg/10a)	485	488	499	509	520
Supply	8,920	9,020	9,461	10,137	10,978
Beginning Stocks	823	774	674	692	748
Production	78	76	70	65	62
Imports	8,020	8,170	8,717	9,380	10,169
Utilization	8,920	9,020	9,461	10,137	10,978
Food and Processing	2,543	2,542	2,688	2,895	3,229
Feed, Seed, and Loss	5,604	5,737	6,094	6,540	6,964
Exports	0	0	0	0	0
Ending Stocks	774	741	679	702	784

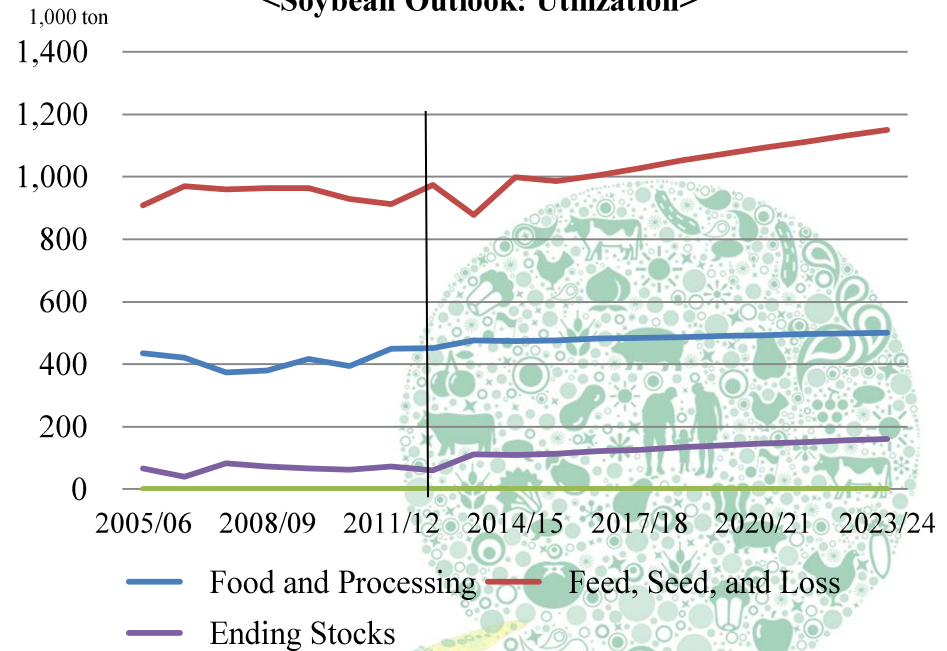
4.5 Soybean Outlook(1)

- Imports will be main supply sources of soybean in 2020s.
 - Domestic production is forecasted as decreasing.
- Because of increasing utilization for food and processing, the total demand of soybean will increase until 2020.

<Soybean Outlook: Supply>



<Soybean Outlook: Utilization>



4.5 Soybean Outlook(2)

Unit: 1,000ton

Year	2013/14	2014/15	2015/16	2016/17	2017/18	2020/21	2023/24
Area(1,000Ha)	80.0	74.5	73.5	72.5	70.6	68.3	66.5
Yield(Kg/10a)	193	170	171	171	172	173	175
Supply	1,467	1,582	1,576	1,608	1,638	1,731	1,812
Beginning Stocks	59	112	110	113	122	140	156
Production	154	127	126	124	121	118	116
Imports	1,253	1,344	1,340	1,371	1,394	1,473	1,540
Utilization	1,467	1,582	1,576	1,608	1,638	1,731	1,812
Food and Processing	477	475	477	481	484	493	501
Feed, Seed, and Loss	878	998	986	1,005	1,028	1,092	1,151
Exports	0	0	0	0	0	0	0
Ending Stocks	112	110	113	122	127	146	160

Thank You!!!

