

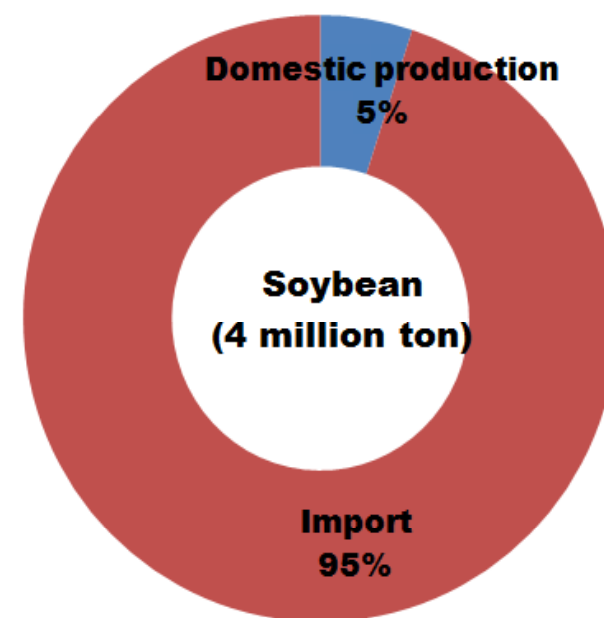
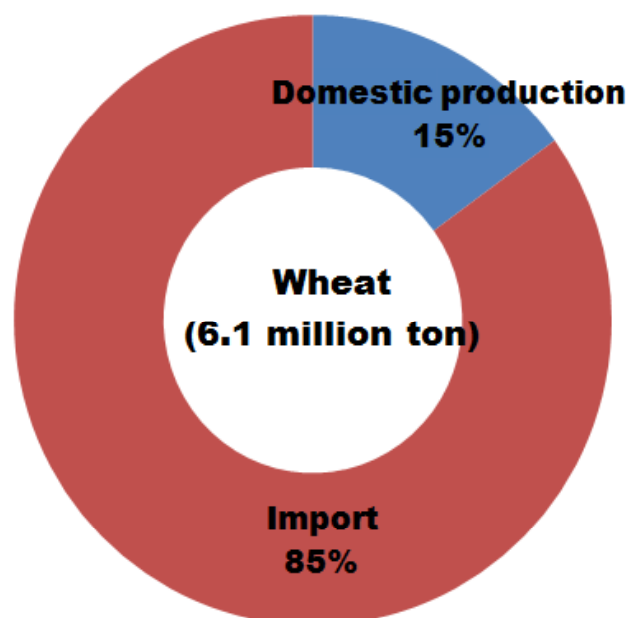
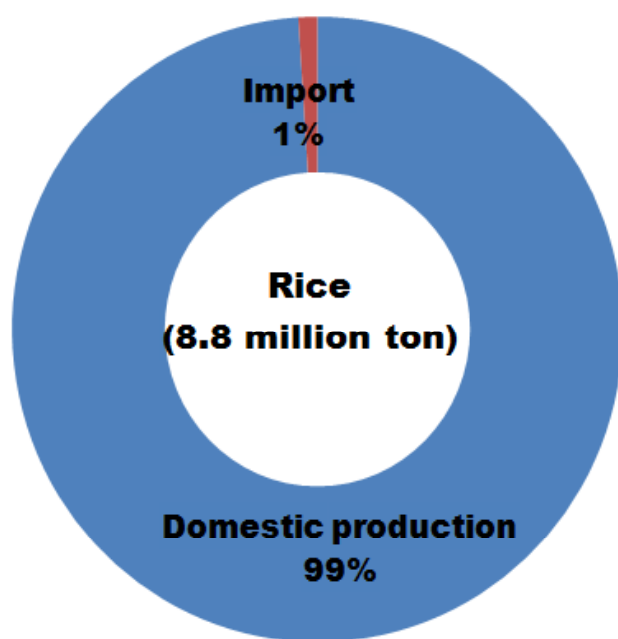
Presentation by collaboration of Republic of Korea and JAPAN

Importance of Phytosanitary Activities Related to The International Movement of Grain

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The percentage of domestic production and import in domestic consumption of grain in Japan(2008)



These charts were made on the basis of the statistical data by MAFF (2008)

Import plant quarantine inspection of grains in Japan (2006-2010)

Commodity	Intended use	Export country	The amount of import inspection (thousand tons)				
			The amount of treatment due to PQ pest interception (thousand tons)				
			2006	2007	2008	2009	2010
Corn	animal feed, starch, fat and oil	USA, Argentine, Brazil, Ukraine	16,945	16,681	16,314	16,224	16,567
			6,995	5,143	5,438	4,323	3,325
Wheat	food (flour)	USA, Australia, Canada, Russia	5,327	5,232	5,759	4,878	5,366
			389	174	292	381	323
Soybean	food oil, food, food product, animal feed	USA, Brazil, Canada, China	4,172	4,296	3,920	3,542	3,503
			1,620	1,657	1,376	1,010	934
Barley	malt, animal feed	Australia, Canada, UK, France	1,876	1,919	1,795	1,933	1,921
			218	168	195	185	231
Sorghum	animal feed	USA, Argentine, Australia	1,355	1,228	1,074	1,792	1,599
			529	269	131	197	169
Rice	food	USA, Thailand, China	610	619	563	746	680
			5	0.5	0	0.4	0
Rye	rye flour, food, animal feed	Poland, Germany, Canada	284	182	57	63	134
			142	27	0	0	46
Common bean	food, food product	China, Myanmar, USA, Canada	118	120	122	115	106
			0.2	0	0	0.1	0
Buckwheat	food product	China, USA, Australia	100	100	91	91	103
			0.2	3	0	3	0
Other grain			181	158	125	127	138
			2.2	12	0.1	0.2	0.1
Total (import)			30,970	30,535	29,821	29,512	30,119
Total (treatment)			9,900	7,455	7,434	6,100	5,028

Import plant quarantine inspection of grains in Korea (2008-2010)

Commodity	Intended use	Origin	The amount of import inspection(Thousand ton)			Note (2010)
			The amount of treatment (Thousand ton)			
			2008	2009	2010	

Corn	Food and animal feeds	USA, Australia, Ukraine, Canada, China	8,913	7,354	8,714	1.6%
			875	144	142	
Wheat	Food and animal feeds	USA, Australia, Ukraine, Canada, China	2,714	3,843	4,446	5.0%
			1	57	266	
Soybean	Food and animal feeds	USA, Australia, Ukraine, Canada, China	1,238	1,099	1,191	11.2%
			197	60	134	

「 DPQ data base system 」

Impact by pests associated with the movement of grain

◆ Impacts in terms of plant quarantine issues

- **weight loss** (tunnels or chambers bored within the seeds)
- **quality loss** (quality and nutritional value by feeding and emergence holes, low germination rate, unexpected germination)
- **damage of a facility, an equipment and a container**
- **indirect impact** (limited export and domestic movement)
- **field infestation** (start in the pods before harvest and carry over into storage)

◆ Social impact beyond PQ issues

- **sanitary issue** (contaminated food)
- **indirect impact** (returns, complaint)
- **health problem** (allergy, dermatitis, diarrhea, etc.)
- **problem to livestock** (livestock toxicities)
- **damage to property** (arts, furniture, etc)

Interception of quarantine pests associated with grain at entry points in Japan

quarantine pest	pathway (export country)	The number of times quarantine pests were intercepted at entry points (2006-2010)
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Quarantine pests were detected on grains

<i>Callosobruchus analis</i> (pulse beetle)	chickpea, soybean(India)	6
<i>Zabrotes subfasciatus</i> (Mexican bean weevil)	kidney bean (Brazil)	2
<i>Trogoderma granarium</i> (khapra beetle)	corn (Indonesia)	3
<i>Trogoderma variabile</i> (warehouse beetle)	sorghum, rye (USA)	5
<i>Ptinus tectus</i> (Australian Spider Beetle)	barley (UK)	1
<i>Sitophilus granarius</i> (grain weevil)	barley (USA, Russia), rye (Germany, Poland), wheat (USA, Canada), Corn (USA)	511
<i>Endrosis sarcitrella</i> (White-shouldered House Moth)	wheat (Canada)	15
<i>Hofmannophila pseudospretella</i> (Brown House Moth)	corn (Canada)	8
<i>Cerutuella virgata</i> (vineyard snail)	barley, wheat (Australia)	124
<i>Theba pisana</i> (Mediterranean coastal snail)	barley, wheat (Australia)	25

Quarantine pests related to grains were detected on other commodities without grains

<i>Callosobruchus analis</i> (pulse beetle)	herbal product	1
<i>Caryedon serratus</i> (groundnut borer)	herbal medicine, dry fruit	11
<i>Sitophilus granarius</i> (grain weevil)	animal feed (pellet, bran, bean cake)	12
<i>Hofmannophila pseudospretella</i> (Brown House Moth)	animal feed (pellet, bran, bean cake)	19
<i>Theba pisana</i> (Mediterranean coastal snail)	sesame	4

Interception of quarantine pests associated with grain at entry points of Korea in 2010

quarantine pest	pathway(export country)	Frequency
<i>Cryptolestes ferrugineus</i>	Corn (USA, Rumania, Brazil)	24
<i>C. turcicus</i>		4
<i>Ahasverus advena</i>		4
<i>C. ferrugineus</i>	Soybean (Brazil, Canada)	24
<i>Alphitobius diaperinus</i>	Wheat (USA, Canada, Russia, Brazil, Rumania, Ukraine)	3
<i>C. ferrugineus</i>		67

「 DPQ data base system 」

The risk of spread of pests associated with international and internal movement of grain

It is important to know where pest infestation is likely to happen and how pests are spread.

- ◆ Field infestation: plant products infested with insect pests at fields may be carried into the store.
- ◆ Introduced infestation: insect pests of plant products may be carried into the cargo holds and the store with goods.
- ◆ Cross infestation: insect pests of plant products may move from one kind of product to another.
- ◆ Residual infestation: insect pests of plant products may remain to attack subsequent cargoes.

Pest risk management (to reduce the risk of pest introduction)

In cases which quarantine pests are detected during import inspection at entry points, grains are fumigated with phosphine, methyl bromide or carbon dioxide



◆ **Pesticide Resistance**

Dapausing larvae of khapra beetle and pupae of *Sitophilus spp.* have resistant to phosphine >>> pesticide residue

◆ **Methyl bromide**

The use for quarantine and pre-shipment (QPS) is exempted from phase-out, but the use of MB for QPS purposes should be encouraged to reduce or replace



It may not be easy to efficiently control and eradicate them if once these pests are introduced into and spread within the country

Pest risk management (to reduce the risk of pest spread within the country and into the other country)

Pest risk management in field, conveyance, warehouse, mill or factory

➤ **To prevent field infestation**

- pesticide application, biological control, cultural control

➤ **To prevent introduced infestation, residual infestation and cross infestation**

- Chemical and physical controls: fumigation, pesticide, Inert gases, heat treatment and mechanical press
- Temperature and humidity control: cold storage, dry condition
- cleaning and disinfestations on conveyance and in facility

➤ **Monitoring and surveillance**



Integrated Pest Management in stored grain

International discussion related to the international movement of grain

- ◆ **potential problems as well as actual problems**
- ◆ **risk of introduction and spread of new pests may increase**
 - **Globalization**

Increase the potential for movement and introduction of pest species with commodities and conveyances into the region from other regions
 - **Global warming**

Possible future climate change with higher temperatures and higher humidity will probably lead to expanding possible area where introduced pests can survive
 - **Alternative methyl bromide issue**

Develop and prevail promptly alternative methyl bromide techniques



Appropriate risk management for introduction and spread of pests should be discussed from the standpoint of both exporting country and importing country

Fumigation in silos with the phosphine generator (Japan)



Thank you



On-board inspection, Ulsan harbor (Korea)