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## **Korea - Republic of**

**Post:** Seoul

### **Korean Ports Status Report**

**Report Categories:**

Exporter Guide

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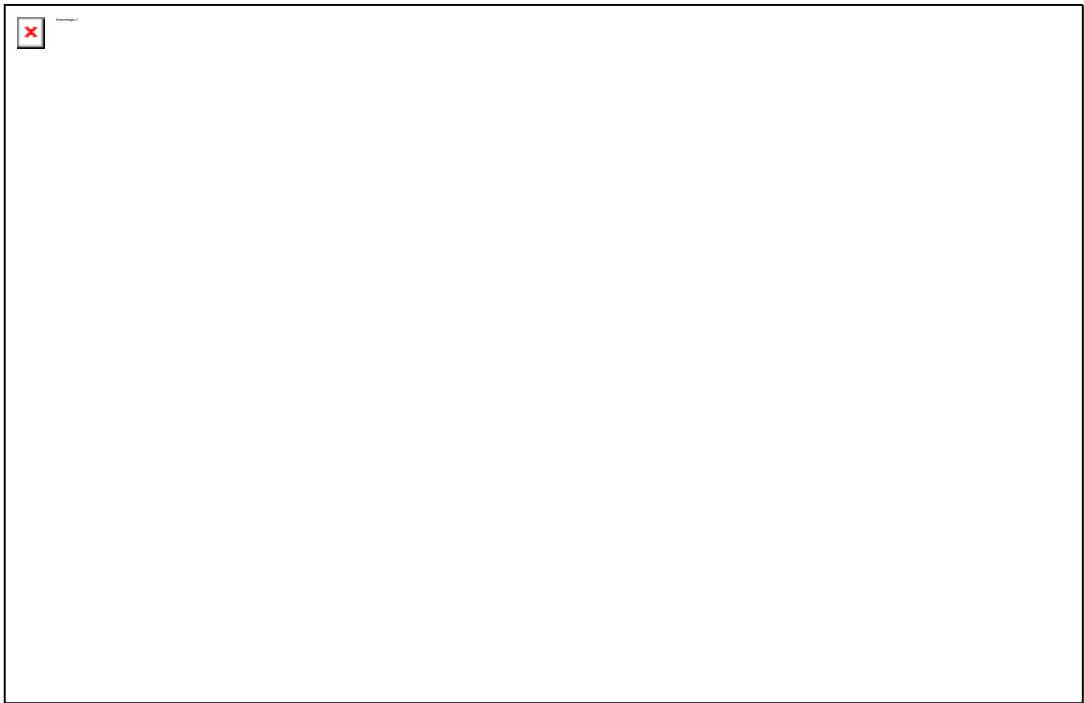
**Report Highlights:**

As the world's third-largest grain importer, Korea annually imported 13.4 million metric tons (MMT) of major grains and oilseeds on average for the past ten years (2002-2011), consisting of 8.5 MMT of corn, 3.7 MMT of wheat and 1.3 MMT of soybeans (Figure 1). Six major discharging ports handle most of the imported grains and oilseeds which are then distributed to feed and food processing industries located inland.

**Executive Summary:**

As the world’s third-largest grain importer, Korea annually imported 13.4 million metric tons (MMT) of major grains and oilseeds on average for the past ten years (2002-2011), consisting of 8.5 MMT of corn, 3.7 MMT of wheat and 1.3 MMT of soybeans (Figure 1). Six major discharging ports handle most of the imported grains and oilseeds which are then distributed to feed and food processing industries located inland.

Figure 1



Source: Korea Customs Service (KCS)

**Table 1**

Korea: Grains and Oilseeds Import for CY2002-2011 (Metric Ton)				
Calendar Year	Corn	Wheat	Soybean	Total
2002	9,125,577	3,861,349	1,473,899	14,460,825
2003	8,782,362	3,763,634	1,508,333	14,054,329
2004	8,371,011	3,368,629	1,283,491	13,023,131
2005	8,533,254	3,644,605	1,330,201	13,508,060
2006	8,669,653	3,524,076	1,126,879	13,320,608
2007	8,579,028	3,178,716	1,185,167	12,942,911
2008	9,020,995	2,682,305	1,324,501	13,027,801
2009	7,334,318	3,805,076	1,090,750	12,230,144
2010	8,540,967	4,384,385	1,225,886	14,151,238
2011	7,758,657	4,671,336	1,147,559	13,577,552
2012	8,220,184	5,655,154	1,139,804	15,015,142

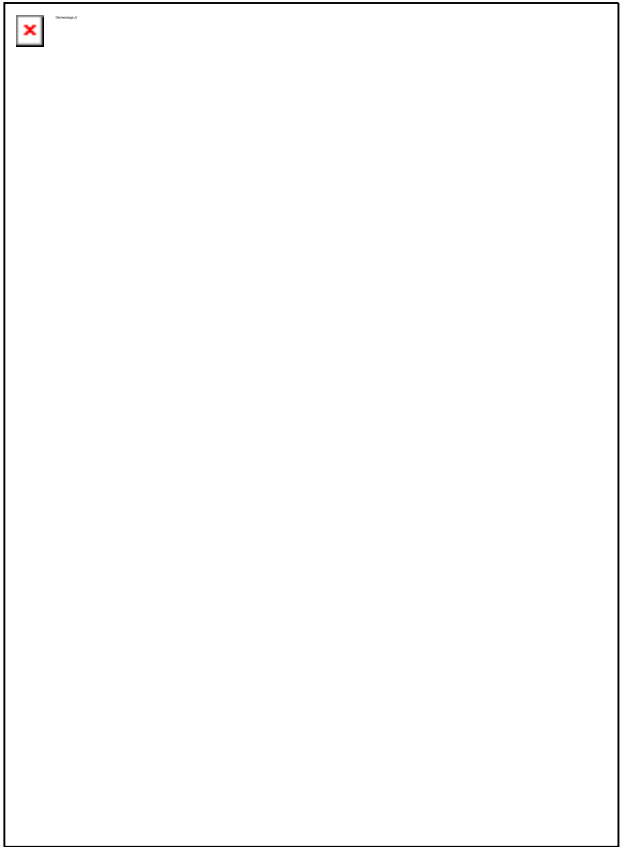
Source: Korea Customs Service (KCS)

**Introduction of Major Ports and Discharging Facilities in Korea**

Major grains and oilseeds discharging ports in Korea are Incheon, Pyungtaek, Kunsan, Mokpo, Ulsan and Busan. The report analyzes the imported amount of soybean, wheat and corn through the six major ports in CY 2011.

Incheon is currently the largest discharging port for grains and oilseeds, taking nearly 50 percent of total imports. After Incheon, Gusan is the second largest grain handler, with 23 percent, followed by Busan, Ulsan, Pyongtaek and Mokpo. (Table 2)

The Incheon port facility was greatly improved in 1975 when the Korea Silo installed the automatic grain terminal in 1975, allowing more efficient unloading of grain. The scale of storage capacity has largely increased since 1975 with Busan, Ulsan and Kunsan ports also equipped with silo facilities. Table 3 shows current storage capacity for each port.



**Figure 2**

Figure 3



Source: Korea Customs Service (KCS)

**Table 2**

Korea: CY 2011 Grains and Oilseeds Imports by Discharging Port (1,000 metric tons)					
Discharging Port	Corn	Wheat	Soybean	Total	%
Incheon	3,365	2,191	1,032	6,588	49
Pyung Taek	518	305	9	832	6
Kunsan	2,124	992	-	3,116	23
Mokpo	97	30	-	127	1
Ulsan	1,149	256	-	1,405	10
Busan	492	892	106	1,490	11
Total	7,745	4,666	1,147	13,558	100

Source: Korea Customs Service (KCS)

**Table 3**

Korea: Storage Capacity per Port (as of November 2011)			
Port	Discharging Company	Storage Capacity (MT)	Operating Year
Incheon	Korea Silo	300,000	1975
	Taihan Bulk Terminal (TBT)	150,000	1982
	Korea Express Silo	100,000	1987
	Sunkwang Silo	240,000	1985
	HanJin Silo	200,000	1987
	<b>Subtotal</b>	<b>990,000</b>	
Pyungtaek	Taeyoung Grain Terminal	320,000	2011
Kunsan	Sunkwang Silo	220,000	2005
Busan	KCTC Silo	133,000	1978
Ulsan	Taeyoung Industry	184,000	1987

<b>Grand Total</b>	<b>1,847,000</b>	
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Source: Korea Discharging Industry

#### Major Processors of Imported Grains

Feed grade corn and wheat has been imported by the feed millers under the Korea Feed Association (KFA), Nong-Hyup Feed Inc (NOFI) and NOFI Cooperative feed millers, who imported 5.7 MMT of feed grade corn and 2.2 MMT of feed grade wheat, respectively, in CY 2011. Food processing corn has been imported by corn processors under the Korea Corn Processing Industry Association (KCPIA), who imported 2.1 MMT of food grade corn in CY 2011. Food grade wheat for wheat flour has been imported by flour millers under the Korea Flour Mills Industry Association (KOFMIA), who imported 2.5 MMT of food grade wheat in CY 2011.

Soybeans have been imported by two soybean crushers under the Korea Soybean Processing Association (KSPA) and by the Korea Agro-Fishery and Food Trade Cooperation (aT), the state trading enterprise, on behalf of food soybean processors. Soybean crushers imported 0.82 MMT of soybeans for crushing while the aT imported 0.33 MMT of food grade soybeans for food processors, respectively, in CY 2011.

### General Information:

#### 1. Incheon Port

##### 1.1. Port

Development and proper management of port facilities, as well as specialization and increased efficiency in operating the port system, have contributed largely in supporting Incheon Port to become the most competitive facility for overseas trade. Located near the capital city of Seoul, it has been one of the most important sources of Korea's fast economic growth.

Incheon has transformed itself in running its business from a governmental organization to a corporation, in which it aims to become more goal-oriented and targets greater productivity and growth through the harbor. It works to develop Incheon Port into a core facility of North East Asia and confirms itself as a strong public sector in Korea.

##### 1.1.1. The Map of Incheon Port



Overall view of Incheon Port

##### 1.1.2. The Map and the Berthing Capacity of the Inner Port

The Inner Port of Incheon has berthing facilities for 48 vessels to berth at the same time. The Inner port is a multi-functional port equipped with complete piers for cars (Pier 5), grains and oilseeds (Pier 4, 6, 7), general cargo (Piers 1, 2, 3, 6, and 8), and Korea's first container pier (Pier 4). Most grains and oilseeds are unloaded by discharging companies located at the Inner port.



Various piers of the Inner Port

Korea: Grains and Oilseeds Discharging Companies in Inner port of Incheon					
Piers	Discharging Facilities	Length of Quay (m)	Depth of Alongside (m)	Number of Berth	Storage Capacity (MT)
4	Hanjin Silo &	1,160	12	1	200,000
	Korea Express			2	100,000
6	SunKwang Silo	1,218	12	1	240,000
7	Taihan Bulk Terminal (TBT)	1,458	12	2	150,000
	Korea Silo			1	300,000

Source: Incheon Port Authorities and Discharging Industry



Grain Terminals in Pier 7

### 1.1.3. The Map and the Berthing Capacity of the North Port

Constructed in 1974 by private funds to handle containers exclusively, the North Port has handled co-products for feed, timber, steel and other miscellaneous products by expanding port facilities according to the Development project of Incheon North Port from 2008 through 2011. Dongbu Multi-Purpose Pier built up its facilities to handle bulk commodities including co-products for feed, timber and other miscellaneous products in 2008 because the Port authorities no longer allowed discharging co-products for feed in the Inner Port due to heavy dust caused by discharging co-products.



Various piers of North Port

Korea: Discharging Facility of Grains and Co-Products in North Port of Incheon				
Pier	Length of Quay (m)	Depth of Alongside (m)	Number of Berth	Berthing Capacity DWT (MT)
Dongbu-multi purpose Pier	849	14	3	50,000 MT per berth

Source: Incheon Regional maritime Affairs & Post Office

## 1. 2. Introduction of Discharging Facilities



### 1.2.1. Taihan Bulk Terminal (TBT)

TBT began its operation in October, 1982 at Incheon Port. TBT adopted a pneumatic-type system and transformed most of its system to automation from 1997 to 1999 and has been recognized as a suitable grain discharging facility since then. In 2004, more advanced technology for the updated Windows system was applied for further innovations in automation. TBT mainly provides grain importing services especially with regard to grain discharge and storage systems utilizing silos.

Storage Capacity	150,000 MT
Unloading Ability	1500 MT/hour
Silo Bins	48 Round Bins
Discharging Facilities	Belt 2 sets, Air Inhaler 1 set
Silo Materials	Rebar Concrete
Contact Information	Website: <a href="http://www.tbt.co.kr">www.tbt.co.kr</a> , TEL : 032-770-5500, Fax : 032-770-5555

### 1.2.2. Korea Silo

Equipped with a new automation system for discharging grain, Korea Silo has invested in modernizing their facilities and equipment.

Storage Capacity	300,000 MT
Unloading Ability	1550 MT/hour
Silo Bins	72 Round Bins
Discharging Facilities	Chain Inhaler 1 set, Air Inhaler 2 sets
Silo Materials	Rebar Concrete
Contact Information	Website: <a href="http://www.koreasilos.co.kr">www.koreasilos.co.kr</a> , TEL: 032-763-3211~6; 032)885-6664 Fax: 032-763-3218



Korea Silo as the first modernized discharging facilities built in 1975

### 1.2.3. Korea Express Silo

Korea Express Silo has been largely contributing to the nation's economy by its unique transportation system, and is comprised of more than 200 overseas networks which connect 40 areas in Korea and 500 different places abroad.

Storage Capacity	100,000 MT
Unloading Ability	600 MT/hour
Silo Bins	50 Round Bins
Discharging Facilities	Unloader 1 set



Silo Materials	Rebar Concrete
Contact Information	Website: <a href="http://www.korex.co.kr">www.korex.co.kr</a> , TEL: 032-770-5114; 032)770-5210

#### 1.2.4. SunKwang Silo

SunKwang Silo has been specialized in discharging grains since 1985 and continued its business of discharging grains and oilseeds for more than 20 years. They adopted the newest system in handling imported grains in a trailers system.

Storage Capacity	220,000 MT
Unloading Ability	1200 MT/hour
Silo Bins	48 Round Bins
Discharging Facilities	Unloader 2 sets, Harbor Crain 1 set
Silo Materials	Rebar Concrete
Contact Information	Website: <a href="http://www.sun-kwang.co.kr">http://www.sun-kwang.co.kr</a> , TEL: 032-880-6652; 032)880-6656, Fax: 032-888-5919

#### 1.2.5. HanJin Silo

Hanjin Silo was founded in 1966 from Incheon and established their first dock by a private investment in 1974. HanJin Silo placed high-tech machinery and facilities in major ports of Korea along with additional services provided to customers to maintain a high quality of imported goods. They also focus on offering services related to storage, transportation and processing to meet the needs of customers.

Storage Capacity	200,000 MT
Unloading Ability	900 MT/hour
Silo Bins	30 Round Bins
Discharging Facilities	Unloader 1 set, Container Crain 2 sets
Silo Materials	Rebar Concrete
Contact Information	Website: <a href="http://www.hanjin.co.kr/Logistics_html/index.jsp">http://www.hanjin.co.kr/Logistics_html/index.jsp</a> TEL: 02-728-5770; 032)880-6931

Korea: Discharging Quantities per Company in Incheon Port (1,000 metric tons)							
Year	SunKwang	Korea SILO	TBT	Korea Express	Hanjin	DongBu	Total
2004	1,613	2,522	1,332	1,028	1,723	-	8,217
2005	1,579	2,518	1,358	1,066	1,774	-	8,295
2006	1,564	2,493	1,277	1,039	1,741	-	8,114
2007	1,527	2,305	1,265	959	1,582	-	7,638
2008	1,379	2,171	1,189	1,002	1,497	-	7,238
2009	1,396	2,174	1,166	947	1,355	-	7,038
2010	1,595	2,479	1,246	1,085	1,801	-	8,206
2011	1,260	2,392	1,259	737	1,010	-	6,658
Average	1,451	2,405	1,240	951	1,495	27	7,569
Ratio	19%	32%	16%	13%	20%	0%	100%

Source: SunKwang

### 1. 3. 2011 Grains & Oilseeds Import in Incheon Port

In CY 2011, Incheon Port imported 6.6 MMT, or 49 percent of total major grains and oilseeds, which were composed of 3.4 MMT of corn, 2.2 MMT of wheat and 1.0 MMT of soybeans.

Product	HS code	CY 2011 Import Amount (MT)
		Incheon

Corn	1005	
Corn for feeding	1005901000	2,226,840
Corn for food processing	1005909000	1,138,018
Total		3,364,858
Wheat	1001	
Wheat for feeding	1001909020	663,790
Wheat for milling	1001909030	1,521,435
Wheat for sauce	1001909090	5,761
Total		2,190,986
Soybean	1201	
Soybean for crush	1201001010	820,746
Soybean for feeding	1201001020	308
Soybean for sprouting	1201009010	5,479
Soybean for food processing	1201009090	206,052
Total		1,032,585

Source: Korea Customs Service

#### 1. 4. Industries located inland of Incheon Port

##### 1.4.1 Feed Industry

Feed millers under the Korean Feed Association (KFA) are comprised of 16 companies in Gyeonggi province, where Incheon is located, and only one company in Gangwon province, respectively. Total compound feed production in 2011 was at 4.2 MMT, using 1.4 MMT of corn and 0.6 MMT of wheat in feed mills located in these area in CY 2011.

NOFI and its Coop feed millers produced 1.4 MMT of compound feed production, consuming 375,300 MMT of corn and 44,072 MMT of wheat in CY 2011.

Korea : KFA Feed Mills in Gyeonggi and Gangwon Provinces (Metric Ton)					
Company	Daily Capacity 1/	Yearly Capacity 2/	2011 Compound Feed Production	2011 Corn Consumption	2011 Wheat Consumption
Cargill Agri Purina, Inc.	470	141,000	304,692	111,255	43,048
Sunjin Co., Ltd.	500	150,000	266,840	43,240	77,542
Doosan Corporation	400	120,000	262,912	82,631	27,851
Hanil Feed Co., Ltd.	380	114,000	280,142	91,070	17,028
Heung Sung Feed Ind. Co., Ltd.	450	135,000	250,916	122,860	10,068
Farmsco Co., Ltd.	520	156,000	372,318	102,967	81,771
Korea Milk Product Inc.	100	30,000	42,365	15,064	3,618
Dae Han Livestock & Feed Co., Ltd.	400	120,000	305,839	130,045	35,751
Dae Joo Co., Ltd.	520	156,000	142,805	55,051	18,393
TS Corporation	800	240,000	474,907	137,493	97,078
CJ Corporation	900	270,000	357,828	102,636	54,496
Chung Ang Livestock Feed Co., Ltd.	200	60,000	101,866	52,244	7,838
Jeil Enterprise Co., Ltd.	340	102,000	401,334	137,611	59,199

Boo Kook Feed Mill Co., Ltd.	290	87,000	160,788	76,215	13,263
Seu Boo Feed Mill Co., Ltd.	230	69,000	179,728	93,400	17,128
Seoul Feed Co., Ltd.	300	90,000	300,685	129,376	42,583
DongA One Co., Ltd.	300	90,000	43,059	17,710	6,816
<b>Total</b>	<b>7,100</b>	<b>2,130,000</b>	<b>4,249,024</b>	<b>1,500,868</b>	<b>613,471</b>

Source: Korea Feed Association (KFA)

1/ Based on 8 hours of operation per day 2/ Based on 300 days of operation per year

Korea : NOFI Feed Mills in Gyeonggi and Gangwon provinces (Metric Ton)					
Plant	Daily Capacity 1/	Yearly Capacity 2/	2011 Compound Feed Production	2011 Corn Consumption	2011 Wheat Consumption
Won Ju	34	10,200	377	na	na
Hwoeng Sung	300	90,000	268,668	84,790	25,313
<b>Total</b>	<b>334</b>	<b>100,200</b>	<b>269,045</b>	<b>84,790</b>	<b>25,313</b>

Source: Nong-Hyup Feed Inc (NOFI)

1/ Based on 8 hours of operation per day 2/ Based on 300 days of operation per year

Korea : NOFI Coop Feed Mills in Gyeonggi and Gangwon Provinces (Metric Ton)					
Coop	Daily Capacity 1/	Yearly Capacity 2/	2011 Compound Feed Production	2011 Corn Consumption	2011 Wheat Consumption
Seoul	300	90,000	188,230	70,000	9,900
Incheon	350	105,000	229,960	77,700	6,172
YangJu	430	129,000	163,600	60,000	9,700
AnYang	200	60,000	200,246	62,000	7,000
Ansan	700	210,000	343,321	105,600	21,200
<b>Total</b>	<b>1,980</b>	<b>594,000</b>	<b>1,125,357</b>	<b>375,300</b>	<b>44,072</b>

Source: Nong-Hyup Feed Inc (NOFI)

1/ Based on 8 hours of operation per day 2/ Based on 300 days of operation per year

#### 1.4.2. Corn Processing Industry

Three wet millers and two dry millers under KCPIA consumed 1.4 MMT of corn to produce corn starch and corn flour in these areas in CY 2011.

Korea: Corn Processors in Gyeonggi Province (Metric Ton)			
Company	Daily Capacity 1/	Yearly Capacity 2/	2011 Corn Consumption
Corn Products 3/4/	523	156,900	522,620
Samyang Genex Corporation 3/	333	100,000	314,725
CJ Cheil Jedang Corporation 3/4/	350	105,000	259,928
Dongil Grain Company., Ltd 4/	57	17,100	51,698

HK-koksan 4/	10	3,000	8,343
<b>Total</b>	<b>1,273</b>	<b>382,000</b>	<b>1,157,314</b>

Source: Korea Corn Processing Industry Association (KCPIA)

Based on 300 days of operation per year 3/ Wet Milling

1/ Based on 8 hours of operation per day 2/  
4/ Dry Milling

### 1.4.3. Soybean Crushing Industry

CJ Corp and Sajo Corp represent all soybeans crushing companies in Korea located in Gyeonggi province, consuming 0.8 MMT of soybeans for crushing in CY 2011.

Korea : Soybean Crushers in Gyeonggi Province (Metric Ton)			
Company	Daily Capacity 1/	Yearly Capacity 2/	2011 Corn Consumption
CJ Corp.	1893	568,020	563,746
Sajo Corp.	927	278,207	257,000
<b>Total</b>	<b>2,820</b>	<b>846,227</b>	<b>820,746</b>

Source: Korea Soybean Processing Association (KSPA )

hours of operation per day 2/ Based on 300 days of operation per year

1/ Based on 8

### 1.4.4. Wheat Flour Industry

Seven flour millers under KOFMIA consumed 1.5 MMT of wheat for flour production in CY 2011, representing 70 percent of total milling wheat consumption in Korea.

Korea: Flour Millers in Gyeonggi Province (Metric Ton)			
Company	Daily Capacity 1/	Yearly Capacity 2/	2011 Corn Consumption
Dae Han Flour Mills Co., Ltd	2,460	738,000	445,056
Dong A One Co., Ltd	580	174,000	148,516
Dae Sun Flour Mills Co., Ltd	650	195,000	164,101
SamYang Milmax Corporation	805	241,500	204,989
Korea Flour Mills Co., Ltd	736	220,800	169,676
CJ Cheil Jedang Corporation	1,120	336,000	268,698
Sam Hwa Flour Mills Co., Ltd	380	114,000	97,103
<b>Total</b>	<b>6,731</b>	<b>2,019,300</b>	<b>1,498,139</b>

Source: Korea Flour Mills Industry Association (KOFMIA)

on 8 hours of operation per day 2/ Based on 300 days of operation per year

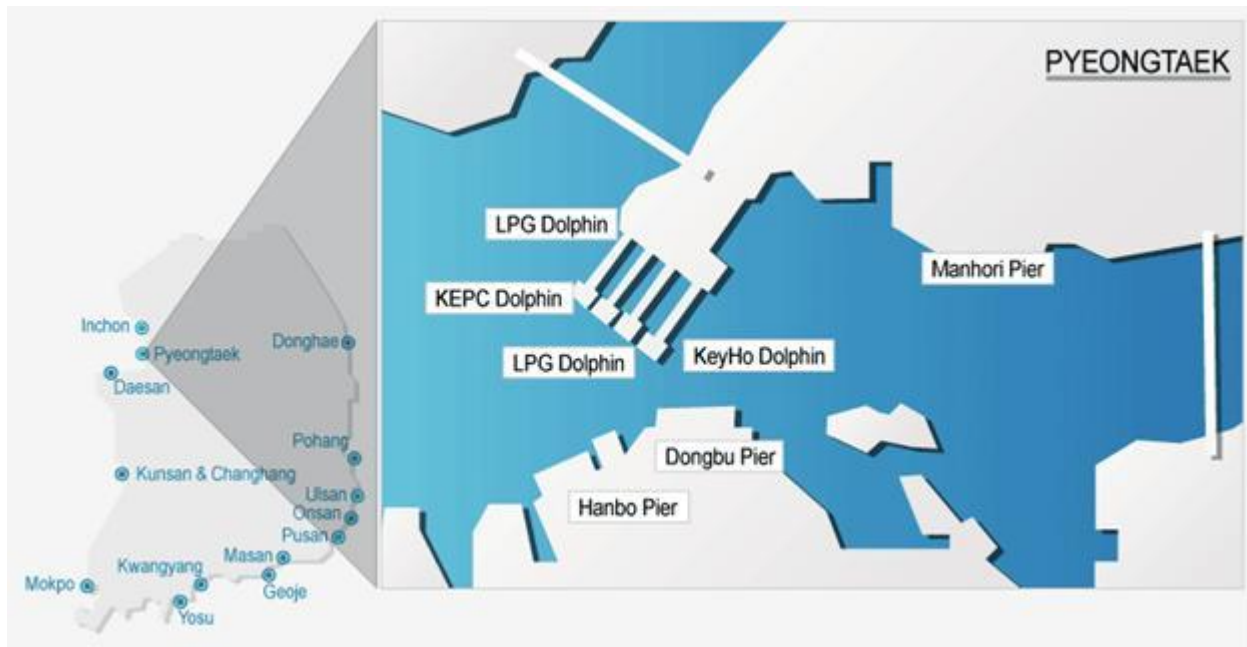
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## 2. PyungTaek Port

### 2.1. Port

Pyungtaek Port is located in the west coast of Gyeonggi province to meet a greater demand of logistics from feed and food processing industries in Gyeonggi and Chungcheong provinces. Deeper draft of Pyungtaek port has allowed Kamsarmax, bigger vessel than Panamax, to berth in the port and discharge grains and oilseeds at a much more competitive freight rate. Gyeonggi PyungTaek Port Corporation has a plan to establish additional 74 piers into current 38 docks by 2020.

#### 2.1.1. The Map and the Berthing Capacity



Overall view of pyeongtaek port

Korea: Discharging Facility in Pyeongtaek Port			
	Length of Quay (m)	Depth of Alongside (m)	Berthing Capacity DWT (MT)
KEPC Dolphin	265	12	20,000
LNG Dolphin	290	14	75,000
Keyho Dolphin	245	12	30,000
DongBu Pier	120	7	5,000
Hanbo Pier	765	13.5	30,000
Manhori Pier	720	11	30,000

## 2. 2. Introduction of Discharging Facilities

### 2.2.1. Taeyoung Grain Terminal Co., Ltd

The Taeyoung Grain Terminal Co., Ltd was built to import, discharge and store grain and oilseeds in August, 2011 in Pyungtaek Port, where is equipped with 2 berths and 560 meters of quay wall in the Pier number of eight and nine. The Grain Terminal equipped with 320,000 MT of grain storage capacity competes with discharging companies in Incheon port by reducing operating costs through a much more cost effective distribution system to feed millers located inland of Pyungtaek port.

Storage Capacity	320,000 MT
Unloading Ability	800 MT/hour
Silo Bins	72 Round Bins
Discharging Facilities	Air Inhaler 1 set, Belt 2 sets
Silo Materials	Concrete
Contact Information	Website: <a href="http://www.tygp.co.kr">www.tygp.co.kr</a> ; Tel: 031) 684-5564



Taeyung Grain Terminal in PyungTaek Port

## 2. 3. 2011 Grains & Oilseeds Import in Pyungtaek Port

Pyungtaek port imported 0.8 MMT of grains and oilseeds for about four months in 2011 soon after starting the operation of Taeyoung Grain Terminal in August 2011.

Product	HS code	CY 2011 Import Amount (MT)
		Pyungtaek
Corn	1005	
Corn for feeding	1005901000	517,922
Corn for popcorn	1005902000	0
Corn for food processing	1005909000	0
Total		517,922
Wheat	1001	
Wheat for feeding	1001909020	285,180
Wheat for milling	1001909030	20,452
Wheat for sauce	1001909090	0
Total		305,632
Soybean	1201	
Soybean for crush	1201001010	0
Soybean for feeding	1201001020	0
Soybean for sprouting	1201009010	6,386
Soybean for food processing	1201009090	2,332
Total		8,718

Source: Korea Customs Service (KCS)

## 2. 4. Industries inland of PyungTaek Ports

### 2.4.1. Feed Industry

15 feed millers under KFA in Chungbuk and Chungnam provinces produced 2.6 MMT of compound feed, consuming 0.8 MMT of corn and 0.4 MMT of feed wheat in CY 2011.

Korea: KFA Feed Mills in Chungbuk and Chungnam Provinces (Metric Ton)					
Company	Daily Capacity 1/	Yearly Capacity 2/	2011 Compound Feed Production	2011 Corn Consumption	2011 Wheat Consumption
Farmstory Hannaeng Co., Ltd.	400	120,000	235,869	81,302	59,025
At Life Science Inc.	190	57,000	134,471	48,949	32,790
Naram Co., Ltd.	280	84,000	100,767	32,866	22,869
Hangil Bio Co., Ltd.	320	96,000	90,507	35,136	23,269
Jeil Feed Co., Ltd.	480	144,000	314,255	88,832	43,649
Woo Sung Feed Co., Ltd.	1,060	318,000	405,324	118,171	57,160
Seoul Feed Co., Ltd.	290	87,000	89,383	18,258	10,858
Hyun Dai Feed Mill Co., Ltd.	270	81,000	213,813	91,393	23,537
Sajo Bio Feed Co., Ltd.	96	28,800	17,098	6,649	2,453
Dongwon Farms Co., Ltd.	300	90,000	238,608	83,203	46,293
Cargill Agri Purina, Inc.	300	90,000	179,904	45,708	34,844
Samyang Corporation	300	90,000	223,237	82,308	18,627
Dae Joo Co., Ltd.	50	15,000	25,131	3,951	5,101
DongA One Co., Ltd.	300	90,000	264,878	86,778	52,525
Easy Bio System, Inc.	80	24,000	40,132	4,388	na
<b>Total</b>	<b>4,716</b>	<b>1,414,800</b>	<b>2,573,377</b>	<b>827,892</b>	<b>433,000</b>

Source: Korea Feed Association (KFA)

1/ Based on 8 hours of operation per day 2/ Based on 300 days of operation per year

Korea : NOFI Feed Mills in Chungbuk Province (Metric Ton)					
Plant	Daily Capacity 1/	Yearly Capacity 2/	2011 Compound Feed Production	2011 Corn Consumption	2011 Wheat Consumption
Chung Ju	450	135,000	506,187	177,529	57,296

Source: Nong-Hyup Feed Inc (NOFI)

1/ Based on 8 hours of operation per day 2/ Based on 300 days of operation per year

Korea : NOFI Coop Feed Mills in Chungnam Province (Metric Ton)					
Coop	Daily Capacity 1/	Yearly Capacity 2/	2011 Compound Feed Production	2011 Corn Consumption	2011 Wheat Consumption



Cheon An	150	45,000	75,241	27,000	4,200
Hong Sung	150	45,000	131,778	46,600	8,970
Bo Ryeong	100	30,000	36,658	7,800	1,800
Dang Jin	220	66,000	121,577	42,853	3,835
<b>Total</b>	<b>620</b>	<b>186,000</b>	<b>365,254</b>	<b>124,253</b>	<b>18,805</b>

Source: Nong-Hyup Feed Inc (NOFI)

1/ Based on 8 hours of operation per day 2/ Based on 300 days of operation per year

### 3. Kunsan Port

#### 3.1. Port

Prior to its opening as an international port, Kunsan Port was widely recognized as a trade port since the fifteenth century. It opened as an international trade port on May 1, 1899 in order to export Korean rice to Japan, via a floating pier in the Kunsan Inner Harbor. The outer port of Kunsan was established with Pier 1 through 3 constructed from 1974 through 1995. Kunsan port has rapidly transformed itself to a full scale international trade port according to the Kun-Jang New Port Development Plan (1990-2011), establishing Pier 4 through 7.

Kunsan Port is located on the west coast of Jeonbuk Province. The port loads and discharges containers, cars, grains and cement, handling 17.3 MMT of cargo on a yearly basis.

A grain discharging silo facility is located in Pier No. 6 in the Port of Kunsan equipped with two berths and capacity to simultaneously berth four 50-thousand ton vessels. The first berth is 930 meters long with alongside depth of 13 meters with a capacity of over 1.7 million tons per year. The second berth is 420 meters long with alongside depth of 11 meters, accommodating two 20-thousand ton vessels with handling capacity of 0.9 million tons per year.

##### 3.1.1. The Map of the Port



Overall view of Kunsan port

##### 3.1.2. The Map of the Pier 1, 2 & 3

Pier No. 1 is 525 meters long with alongside depth ranging from 9 to 11 meters, accommodating one 20-thousand ton vessel or two 10-thousand ton vessels with the capacity of handling 1.2 million tons of grain, raw lumber, and miscellaneous goods per year.

Pier No. 2 is 551 meters long with alongside depth of 11 meters, accommodating two 20 thousand ton vessels and one five-thousand ton vessel with a capacity of handling 7.2 million tons of grain, raw lumber, and miscellaneous goods per year.

Pier No. 3 is 640 meters long with alongside depth of 11 meters, accommodating three 20-thousand tons vessels with annual capacity of 1.7 million tons handling cement, grain, raw lumber and liquid cargo.



### 3.1.3. The Map of the Pier 4

Pier No. 4 was constructed by Daewoo Automobile Company Limited in 1997, exclusively loading automobiles for export. The Pier is 300 meters long with alongside depth of 11 meters, accommodating one 20-thousand ton vessel with an annual cargo-handling capacity for over two million tons.



### 3.1.4. The Map of the Pier 5

Completed in late 2000, Pier No. 5 specializes in handling automobiles, pulp, containers, and miscellaneous goods. The pier is 1260 meters long with alongside depth of 11 meters, accommodating six 20-thousand ton vessels with an annual capacity 2.6 million tons.



Korea: Kunsan Port Facilities				
	Length of Quay (m)	Depth of Alongside (m)	Number of Berth	Berthing Capacity DWT (MT)
Pier No. 1	180	8	3	30,000
Pier No. 2	220	8.5	3	25,000
Pier No. 3	210	8	3	20,000
Pier No. 4	300	10	1	20,000
Pier No. 5	210	10	8	20,000

## 3. 2. Introduction of Discharging Facilities

### 3.2.1 SunKwang Silo

Located in Pier 6 of Kunsan port, SunKwang Silo was established in 2004, having a geographical advantage to discharge grains and oilseeds in the west coast regions. SunKwang has one of the top storage capacities with an outstanding discharging ability in Korea.

Storage Capacity	240,000 MT
Unloading Ability	1300 MT/hour
Silo Bins	60 Round Bins, 16 End Bins
Discharging Facilities	Unloader 1 set, Euro 1 set
Silo Materials	Concrete
Contact Information	063) 463-2512

### 3.2.2. Conventional Discharging Facilities

Prior to setting up SunKwang Silo in 2004, all grains were discharged by conventional discharging facilities. CJ Korea Express and Sebang Co., Ltd continue to discharge grains and co-products by conventional discharging methods to date.

Korea: Discharging Quantities per Company in Kunsan Port (1,000 metric ton)		
Year	SunKwang	Others <sup>1/</sup>
2004	-	1,565
2005	536	1,507
2006	974	1,447
2007	1,024	1,372
2008	1,144	1,146
2009	1,180	999
2010	1,710	1,314
2011	1,757	1416
2012	1,829	1,474
Average	1,269	1,186
Proportion	52%	48%

1/ by conventional discharging methods (Korea Express, Sebang Co., Ltd)

## 3. 3. 2011 Grains & Oilseeds Import in Kunsan Port

In CY 2011, the total amount of grain imports through the Kunsan port reached more than 3.1 million tons, consisting of 1.5 MMT for feed corn, 0.6 MMT mt for food processing corn, 0.9 MMT for feed wheat and 0.1 MMT for milling wheat.

However, the unloaded milling wheat was transported to a flour miller located in the Chungnam province. Kunsan port no longer discharges milling wheat for flour since the opening of the grain silo in Pyungtaek Port in August 2011.

Product	HS code	CY 2011 Import Amount (MT)
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		Kunsan
Corn	1005	
Corn for seed	1005100000	0
Corn for feeding	1005901000	1,496,914
Corn for popcorn	1005902000	0
Corn for food processing	1005909000	627,672
Total		2,124,586
Wheat	1001	
Wheat for seed	1001909010	0
Wheat for feeding	1001909020	878,478
Wheat for milling	1001909030	113,662
Wheat for sauce	1001909090	0
Total		992,140

Source: Korea Customs Service (KCS)

### 3. 4. Industries inland of Kunsan Ports

#### 3.4.1. Feed Industry

12 feed millers under KFA located in Jeonbuk province produced 2.4 MMT of compound feed in 2011, using 0.7 MMT of corn and 0.5 MMT of feed wheat, respectively. Three feed millers under NOFI produced 1.2 MMT of compound feed with consumption of 0.4 MMT of corn and 0.3 MMT of feed wheat.

Korea: KFA Feed Mills in Jeonbuk Province (Metric Ton)					
Company	Daily Capacity1/	Yearly Capacity2/	2011 Compound Feed Production	2011 Corn Consumption	2011 Wheat Consumption
Farmsco Co., Ltd.	449	134,700	240,729	63,680	71,444
Cargill Agri Purina, Inc.	760	228,000	501,097	108,953	88,716
CJ Corporation	300	90,000	252,003	76,504	43,176
Seoul Feed Co., Ltd.	300	90,000	141,881	55,706	25,872
Harim Co., Ltd.	670	201,000	399,270	101,144	101,379
Dae Han Livestock & Feed Co., Ltd.	240	72,000	132,601	51,761	25,015
Chun Ha Jeil Co., Ltd.	190	57,000	207,943	90,462	32,337
Farmstory Hannaeng Co., Ltd.	400	120,000	179,025	55,058	45,259
Seven Kosf Co., Ltd.	15	4,500	na	na	na
Nanong Co., Ltd.	640	192,000	213,365	73,639	63,021
Cherryfeed Co., Ltd.	260	78,000	100,386	43,978	23,396
Dongil Nongsan Co., Ltd.	80	24,000	8,580	4,023	663
<b>Total</b>	<b>4304</b>	<b>1,291,200</b>	<b>2,376,880</b>	<b>724,908</b>	<b>520,278</b>

Source: Korea Feed Association (KFA)

1/ Based on 8 hours of operation per day    2/ Based on 300 days of operation per year

Korea : NOFI Feed Mills in Jeonbuk and Jeonnam Provinces (Metric Ton)					
Plant	Daily Capacity 1/	Yearly Capacity 2/	2011 Compound Feed Production	2011 Corn Consumption	2011 Wheat Consumption
Kim Jae	780	234,000	495,155	166,672	48,240
Na Ju	740	222,000	562,296	130,000	270,000

<b>Total</b>	<b>1,520</b>	<b>456,000</b>	<b>1,057,451</b>	<b>296,672</b>	<b>318,240</b>
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Source: Nong-Hyup Feed Inc (NOFI)

1/ Based on 8 hours of

operation per day 2/ Based on 300 days of operation per year

Korea : NOFI Coop Feed Mills in Jeonnam Province (Metric Ton)					
Coop	Daily Capacity 1/	Yearly Capacity 2/	2011 Compound Feed Production	2011 Corn Consumption	2011 Wheat Consumption
Gwang Ju	300	90,000	228,465	88,900	9,300

Source: Nong-Hyup Feed Inc (NOFI)

1/ Based on 8 hours of

operation per day 2/ Based on 300 days of operation per year

### 3.4.2. Corn Processing industry:

Only one corn processor in Jeonbuk Province consumed 0.6 MMT of yellow corn for wet milling processing to produce corn starch, HFCS and corn syrup in 2011.

Korea: Corn Processors in Jeonbuk province (Metric Ton)				
Company	Daily Capacity1/	Yearly Capacity2/	2011 Corn Consumption	
Daesang Farmsco 3/	733	220,000	606,428	

Source: Korea Corn Processing Industry Association (KCPIA)

1/ Based

on 8 hours of operation per day 2/ Based on 300 days of operation per year

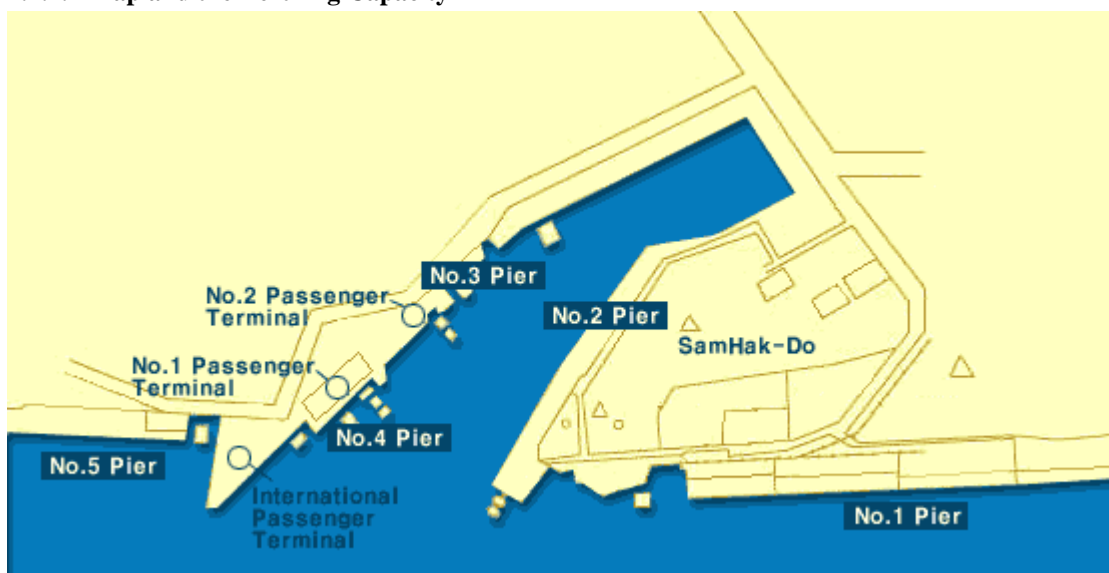
## 4. Mokpo port

### 4. 1. Port

Located in Jeonnam Province, Mokpo Port plays a central role in connecting DaDohae islands and works as a marine gateway into Jeonnam Province. It also has a terminal for passenger ships from more than 60 areas including Jeju Island.

The location of the port is outstanding due to its geographical protection from tsunamis and is able to establish diverse pathways to different overseas harbors including Shanghai in China. However, grain discharging has heavily relied on conventional discharging methods because grain demand for feed and food processing facilities inland of Mokpo Port is limited.

#### 4.1.1. Map and the Berthing Capacity



Overall view of mokpo port (Korean)

Korea: Mokpo Port Facilities					
	Length of Quay (m)	Depth of Alongside (m)	Number of Berth	Berthing Capacity DWT (1,000MT)	Cargo Capacity (1,000MT/year)
Daebul Wharfs	630	na	3	60	1,890

#### 4. 2. Introduction of Discharging Facilities in Mokpo Port

Korea: Discharging Quantities in Mokpo Port (1,000 metric ton)	
Year	Mokpo Port
2004	425
2005	419
2006	360
2007	219
2008	215
2009	118
2010	107
2011	97
Average	245

#### 4. 3. 2011 Grain Imports in Mokpo Port

In 2011, total grain imports were less than 130,000 MT, consisting of approximately 100,000 MT of corn for feed and 30,000 MT of milling wheat. Milling wheat is no longer discharged in Mokpo Port as Korea Flour Mills Co., Ltd. moved its factory inland of Pyungtaek port in 2011.

Product	HS code	CY 2011 Import Amount (MT)
		Mokpo
Corn	1005	
Corn for seed	1005100000	0
Corn for feeding	1005901000	97,588
Corn for popcorn	1005902000	0
Corn for food processing	1005909000	0
Total		97,588
Wheat	1001	
Wheat for seed	1001909010	0
Wheat for feeding	1001909020	0
Wheat for milling	1001909030	30,639
Wheat for sauce	1001909090	0
Total		30,639

Source: Korea Customs Service (KCS)

#### 4.4. Industries inland of Mokpo Ports

##### 4.4.1. Feed Industry

Three feed millers under KFA located in the Jeonnam Province produced about 186,000 MT in 2011, consuming 66,000 MT of corn and 22,000 MT of feed wheat.

Korea: KFA Feed Mills in Jeonnam province



(Metric Ton)					
Company	Daily Capacity1/	Yearly Capacity2/	2011 Compound Feed Production	2011 Corn Consumption	2011 Wheat Consumption
Samyang Corporation	430	129,000	135,275	47,548	14,239
Sajo Bio Feed Co., Ltd.	180	54,000	41,394	13,139	7,971
Nam Yang Co., Ltd.	27	8,100	9,278	5,348	na
<b>Total</b>	<b>637</b>	<b>191,100</b>	<b>185,947</b>	<b>66,035</b>	<b>22,210</b>

Reference: Korea Feed Association (KFA)

1/ Based on 8 hours of

operation per day 2/ Based on 300 days of operation per year

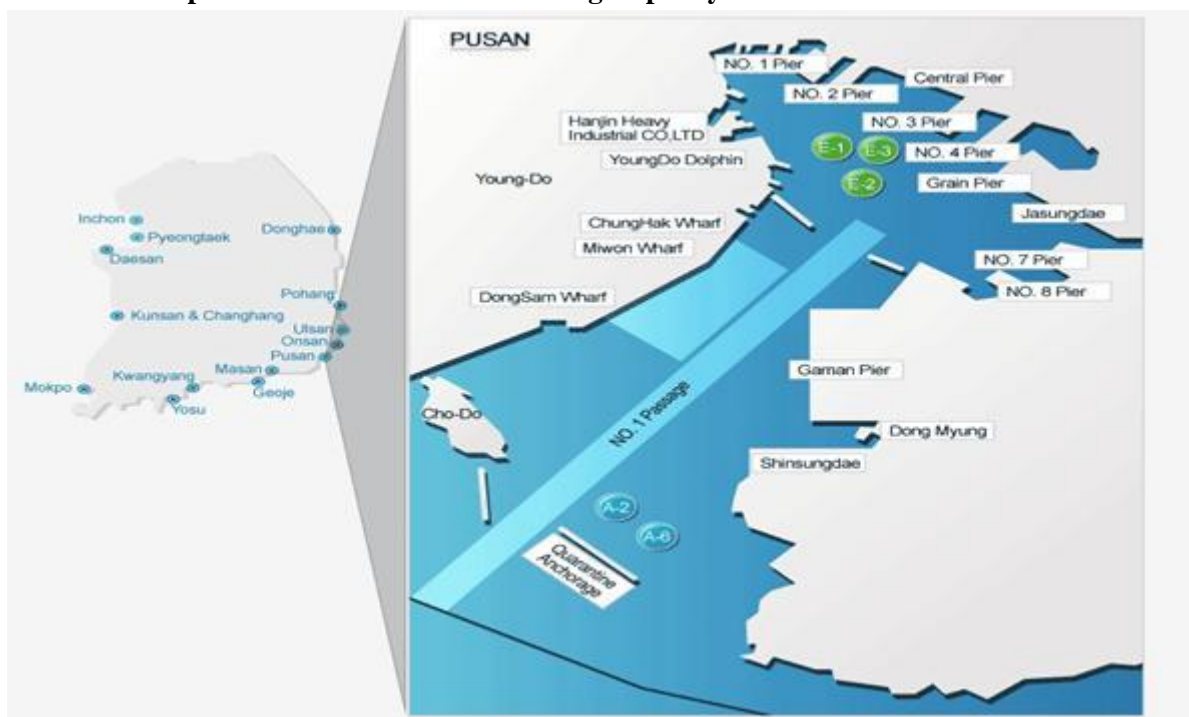
## 5. Busan port/ Ulsan Port

### 5.1. Port

Busan Port was established in Korea on February 27, 1876. It has the largest amount of cargo entered and cleared, ranking 5<sup>th</sup> in the world as a container specialized port handling 14 million TEU as of 2010. Since 1997, Busan Port has been working on building up additional harbors to cope with a rapid increase in container traffic. In 2012, it began operating a north container port as well as current development of new and additional south and west container ports.

Ulsan Port located in Kyungnam Province is a loading and discharging port in the region of the largest petrochemical industry complex in Korea. The depth of the port is 13 meters.

#### 5.1.1 The Map of Busan Port and the Berthing Capacity



Overall view of Busan port

Korea: Busan Port Facilities				
	Length of Quay (m)	Depth of Alongside (m)	Number of Berth	Berthing Capacity DWT (MT)
1 Pier	629	9	3	10,000



2 Pier	924	6.5-10	5	34,000
Central Pier	646	9	4	10,000
3 Pier	1145	8.0-9.0	7	35,000
4 Pier	1311	5.5-8.2	10	39,000
Grain Terminal	371	11.5	1	50,000
7 Pier	667	7.5-10.5	4	24,000
8 Pier	1000	5.0-10.0	8	26,000

### 5.1.2 The Map of Ulsan Port and the Berthing Capacity



Overall view of Ulsan port

Korea: Discharging Facilities in Ulsan Port					
	Length of Quay (m)	Depth of Alongside (m)	Number of Berth	Berthing Capacity DWT (1,000 MT)	Cargo Capacity (1,000 MT/year)
Grain Pier	185	13	1	50	1,674

## 5. 2. Discharging Facilities in Busan and Ulsan Ports

### 5.2.1. Busan Port

Korea Silo (KCTC) is operating a bulk commodity only discharging facility in Busan Port, which was established with 91 silo bins set up in 1979, 13 silo bins added in 1994 and a 23 silo bins expansion in 2004. The Grain Terminal is equipped with 1 berth and 371 meters of quay wall. The silo has 133,000 MT of grain storage capacity.

Storage Capacity	133,000 MT
Unloading Ability	800 MT/hour
Silo Bins	127 Round Bins
Discharging Facilities	Air Inhaler 2 sets
Silo Materials	Concrete
Contact Information	051) 646-6912



Korea

Silo in Busan

### 5.2.2. Ulsan Port

Completing the construction of 54 silo bins in 1986, TaeYoung Industry started its operation of bulk commodity discharging in Ulsan Port. The storage capacity reached 184,000 MT by setting up additional 27 silo bins in 1989 and 13 silo bins in 2008, respectively.

Storage Capacity	184,000MT
Unloading Ability	1500 MT/hour
Silo Bins	94 Round Bins
Discharging Facilities	3 Sets
Silo Materials	Rebar Concrete
Contact Information	(052) 228-3300



Korea: Discharging Quantities per Port  
(1,000 metric tons)

Discharging Facilities	Busan	Ulsan
	WooSung	TaeYoung
2004	1,273	1,387
2005	1,348	1,397
2006	1,346	1,407
2007	1,231	1,398
2008	1,266	1,190
2009	1,251	1,268
2010	1,395	1,375
2011	1,322	1,461
Average	1,304	1,360
Proportion	49%	51%

### 5. 3. 2011 Grains and Oilseeds Imports per Port

In 2011, approximately 3 MMT of grains and oilseeds in the region of Busan and Ulsan were imported, consisting of 1.5 MMT of grains and oilseeds through Busan Port and 1.4 MMT through Ulsan Port, respectively. Corn imports for feed reached 1.3 MMT and feed wheat of 0.4 MMT for feed millers located in these areas. Milling wheat of 0.75 MMT were imported for wheat flour millers located in this region. Corn for food processing was at 0.3 MMT imported mainly through Ulsan Port for one wet milling processor, including 36,456 MT of non-GMO corn imported by containers through Busan Port for two dry milling processors located in Gyeonggi Province. A third of total food grade soybeans imports, or 0.1 MMT was imported through Busan by bulk and/or containers for small and medium sized soybeans based food processors.

Product	HS code	CY 2011 Import Amount (MT)	
		Busan	Ulsan
Corn	1005		
Corn for seed	1005100000	206	0
Corn for feeding	1005901000	447,145	873,156
Corn for popcorn	1005902000	8,357	0
Corn for food processing	1005909000	36,456	275,977
Sub Total		492,164	1,149,133
Wheat	1001		
Wheat for seed	1001909010	0	0
Wheat for feeding	1001909020	119,681	256,364
Wheat for milling	1001909030	749,210	0
Wheat for sauce	1001909090	22,882	0
Sub Total		891,773	256,364
Soybean	1201		
Soybean for crush	1201001010	0	0
Soybean for feeding	1201001020	0	0
Soybean for sprouting	1201009010	36,457	0
Soybean for food processing	1201009090	69,622	0
Sub Total		106,079	0
Grand Total		1,490,016	1,405,497

Source: Korea Customs Service (KCS)

### 5. 4. Industries inland of Busan and Ulsan Ports

#### 5.4.1. Feed Industry

Feed millers under KFA are comprised of 12 companies in Kyungbuk and Kyungnam Provinces. Total compound feed production in 2011 was at 1.9 MMT, using 0.6 MMT of corn and 0.3 MMT of wheat in feed mills located in these areas in CY 2011.

NOFI and its Coop feed millers produced 1.4 MMT of compound feed production, consuming 0.4 MMT of corn and 44,072 MT of wheat in CY 2011.

Korea: KFA Feed Mills in Kyungbuk and Kyungnam Provinces (Metric Ton)					
Company	Daily Capacity1/	Yearly Capacity2/	2011 Compound Feed Production	2011 Corn Consumption	2011 Wheat Consumption
Korea Industrial Co., Ltd.	330	99,000	156,814	49,260	18,195
KC Feed Co., Ltd.	530	159,000	159,093	73,925	12,333
Woo Sung Feed Co., Ltd.	550	165,000	180,460	48,883	28,774
Seoul Feed Co., Ltd.	230	69,000	132,391	47,551	27,322
Dae Han Livestock & Feed Co., Ltd.	290	87,000	104,333	41,744	14,074
Jeil Feed Co., Ltd.	300	90,000	266,013	64,410	96,576
Young Nam Flour Mills Co., Ltd.	300	90,000	71,122	38,088	3,048
Cargill Agri Purina, Inc.	300	90,000	214,070	86,453	35,437
Haedream Co., Ltd.	160	48,000	98,035	44,865	11,254
Korea Industrial Co., Ltd.	330	99,000	143,700	57,315	26,444
TS Corporation	300	90,000	158,687	52,154	19,367
Ace Integration Co., Ltd.	400	120,000	na	na	na
<b>Total</b>	<b>3,620</b>	<b>1,206,000</b>	<b>1,684,718</b>	<b>604,648</b>	<b>292,824</b>

Source: Korea Feed Association (KFA)

1/ Based on 8 hours of operation per day 2/ Based on 300 days of operation per year

Korea: NOFI Feed Mills in Kungbuk and Kyungnam Provinces (Metric Ton)					
Plant	Daily Capacity 1/	Yearly Capacity 2/	2011 Compound Feed Production	2011 Corn Consumption	2011 Wheat Consumption
AnDong	450	135,000	370,525	104,851	41,075
HamAn	668	200,400	393,883	166,000	76,000
Ulsan	300	90,000	242,024	68,991	22,340
Pusan	60	18,000	14,745	na	na
GyeongJu	300	90,000	112,218	50,792	11,760
<b>Total</b>	<b>1,778</b>	<b>533,400</b>	<b>1,133,395</b>	<b>390,634</b>	<b>151,175</b>

Source: Nong-Hyup Feed Inc (NOFI)

1/ Based on 8 hours of operation per day 2/ Based on 300 days of operation per year

Korea: NOFI Coop Feed Mills in Kungbuk and Kyungnam Provinces (Metric Ton)					
Coop	Daily Capacity 1/	Yearly Capacity 2/	2011 Compound Production	2011 Corn Consumption	2011 Wheat Consumption
DaeGu	300	90,000	293,221	100,137	11,364
KimHae	330	99,000	165,157	60,000	12,000
BuKyeong	200	60,000	183,577	80,853	5,650
HapCheon	240	72,000	8,697	15,000	na
<b>Total</b>	<b>1,070</b>	<b>321,000</b>	<b>650,652</b>	<b>255,990</b>	<b>29,014</b>

Source: Nong-Hyup Feed Inc (NOFI)

1/ Based on 8 hours of operation per day 2/ Based on 300 days of operation per year

#### 5.4.2. Wheat Flour Millers

Four millers under KOFMIA consumed 0.7 MMT of imported wheat for flour production with one MMT of annual capacity in 2011.

Korea: Flour Mills in Kyungnam Province (Metric Ton)			
Company	Daily Capacity 1/	Yearly Capacity 2/	2011 Wheat Consumption
Dae Han Flour Mills Co., Ltd	530	159,000	101,578
Dong A One Co., Ltd	960	288,000	208,167
CJ Cheil Jedang Corporation	1,400	420,000	278,628
Young Nam Flour Mills Co., Ltd	440	132,000	99,511
<b>Total</b>	<b>3,330</b>	<b>999,000</b>	<b>687,884</b>

Source: Flour Mills Industry Association (KOFMIA)

1/ Based on 8 hours of operation per day 2/ Based on 300 days of operation per year

#### 5.4.3. Corn Processing Industry

Only one corn processor in Kyungnam Province consumed 257,520 MT of yellow corn for wet milling processing to produce corn starch, HFCS and corn syrup in 2011.

Korea: Corn Processors in Kyungnam Province (Metric Ton)			
Company	Daily Capacity1/	Yearly Capacity2/	2011 Corn Consumption
Samyang Genex Corporation	266	79,800	257,502

Source: Korea Corn Processing Industry Association (KCPIA)

1/ Based on 8 hours of operation per day 2/ Based on 300 days of operation per year