

Voluntary Report – Voluntary - Public Distribution

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Report Highlights:

Korea's 2022 potato production decreased by 9.5 percent to 510,000 MT. Domestic Korean potato production is expected to continue gradually declining in the coming years, which may create more opportunities for imported U.S. fresh (chipping and table) potatoes despite an annual tariff rate quota cap of 4,000 metric tons. Korea's potato consumption is expected to rise by 2.5 percent in 2023 due to increased demand for prepared potato products, which have traditionally dominated Korean potato imports. Korea's potato and potato product imports increased by 17 percent to 227,000 MT due mainly to strong demand for frozen french fries in the food service sector.

2022 POTATO PRODUCTION OUTLOOK

In calendar year (CY) 2022, Korea's fresh potato production decreased by 9.5 percent to 510,000 metric tons (MT) due to a significant drop in spring potato production in open fields caused by reduced precipitation during the May-June period and a 2.9 percent (21,112 hectares/ha) reduction in planted area. Planted area for potatoes (except for greenhouse production) is expected to continue decreasing gradually in the near future as many farmers shift to more profitable crops which have seen sharp price rises since early 2021, including cabbage, radish, carrots, and green onions.

Spring potatoes are planted from February through the middle of April and are harvested and marketed until the end of July. Planted area for spring potatoes, which accounted for 67.3 percent of total production in 2021, is expected to decrease by four percent this year due to reduced profitability in the previous year. The production volume and planted area for autumn potatoes in 2022 are expected to increase by 11.3 percent and 1.3 percent respectively, following a bump in market prices last year.

Planted area for potatoes produced in high elevation areas, which accounted for 20.9 percent of total production in 2021, is expected to decrease by five percent to 3,690 ha due to labor shortages (limited availability of seasonal foreign workers during the pandemic) and reduced productivity. In 2021, highland potato yields declined due to quality issues with summer heat waves and heavy precipitation from early harvesting.

The COVID-19 pandemic led to some labor shortages that impacted potato production costs, along with many other crops. Although labor shortages are gradually easing, domestic potato production is unlikely to increase going forward due to aging farmers and increases in production costs coupled with lower prices compared with many competing crops. The decrease in domestic potato production should expand opportunities for imported fresh potatoes (chipping and table potatoes), since imports have traditionally been limited mostly to processing potatoes. Fresh potatoes are imported under a tariff rate quota (TRQ) system and only limited volumes of table potato imports are allowed every year (about 4,000 MT in 2022), which caps the potential upside of increased imports.

For potatoes grown in greenhouses, total planted area is expected to reach 2,122 ha in 2022 and should continue to increase in the coming years. Unlike potatoes grown in open fields, greenhouse potatoes are less impacted by unfavorable weather conditions. In addition, the average price for greenhouse potatoes

is higher than field grown potatoes due to better and more consistent quality. Field grown potatoes may require longer storage periods before shipping and are more subject to adverse weather conditions and higher variable production costs.

2021 POTATO PRODUCTION

In 2021, Korea's potato production increased slightly (1.8 percent) from the previous year, totaling 563,000 MT. The small increase, despite a reduction in planted area, was mainly due to higher yields following favorable weather in the winter and spring seasons. Total planted area for potatoes was 21,745 ha in 2021, down 7.9 percent (1,854 ha) from the previous year. Potato production in highland areas in 2021 decreased 1.1 percent despite an increase in planted area (to 3,888 ha) due to unfavorable weather during the summer season (high temperature and excess rainfall in early September). However, spring potato production saw a slight (0.9 percent) increase due to higher yields driven by favorable weather during the growing season despite a 12.7 percent decrease in planted area. In the five years prior to 2021, potato production fluctuated between 691,000 MT and 467,000 MT annually.

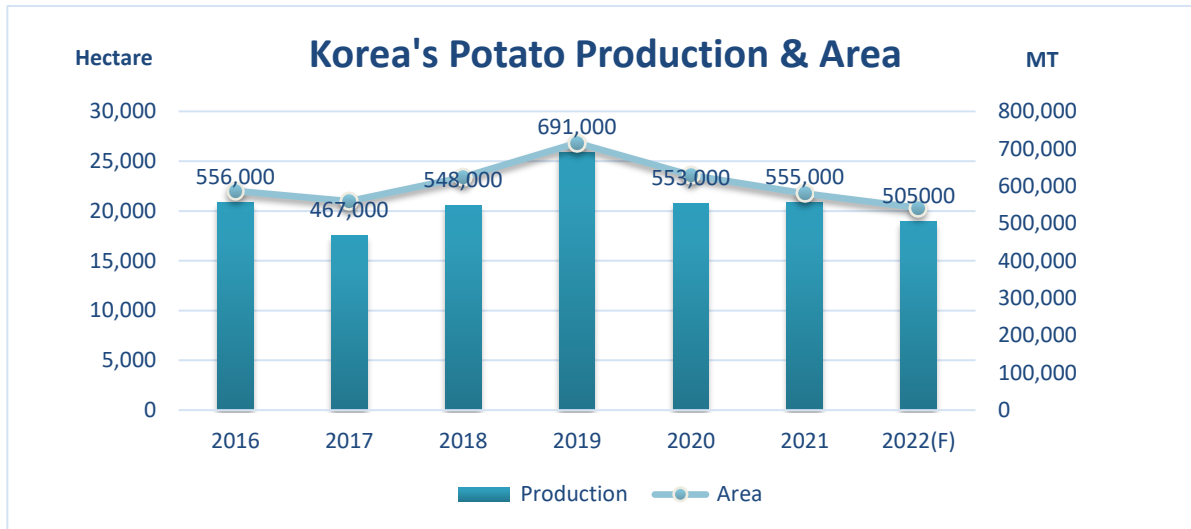
Table 1. Korea: Area planted (Ha), Production (Thousand Metric Tons: TMT) For 2018-2022

Cropping Pattern	2019		2020		2021		2022 (F)	
	Ha	TMT	Ha	TMT	Ha	TMT	Ha	TMT
Spring	18,150	466	16,339	376	14,266	379	13,017	305
Highland	3,844	140	3,390	119	3,888	118	3,495	125
Autumn	4,835	85	3,870	57	3,591	57	3,800	80
Total	26,829	691	23,599	553	21,745	555	20,312	510

Source: Korea Statistics Information System (KOSIS)

Note: Forecast data for 2022 by KREI

Figure 1. Korea's Potato Production (MT) and Area (HA)



Source: Statistics Korea & Korea Rural Economic Institute (KREI)

Processing Potatoes

The Korean potato chip processing industry uses 30,000 to 35,000 MT of domestically grown fresh potatoes every year, accounting for about 5.6 percent of average domestic annual production (575,500 MT) between 2018 and 2021. Korean chip processors use a similar volume (30,000 to 35,000 MT) of imported chipping potatoes every year (mainly from Australia and the United States) during the December to April off-season for domestic potato production.

Table 2. Korea: Fresh Potato Imports During 2018-2021

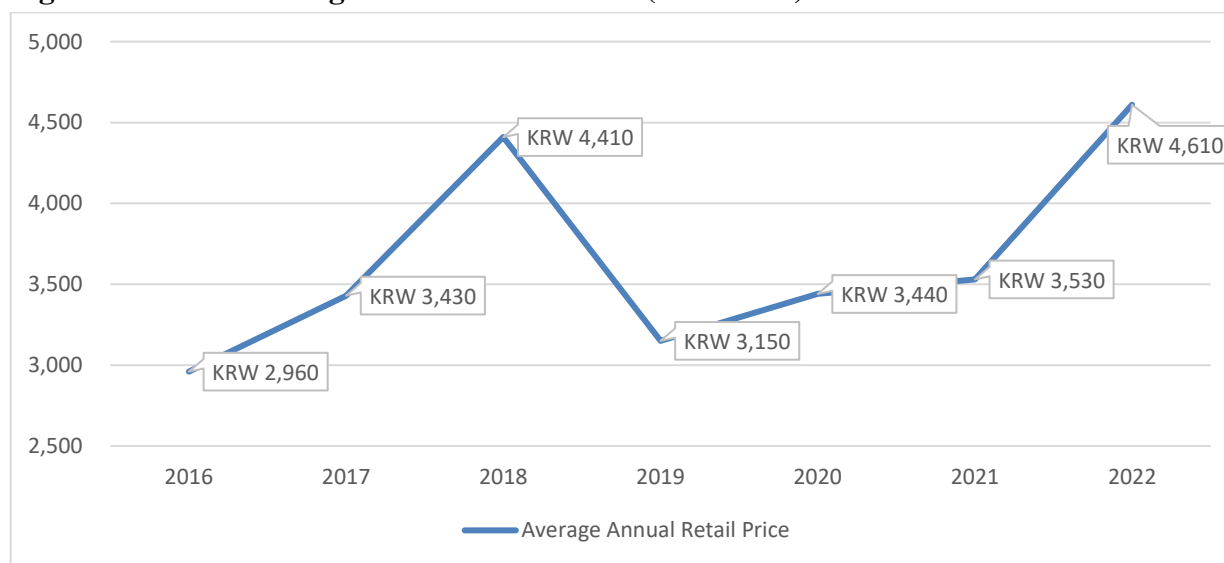
Country	2018		2019		2020		2021		2022	
	(\$1,000)	MT	(\$1,000)	MT	(\$1,000)	MT	(\$1,000)	MT	(\$1,000)	MT
AUS	11,793	20,062	9,247	17,018	6,202	13,055	9,620	16,565	12,669	18,254
U.S.	11,949	18,530	8,020	12,676	9,279	17,667	8,177	11,370	18,263	21,602
Other	0	0	0	0	0	0	0	0	0	0
Total	23,742	38,592	17,267	29,694	15,481	30,722	17,797	27,935	30,932	39,856

Source: Korea Customs Service (KCS)

Potato Prices

The average annual retail price for No.1 Grade potatoes has continuously increased over the last three years, following a 28.5 percent (\$1.08/kg) plunge from 2018-2019 due primarily to increased production volume. Overall potato prices went up 30.6 percent to \$ 3.6/kg in 2022 as production of open field spring potatoes decreased by seven percent to 355,000 MT due to unfavorable weather conditions (reduced rainfall) during the potato growing period in May and early June. According to the local potato industry, the rainfall during the January – May 2022 period was about 50 percent lower than average, negatively impacting potatoes along with other field crops.

Figure 2. Korea: Average Annual Retail Price (2016-2022)



Source: Statistics Korea & Korea Rural Economic Institute (KREI)

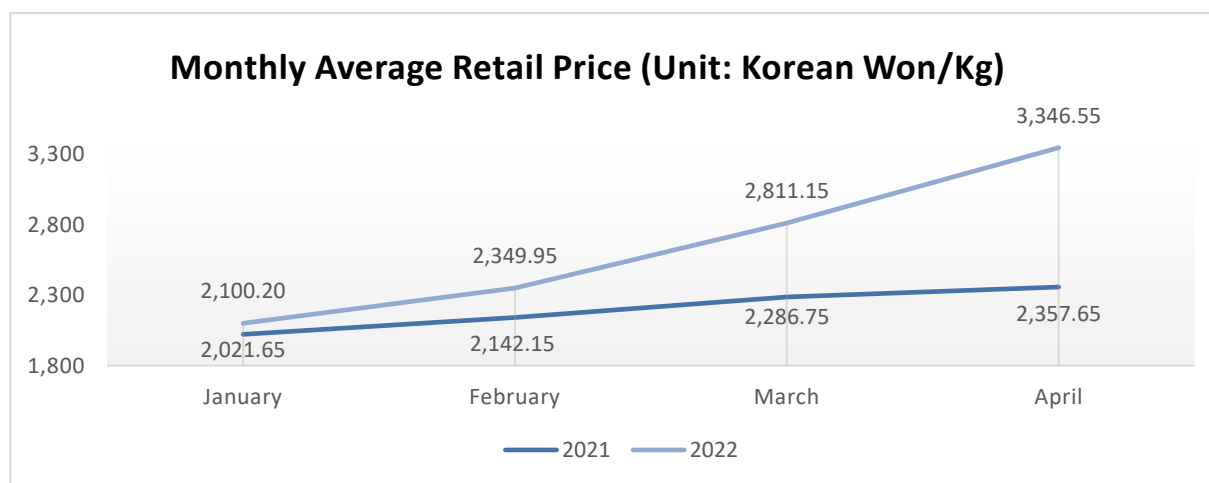
Table 3. Annual Retail & Wholesale Price for No.1 Grade Potatoes

Year	Average Annual Retail Price (₩/kg)	Average Annual Wholesale Price (₩/kg)	Annual Average Exchange Rate (₩/\$)	U.S. Import Price (₩/kg) ¹
2016	2,960	1,402	1,161	660
2017	3,430	1,920	1,131	633
2018	4,410	2,609	1,100	704
2019	3,150	1,485	1,165	734
2020	3,440	1,607	1,180	625
2021	3,530	1,618	1,144	824
2022	4,610	2,341	1,292	930

Source: Korea Agro-Fisheries & Food Trade Corporation (aT) (Retail & Wholesale Price); Bank of Korea (Annual Average Exchange Rate); Korea International Trade Association (U.S. Import Value and Import Quantity)

Stored potatoes grown in 2021 easily rotted in storage due to unfavorable weather that year, forcing growers to quickly sell them. As a result, stored potatoes were sold to about 35 domestic wholesale markets from the end of 2021 to early 2022. By April 2022, stored potato volumes remained at a lower level than the previous year. Driven by reduced stockpiles, the price of potatoes rose during the first quarter of 2022. The average retail price for potatoes in April 2022 reached US\$2.7/kg, up 41.9 percent from the same month of previous year. Additionally, increased labor costs arising from difficulty securing workers amidst the COVID-19 pandemic led to an overall reduction of spring potato production in 2022.

Figure 3. Korea: Monthly Average Retail Price (Jan-Apr, 2021-2022)



Source: Statistics Korea & Korea Rural Economic Institute (KREI)

POTATO CONSUMPTION

During the COVID-19 outbreak, the Korean group catering sector was hit hard by a sharp drop in demand as school meal programs were suspended while schools moved to online classes. The COVID-19 pandemic also negatively impacted the broader food service sector as many consumers refrained from dining out during the height of the pandemic. However, consumer demand for processed potato products (mainly frozen french fries) steadily increased despite the pandemic due to the following reasons:

1. An increasingly westernized diet pattern among the younger generation,
2. Increased demand in the food service sector from franchise chain stores serving french fries alongside burgers or fried chicken,
3. Rising demand for convenient foods like Ready to Eat (RTE) or Ready to Cook (RTC) products including high quality Home Meal Replacement (HMR) products resulting

from an increased number of single and two member households, and

4. The rapid introduction of air fryers for cooking at home that can cook frozen processed foods (including potatoes) using hot air and less cooking oil.

In recent years, Korean consumers have gladly paid higher prices for convenience, which has influenced the entire food industry. Many high-quality HMR products have been introduced to the market, particularly targeting consumers who want to enjoy the quality of famous restaurant menus at home. As eating at home became a major trend during COVID-19, the HMR market is estimated to have reached \$3.5 billion in 2021, more than doubling in size since 2015. The HMR market is forecast to continue expanding up to \$4 billion in 2022. Potato consumption has increased along with the home cooking trend. According to a survey conducted by the Korea Rural Economic Institute (KREI) in December 2021, 71.8 percent of respondents reported consuming more potatoes while cooking at home. Respondents cited “price decreases” (12.1 percent) and “cooking videos featuring potatoes” (9.2 percent) as reasons for consuming more potatoes.

Korea’s overall potato consumption in 2022 decreased slightly to 13.8 kilograms from the previous year (14.1 Kg) largely due to a 9.5 percent drop in domestic potato production despite increased demand for frozen french fries. The potato consumption index in restaurants increased slightly to 92 in 2021 (from 88 in 2020) due to easing social distancing restrictions. Most fresh potatoes are used for direct consumption at restaurants and at home in various side dishes. Potatoes are also used in HMR, RMR (Restaurant Meal Replacement) products and meal kits, and this consumption category is expected to increase in the upcoming years. In addition, potatoes are commonly used in making vegan foods and therapeutic foods for elder care, with health functional foods trending in Korea since health concerns gained prominence during the COVID-19 pandemic.

Table 4. Korea: Per Capita Potato Consumption (2017-2022)

	2017	2018	2019	2020	2021	2022 (F)
Per Capita Consumption (kg)	12.7	14.3	16.1	14.1	14.1	13.8

Source: Korea Rural Economic Institute (KREI)

Korea lifted most of social distancing restrictions in April 2022, which had previously limited customer group size and business hours of restaurants, cafes, and many other business establishments. As a result, the food industry (including HRI sectors) has gradually recovered sales. Since potato consumption in the HRI sectors generally exceeds potato consumption at home, the increased demand for dining out will offset any potential decline in home consumption in the post COVID-19 era.

POTATO TRADE & COMPETITION

In 2022, Korea's potato and potato product imports increased by 13.6 percent to 227,000 MT mainly due to a 17.2 percent (33,400 MT) increase in prepared potato (frozen french fries) imports. Korea's frozen french fry imports increased by 18.3 percent from the previous year to 141,474 MT from 2021 volume (119,555 MT). Rising imports were driven primarily by increased demand in the food service sector and relatively lower potato prices compared with other food ingredients. Additionally, Korea importers diversified their import sources to the benefit of several European countries (The Netherlands, Belgium, and Germany) and China to cope with increased unit prices and supply issues facing the two largest suppliers, the United States and Canada.

Notably, Belgium and China saw particularly large export volume increases to Korea in 2022, rising by 97.1 percent (to 40,875 MT) and 235 percent (to 9,079 MT), respectively. On the other hand, imports from the United States (the top supplier) were reduced by 0.5 percent to 79,008 MT.

Korean imports of processed potatoes (french fries) from the United States and Canada, the top two suppliers in Korea before 2020, decreased by 20 percent (15,000 - 20,000 MT) for the past two years (2020 and 2021) due to global supply chain issues and reduced U.S. and Canadian potato supply. Korea imports 115,000 MT - 120,000 MT of frozen french fries annually, mostly from the United States (85,000 - 90,000 MT) and Canada (around 15,000 MT).

Despite recent diversification of potato import suppliers, the Korean potato industry expects the United States and Canada to recover market share as soon as supply chain issues and potato production are addressed. However, higher import prices for U.S. frozen french fries caused by unfavorable exchange rates in most of 2022 may remain an obstacle for the full recovery of the previous U.S. market share in Korea.

Major food service chains in Korea will continue to use U.S. processed potatoes because U.S. potatoes have a better reputation for consistently high quality compared to other origins (EU and Chinese products). However, some smaller (mom-and-pop size) food service chains that are more price sensitive and harder hit by Korea's economic downturn may continue sourcing from other origins (EU and China) if they are more price competitive.

Table 5. Competitor FTA Tariff Rates

Country	FTA Effective	Competitive Category	Current Tariff Rate (%)
Canada	2015	Prepared Potatoes (French Fries)	Zero
Australia	2014	Fresh Potatoes (Chipping Potatoes)	In-quota: Zero Out-of-quota: 304%
China	2015	Frozen Potatoes Prepared Potatoes	27% 18%
Belgium	2015	Prepared Potatoes (French Fries)	Zero
Netherland	2015	Prepared Potatoes (French Fries)	Zero
Vietnam	2015	Frozen Potatoes	Zero

Source: Korea Customs Service (KCS)

In 2022, Korea's potato and potato product imports increased by 17 percent to 227,000 MT from the previous year (193,602 MT) mainly due to the following reasons:

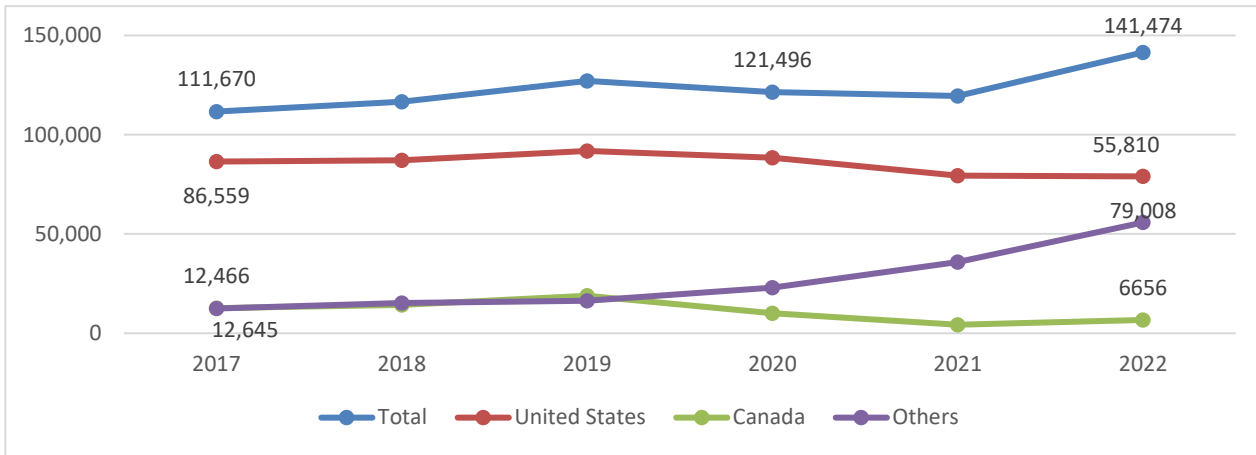
1. Increased demand for french fries in the food service sector.
2. Good combination with various snack foods as a side menu.
3. Relatively inexpensive foods than other imported foods.

Notably, Korea's french fries imports from the EU and China increased by 117 percent (22,038 MT) to 40,875 MT from the previous year (18,837 MT) due to its price competitiveness. On the other hand, the U.S. and Canada (the two leading suppliers) recovered slightly by 2.3 percent (1,945 MT) to 85,664 MT.

Imports of processing potatoes such as frozen french fries, which normally accounts for about 85 percent of total imports, increased by 13.3 percent in 2022. Fast food restaurants in Korea were less affected by COVID-19 than other restaurants since they have been actively using delivery services since before 2019. Imports of frozen potatoes for french fries reached a new high in 2022 at 141,474 MT as french fries became popular among the younger generation, increasing demand at pubs, cafes and homes.

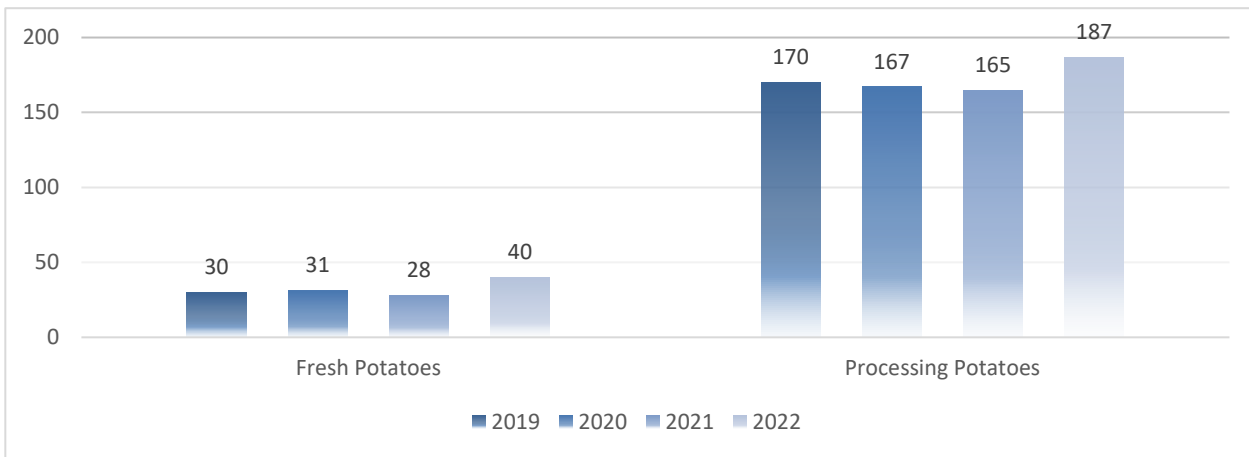
Meanwhile, imports of frozen potatoes and potato flour increased steadily in 2022. The market for potato snacks and potato soup using flour is growing and the competition will intensify since more companies are entering the market.

Figure 4. Korea's French Fry Imports By Year (Unit: MT)



Source: Korea Customs Service (KCS)

**Figure 5.
Korea's Potato Imports (2019-2022, Unit: 1,000 MT)**

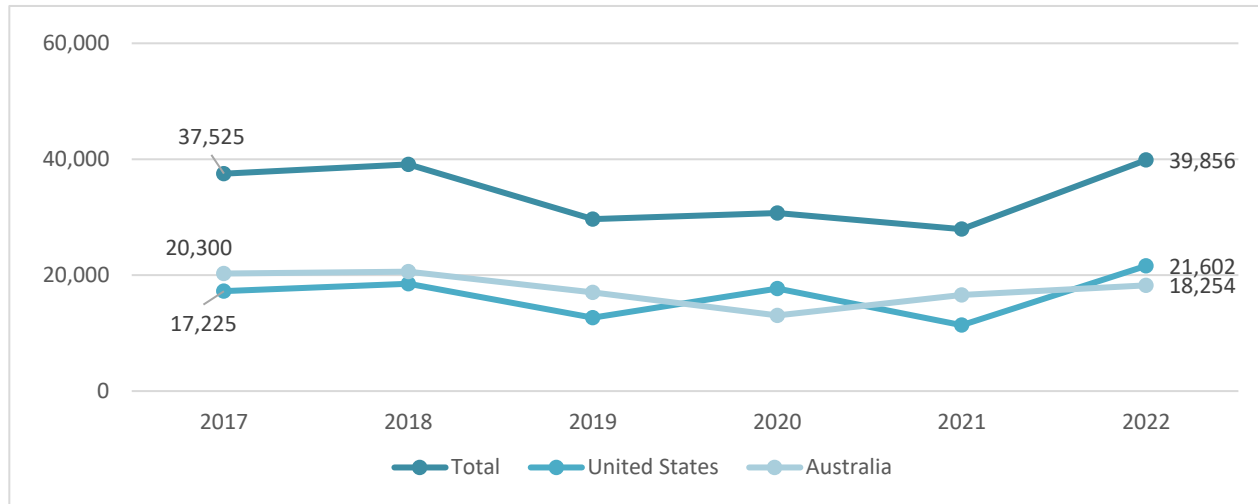


Source: Korea Rural Economic Institute (KREI) & Korea Customs Service (KCS)

Fresh potato imports declined by about 12,000 MT in 2022 to 39,856 MT. The largest source of fresh potato imports in 2022 was the United States, which accounted for 54.2 percent of total imports, followed by Australia with 45.8 percent.

Figure 6.

Korea's Fresh Potato Imports By Year (Unit: MT)



Source: Korea Customs Service (KCS)

Table 6.

Korea: Fresh Potato Import USD & MT from 2018-2022

Country	2018		2019		2020		2021		2022	
	(\$1,000)	MT	(\$1,000)	MT	(\$1,000)	MT	(\$1,000)	MT	(\$1,000)	MT
AUS	11,793	20,062	9,247	17,018	6,202	13,055	9,620	16,565	12,669	18,254
U.S.	11,949	18,530	8,020	12,676	9,279	17,667	8,177	11,370	18,263	21,602
Other	0	0	0	0	0	0	0	0	0	0
Total	23,742	38,592	17,267	29,694	15,481	30,722	17,797	27,935	30,932	39,856

Source: Korea Customs Service (KCS)

Inspection & Quarantine for U.S. Potatoes:

Due to quarantine regulations, currently 28 U.S. states (Maryland, Pennsylvania, West Virginia, New York, Utah, Nebraska, California, Montana, Arizona, Colorado, New Mexico, North Dakota, Kansas, Wyoming, Delaware, Oklahoma, South Dakota, Nevada, Maine, Michigan, Minnesota, Mississippi, New Hampshire, Ohio, Wisconsin, Texas, Illinois, and North Carolina) are not allowed to export fresh potatoes to Korea.

The main quarantine pests of concern to Korea are potato spindle tuber viroid, Synchytrium endobioticum (potato wart), Globodera rostochiensis (golden nematode), Globodera pallida, and zebra chip. Accordingly, all potato shipments imported into Korea are subject to quarantine inspection for the related pests of concern. Imported fresh potatoes must be free of soil and foreign materials.

Potato Tables

Table 7. Korea: Production, Supply, & Demand (MT) during 2018-2022 (F)

PSD	2018	2019	2020	2021	2022 (F)
Total Supply	739,561	888,835	750,405	746,741	N/A
Domestic Production	548,065	690,419	553,194	554,893	510,000
Imports*	193,725	199,940	197,971	193,602	227,000
Exports	2,229	1,524	760	1,754	N/A
Self-Sufficiency Rate (%)	74.1	77.7	73.7	74.3	N/A

*Note: Imports (dehydrated, prepared and frozen potatoes) are converted into fresh potatoes based on yield

Source: Korea Rural Economic Institute (KREI)

Table 8. Korea: Prepared Potato (French Fries) Import Dollars & Metric Tons from 2019-2022

Country	2019		2020		2021		2022	
	\$(1,000)	MT	\$(1,000)	MT	\$(1,000)	MT	\$(1,000)	MT
U.S.	117,258	91,825	115,643	88,361	116,271	79,416	140,374	79,008
Canada	29,635	18,880	15,906	10,091	6,841	4,303	11,927	6,656
China	2,542	1,435	2,420	1,364	4,381	2,707	13,180	9,079
Belgium	14,048	11,041	13,832	10,960	21,093	16,130	40,377	31,796
Netherlands	3,857	3,520	11,267	10,569	17,545	16,570	13,637	11,445
Other	470	325	287	151	738	428	5,220	3,490
Total	167,810	127,026	159,355	121,496	166,869	119,554	224,715	141,474

Source: Korea Customs Service (KCS)

Table 9. Korea: Table Stock Potato (0701900000 a) TRQ under KORUS FTA

	2019	2020	2021	2022	2023
In-quota rate (%)	0	0	0	0	0
Out-of-quota rate (%)	304	304	304	304	304
TRQ (MT)	3,690	3,801	3,915	4,032	4,153

Source: Korea Customs Service (KCS)

Table 10. Korea: Chipping Potatoes (0701900000 b & 0701900000 c) Tariffs under KORUS

	2019	2020	2021	2022	2023
b: May 1 st – Nov.30 th rate (%)	266	228	190	152	114
c: Dec. 1 st – April 30 th rate (%)	0	0	0	0	0

Source: Korea Customs Service (KCS)

Table 11. Korea's Potatoes Imports By Year

Korea's Potatoes Imports By Year (Unit: MT)					
	2018	2019	2020	2021	2022
French Fries	116,683	127,026	121,496	119,554	141,474
Fresh Potatoes	39,132	29,694	30,722	27,935	39,856
Fr. Potatoes	5,242	5,333	5,443	6,946	8,133
Potato Flour	2,666	2,921	4,349	5,067	5,197
Total	163,723	164,974	162,010	159,502	194,660

Source: Korea Customs Service (KCS)

Attachments:

No Attachments.