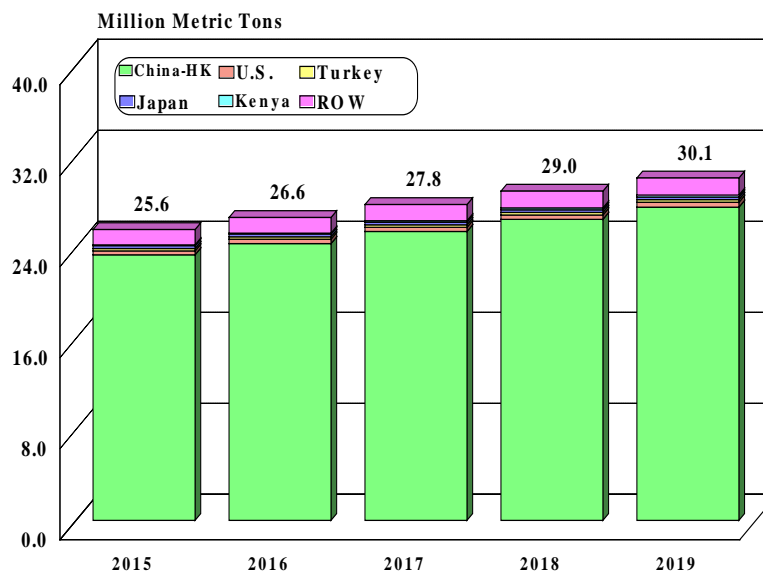




## GLOBAL MARKETS FOR TEXAS SPINACH<sup>1</sup>

World production of spinach during 2019 was 30.1 million metric tons (MMT). Spinach production for the world has increased annually since 2015 with each year growing by 1.1-1.2 MMT. China leads the world in spinach production with 27.5 MMT during 2019, a 4.2 MMT increase since 2015. China accounts for 90-92 percent of total spinach production. Following China is the United States which produced 435 thousand metric tons (TMT) of spinach during 2019, a 51 TMT increase from the year prior. Turkey and Japan were third and fourth in spinach production during 2019 with 229 TMT and 226 TMT, respectively. The fifth largest producer of spinach is Kenya, which increased production 106 TMT from 2015 to reach 178 TMT in 2019. These four countries following China together produced just over 1 MMT of spinach during 2019. Each of the top five spinach producing countries have seen increasing production every year since 2015 with exception to Japan.

### World Spinach Production, 2015-2019



Source: FAO Stat, United Nations Food and Agricultural Organization

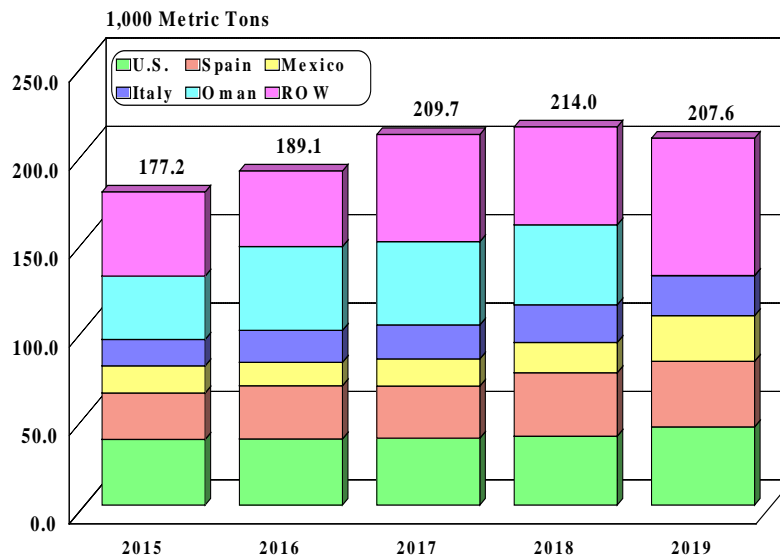
During 2019, 207.6 TMT of spinach was exported, which is slightly lower than the two previous years but still much higher than 2015 and 2016 export levels. The United States is the world's

<sup>1</sup> *Global Markets for Texas Spinach* is a report of the project Export Market Analysis for Selected Texas Commodities, funded by the Texas Department of Agriculture. For more information, please contact the Center for North American Studies, Department of Agricultural Economics, Texas A&M AgriLife Extension Service, College Station, TX, 77843-2124. 979-845-3070.

largest exporter of spinach totaling 44.2 TMT during 2019. This is up 5.3 TMT from the year before and U.S. spinach exports have continued to grow every year since 2015. Spain is the second largest spinach exporter totaling 37.1 TMT during 2019, nearly 11 TMT more than spinach exports during 2015. Mexico and Italy rank third and fourth, with similar levels of exports for 2019 at 25.8 and 22.7 TMT, respectively. Both countries have seen exports increase by around 10 TMT since 2015 with Mexico having solid growth in 2018 and 2019 while Italy has had consistent growth throughout the past five years. The next major exporter of spinach is Oman which ranked as the largest every year since 2016 but has yet to report exports for 2019. These five countries account for 62-78 percent of world spinach exports.

One thing to note is the incredibly high spinach production of China and having relatively low levels of exports. This is due to China using the bulk of the spinach they produce in local foods.

### World Spinach Exports, 2015-2019



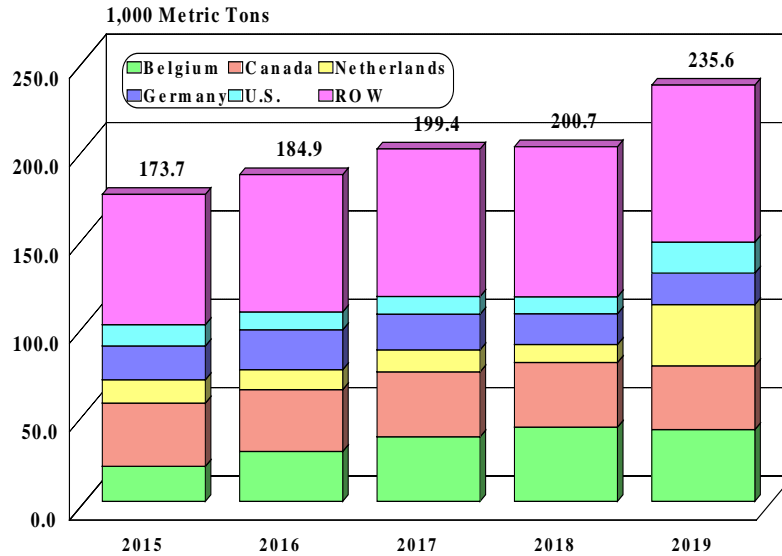
Source: FAO Stat, United Nations Food and Agricultural Organization

World imports of spinach were 236 TMT during 2019 which were led by Belgium. During 2019, Belgium imports of spinach were 40.6 TMT, 1.4 TMT lower than the year prior but still well above the 2015-2017 import levels. Canada and the Netherlands both are closely behind Belgium for spinach imports. During 2019, Canada imported 36.1 TMT of spinach, just over the average of 36 TMT since 2015. Canada has maintained relatively level imports since 2015, and was the world's largest importer of spinach from 2015-2017. The Netherlands imported 34.6 TMT during 2019, 24.5 TMT higher than the previous year. Germany and the United States also have similar levels of imports for 2019. Germany imported 17.8 TMT and is slightly below the average for the past five years of 19.4 TMT. U.S. imports of spinach had been on decline from 2015-2018 before jumping to 17.5 TMT during 2019, 5.5 TMT higher than in 2015. These five importing countries account for 57-63 percent of the world's spinach imports.

If the 27 EU countries and the UK were to be measured as a bloc, imports for the region in 2019 would be 137 TMT. The EU bloc would have a higher level of imports than the top five importing countries nearly every year.

Note the difference of world imports and exports. This can be attributed to differences in countries reporting.

### World Spinach Imports, 2015-2019



Source: FAO Stat, United Nations Food and Agricultural Organization

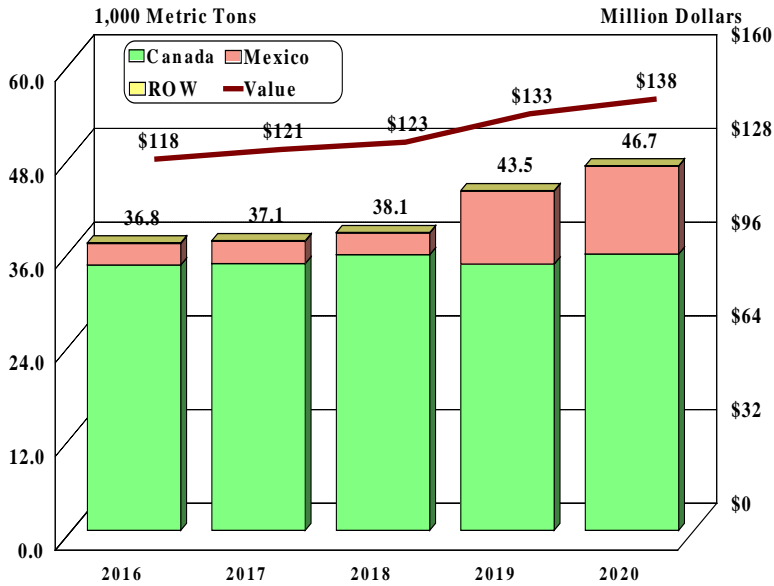
### U.S. Spinach Exports

During 2019, the United States exported 46.7 TMT of fresh spinach valued at \$138 million, which was almost entirely sent to Canada and Mexico. Canada received 35.4 TMT of U.S. spinach and Mexico received 11.2 TMT.

A much smaller market for frozen spinach also exists. Similar to fresh spinach, the bulk of exports from the United States were destined for Canada or Mexico. During 2020, U.S. frozen spinach exports were 2.28 TMT, valued at \$2.7 million. Canada received 1,789 metric tons (MT) of frozen spinach, and Mexico received 405 MT.

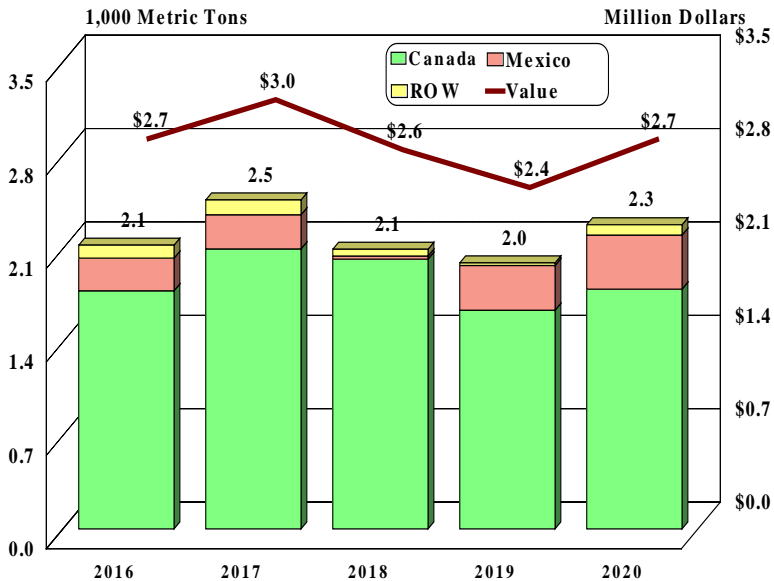
With the United States having relatively little activity in the frozen spinach market, the focus of this paper will be *fresh spinach* and what is intended when *spinach* is mentioned unless otherwise noted.

### U.S. Fresh Spinach Exports, 2016-2020



Source: Global Ag Trading System, FAS/USDA

### U.S. Frozen Spinach Exports, 2016-2020



Source: Global Ag Trading System, FAS/USDA

Spinach production in the United States during 2020 totaled 367.4 TMT, 113.5 TMT lower than production for 2019. This is due to a decrease in meals eaten away from home at schools, restaurants, and hotels which make-up a substantial portion of the market for spinach. As a result, many farmers chose to plow over crops rather than harvesting in a weak domestic market.

Spinach has grown in popularity greatly due to health benefits driving the increased production from 2016-2019. Production is led by California, where 59-75 percent of spinach was grown in

the United States. During 2020, California produced 256.7 TMT of spinach, down just under 100 TMT from the year before. Arizona follows California in terms of total production with 86.3 TMT during 2020. This is down nearly 9.6 TMT from 2018 production in Arizona. Texas ranks third among states for spinach production with a total of 14.5 TMT during 2020. Texas has seen declining spinach production each year since 2016 when nearly 50 TMT of spinach was grown. Since 2016, two-thousand acres of land in Texas was removed from spinach production, nearly half of 2016's total acreage. New Jersey is the fourth largest spinach producing state totaling 9.9 TMT during 2020, production have fallen by 12.2 TMT since 2016.

Please note that (D) in the graph tells that the data was withheld from publication to avoid disclosing information from individual operations. In addition, after 2018 other states production increases from 7 TMT to 114 TMT. While some of this could be attributed to an increase in production, the primary source of the increase is values that are undisclosed for Arizona and Texas being included.

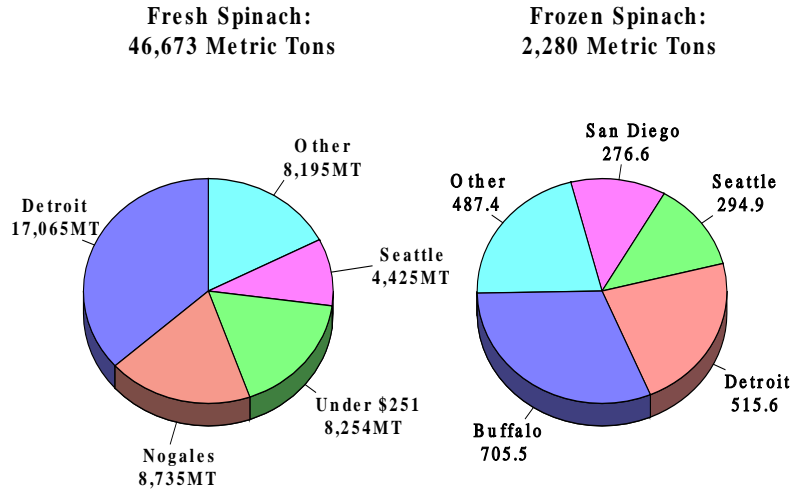
	2016	2017	2018	2019	2020
California	257.6	259.3	280.7	356.3	256.7
Arizona	102.4	93.0	95.9	(D)	86.3
Texas	49.8	34.1	16.4	(D)	14.5
New Jersey	20.1	16.0	11.7	10.4	9.9
Other States	6.0	8.6	7.0	114.2	-
<b>Total</b>	<b>435.9</b>	<b>411.0</b>	<b>411.6</b>	<b>480.9</b>	<b>367.4</b>

Source: National Agricultural Statistics Survey, NASS/USDA

During 2020, 46.7 TMT of fresh spinach was exported from the United States. The largest port district for fresh spinach exports was Detroit. The Detroit port district exported 17 TMT of fresh spinach, all of which was destined for Canada. Seattle is also a major port district for fresh spinach exports where products are entirely destined for Canada. During 2020, 4.43 TMT of spinach was exported from the United States through the Seattle port district. The second largest port district exporting fresh spinach is Nogales. Nogales port district saw 8.74 TMT of fresh spinach exports, all of which was destined for Mexico. In addition to these ports are shipments valued under \$251 where they are all aggregated, 8.25 TMT of fresh spinach valued under \$251 left the United States all of which was also exported to Canada.

Frozen spinach exports were 2,280 MT during 2020. These exports were led by the Buffalo port district where 705.5 MT of frozen spinach was exported to Canada. Following Buffalo were the port districts of Detroit and Seattle, both of which also exported frozen spinach exclusively to Canada. The San Diego port district falls into the fourth ranked port district for frozen spinach exports. During 2020, 276.6 MT of frozen spinach was exported to Mexico from the San Diego district.

## U.S. Spinach Exports by Port District, 2020



Source: U.S. Census Bureau from WiserTrade

### Barriers to Trade

Tariffs are set at 0 percent on U.S. spinach imported by Canada, Singapore, Mexico, and Malaysia. The EU has a tariff in place for both spinach products, 10.4 percent for fresh spinach and 14.4 percent on frozen spinach.

In addition to these tariffs many countries have non-tariff barriers to trade in place. The EU and Mexico have phytosanitary certification (PC) requirements in place. Mexico also requires that spinach from California must be free from Pink Hibiscus Mealybug at the phytosanitary inspection. Meanwhile, no restrictions are in place for spinach from the United States destined for Singapore and Malaysia. Canada also has no restrictions in place for U.S. spinach, with exception of exports to British Columbia from regulated counties in California and the state of Hawaii. Spinach exports from these areas must follow USDA Compliance Agreement for Export of Light Brown Apple Moth (LBAM) Regulated Fruit and Vegetables to British Columbia.

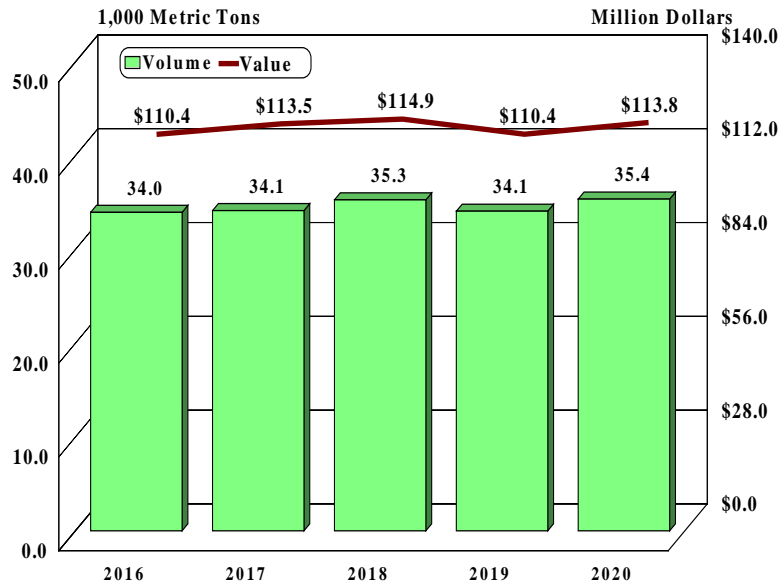
A PC may be obtained by contacting the USDA Animal and Plant Health Inspection Services (APHIS). Contact information for the Texas APHIS found at:

[https://www.aphis.usda.gov/aphis/ourfocus/planthealth/sa\\_export/sa\\_ecs/texas/](https://www.aphis.usda.gov/aphis/ourfocus/planthealth/sa_export/sa_ecs/texas/).

### U.S. Spinach Exports to Canada

Canada is the largest export market for U.S. spinach. During 2020, the United States exported 35.4 TMT of spinach to Canada valued at \$113.8 million. Spinach exports to Canada have been relatively level since 2016 with average exports being around 34.5 TMT. The United States is the largest exporter of spinach to Canada with a much smaller amount of spinach exports also coming from Mexico.

## U.S. Spinach Exports to Canada, 2016-2020

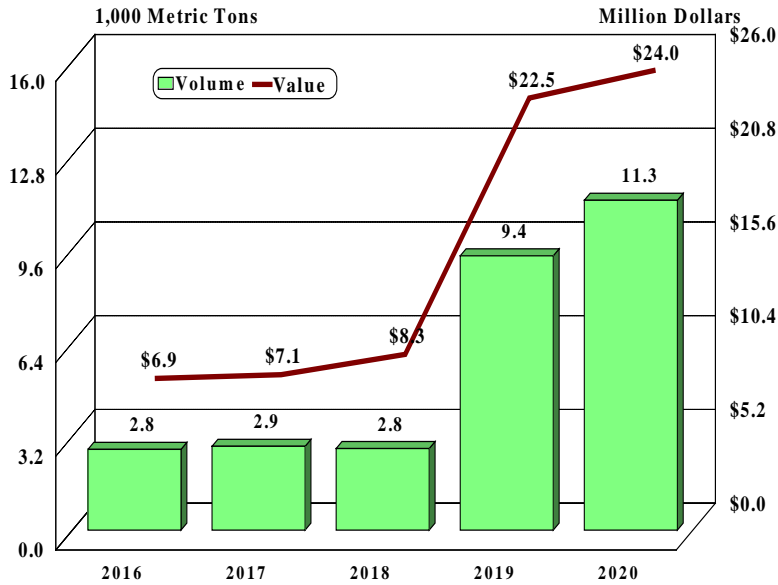


Source: Global Ag Trading System, FAS/USDA

## U.S. Spinach Exports to Mexico

Mexico is the second largest export market for U.S. spinach. During 2020, 11.26 TMT of spinach was exported to Mexico with a value of \$24 million. This is a nearly 2 TMT increase from the year before and 8.37 TMT increase from 2018. This large increase is due to decreasing production of spinach in Mexico. U.S. spinach exports face no competition currently in Mexico. However, products exported as organic must be certified by Mexico's Organic Law (LPO) as Mexico does not currently recognize the organic certification of the USDA.

## U.S. Spinach Exports to Mexico, 2016-2020



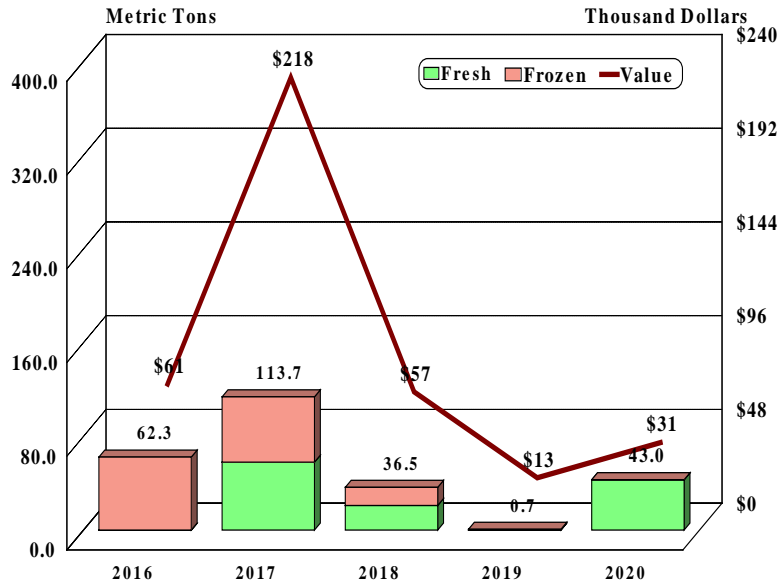
Source: Global Ag Trading System, FAS/USDA

## U.S. Spinach Exports to the EU

Spinach exports from the United States to the EU are small compared to exports to Canada and Mexico. During 2020, 43 metric tons (MT) of fresh spinach was exported to the EU with a value of \$31,000 with no frozen spinach exports. Since 2016, less than 1 TMT of spinach has been exported to the EU from the United States despite the EU bloc being one of the largest importers of spinach. The main reason behind this is EU countries primarily received spinach through intra-EU trade from Spain, France, the Netherlands, and Germany. Some additional exports come from Turkey.



## U.S. Spinach Exports to the EU, 2016-2020

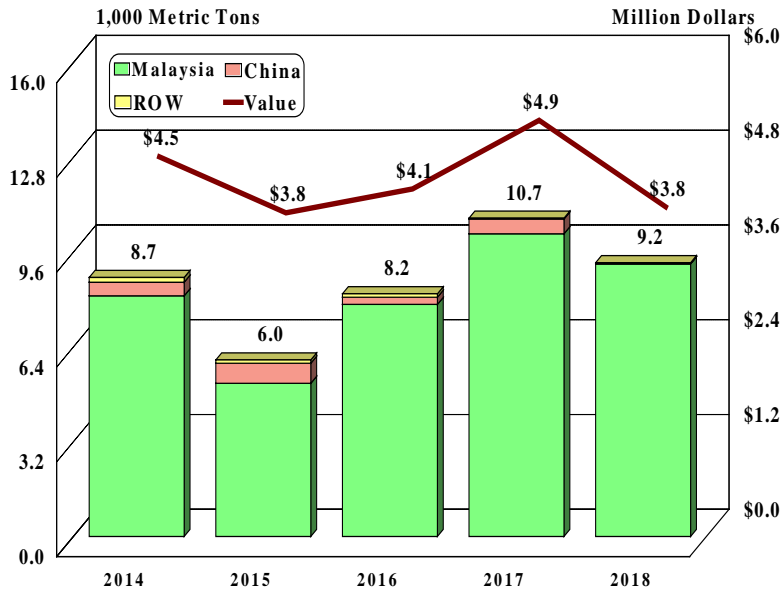


Source: Global Ag Trading System, FAS/USDA

## The Singaporean Market for Spinach Exports

Singapore imported 9.25 TMT of spinach during 2018 with a value of \$3.83 million. This is 1.5 TMT lower than the year before, but still above the countries average reported imports of 8.58 TMT since 2014. A part of the decline in 2018 can be attributed to a lack of reporting imports from China. Malaysia takes up the largest share of spinach exports to Singapore with 86-99 percent of Singapore's spinach imports.

## World Spinach Exports to Singapore, 2014-2018



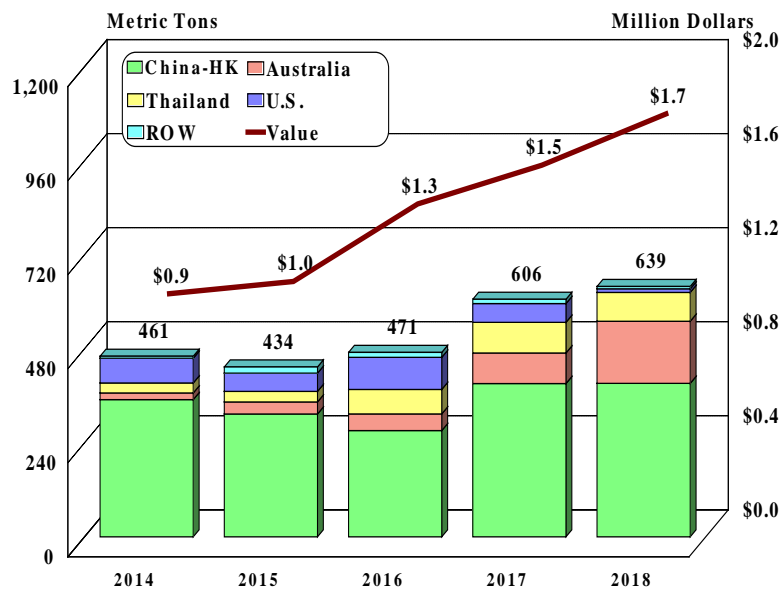
Source: Global Ag Trading System, FAS/USDA

## The Malaysian Market for Spinach Exports

During 2018, Malaysia reported 639 MT of spinach imports valued at \$1.68 million. Malaysian spinach imports have increased every year since 2015, totaling 205 MT of growth. The primary exporter of spinach to Malaysia is China. During 2018, China exported 384 MT of spinach to Malaysia and has accounted for 57-76 percent of Malaysia's spinach imports. Australia has also been growing as an exporter in this market having exports grow from 17 MT in 2014 to 160 MT in 2018.

From 2014-2016, the United States was the second largest exporter of spinach to Malaysia. Spinach exports from the United States peaked during 2016 at 82 MT and have fallen every year since reaching just over 9 MT of spinach during 2018.

### Malaysia Imports of Spinach, 2014-2018



Source: Global Ag Trading System, FAS/USDA

## Conclusion

The United States exported more spinach than any other country since 2015 with exports going predominantly to Canada and Mexico and small amounts going to various other countries. The United States benefits from relatively low barriers to trade but faces hurdles for increasing exports in the future from two primary sources: many of these importing markets are close to competing exporters making costs of U.S. products a relatively higher price due to transportation costs; and many spinach importing countries like Mongolia and Switzerland are land-locked making it difficult to increase exports to these markets. Organic spinach exported to Mexico faces the added hurdle of having to become certified by Mexico's LPO as the USDA organic certification is not acknowledged by Mexico.

Despite being the largest exporter of spinach in the world, the United States still has many opportunities to expand exports to other countries, some of the most notable being the EU bloc, Singapore, and Malaysia. While becoming the primary spinach supplier to the EU bloc is unlikely due to a large trade volume coming from member countries, the United States could grow exports to be a competitor if tariffs were lowered on U.S. spinach. With the EU bloc importing more spinach than the five largest markets combined most years, increasing exports to the region could be one of the largest opportunities for growing U.S. spinach exports. Both Singapore and Malaysia also contain potential for growth with the United States already having a history of spinach exports to both countries and will receive the benefits of limited tariff and non-tariff trade barriers on U.S. spinach.

Texas spinach exports specifically face a challenge in growing if total planted acres continue to decline. One avenue to grow Texas spinach exports would be entering into the Mexican spinach market. Currently Texas spinach exports are destined almost entirely for Canada with only a small volume going to other countries, including Mexico. One challenge that would occur from that is competition from other U.S. states, primarily California who exported 20 TMT of spinach to Mexico during 2019 and 2020.

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