THE UNIVERSITY OF ARIZONA
Cooperative Extension

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Arizona's Seasonal Role in National Supply of Vegetable & Melon Specialty Crops

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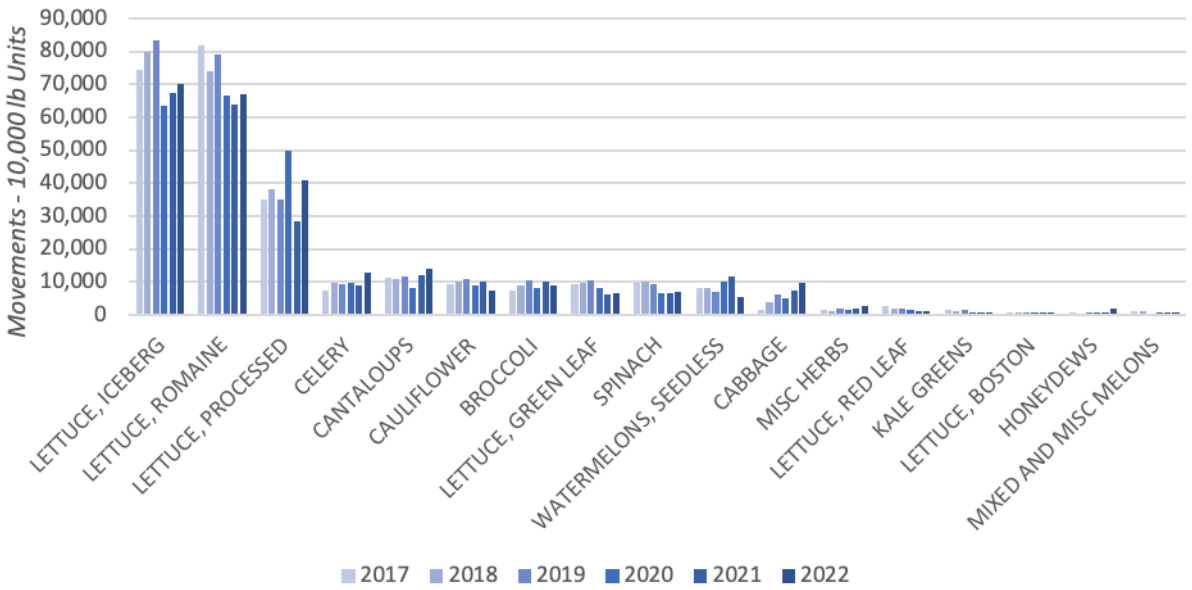
Arizona's agricultural industries are diverse, producing a wide variety of field crops, orchard crops, fruits and vegetables, livestock, and livestock products. Western Arizona, including the Yuma area, and Central Arizona to a lesser extent, play niche roles in the production of specialty vegetable and melon crops. Because of geography and climate, Western and Central Arizona serve as the leading source and at times even exclusive source of certain commodities at the national level. This analysis provides an overview of Arizona's seasonal role in supplying certain commodities nationally. The analysis presents data on movements (or shipments) of specialty crops by their district of origin, including foreign imports. The data presented measure weight of movements in 10,000-pound units, as well as different districts' percent of total weight of movements nationally (USDA AMS, 2023).

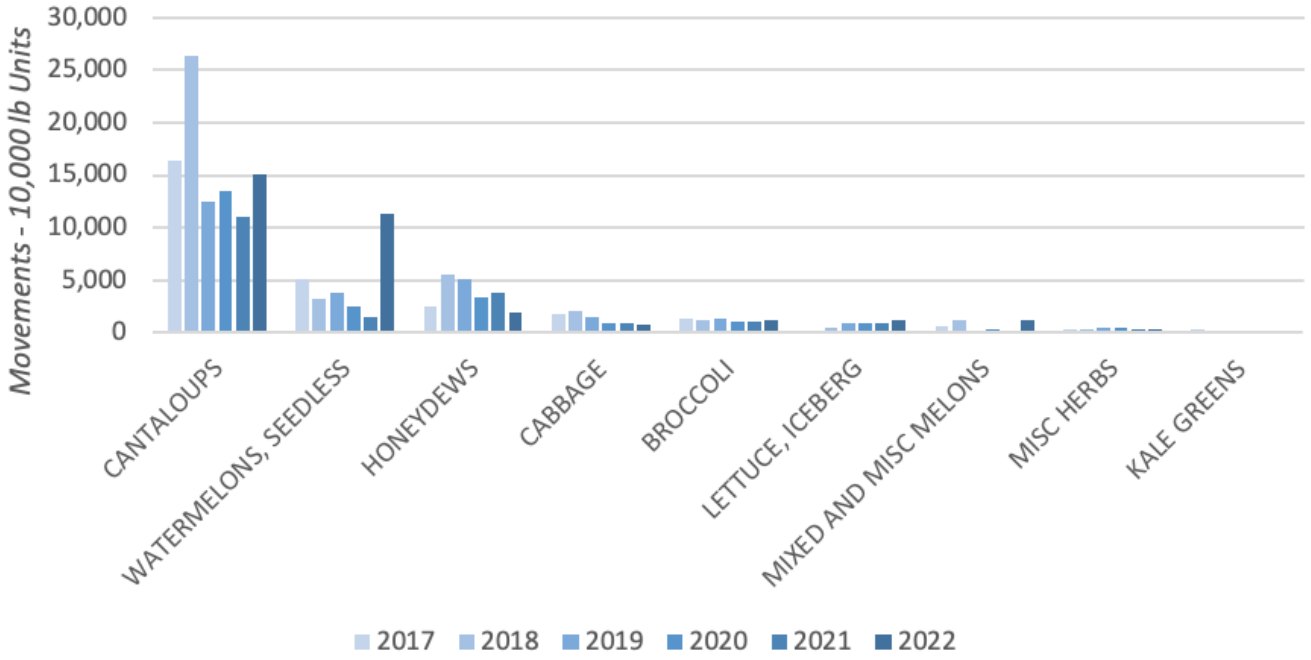
Western Arizona is recognized as an important location for the production of winter vegetables, particularly leafy greens such as Iceberg lettuce, Romaine lettuce, other lettuces, and spinach. Other top commodities produced in Western Arizona by weight include celery, cantaloupes, cauliflower, broccoli, watermelon, and cabbage (Figure 1).

Figure 1. Western Arizona – Top Specialty Crops by Annual Weight of Movements, 2017-2022



Source: USDA AMS, 2023

Figure 2. Central Arizona – Top Specialty Crops by Annual Weight of Movements, 2017-2022



Source: USDA AMS, 2023

Top specialty crop commodities produced in Central Arizona by weight include cantaloups, watermelons, honeydews, and other mixed and miscellaneous melons, as well as cabbage, broccoli, iceberg lettuce, herbs, and kale (Figure 2).

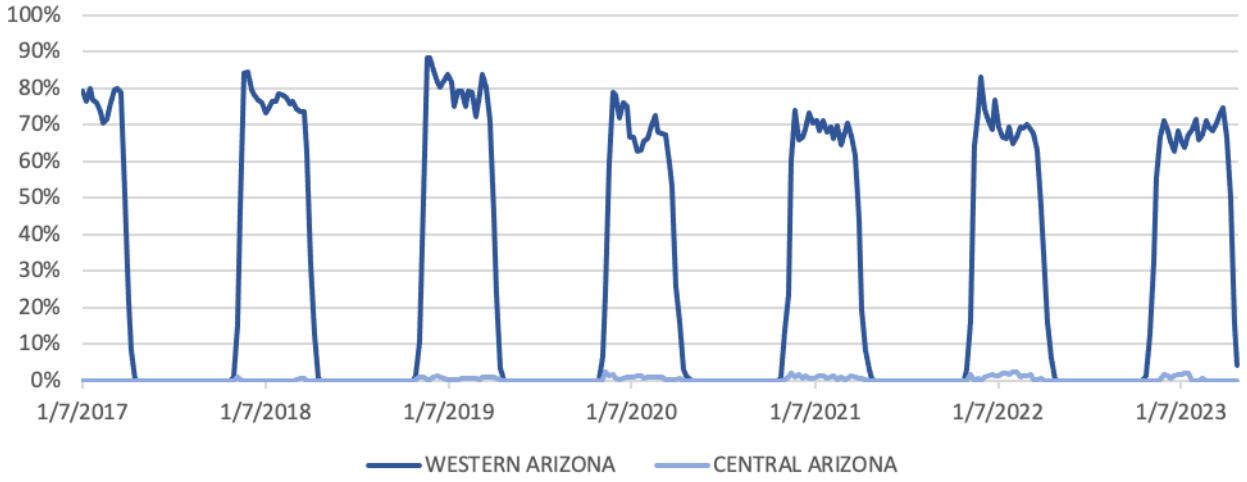
The following sections examine weekly movements of individual vegetable and melon specialty crop commodities for which Western Arizona (and at times Central Arizona) is responsible for a significant share of national supply, including imports, during certain times of the year.

Iceberg Lettuce

Iceberg lettuce is one of Western Arizona's top two vegetable and melon crops produced in terms of weight. Harvest occurs between November and April, during which time Western Arizona accounts for between 70% and 90% of national shipments during most weeks (Figure 3). A small amount of production also occurs in Central Arizona.

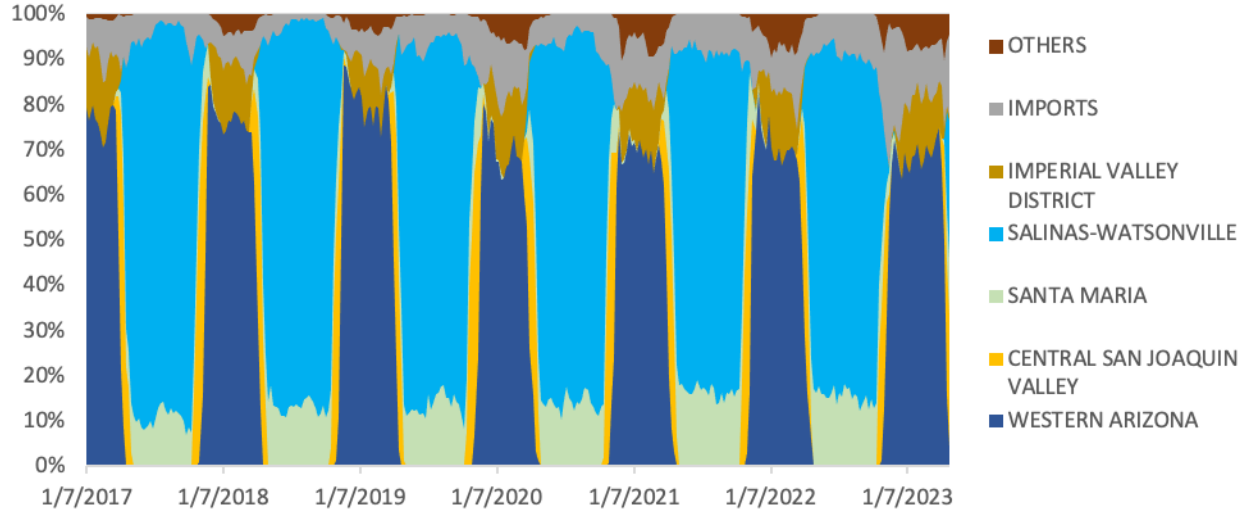
Production of iceberg lettuce rotates seasonally between Western Arizona in winter months and the Salinas-Watsonville area in California during summer months. Production in California's central valley occurs during shifts between the two regions, and production in other areas of California supplements peak season production (Figure 4).

Figure 3. Arizona Districts' Percents of Weekly National Movements of Iceberg Lettuce, January 2017 - May 2023



Source: USDA AMS, 2023

Figure 4. Percent of Weekly National Movements of Iceberg Lettuce by District, January 2017 - May 2023



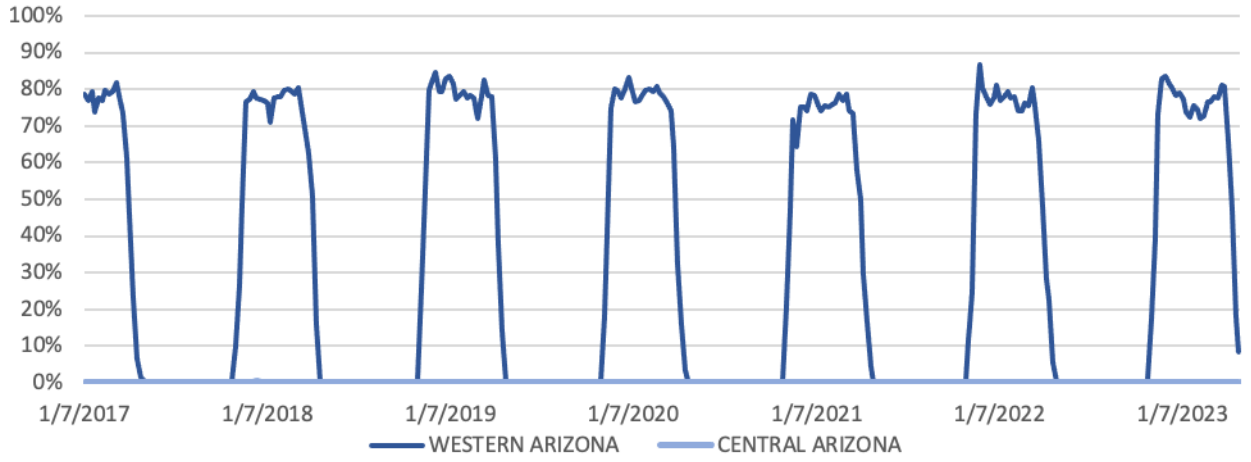
Source: USDA AMS, 2023

Romaine Lettuce

Western Arizona is one of two principal regions where Romaine lettuce is produced domestically. During the peak of Western Arizona's season, between November and April, the region accounts for roughly 80% of national supply (Figure 5).

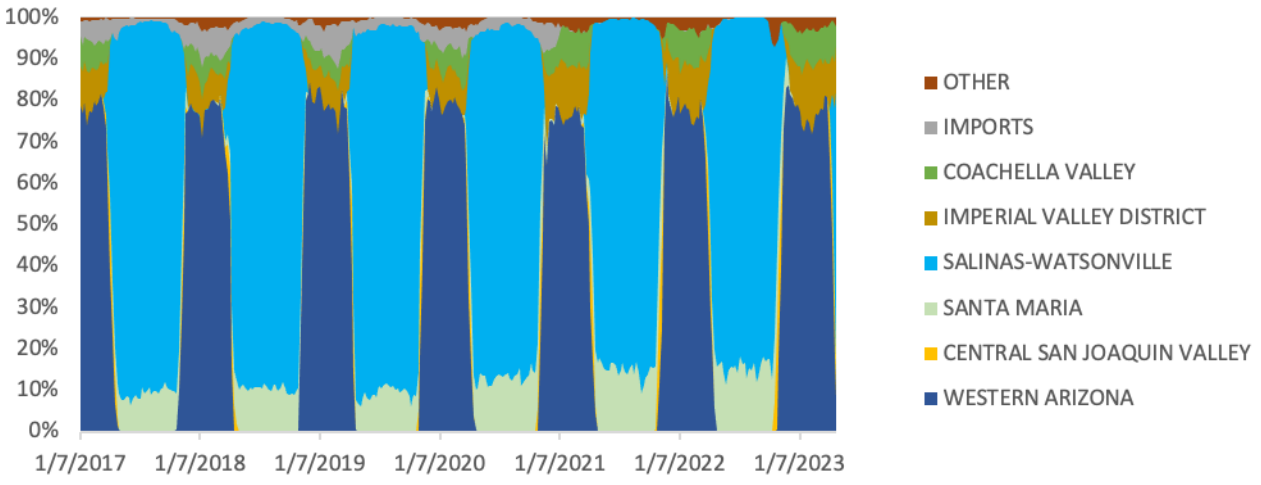
Romaine lettuce production cycles seasonally between Western Arizona in the winter and the Salinas-Watsonville area of California in the summer. Similar to iceberg lettuce, production of Romaine lettuce in other regions of California as well as imports supplement production in Yuma and Salinas (Figure 6).

Figure 5. Arizona Districts' Percents of Weekly National Movements of Romaine Lettuce, January 2017 - May 2023



Source: USDA AMS, 2023

Figure 6. Percent of Weekly National Movements of Romaine Lettuce by District, January 2017 - May 2023



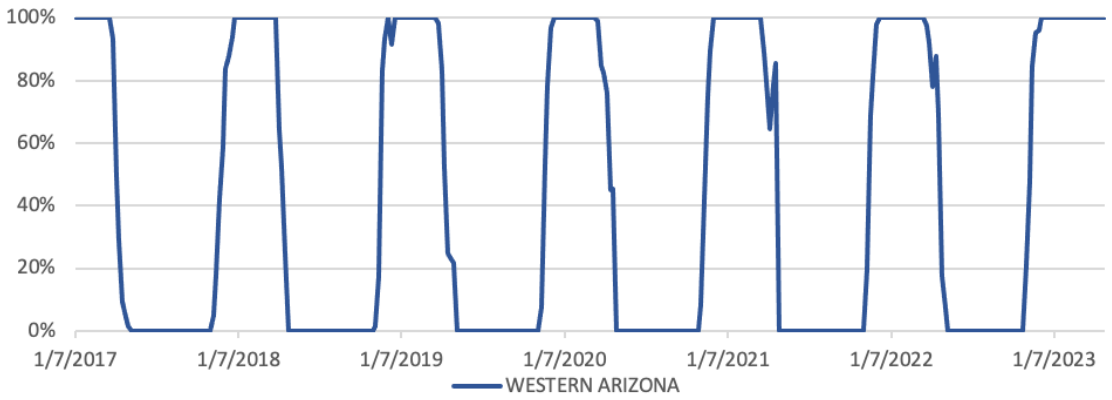
Source: USDA AMS, 2023

Processed Lettuce

Production of processed lettuce requires appropriate growing conditions, as well as highly specialized equipment and facilities collocated with production. In the U.S., lettuce production and processing move seasonally between Western Arizona and California's Central Valley (Glaser, et al, 2001). 100% of processed lettuce production occurs in Arizona between December and late March (Figure 7).

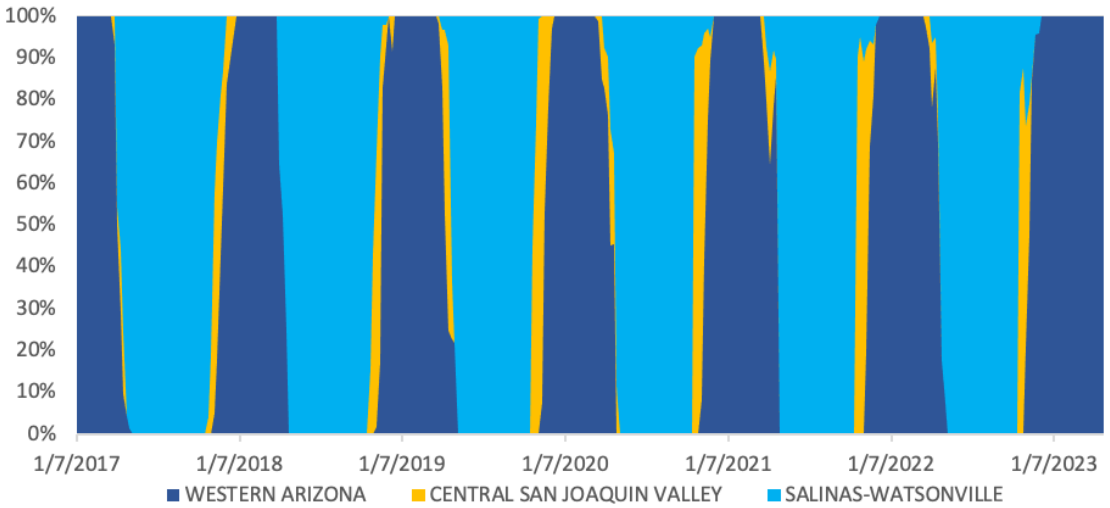
Processed lettuce production cycles between Western Arizona and Salinas-Watsonville, California, with a short shoulder season in the central San Joaquin Valley. The specialized lettuce processing equipment lines are sanitized, disassembled, and transported between the two areas in a matter of days (for example, see Church Brother Farms, 2018).

Figure 7. Arizona Districts' Percents of Weekly National Movements of Processed Lettuce, January 2017 - May 2023



Source: USDA AMS, 2023

Figure 8. Percent of Weekly National Movements of Processed Lettuce by District, January 2017 - May 2023



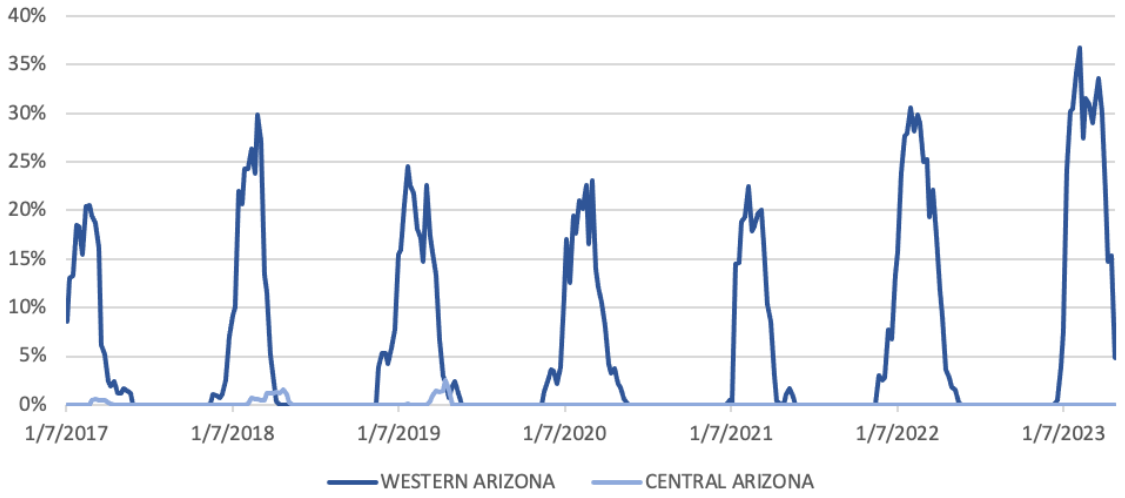
Source: USDA AMS, 2023

Celery

Harvest of celery in Western Arizona occurs between November and May. At its highest, the region accounts for roughly a third of national supply during some weeks. Central Arizona also harvests celery between February and May (Figure 9).

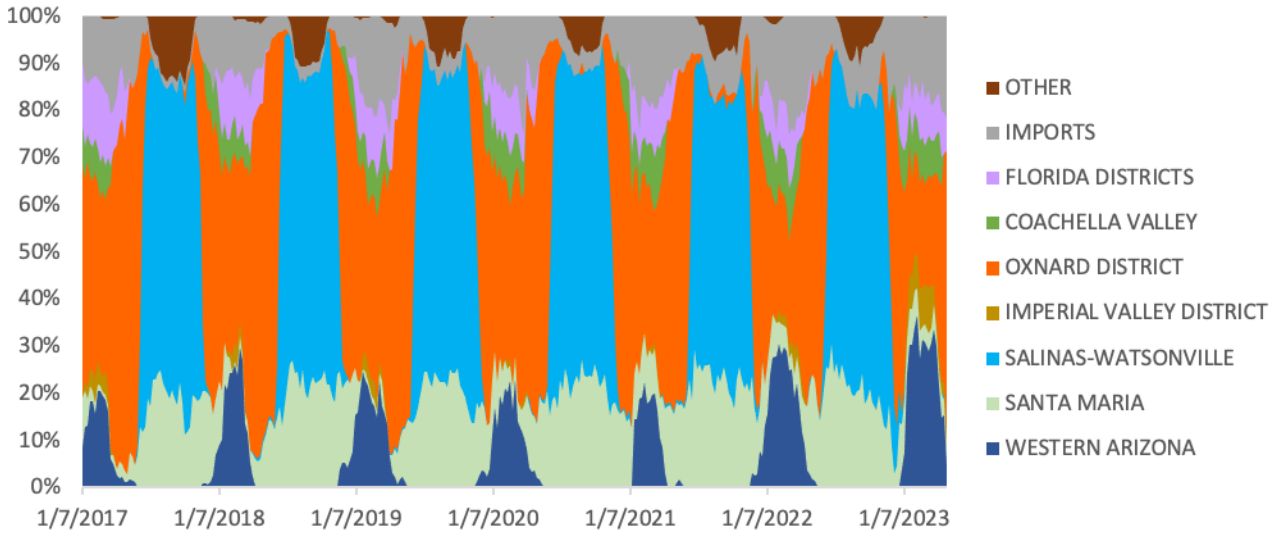
Most celery production occurs in California and Arizona, though production also occurs in Florida and is supplemented throughout the year by imports (Figure 10).

Figure 9. Arizona Districts' Percents of Weekly National Movements of Celery, January 2017 - May 2023



Source: USDA AMS, 2023

Figure 10. Percent of Weekly National Movements of Celery by District, January 2017 - May 2023



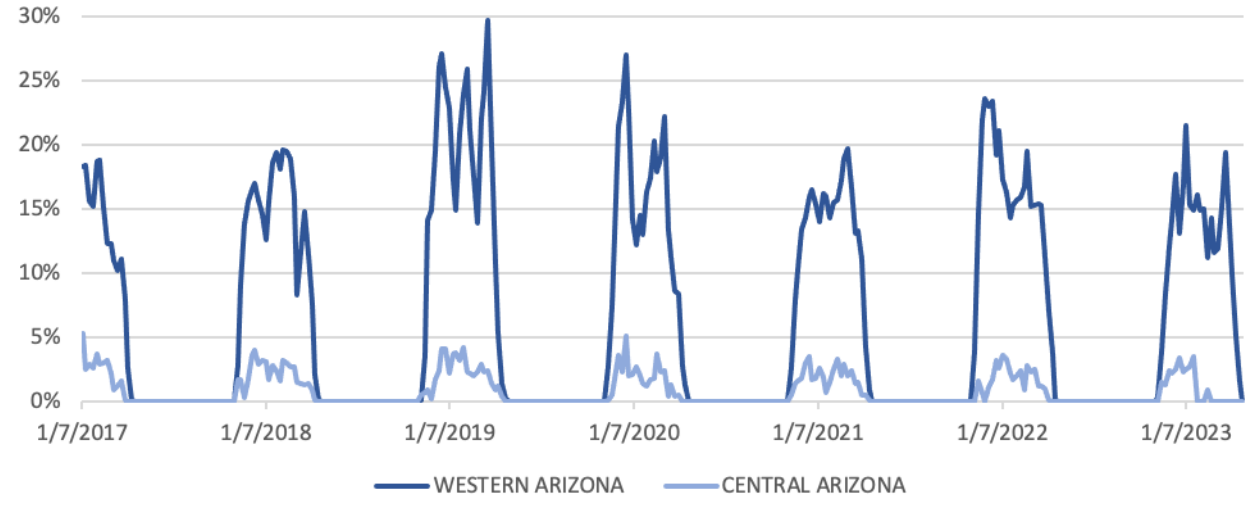
Source: USDA AMS, 2023

Broccoli

Broccoli harvest occurs in Western Arizona between November and April. Central Arizona also provides broccoli during that same window, though at significantly less volume. During peak weeks of production, Central Arizona accounts for between 20% and 30% of national movements (Figure 11).

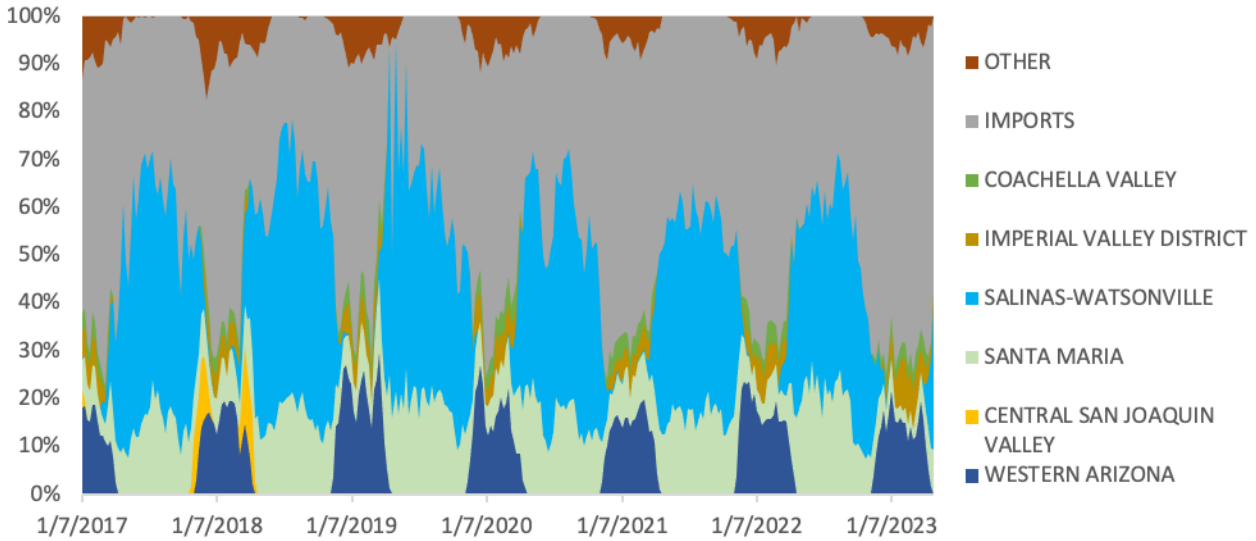
U.S. broccoli production occurs principally in California and Arizona, and the remainder of demand is met through imports (Figure 12).

Figure 11. Arizona Districts' Percents of Weekly National Movements of Broccoli, January 2017 - May 2023



Source: USDA AMS, 2023

Figure 12. Percent of Weekly National Movements of Broccoli by District, January 2017 - May 2023



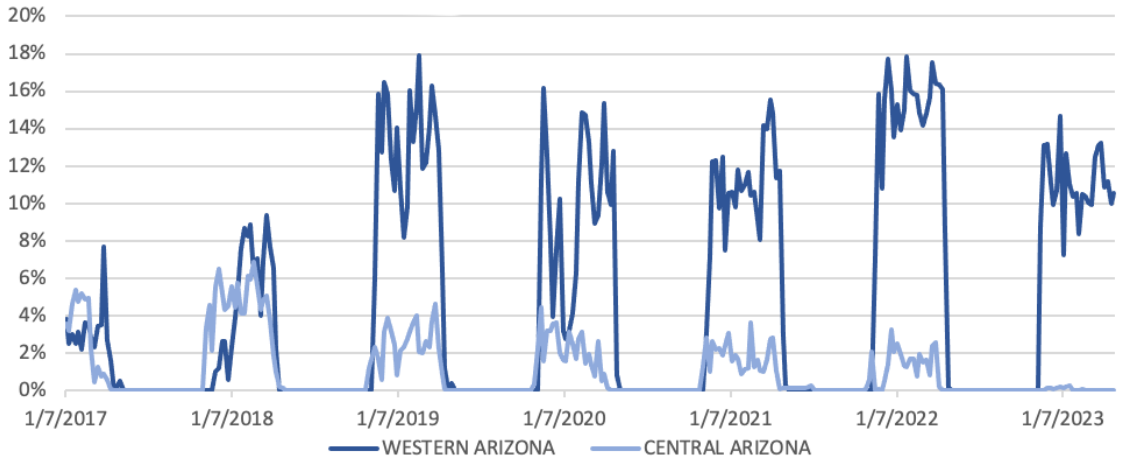
Source: USDA AMS, 2023

Cabbage

Cabbage is produced in both Western and Central Arizona. Harvest occurs between November and April and in peak weeks, Western Arizona accounts for up to 18% of national movements (Figure 13).

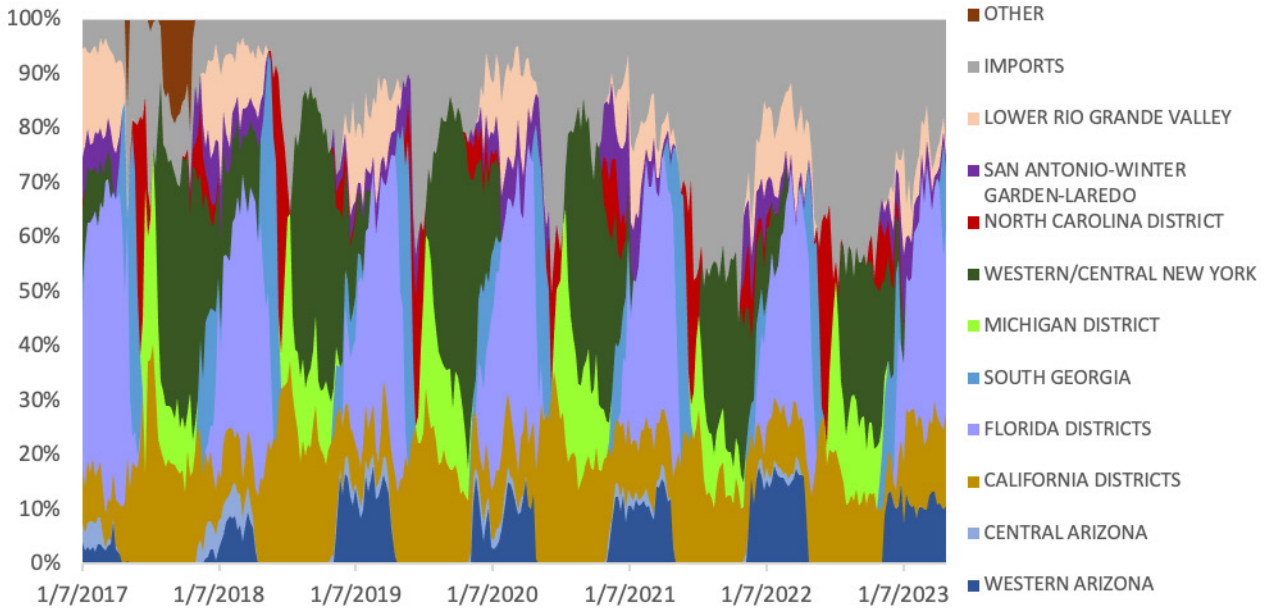
Compared to other commodities in this analysis, cabbage is produced by a much more geographically diverse set of regions across the country (Figure 14). Imports as a share of national movements have also increased in recent years.

Figure 13. Arizona Districts' Percents of Weekly National Movements of Cabbage, January 2017 - May 2023



Source: USDA AMS, 2023

Figure 14. Percent of Weekly National Movements of Cabbage by District, January 2017 - May 2023



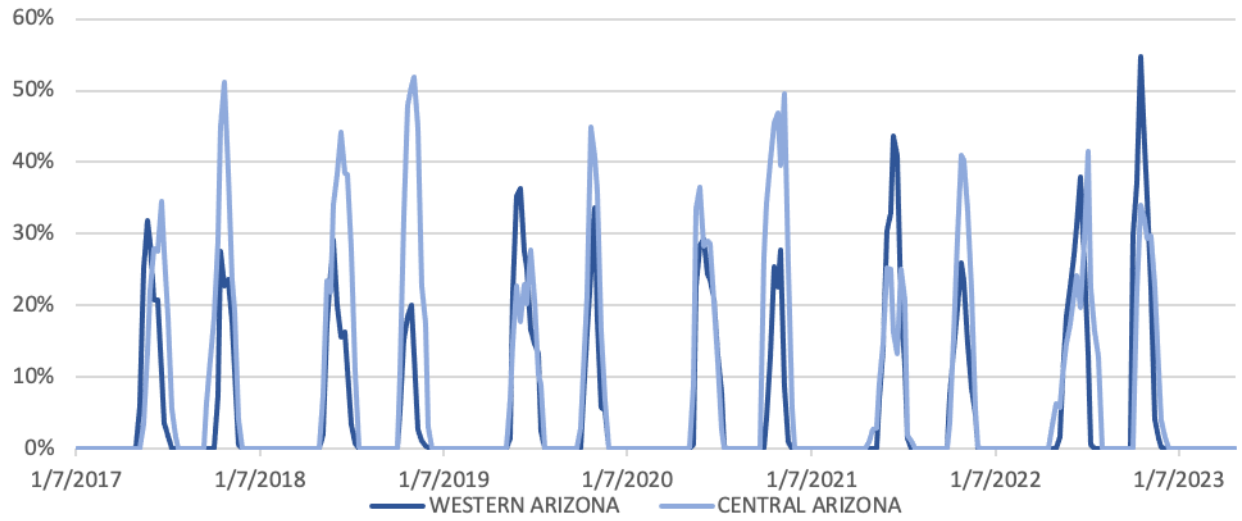
Source: USDA AMS, 2023

Cantaloup

Cantaloup is harvested twice per year in Western and Central Arizona, in the later spring to summer and fall. During these two periods, Western and Central Arizona account for upwards of 70% or 80% of total movements in the U.S. in some weeks, though these spikes in market share occur for only short periods of time (Figure 15).

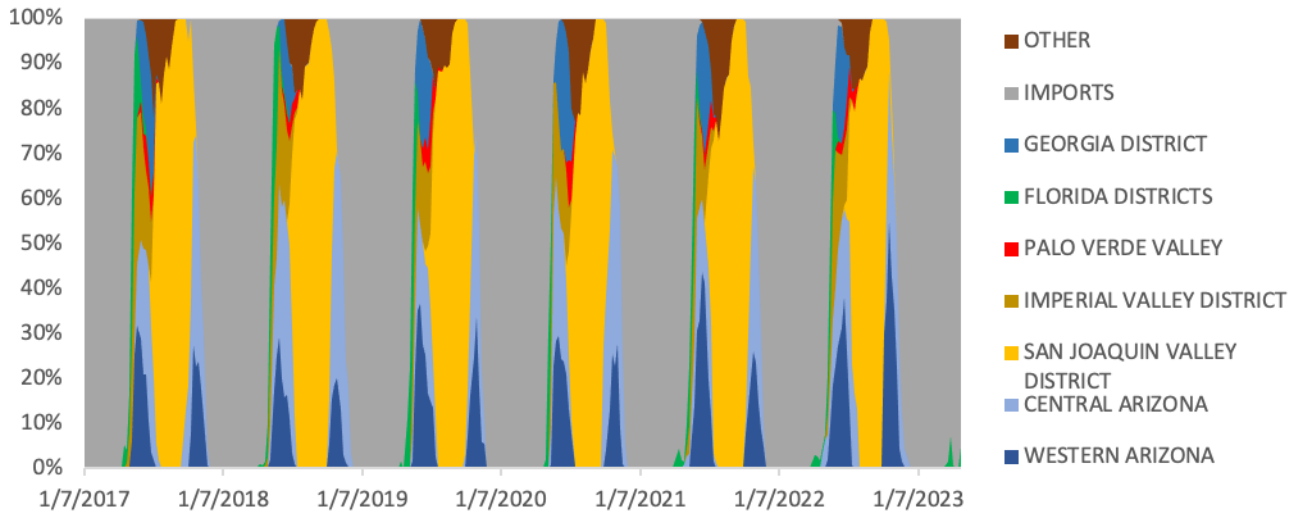
Western and Central Arizona production of cantaloup represents the shoulder seasons of domestic production. During winter months, national supply is fulfilled through imports (Figure 16).

Figure 15. Arizona Districts' Percents of Weekly National Movements of Cantaloup, January 2017 - May 2023



Source: USDA AMS, 2023

Figure 16. Percent of Weekly National Movements of Cantaloup by District, January 2017 - May 2023



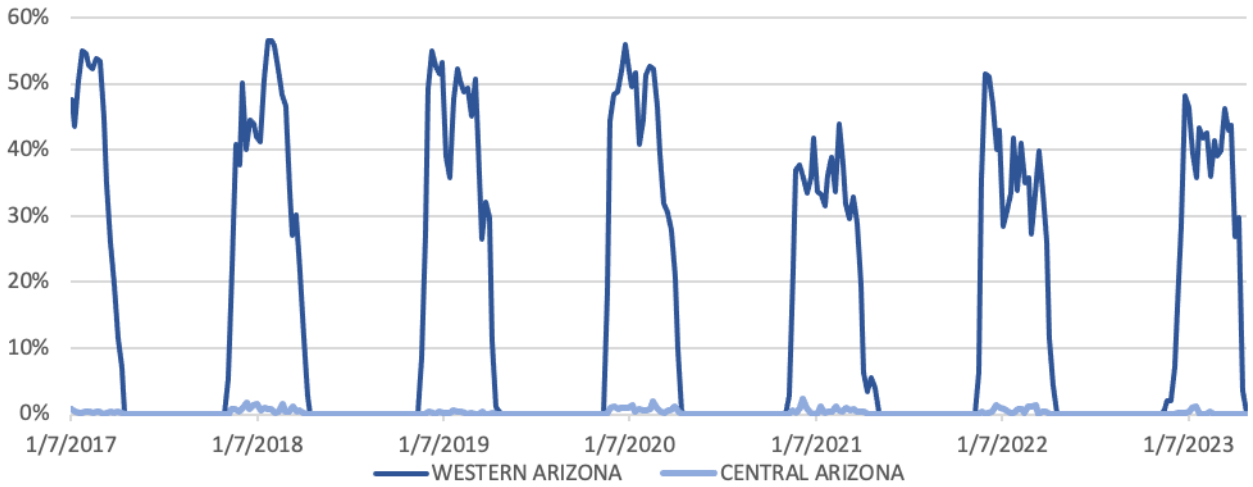
Source: USDA AMS, 2023

Cauliflower

Cauliflower harvest in Western Arizona occurs between November and April. A small amount is produced in Central Arizona during this time as well. During peak weeks of Western Arizona's harvest, the region is responsible for at times as high as 50% to 60% of national movements (Figure 17).

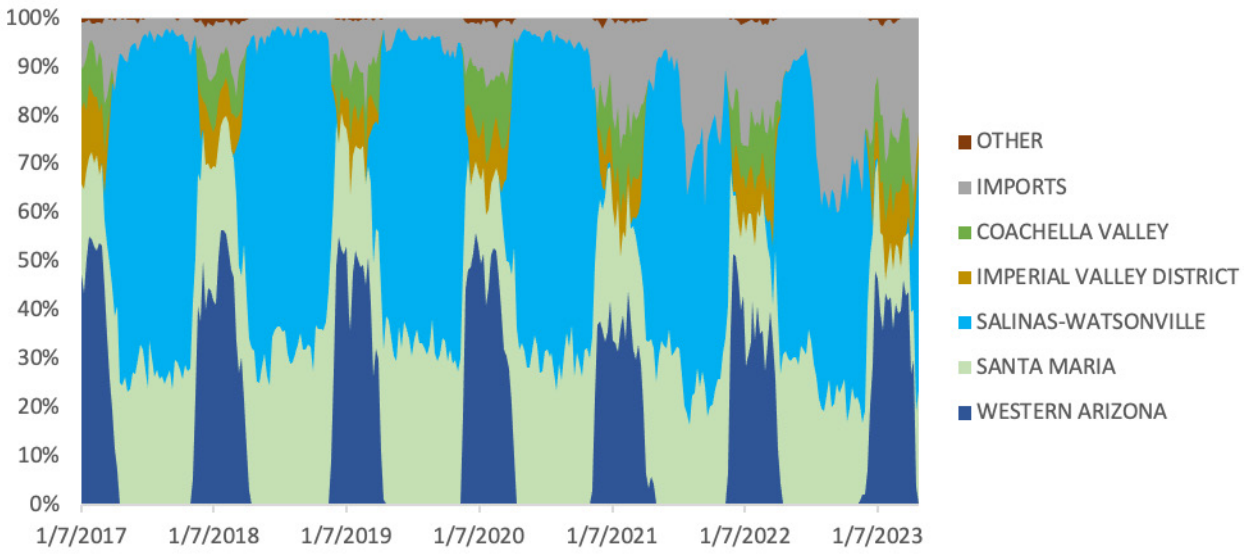
Nationally, cauliflower is produced predominantly in three regions: Western Arizona; Santa Maria, California; and Salinas-Watsonville, California. Other areas in California and imports supplement production throughout the year (Figure 18).

Figure 17. Arizona Districts' Percents of Weekly National Movements of Cauliflower, January 2017 - May 2023



Source: USDA AMS, 2023

Figure 18. Percent of Weekly National Movements of Cauliflower by District, January 2017 - May 2023



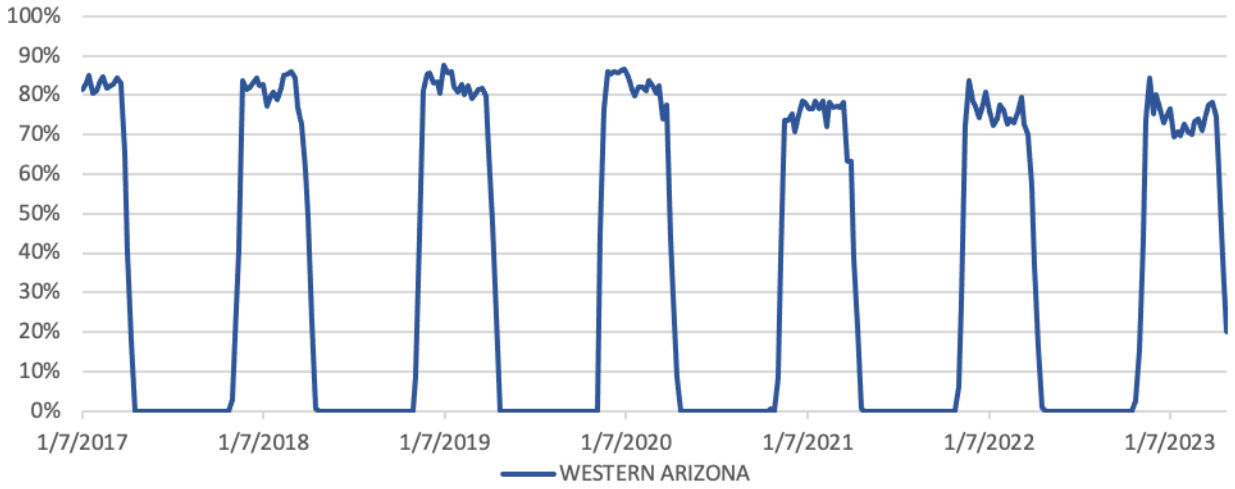
Source: USDA AMS, 2023

Green Leaf Lettuce

Green leaf lettuce is harvested in Western Arizona between November and April, during which time the region accounts for between 70% and 90% of national movements (Figure 19).

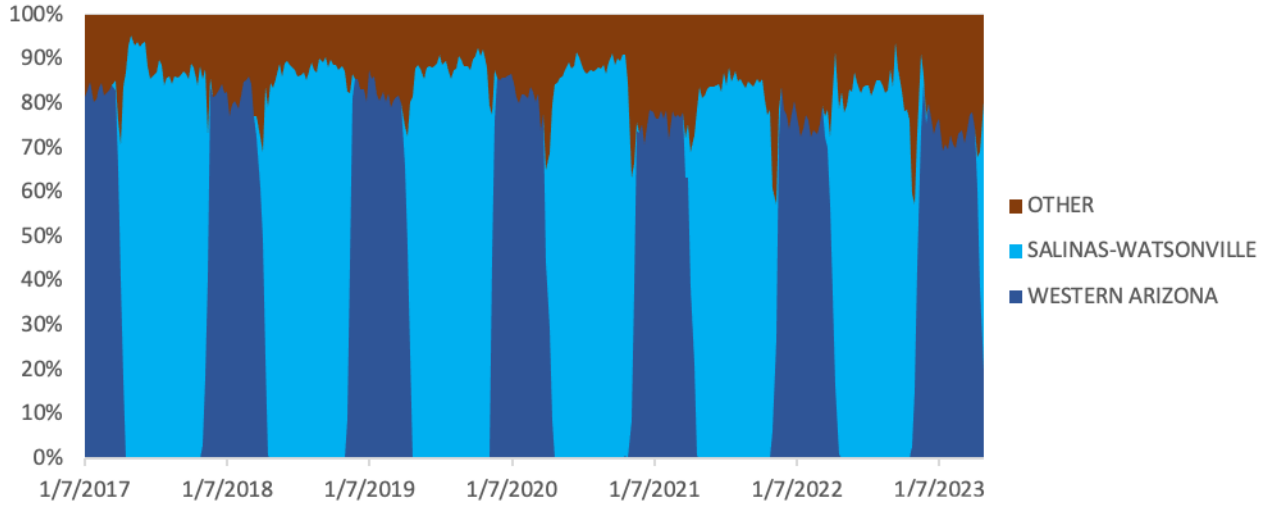
Green leaf lettuce production cycles between Western Arizona in the winter and the Salinas-Watsonville area of California during the summer. Domestic production in other areas supplements those two primary production regions throughout the year (Figure 20).

Figure 19. Arizona Districts' Percents of Weekly National Movements of Green Leaf Lettuce, January 2017 - May 2023



Source: USDA AMS, 2023

Figure 20. Percent of Weekly National Movements of Green Leaf Lettuce by District, January 2017 - May 2023



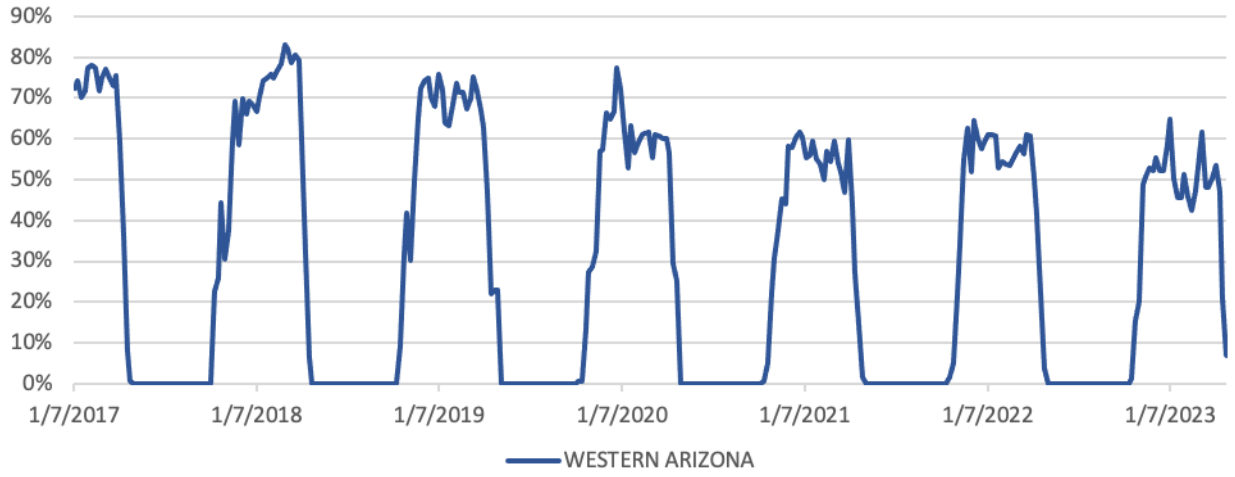
Source: USDA AMS, 2023

Spinach

Western Arizona is the leading source of spinach nationally between the months of October and April, during which time it accounts for up to 80% of shipments in recent years, though during peak weeks the share has been closer to between 50% and 60% since 2020 (Figure 21).

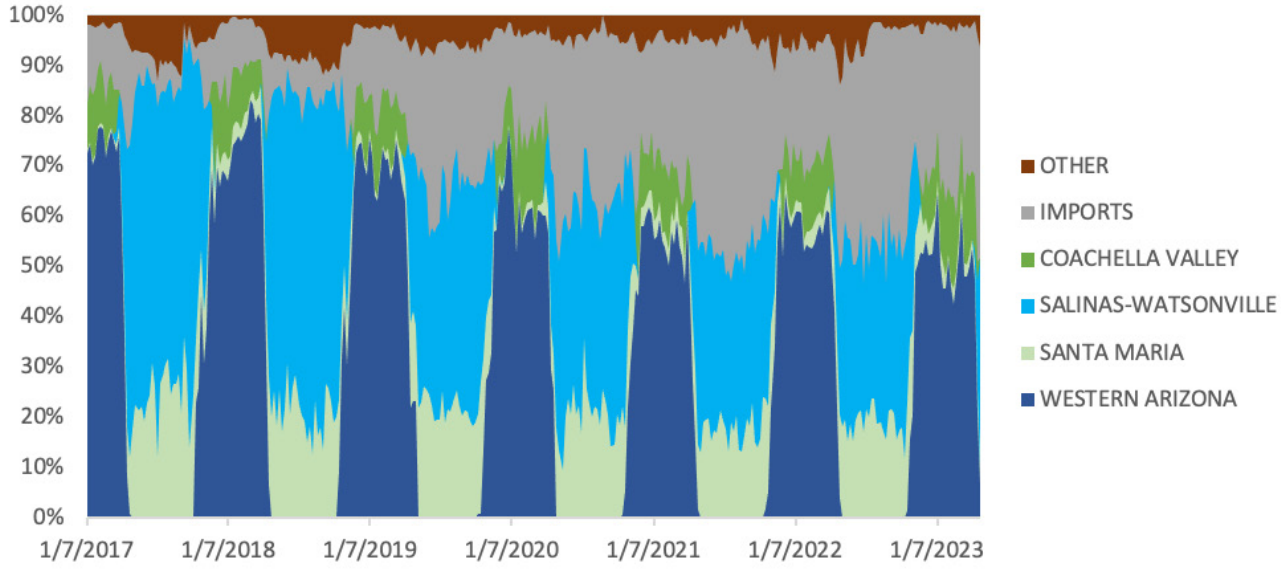
Spinach production shifts between Western Arizona and the Coachella Valley in California during the winter, and Salinas-Watsonville and Santa Maria in California during the summer. Imports have represented a growing share of national movements of spinach since 2019 (Figure 22).

Figure 21. Arizona Districts' Percents of Weekly National Movements of Spinach, January 2017 - May 2023



Source: USDA AMS, 2023

Figure 22. Percent of Weekly National Movements of Spinach by District, January 2017 - May 2023



Source: USDA AMS, 2023

Table 1. Arizona (Western & Central) Weekly Share of Total U.S. Specialty Crop Movements (Domestic & Import) for Selected Crops, 2021-22 Season

Week Beginning	Iceberg Lettuce	Romaine Lettuce	Green Leaf Lettuce	Processed Lettuce	Broccoli	Celery	Cabbage	Cauliflower	Spinach
10/2/2021	0%	0%	0%	0%	0%	0%	0%	0%	0%
10/9/2021	0%	0%	0%	0%	0%	0%	0%	0%	0%
10/16/2021	0%	0%	0%	0%	0%	0%	0%	0%	0%
10/23/2021	0%	0%	0%	90%	0%	0%	0%	0%	2%
10/30/2021	0%	0%	0%	95%	0%	0%	0%	0%	5%
11/6/2021	3%	11%	6%	89%	0%	0%	1%	0%	21%
11/13/2021	18%	25%	27%	92%	4%	0%	2%	0%	34%
11/20/2021	64%	73%	72%	94%	16%	0%	7%	6%	55%
11/27/2021	74%	87%	84%	93%	23%	3%	16%	36%	62%
12/4/2021	83%	80%	79%	98%	24%	3%	11%	51%	52%
12/11/2021	75%	78%	77%	100%	24%	3%	16%	51%	65%
12/18/2021	72%	76%	74%	100%	25%	8%	19%	47%	60%
12/25/2021	70%	78%	78%	100%	22%	7%	19%	41%	58%
1/1/2022	78%	81%	81%	100%	24%	13%	16%	44%	59%
1/8/2022	71%	77%	76%	100%	21%	16%	18%	29%	61%
1/15/2022	68%	78%	72%	100%	20%	24%	16%	31%	61%
1/22/2022	68%	79%	74%	100%	16%	28%	16%	34%	61%
1/29/2022	71%	78%	77%	100%	17%	28%	19%	42%	53%
2/5/2022	67%	78%	76%	100%	18%	31%	18%	35%	54%
2/12/2022	69%	74%	73%	100%	18%	28%	18%	42%	54%
2/19/2022	70%	74%	74%	100%	18%	30%	17%	35%	53%
2/26/2022	70%	76%	73%	100%	22%	29%	17%	37%	55%
3/5/2022	71%	76%	76%	100%	17%	25%	16%	28%	57%
3/12/2022	70%	80%	79%	100%	18%	25%	16%	35%	58%
3/19/2022	68%	75%	73%	100%	17%	19%	16%	40%	56%
3/26/2022	63%	66%	70%	100%	16%	22%	20%	34%	61%
4/2/2022	48%	48%	57%	100%	12%	17%	19%	27%	61%
4/9/2022	29%	28%	37%	94%	7%	12%	17%	12%	50%
4/16/2022	16%	23%	16%	95%	4%	9%	16%	4%	41%
4/23/2022	6%	6%	1%	76%	0%	4%	9%	0%	22%
4/30/2022	0%	0%	0%	18%	0%	3%	0%	0%	4%
5/7/2022	0%	0%	0%	8%	0%	2%	0%	0%	0%
5/14/2022	0%	0%	0%	0%	0%	2%	0%	0%	0%
5/21/2022	0%	0%	0%	0%	0%	0%	0%	0%	0%

Table 1 presents Arizona's percentage of national movements (domestic production and imports) by weight for the 2021-2022 season for select vegetable and melon specialty crops. The peak season spans from October to April for crops presented in this report, with the exception of cantaloupe, not included in the table.

Resources:

Church Brother Farms (2018). The Seasonal Plant Move. Video. Retrieved from https://www.youtube.com/watch?v=HexFSH1aYEQ

Glaser, L., Thompson, G., & Handy, C. (2001). Recent Changes in Marketing and Trade Practices in the U.S. Lettuce and Fresh-Cut Vegetable Industries. Agriculture Information Bulletin Number 767, Economic Research Service, United States Department of Agriculture. Retrieved from https://www.ers.usda.gov/webdocs/publications/42377/50822_aib767.pdf?v=0

USDA AMS (2023). Specialty Crops Movement Reports. Retrieved from https://www.ams.usda.gov/market-news/custom-reports

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