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Broccoli Production in the United States: Implications for Florida[1]

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Florida has strong potential to expand local broccoli production to meet growing consumer demand while providing additional revenue opportunities for farmers. Production, however, is constrained by the limited availability of broccoli cultivars adapted to Florida's subtropical and tropical conditions. This publication reviews broccoli production and market trends, trade dynamics, planting windows, heat-related constraints, and commercially available cultivars. This information is relevant to Florida growers considering broccoli as a diversification crop, Extension agents, and agricultural researchers.

Florida's Production Context

Florida spans a climatic gradient, ranging from subtropical conditions in the northern and central regions to tropical climates in the south. This diversity enables year-round production of fruits and vegetables across the state, conferring a competitive advantage over regions constrained by harsh winters. As a result, Florida plays a critical role in US food security and agricultural trade, producing an estimated 200–300 commodities (FDACS 2024). In 2022, Florida's agriculture and food systems sectors generated approximately $387.4 billion in sales revenue and supported 2.5 million jobs, underscoring the state's importance to national consumption and international markets (UF/IFAS FRED 2025).

Despite its production advantages, Florida presents a challenging growing environment characterized by high humidity, elevated temperatures, intense pest and disease pressure, and frequent hurricane events (National Hurricane Center 2024; UF/IFAS Extension 2025). Increasing crop diversification has been shown to mitigate production risks, enhance system resilience, and reduce economic vulnerability for growers (Lin 2011). Within this context, broccoli emerges as a promising diversification option due to its widespread consumption in the United States, rising consumer demand (USDA-ERS 2024), strong nutritional profile (Syed et al. 2023), and relatively high farm-gate prices, which can enhance grower profitability (Figure 1).

Market trends further support the economic viability of broccoli production. Since 2021, US broccoli farm prices have trended upward, offering growers higher cents per pound and incentivizing increased adoption and expansion of broccoli acreage (Figure 1). Broccoli has commanded a higher farm-gate price than romaine lettuce or tomatoes in each year since 2021. In Florida, broccoli acreage has expanded over the past two decades, from 983 acres in 2012 to 1,317 in 2017 and 2,710 in 2022 (USDA-NASS 2026).

US Broccoli Markets and Trade

US broccoli trade flows derived from USDA data indicate that, although export channels exist (Figure 2), export volumes remain minimal (approximately $25 million) (USDA-ERS 2026). In contrast, both domestic production and imports have increased to meet national demand (Figure 3). In 2024, the United States imported approximately $400 million in broccoli, primarily from Mexico (USDA-ERS 2026), while domestic production totaled approximately $1.09 billion, representing a 9% increase from the previous year (USDA-NASS 2026).

Florida Planting and Harvest Windows

In Florida, broccoli planting windows extend from September through February in northern and central regions and from October through January in south Florida, allowing for harvests throughout the winter months (Figure 4).

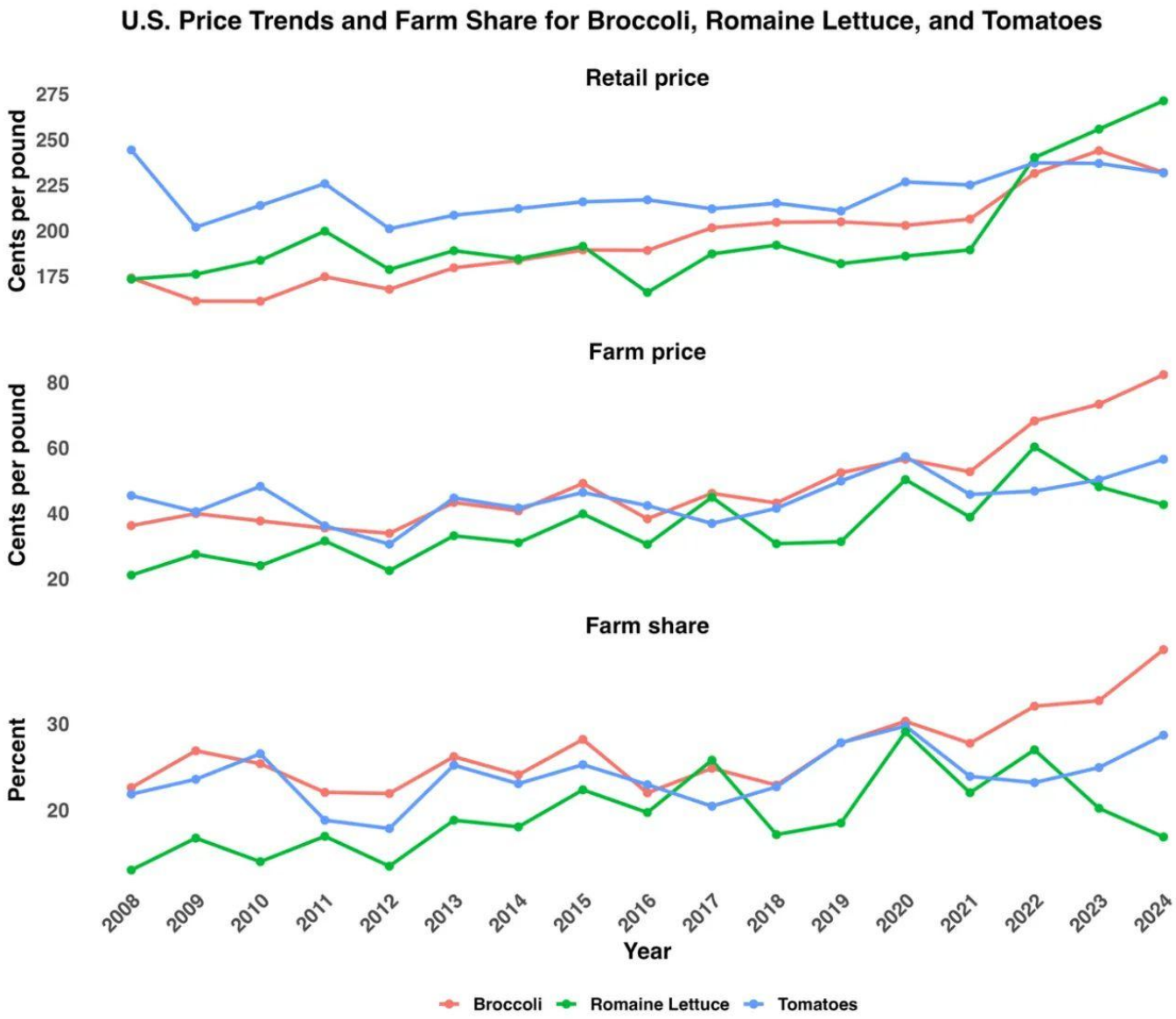


Figure 1. Annual US retail prices, farm prices, and farm share for fresh broccoli, romaine lettuce, and tomatoes, 2008–2024.
Credit: Data from USDA-ERS (2025). Retail prices are ERS estimates based on Circana retail scanner data, and farm prices are from the USDA-ERS *Vegetables and Pulses Yearbook* tables.

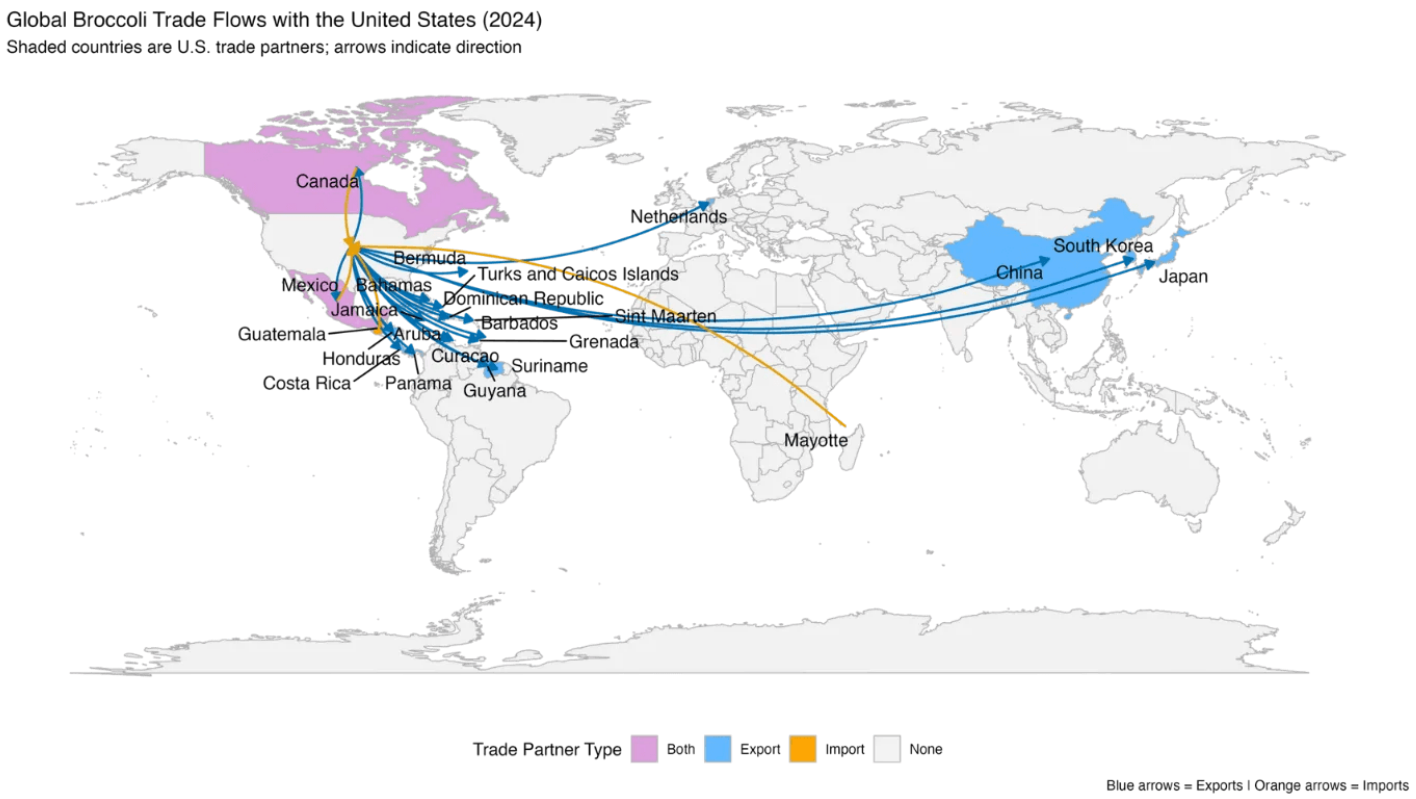


Figure 2. Global broccoli trade flows involving the United States in 2024. Arrows (blue) pointing away from the United States toward destination countries represent US exports of broccoli. Arrows (orange) pointing from foreign countries toward the United States represent US imports of broccoli. Credit: Data from USDA-ERS (2026).

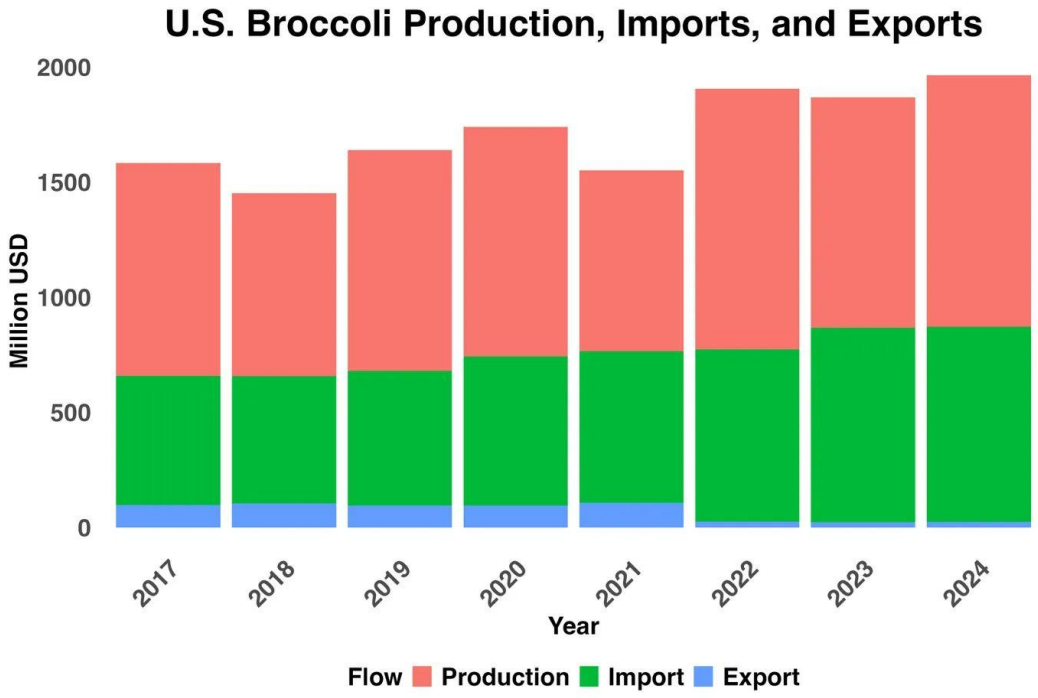


Figure 3. Total US broccoli production value and import and export values (million USD), 2017–2024. Credit: Production data from USDA-NASS (2026). Trade data from USDA-ERS (2026).

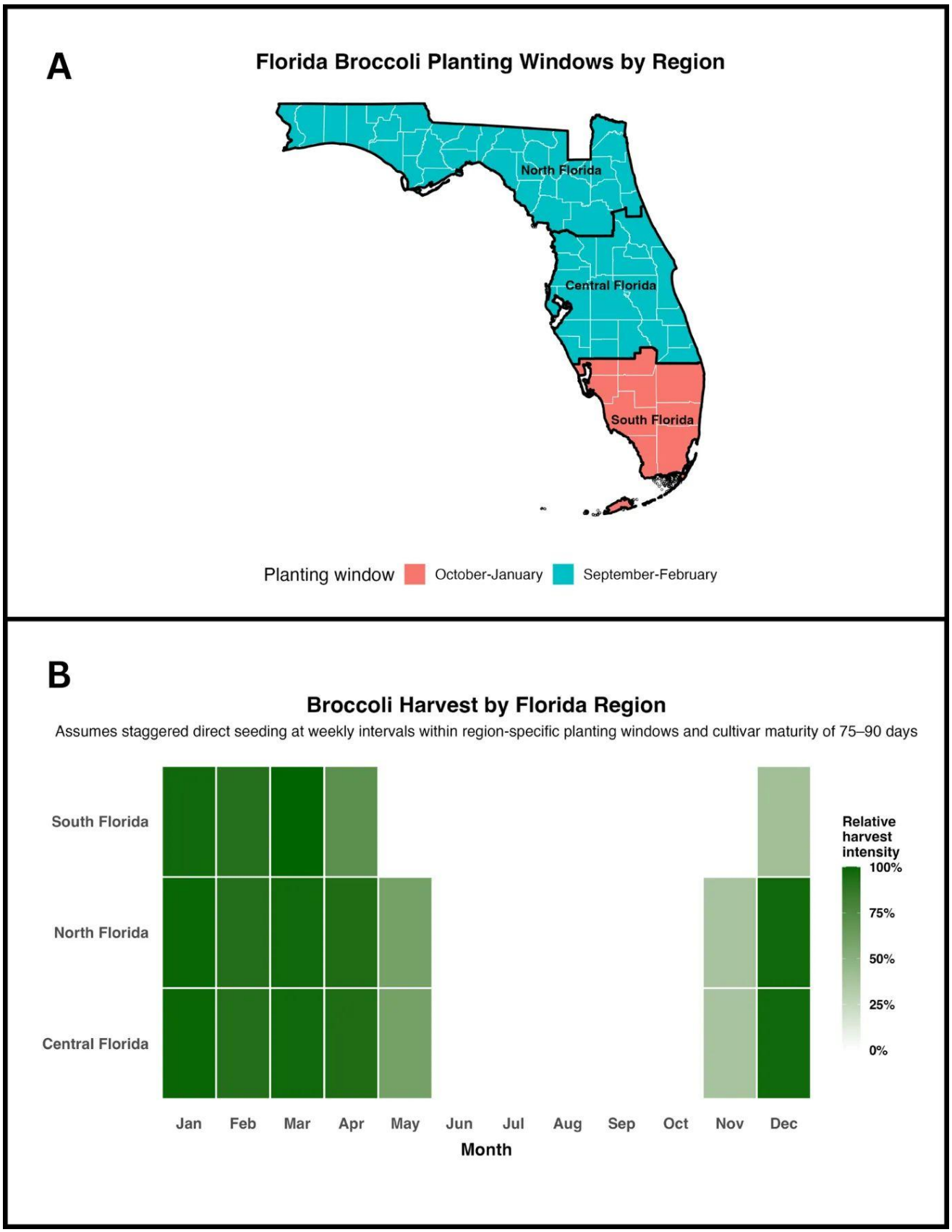


Figure 4. (A) Recommended broccoli planting windows for major Florida production regions (north, central, and south). (B) Corresponding harvest periods for each region, assuming weekly staggered plantings and cultivar maturity of 75–90 days.
Credit: Zotarelli et al. (2025).

Heat Tolerance and Cultivar Selection

Despite this extended production potential, high temperatures remain a major constraint. Temperature spikes above 86°F (30°C) during the heading stage can result in yield losses due to head deformities (Björkman and Pearson 1998) (Figure 5). This thermal sensitivity limits the expansion of planting windows and often reduces late-season productivity, as growers may terminate broccoli crops early and transition to alternative crops to avoid potential losses.



Figure 5. Broccoli varieties from the USDA germplasm bank grown under late spring field conditions in Gainesville, Florida, displaying uneven and non-compact head formation, enlarged buds, leafy heads, bud death, bud elongation, and premature flowering.
Credit: Melanie Cabrera, UF/IFAS.

Breeding broccoli varieties with enhanced heat tolerance offers a viable strategy to improve yield stability and support more reliable production under Florida's subtropical and tropical conditions. Several commercial cultivars are currently marketed as "heat tolerant" and are available in commercial seed catalogs (Table 1). However, publicly available data supporting these claims are limited, and descriptions of heat tolerance are often vague and lacking quantitative thresholds or clearly defined environmental conditions under which performance was evaluated. Consequently, most of these cultivars remain recommended for winter or early spring production, and growers are advised to evaluate these varieties cautiously and adhere to UF/IFAS-recommended planting windows (Zotarelli et al. 2025).

UF/IFAS Breeding Efforts

Recognizing this challenge, UF/IFAS is advancing early-stage breeding efforts to develop broccoli varieties better adapted to Florida's production environment while actively seeking external funding and raising awareness of the potential impact of breeding tropical- and subtropical-adapted broccoli varieties (Cabrera and Messina 2025). Current research focuses on identifying key adaptive traits, including flowering time and heat response, using modeling and artificial intelligence approaches to accelerate understanding and adaptation. This endeavor builds on foundational work from the Eastern Broccoli Project, which, in collaboration with the USDA Vegetable Breeding Laboratory in South Carolina, identified quantitative trait loci associated with heat tolerance. Advanced broccoli breeding lines are expected to be released as varieties in the near future (Branham et al. 2017; Cornell University 2025). These materials may provide near-term opportunities for Florida growers while longer-term, regionally adapted cultivars continue to be developed.

Table 1. Commercially available crown-cut broccoli cultivars marketed with partial or claimed heat tolerance, grouped by seed company. Heat-tolerance descriptions and days to maturity are reported as provided in commercial seed catalogs; references indicate the source catalog for each cultivar.

Seed company	Cultivar	Heat tolerance (HT)*	Reference	Days to maturity from direct seed
Sakata Seed	Green Magic	Very good	Johnny's Selected Seeds (2026)	57
	Emerald Crown	Average	Johnny's Selected Seeds (2026)	59
	Gypsy	Good	Johnny's Selected Seeds (2026)	60
	Imperial	Excellent	Johnny's Selected Seeds (2026)	66
	Centennial	HT level not specified	Sakata Seed America (2013)	97–100
	Green Gold	HT level not specified	Sakata Seed America (2013)	100
	Expo	HT level not specified	Sakata Seed America (2013)	102
	Emerald Jewel	HT level not specified	Sakata Seed America (2013)	110
Tainong Seed	Power Dome	Heat tolerance for summer	Tainong Seeds (n.d.)	80–85
Bayer (Seminis)	Castle Dome	Heat-loving	Bayer (2026b)	50–75
	Lieutenant	Well-suited to warm conditions	Bayer (2026e)	55–60
	Abrams	Cool to warm	Bayer (2026a)	62
	Hancock	HT level not specified	Bayer (2026c)	80–105
	Ironman	Warm season	Bayer (2026d)	81
Syngenta	DuraPak 16	Good heat tolerance	Syngenta (2015)	90
Bejo Zaden x Cornell University	NorthStar	Heat tolerance	Hayes (2025)	59

*Heat-tolerance descriptions are qualitative terms used by seed companies in commercial catalogs and are not standardized across companies. In most cases, catalogs do not provide quantitative temperature thresholds, trial locations, or validation data specific to Florida's subtropical and tropical growing conditions. As a result, these claims should be interpreted with caution when selecting cultivars for late-season or warm-temperature production.

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