



The Role of Cooperative Chassis Pools in Serving Agricultural Exporters: A Case Study of California Ports (Summary)

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WHAT IS THE ISSUE?

Chassis—specialized trailers for carrying containers on roads—are critical to the success of containerized agricultural exports, which account for a significant percentage of United States' overall agricultural exports. Supply chain disruptions impacting chassis provisioning systems at California ports disproportionately impacted agricultural exporters, reducing their ability to move their products competitively. While extreme chassis shortages during the COVID-19 pandemic have dissipated, such shortages could occur again with sudden volume spikes, resulting in supply chain bottlenecks that adversely affect agricultural exporters. The purpose of this report is to propose and detail mitigating strategies to reduce the impact of chassis shortages on agricultural exporters that rely on California ports.

Over the past 6 decades, U.S. agricultural exports have grown more than sevenfold, in large part because of containerized agricultural exports. Agricultural exports fill over 40 percent of loaded containers leaving California's ports. The availability of suitable containers and chassis has been essential to the success of containerized export traffic. Yet, insufficient chassis supply remains a key source of inefficiency in the logistics system and a major impediment to moving U.S. agricultural exports during periods of severe logistical strain. The shortages often create costly delays and undermine the competitiveness of U.S. agricultural exports.

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Adequate chassis availability is key to managing the three main concerns of agricultural exporters: transportation costs, transit times, and freight reliability. Consequently, chassis shortages lead to jumps in transportation costs, unnecessary delays, and lack of freight reliability. During the COVID-19 pandemic, perennial chassis shortages contributed to prolonged port-centered bottlenecks—which were also fed by shortages of cargo supplies and labor, as well as surging demand for freight and transport.

Post-COVID, as logistic weaknesses magnified by the pandemic were resolved, the California ports became better equipped to effectively manage volume surges. Still, over the longer term, concerns linger about sustainable chassis availability and agricultural competitiveness.

This report examined the complex factors surrounding chassis availability for containerized agricultural exports at three California ports—Los Angeles, Long Beach, and Oakland, with particular attention to the challenges, disruptions, and evolving solutions that shape this critical sector of U.S. trade. The study also offered detailed strategies to reduce the impact of chassis shortages on agricultural exporters that rely on California ports.

HOW WAS THE STUDY CONDUCTED?

The authors studied data related to container movements at California ports and delineated two historical periods: the COVID period (2020-22), which was accompanied by excessive imbalances in demand and supply of containers and chassis, and the post-COVID period (2023-25), which revealed how the logistics industry responded to pandemic-era vulnerabilities by investing more capital in equipment like chassis. Within the agricultural export-logistics supply chain, the authors consulted stakeholders to identify drivers of chassis bottlenecks from those stakeholders' perspectives. Finally, the authors analyzed data from the ports, USDA, and other sources.

WHAT DID THE STUDY FIND?

The study examined the complex factors surrounding chassis availability for containerized agricultural exports at California ports. The analysis underscores that chassis availability is not only a logistical issue but a strategic determinant of U.S. agricultural trade competitiveness. The study's main findings are summarized below.

Agricultural Exporters' Higher Vulnerability to Chassis Shortages. Agricultural exporters' reliance on containerized shipping is essential to U.S. agricultural export competitiveness, especially from California. Because their products are seasonal and perishable, agricultural exporters are also more vulnerable than other shippers to transport disruptions. Chassis shortages, therefore, directly impede exporters' competitiveness by degrading transport metrics: raising costs, increasing delays, and eroding reliability.

Structural Causes of Chassis Shortages. Recurring chassis shortages have multiple causes: trade imbalances between imports and exports, inefficient chassis pool management, aging fleets, extended dwell times, port congestion, and restrictive ownership rules. Structural changes in the industry—most notably, the divestiture of chassis ownership by ocean carriers after 2008—transferred provisioning responsibilities to leasing companies and third-party pools. However, these changes did not ensure sufficient resilience.

COVID-19 Pandemic as Stress Test. The pandemic exposed and exacerbated systemic weaknesses. Surges in imports, labor shortages, manufacturing disruptions, and tariffs on chassis imports from China created a “perfect storm” of equipment shortages. Chassis dwell times doubled; carriers often prioritized hastening empty container returns to Asia over taking the time to load agricultural exports. The supply chain disruptions during the pandemic resulted in California's exporters losing billions in foreign sales.. The crisis illustrated the fragility of supply chain coordination and the risks of overreliance on leasing pools.

Ongoing System Exposures, Despite Chassis-Tech Investments and Adoption. Post-COVID, chassis lessors invested heavily in refurbishments and reserve fleets; shippers and truckers increased direct ownership and long-term leases; and regulators such as the Federal Maritime Commission enhanced competition by prohibiting restrictive pool requirements. In addition, technologies such as global positioning systems (GPS) began improving exporters' ability to track chassis' real-time locations, find available chassis, coordinate chassis movements with container traffic, and adjust routes to avoid congestion. Nonetheless, the system remains vulnerable to uncertainty, container oversupply, and potential surges in demand.

Currently, California exporters face heightened risks from ongoing trade frictions, retaliatory tariffs, and competitive pressures from other global suppliers. Plus, the decade-long threat of global container oversupply and continued volatility in trade policies continue to stoke concerns about sustainable chassis availability and agricultural competitiveness. However, the system's resilience could improve with further proposed infrastructure changes—new chassis pools and state investments in port logistics, to name a few.

WHAT DID THE STUDY CONCLUDE?

This study concluded that system resilience will depend on several factors: diversifying chassis-provisioning models to reduce reliance on third-party pools, establishing dedicated agricultural chassis pools to ensure reliable access, and introducing policy incentives to support ownership and long-term leasing. At the same time, crucial technologies—such as GPS tracking, artificial intelligence (AI) forecasting, and digital platforms—must be adopted industrywide to optimize equipment use. Finally, trade policies will be critical to sustaining investment and protecting U.S. agricultural competitiveness.

In short, the competitiveness of California's agricultural exports hinges on building a logistics system that can withstand disruptions, adapt to shifting trade patterns, and ensure the timely, cost-effective delivery of U.S. farm products to global markets.

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