

INCREASING EFFICIENCY OF CENTRAL MEXICO BERRY DC NETWORK

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ABSTRACT

Berry are delivered to our shelves year-round, and various regions are each capable of harvesting for roughly 6-8 months per year. Central Mexico has grown into a significant source of berries during the Winter & Spring months. With this growth in Central Mexico production, a California Central Coast Berry Producer utilized simulation to vet out whether to commit to a Hub strategy for managing their packaging?, and if yes, what are the optimal inventory management policies. This project is a few years old, and the Berry Producer has since expanded the use of Hub strategy to additional regions in their network.

1 PROJECT DESCRIPTION

Driscoll's Central Mexico network includes seven Driscoll's Distribution Centers (DC) and 15 supplier DCs. Currently, the supply chain process for packaging materials is from these supplier DCs directly to each of seven Driscoll's DCs. Some of the challenges with this current materials flow include:

1. Each of the seven Driscoll's DCs has to utilize existing floor space to perform the inspection process. As the business continues to grow, it is preferable that this floor space be utilized for processing finished product.
2. In addition, this inspection process not only takes resources away from more critical processes, it is difficult to ensure that the discipline exists to always execute the inspection process.
3. Due to the suppliers' preference to deliver in "full truck load" equivalent, the Driscoll's DCs are forced to carry more product on-site than they desire to.

To resolve these issues, it was proposed that the supply chain be modified by inserting a materials hub between the supplier DCs and the Driscoll's DCs. This solution comes with significant costs for both the leasing and the operation of this Hub facility. To assess the benefits/costs of inserting this Hub into the supply chain, simulation models were developed and analyzed by Sustainable Productivity Solutions.

The initial model was a reflection of the currently existing supply chain. This model was built with a high level of detail that focused more on the interactions between the various DCs on a daily level. The model kept track of inventory levels, and frequency of time that a desired materials pick-up by a grower at a Driscoll's DCs could not be met. This initial model was validated against previous growing seasons' data.

Next a model was developed with the Hub inserted between the suppliers and the Driscoll's DCs. In this model, all supplier deliveries went to the Hub, versus to the individual Driscoll's DCs. And the Driscoll's DCs replenishment orders were sent to the Hub, versus to the individual suppliers. This new flow allowed the Driscoll's DCs to get deliveries of only what they need, versus full truckloads of material; which is what a supplier prefers to deliver.

Comparing the results of the Hub model versus the current supply chain model, the following were the key benefits of a Hub-based supply chain:

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1. The frequency of missed deliveries from the Driscoll's DCs went from an average of 3-4 missed deliveries per day to almost zero per day for the Hub based system. Since the Hub is the only source of deliveries for the Driscoll's DCs, DCs receive deliveries daily. And this ensured consistent replenishment when needed. Also, deliveries are composed of all the various products needed.
2. Thanks to the daily deliveries from one destination (the Hub), the inventory management strategy used can be made more specific to the level of demand of an item. For example, for high movers, the DCs can carry less inventory than before since they can receive replenishments quicker with the Hub system. For slow movers, the DCs carry more inventory (in proportion to demand) than fast movers. This policy can be further delineated into multiple volume-based buckets. Applying this strategy to the Hub model reduced inventory levels by over 20 percent.

The hub simulation model delivered a hub-strategy that Driscoll's has expanded in use to other re-gions in their network.