

HARVESTING REQUIREMENTS OF CITRUS JUICE PROCESSORS FOR NFC AND FCOJ QUALITY

FRAN BECKER
Peace River Citrus Products
4104 NW Highway 72
Arcadia FL 34266

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Abstract. Scheduling the harvest of citrus fruit to consistently supply a processing facility during the harvest season requires constant management. Traditional harvesting methods do not allow for the mass movement of fruit from a single grove location. Daily load allocations are currently the most equitable and efficient way to distribute deliveries among various suppliers. This wide distribution helps to maintain seasonal workers for harvesting needs throughout the season. Developing and employing efficient harvesting programs through mechanization will allow for the mass movement of fruit from several grove locations simultaneously. The current system of load allocations and the distribution of labor will ultimately change as these programs evolve.

I guess I'm here to defend the processors today. That is not an easy job. I am the director of the fruit procurement for Peace River Citrus. That is a fancy term for fruit buyer which was a very lucrative position before the hurricanes in 2004 and 2005 brought the fruit supply down dramatically. I want to talk a little bit about fruit allocation. You've heard about it a lot today, but I want to give you a real time example from what I have to share from our operation this year. Tropicana has a large share at their plants. Cutrale is right behind them. Cutrale does a lot of toll packing for Minute Maid, so most of that is for Minute Maid product. Citrusuco also toll packs for Tropicana, so some of that is Tropicana, and ultimately these brands have the largest percentage of the processing.

Louis Dreyfuss had a big plant expansion that was planned to be finished this year but got delayed quite a bit, so they didn't run many early mid (EM) season fruit. So, our little percentage is about 8%. It's my job to keep our percentage there, or for me to make it larger. When you're scheduling fruit, it's pretty simple for a large processor but I'm a medium sized processor. I've got a lot of suppliers. In fact, we had 95 suppliers that moved EM fruit to us this year for example. I deal with a lot of smaller growers in my area. Our plant had about 6 million boxes total of EM fruit from 95 suppliers. Our largest supplier had 500,000 boxes of fruit. He is a big fruit dealer. My smallest one had 2,000 boxes. He's a retired technician from somewhere in the Peace River area. The average supplier is about 50,000 boxes. Before I ran these numbers I thought to myself, the average would be around 50. The actual average was 49.8 so I'm kind of impressed.

The typical early- and mid season as discussed earlier starts in mid-November and runs to mid-March. About 120 days total, less your holidays, rain days and St. Guadeloupe

Day. You may have heard of that. It is a big holiday in Mexico and it is a day of harvesting you lose here. I haven't had a problem with rain this year, but you have normally about 3 days of rain, particularly mid-season. You have roughly about 110 days to schedule fruit for processing.

So, with our big suppliers, it's very easy. You start with a half million boxes, 110 days, 4500 a day. The average load has 520 boxes which equates to 8 or 9 loads a day. This person or this fruit could easily use the current systems that are in place as Fritz Roka talked about. It's not a problem of good allocation. Now my average supplier has 50,000 boxes spread over 110 days. That's equates to one load a day. We can't give anybody one load a day. It's very difficult to pick fruit with only one load a day. The average crew can pick more than that so they're not happy. As someone said earlier; we have to keep everybody happy, so we have to give them at least two loads a day.

That's the problem. Even for an average supplier, the allocation is much less. So the current technology has evolved where it's only going to work in some of the larger groves like Evans, for example, that have plenty of allocation at the plants and they're going to prepare their groves to try and fit these machines in. The need exists for a smaller type of machine to work in grove settings with different age trees, different sizes of trees and tree spacing; we're going to need a machine that can do less. We're going to need a lot of machines that can do less. We're going to need those machines to operate in one grove one day and another grove the next day or maybe split between two groves in the same day. From my perspective, I'm looking for an efficient machine that, hopefully, can serve a lot of small groves.

Juice storage. Of course, as we heard earlier, our goal is to fill our tanks at the end of the season. We want as much juice as we can to supply our customers in the summer. It's very easy to do with FCOJ. With NFC as Peter McClure mentioned, that's a lot more water. It's about seven times the amount of product as you have with FCOJ, so we're going to need about seven times as much storage as we have. It's currently \$1.75 a gallon which is actually about \$2.00 now with current prices for steel, etc. That's going to be tough to do. There's a big issue there for storage.

We're all blending early and late-season fruit and in my opinion, we need to start running more fruit in the peak of the season. When is the peak of the season? Well for a grower, that's the best pound solids but unfortunately as a processor I'm looking for a uniform product and it has to meet the juice score and the USDA rules for color, flavor, and defects. When is that peak? Well for early mid season fruit, it's really in the middle of the season and we can't pick it all in the middle of the season. So what are we going to do? Well what we want to do is try to get as much as we can in so we don't have to blend. Because every gallon that we blend, we're adding to the cost of that product. So if we do have smaller crops, and we do end up with more storage, then we should be able to run more fruit as an industry with the aid of mechanical harvesting technology during the peak time of the season. That's not going to be music to the growers' ears, because you're not going to

Author's e-mail: robin@magnoliaag.com

be able to maximize solids. But as a processor, we'll be able to blend less and run more fruit at the peak times and I think we're going to end up there. It may be awhile longer, but I think we'll get there.

So there are some big opportunities here. As I said, higher harvest rates at the peak times; 24 hour harvest is a possibility. Earlier today someone said that plants take the weekends off. We don't get the weekends off at our company unless we're forced to. I was forced to take last weekend off, but we run every single weekend during the early-midseason and when we have labor here. So if we can harvest 24 hours a day, you can do a lot of work with the same number of people. Obviously, you can cut that number of total harvesters needed down and we all know that's a great deal.

Mechanically harvested loads of fruit. Obviously we get a lot more trash in the load. When I say trash, I mean leaves and limbs if it's mechanically harvested, especially on the first run in a grove. Over time, as that grove is picked with mechanical harvesting, when you shake that dead wood out, you end up with cleaner loads of fruit. A lot of contractors now are getting trash out of the loads as they dump it into the trailer on some of the modified goats. They have doors that are actually bars instead of a flat door. That's helping out quite a bit, but keep in mind also that we have a lot of sand on loads of fruit. We have about 200 lb of leaves, limbs, and sand on a typical load. If we can keep the fruit from hitting the ground, we can cut down on that sand as well and get an even cleaner load. I hope that's another opportunity we're going to have.

Higher juice yields. I put that in there because there is some data that shows juice loss over time after harvest. As Peter McClure mentioned, sometimes you want harvest and you've got to hold fruit over the weekend for a plant. That's o.k. if it's 24 to 48 hours, but after 48 hours, you're losing juice. There's not much data on this subject. There's some out there, I've seen a study from a few years ago by FMC. When you see a dramatic loss in juice, you're seeing it over 48 hours. So if you can keep your fruit within 48 hours, hopefully 24, that's our goal, you're going to get higher yields and if we can do that, the

mechanical harvesting can pick it even quicker, so there will be even higher yields.

Finish by the end of May, well, that used to be the norm but unfortunately it's not anymore. This list will be added to over time.

Question: Do you think that over time the processors are going to increase storage capacity.

Answer: I think so. As a company, right now we're adding on some additional storage. We're going to see some conversions. We're converting some tanks right now from FCOJ to NFC storage. We're going to see a more conversions to Aseptic tanks and that's something that hasn't been done yet. There hasn't been a need for that up until now so we hope that is successful. Others can do the same and there's no doubt we're going to be forced to as we move into smaller crops and more fruit going to NFC. There's no doubt we're going to see more NFC storage at all plants that are operating. So there are some big business opportunities out there for the storage guys and they know it, unfortunately.

Question: You mentioned about the sand problem?

Answer: Well as Peter McClure's slides showed earlier, most of the fruit, aside from fresh fruit, is actually picked from the tree and put onto the ground. It's not sacked. It's thrown to the ground and from there is picked up and put into a tub. So what happens is that the fruit naturally is going to collect sand, especially since most fruit is picked earlier in the day, so you've got water dew on it. It hits the ground, rolls around and picks up sand. Multiply that times 520 boxes and you end up with quite a bit of sand. We've got piles of it at the plant. There's nothing you can do about that unless you want to put all the fruit it into a sack which is going to cost more and I don't see that changing any time soon.