



'HLB firefighters'

Innovative growers who are committed to staying in citrus are using new techniques to fight disease.

By Stephen H. Futch and Ariel Singerman

In battling HLB, many citrus growers are struggling with decisions on how best to manage the disease as well as developing strategies to maintain future production. For some growers, plans may include how to exit the business, whereas other growers are looking to heavily invest in either grove rejuvenation or even planting new acreage. The latter type of growers is what we call "HLB firefighters."

RISKS VS. REWARDS

By definition, a firefighter is one that surveys risks and rewards of the firefighting activity. After careful evaluation of the risk, the firefighter takes action (e.g., going into a burning building, or if the building is too far gone to save it, working to contain the fire and protect nearby buildings or property).

Likewise, growers are evaluating the current risks and rewards associated with growing citrus in the era of HLB. The true "HLB firefighters" are committed to staying in the citrus industry in the long run and are, therefore, taking the risks of resetting and planting new acreage. If HLB has caused the production to decline to a level that the block is uneconomical, then the best thing to do may be to push the block or grove and look at alternative possibilities. The true "HLB firefighter" can then focus attention and resources necessary to managing the remaining blocks.

Other growers deem the risks of currently growing citrus as too large and are exiting the business or putting minimum investments into their groves. The latter approach (limited inputs) will ultimately lead to such groves becoming unprofitable in the near future due to the increasing number of declining and/or unproductive trees. Exiting the citrus business may be immediate by selling the grove, changing the land use by fencing to allow cattle to graze, or removing groves in a few years when the property is producing a negative cash flow. Regardless of their choice for exit, these growers have determined that the risk does not warrant the reward in return on investment and have, therefore, chosen their strategy based upon a rationale that fits their business model best.

BREAK-EVEN ANALYSIS

As productive tree numbers in a grove decline, yield will likewise decline. To maintain a productive grove, growers must reset dead and/or declining trees to remain in the grove business in the long term. Table 1 (page 8) shows various scenarios for a break-even price per pound solid. The break-even price will vary greatly as yield per acre and total production cost change. For example, at 200 boxes per acre and a range of production costs from \$1,700 to \$2,800 per

Table 1. Processed oranges delivered-in, break-even price per box for different levels and cost of production.¹

Total cost per acre	Yield (boxes per acre)															
	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500	525
	\$ per pound solids															
1700	2.30	2.04	1.84	1.69	1.56	1.46	1.38	1.31	1.25	1.19	1.15	1.10	1.07	1.04	1.01	0.98
1800	2.41	2.13	1.92	1.76	1.63	1.52	1.43	1.36	1.29	1.24	1.19	1.14	1.10	1.07	1.04	1.01
1900	2.52	2.23	2.00	1.83	1.69	1.58	1.49	1.41	1.34	1.28	1.23	1.18	1.14	1.10	1.07	1.04
2000	2.63	2.32	2.09	1.90	1.76	1.64	1.54	1.46	1.39	1.32	1.27	1.22	1.18	1.14	1.10	1.07
2100	2.74	2.41	2.17	1.98	1.82	1.70	1.60	1.51	1.43	1.37	1.31	1.26	1.21	1.17	1.14	1.10
2200	2.85	2.51	2.25	2.05	1.89	1.76	1.65	1.56	1.48	1.41	1.35	1.30	1.25	1.21	1.17	1.14
2300	2.96	2.60	2.33	2.12	1.96	1.82	1.70	1.61	1.53	1.45	1.39	1.34	1.29	1.24	1.20	1.17
2400	3.12	2.74	2.45	2.23	2.05	1.90	1.78	1.68	1.59	1.52	1.45	1.39	1.34	1.29	1.25	1.21
2500	3.18	2.79	2.50	2.27	2.09	1.94	1.81	1.71	1.62	1.54	1.47	1.41	1.36	1.31	1.27	1.23
2600	3.29	2.88	2.58	2.34	2.15	2.00	1.87	1.76	1.67	1.50	1.51	1.45	1.40	1.35	1.30	1.26
2700	3.40	2.98	2.66	2.41	2.22	2.06	1.92	1.81	1.71	1.63	1.55	1.49	1.43	1.38	1.33	1.29
2800	3.51	3.07	2.74	2.49	2.28	2.12	1.98	1.86	1.76	1.67	1.60	1.53	1.47	1.41	1.37	1.32

¹Assumes 6.11 pound solids per box, \$2.55 per box for pick and haul and \$0.20 per box for FDOC assessment.

acre, the break-even price will range from \$1.84 to \$2.74 per pound solid, respectively. By conducting production practices that increase the yield per acre to 300 boxes and the same production cost of \$1,700 to \$2,800 per acre, the break-even price decreases to \$1.38 to \$1.92 per pound solid, respectively, or a decrease of \$0.46 to \$0.82 per pound solid. The above scenarios assume a constant harvesting and hauling price of \$2.55 per box¹.

Growers can use break-even analysis to assess their situation and determine whether the potential returns are attractive enough for them to continue taking the risk in the citrus business. If so, they should invest in adequate resources to maintain or improve the long-term productivity and profitability of the grove by having a sufficient number of productive trees per acre. Those HLB firefighters who choose to reset trees in existing groves or plant new acreage should also consider new practices and methods, even if some were once considered impractical. As conditions change, so must production practices. The key is to compare the benefits (positive impact on production) of these practices to their costs.

The remaining part of this article describes practices that some of the innovative HLB firefighters have recently started to implement with success.

NEW WAYS TO SPRAY

When planting a new grove, growers must be willing to apply foliar sprays at least 12 times per year to protect trees from psyllid feeding. While old sprayer systems could spray young trees in one or two rows at a time, innovative and forward-thinking growers have adapted a row crop sprayer,

which sprays up to four or five rows (depending on row spacing) in a single pass and at speeds of up to 5 to 7 miles per hour. While the cost for the tractor and spray system is higher, this cost is outweighed by the productivity gains achieved by both the speed and area sprayed in a single pass compared to conventional spray equipment.

One of these innovative sprayers has been used at Duda Citrus in Southwest Florida. The contract operator of the machine is Thomas R. Summersill, Inc. The sprayer being used can spray up to 300 to 400 acres per day at a lower cost than that of standard spray methods (Figure 1). The application cost can range from \$8.50 to \$10.00 per treated acre.

To afford such a spray system, the grower must have a sufficiently large acreage of young trees to justify the investment or contract with a company that can supply the



Figure 1. This crop sprayer has been modified to spray up to five rows of citrus trees in a single pass.

¹This estimate is based on the results of the survey "2014-15 Picking, Roadsiding and Hauling Charges for Florida Citrus" (available at www.crec.ifas.ufl.edu/extension/economics/). However, the price to pick and haul is higher at lower yields per acre as compared to blocks that yield more boxes per acre.



Figure 2. This soil-drench application method for systemic insecticides uses three workers.

service. This system can only be used for the first two to three years of the grove life, when the trees are small and allow the unit to successfully pass over their tops. After three or so years, the more conventional spray system will have to be used due to increasing tree size.

When applying imidacloprid or other systemic soil-applied insecticides to young trees, most growers will use an all-terrain vehicle (ATV) to transport a single worker and spray unit through the grove. Each ATV and operator can treat approximately 2,000 to 3,000 trees per day in solid set groves.

To effectively produce citrus in the era of HLB, growers must look beyond the way they have produced citrus in the past and come up with innovations that reduce costs while maintaining efficacy of pest management.

One innovative contractor, Donald Padgett, Inc. of Arcadia, has developed an ATV system to allow more trees to be sprayed per day by utilizing a three-person team (Figure 2). One individual drives while two people suspended off to the side of the ATV apply spray solution at the base of the trees. This system may improve the efficiency of application because the applicators are only focusing on targeted applications of pesticide and are not worried about driving. With this system, the team of three can treat up to 18,000 to 20,000 trees per day at a lower cost than three individuals each operating an ATV. Application cost is estimated to be as low as \$0.06 per tree with price varying, depending on location, block size and number of trees per acre.

For mature groves, Airtec Sprayers is developing a sprayer that has booms that go up and over the tree (Figure 3), thus effectively spraying two full rows in a single pass. Since this machine operates from the top of bedded citrus, damage to



Figure 3. An over-the-row citrus sprayer can cover two rows in a single pass.

the water furrow is avoided. This type of spray system is more expensive to purchase than a conventional sprayer, but the productivity in acres sprayed per day may offset the higher investment for the sprayer.

These innovations in pest control provide reliability at a lower cost per unit (area), and in many cases, at a more rapid pace. To effectively produce citrus in the era of HLB, growers must look beyond the way they have produced citrus in the past and come up with innovations that reduce costs while maintaining efficacy of pest management.

ROOTSTOCK SELECTION TOOL

Growers thinking about planting new acreage should also focus on selecting the rootstock that offers the greatest productivity in the era of HLB. A tool to aid in the search for an acceptable citrus rootstock is the Florida Citrus Rootstock Selection Guide that is now online at <http://frootstockselectionguide.org> in a format that allows users of the website to interact with the guide. Custom searches of the 104 publications supporting the ratings in the guide are possible along with users conducting individualized queries of the rootstock information. The guide is designed to enable growers to make more informed citrus rootstock selection decisions.

CONCLUSION

As growers examine the risks and potential rewards that the Florida citrus business offers, they need to decide how they want to battle HLB. All growers must make sound business decisions through careful analysis of the risk, just like a firefighter. Thus, some will need to exit the business and look for alternatives, but those growers that take the risk to stay in the industry will unequivocally become HLB firefighters. In the end, it will be those growers that will save the Florida citrus industry from the HLB inferno. 🍊

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