

Apple II

Wednesday afternoon 2:00 pm

Where: Ballroom D

MI Recertification credits: 2 (1C, COMM CORE, PRIV CORE)

OH Recertification credits: 0.5 (presentations as marked)

CCA Credits: PM(0.5) CM(1.5)

Moderator: Brett Anderson, MSHS Board, Sparta, MI

- 2:00 pm Apple Harvest Management and PGR Enlightenment (OH: 2B, 0.5 hr)
- Phil Schwallier, District Horticulture and Marketing Educator, MSU Extension, Clarksville, MI
- 2:30 pm Honeycrisp Harvest and Storage Review
- Randy Beaudry, Horticulture Dept., MSU
- 3:00 pm Fire Blight -- Factors that affect pathogen growth and fuel epidemics
- George Sundin, Plant, Soil and Microbial Sciences Dept., MSU
- 3:30 pm Continually Fine-Tune Your Fruit Production Strategy and Execution
- Mario Miranda Sazo, Lake Ontario Fruit Program, Cornell Cooperative Extension, Newark, NY
- 4:00 pm Session Ends

Continually Fine Tune Your Fruit Production Strategy and Execution

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Being a Michigan apple grower - whether you are a next generation fruit grower, a new comer, or a talented and already well recognized fruit grower - is one of the greatest professions of hard outdoor work. It requires having the right horticultural skills to succeed in the fruit business, but in addition you have to choose, implement, and execute good business strategies and you have to attract and hire the right group of people.

In the last few years, I have tried to urge you to focus on orchard efficiency and strategic thinking for adoption of new technologies or planting systems. I have also mentioned how critical the employees you hire are for the success of your business. I explain this by describing what I have called the “Pyramid of Improved Efficiency and Profitability” which is supported by you and the people on your horticultural team (Figure 1). In this presentation I will be talking about strategic thinking and innovation for adoption of new technologies, efficiency, and execution.

How the U.S. Compares to Other Tree Fruit-Growing Countries

My unusual background has allowed me to see, compare, and connect things in a different way. Please let me give you some examples by comparing typical South American fruit operations from Chile, Argentina, or Brazil and typical Northeastern fruit operations from New York, Michigan, or Pennsylvania.

In the first case, the South American fruit operations are generally larger and corporate in nature, while here most of the operations are smaller and family run business. A Brazilian, Argentinian, or Chilean owner is less involved in the day-to-day operations, while here you are more or fully involved. In general, South American fruit operations have more technical support (technicians, agronomists) and more consultants (university professors or private consultants). Here you have less technical support and fewer consultants involved.

Hand labor is less efficient, but more available and cheaper in South America, while labor here is less available and more expensive. An average Chilean or Brazilian orchard worker, for example, can pick 3 bins per day, while your pickers can pick five to six bins per day. Therefore, a typical South American fruit grower is currently “less ready” to improve orchard efficiency and also his or her employees!. So what about you? Are you ready to improve your efficiency?

Are You Primed for Efficiency?

Progressive U.S. apple growers have been changing from big apple trees on seedling rootstock planted at large distances to more intensive planting systems (mainly on M.9) motivated by the economic need to modernize their fruit growing operation. They look for earlier yields after renewing the orchards, for better fruit quality, and for lower production costs compared to the traditional systems. Many are now in a position to take advantage of labor saving ideas and improve labor efficiency because they have the proper high-density orchard. Other growers who have not been modernizing their orchards can't improve efficiency very much.

What Type of Orchard is Good for Improving Efficiency?

It is one that allows for implementation of partial mechanization for production of high quality fruit - a kind of assembly-line future for fruit production. It is also relatively simple. The more complicated you make the tree in terms of making decisions, the harder the system becomes for you and your workers.

With a very simple training system, workers have to make few decisions. A simple training system also makes the fruitlets, branches, and fruit very accessible to workers for hand thinning, pruning,

or harvest. Pruning is perhaps the best example I can use to explain this “simplicity” factor. Simple pruning rules make it easier for workers to be efficient in the orchard.

Complex tree architectures create many possible courses of action for pruning, which can confound workers. When they are faced with a superabundance of pruning cut alternatives, workers are afraid of making the wrong choice. As a result, workers delay the pruning cut decision, default to the safest “obvious” cut, or avoid choosing altogether. Your pruning crew ends up being less efficient. They work harder not smarter.

Today our economy and the uncertainty of a skilled and reliable labor source force you to balance two conflicting, but equally important, demands for success at a critical moment in this country: (1) efficiency, which comes from exploiting standard opportunities and (2) flexibility, which allows a U.S. fruit grower to seize unexpected opportunities. It is a challenge because being a Michigan fruit grower demands a lot of your own personal and family time. Moreover, it is something you do outdoors expecting to make a profit in one of the few American industries “without a roof”. Simply, it is a huge challenge and a very risky thing if you commit horticultural or business management mistakes.

In recent years, I have seen Northeastern fruit growers trying to fine tune their orchard management practices and explore new planting systems. However, some growers are still working “Harder not Smarter”. Once you define your business strategy (see below, “Generate Strategic Possibilities according to Your Own Reality”), take steps to help yourself and “Work Smarter”: (1) Avoid wasting time shuffling through piles of papers or tools, and keep your desk, truck, shop, and ultimately, your orchard well organized, (2) Prioritize a list of the tasks to carry out through the day, the next week, the next month, the coming season, the next year, (3) Envision where you and your family want to be the next 5, 10 years, (4) Prioritize the national and international educational conferences and tours you attend, (5) Be smart and strategic when shopping for variety clubs, new technologies, new planting systems, or the next big idea, (6) Try working in a team and allot tasks to co-workers, family members, and other helpers if possible, (7) Have effective communication - change the focus from a top-down distribution of information to a bottom-up exchange of ideas with your key employees, and (8) Plan cautiously to make sure a job is done properly the first time around.

Decision Making to Implement Modern Fruit Production Practices in the Northeast, USA

Move from Issues to Choice: Conventional strategic planning is driven by the calendar (day-to-day activities) and tends to focus on issues (low yields, excess of vigor, low fruit coloring, too much and inefficient labor for several orchard tasks, low return on investment etc.). As long as this is the case, a fruit company can fall into the trap of investigating the data (soil/leaf/tissue analysis results, fruit packout numbers, % return bloom, fruit size, fruit set achieved, increase of payroll and cost of production, etc.) related to the issues rather than exploring and testing possible solutions for improvement. There are very few fruit companies in the Northeastern USA that have their own research and product development group testing and developing new fruit production strategies for adoption of new technologies. To fill this need, most innovative Northeastern fruit growers serve as cooperators and conduct participatory research with Faculty and Extension personnel from universities. There is also participatory research done with consultants and industry representatives.

A simple way to get commercial fruit growers to avoid that trap (over-analyzing without change or action) is to suggest them to define two mutually exclusive options that could resolve the issue in question. Once the grower has framed the problem as a choice – any choice – his/her analysis and emotions will focus on what he/she has to do next, not on describing or analyzing the challenge.

At the end of 1990s, when some major innovative Washington fruit companies were contemplating becoming major players regionally and nationally, they had a big issue. They had some low yielding blocks of low fruit quality, lacked orchard uniformity, and relied on a lot of and expensive labor. Moreover, they realized their current production practices were not labor friendly and did not efficiently optimize labor management for higher orchard efficiency. Finally, returns on investments were not quick enough to capitalize on new and exciting apple cultivars. All they had were orchards (some low, medium, and highly productive) with different levels of orchard uniformity. These Washington fruit

companies laid out two possibilities: they could attempt to dramatically transform themselves into innovative, uniform “fruit-factory” orchards and produce high yields of high quality fruit, or they could continue the current trajectory and accept the status quo as only solution. This framing helped Washington fruit growers and their industry leaders to internalize the magnitude of what was at stake. At that point, the entire Washington fruit industry led by the Washington Tree Fruit Research Commission turned from contemplating an issue to facing a serious choice. On February 2016, at the annual IFTA conference conducted in Michigan, this strategic and collaborative effort demonstrated that even fully automated harvest could be achieved in modern Washington orchards as early as 2017.

Generate Strategic Possibilities according to Your Own Reality: Having recognized that a choice needs to be made, you can now turn to the full range of possibilities you should consider. These might be versions of the options already identified. For example, a Northeastern fruit company could (1) try to grow, pack, and sell its own fruit, (2) be fully vertically integrated, (3) produce fruit cheaper than others, or (4) want to increase per-box returns by producing high quality fruit. Possibilities might also exist outside the initial options. For instance, a fruit company could extend its successful orchard management practices and look for higher labor efficiency by incorporating or transitioning to a new planting system more suitable for orchard mechanization.

Constructing strategic fruit production possibilities, especially ones that are genuinely new, is the ultimate creative act for modern fruit production systems. For instance, no one in the rest of the international apple community would have imagined some South Tyrolean apple orchards completely reinvented themselves with shorter, multileader trees and boldly went head-to-head against taller, single leader apple orchard systems. To considerate such creative options, you need a clear idea of what constitutes a possibility for your own reality, considering all advantages and disadvantages. You also need an imaginative yet grounded horticultural team and a robust process for managing the new orchard tasks for modern fruit production practices.

The main three steps for effective decision making: The possibilities-based approach for modern fruit production practices is not easy. Growers can struggle with it - not because the mechanics are hard, but because the approach requires at least three fundamental shifts in mind-set. First, in the early steps, growers must avoid asking “What should we do” and instead ask “What might we do?” Growers, especially those who pride themselves on being decisive, jump naturally to the former question and get restless when tackling the latter.

Second, in the middle steps, growers must shift from asking “What do I believe” to asking “What would I have to believe” This requires a grower to imagine that each possibility, including ones he/she does not like, is a great idea, and such a mind-set does not come naturally to most people. It is needed, however, to identify the right tests for a possibility (i.e. a new fruit production system, a new pruning practice, etc.).

Finally, by focusing a horticultural team on pinpointing the critical conditions and tests, the possibilities-based approach forces growers to move away from asking “What is the right answer” and concentrate instead on “What are the right questions? What specifically must we know in order to make a good decision?” In my experience, most growers are better at advocacy of their own views than at inquiry. To produce novel strategies, horticultural teams need to adopt a step-by-step process in which creative thinking yields possibilities and rigorous analysis test them.

Hopefully, I have infused you with the mindset that allows improved efficiency, innovation, and greater profitability. As with most things worth having, a culture of efficiency doesn’t just happen. It takes work. But the payoffs are priceless.



Figure 1: **Pyramid of Improved Efficiency and Profitability**. Before a grower can get the full benefits of a new technology for higher labor efficiency, he/she must establish a very productive and narrow fruiting wall with the right variety and rootstock. The rapid adoption of high density systems has allowed growers to adopt motorized labor positioning platforms to reduce pruning, hand thinning, summer pruning, and harvest. To take full advantage of these advances in mechanization and future robotic applications, new orchards should be established at a spacing of 2.5-3ft x 11-12 ft.