

Fruits of Your Efficient Labour: Getting Better Bang for Your Buck

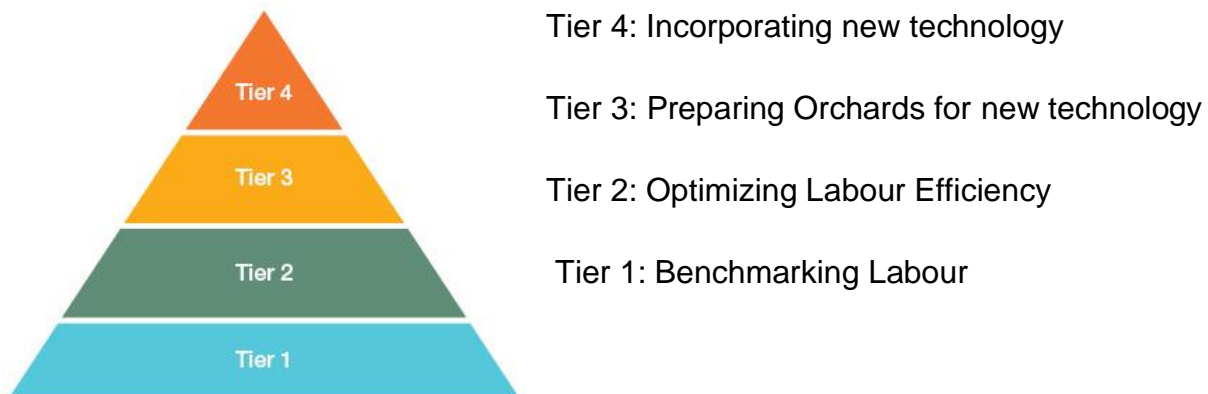
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Background

Labour has always been a challenge for tree fruit industries, which rely heavily on manual labour for pruning, thinning and harvest. Annual labour costs for tree fruit production range from \$3,800 to \$4,150 per acre depending on the orchard system, which accounts for ~40% of the costs of production.

In 2020/2021, the COVID-19 pandemic has increased issues with accessing labour. With fewer workers available to help on farms, it is important to optimize labour efficiency in orchards. There are several components involved in optimizing labour efficiency, including benchmarking labour, optimizing efficiency, preparing orchards for new technology and incorporating new technologies (Figure 1).

Figure 1 The Pyramid of Orchard Efficiency Improvement



Collecting baseline data on the costs associated with orchard activities and benchmarking labour is an important component of improving orchard efficiency. Having a good understanding of the challenges and costs associated with labour activities in the orchards (pruning, thinning harvest) can help to optimize labour efficiency and make more informed decisions about orchard operations.

The Benefits of Benchmarking Labour

Collecting baseline data on labour costs for orchard activities (pruning, thinning, harvest) provides a better understanding of the time/costs associated with various production activities in the orchard. This data can be used to:

- set benchmarks for labour productivity on your farm,
- compare labour costs between different training systems or orchards
- conduct an in-depth analysis of operations and look for opportunities to improve labour efficiency and reduce costs.
- evaluate the costs and benefits of incorporating new technologies.
- make informed decisions to address labour issues should a COVID-19 outbreak occur
- compare labour costs to the industry average and look for opportunities to reduce labour.

The Challenges to Benchmarking Labour

There are many benefits to benchmarking labour needs in orchards, however, it can be challenging to decide what information to collect, and how to interpret the data.

Variability in training systems and production practices can make it challenging to compare data with other growers. However, having good baseline data helps provide insight on how your labour costs compare to the industry average, provides incentive to look at opportunities to improve efficiency. In addition, this information can help with developing cost/benefits analysis for incorporating new technologies (ie. platforms).

While it may seem time consuming and tedious to collect this data, the benefits to your labour efficiency can pay dividends in the long run. Benchmarking labour data is an investment of time and money that will provide you a return on investment.

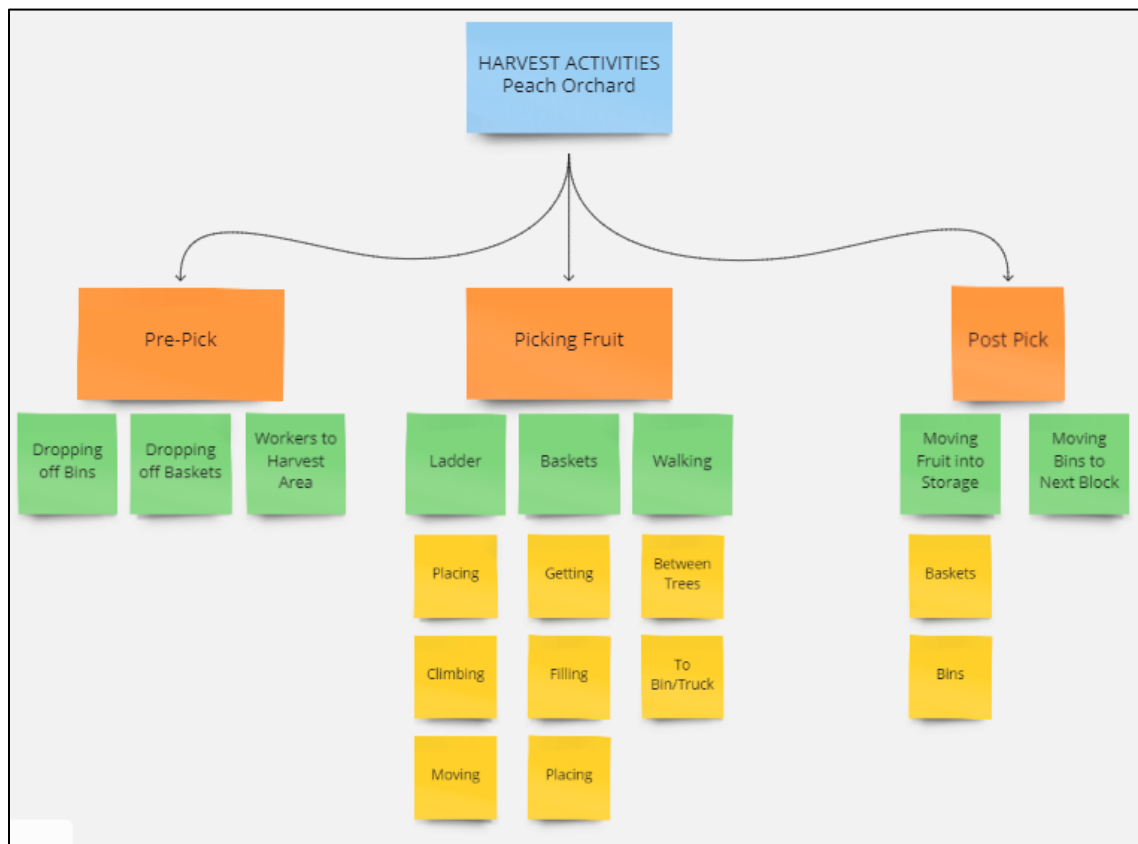
How to Benchmark Labour Efficiency

Benchmarking Labour Efficiency

Step 1: Create a process map that identifies activities and responsibilities of everyone involved in key orchard processes (pruning, harvest, packing)

The process of producing tree fruit can be broken down into separate operations (i.e. pruning, thinning and harvest) which make up the majority of the annual labour costs. It is important to break down the overall process into a manageable series of activities that can be prioritized and evaluated. Process maps (Figure 2) can be used to outline key orchard activities and provide a great visual for determining what information needs to be collected to determine production costs. Consider developing a map for the processes on your farm.

Figure 2 Harvest Activity Process Map



Step 2: Planning the best way to collect accurate data

Some growers already collect baseline data on labour costs (i.e. costs to prune a tree), but others may find it challenging to collect data that is accurate and representative for their orchards. Orchard blocks have different layouts, ages and production practices (training systems, tree spacing etc.), which creates considerable variability in labour costs. Variability in worker skills also impact productivity, making it challenging to establish accurate estimates for labour costs. Despite these differences, it is useful to collect baseline labour data to get a better understanding of opportunities to improve efficiency.

To limit the variability, always collect data from orchards that have a similar age, production practices and training systems. While it would be great to have information on all training systems, start with one or two at a time, and increase your database over time as you become more comfortable. Start with collecting data (i.e. cost to prune a tree) on an “average worker”, that way you don’t set the bar unreasonably high for other work crews. The more data that you collect, the more accurate the data will be, so consider collecting data from a minimum of 5 or 10 times, then take an average.

Prior to collecting data, **talk to the crew about the data you are collecting and why you are collecting it.** If the work crew understands that the data you are collecting will be used to try to make their jobs easier, then they may be more likely to participate than if they think you are collecting data to punish them. Teamwork is the key to getting employees engaged in improving efficiency.

One of the most common reasons why growers don’t collect this data already is because they are so busy. Consider putting work crew leaders in charge of collecting this data. While it may seem like it isn’t the most efficient use of time, the information you collect can pay dividends if it helps improve efficiency on your farm and saves you money.

Step 3. Measure and document each process activity using labour productivity and time/motion study methods

Begin collecting time data for each of the activities listed in your process map. For pruning, thinning and harvesting, use a stopwatch to determine the time for the worker(s) to finish one row. Divide the time by the number of trees per row, you will be able to calculate the average cost/tree for each production practice. Be sure to take into consideration the size of the crew pruning in your calculations (See excel template). You will likely notice differences in costs between different training systems, and

orchards, and this information may be useful in making decisions about production practices and training systems for future orchards.

Optimizing Labour Efficiency

Step 4. Observe each process activity in turn

While recording time data, take the time to look at the different activities in each process. Are there parts of the process that seem to take more time than others? Do workers have the tools they need (ie. ladders) available when they need them?

Talk to crews about each process and find out what challenges they find with each activity and get their feedback on how to make things better for them. Having a worker's perspective of what barriers slow their work down, will allow you to address these issues and improve efficiency. For example, perhaps workers are struggling to move between the rows of trees at harvest to get to the fruit into bins.

Talk to other growers or family members to get other perspectives on challenges in your processes

Step 5. Identify and prioritize opportunities to improve

After identifying the issues with each activity, start looking at opportunities to address these issues. Are there opportunities to improve the flow or process of activities (ie. pruning a gap between every 6th tree to allow workers to move more easily between trees at harvest). Consider getting feedback from other growers on how they address these issues. After implementing changes, collect labour cost data again to assess the impact of the proposed changes on labour productivity.

Start with no cost / low cost changes to improve labour efficiency. Then look at the costs of activities and how they can be reduced with new equipment (ie. platforms). Conduct cost/benefit analysis for improvements involving investment.

Each orchard is different and solutions that work for one orchard, may not be effective in others. Some low-cost suggestions that might help to improve labour efficiency are listed below.

Activity Based Efficiency Suggestions

Pruning:

Experience and Training:

- Take the time to teach employees different pruning styles and provide training on how to properly prune trees to your standards.
- Use educational materials (written/ verbal/or videos) to provide additional information on pruning practices and styles (Appendix 1).
- Stay with the employee to show them and/or check in occasionally to make sure they understand what is expected of them. Be sure to give them ample time to learn.
- Pair experienced employees with less experienced employees to increase knowledge and confidence in performing cuts.
- Make the task as simple as possible. Complicated pruning techniques have more risk of error and take more time to implement.
- If various styles are required throughout the orchard and be clear about which blocks need which pruning style.
- Ideally we want workers to make cuts as if it's second nature.

Crew Formation:

- Optimize your crew size. Small crews can work more efficiently, and there may be less conflict between workers. There can be “too many cooks in the kitchen” in large crews.
- A smaller crew is also beneficial if an outbreak occurs, as it may reduce the occurrence of spread.
- Consider employee strengths when deciding work assignments. Happy employees are more efficient and work harder.
- Are you using your crews efficiently? It may be more efficient to get one or two employees to use a chainsaw to do larger cuts and then get small crews to do touch up pruning with smaller cuts.
- Does the crew have an adequate number of ladders/tools and are they available where and when they need them?

Crop Load Management Tools:

- Precision pruning can be used to help reduce crop loads. By reducing excess fruit earlier, it results in significant benefits to fruit size.
- Utilize as many tools as possible to make your job easier in the future
 - o [Precision pruning](#), [Fruitlet Growth Model](#), [Carbohydrate Model](#)
- In apples, you can prune to a bud count between 1 and 1.5 to focus energy during bloom time

Thinning:

Experience and Training:

- Same as listed in the pruning section

Crew Formation:

- Same as listed in pruning section

Chemical Thinning (apple and pear):

- Try to utilize when and where possible to reduce future costs

Harvest:

Experience and Training:

- Same as listed in the pruning section

Crew Formation:

- Same as listed in pruning section
- Walk Time
 - o Would it be worth pruning between every 6 trees to make it easier for workers to get to bins?

Equipment Utilization:

- Bin Placement
 - o Try to place bins as close to crew as possible
 - o To calculate the correct number of bins to have ready, [click here](#)
- Baskets Locations
 - o In peaches, be sure to have enough baskets and make sure they are available when needed

Although there are many ways to become more efficient with labour management, a good rapport can go a long way.

Step 6. The role of relationships in improving labour efficiency

Building a relationship with everyone involved in your operation is crucial for farm success and efficiency. Although there may be language or cultural barriers, mutual respect and understanding will establish a strong workplace dynamic. Happy employees look forward to work, do their job well and take pride in their work, leading to better internal relationships and ultimately improved success of the farm.

Some helpful hints on how to improve your relationship and encourage mutual respect within your operation are listed below:

- Meet each employee
 - o Having a face-to-face meeting (a safe distance apart) with every employee aids in creating a line of communication for employees and encourages them to reach out to the grower.
- Define roles for each individual
 - o Clearly defining roles for employees supports their knowledge base and leads to better understanding of the tasks at hand.
 - o State how their role encourages the success of the farm and the important role they play.
 - o This can be achieved through job descriptions, task definitions, in-person training, education videos.
 - o Utilizing various forms of communication (verbal, written and visual) is the best approach for all employees to get a full understanding of their responsibilities and duties,
- Develop a communication chart (Appendix 2)
 - o With multiple supervisors in an operation can be confusing to employees. Consider creating a contact list indicating with whom to communicate about different issues. help clarify confusion and improve efficiency.
 - o This contact list will lead to better communication, reduced confusion and improved efficiency.
- Encourage teamwork and praise good work
 - o Crews work together throughout the season and regularly checking in with teams shows that you are available and want everyone to be successful.
 - o Every employee wants to do their job well and praising good work should be encouraged throughout the season.
 - o Where possible consider praising employees good work in their own language (Appendix 3).
 - o Conflicts in the workplace can have a negative impact on productivity. Investigating, mediating and resolving employee complaints help to create a good work environment.
- Share your operational goals
 - o Be open with your employees about your goals as a business (this season, this year, over the next few years or even in the long term).

- Employee reviews and supervision

- Recognize and reward employee skills can help to motivate employees.
- Opportunities for employee growth and development can help to increase motivation.
- Workers lacking motivation reduce productivity in the workplace.
- Provide positive feedback when giving criticism.
- Ask if performance reviews are of interest to employees.
- Reduce supervision (when applicable) based on successful performances.

Conclusion

Collecting labour productivity data provides a better understanding of the costs and challenges associated with production practices, and the opportunities available to increase labour efficiency. A good farmer-manager-worker relationship is the foundation for a farm's ultimate efficiency and success. When looking at improving efficiencies on the farm, remember to focus on improving returns instead of cutting costs.

Resources

[Establishment and Production Costs for Tender Fruit in Ontario - 2016 Economic Report \(gov.on.ca\)](#)

[factsheet_ON_E_web.pdf \(cahrc-ccrha.ca\)](#)

[CreatingPositiveWorkplaces-AGuidebookforDairyProducers November 2017.pdf | Powered by Box](#)

[Improving labor efficiency on farms - Farm Management \(msu.edu\)](#)

Appendix 1 Link to grape pruning guide from Cornell

Appendix 2 Farm Communication Chart (Cornell, 2017)

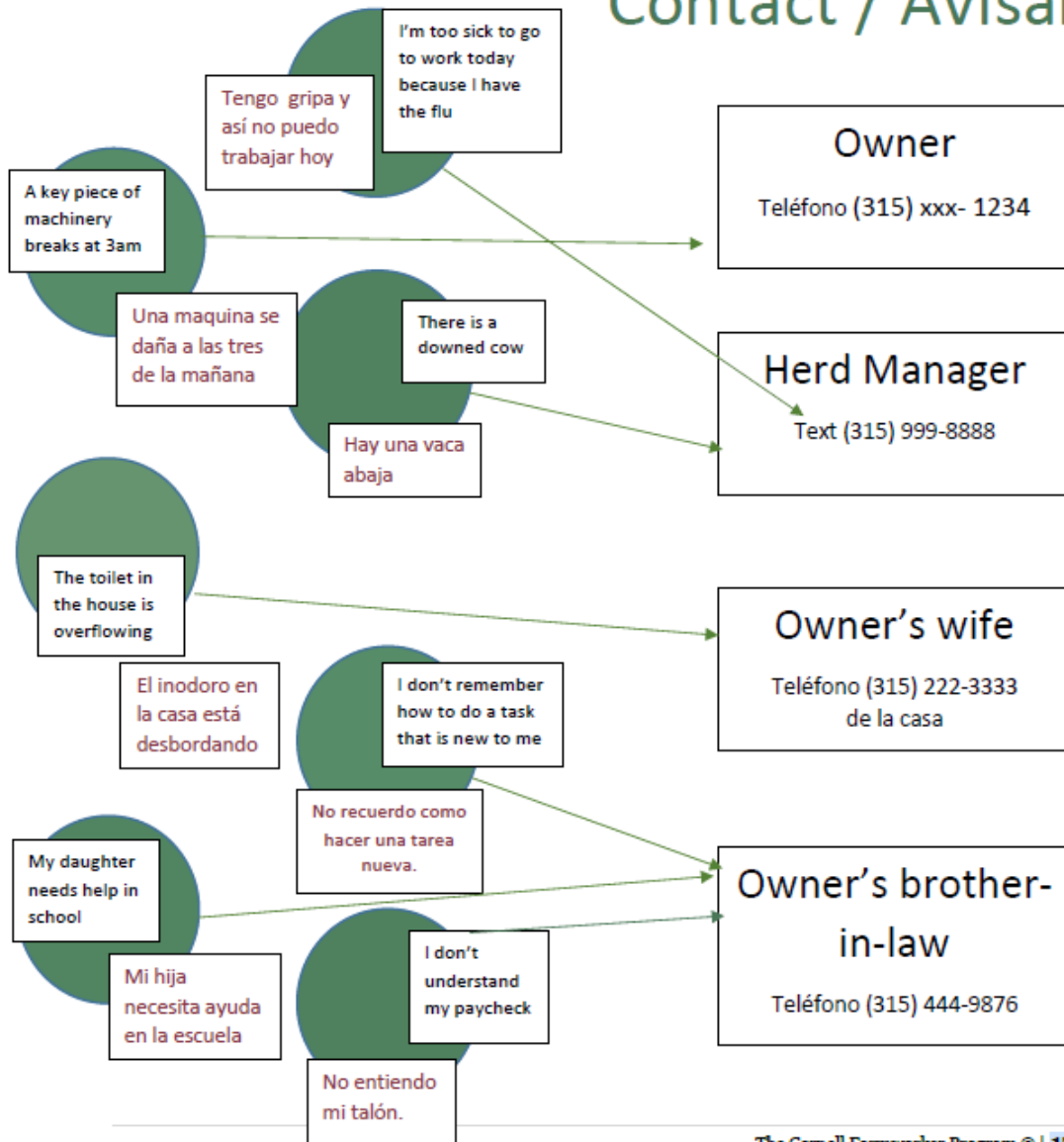
The problem is:



Farm Communication Chart

El problema es:

Contact / Avisar a



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Appendix 3 Praising good work (Cornell, 2017)

Praise Words

English	Spanish
(Very) Good job!	(Muy) ¡Buen trabajo! (mooy bwen traBaho)
Perfect!	¡Perfecto! (Per-fec-to)
Fantastic!	¡Fantástico! (Fan-TAS-tee-co)
Well done!	¡Bien hecho! (byen ECH-o)
Excellent!	¡Excelente! (EX-el-en-te)
Great idea!	¡Buena idea! (BWEN-a ee-day-a)
Exactly!	¡Exacto! (ex-ACT-o)
Better than ever!	¡Mejor que nunca! (meh-ORE keh NOON-kah)
Much better	Mucho mejor (MOO-cho meh-ORE)
You learn fast.	Aprende rápido. (a-PREN-deh RAH-pee-do)
You're on the right track.	Va por el buen camino. (vah por el bwen cah-MEE-no)
That's good.	Eso es bueno. (EH-so es BWEN-o)
Keep doing it like that.	Sigue así. (SEE-geh ah-SEE)
I noticed you've been working hard.	He visto que ha/han esforzado. (eh VEES-to keh ah/ahn es-for ZAH-do)
You're getting the hang of it!	¡Eso! (EH-so)
I appreciate your hard work.	Aprecio sus esfuerzos. (ah-PREH-see-o soos ehs-FWER-zoes)
Thank you for your good work.	Gracias por su buen trabajo. GRAH-see-ahs-por-su-boo-ayn-trah-BAH-ho)