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Innovating to maximise your potential

# **Reducing & mitigating Covid-19 transmission during kiwifruit harvest**

A GROWLAB IDEATION SERIES TO SUPPORT THE KIWIFRUIT INDUSTRY



## **Part One: AN IDEATION SERIES FOR CHARTING A PATH FOR EFFECTIVE AND SAFE OPERATIONS THROUGH THE KIWIFRUIT HARVEST SEASON DURING THE COVID-19 PANDEMIC**

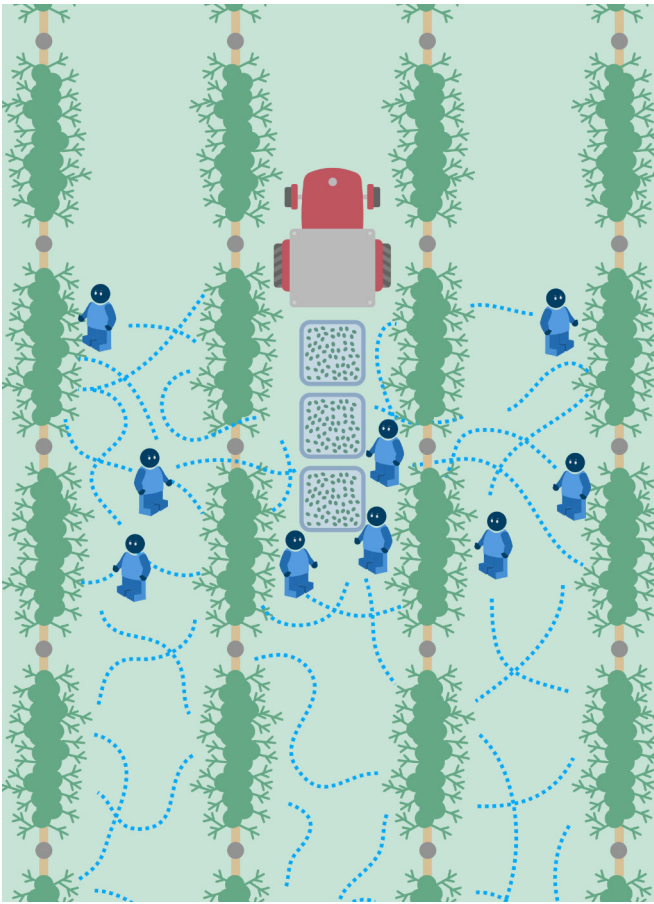
### **#1 Reducing & mitigating Covid-19 transmission during orchard harvest**

The spread of Covid-19 poses a significant risk to the kiwifruit industry. The risks are both multifaceted and exist at different parts of the supply chain. Initially, transmission might impact single operations but it has the potential to quickly cascade into the wider industry, and most critically, impact the community. With the kiwifruit harvest upon us in New Zealand there is an enormous amount of pressure to reduce, if not entirely negate those risks. Can we do it? Addressing the threat posed by Covid-19 requires collaboration, transparency, and innovation – managed as quickly and as inclusively as we can.

In this series we will outline our thinking around the risks, considerations, and potential strategies for how to effectively maintain kiwifruit operations while aiming to prevent the spread of Covid-19. For general advice on accommodation for seasonal workers refer [here](#) and for advice on food safety refer [here](#). In part 1 of this advice series we will look more specifically at how the NZ Covid-19 level 4 alert rules translate into on-orchard picking and harvesting activities and how we can address the risk of infection spread.

Princeton University scientists found that severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), or Covid-19, was detectable in aerosols for up to three hours, up to four hours on copper, up to 24 hours on cardboard and up to two to three days on plastic and stainless steel ([here](#)). Our highest risk of transmission is through person-to-person infection via aerosols but we should not discount the transmission of infection via solid surfaces and these are also discussed



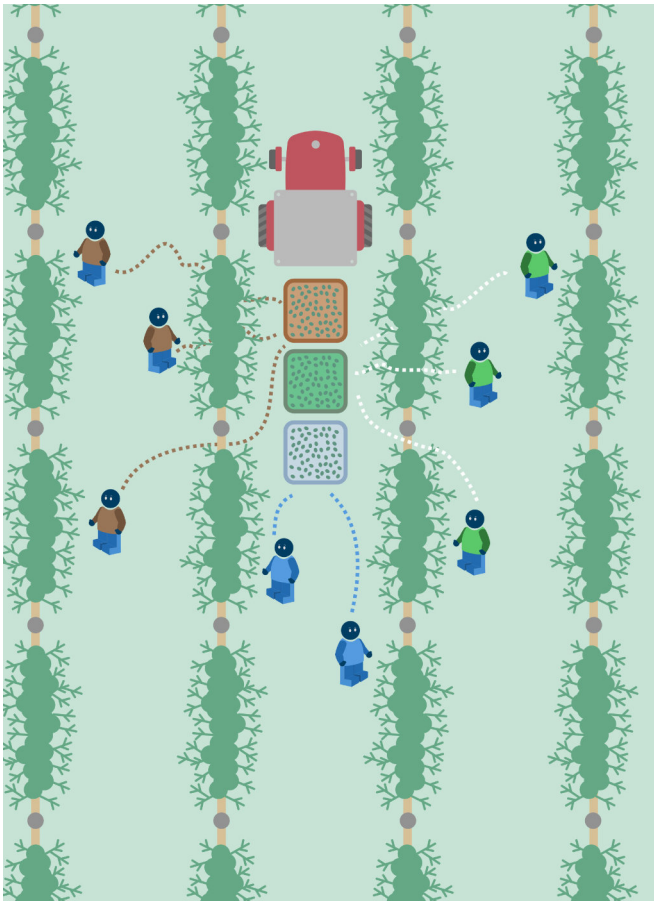


**Standard practice.** The typical picking melee spanning 3 rows across an orchard, in which the 2m physical distancing is largely untenable to maintain with such an unstructured approach.

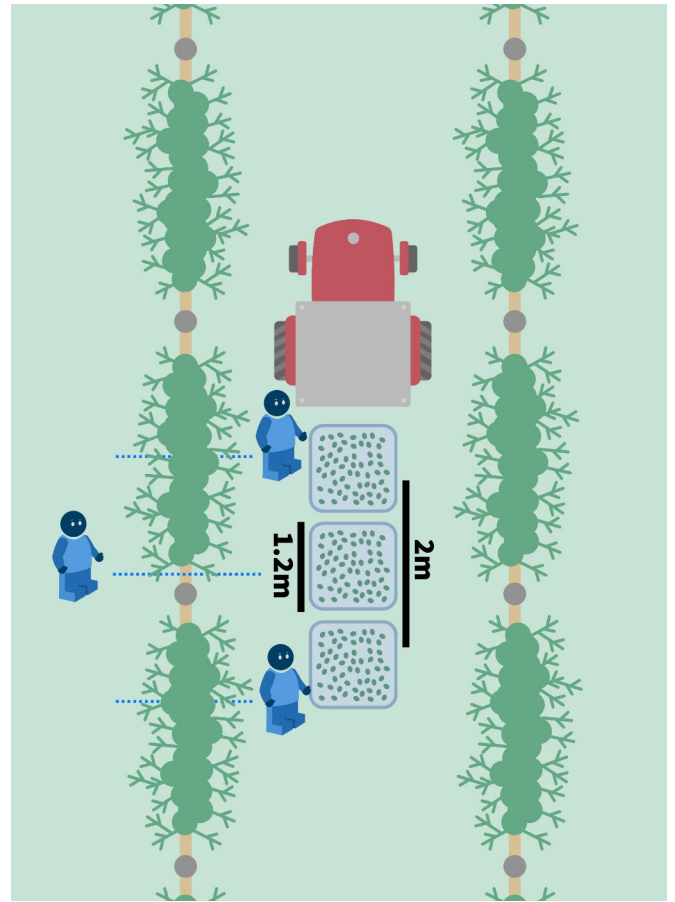
Harvesting kiwifruit typically involves picking teams of 9–12 people rapidly working across 3 orchard rows, in multiple bays, to fill their individual picking bag before emptying into one of three bins that are towed by an adjacent tractor (image below). The picking bays are 5 x 5 m at largest and the bins are 1.2 m square; there is ample close proximity and interaction between pickers, which is driven by the priority to get the fruit off the vine as fast as possible. **However, in the current situation we suggest that the number one priority of the picking process should be to consistently ensure physical distancing between workers of 2 m,** followed by efficient, quality fruit picking. If we re-prioritise the objectives for kiwifruit picking, then the structure and processing of the picking teams in the orchard can and should look quite different.

We outline two approaches to better managing physical distancing between pickers: **picking by zone**, and **picking by wire**. These suggested alternative structures for picking teams on-orchard can maintain physical distance if adhered to. We are sharing these to evoke discussion and broaden thinking on how existing resources across orchard, picking contractor, and/or packhouse can be reconfigured to ensure physical distancing of workers while still maintaining efficient picking of kiwifruit. This is a starting point and by no means a prescriptive solution. We strongly encourage you to build from this and share your ideas so that everyone in the industry might benefit – together we are stronger.





**Picking by zone (a)** A structured approach that maintains the current team size and picking structure.

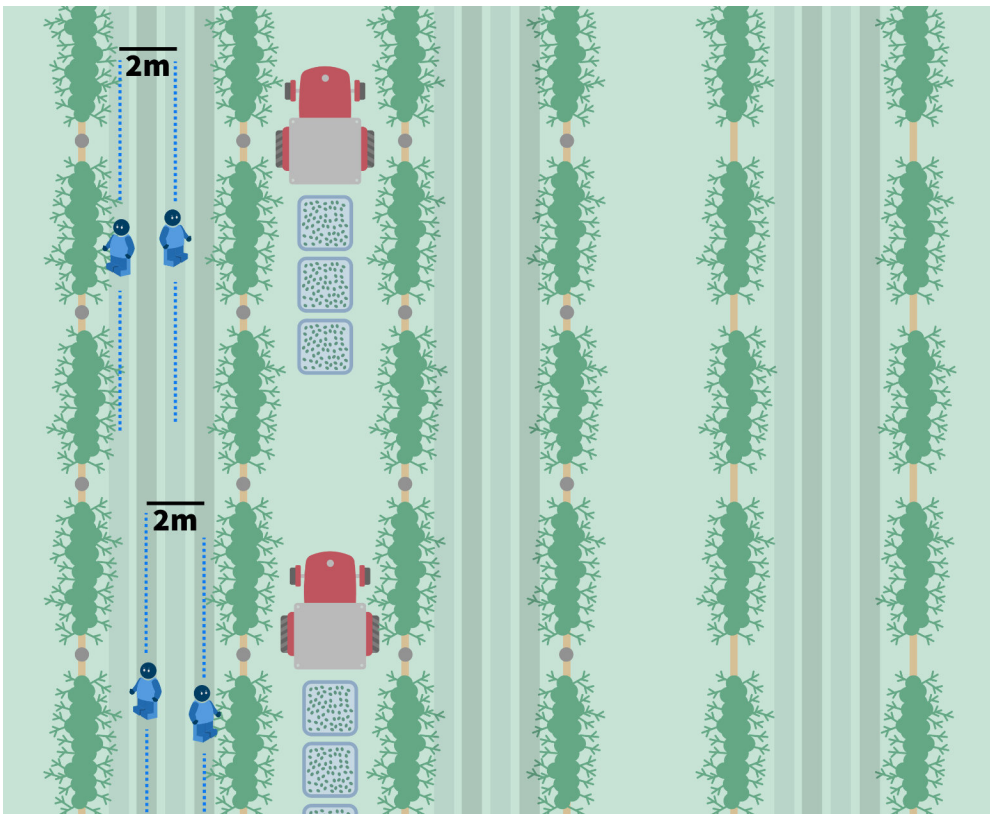


**Picking by zone (b)** The approach to bins from alternate sides should maintain the 2m distance.

## Picking by zone.

In picking by zone, pickers work in rigid, discrete rows as zones, and approach individual bins assigned to each zone to maintain the 2m spacing illustrated in Picking by zone (a). Bins could be labelled with a coloured label or tape—pickers might wear coloured stickers that correspond with the bin they are filling. Alternatively, pickers may have specific bins and parts of the bins that they approach, as illustrated in Picking by zone (b), and 2 m physical distancing could be marked across the bins. A system that ensures that maintaining the 2 m physical requirement is straightforward and easy to do consistently is essential. However, consideration for how to fill the bins uniformly without damage to fruit need to be made.





### Picking by wire.

This restructure aims to be systematic and efficient while spreading pickers out to maintain 2m physical distancing. Forward and rear teams pick on rows either side of the bins (not in the row). Once both rows are picked the system moves over.

### Picking by wire.

Picking by wire is re-think of the picking process to an even more structured approach that also reduces the density of pickers to ensure 2m distancing (above). Two passes are required per row, with workers picking by wire to delineate 4 lanes across a row. Workers in the first pass occupy wire lanes 1&3, or 2&4, and vice versa in the second pass on each row adjacent to the bins. If bin trailers and tractors are available, the first and second passes can happen concurrently with the forward pickers emptying into one bin system and rear pickers emptying into a separate set of bins. A second set of forward pickers and rear pickers can simultaneously pick in the row on the other side of the bins (for simplicity we have not shown this in the image). This spatial and density change should make it easier for pickers to maintain their distance.

Consistently maintaining physical distancing of 2m, in addition to wearing masks is fundamental to limiting the spread of Covid-19 during the kiwifruit harvest. While the country is in self-isolation it is important to limit any additional touchpoint between households, hence the need for physical distancing.



However, if picking teams have some individuals from the same household, then they can capitalise on this by allowing these pickers to work in close proximity provided they all remain physically distant from other non-household members of the picking team.

We are assuming you have already thought about additional precautionary measures including bin sanitation and there are some good industry guidelines in draft to help with this. In addition, minimising all physical touching of equipment such as picking bins, bin labels/tags unless essential for operations needs to be considered (what we know about Covid-19 virus survival is [here](#)). This is because we know that the virus can remain detectable on plastic for up to three days. However, if you'd like support to work through this specifically for your operations or on any of the above, please reach out. Our time and perspective is offered freely to support all stakeholders in the kiwifruit sector during this challenging time.

Food for thought: given we're grappling with a notifiable disease, have you implemented a digital approach that enables a rapid response and data recall of who is working, when and where in your orchard, should Covid-19 be detected amongst your workers? For example, [SwipedOn](#) is offering support with rapid deployment.

We know that the existing approach to kiwifruit harvest has evolved to meet drivers for efficiencies in labour cost, availability and ability to 'get the job done' in a timeframe that matches the fruit maturity curve. However, given that we're operating in unprecedented times, how harvesting is performed needs to be re-thought: are the previous drivers still the most relevant? How relevant is our social license to operate (being able to demonstrate the required 2m social distancing), or the ripple effects if we lose a number of picking teams (due to Covid-19 illness/transmission) and our ability to harvest fruit at a pace that matches the fruit maturity curve? Last season, the apple industry painfully felt the labour shortages and the significant effects this had on sub-optimal fruit maturity and storage performance.

In the next part of this series we will look at the economics of altering harvest operations and the opportunity costs that present themselves.

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**Nā tō rourou, nā taku rourou ka ora ai te iwi**  
**With your food basket and my food basket the people will thrive**

