

# Automating a Propagation Nursery

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Last time, I focussed on roots in containers:



Plants were not designed to grow in containers...but we can get great roots regardless!



Good roots at the start...means good root architecture later on



good root system,  
after 6 months

Good containers have been available for 10 years – what's the progress?



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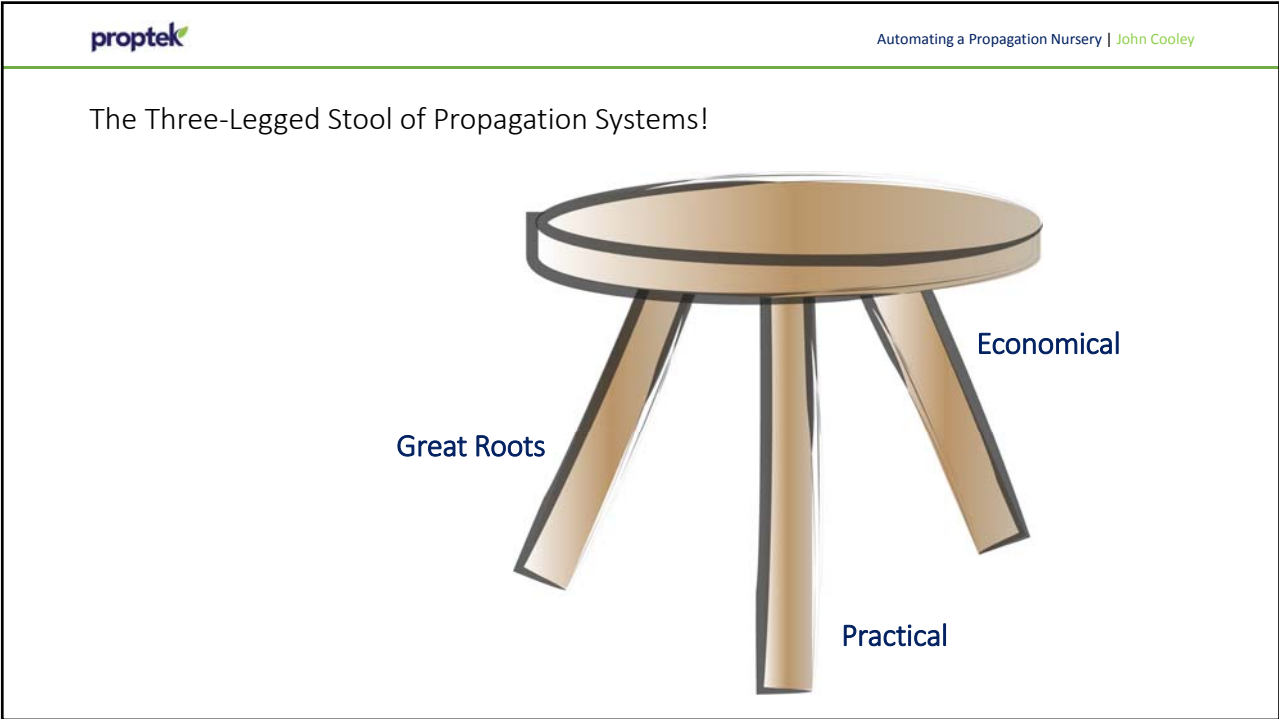
Plant propagation can be split into 5:



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Summary of good air pruning containers:

Vegetables	Forestry	Fruit	Woody Ornamentals	Ornamentals
Now 100% air pruned at base	Big uptake and growing fast	Big uptake and growing fast	Poor progress -WHY?	Not needed



Current trays and their issues



Current trays and their issues





Labor is the biggest single cost saving



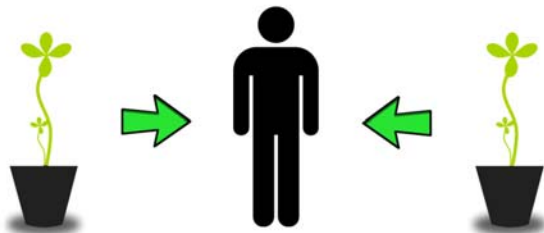
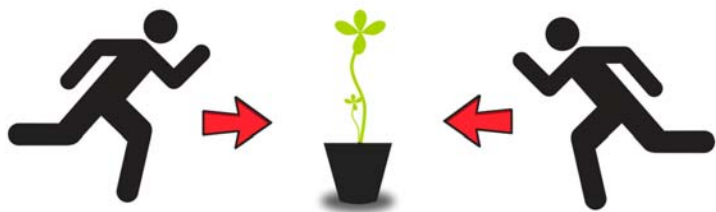
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Labor is the biggest single cost saving



\$\$\$\$\$ Labor is our biggest cost, can we change the system to get 'great roots' and 'save labor'? \$\$\$\$\$





Labor is the biggest single cost saving



**People to plants is:**

- Inefficient
- Uncomfortable

**Plants to people is:**

- Safe
- Comfortable
- Efficient – easy to manage automation in stages

*...Only possible if you can move plants economically*

Perfect automation in a purpose built nursery:





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## Automation on your current nursery?

*4 prerequisites:*

- Media
- Tray with legs
- Transport system
- Access to greenhouses

First: the distinction in media: loose fill or stabilized media?

**Benefits for mechanization**

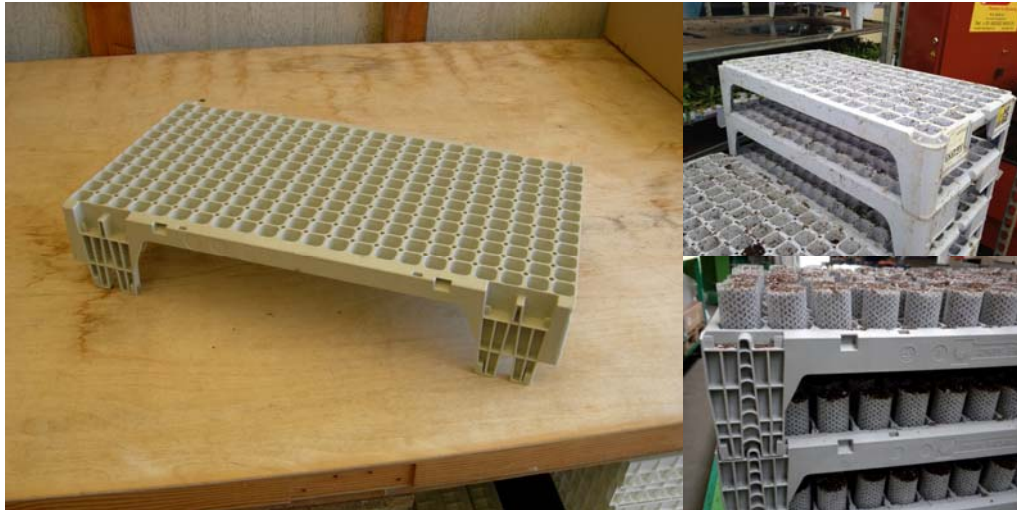
- No need to wait for roots
- Empty cells can be handled
- Big and small plants all handled OK
- Able to be mechanized more easily

Made on Site	Made off Site	Both
Ellepots Jiffy Plugs Some glue plugs	Ellepots Preforma Q-Plugs Fertiss FlexiPlugs Grodan Oasis Horticubes	Ellepots

(Many other brands probably available)

Can also include take and quality including roots

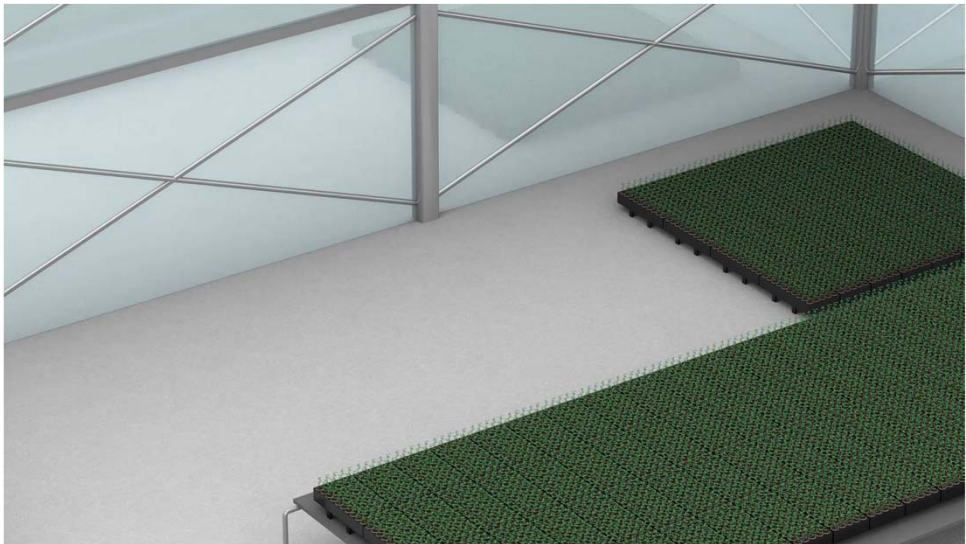




In a current nursery, best option is “forks” – most houses are open enough to accommodate



Courtesy of Visser - <https://www.youtube.com/watch?v=XX8FGu-LISs>

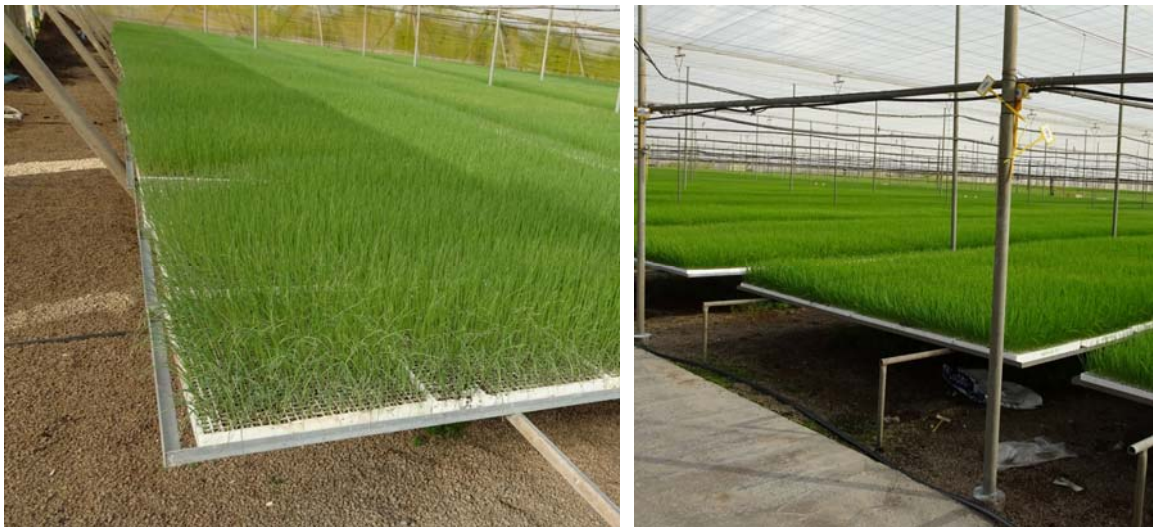




In a purpose built nursery, this is moving tables



In a purpose built nursery, this is moving tables





Tray Handling



In a purpose built nursery, this is moving tables





In a purpose built nursery, this is moving tables



Visser spacing forks



Flier spacing forks



If this is an air pruning tray then a double benefit

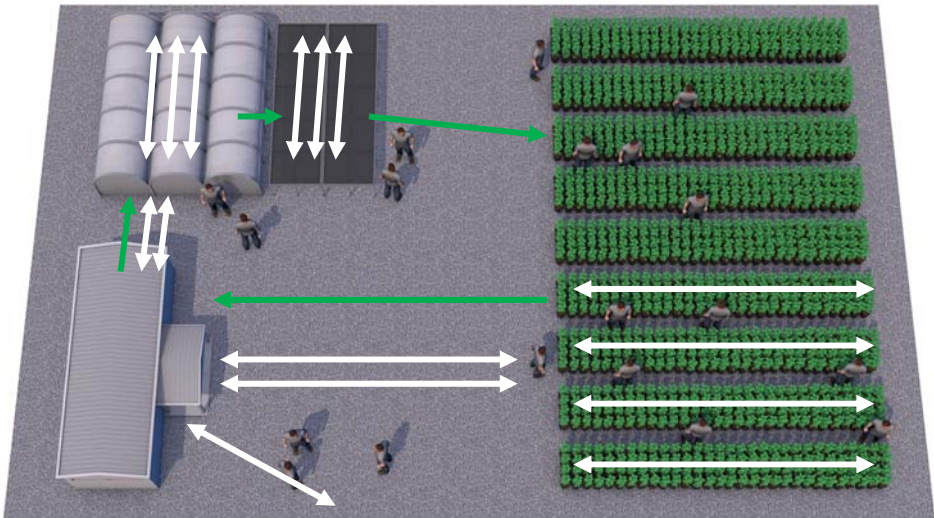


Key point: requires an economical way of moving plants to central location





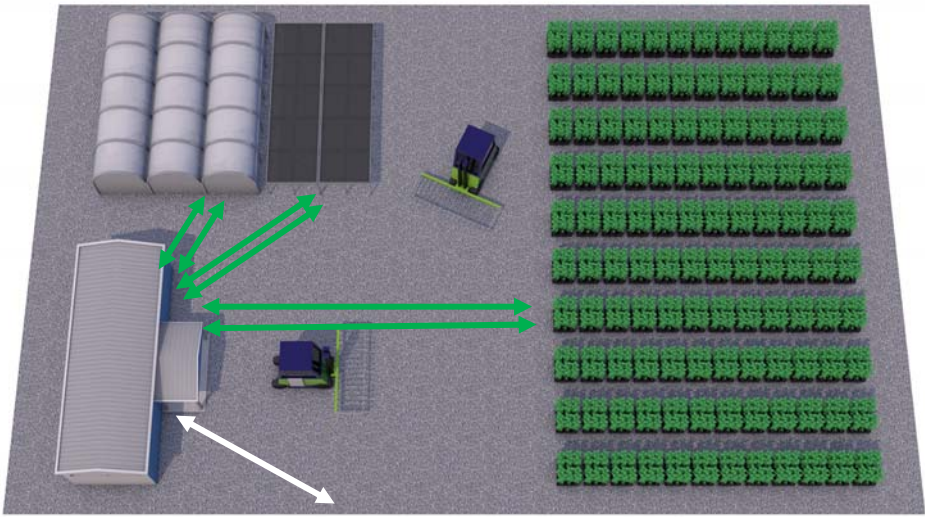
Typical layout of a current nursery showing labor usage



White arrows: labor  
Green arrows: plants



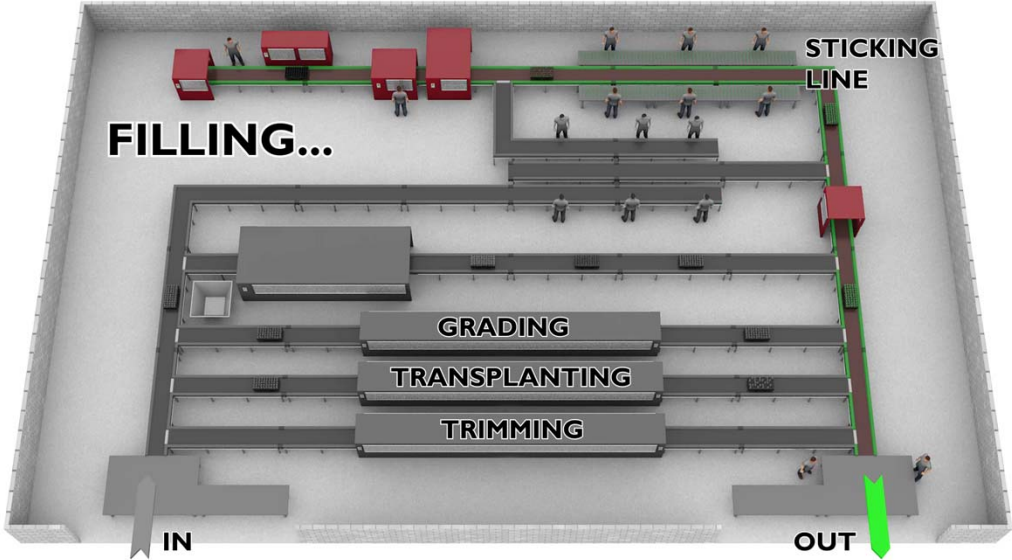
The same nursery – but now with plants to labor



White arrows: labor  
Green arrows: plants



So what automation is available if you can move plants economically to a central location?



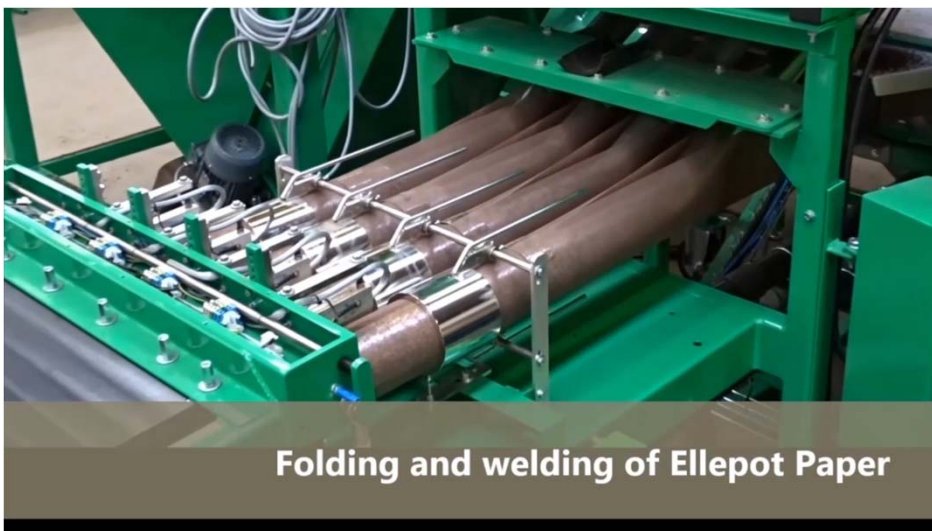
Tray & Pots Destacking



Pot de-nesting and fit into trays



Ellepot into Trays



**Folding and welding of Ellepot Paper**



### Cutting/Sticking Line



### Automatic Cutting Sticking – Auto Vision Selector



Video courtesy of Fibria - [https://www.youtube.com/watch?v=gQFVR\\_QhYc](https://www.youtube.com/watch?v=gQFVR_QhYc)

### Cheating using clip



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Video courtesy of Visser - <https://www.youtube.com/watch?v=OYUsV25xLKA>

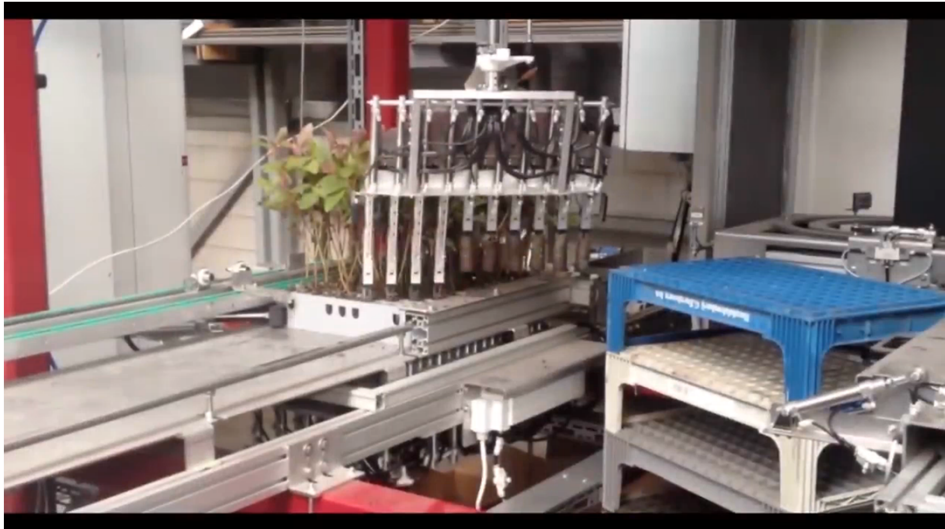




Grading a) manually b) automatically x 5 grades



Grading option 2



Video courtesy of Fibria - [https://www.youtube.com/watch?v=gQFVR\\_QhYc](https://www.youtube.com/watch?v=gQFVR_QhYc)

Grading option 3



Video courtesy of Visser - <https://www.youtube.com/watch?v=c24B8yVXPj4>

Transplanting

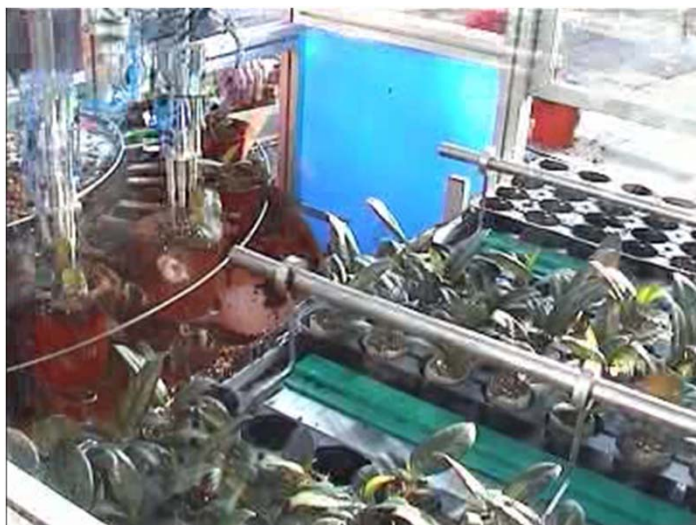


Video courtesy of TTA - <https://tta.eu/equipment/transplanting>

Transplanting option 2



Transplanting into big pots



Packing out of tray for shipping



Video courtesy of TTA - <https://tta.eu/equipment/projects/packing-line-for-trees>

How much labor can you save?

*...33%? 50%? What capital will this justify?*

Is labor going to be easier to get in the future?

Is labor going to stay the same cost in the future?



6 cell 120mm – can replace the gallon pot



6 cell 120mm – can replace the gallon pot



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6 cell 120mm – can replace the gallon pot



What I am suggesting to save labor is...



Stabilized media



Tray with legs



Fork Lift

**So what to do?**  
Survey your nursery for  
access and automation

Talk to suppliers!

Make a plan on what you can do BUT think “Plants to the people!”

