

# New Zealand Horticulture and Lean Manufacturing at Ardmore Nurseries

Patrick Watt



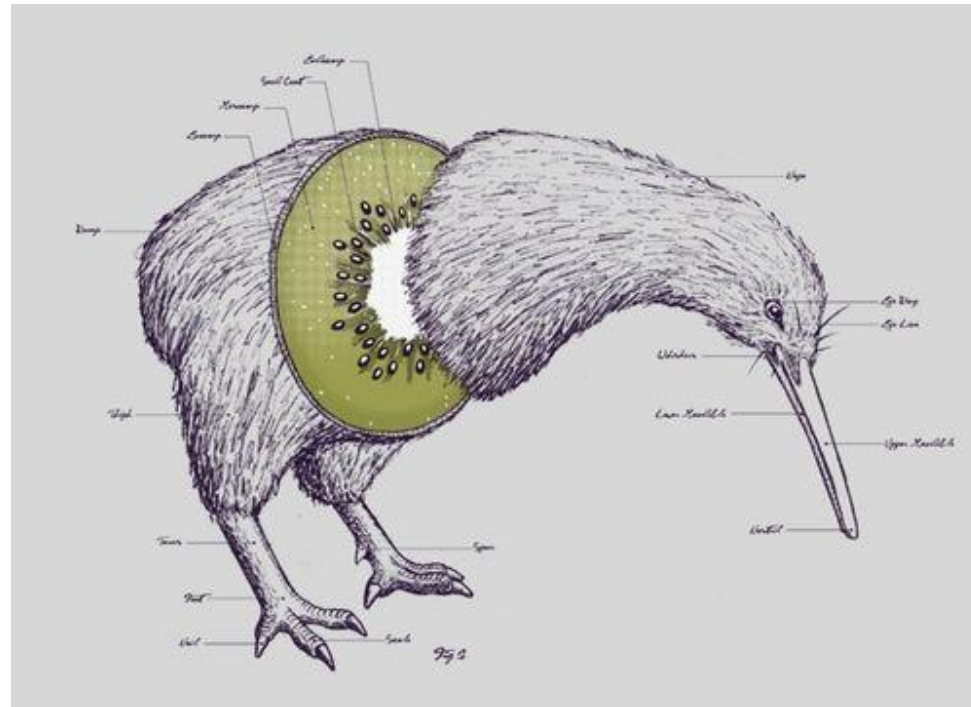
Presented at the 57th Annual Meeting of  
the Western Region of North America -  
International Plant Propagators' Society,  
October 19-22, 2016, Tempe, Arizona, USA

# Presentation Contents

- Introduction to NZ horticulture
- Slideshow tour of my nursery
- Lean Manufacturing in nurseries



Hobbits in New Zealand



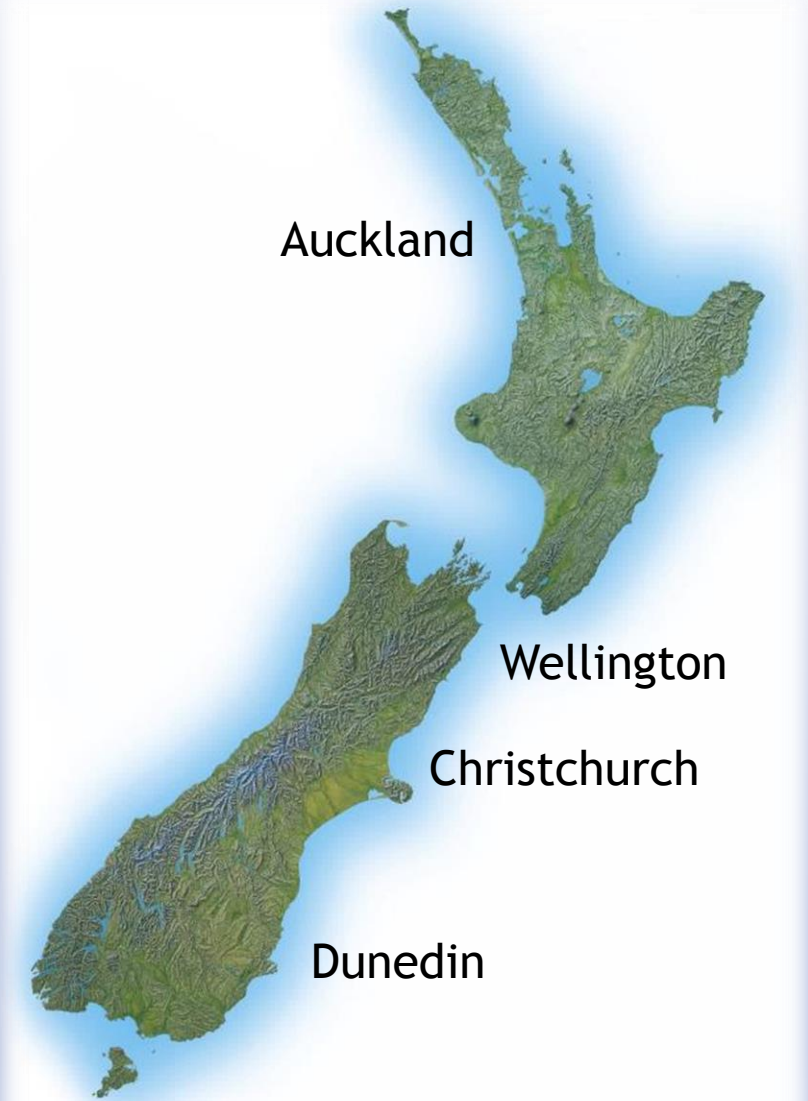
Kiwis in New Zealand

# New Zealand

- Population: 4.7 million
- Land Area: 103,000 sq mi
- 1,000 miles long

Average daily maximum and minimum temperatures for cities of New Zealand

Location	Jan/Feb (°F)	July/August (°F)
Auckland	74/60	58/45
Christchurch	72/53	51/33
Wellington	68/56	52/42
Dunedin	66/53	50/37



# Horticulture exports

- \$3.1 billion USD
- \$465 million US market - 15% (Wine, apples, kiwifruit, honey)
- \$1.03 billion Asian market - 33%
- \$600 million Australian market - 19%



NT

QLD

Australia

WA

SA

NSW

VIC

Great  
Australian  
Bight

Coral Sea

TAS

Tasman Sea

New  
Zealand



**Ardmore**  
**Nurseries**



We have a 35+ acres in production.



# Field production





Container production

# Propagation



We grow 400+ varieties





Trees

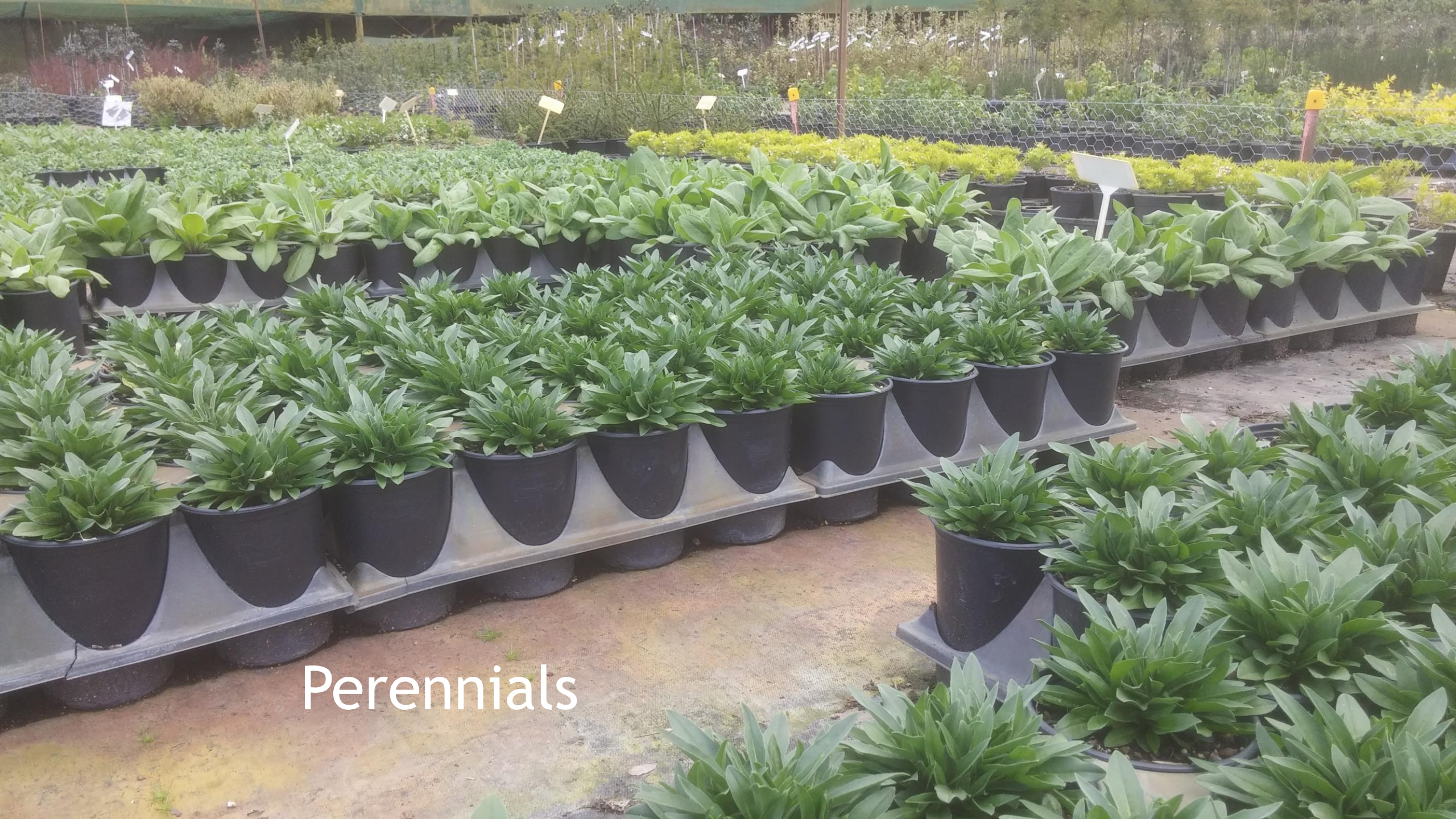


Shrubs

A photograph showing a large area of green groundcover plants, likely in a nursery or greenhouse. The plants are densely packed and have small, rounded leaves. In the background, there are wooden planters and several white stakes or markers. The word "Groundcovers" is overlaid in white text on the right side of the image.

Groundcovers





Perennials



We sell to landscapers.



and retailers

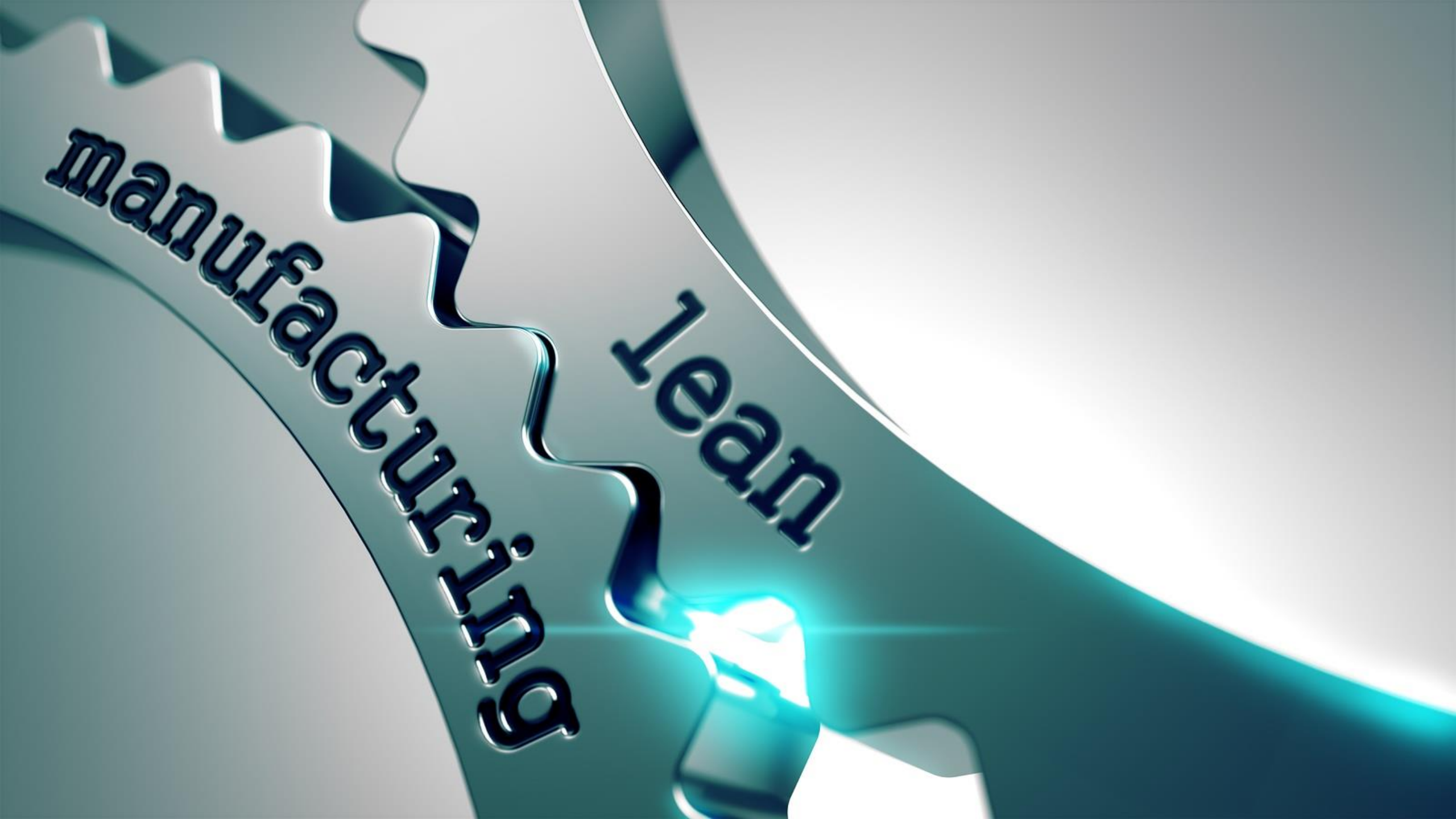
Self service











**Manufacturing**

**Lean**



# Some Lean Basics

- Identify the major kinks and smooth them out
- Everybody, everyday, everywhere
- Continuous improvement
- Visual management

# Visual Standards

- Display in area of work
- Starting point for new employees
- Include target
- Encourage improvements



## Knocking out - Standard



Objective: Knock out plants efficiently with little to no damage and tidy up once finished

1. Knock out into blue trays
2. Stack tubes back into tray (5cm 25/row-7cm 32/row)
3. Place blue tray onto PLT trolley

Target Rates: 300/hr



4. Place empty trays on 2 wheeler in supplier order
5. Return
6. Clean-up work station

Proposed improvements:

MEETINGS MONDAY - WEDNESDAY  
9.45 AM

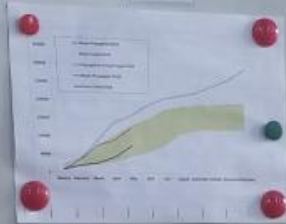
PROP TEAM BOARD

action plan

WHAT	WHO	WHEN	START
Demarcate driving lane in shed	Shelby / Paddy	11/24	⊕
Review NIMSA checklist	Paddy / Shelby	12/5	⊕
1PT Cuttings from stock		11	⊕
Block labels		11	⊕
Ret. Shower wand on FZ top			

Targets

Annual



Monday  
10am

CONTAINER TEAM

AGENDA

- Block # Signs
- Shelby see Paddy re. list out of 14-150 yds
- Set Standard for rubbish into DG
- One point lesson for machine
- Hinge/Flap on soil belt for clawing
- Circle from 3rd yr returns
- Seller layout plan for E block
- New check list
- New target graph
- One point lesson on trigger sprays

Ideas

42 33

Paint guide/lines for tractors



Yearly Target



DS success FZ, autumn



DS failure, OSH, autumn.  
Felja cuttings, Feb.  
M. Graciosa cuttings, Feb.  
Eradysome Bright Eyes, Apr?  
- DS, FZ

JUNE	Monthly	Weekly
C	30400 / 40000	1/13500
T	1563 / 2000	/ -
DS	2281 / 1000	/ -
DV	480 / 500	/ -
S	- / -	/ -
P	428 / 500	/ -

ideas

New

YTD

40

Implemented

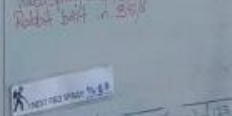
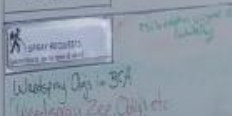
29

Dead tree overhanging from Diesel line - Start to attack it  
Make sure Tractor routes/buckets labeled on to leader  
Tractors in use light in shed during



Greenhouses to protect polyhouses from irrigation water  
More botanical

OG TEAM BOARD



Produce spray  
Produce Plan  
Record water spray, dates, times, etc.  
and why

Produce way to record water use on farm  
Best recording  
Spray gun or watering truck  
x Sea change can be used on FZ  
buddy for better spray

Produce way to record water use on farm  
Best recording  
Spray gun or watering truck  
x Sea change can be used on FZ  
buddy for better spray



Ensure routes/buckets are labeled in place



WARNING  
TRACTORS  
IN USE



In your pursuit of sustainable  
profitability with Lean, don't lose  
focus of your personal objectives.

Thank you.