



GREAT BRITISH  
ENTREPRENEUR  
AWARDS 2016

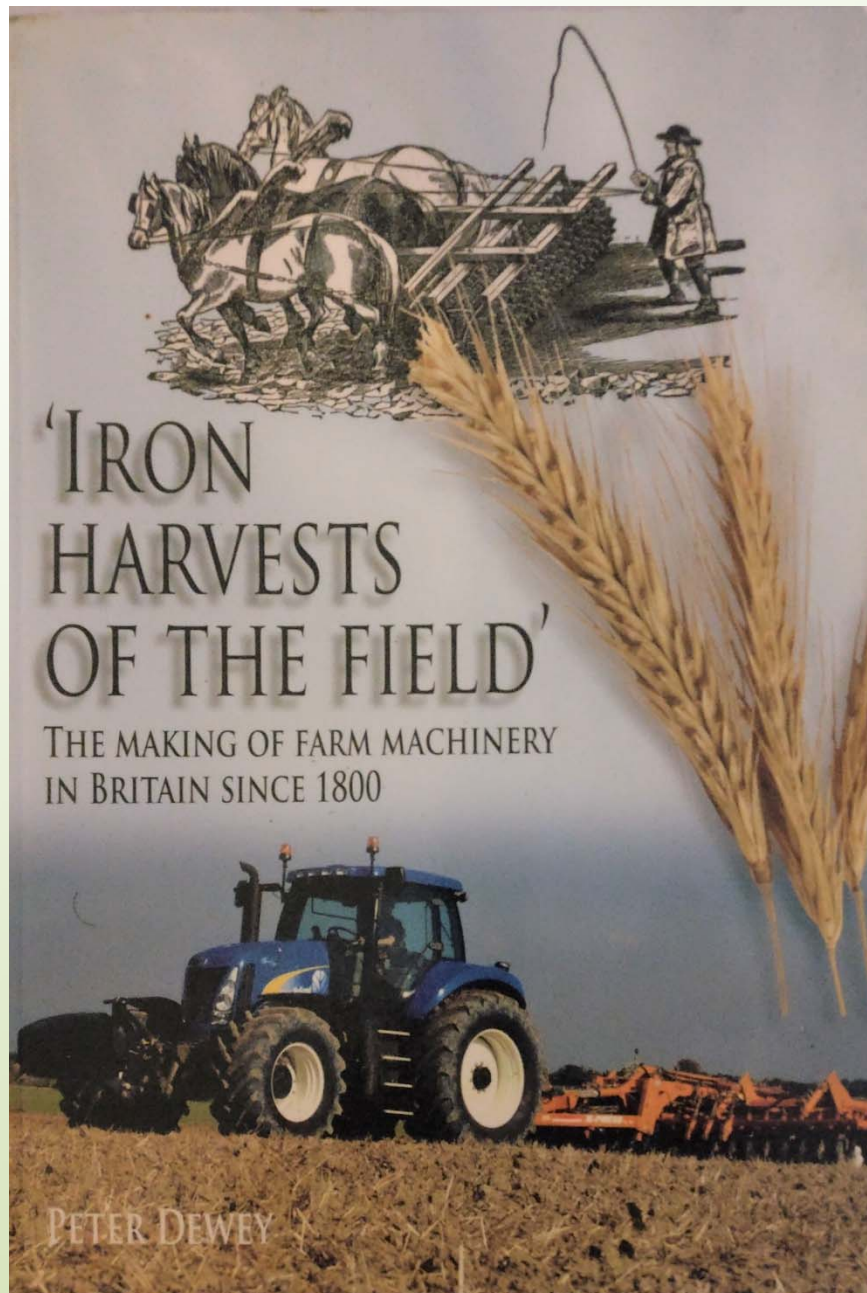


Re-thinking the supply chain – reducing the  
Minimum Efficiency Scale





# The Industrial Revolution was only possible due to an Agricultural Revolution





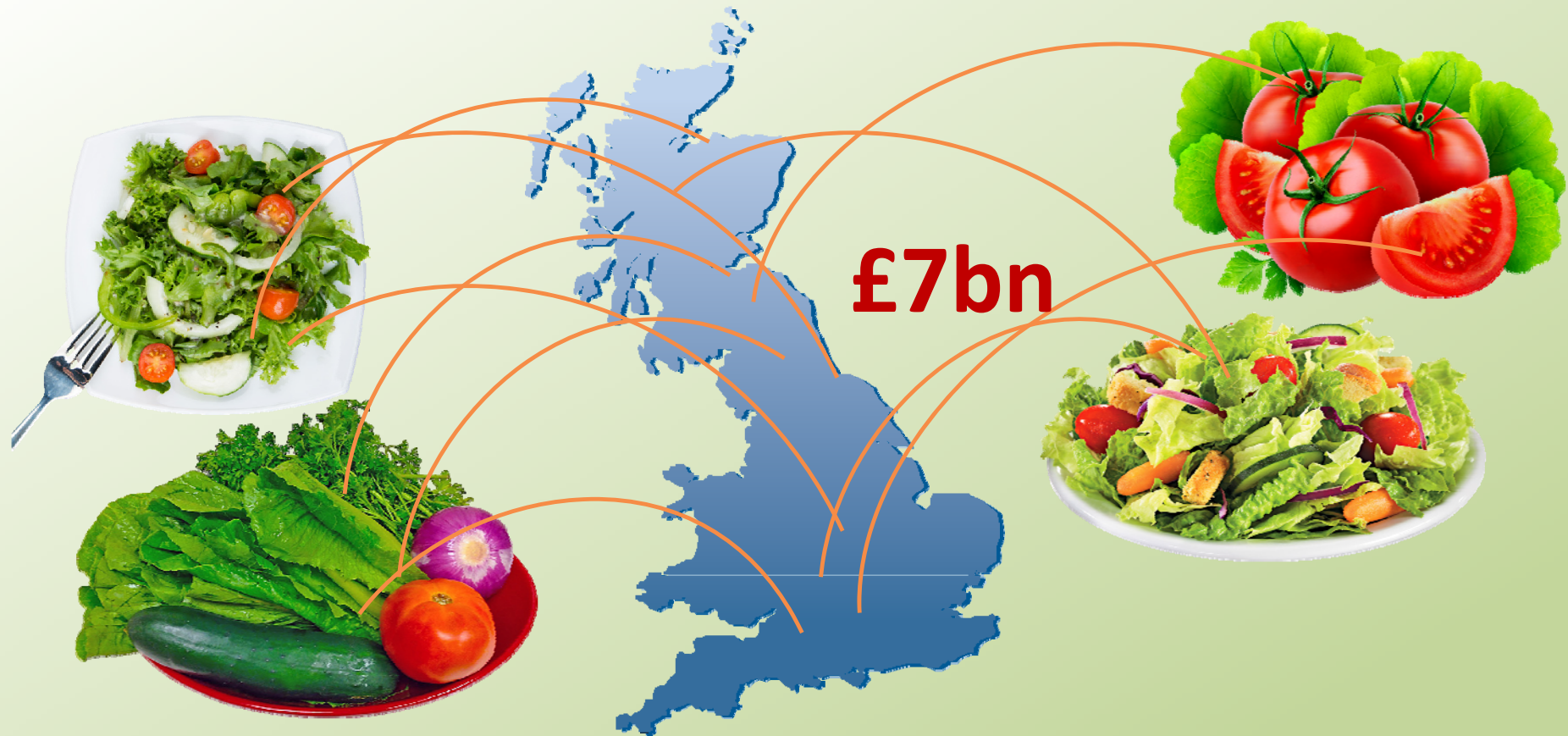




# Cities are fed big retailers



# Many countries rely on imports



...with suppliers making sustainability claims...



...but current fresh produce supply chain  
have a massive environmental impact



Vegetation rotting  
in plastic  
wrappers...



... is the hardest  
waste to recycle



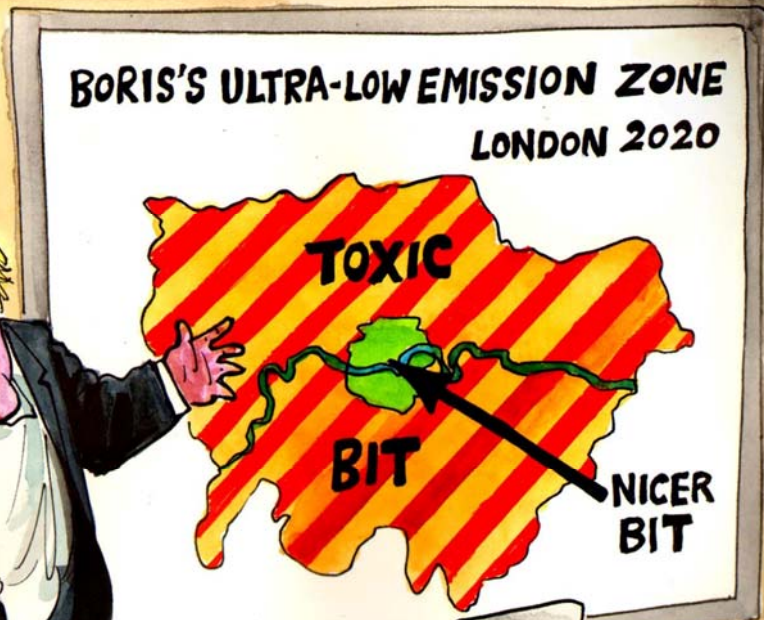
Beijing, London, Paris and many more seek to reduce air pollution by banning fossil fuelled vehicles.

New developments will replace old industries  
– often without roads

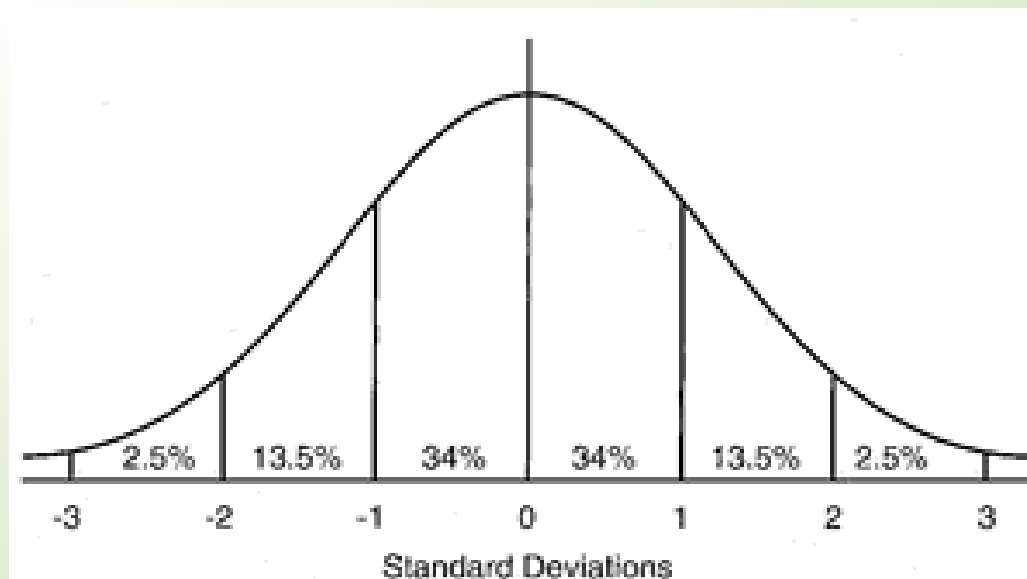




**EU  
AIR QUALITY  
CONFERENCE**



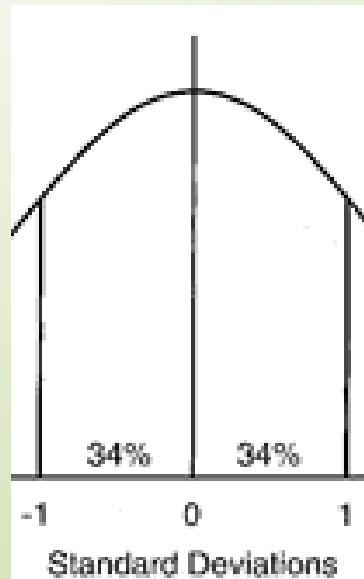
**EXIT**



The standard distribution curve has  
a big impact on agriculture



For some Horticulture varieties...



...the need to fill a lorry means that only some harvest ready crops leave the farm

# Bringing the rural business model to a city:

- Allotment / market garden
- Stacking hydroponics  
Delivering nutrients via water – can be without any soil / growing media
- Aeroponics  
Going beyond hydroponics by spraying nutrient rich water onto roots
- Aquaponics  
Combining hydroponics and aquaculture (fish farming)







Allotment / market garden

A nice idea - but not enough to feed a city



# Hydroponics

Usually complex  
Pipework, poor/no data  
capture and



too much  
manual  
handling  
that  
should be  
avoided

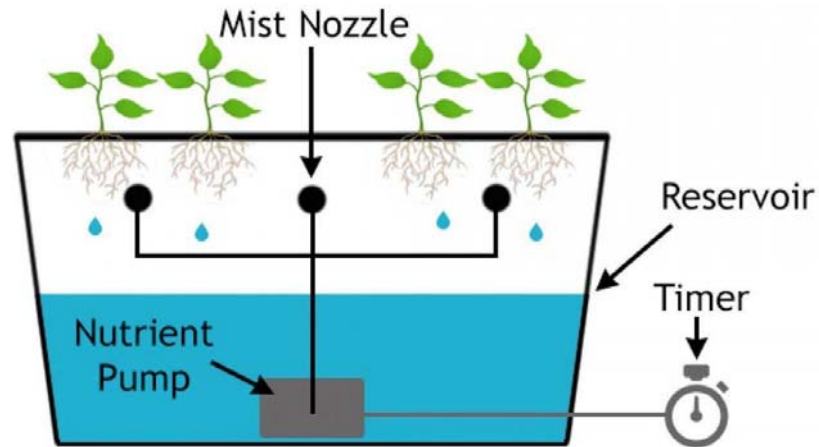


What if we could build



# Aeroponics

hydroponics for crops that cannot cope with flooded roots.



Has nozzle blocking issues but gaining popularity in specialist sectors such as disease free seed potatoes

# Aquaponics

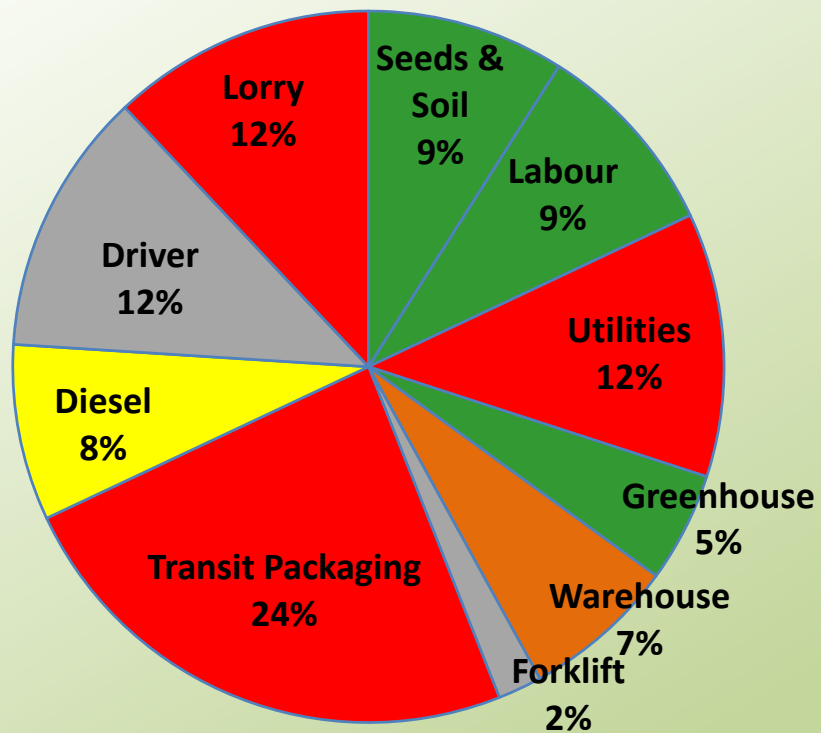
Great for education  
...but not easy to scale.  
Fish the hardest bit  
and easiest to avoid



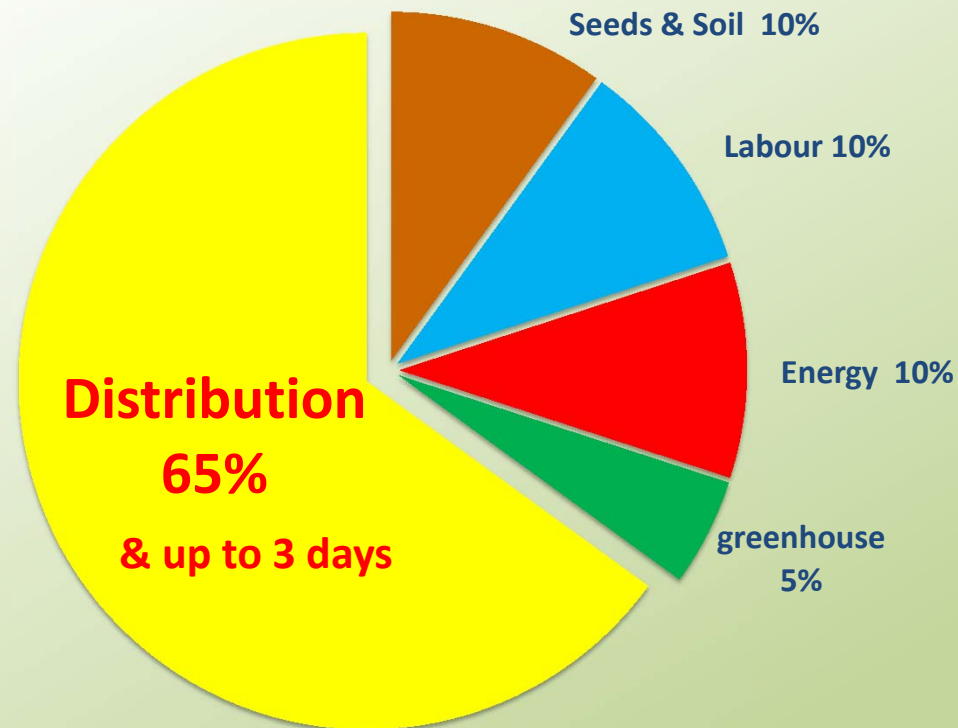
Adds 30% to costs &  
restricts crop varieties  
- must be a very strong  
local demand to make it  
worthwhile in a city



## Current greenhouse cost model:



...but look at the total cost of distribution:



Logistic businesses always state the final mile is the most expensive – so that is the one to avoid





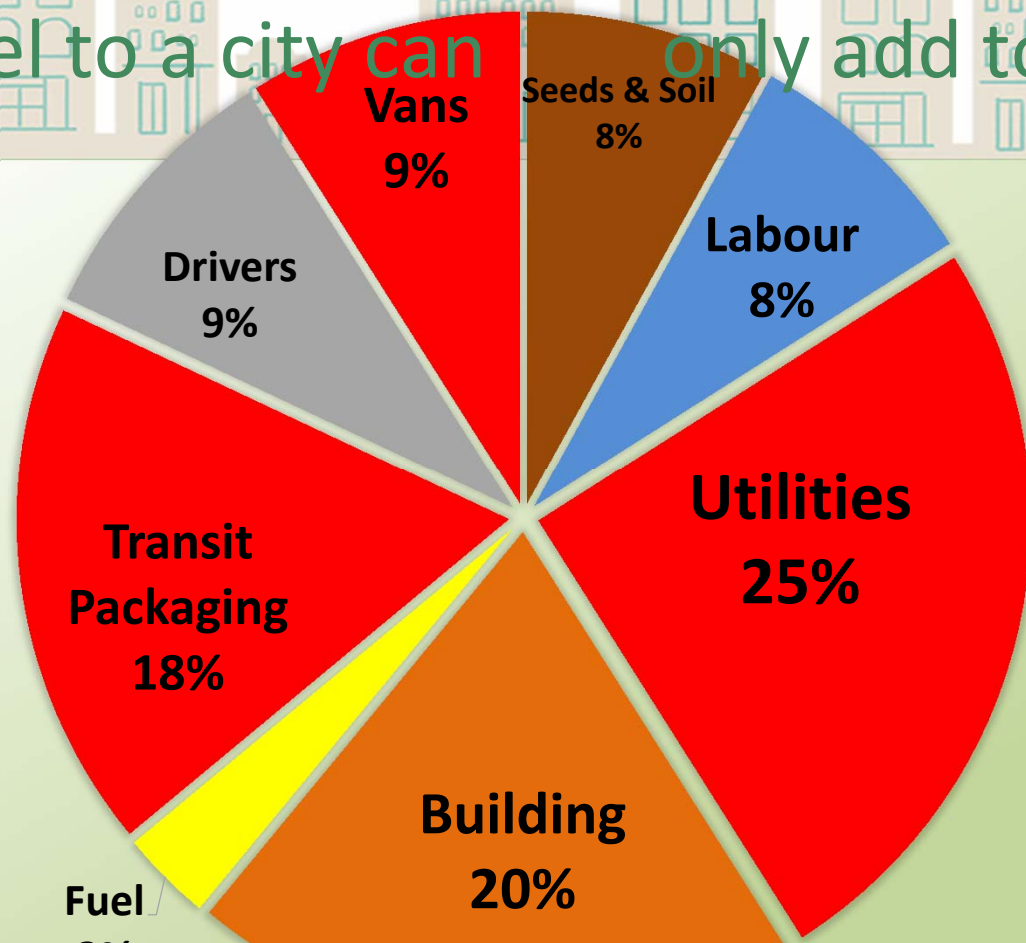


All depend on Hydroponics with complex pipework and whole system control rather than individual crop data



Retailers sell £12-1400 /m<sup>2</sup>/week  
3 x what greenhouses grow in a year...  
So why try it in space costing 30-50,000

# Bringing the Greenhouse Business Model to a city can only add to costs







‘The worst thing you can  
be doing is to do well the  
things that you shouldn’t  
be doing in the first place’

Chris Knight, CEO Lotus Cars







**RETHINK**

**REFUSE**

**REDUCE**

**REUSE**

**RECYCLE**





# So why not avoid distribution?

Install a lightweight automated greenhouse here

No pollution      Consume waste heat & CO2

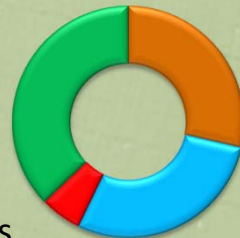
No transit packaging

A secure & reliable supply chain growing to order

Provenance from *Seed to Sale™*

Greenhouse &  
monitoring

Utilities



Seeds & soil

Labour

A4

© 2014 Google

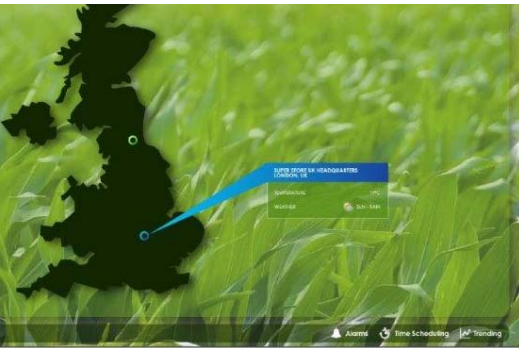




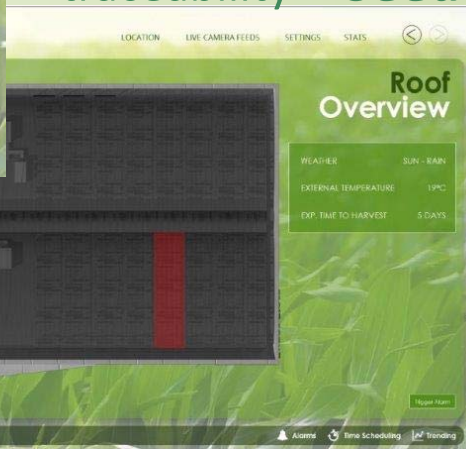
# CloudGro®

whole turnkey supply chains

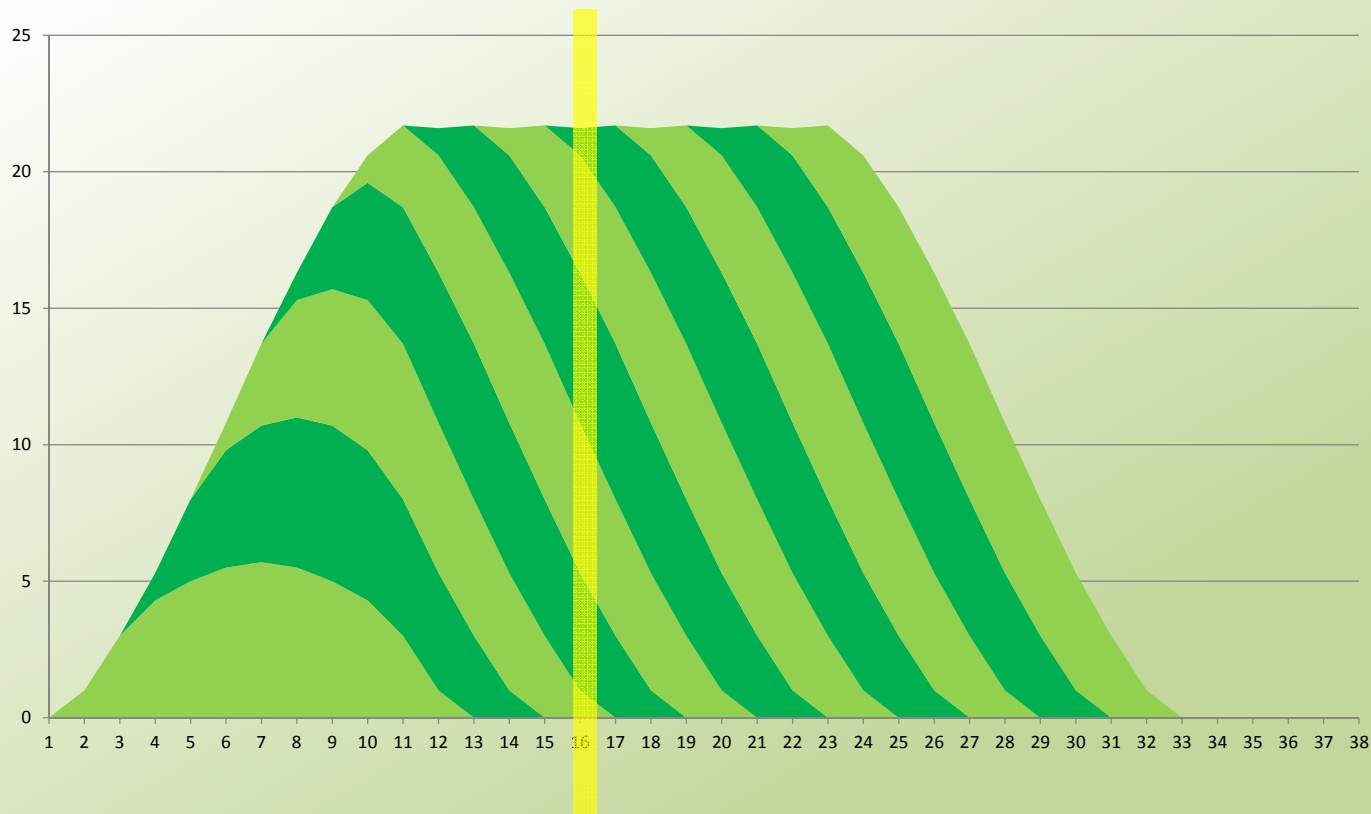
- Same CapEx - low OpEx
- Consume waste heat & CO2
- no transit only packaging to buy or dispose of and full traceability - **Seed to Sale™**



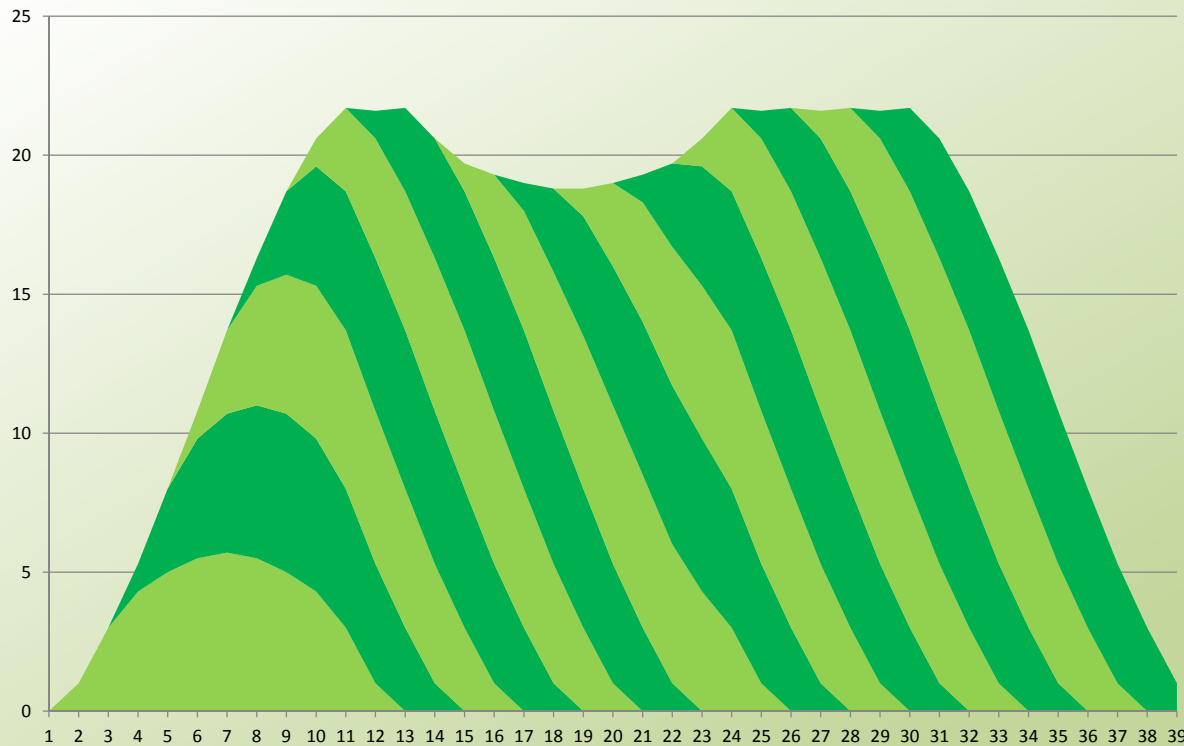
- Additional revenue:
- maintenance,
- monitoring
- 'grow to order' crop planning service
- Managed in the Cloud



Yesterday's late crop arrives alongside today's main and tomorrow's early crop



Creating a delay can improve quality  
and match a drop in demand...



The ability to slow crop growth offers benefits – many improving quality.



# Data is King in today's world...

Traditional agriculture is collecting more data than Controlled Environment Agriculture

Fields can be mapped by down to individual plants yet most Vertical Farming data is homogenised to facility level.

CFS track individual trays with RFID & offer data from ***Seed to Sale***<sup>™</sup>













Thank you  
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Re-thinking the supply chain – reducing