

Can urban food production feed the world and save the planet?

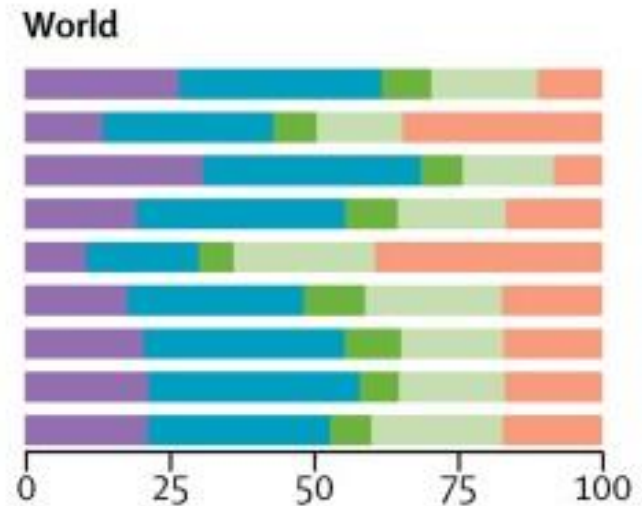
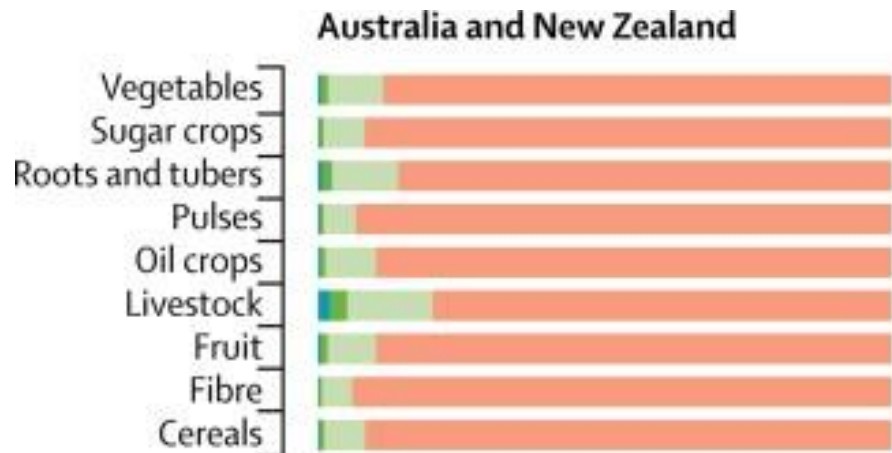
Richard Stirzaker

Urban Food Perspectives

- Food security
- Food sovereignty
- Food sustainability
- Food safety
- Food and society
- Food and Public Health

Farm size

Farm size
(ha)











Urban Agricultural Mantras

(and Innovation)

- To dig or not to dig
- The more compost the better
- Mulch thickly
- Water less often and more deeply
- Fertility and fertiliser
- Recycling water / waste
- Wicking beds / Vertical gardens
- Feed the city



To dig?



To mulch?



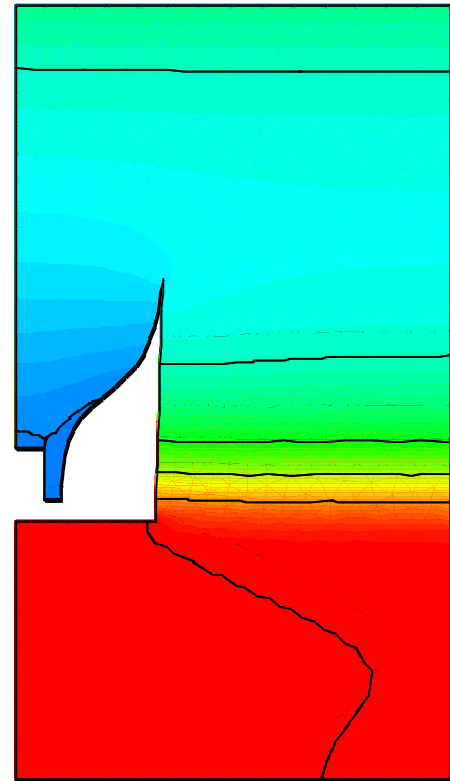


To water?

Wetting Front Detector



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The Chameleon

Measures what the plant experiences
(not soil water content)

Gives output as colours
(not numbers)

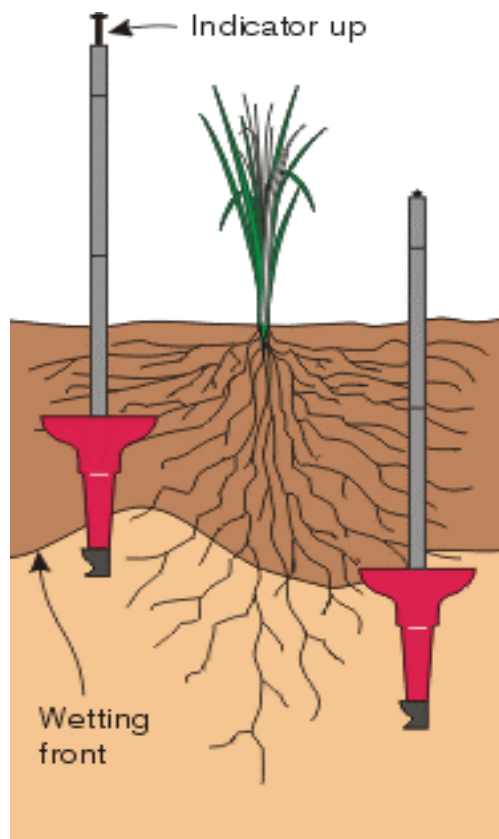
Shows the soil water by patterns
(not graphs)

Generating farmer stories
(not reports)





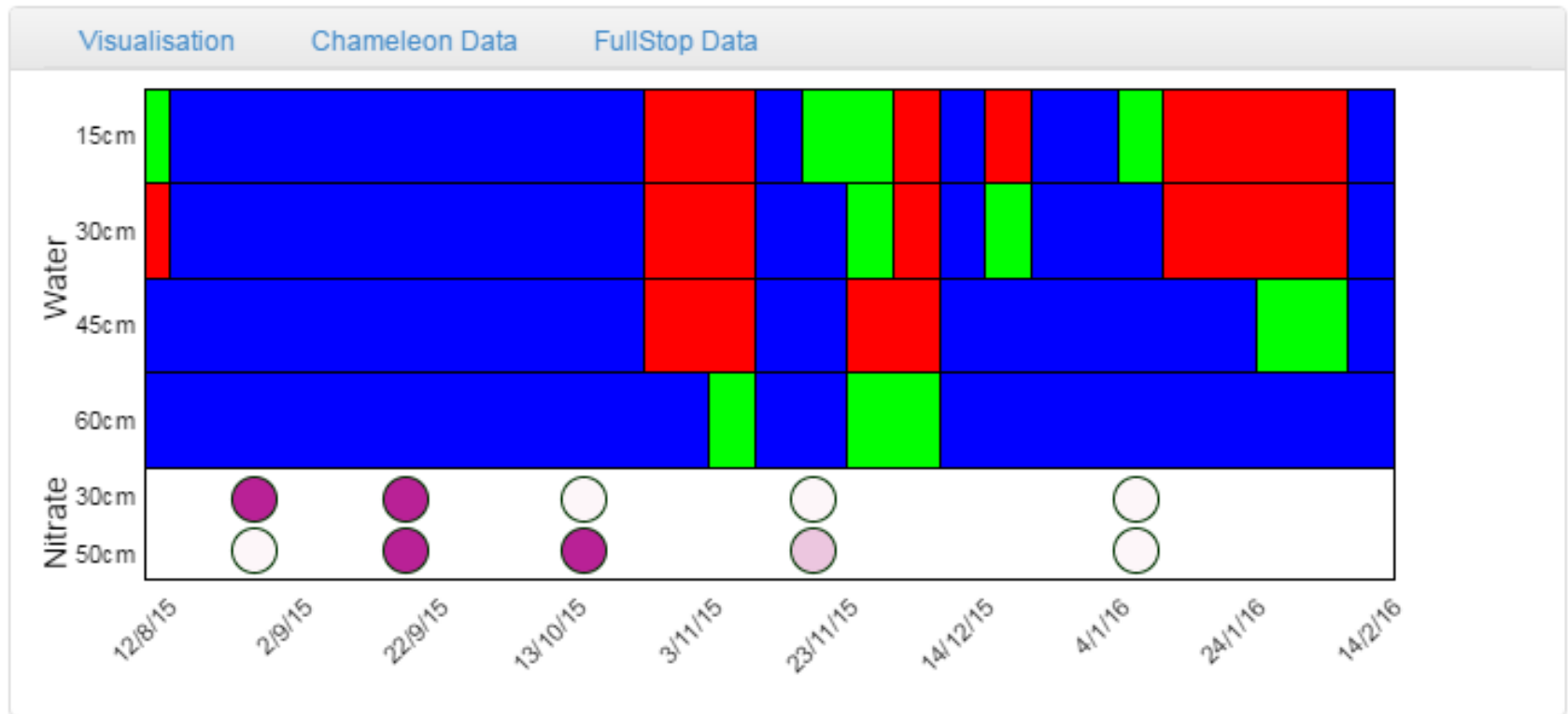
The Detector



The Virtual Irrigation Academy platform

<https://via.farm/>

Sensor Array Visualisation



What we eat



Component of diet (%)

	Cereals	Veg + animal fat	Sugar	Meat	Milk eggs fish	Roots Pulses	Fruit veg	Other
WORLD	47	11	9	8	7	7	5	6
India	59	12	10	1	5	6	4	3
Australia	23	19	13	16	13	3	6	7

Feeding myself in the city

Australia	3000 Calories/day
Malawi	2000 Calories/day

To grow 3000 Calories per day
We need at least 3000 L of water

And how much land?



Our food budget

Potatoes contain about 760 Calories per kg

500 m² of garden @ 3 kg /m² = 1500 kg potatoes
= 4.1 kg/day
= 3120 Calories per day
= enough for one

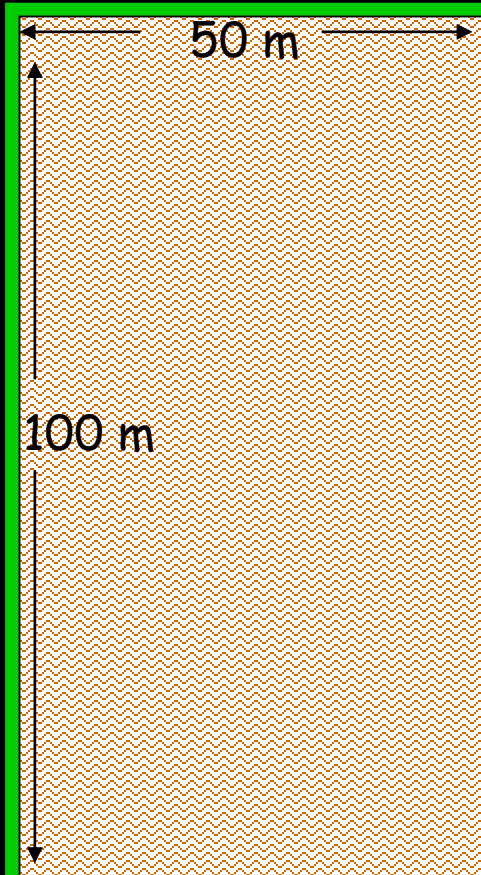


Our water budget

Waste water:	100 L /day	= 100 L	@ 70%	= 70 L
Water tanks	200 m ² x 1.7 mm	= 340 L	@ 60%	= 204 L
Rain	500 m ² x 1.7 mm	= 850 L	@ 70%	= 595 L
Total				= 869 L

Rain 614 mm in 365 days = 1.7 mm/day

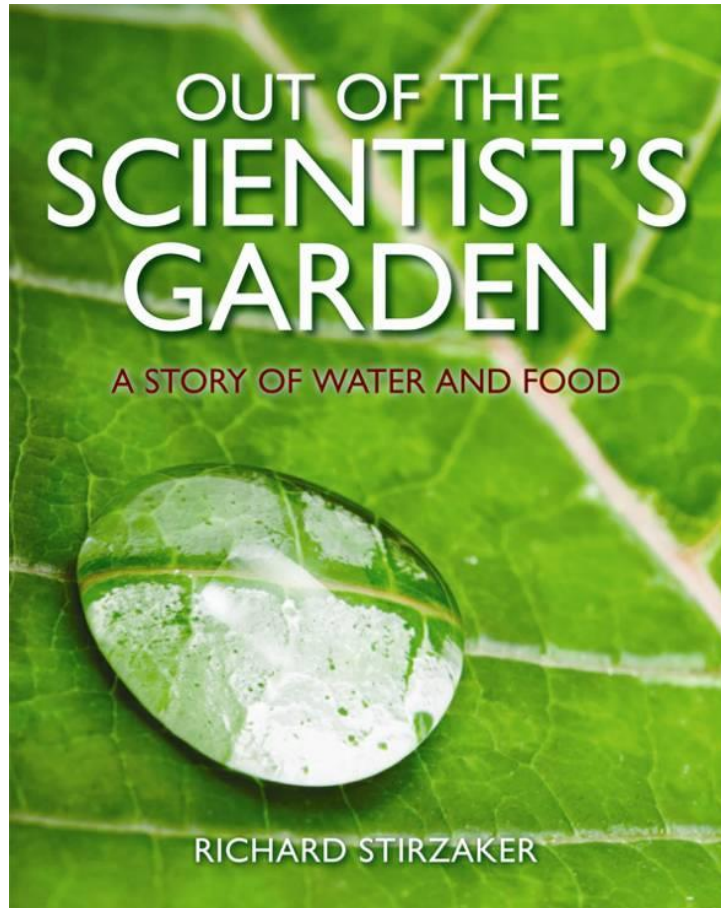
Our land budget



Australia (total)	40 ha
Australia (farmed)	22 ha
Australia (crops)	1 ha
Our plot	0.1 ha
Our garden	0.05 ha

World (farmed 1980)	1.00 ha
World (farmed 2010)	0.75 ha
World (crops)	0.25 ha

Out of the Scientist's Garden



- Richard – I read it all in one sitting! It is a delight.
- Oh, and absolutely loved the book. Read it in one sitting. have passed it onto Sarah, my offsider.....Once I get it back, I'll re-read it
- I also really enjoyed it. I did read it cover to cover, in one day, so I think that's good evidence that I found it a very easy and enjoyable read.
- The book is a fascinating read and I didn't want it to end – I expect to re-read it many times as the years go by
- I really enjoyed it – very well written, was disappointed when it finished – which is rare for me in a non fiction book.