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SHARING THE RESULTS OF RECENT TRIALS; UNIVERSITY, RESEARCH, COMMERCIAL GROWER



Steve Edwards
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PhytoLux



PHYTOLUX SEMINAR
"IT'S NOT JUST
ABOUT LIGHT" 2016

The University of Bristol

The Challenge

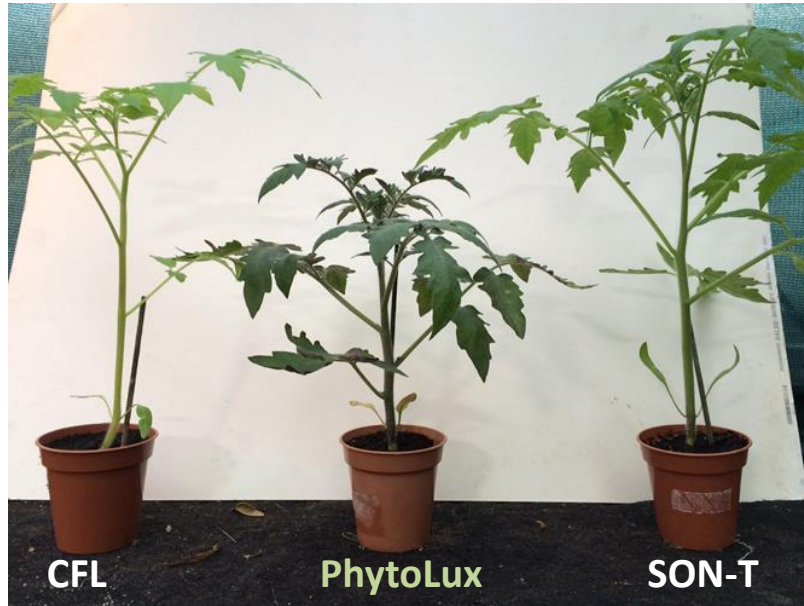
- New ultra low emissions Life Sciences Building opened in 2014
- Designed in 2012, equipped with HPS lighting
- Opportunity for reduction in energy and costs
- Trial implemented September 2014

The Trial

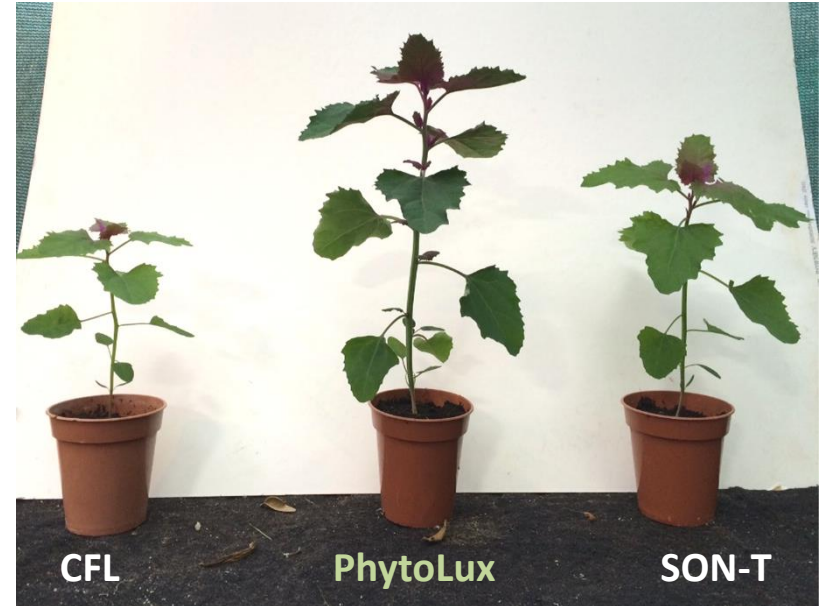


Product:	Attis-7
Control Comparisons:	400W HPS, 200W CFL
Crop type:	Varieties: Tomato, Chenopodium, French bean, January King Cabbage, Maize
Objective:	Energy reduction of 60%+, similar or better response
Environmental Conditions:	Identical glasshouse temperature, light run-time and irrigation between LED and HPS trial.

The Results

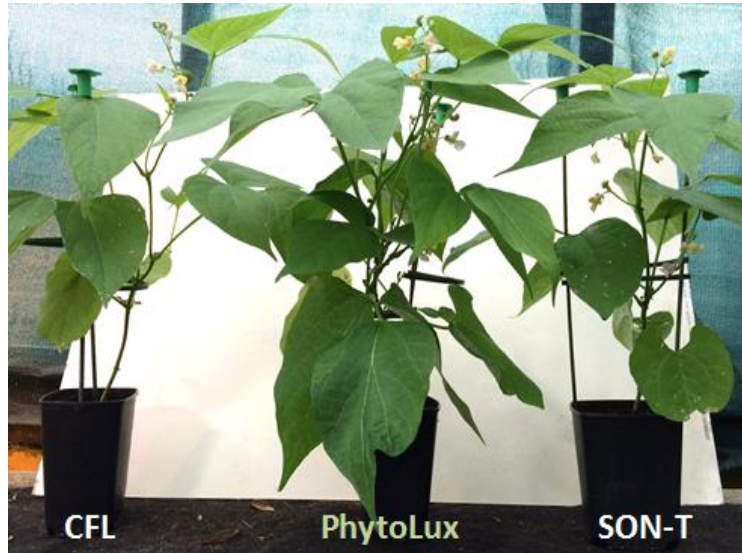


Tomato

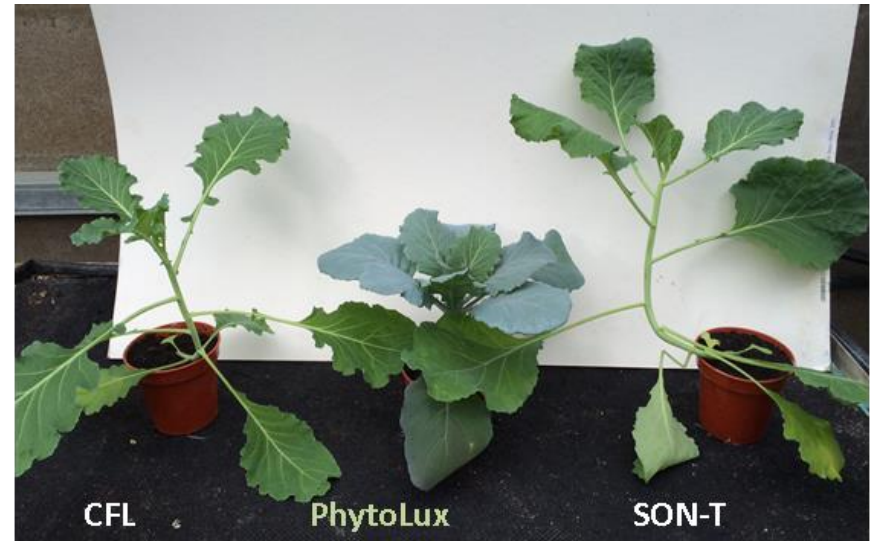


Chenopodium

The Results



French Bean



January King Cabbage

The Results

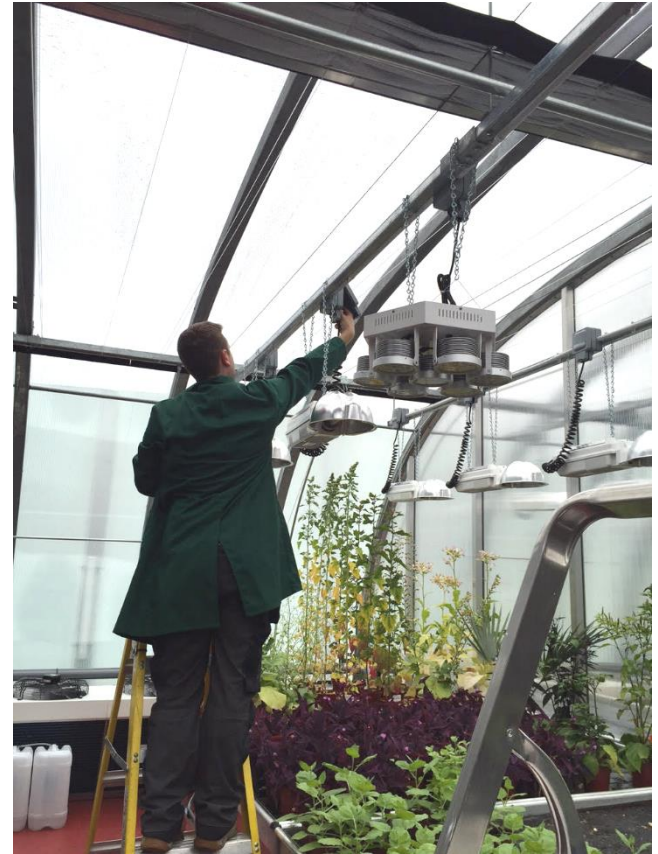
- Compact Morphology
- Faster Growth Rate
- More well-developed leaves
- Darker colour
- Average **energy save** over

October 2014 compared to 400W HPS = **71.4%**



The Installation

- Rooftop GroDome
- PhytoLux units installed in **July 2015**
- **77** x PhytoLux Attis-7
- **67%** energy save
- **44 tonnes** Carbon Saving
- **2.5 year** payback on energy saving alone



The Installation



The Installation

BBC
COUNTRYFILE



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UK Research Site

Major UK Research Site

The Challenge

- Controlled environment chamber
- Equipped with fluorescent lighting
- Tissue culture to full plant growth
- Opportunity for reduction in energy, air conditioning costs and better plant response



The Trial

Product:

Attis-4

Control Comparisons:

T8 Fluorescent

Crop type:

Varieties: cassava, aubergine and pepper

Objective:

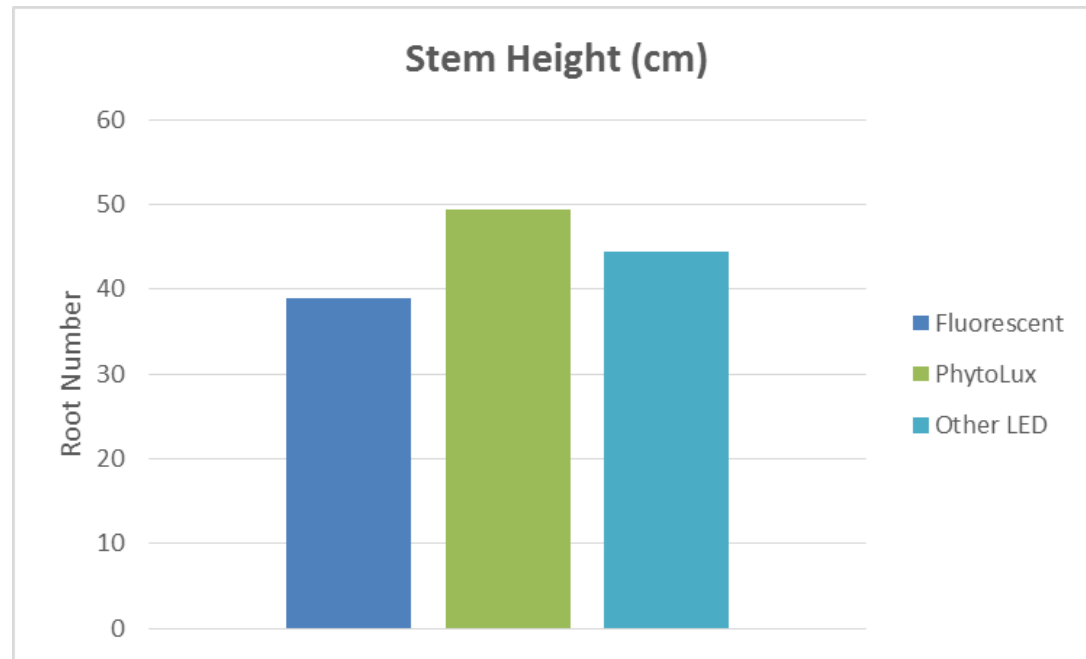
Energy reduction of 50%+ for similar or better performance on tissue culture and general plant growth

Environmental Conditions:

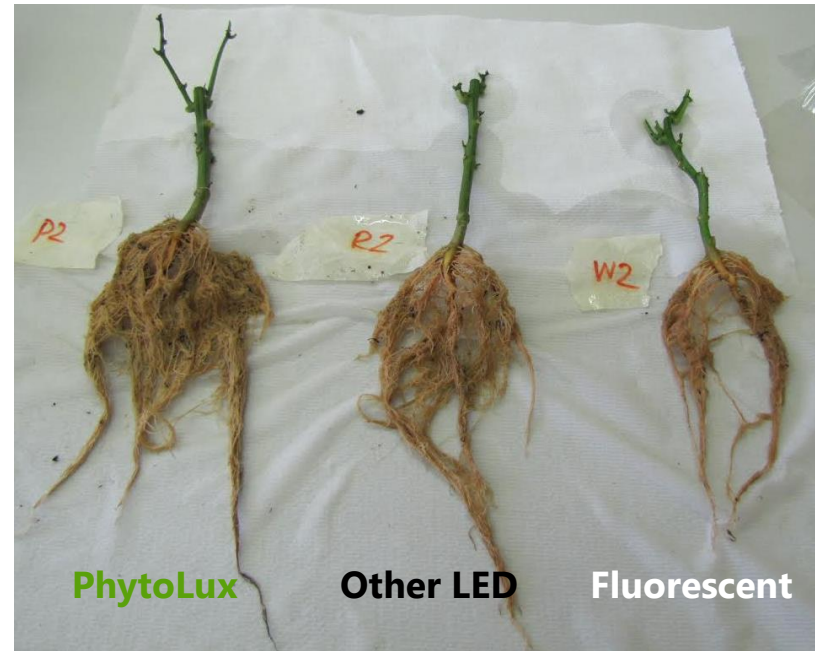
Identical chamber temperature, light run-time and irrigation.



The Results



The Results





UK Commercial Strawberry Grower

Strawberry Grower – Winter Trial

The Challenge

- Price of fruit increases from November - March as British produce scarce
- Current August planting date produces bulk of crop before higher prices reached
- Crop cannot ripen past early December in natural light
- Can we change the cropping season using LED light?

The Trial

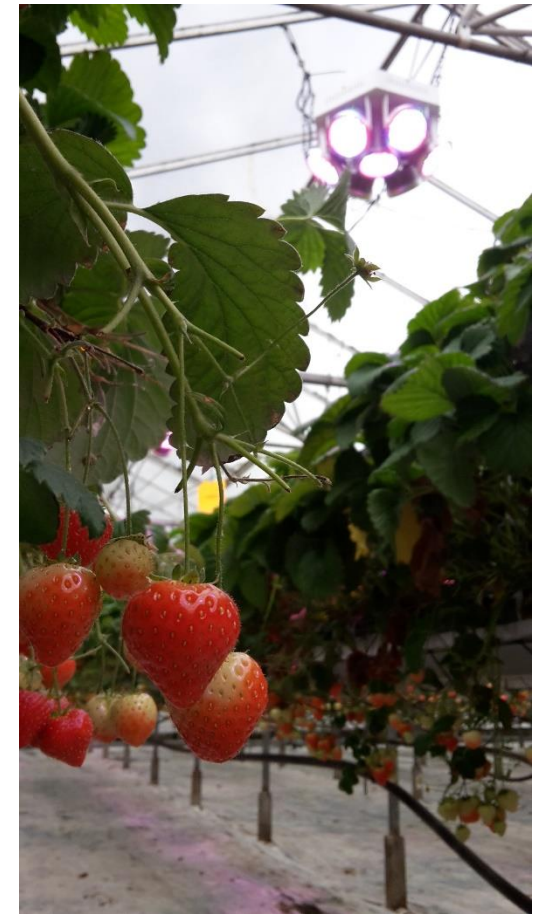
Date: August 2015 – December 2015

Product: Attis-7 High Red,
Far Red Flowering Bulb

Trial Conditions: Unlit – Planted 1st August
PhytoLux – Planted 15th August

Crop Type: Strawberry, Variety: Sonata

Objective: Push crop season later into the year, increase yield



The Results

Unlit

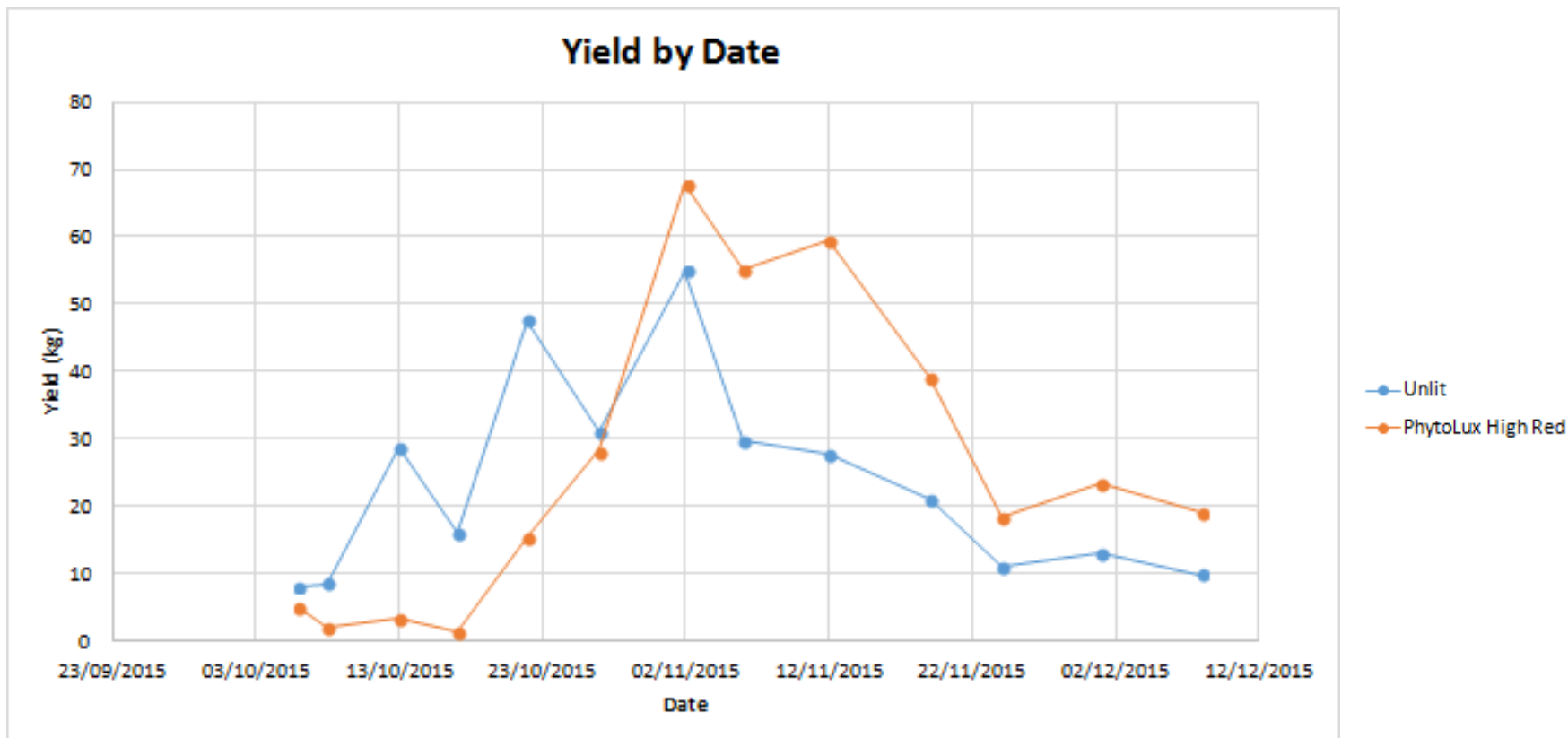
Date	Yield (Kg)	Cumulative Yield (kg)	Return per kg	Cumulative Net Return
06/10/2015	7.98	7.98	£3.24	£25.86
08/10/2015	8.58	16.56	£3.24	£53.65
13/10/2015	28.67	45.23	£3.24	£146.55
17/10/2015	15.96	61.19	£3.48	£202.09
22/10/2015	47.64	108.83	£3.48	£367.87
27/10/2015	31.08	139.91	£3.93	£490.02
02/11/2015	54.85	194.76	£4.66	£745.62
06/11/2015	29.75	224.51	£4.66	£884.25
12/11/2015	27.77	252.28	£4.94	£1,021.44
19/11/2015	21.07	273.35	£4.98	£1,126.37
24/11/2015	11.11	284.46	£5.41	£1,186.47
01/12/2015	13.07	297.53	£5.54	£1,258.88
08/12/2015	9.8	307.33	£5.54	£1,313.17

The Results

PhytoLux High Red

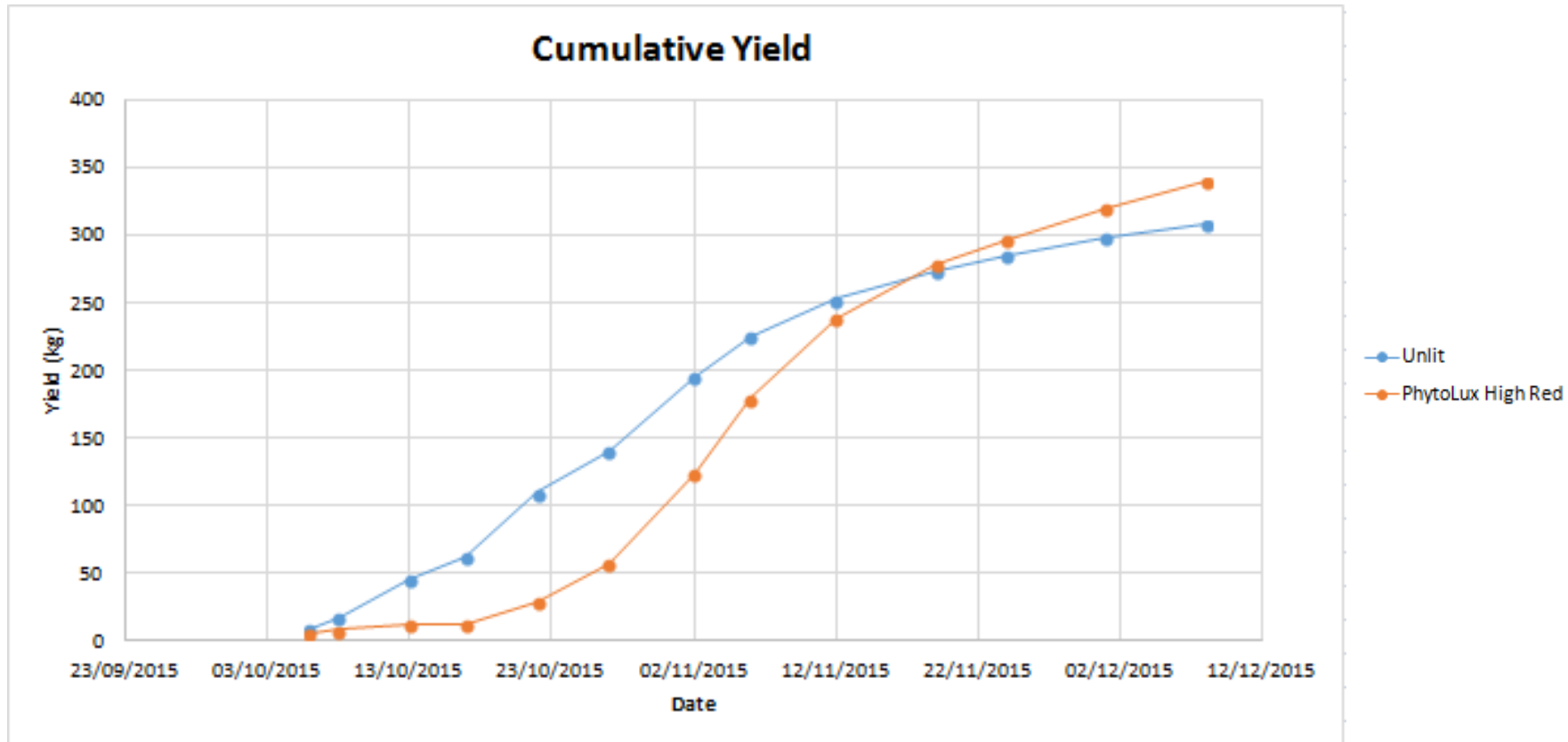
Date	Yield (Kg)	Cumulative Yield (kg)	Return per kg	Cumulative Net Return
06/10/2015	4.99	4.99	£3.24	£16.17
08/10/2015	2.16	7.15	£3.24	£23.17
13/10/2015	3.44	10.59	£3.24	£34.31
17/10/2015	1.41	12	£3.48	£39.22
22/10/2015	15.48	27.48	£3.48	£93.09
27/10/2015	28.34	55.82	£3.93	£204.47
02/11/2015	67.74	123.56	£4.66	£520.13
06/11/2015	55.13	178.69	£4.66	£777.04
12/11/2015	59.65	238.34	£4.94	£1,071.71
19/11/2015	39.06	277.4	£4.98	£1,266.23
24/11/2015	18.46	295.86	£5.41	£1,366.10
01/12/2015	23.53	319.39	£5.54	£1,496.45
08/12/2015	19.2	338.59	£5.54	£1,602.82

The Results

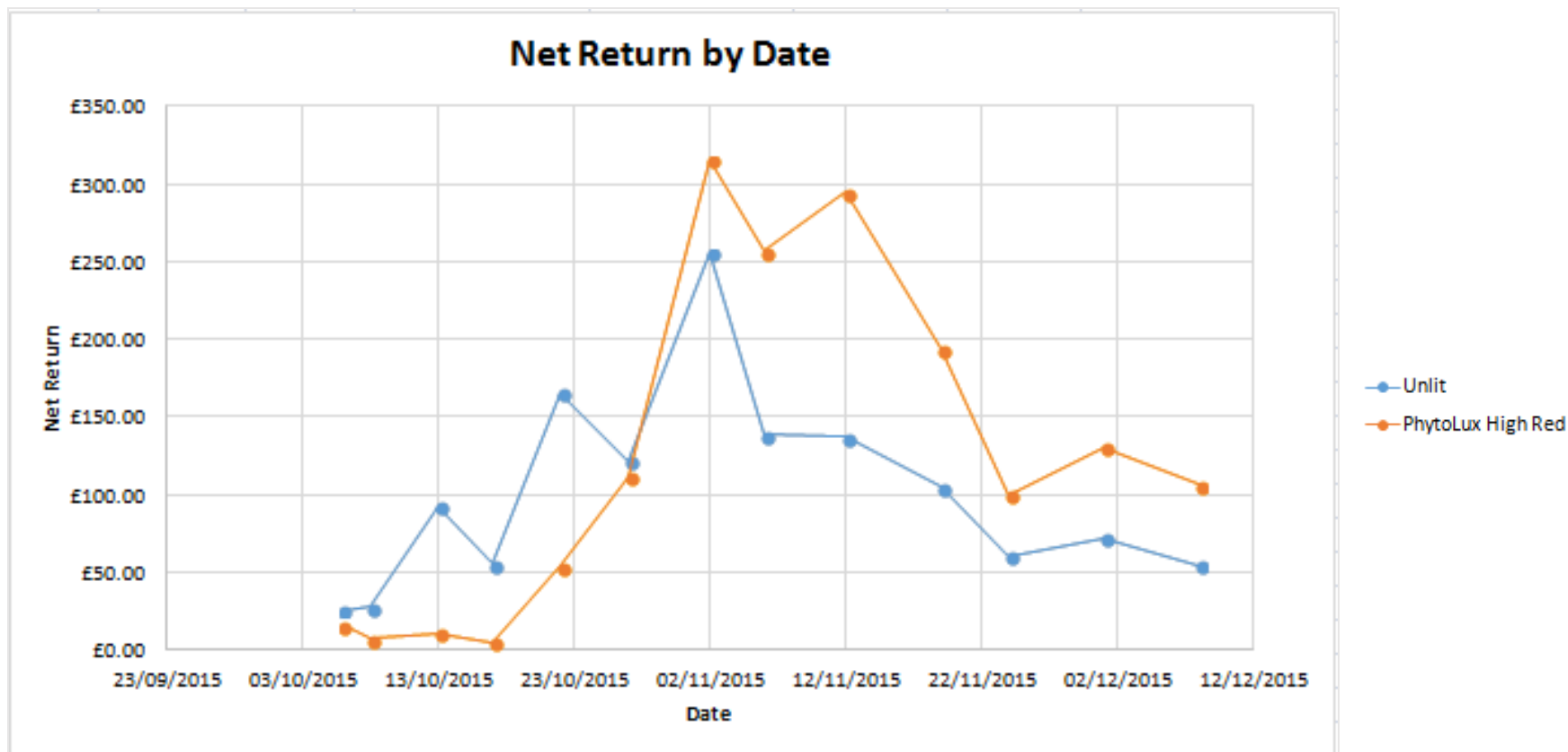


The Results

Increase in yield = 10%

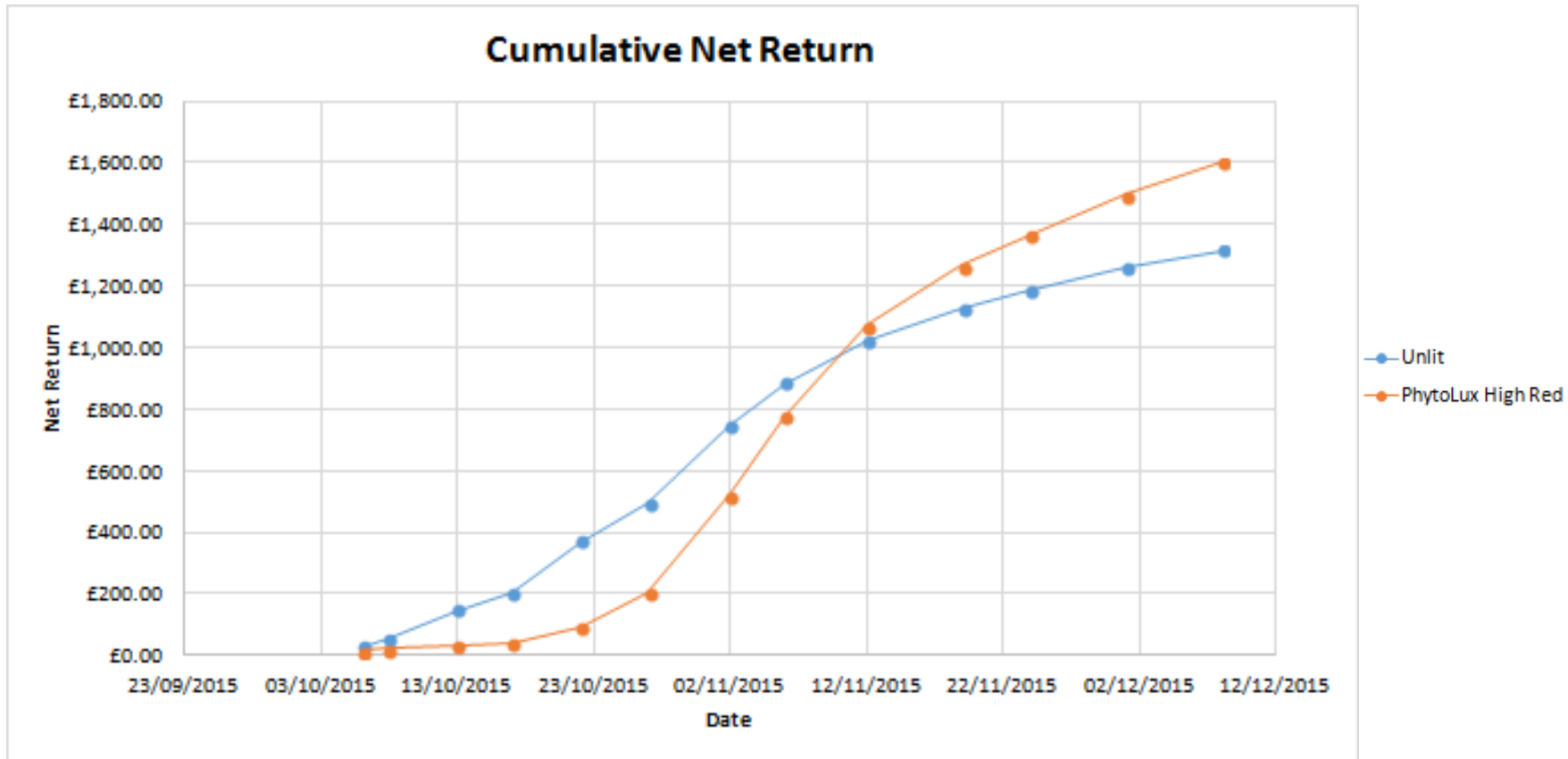


The Results



The Results

Increase in net return = 22%

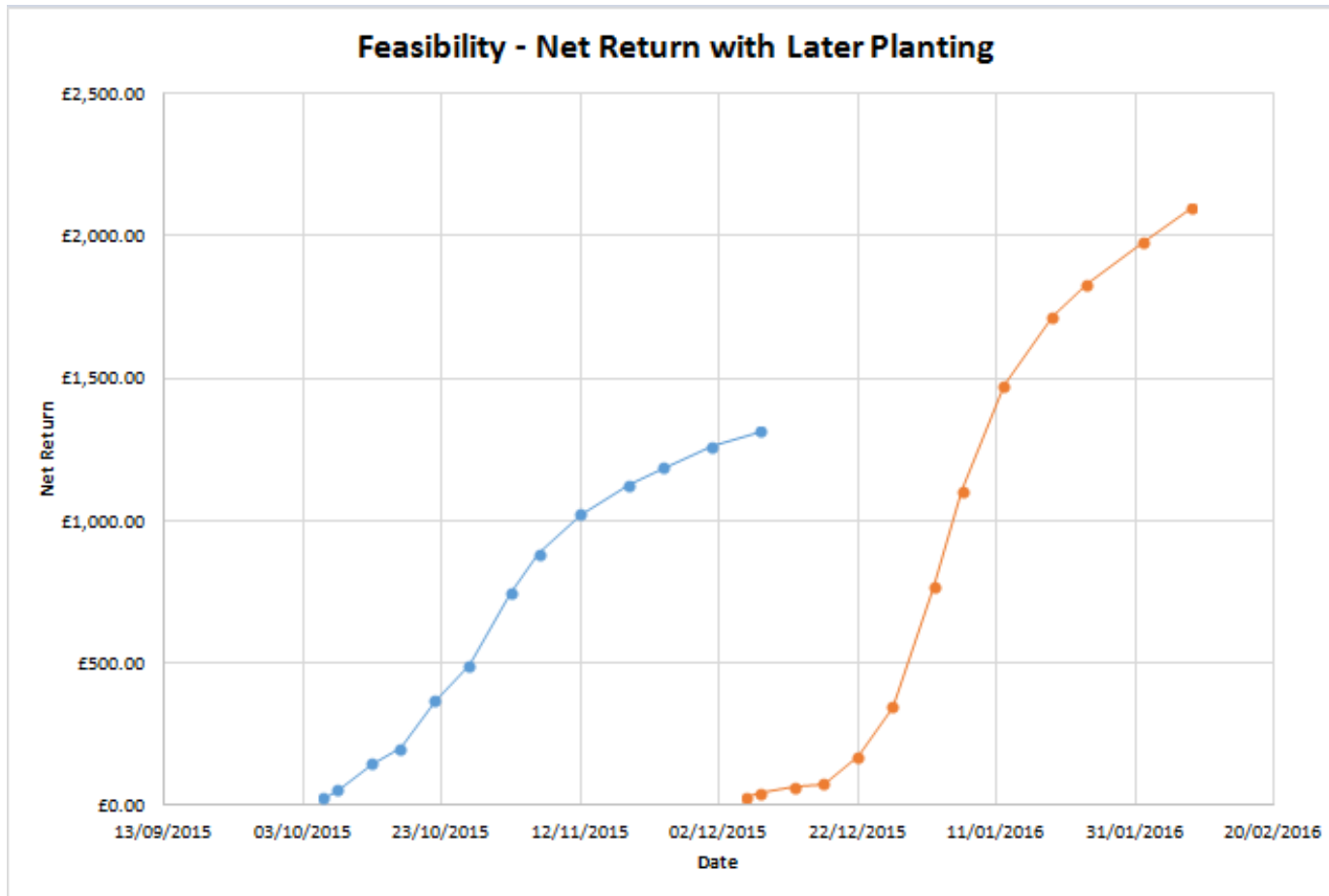


Feasibility Study

- 2 month later planting date
- What return could we expect?
- Change planting date to 1st October
- Season, now December – early February
- Return per kg = £6.19 (price for 19th December 2015)

The Results

Increase in net return = 60%



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Dutch Commercial Flower Grower

Potted Flower Grower

