

OTHER WAYS TO GROW

Phaseolus coccineus and *Phaseolus vulgaris*

Outdoor Trial at Waltham St Lawrence, Berkshire

1 May 2021–24 October 2021

Anthony Boyd

Stephen Morton



Contents

SECTION	PAGE
1 Abstract	2
2 Objectives	4
3 Materials and Methods	4
4 Results	5
5 Conclusions and Discussion	6
6 Further Work	7
<i>Attachments</i>	
1 References	8
2 Scheme of trial	9
3 Journal	10
4 Layout	13
5 Table of yields	14
6 Graphs	16
7 Schedule of trials 2022	18
8 Volunteers list	19
9 Water levels	20
10 Photographs 1–6	21

OTHER WAYS TO GROW
Phaseolus coccineus* and *Phaseolus vulgaris
OUTDOOR TRIAL AT WALTHAM ST LAWRENCE,
BERKSHIRE
1 May 2021–24 October 2021

ABSTRACT

- 1.1. The trial is the latest in a series of annual trials 2017, 2018, 2019, 2020 and 2021, during which climbing beans were grown part horizontally (loop frame) in pots using varying integrated systems and yields compared.
- 1.2. We looked for a way to offer households without a garden an opportunity to grow climbing beans, these being capable of producing roughly double the yields of dwarf varieties.
- 1.3. We replaced liquid fertiliser with granular controlled release pellets for two sets of plants – and no fertiliser in the case of the plants growing in a wool and bracken substrate, for which the manufacturers claim no fertiliser of any kind is needed.
- 1.4. We compared plant crop yields between three leading peat-free substrate products
 - (a) Two (Incredipeatfree and Sylvagrow) – Sets 3 and 5 with granular controlled release fertiliser tablets, and
 - (b) One – Set 4 – with no fertiliser (Dalefoot vegetable).Yields were also compared with the recognised normal yields from plants grown without pots
- 1.5. Set 5 produced the highest yields (784g per plant) with a rating of “good”
Set 4 yield per plant was 678.8g – rated “Satisfactory”.
Set 3 at 566.0g was rated “satisfactory” but 16.6% below Set 4. This substrate formulation (with John Innes 2) seemed less suitable for culture in pots than those in the trial without loam.
(Note Initial results from informal field trials in *open ground* conducted separately using frames of similar loop construction produced exceptional yields – over 1.5Kg per plant).
- 1.6. There was evidence that the claim by Dalefoot “needs less water” may be valid.
- 1.7. Dwarf runners were grown in order to determine whether the exceptional results in the 2019 trial could be repeated, and this proved not to be the case.

Anthony Boyd,
November 2021

Stephen Morton

1. BACKGROUND

- 1.1. The trial is the latest in a series of annual trials 2017, 2018, 2019, and 2020, during which climbing beans were grown part horizontally (loop frame) in pots using varying integrated systems and yields compared.
- 1.2. We were looking for a way to offer households without a garden an opportunity to grow climbing beans, these being capable of producing roughly double the yields of dwarf varieties.

Grown in pots, we hoped to be able to achieve results comparable to those from beans grown in open ground.

- 1.3. Guide figures for yields from climbing runner beans grown in open ground were taken to be:

"Exceptional"	:	Over 1,000g
"Good"	:	700–1000g (approximately 50–60 pods)
"Satisfactory"	:	500 – 700g
"Unsatisfactory"	:	Below 500g

(See ATTACHMENT (1) References 1, 2, 3.)

- 1.4. We recognised that achieving "exceptional" yields might be difficult for plants in pots due to the restriction of root development which does not apply to plants grown in open ground.
- 1.5. Nevertheless, we found some written evidence to support the hypothesis (Attachment (1) References 4, 5) that climbing plants grown mainly horizontally might produce yields higher than those from plants grown upwards in the traditional way

It was hoped that this might compensate for yields being lower than desired when grown in pots (See 1.4.) – there being more energy available for production of crop.

- 1.6. In the event, any such compensation, if occurring, fell below the level required.

We then began using a liquid fertiliser, which brought about a significant improvement in yields, using both peat and non-peat substrates.

Supporting data may be found in our 2020 trial report.

- 1.7. However, feedback from our focus groups indicated, that for growers without a garden (See 1.2. above):
 - (1) the amount of water needed per dose at one gallon per two plants – in a tidy small area such as a balcony – would be a negative factor and
 - (2) this (weekly) procedure would be thought cumbersome and inconvenient.
- 1.8. In the current trial we therefore replaced liquid fertiliser with granular controlled release pellets for two sets of plants and no fertiliser in the case of the plants growing in a wool and bracken substrate set, for which the manufacturers claim no fertiliser of any kind is needed.

(Note regarding 1.5. and 1.6. Parallel informal trials using the same part horizontal loop frame in allotments produced yields of above 1.5 Kg per plant (to be continued).

- 1.9. We also grew Dwarf runners with and without liquid fertiliser in pots in 2019 and 2020. Those grown with liquid fertiliser 2019 produced exceptionally high yields (1,000g per plant compared to normal (See Attachment 3 References 2, 3.) of 400g. In 2020 plants treated with liquid fertiliser had better yields than those without, but yields were relatively low.

In the current trial we repeated the 2019 and 2020 Dwarf runner experiments.

2. OBJECTIVES

2.1. Climbing Runners

- (a) Compare plant crop yields from three leading peat free substrate products – two (Incredipeatfree and Sylvagrow) with granular controlled release fertiliser tablets, and one with no fertiliser (Dalefoot vegetable).
- (b) Compare those yields against those given in 1.3. above.

2.2. Dwarf Runners

- (a) Compare yield from plants grown in peat compost (Incredipeat) using controlled release granular fertiliser (Incredicrop) and liquid fertiliser (Tomorite) with yield from plants grown identically but without liquid fertiliser.
- (b) Evaluate extent to which these results match those from the same experiments in 2019 and 2020.

3. MATERIALS AND METHODS

3.1. Materials

See Scheme of Trial Attachment (2), and Layout Photo (6) and 2.2.(a) above.

On emptying the pots fertiliser granules were found – seemingly intact as in 2020.

3.2. Methods

These replicated those of 2019 and 2020.

For specifics of current trial refer to Journal ATTACHMENT (3).

The two sets of dwarf runners (Sets (1) and (2) were located in exactly the same positions as in 2019 and 2020

There were fewer sets of climbing runners than in previous years and it was possible to place them in a line West to East (See Layout Attachment(4) and Photos (1)) and (6) each having similar exposure to rainfall, sunlight, and shade.

We had no failures and this year; damage from pests was minimal; Blackfly, although prevalent, was controlled as in previous years.

Signs of foliar disease were seen in Set 4 (Dalefoot (Photograph (2))), – suggested by Dalefoot to be mycelium which did not recur after removal.

Plant 2 (Hestia) started very poorly (Photo 3) but recovered well (Photo 4); it was the last plant in the trial to finish flowering.

4. RESULTS

4.1. Climbing Runners

- (a) See Table of Yields Attachment (5) and Graphs Attachment (6).
- (b) Set 5 produced the highest yields (784g per plant) which we would describe as “good” (See 1.3).

This result is similar to those in the 2020 trial where the same liquid fertiliser was used with (a) a leading brand of substrate (Miracle Gro 777.5g and (b) a coir only substrate (Growlite) 835.2g.

- (c) Set 4 yield per plant was 678.8g – in the “Satisfactory” category (top quartile). No fertiliser was used. It may be noted that yields were higher than for Set 5 early in the trial but were then overtaken (See Graphs ATTACHMENT (6))

Dalefoot claim their product “needs less water”

With Vigoroot pots it is possible visibly to observe irrigation of water through substrates following watering. Height of level of wet substrate was highest (slowest penetration) for plants in Set 4 (Dalefoot)).

(See Journal Attachment (3)) and Levels of wet compost Table in Attachment (9) and Photo (5).

- (d) Set 3 at 566.0g per plant also falls into the “satisfactory” category but 16.6% below Set 4.

(Sylvagrow) substrate contains John Innes 2. Their formulation solidified to a greater extent than the other substrates, becoming clay-like, sometimes leaving deposit on foliage, and forming a crust in hot weather.

(See Journal Attachment (3)).

4.2. Dwarf Runners

- (a) A normal yield would be 400g per plant (See References. Attachment (1))
- (b) Yields per plant 2019, 2020, and 2021 were:

Year	Granular fertiliser only.	Granular+Liquid fertiliser
2019	–	1055.7
2020	305.8	432.5 (+ 41%)
2021	545.5	558.5 (+2.4%)

5. CONCLUSIONS AND DISCUSSION

5.1. Climbing Runners

(a) Thompson & Morgan, Dalefoot

The Thompson & Morgan set (Incredipeatfree) produced the best yield, 15% more than Set 5 (Dalefoot). However, we feel a comparison needs to be made :

- (1) with further leading products using peat free substrates.
- (2) with Dalefoot + a granular fertiliser.

We could also examine again the Dalefoot claim “needs less water” (See 4.1 (c) and (d))

(b) Sylvagrow

For practical reasons we were interested in working with a substrate suitable both for propagation and for growing on and were advised by Melcourt that their Sylvagrow with John Innes 2 was suitable for both.

However, the yields as such were disappointing – the composition of the substrate perhaps being unsuitable for growing beans in pots (see 4.1.(f)).

(d) Growing in open ground

Using loop frames merits further consideration. (See 1.8. Note).

5.2. Dwarf Runners

- (a) The use a liquid fertiliser of the kind used in the trial continued to show improvement in yields (See 4.2.(b)).
- (b) However, we did not achieve the exceptional yields of 2019 and will not take this further.

6. FURTHER WORK

- (a) Schedule of trials (formal and informal*) for 2022 attached as Attachment (7). These include controlled in-house trials using the loop frame design in open ground (See 1.8. note). Formal trials Reference numbers 1–4 continue work to date with beans in pots grown part horizontally.

*We have a group of 100 volunteers available to carry out informal field trials (Attachment (8)).

- (d) Use of materials and methods will continue substantially as before. However, with the aim of keeping the balcony area as dry as possible (See 1.7), we will no longer use the permeable Vigoroot pots (Haxnicks International), although these have been shown in our trials us to be superior to plastic pots in terms of crop yield each time the comparison has been made.

We would like to record our particular appreciation to Damian Cardozo of Haxnicks International for his valuable advice and practical support in the project.

Anthony Boyd
“Homegrow®”. 15 November 2021

Stephen Morton

Attachment (1) References

- 1) Email from *Which? Gardening* 15/11/2019.
“Beans produce plentiful crops so to avoid being overwhelmed, the trick is to grow just the right amount of plants for your needs. In the Which? Gardening trial, most varieties produced at least 0.5kg per plant, and our Best Buy runner bean varieties produced up to 1kg per plant in a season. So a single wigwam of a dozen plants would be plenty for a small household of 2–3 persons.”
- 2) Email from *RHS Gardening Advice* 4/1/2019.
“The yield of a dwarf runner bean is about 400g per plant. For climbing runner beans the figure is about 1000g per plant. Watering plants well when they are in flower (or failing to water well) will significantly influence yields.”
- 3) *RHS Vegetable & Fruit Gardening*, 2013, p. 242.
- 4) Letter from Dr David Hessayon, 23/2/2016.
- 5) Letter from Garden Technical Development Manager, Westland Garden Health 9/2/2017.

Attachment (2) Beans Trial 2020

Scheme

Each set six plants. Each pot 10 litre.

Set	Plants	Cultivar	Type	Pot	Substrate	Fertiliser
1	1–6	Hestia	Dwarf Runner	Vigoroot	Incredicompost*	Incredicrop
2	7–12	Hestia	Dwarf Runner	Vigoroot	Incredicompost*	Tomorite*
						Incredicrop
3	13–18	Benchmark	Runner	Vigoroot	Sylvagrow J12	Osmocote
4	19–24	Benchmark	Runner	Vigoroot	Dalefoot Veg	None
5	25–30	Benchmark	Runner	Vigoroot	Incredipeatfree	Incredicrop
						* Concentrate

Attachment (3) Beans Trial 2020

Journal

May

1 All seeds sown. Sinclair seed compost

June

2 Dalefoot Set planted

7 Remaining sets planted. Slug pellets (ferric oxide).

10 Sylvagrow muddy consistency.

Substrate sticking to leaves.

11 16 – washed leaf

17 – cut unhealthy leaf away.

13 Photo – water – downward penetration

Dalefoot Deepest, then Incredipeatfree, then Melcourt, then Incredicompost.

16 More slug pellets. So far no slug damage

Melcourt – water takes longer to drain down

(through loam) than others.

17 All Benchmark trimmed to same length as broken 21. Furthest advanced 21, 13, 15, 25, 26, 30. Melcourt sets quite solid.

19 First buds – on Hestia

20 29 chlorotic. 30 some slug damage. Pelleted.

23 Tomorited Set 2 – one day early

24 21, 20 SOME SLUG DAMAGE

16 dead leaf removed

13.30 reached ends of horizontals first.

26 Slug damaged yellow leaves cut away 20,21,30.

Incredipeatfree the furthest advanced. 4 out of 6 reached ends of horizontals.

30 Tomorited Set 2

All Hestia in bloom

July

1 Saprophytic fungi on compost 19,20,21.

Melcourt dries to “crust” on top

5 Blackfly on 2. Sprayed. Cut off damaged leaves.

4,19.6 cut damaged unhealthy leaves away.

8 Tomorited Set 2

9 Plant 2. Some blackfly remaining.

Unhealthy plant. No bloom. Many leaves damaged – cut away.

Plant 7 One damaged leaf cut away

Plant 18 Two chlorotic and damaged leaves cut away.

10 Sprayed 2 again. Cut off damaged leaves 4, 5, 6. Also leaves from a few Dalefoot.

14 Most in full flower except 2, 15, 19, 23, 24, 30

Tomorited

15 Damaged leaves removed 17, 21, 24

Blackfly 26 and 21

First beans on some Benchmark

First viable Hestia picked plant 9.

Attachment (3) Beans Trial 2020 Journal (*Contd.*)

- 16** Damaged leaves 13, 25, 19, 28
Photos taken.
Blackfly on 13.
sprayed all.
Damaged leaves 2. Photo taken.
Other Hestia not affected.
- 17** Widespread slug damage.
Heavy dose of pellets.
Damaged leaves removed 17, 25, 16, 28, 13, 29, 19, 2.
New beans on 1, 28, 13.
- 18** V Hot 35° at 1345. V little slug damage.
Removed damaged leaves from
2 Benchmark and Hestia 2, 10, 12.
More tying and cutting ties.
New beans 28.18.16.15.25.
Grass growing in 14, 15. Removed.
Dalefoot holding water longest (level in Vigoroot). Melcourt for shortest time (level in Vigoroot).
- 20** First Benchmaster picked rather late.
30cm and 24 cm.
Blackfly No 5.
One flowering shoot broken off 5.
Sprayed all Hestia and 13 again.
35° 16.30
- 21** Tomorited
- 25** 1 bloom cut from each Benchmark set.
- 28** Tomorited
- Aug-02** Two poor plants Melcourt set 14 and 18.
Hole in a odd no 21.
- 4** Tomorited
- 7** Still trimming, untangling
Showers for several days now.
- 11** Tomorited
- 13** 3 Dalefoot with yellow leaves.
None on other sets.
- 16** Dry, cooler, picking daily.
Watering daily.
- 18** Tomorited
- 19** Many of Hestia failed to develop to full length containing one bean only.
- 25** Tomorited
- 31** For a week or more yellow – other sets all still dark green.

Attachment (3) Beans Trial 2020 Journal (*Contd.*)

September

1 Tomorited

8 Tomorited

15 Tomorited

22 Tomorited

29 Tomorited (Last).

October

5 Hestia No.1 well in bloom still.

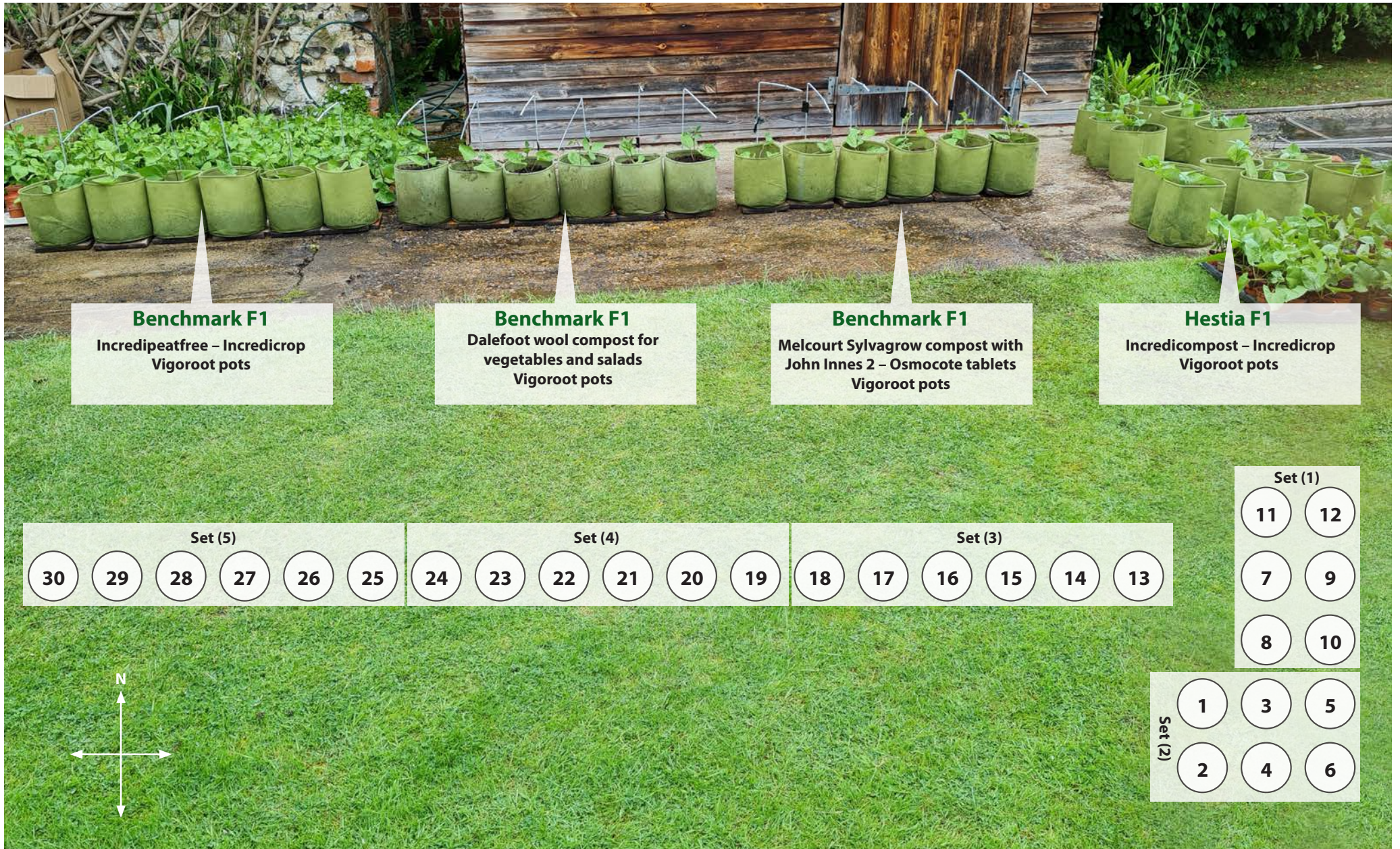
10 Took down Sets 1, 2 except plant 1 in bloom still

11 Set 4 plants 19– 4 taken down except plant 22 in bloom.

12 Set 3 taken down, Some pods picked.

24 Rest of plants all taken down.
Picked pods plants 27 and 28

Attachment (4) Layout 2021 Sets and Plants



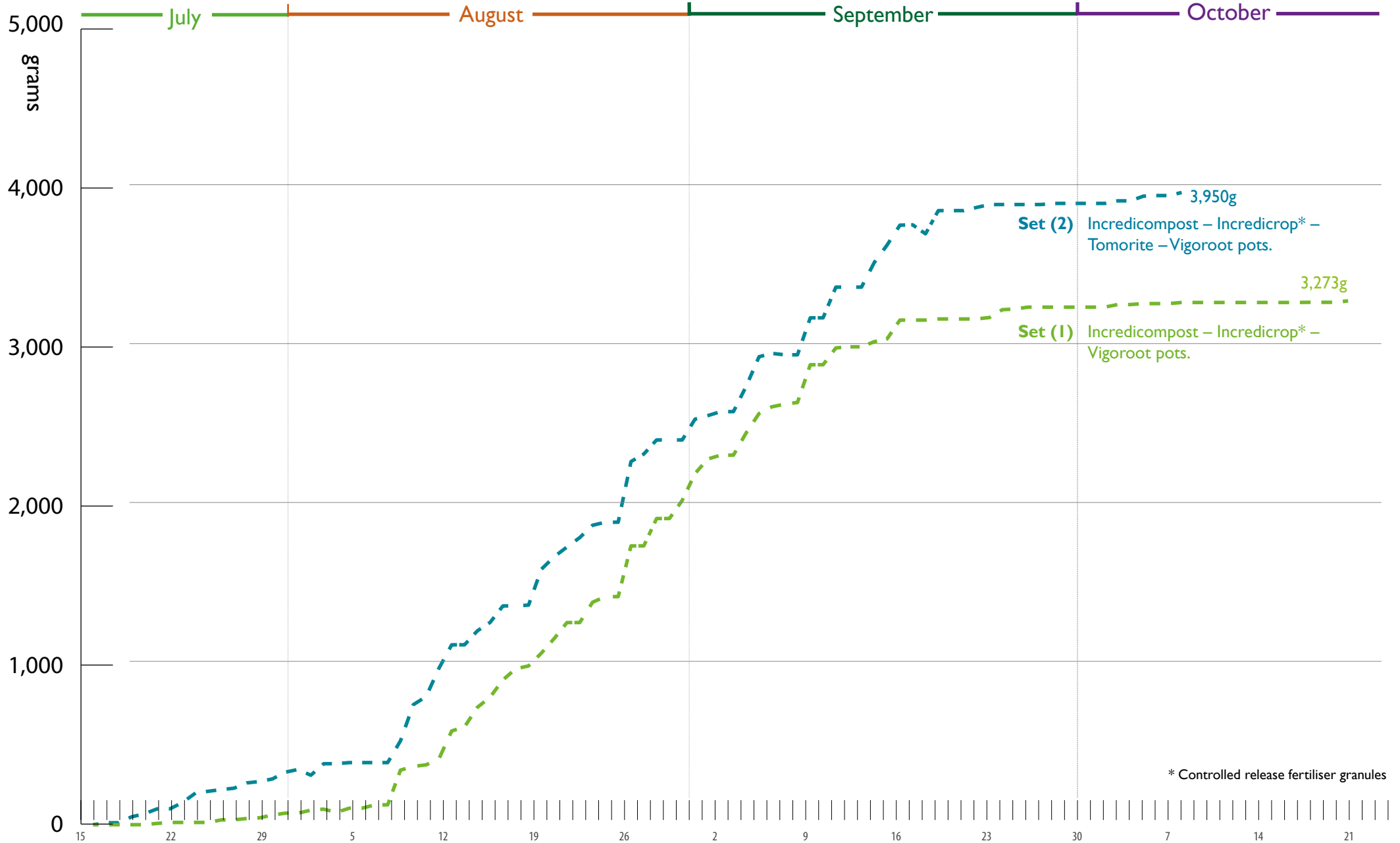
Attachment (5) Table of Yields

Set Number	Plant Number	Gms / plant	Ranking	Pods	Gms/pod	Substrate	Fertiliser	Pot
1	1	327		34	9.6			
Hestia F1	2	402		42	9.6			
	3	416		54	7.7			
	4	708		74	9.6			
	5	706		89	7.9			
	6	714		87	8.2			
	TOTAL SET 1	3273		380	8.6	Incredicompost	Incredicrop	Vigoroot
	Grams mean/plant 545.5		5					
2	7	489		76	6.4			
Hestia F1	8	702		108	6.5			
	9	1017		166	6.3			
	10	382		51	7.5			
	11	392		58	6.8			
	12	968		122	7.9		Incredicrop	
	TOTAL SET 2	3950		581	6.8	Incredicompost	Tomorite	Vigoroot
	Grams mean/plant 558.3		3					

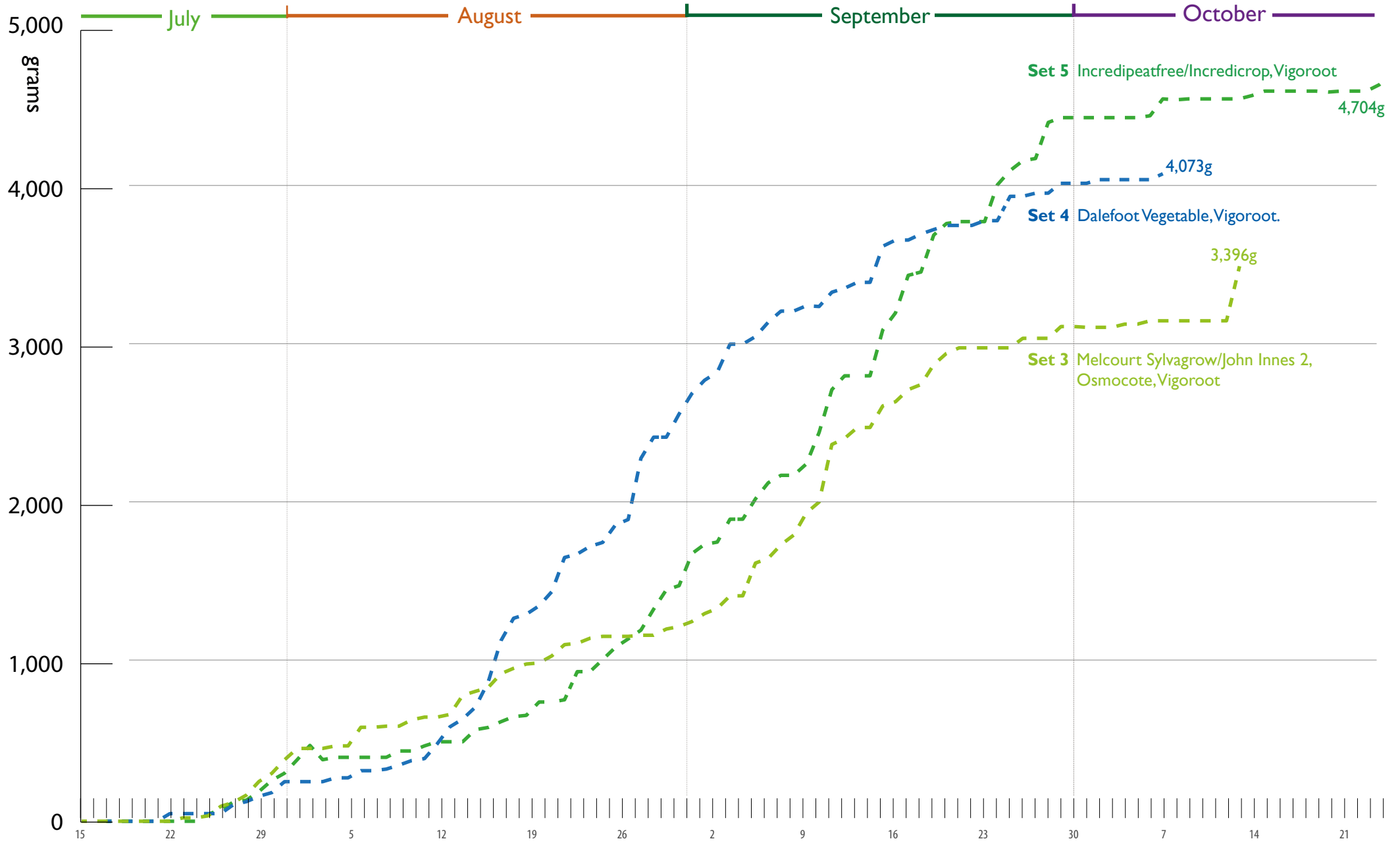
Attachment (5) (contd.) Table of Yields

(B) CLIMBING RUNNERS								
3	13	671		53	12.7			
Benchmark	14	387		28	13.8			
F1	15	760		46	16.9			
	16	696		48	14.5			
	17	515		32	16.1			
	18	367		20	18.3			
	TOTAL SET 3	3396		227	14.9	Sylvagrow	Osmocote	Vigoroot
	Grams mean/plant 566.0		4			John Innes 2		
						Peat free		
4	19	916		49	18.7			
Benchmark	20	671		52	12.9			
F1	21	827		44	18.8			
	22	510		37	13.8			
	23	553		44	12.6			
	24	596		37	16.1			
	TOTAL SET 4	4073		263	15.5	Dalefoot	None	Vigoroot
	Grams mean/plant 678.8		2			Vegetable		
						Peat Free		
5	25	757		54	14.0			
Benchmark	26	887		57	15.6			
F1	27	1085		57	19.0			
	28	897		63	14.2			
	29	441		44	10.0			
	30	637		46	13.8			
	TOTAL SET 5	4704		321	14.6	Incredipeatfree	Incredicrop	Vigoroot
	Grams mean/plant 784.0		1					

Attachment (6) Cumulative Yields Sets 1 and 2



Attachment (6) Cumulative Yields Sets 3, 4 and 5



Attachment (7) Proposed Programme of Trials 2022

						NB.	'Mono': One looped bar	
							'Duo': Two looped bars	
GROUP	Ref. No	Location	Plants	Device				
ASSESSMENT – COMPARATIVE YIELDS								
In House Formal	1	WSL	6	Bean Runner Balcony Mono		Benchmaster	Incredipeatfree.Incredicrop recommended dose.	
	2	WSL	6	“ “		“ “	Incredipeatfree. Incredicrop recommended dose X 2.	
	3	WSL	6	“ “		“ “	New Horizon peat-free. Gro-sure feed tablets. Recommended dose.	
	4	WSL	6	“ “		“ “	Miracle Gro premium peat-free. Continuous release all purpose plant food. Recommended dose.	
All above – Analysis of (a) Compost (b) Fertiliser granules start and end of trial.								
	5	NF	6	Bean Open ground Mono		Benchmaster (1) Hestia (1)		No added fertiliser.
			6	“ “ Mono 2 plant		Benchmaster (2) Hestia (1)		No added fertiliser
	6	NF	6	Bean Open ground Mono		Benchmaster (1)		No added fertiliser
			6	“ “Mono 2 plant		Benchmaster (2)		No added fertiliser
	7	NF		Bean Open ground on crossed canes 12 Benchmaster plants (6X2)				No added fertiliser
	8	NF	6	Bean open ground Mono		Benchmaster	With Tomorite	
			6	Bean open ground Mono 2 plant Benchmaster			“ “	
	9	NF	6	Bean open ground Mono		Benchmaster	With Neudorff liquid organic.	
			6	Bean open ground Mono 2plant		Benchmaster	“ “ “ “	
Field Trials	NB.	'Mono': One looped bar			ASSESSMENT OF – ASSEMBLY – CULTIVATION			
		'Duo': Two looped bars						
	10	Own premises	100	Bean Balcony Mono		Benchmaster	Incredipeatfree/Incredicrop recommended dose X 2.	
							Continuation of 2021	Starter Kits only
	11	“	50	Open ground Mono One plant		Benchmaster		
	12	“	50	“ “ Two plant		Benchmaster		
	13	“	50	Open Ground Mono One plant Benchmaster One plant Hestia				
	14	“	50	Open Ground Mono Two plants Benchmaster One plant Hestia				
Teachers, Therapists, Leaders –Social/Community				ASSESSMENT – SUITABILITY FOR USE IN STH (Social and Therapeutic Horticulture)				
	15	Own premises	50	Bean Balcony Mono		Benchmaster (1)	Incredipeatfree/Incredicrop recommended dose x 2.	
	16	“	100	Open ground Mono		Benchmaster (2)	Hestia (1)	
EXPERT OPINION								
Gardening Experts	17	“	50	Bean Balcony Mono		Benchmaster (1)	Incredipeatfree/Incredicrop recommended dose.	
	18	“	50	Open ground Mono		Benchmaster (1)		
Note: All pots either bamboo fibre or recycled plastic.								

Attachment (8) Volunteers List

Trial of plant support for growing climbing runner beans (*Phaseolus coccineus*) part horizontally.
Participants

Club or Association		Location			
			North Wales Cottage Garden Society	✓	Denbigh
			North Warnborough and District Garden Club	✓	Surrey
Ainsdale Horticultural Society	✓	Merseyside			
Alresford (Bramdean)	✓	Hampshire Federation	Reading Gardeners	✓	Berkshire
Aldershot Floral Design Club	✓	Hampshire Federation	Rettendon Gardening Association	✓	Essex
Alveston Allotments	✓	Gloucestershire	RHS Garden Wisley	✓	Surrey
Ampneys Garden Club	✓	Gloucestershire	Ruspidge Gardening Club	✓	Gloucestershire
Barbican Horticultural Society	✓	London EC2	School	✓	Gloucestershire
Bridge Community Farm	✓	Merseyside	School	✓	Gloucestershire
Burford & District Horticultural Society	✓	Gloucestershire	School	✓	Gloucestershire
Carrickfergus Garden Society	✓	County Antrim	School	✓	Surrey
Caterham & District Horticultural Society	✓	Surrey	Severn Vale Garden Society	✓	Gloucestershire
Cheltenham Horticultural Society	✓	Gloucestershire	Stenhouse Allotments	✓	Edinburgh
Gloucestershire Federation of Gardening Clubs	✓	Gloucestershire	St Dunstons Canterbury	✓	Kent
Down Ampney Gardening Club	✓	Gloucestershire	Salisbury Allotments and Gardens Association	✓	Wiltshire
Felixstowe Garden Club	✓	Essex	Sevenside Cottage Garden Society	✓	Gloucestershire
Fowlmere and Thriplow Gardening Club	✓	Hertfordshire	Shrewsbury Trials Group	✓	Shropshire
Herbiseed Focus Group	✓	Warwickshire	Swalcliffe & Tadmerton Horticultural Society	✓	Oxfordshire
Hallow Allotments	✓	Worcestershire			
Box Village Gardening Club	✓	London W7	The Royal Caledonian Horticultural Society	✓	Edinburgh
Hereford and District Fuschias Association	✓	Herefordshire	The Therapy Garden	✓	Surrey
Hurst Allotments	✓	Berkshire	THRIVE	✓	Berkshire
Independent	✓	London SE10	Tilehurst Horticultural Association	✓	Berkshire
Independent	✓	London SW19	Trade	✓	Berkshire
Independent	✓	London NW5	Trade	✓	Essex
Independent Godalming	✓	Surrey	Trade	✓	Derbyshire
Independent Chipping Norton	✓	Oxfordshire	Twyford and Ruscombe Horticultural Society	✓	Berkshire
Independent, Portchester	✓	Hampshire			
Independent, Hurstbourne Priors	✓	Hampshire	University Hospitals Dorset NHS Foundation Trust Stroke Unit	✓	Dorset
Kent Federation	✓	Kent			
Leeds Research Group	✓	Yorkshire	Wells Community Hospital	✓	Norfolk
Lesbury Garden Club	✓	Northumberland	Whelford (Fairford)	✓	Gloucestershire
Llandudno U3A	✓	Conwy	Whiteparish		Wiltshire
Minchinhampton Gardening Club	✓	Gloucestershire	Wildgoose Rural Training		Worcestershire
Mickelton Gardening Club	✓	Gloucestershire	Woolton Hill Gardeners Club	✓	Hampshire
Morpeth Garden Club	✓	Northumberland	Wolverhampton Horticultural Society	✓	West Midlands
Ninewells Community Garden	✓	Dundee	Wonersh and District Garden Club		Surrey
Norfolk and Norwich Horticultural Society	✓	Norfolk			

*"Independent" gardener coming to the trial via social media – not through a club or association

Attachment (9) Beans trial 2021 – Water retention

21/07/2021: Watered three times: Per plant 1.0 litre, 0.5 litre, 1.0 litre. Last 18.15. Temperature 30°

Measured 22/07/2021 07.30.

	Plant	Wet compost at level in pot above ground (cm)		
		Highest	Lowest	Average
SET				
T&M	30	17	13	15.00
	29	16	10	13.00
	28	16	11	13.50
	27	15	13	14.00
	26	18	12	15.00
	25	16	14	15.00
			MEAN	14.25
DALEFOOT	24	22	14	18.00
	23	20	15	17.50
	22	18	15	16.50
	21	24	14	19.00
	20	25	15	20.00
	19	20	13	16.50
			MEAN	17.92
MELCOURT	18	20	21	20.50
	17	18	18	18.00
	16	20	15	17.50
	15	14	11	12.50
	14	20	7	13.50
	13	11	11	11.00
			MEAN	15.50

Attachment (10) Photographs



1. All plants potted 7 June.



2. Dalefoot Problem



3. Poorly Hestia

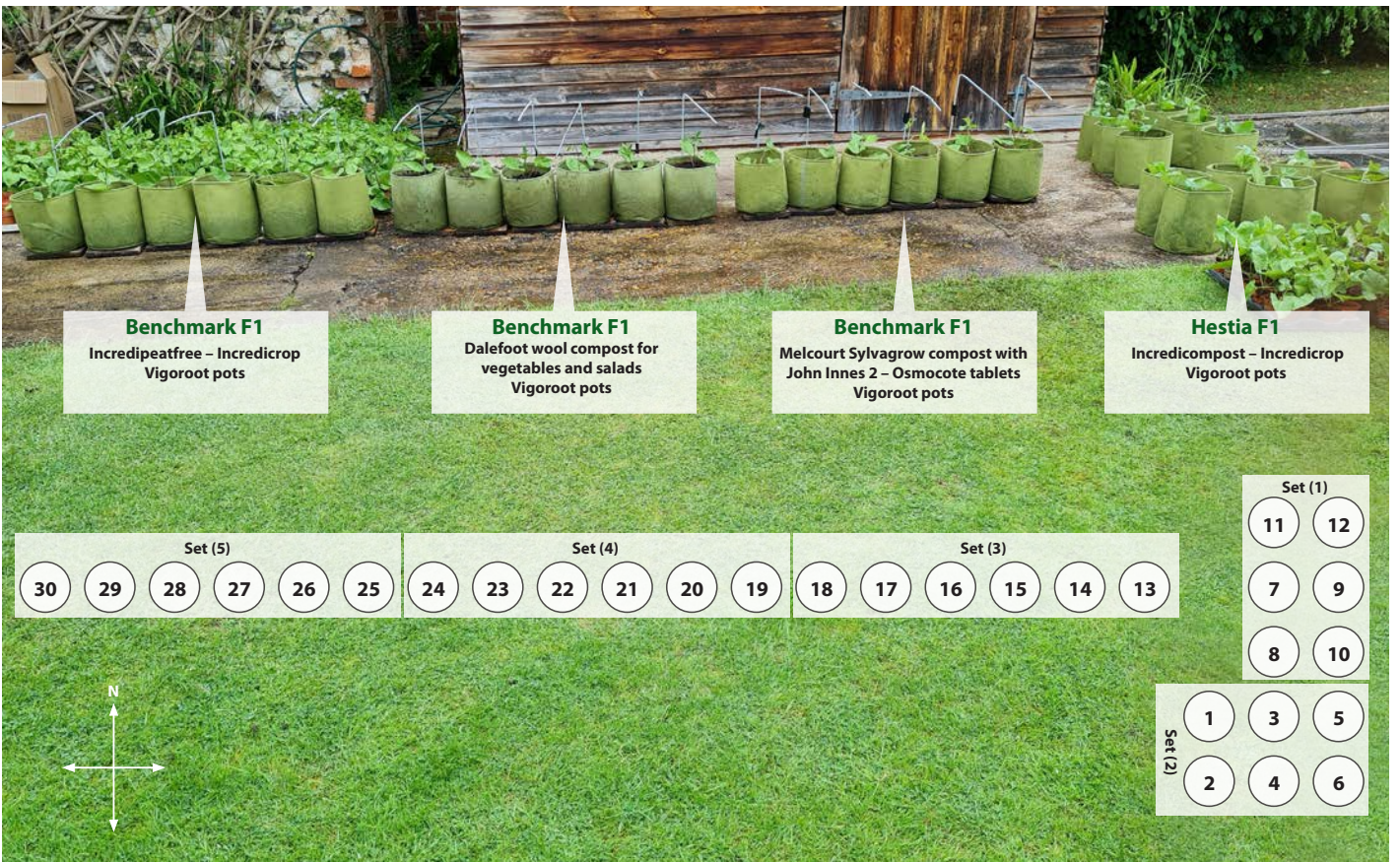


4. Hestia all in bloom 1 July

Attachment (12) (Contd.) Photographs



5. Water levels in compost



6. Layout