

# SCEPTREplus

## Sweetcorn Herbicide Trials 2019

19 June 2019, 13.00 – 15.00

MilePond field

Barfoots

Birdham Road

Chichester

West Sussex, PO20 7DU



## SCEPTREplus Sweetcorn Herbicide Trials 2019

The afternoon will cover SCEPTREplus trials covering both pre- and post-emergence weed control in sweetcorn crops. In the pre-emergence weed control trial, five new herbicides are being tested either alone or in combination with pendimethalin (Stomp Aqua). In the post-emergence weed control trial, 11 treatments are being tested against the standard of nicosulfuron (Fornet 6OD) + mesotrione (Callisto). Angela Huckle of RSK ADAS will explain the work, highlight key outcomes to date and give visitors the opportunity to look at the plots themselves.

There are two trial sites, the first (MilePond) has a lower weed burden which consists of mainly fat hen, with a little chickweed, and nightshade. The second site on Honer Lane has a very high weed burden of mainly polyganums, particularly redshank, with some fat hen.

### Programme

**13:00** Meet at MilePond field, Barfoots, Birdham Road, Chichester, West Sussex, PO20 7DU

**13:10** Brief overview of wider AHDB activity

**13:20** 1<sup>st</sup> trial tour and opportunity to look round trial plots and for informal discussion with Angela Huckle

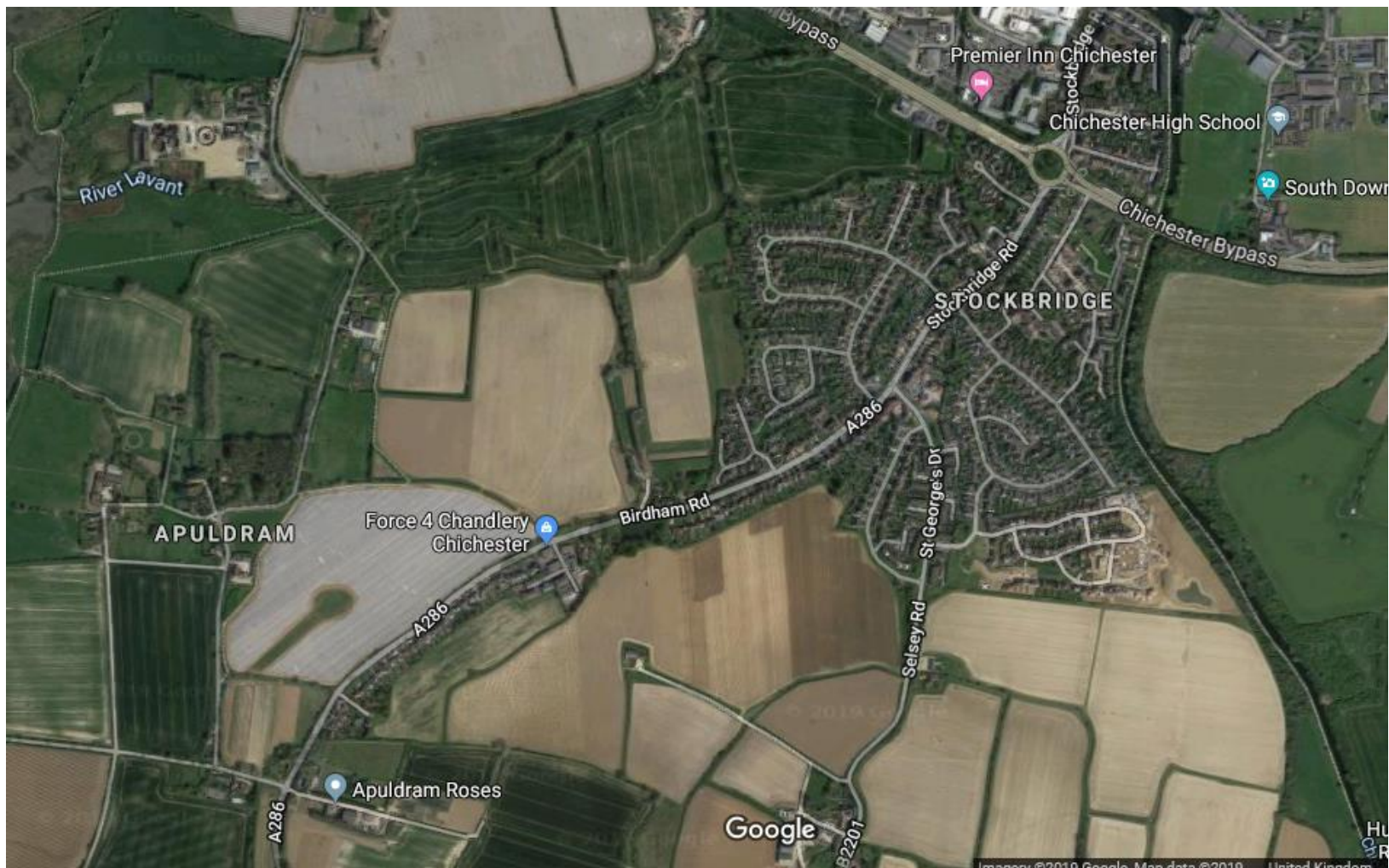
**14:00** *Depart for 2<sup>nd</sup> trial site – Broom field, Honer Lane, PO20 1LY.*

*To enter the field, a 4 x 4 or vehicle with reasonable ground clearance will be needed. Cars can park on the verge in the lane, but take care not to obstruct local traffic*

**14:15** 2<sup>nd</sup> trial tour and opportunity to look round trial plots and for further informal discussion with Angela Huckle

**15:00** End

## Location 1 – MilePond





## Background

The Sceptreplus herbicide screens on sweetcorn cover both pre- and post-emergence application timings for weed control. At this trials open afternoon initial results from both screens will be available and an opportunity to view the trials in the field is provided. The trial builds on herbicide screens carried out on sweetcorn in 2017 which looked at alternatives or additions to pendimethalin for improving pre-emergence weed control. In addition, for 2019, more work has been carried out in separate trials on post-emergence treatments.

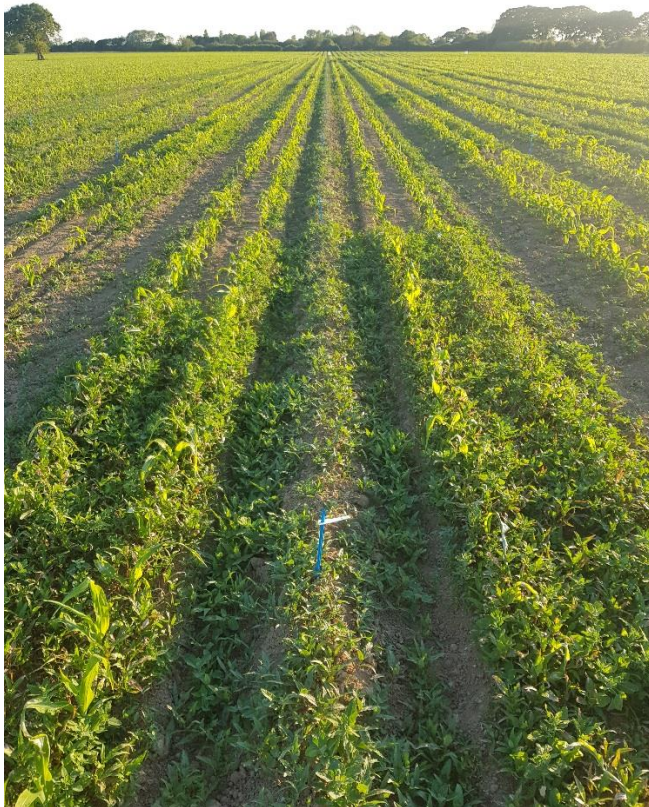
This SCEPTREplus trial covers early season drilled sweetcorn grown under polythene covers. This is understood to be a more sensitive timing for applying herbicides as it is cooler and the crop is growing slower. It is also a stern test of the herbicides as weed growth is often encouraged under crop covers.

Sweetcorn is not competitive in its early growth stages; any weed competition can lead to a significant reduction in yield. If species such as barnyard grass, common millet, mayweeds, polyganums and fat hen are uncontrolled, it is estimated that yield can be reduced by up to 15-20% (AHDB Gap analysis 2018)

As crop safety under typical commercial growing conditions is a key concern, the site selected is on an appropriate soil in an area where sweetcorn is commonly grown. Five new products are being screened in the pre-emergence trial both alone and in tank mixes with currently approved products which include four coded products as well as Emerger (aclonifen). Wing-P and Dual Gold are also included in the screen as new standards alongside Stomp Aqua after obtaining EAMU authorisation for their use in sweetcorn following the 2017 trials. Seven new products are being screened in the post-emergence trial both alone and in tank mixes with currently approved products.

The products being tested focus on the control of key gaps in weed species of broad leaved weeds and grasses at pre- and post-emergence application timings. The weed species targets, as identified by sweetcorn growers and agronomists in AHDB's GAP analysis (2016), include blackgrass, brome, common millet, wild oats, cereal and OSR volunteers, knotgrass, pale persicaria, and marestail as particular issues. Amaranthus is an increasing issue. Lack of control of these weeds is due to a lack of available herbicides to cover the full weed spectrum.

Herbicides were selected in discussion with Spencer Collins and Viv Powell of AHDB Horticulture. Herbicides included in the trials are those already are approved for use in the EU or actives with data available on the IR4 database; with the aim that these are most likely to have approval for use on the UK crop.



*Figure 1. Pre-emergence sweetcorn trial at Broom field, one week after polythene removal – 21 May*



*Figure 2. Post-emergence sweetcorn trial at Broom field, 10 days after herbicide application – 30 May*

**Crop information:** MilePond – drilled 16/04/19  
 Broom – drilled 10/04/19  
 Plastic removed 13/05/19

Shorter height rows, are due to where the plastic blew off the crop in Storm Hannah, and are not a phytotox effect

**Trial Design:**

- Fully randomised trial (3 replicates)
- Double untreated control

**Pre-emergence trial**

Commercial standards

- 3. Stomp Aqua 3.3 L/ha
- 3. Stomp Aqua 1.6 L/ha
- 5. Wing-P 4.0 L/ha
- 6. Stomp Aqua 3.3 L/ha + Dual Gold 1.4 L/ha
- 7. Stomp Aqua 1.6 L/ha + Dual Gold 1.4 L/ha

*Sprays applied once on 10 April (Broom) or 16 April (MilePond)*

*All treatments applied at the same time*

*Plot size: 5.0 m x 3.3 m (4 rows) – spray width 3m*

### ***Post-emergence trial***

- Commercial standard.
- 3.Callisto 0.75 L/ha + Fornet 60D 0.75 L/ha
- Pre-em (Stomp Aqua 3.3 L/ha) applied to treatments 5, 9, 11-14 once on 10 April (Broom) or 16 April (MilePond)

*Post-emergence treatments applied once on 22 May*

*All treatments applied at the same time*

*Plot size: 5.0 m x 3.3 m (4 rows) – spray width 3m*

### **Assessments:**

**Weed control** (using weed counts, % cover of each weed species, % overall plot cover of all weeds) at four times as below

- After the polythene cover is removed (approximately 4 weeks after crop emergence) (21<sup>st</sup> May 2019)
- Two weeks after the post-emergence herbicide application (4<sup>th</sup> June 2019)
- Four weeks after the post-emergence herbicide application (due mid June) – around now
- Just before harvest (August)

**Crop safety** assessments at four times - at seven days after emergence for pre-em trial (29<sup>th</sup> April); after the polythene cover is removed (21<sup>st</sup> May) and; at two and four weeks after post-emergence treatment application.

Final assessment will be carried out at just before harvest if any significant differences are still apparent.



*Figure 3. Effect of a coded product on sweetcorn 10 days after post-emergence application, note healthy new growth as the crop recovers from initial scorch– 30 May*

## Treatment table – pre-emergence trial

Treatment	Code or product	Active Ingredient	Rate of use (product) L or kg/ha	Water volume L/ha	Timing
1 + 2	Control	-	N/A	200	-
3*	Stomp Aqua	pendimethalin	3.3	200	Pre-em
4*	Stomp Aqua	pendimethalin	1.6	200	Pre-em
5*	Wing-P	dimethenamid-P + pendimethalin	4.0	200	Pre-em
6*	Stomp Aqua + Dual Gold	pendimethalin + s-metolachlor	3.3 1.4	200	Pre-em
7*	Stomp Aqua + Dual Gold	pendimethalin + s-metolachlor	1.6 1.4	200	Pre-em
8	Emerger	aclonifen	1.5	200	Pre-em
9	AHDB9987	N/D	-	200	Pre-em
10	AHDB9918	N/D	-	200	Pre-em
11	AHDB9917	N/D	-	200	Pre-em
12	Stomp Aqua + Emerger	pendimethalin + aclonifen	3.3 1.5	200	Pre-em
13	Stomp Aqua + AHDB9987	pendimethalin + N/D	3.3 -	200	Pre-em
14	Stomp Aqua + AHDB9918	pendimethalin + N/D	3.3 -	200	Pre-em
15	Stomp Aqua + AHDB9917	pendimethalin + N/D	3.3 -	200	Pre-em
16	AHDB9988	N/D	-	200	Pre-em

\* commercial standards



**Trial plan MilePond – pre-emergence (blue pegs)**

	<b>Block 1</b>	<b>Block 1</b>	<b>Block 2</b>		<b>Block 2</b>	<b>Block 3</b>	<b>Block 3</b>
Plot	108	116	208	Discard	216	308	316
Trt	Untreated	Camix 1.8 L/ha	Stomp Aqua 1.6 L/ha Dual Gold 1.4 L/ha		Stomp Aqua 3.3 L/ha	Stomp Aqua 3.3 L/ha	AHDB9917
	107	115	207	Discard	215	307	315
	AHDB9987	AHDB9918	AHDB9918		AHDB9917	Stomp Aqua 1.6 L/ha Dual Gold 1.4 L/ha	AHDB9987
	106	114	206	Discard	214	306	314
	Stomp Aqua 3.3 L/ha AHDB9987	Stomp Aqua 3.3 L/ha Dual Gold 1.4 L/ha	Wing-P 4.0 L/ha		Camix 1.8 L/ha	Untreated	Stomp Aqua 3.3 L/ha Dual Gold 1.4 L/ha
	105	113	205	Discard	213	305	313
	Stomp Aqua AHDB9917	AHDB9917	Stomp Aqua AHDB9917		Stomp Aqua 3.3 L/ha AHDB9987	Emerger 1.5 l/ha	Stomp Aqua 3.3 L/ha AHDB9918
	104	112	204	Discard	212	304	312
	Stomp Aqua 1.6 L/ha	Untreated	AHDB9987		Untreated	AHDB9918	Stomp Aqua 3.3 L/ha AHDB9987
	103	111	203	Discard	211	303	311
	Emerger 1.5 l/ha	Wing-P 4.0 L/ha	Stomp Aqua 3.3 L/ha Emerger 1.5 l/ha		Emerger 1.5 l/ha	Stomp Aqua AHDB9917	Stomp Aqua 1.6 L/ha
	102	110	202	Discard	210	302	310
	Stomp Aqua 1.6 L/ha Dual Gold 1.4 L/ha	Stomp Aqua 3.3 L/ha	Untreated		Stomp Aqua 1.6 L/ha	Stomp Aqua 3.3 L/ha Emerger 1.5 l/ha	Wing-P 4.0 L/ha
	101	109	201	Discard	209	301	309
	Stomp Aqua 3.3 L/ha Emerger 1.5 l/ha	Stomp Aqua 3.3 L/ha AHDB9918	Stomp Aqua 3.3 L/ha Dual Gold 1.4 L/ha		Stomp Aqua 3.3 L/ha AHDB9918	Untreated	Camix 1.8 L/ha

### Trial plan Broom - pre-emergence (blue pegs)

	<b>Block 3</b>	<b>Block 3</b>	<b>Block 2</b>	<b>Block 2</b>	<b>Block 1</b>	<b>Block 1</b>
Plot	316	308	216	208	116	108
Trt	Wing-P 4.0 L/ha	Stomp Aqua 3.3 L/ha Emerger 1.5 l/ha	Stomp Aqua 3.3 L/ha Dual Gold 1.4 L/ha	Stomp Aqua 3.3 L/ha Emerger 1.5 l/ha	Camix 1.8 L/ha	AHDB9917
	315	307	215	207	115	107
	Stomp Aqua 3.3 L/ha	AHDB9987	AHDB9987	AHDB9918	Stomp Aqua 3.3 L/ha	Stomp Aqua 3.3 L/ha Emerger 1.5 l/ha
	314	306	214	206	114	106
	Untreated	Emerger 1.5 l/ha	AHDB9917	Stomp Aqua 1.6 L/ha	Emerger 1.5 l/ha	Stomp Aqua AHDB9917
	313	305	213	205	113	105
	Stomp Aqua 3.3 L/ha AHDB9987	AHDB9917	Stomp, Dual Gold AHDB9917	Emerger 1.5 l/ha	Untreated	Wing-P 4.0 L/ha
	312	304	212	204	112	104
	Stomp Aqua AHDB9917	Untreated	Stomp Aqua 3.3 L/ha	Stomp Aqua 3.3 L/ha AHDB9918	Stomp Aqua 3.3 L/ha AHDB9987	Stomp Aqua 3.3 L/ha Dual Gold 1.4 L/ha
	311	303	211	203	111	103
	Stomp Aqua 3.3 L/ha Dual Gold 1.4 L/ha	Camix 1.8 L/ha	Untreated	Stomp Aqua 3.3 L/ha AHDB9987	Camix 1.8 L/ha	Untreated
	310	302	210	202	110	102
	Stomp Aqua 3.3 L/ha AHDB9918	Stomp Aqua 1.6 L/ha	Camix 1.8 L/ha	Wing-P 4.0 L/ha	Stomp Aqua 1.6 L/ha Dual Gold 1.4 L/ha	AHDB9987
	309	301	209	201	109	101
	Stomp Aqua 1.6 L/ha Dual Gold 1.4 L/ha	AHDB9918	Stomp Aqua AHDB9917	Untreated	Stomp Aqua 1.6 L/ha	AHDB9918

## Treatment table – post-emergence trial

All products applied at 200 L water volume

Trt. No.	T1 Pre-emergence		T2 Post-emergence After polythene removal (c. 4 leaves)	
	Product	Rate	Product	Rate
1	Untreated	-	Untreated	-
2	Untreated	-	Untreated	-
3*	-	-	Callisto Fornet 6OD	0.75 L/ha 0.75 L/ha
4	-	-	Callisto Fornet 6OD AHDB9856	0.75 L/ha 0.75 L/ha -
5	Stomp Aqua	3.3 L/ha	AHDB9856	-
6	-	-	AHDB9986 + AHDB9857	- -
7	-	-	AHDB9858	-
8	-	-	AHDB9867	-
9	Stomp Aqua	3.3 L/ha	AHDB9867	-
10	-	-	AHDB9866	-
11	Stomp Aqua	3.3 L/ha	AHDB9866	-
12	Stomp Aqua	3.3 L/ha	AHDB9859	1/3 rate
13	Stomp Aqua	3.3 L/ha	AHDB9859 (inter-row)	Full label rate
14	Stomp Aqua	3.3 L/ha	AHDB9990	-

\* commercial standard

## Active ingredients

Herbicide		active ingredient	Experimental approval needed
Stomp Aqua		pendimethalin 455 g/L	-
Callisto		mesotrione 100 g/L	-
Fornet 6OD		nicosulfuron 60 g/L	-
AHDB9856		-	✓
AHDB9986		-	✓
AHDB9857		-	✓
AHDB9858		-	✓
AHDB9867		-	✓
AHDB9866		-	✓
AHDB9859		-	✓
AHDB9990		-	✓

## Trial plan MilePond – post-emergence (white pegs)

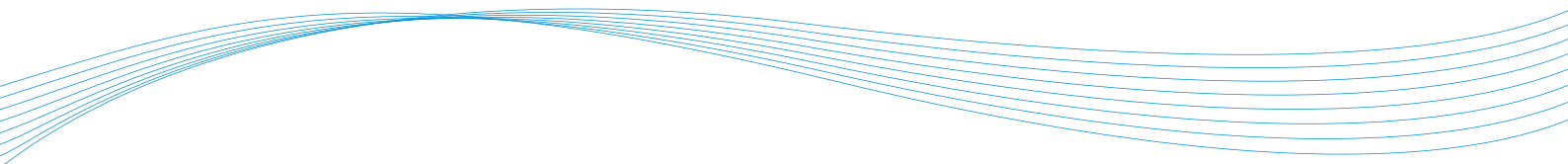
	<b>Block 1</b>	<b>Block 1</b>	<b>Block 2</b>		<b>Block 2</b>	<b>Block 3</b>	<b>Block 3</b>
Plot	107	114	207	Discard	214	307	314
Trt	<i>No pre-em</i>	<i>Stomp Aqua 3.3 L/ha</i>	Untreated		<i>Stomp Aqua 3.3 L/ha</i>	<i>Stomp Aqua 3.3 L/ha</i>	<i>Stomp Aqua 3.3 L/ha</i>
	Callisto 0.75 L/ha	AHDB9866			AHDB9990	AHDB9856	AHDB9867
	Fornet 0.75 L/ha						
	106	113	206	Discard	<i>No pre-em</i> 213	306	313
	<i>No pre-em</i>	<i>Stomp Aqua 3.3 L/ha</i>	<i>Stomp Aqua 3.3 L/ha</i>		Callisto 0.75 L/ha	<i>Stomp Aqua 3.3 L/ha</i>	<i>Stomp Aqua 3.3 L/ha</i>
	AHDB9867	AHDB9856	AHDB9866		Fornet 0.75 L/ha	AHDB9859	AHDB9990
					AHDB9856		
	105	112	205	Discard	212	305	312
	<i>No pre-em</i>	<i>Stomp Aqua 3.3 L/ha</i>	<i>No pre-em</i>		Untreated	Untreated	<i>No pre-em</i>
	AHDB9858	AHDB9867	AHDB9986				AHDB9866
	104	111	204	Discard	211	304	311
	<i>Stomp Aqua 3.3 L/ha</i>	Untreated	<i>No pre-em</i>		<i>Stomp Aqua 3.3 L/ha</i>	<i>Stomp Aqua 3.3 L/ha</i>	<i>Stomp Aqua 3.3 L/ha</i>
	AHDB9859		AHDB9866		AHDB9856	AHDB9866	AHDB9859
							(inter-row)
	103	110	203	Discard	210	303	310
	<i>Stomp Aqua 3.3 L/ha</i>	<i>No pre-em</i>	<i>No pre-em</i>		<i>No pre-em</i>	Untreated	<i>No pre-em</i>
	AHDB9859	AHDB9986	AHDB9867		AHDB9858		Callisto 0.75 L/ha
	(inter-row)						Fornet 0.75 L/ha
	102	<i>No pre-em</i> 109	202	Discard	209	302	309
	Untreated	Callisto 0.75 L/ha	<i>Stomp Aqua 3.3 L/ha</i>		<i>Stomp Aqua 3.3 L/ha</i>	<i>No pre-em</i>	<i>No pre-em</i>
		Fornet 0.75 L/ha	AHDB9859		AHDB9867	AHDB9867	AHDB9986
		AHDB9856					
	101	108	201	Discard	208	301	<i>No pre-em</i> 308
	<i>Stomp Aqua 3.3 L/ha</i>	<i>No pre-em</i>	<i>No pre-em</i>		<i>Stomp Aqua 3.3 L/ha</i>	<i>No pre-em</i>	Callisto 0.75 L/ha
	AHDB9990	AHDB9866	Callisto 0.75 L/ha		AHDB9859	AHDB9858	Fornet 0.75 L/ha
			Fornet 0.75 L/ha		(inter-row)		AHDB9856

## Trial plan Broom – post-emergence (white pegs)

	<b>Block 3</b>	<b>Block 3</b>	<b>Block 2</b>	<b>Block 2</b>	<b>Block 1</b>	<b>Block 1</b>
Plot	314	307	214	207	114	No pre-em 107
Trt	<i>Stomp Aqua 3.3 L/ha</i>	<i>No pre-em</i>	<i>No pre-em</i>	<i>Stomp Aqua 3.3 L/ha</i>	<i>Stomp Aqua 3.3 L/ha</i>	Callisto 0.75 L/ha
	AHDB9859	AHDB9867	Callisto 0.75 L/ha	AHDB9866	AHDB9856	Fornet 0.75 L/ha
	(inter-row)		Fornet 0.75 L/ha			AHDB9856
	313	306	<i>No pre-em</i> 213	206	113	106
	<i>Stomp Aqua 3.3 L/ha</i>	<i>Stomp Aqua 3.3 L/ha</i>	Callisto 0.75 L/ha	<i>Stomp Aqua 3.3 L/ha</i>	<i>No pre-em</i>	<i>No pre-em</i>
	AHDB9867	AHDB9990	Fornet 0.75 L/ha	AHDB9859	AHDB9986	AHDB9867
			AHDB9856			
	312	305	212	205	112	105
	<i>Stomp Aqua 3.3 L/ha</i>	<i>No pre-em</i>	<i>No pre-em</i>	Untreated	<i>No pre-em</i>	<i>Stomp Aqua 3.3 L/ha</i>
	AHDB9856	AHDB9866	AHDB9866		AHDB9858	AHDB9866
	<i>No pre-em</i> 311	304	211	204	111	104
	Callisto 0.75 L/ha	<i>Stomp Aqua 3.3 L/ha</i>	Untreated	<i>No pre-em</i>	Untreated	Untreated
	Fornet 0.75 L/ha	AHDB9866		AHDB9858		
	AHDB9856					
	310	303	210	203	110	103
	<i>Stomp Aqua 3.3 L/ha</i>	Untreated	<i>No pre-em</i>	<i>Stomp Aqua 3.3 L/ha</i>	<i>Stomp Aqua 3.3 L/ha</i>	<i>No pre-em</i>
	AHDB9859		AHDB9867	AHDB9856	AHDB9990	AHDB9866
	309	302	209	202	109	102
	<i>No pre-em</i>	<i>No pre-em</i>	<i>Stomp Aqua 3.3 L/ha</i>	<i>Stomp Aqua 3.3 L/ha</i>	<i>Stomp Aqua 3.3 L/ha</i>	<i>Stomp Aqua 3.3 L/ha</i>
	Callisto 0.75 L/ha	AHDB9986	AHDB9867	AHDB9990	AHDB9859	AHDB9859
	Fornet 0.75 L/ha				(inter-row)	
	308	301	208	201	108	101
	Untreated	<i>No pre-em</i>	<i>Stomp Aqua 3.3 L/ha</i>	<i>No pre-em</i>	<i>Stomp Aqua 3.3 L/ha</i>	<i>No pre-em</i>
		AHDB9858	AHDB9859	AHDB9986	AHDB9867	Callisto 0.75 L/ha
			(inter-row)			Fornet 0.75 L/ha



Printed publications & online resources for sweetcorn growers



## Research & Development and Knowledge Exchange Priorities for Sweetcorn -

A number of crop groups have published R&D and KE priorities to guide AHDB funded work for the specific crop. Sweetcorn is considered a small crop in terms of levy received. There is no 'Sweetcorn Growers' Association' however, our guiding principle is 'sweetcorn levy for sweetcorn growers'; therefore, we consult with growers and work with contractors to deliver on needs year on year. The SCEPTREplus sweetcorn herbicide trial (and open day 19/06/2019); sweetcorn EAMUs and the sweetcorn crop walkers guide are examples of what we do specifically for sweetcorn growers.

## Sweetcorn Gap Analysis – AHDB Horticulture projects CP 132 & CP 132a & AHDB Horticulture Risk Registers

The 'Pest / Disease / Weeds' Frequency & Financial Impact Gap Analysis 2019 paper lists crop protection issues of sweetcorn and provides an indication of the level of risks posed to marketable yields when controls are inadequate. To help us refine this information and to cater for all sites, growers present at the 19 June 2019 SCEPTREplus open afternoon will be asked to amend the paper, as necessary -

- Do growers agree with frequency & crop loss values? If not, growers are to write their preferred pest / disease / weed frequency score (1 to 5 scale with 5 being 'always present') and; estimate the financial impact in value (in £ millions per annum for the whole UK crop).

Growers should include any other information pertaining to crop protection eg are there resistance to pesticide issues / has there been breakdown in controls with specific actives?

In addition, growers are invited to -

- Let us know if there are other research priorities pertaining to sweetcorn (other than pests/diseases/weeds) that AHDB should focus on;
- If they would like to meet with other sweetcorn growers eg once a year to look at priorities / work together to publish a research and KE strategy;
- Share any other thoughts of relevance to growing which the AHDB should note.

## Chlorate

Please note that the proposed chlorate MRL for sweetcorn is 0.1mg/kg of produce



## Sweetcorn Crop Walkers' Guide



<https://horticulture.ahdb.org.uk/publication/sweetcorn-crop-walkers-guide>

Release Date:

31/05/2018

The [Crop Walkers' Guide](#) aims to assist growers, agronomists when monitoring crops. It is designed for use in the field, to help with the accurate identification of pests, their predators, diseases, nutritional deficiencies and physiological disorders within a crop. Images of key stages of each subject along with typical symptoms have been included, together with bullet point comments to help with identification.

## Sweetcorn Factsheet 14/16 'Nitrogen and phosphorus recommendations for optimising yield and quality of sweetcorn



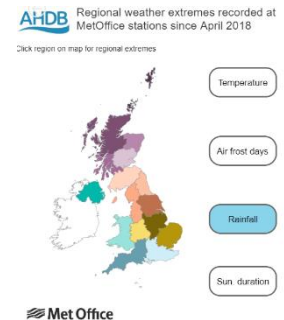
<https://horticulture.ahdb.org.uk/publication/1416-nitrogen-and-phosphorus-recommendations-optimising-yield-and-quality-sweetcorn> Release Date: 18/11/2016

[The factsheet](#) provides results of nitrogen (N) and phosphorus (P) response experiments on sweetcorn (*Zea mays L. var. rugosa*) from work undertaken in AHDB Horticulture project FV 409, which was carried out during 2013 and 2014 to improve the understanding of sweetcorn responses to N and P.

## Weather

### WeatherHub

The AHDB WeatherHub brings together sources of weather and related data. It includes information on air temperatures, rainfall, relative humidity, sunshine duration, wind speed, soil moisture, soil temperature and solar radiation. WeatherHub tools can be used to assist with pest, disease and soil management decisions. This version of the WeatherHub is based on historic data. For daily data, visit the [AHDB Cereals & Oilseeds WeatherHub](https://ahdb.org.uk/cereals-oilseeds-weatherhub) page.



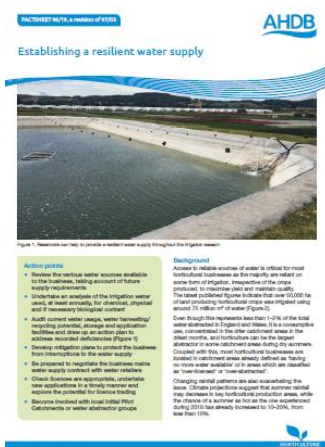
## AHDB Water online pages and publications

<https://ahdb.org.uk/topic/natural-resources/water>

<https://ahdb.org.uk/knowledge-library/protecting-the-water-supply-for-your-crops>

Recent drought conditions have shown how important it is to protect water supplies for the future. There are a number of things growers can do to ensure their water supply is resilient during times of severe weather. AHDB has dedicated drought pages to help growers to review water sources available in their area, audit current water usage, consider options for recycling, storage or improving irrigation efficiency and information on negotiating a mains water contract. Guidance on water abstraction licences and advice on how to plan for water supply interruptions is also provided.

### Water Factsheet



Provides information on how to protect water supplies during extreme weather conditions & includes -

- Sources of irrigation water
- Storage and water management
- Water licensing legislation

<https://horticulture.ahdb.org.uk/publication/establishing-resilient-water-supply>

**Assessing the weather impact - scenarios for 2019**

2018 is likely to be remembered for some extreme weather. The UK was not alone with much of Europe, Australia and America, also affected.

<https://ahdb.org.uk/assessing-the-weather-impact-scenarios-for-2019>

**Satellites for Agriculture**

AHDB have collaborated with the Satellite Applications Catapult, the UK’s leading authority for satellite technology to produce an overview of the opportunities available to farmers and growers from the space sector.

The main focus of the AHDB guide is on Earth observation, but satellite communications and navigation systems are also covered.

Satellites can assist growers with:

- Detecting and controlling pests and disease
- Understanding water and nutrient status
- Planning crop nutrition programmes
- Informing in-season irrigation
- Predicting yields
- Estimating harvest timing



Satellites for agriculture



Rapid developments in this area are enabling increased connectivity and observational capability; coupling these developments with ‘smarter’ computing, data infrastructures and analytics is increasing the possibilities for the use of satellite technologies for farmers and growers. These new opportunities for products, services and decision support also create challenges for the land-based sector to ensure that technological advances can be effectively harnessed to deliver their potential.

<https://ahdb.org.uk/knowledge-library/satellites-for-agriculture>

**Brexit online pages and publications**

**Horizon - Brexit prospects for UK agri-food trade**

Understand how agri-food trade could be affected once the UK leaves the EU, under both an agreed withdrawal and under a ‘no deal’ scenario.



<https://ahdb.org.uk/knowledge-library/brexit-prospects-for-uk-agri-food-trade>

**Horizon- Brexit prospects for UK horticulture trade**

The aim of this report is to provide readers with an understanding of how Horticulture trade could be affected once the UK leaves the EU, under both an agreed withdrawal and under a ‘no deal’ scenario.



<https://ahdb.org.uk/knowledge-library/brexit-prospects-for-uk-horticulture-trade>

**Preparing for Change: The Characteristics of top Performing Farms**

Learn the things which set the highest-performing farms apart from the rest and improve your own farm performance

<https://ahdb.org.uk/knowledge-library/horizon-preparing-for-change-the-characteristics-of-top-performing-farms>

**Brexit toolkit**

These resources are available to help you look at the specific business areas needing improvement that you've identified from completing the resilience check list. While many of these tools have been tailored for individual sectors, the principles can be applied across all farm enterprises.

<https://ahdb.org.uk/brexit-toolkit-legacy>



**Crop Nutrition / RB 209**

**RB209 Section 1 Principles of nutrient management and fertiliser use**

The AHDB Nutrient Management Guide (RB209) offers best practice guidance on the application of mineral fertilisers, manures and slurries <https://ahdb.org.uk/knowledge-library/rb209-section-1-principles-of-nutrient-management-and-fertiliser-use>

**[management-and-fertiliser-use](https://ahdb.org.uk/knowledge-library/rb209-section-1-principles-of-nutrient-management-and-fertiliser-use)**



**Section 2 Organic materials**

In this section you will find information on the nutrient content of organic materials such as manures, compost and digestate.



In this section you will find information on how to determine the nutrient requirements of vegetables and bulbs.


### Nutrient Management Guide (RB209) amendments - January 2019

For hard copy owners of RB209, please refer to this amendment sheet

<https://ahdb.org.uk/knowledge-library/nutrient-management-guide-rb209-amendments-january-2019>

### RB209: Nutrient Management App

All seven sections of the Nutrient Management Guide (RB209) can now be downloaded as an app.

[Download for iOS \(iPhone, iPad\)](#)   
[Download for Android devices](#)



**In this section you will find information on how to determine the nutrient requirements of grass and forage crops.**

**Which nutrient management system to use?**

Regular soil tests and the recommendations associated with them are vital tools that must be used in order to ensure the best possible crop yield

<https://ahdb.org.uk/knowledge-library/which-nutrient-management-system-to-use>

## GREATsoils

<https://ahdb.org.uk/greatsoils>

GREATsoils is the banner for AHDB soils Research & Knowledge Exchange work and outputs. A number of printed and digital publications, including webinars on soils; how to assess soil health and options for improving the health of soils publications are available on the AHDB GREATsoils website.

### Research Case Study: Testing the effect of organic material additions on soil health

Soil Biology and Soil Health Partnership research case study takes a closer look at the benefits of organic material additions

<https://ahdb.org.uk/knowledge-library/research-case-study-testing-the-effect-of-organic-material-additions-on-soil-health>

### Introduction to Soil Biology

This short factsheet is a starter's guide to what microorganisms, pathogens and pests inhabit the soil and the benefits or drawbacks of each of them.

<https://ahdb.org.uk/knowledge-library/introduction-to-soil-biology>

### Soil pH - how to measure and manage it based on an understanding of soil texture

Maintaining optimum soil pH values in all parts of the field is essential in order to maintain soil quality and health, crop quality and yield. This guidance document explains why soil pH is important and outlines the impact of soil type and texture on pH.

<https://ahdb.org.uk/knowledge-library/greatsoils-soil-ph-how-to-measure-and-manage-it-based-on-an-understanding-of-soil-texture>

### GREATsoils: Rating soil assessment methods

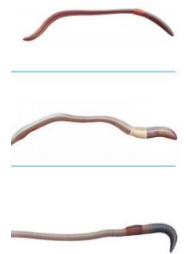
An insight into selected soil assessment tests for horticulture, soil infiltration rates and much more.

<https://ahdb.org.uk/knowledge-library/greatsoils-rating-soil-assessment-methods>

### How to count earthworms

These publications explain how each earthworm group has a unique and important function and give top tips on how identify and count each type.

<https://ahdb.org.uk/knowledge-library/how-to-count-earthworms>



### Soil management for horticulture

This soil management guide is a practical manual for growers and agronomists with the primary focus on soil assessment and management in horticultural cropping systems.

<https://ahdb.org.uk/knowledge-library/soil-management-for-horticulture>

### Testing Soil Health

Soil health is the ability of a soil to sustain, in the long term, its most important functions. A healthy soil will be able to sustain crop and livestock productivity and maintain or enhance environmental benefits. It requires a good balance of physical, chemical and biological soil properties, many of which can be tested.

<https://ahdb.org.uk/knowledge-library/testing-soil-health>

## Cross-sector pest communications & publications

### *Aphid News*

Aphid News provides regional information on aphid species and numbers. It is emailed weekly (Friday) during the aphid flight period (typically, April to November). The information can be used to help time treatments better, reduce harm to beneficial insects and lower the risk of selection for insecticide resistance by reducing unnecessary or poorly timed sprays.



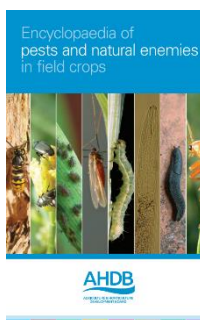
<https://ahdb.org.uk/aphid-news>

To sign up to receive AHDB Aphid News, visit [cereals.ahdb.org.uk/signup](https://cereals.ahdb.org.uk/signup)

### **Encyclopaedia of pests and natural enemies**

The encyclopaedia provides information on the identification, risk factors, life cycle, monitoring, control thresholds, non-chemical control and insecticide resistance (where known) of major and minor pests commonly associated with cropping systems.

<https://ahdb.org.uk/knowledge-library/encyclopaedia-of-pests-and-natural-enemies>



## Integrated slug control

An integrated approach to slug control using several different techniques is the most effective way to control slugs. This publication covers cereals, oilseeds, potatoes and horticulture.

<https://ahdb.org.uk/knowledge-library/integrated-slug-control>



## IRAG

This web page hosts the latest guidance from the Insecticide Resistance Action Group (IRAG). The 'Download' button provides background. Scroll down for guidance.

<https://ahdb.org.uk/knowledge-library/irag>



## Pest Bulletin

The AHDB Pest Bulletin, hosted by Syngenta, provides forecasts and up-to-date reports for most key field crop pests. The forecasts are designed to provide growers with the opportunity for early intervention, to help inform pest control decisions to protect crops.

<https://horticulture.ahdb.org.uk/ahdb-pest-bulletin>



AHDB Events <https://ahdb.org.uk/events>



14 May 2019

**GREATsoils Trials Day**

Opportunity to visit the ADAS led long-term trial investigating the impact of organic materials on soil health



17 May 2019

**Effectively working with Labour Providers: Webinar**

**Webinar**

Two-part SmartHort labour efficiency webinar series focusing on recruitment and building effective relationships with labour providers



20 May 2019

**Using your time effectively: Webinar**

**Webinar**

Looking at the benefits of taking a step back and assessing what you do in your day-to-day activities.



20 Jun 2019

**Monitor Farm walk: Sittingbourne**

Sittingbourne Monitor Farm summer meeting, hosted by Mark Bowsher-Gibbs



25 Sep 2019

**Consumer Insight Conference**

Kantar, IGD and Future Thinking join AHDB to analyse opportunities coming from evolving consumer trends

**Skills and Training**

**Business planning**

Defining and reviewing personal and business goals is essential in planning for the future. Often farmers have an idea of how they want their business to develop but may lack necessary management and planning skills. <https://ahdb.org.uk/business-planning>

**Personal objectives**

While it is vital to spend time thinking about the objectives of your business, your personal goals are just as important. <https://ahdb.org.uk/business-planning/personal-objectives-1>

**Business objectives**

Having a good understanding of your current situation can help you think about where you want to be, and create a plan which gets you there. <https://ahdb.org.uk/business-planning/business-objectives>

**What are your next steps?**

You should now have a better understanding of where you want to take your business, and where you personally want to be in the future. <https://ahdb.org.uk/business-planning/next-steps>

## Apprenticeships are key to developing next generation

To celebrate National Apprenticeship Week, Amie Burke – AHDB Skills Development Manager - explains why taking on an apprentice is a win-win for all involved. <https://ahdb.org.uk/news/apprenticeships-are-key-to-developing-next-generation>

## Professional Manager Development Scheme

<https://ahdb.org.uk/skills>

Applications for 2019’s Professional Manager Development Scheme (PMDS) have now opened, with the first session starting in September. Designed to develop skills of those who manage staff, the course enables farmers and growers to apply business intelligence from other sectors, improve communication and understanding, to raise the level of professionalism in their business. Application forms must be submitted by 24 June 2019, with more information available on our [PMDS page](#).

Once received, an interview panel will review applications and interviews will take place on 10 July 2019. The panel is looking for individuals who are already in a role with responsibilities and have the ability to implement change where required. Participants should have the support of their employer before applying.

AHDB levy payers are eligible for a discount to attend the course, which costs £950 plus VAT and includes registration, tutor and hotel fees. Non-levy payers can apply but will be subject to the full £3,950 plus VAT cost.

For more information on work to develop skills in farming and growing, visit our [Skills Hub](#).

## Education

We believe children should have a clear understanding of how food is produced, and a



positive impression of British farming. That’s why we’ve partnered with the British Nutrition Foundation (BNF) to offer a compelling education programme, encompassing evidence-based resources and training for teachers across the UK <https://ahdb.org.uk/education> Download the full [AHDB 2018-2021 education strategy](#)

## SCEPTREPLUS



## Horticulture Projects

SCEPTREplus

Research for sustainable plant protection products for use in horticulture. Our Aim: To deliver applied research on high priority disease, pest and weed problems in fresh produce and ornamental crops in order to support approval of products and devise and develop IPM programmes

<https://horticulture.ahdb.org.uk/sceptreplus>

<https://horticulture.ahdb.org.uk/sceptreplus-research-team>

## SMARTHORT

AHDB is committed to helping horticulture to get the best and most out of the industry's workforce and operational management process, which is why we have launched SmartHort.

Human labour accounts for between 30% and 70% of total variable production costs. The National Living Wage is driving labour costs up substantially at a time when margins are under strong downward pressure from retailers. Brexit may also alter the future availability of workers.

SmartHort aims to help the industry increase productivity and address the challenge of access to affordable labour through two clear strands; increasing labour efficiency by improving management practices and supporting skills development, and by

### *Podcasts*

Listen to our 4-series special SmartHort podcast providing you with incredible insight into funding robotics and automation in your business. At SmartHort 2019 we took the opportunity to talk to:

- Jacob Kirwan from G's
- Calum Murray from Innovate UK
- Andrey and Dr Vishuu Mohan from Tiptree and University of Essex
- Chris Danks from Knowledge Transfer Network (KTN)

Listen to all of the podcasts here, and look out for future instalments too.

### *Strategic SmartHort Centres*

For the 2019 season, we are establishing three strategic SmartHort centres with a focus on increasing labour efficiency. Following an open procurement process, Fedden USP have been appointed for the provision of management/business improvement expertise to manage to programme. Applications to be a host site have now closed and we are currently reviewing all entries. We are hoping to be able to announce the three successful businesses in May. Keep an eye out for news on the first events and how you can get involved.

### *SmartHort Automation Challenge*

In March, AHDB launched a competition to match expert engineers from the manufacturing industry with horticulture producers to develop new technology. The aim is for the winning grower to collaborate with automation systems experts from WMG, at the University of Warwick. The two year project will aim to find an applied solution to a problem within their business to improve labour efficiencies. Applications for the SmartHort Automation Challenge have now closed and entries are

## SMARTHORT

identifying new technologies including automation and robotics.

<https://ahdb.org.uk/smarthort>

### *Labour efficiency workshops*

- Getting the most from your workforce
- Supervisor skills training

### *Webinars*

- Top Tips for Effective Recruitment (held on 3rd May) [Watch back here](#).
- Effectively working with Labour Providers Friday 17th May - 1pm [Book Here](#).

currently being shortlisted. Keep an eye on the SmartHort website for updates and an announcement of the winning project.

#### *Study tours*

A study tour to the Netherlands was organised in spring 2018 for glasshouse growers to view the latest developments in greenhouse technology along with automation and robotics for production, harvesting and dispatch. You can read all about the highlights of the tour in this article

We are attending the GreenTech Trade show in Amsterdam again from the 11th to the 13th June. Grace Emeny is looking to arrange networking opportunities in the evenings for those travelling from the UK who want to meet with other growers and chat about the show highlights and the most exciting looking new technologies. Get in touch with her if you would like to attend.

Grace is also looking for suggestions for study tours for the coming year. If you are aware of any innovations and technologies that look exciting in the UK or worldwide that you would like to find out more information on please let her know.

To find out more about the SmartHort campaign and to get involved please contact Grace Emeny – [grace.emeny@ahdb.org.uk](mailto:grace.emeny@ahdb.org.uk) or on twitter @emeny.grace

#### Strategic Centres for field vegetable crops (for info)

Grower-led centres with work that is delivered by a consortium of contractors - NIAB, ADAS, PGRO and Duchy College. Core variety trials will be delivered as in the past ie NIAB (Onions & Carrots), ADAS (all crops), PGRO (Vining peas), Duchy College (Brassicas in SW). Additional work will include demonstration of herbicides from SCEPTREplus which are showing promise, mapping bean seed fly incidence in vining peas and onions, and field detection of airborne spores of light leaf spot and ringspot in collaboration with Syngenta. Work is being led by Dawn Teverson at the AHDB.

**Research & Knowledge Exchange (KE) staff (Technical)**



**Grace Choto**

**Knowledge Exchange  
Manager (Protected  
Edibles/Field Vegetables)**

T: 024 7647 8664  
M: 07501 476 983



**Nathalie Key**

**Knowledge Exchange  
Manager (Protected Edibles,  
Vine Crops, Mushrooms)**

T: 0247 647 8918  
M: 07776594789



**Dawn Teverson**

**Knowledge Exchange  
Manager (Field  
Vegetables)**

T: 024 7647 8979  
M: 07583 059 183



**Scott Raffle**

**Knowledge Exchange  
Manager (Soft Fruit/Tree  
Fruit)**

T: 01732 876 671  
M: 07841 497 132



**Wayne Brough**

**Knowledge Exchange  
Manager (Protected and  
Outdoor Ornamentals  
including Hardy Nursery  
Stock)**

T: 01732 876 672  
M: 07875 098 196



**Kate Mackenzie**

**Senior Knowledge Exchange  
Manager (Panels) -  
Horticulture**

M: 07773 234 673



**Gracie Emeny**

**Senior Knowledge  
Exchange Manager**

T: 024 7647 8886  
M: 07975 233 150



**Debbie Wilson**

**Head of Horticulture  
Knowledge Exchange**

T: 0247 647 8882  
M: 07527 058 759

Please  
insert  
note  
taking  
page(s)  
and  
contact  
addresses  
such as  
this on the  
back page,  
thanks -

Produced for you by:

AHDB Horticulture T 024 7669 2051  
Stoneleigh Park E [comms@ahdb.org.uk](mailto:comms@ahdb.org.uk)  
Kenilworth W [horticulture.ahdb.org.uk](http://horticulture.ahdb.org.uk)  
Warwickshire @AHDB\_Hort  
CV8 2TL

If you no longer wish to receive this information, please email us on [comms@ahdb.org.uk](mailto:comms@ahdb.org.uk)

While the Agriculture and Horticulture Development Board seeks to ensure that the information contained within this document is accurate at the time of printing, no warranty is given in respect thereof and, to the maximum extent permitted by law, the Agriculture and Horticulture Development Board accepts no liability for loss, damage or injury howsoever caused (including that caused by negligence) or suffered directly or indirectly in relation to information and opinions contained in or omitted from this document.

© Agriculture and Horticulture Development Board 2019.  
All rights reserved.  
30005 0422

