

# Spotted Wing Drosophila in Ireland:

*An increasing threat to the Irish soft fruit sector*

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# Presentation Outline

- Update on 2017 National Monitoring Programme
  - Geographical Spread of Positive findings
  - Increase in established populations nationally
  - Comparing Irish count data to UK data
  - SWD contamination in crops
  - SWD development within fruit
  - Cold treatment of fruit
- UK approach to SWD management
- Conclusions



# 1. Geographical spread of SWD

2015



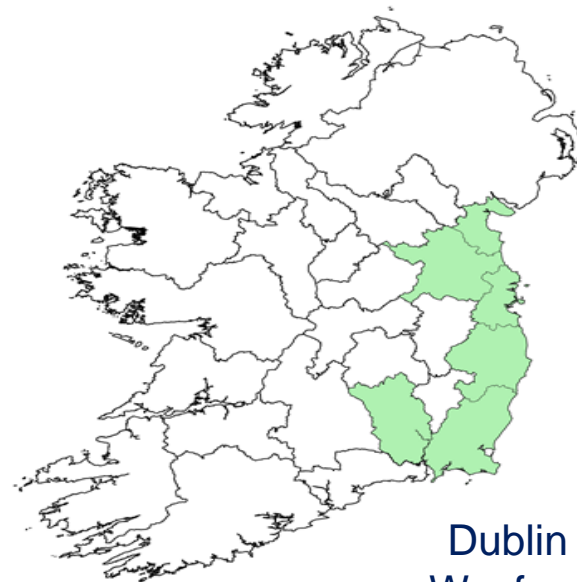
Dublin  
Wexford

2016



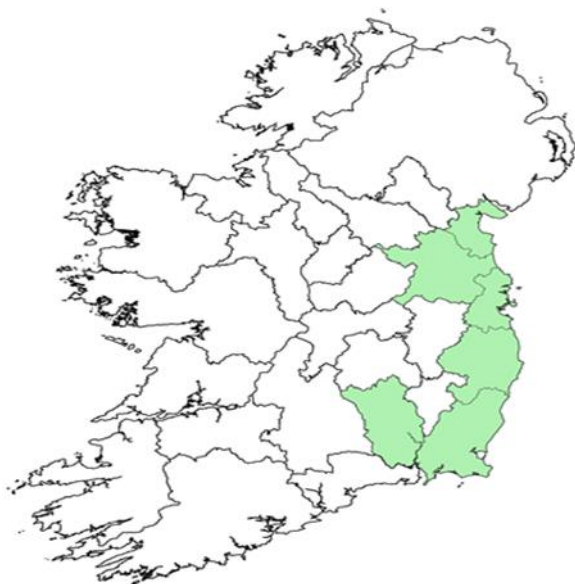
Dublin  
Wexford  
Wicklow  
Meath

2017



Dublin  
Wexford  
Wicklow  
Meath  
Louth  
Kilkenny

# 1. Geographical spread of SWD

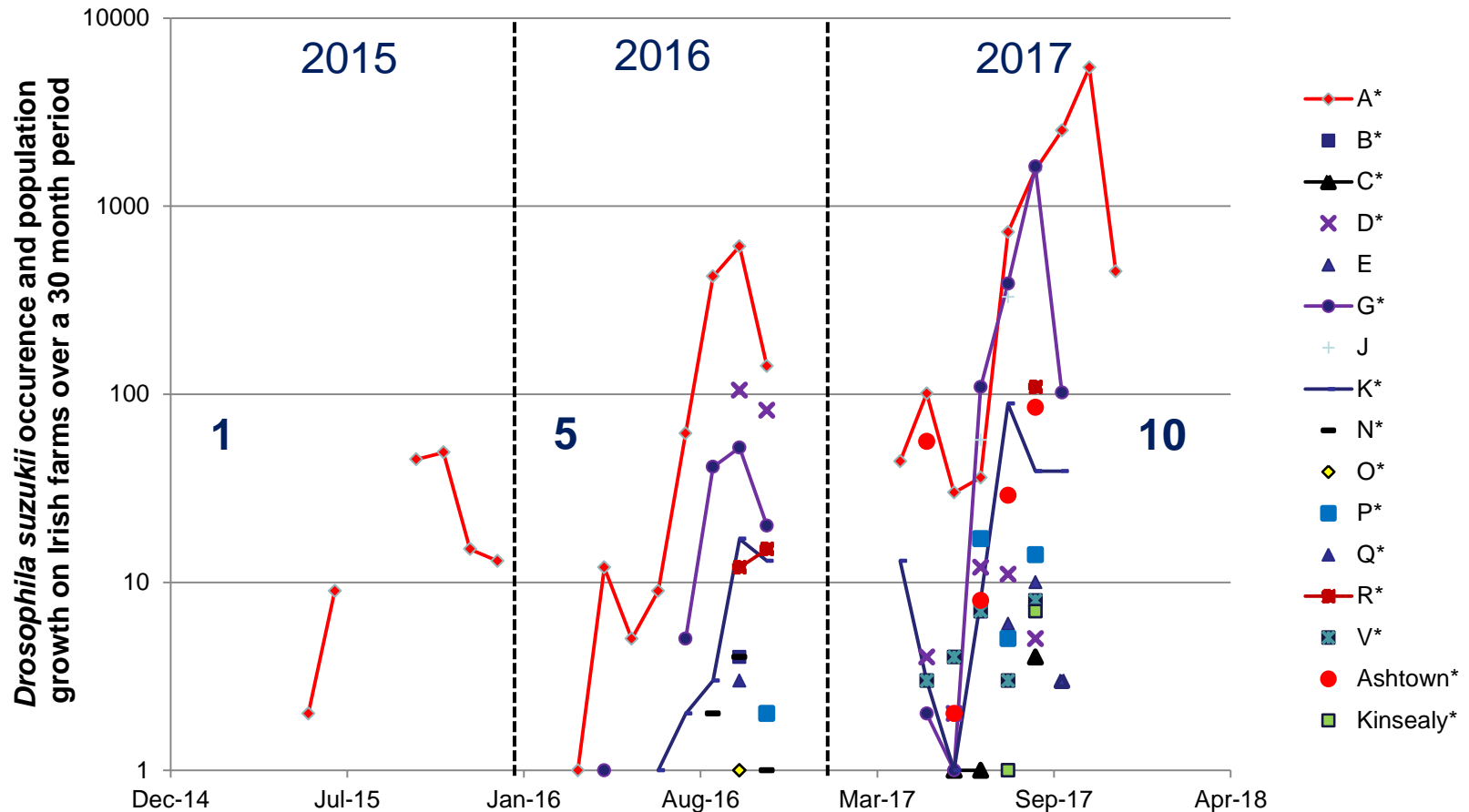


2015: 3 of 4 sites  
2016: 11 of 16 sites  
2017: 17 of 19 sites

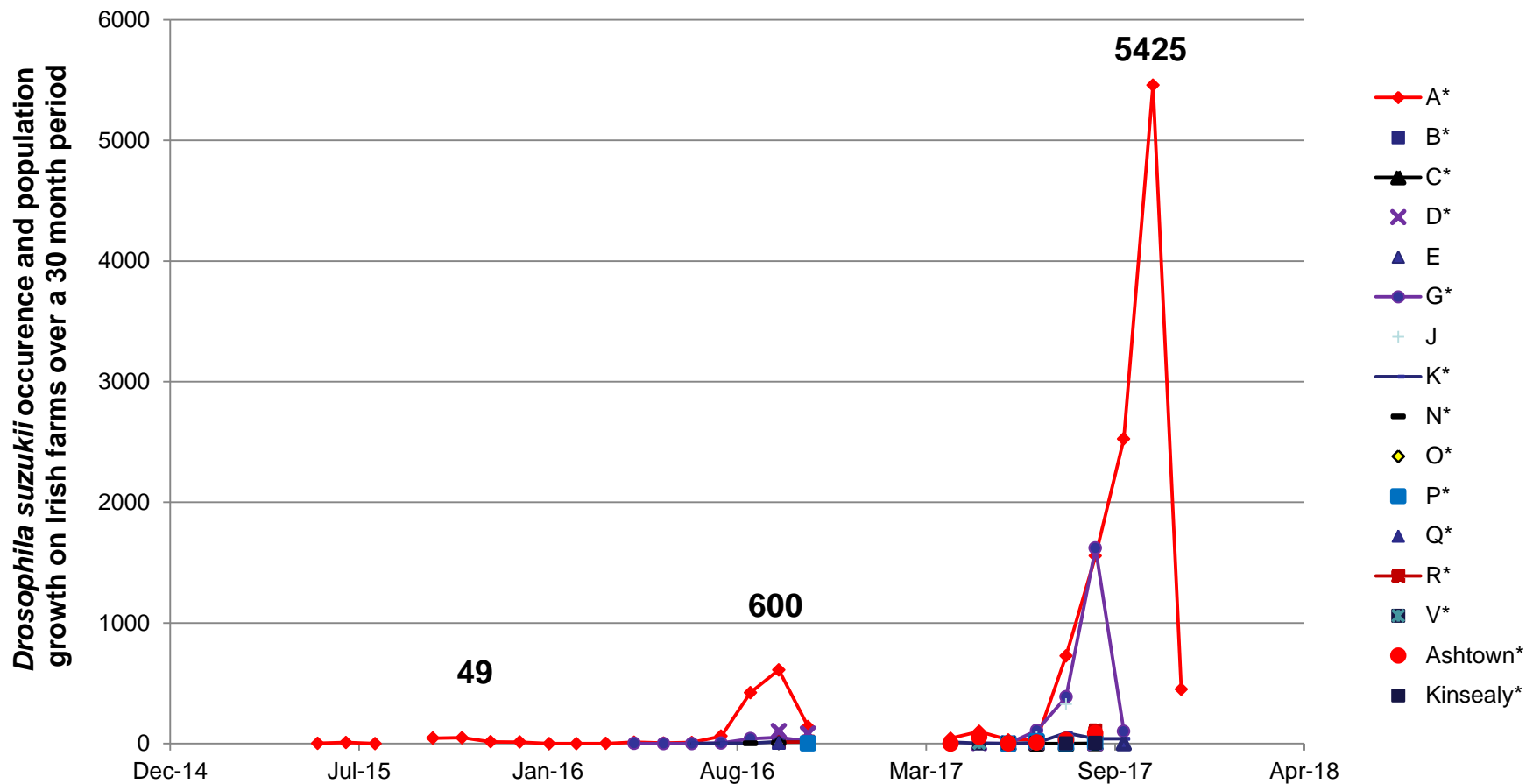
Red: SWD present  
Green: SWD not detected  
Grey: SWD not monitored

Spotted Wing Drosophila Detections				Farm No.	Farm Code
SWD Present	2017	2016	2015		
Red	Green	Grey	Red	5	A
Red	Green	Grey	Red	4	B
Red	Red	Red	Green	11	C
Red	Red	Red	Red	3	D
Red	Red	Green	Grey	7	E
Green	Grey	Green	Grey	13	F
Red	Red	Red	Grey	9	G
Green	Grey	Green	Grey	14	I
Red	Red	Green	Grey	8	J
Red	Red	Green	Grey	6	K
Red	Red	Green	Grey	12	M
Red	Grey	Red	Grey	19	N
Red	Grey	Red	Grey	15	O
Red	Grey	Red	Grey	1	P
Red	Red	Red	Grey	16	Q
Red	Red	Red	Grey	2	R
Red	Red	Red	Grey	17	S
Red	Red	Grey	Grey	18	T
Red	Red	Green	Grey	10	V

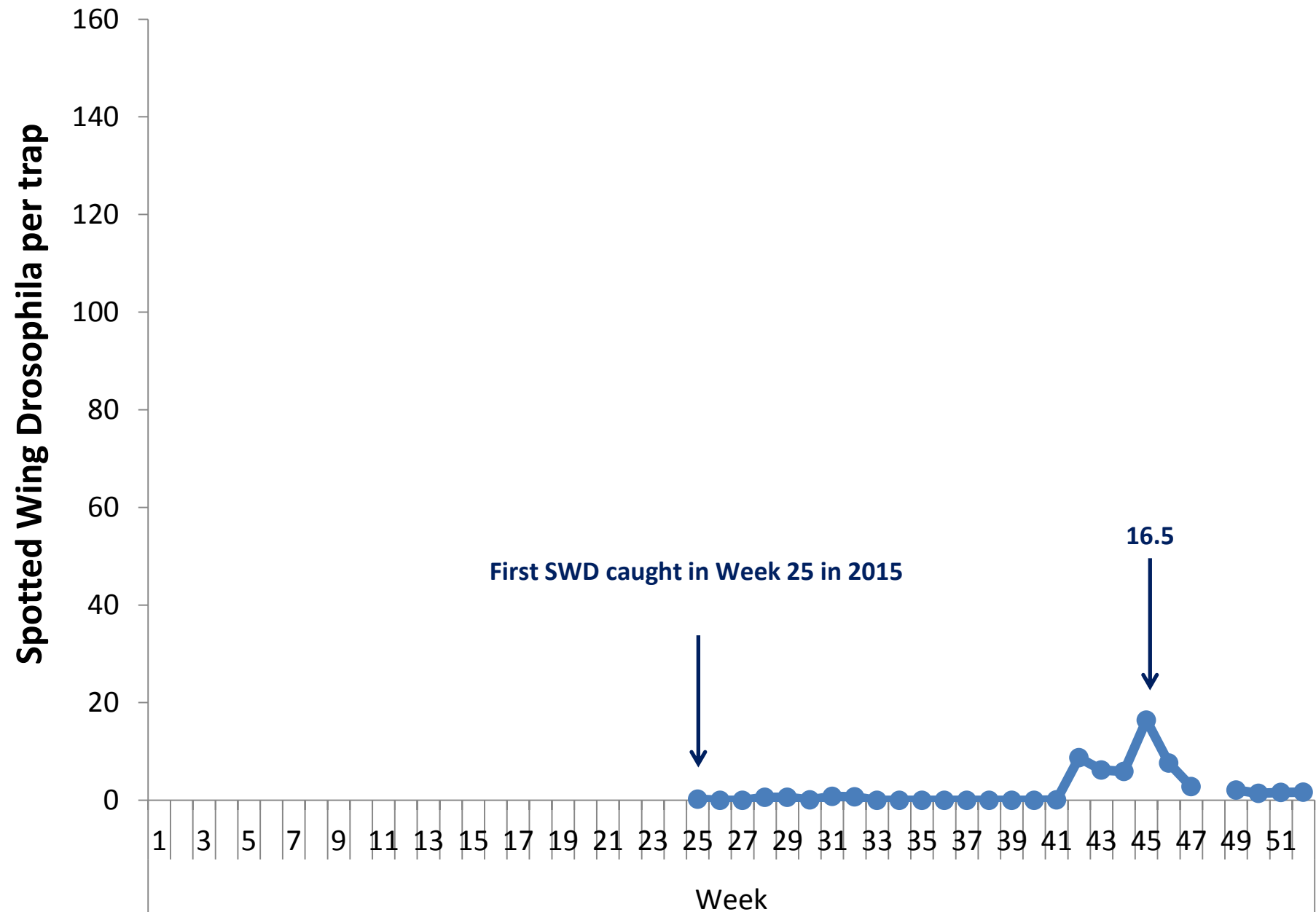
## 2. SWD populations on fruit farms increasing nationally



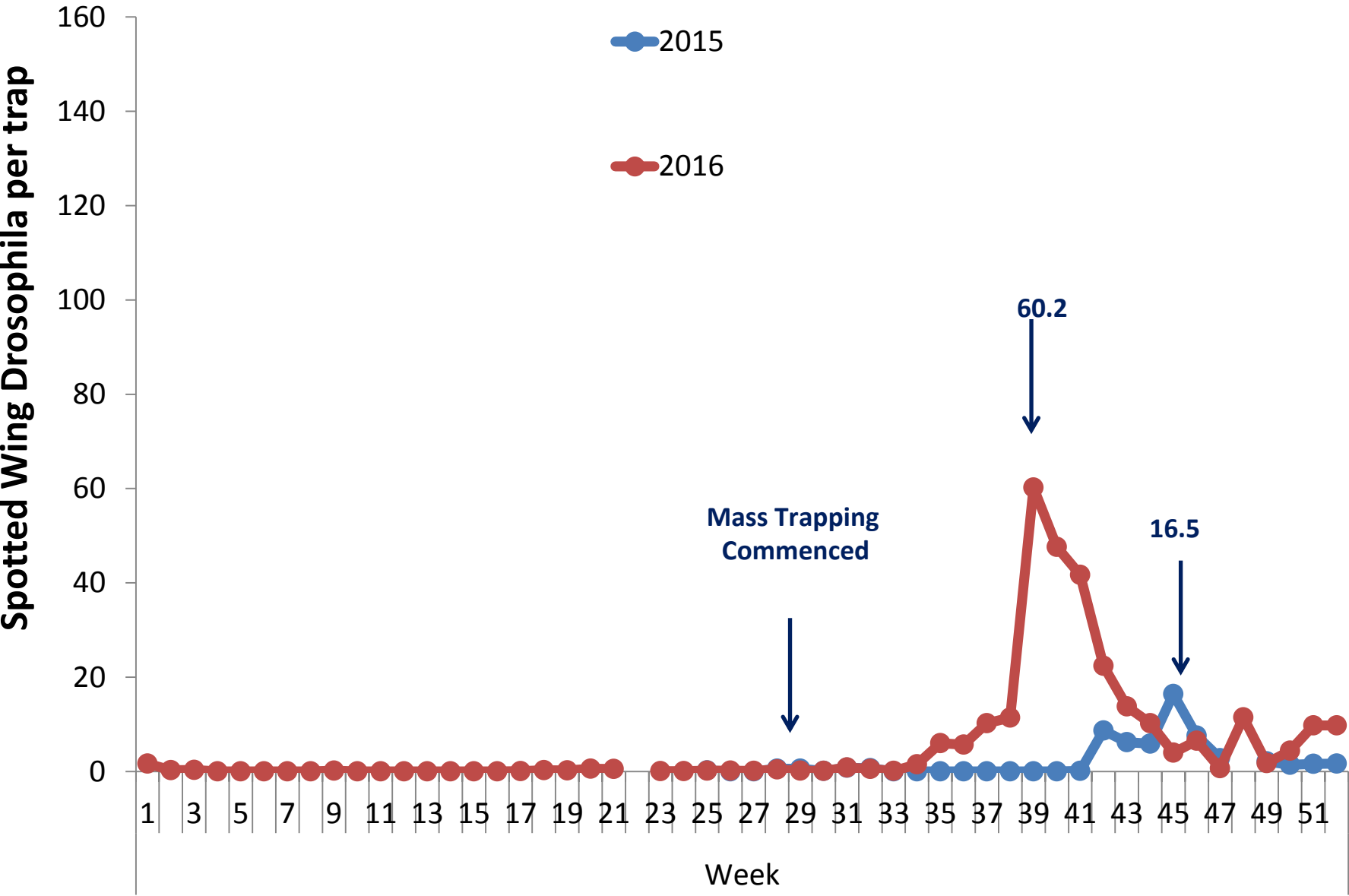
## 2. SWD populations on fruit farms increasing nationally



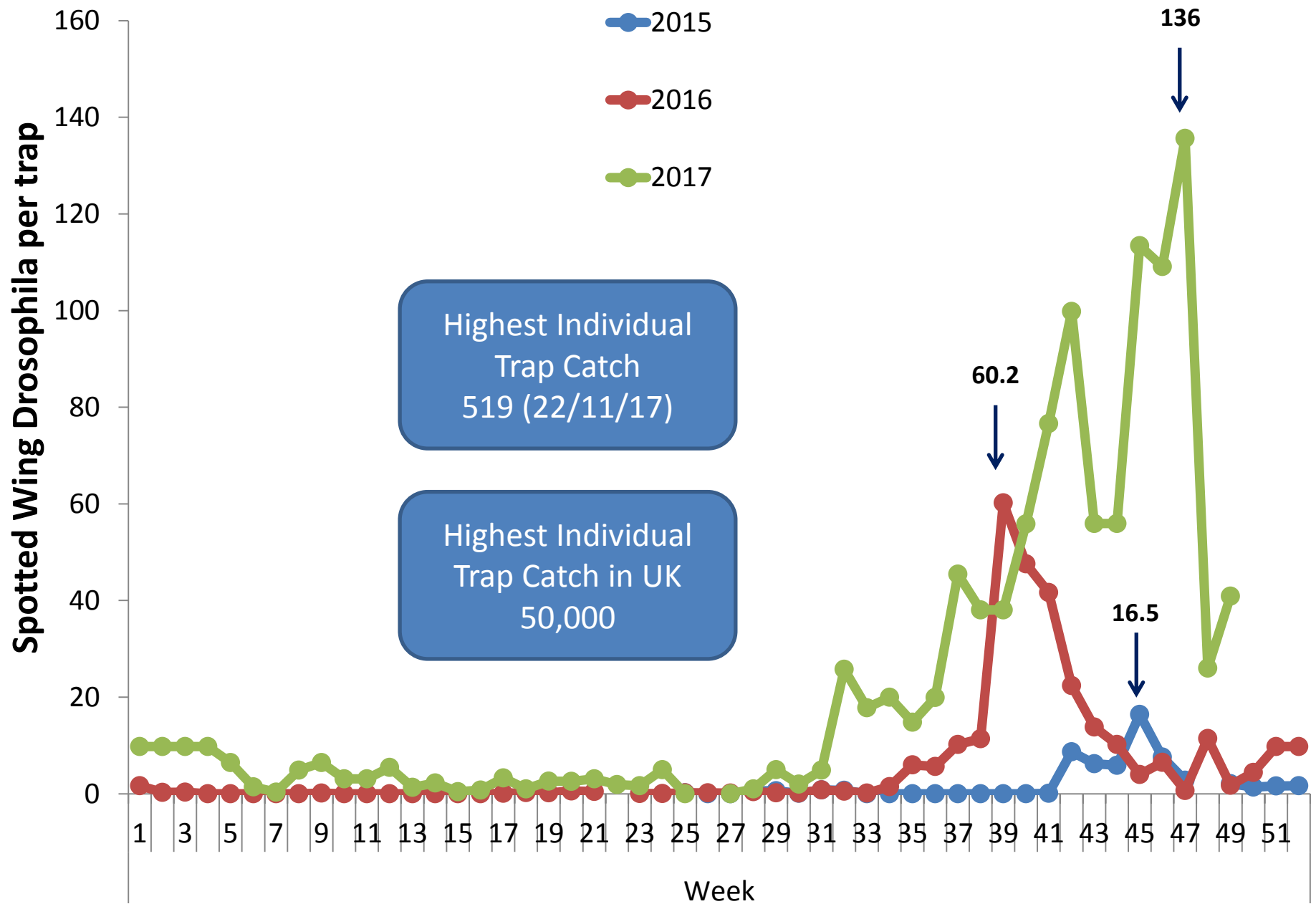
## 2. Development of SWD populations over a 30 month period

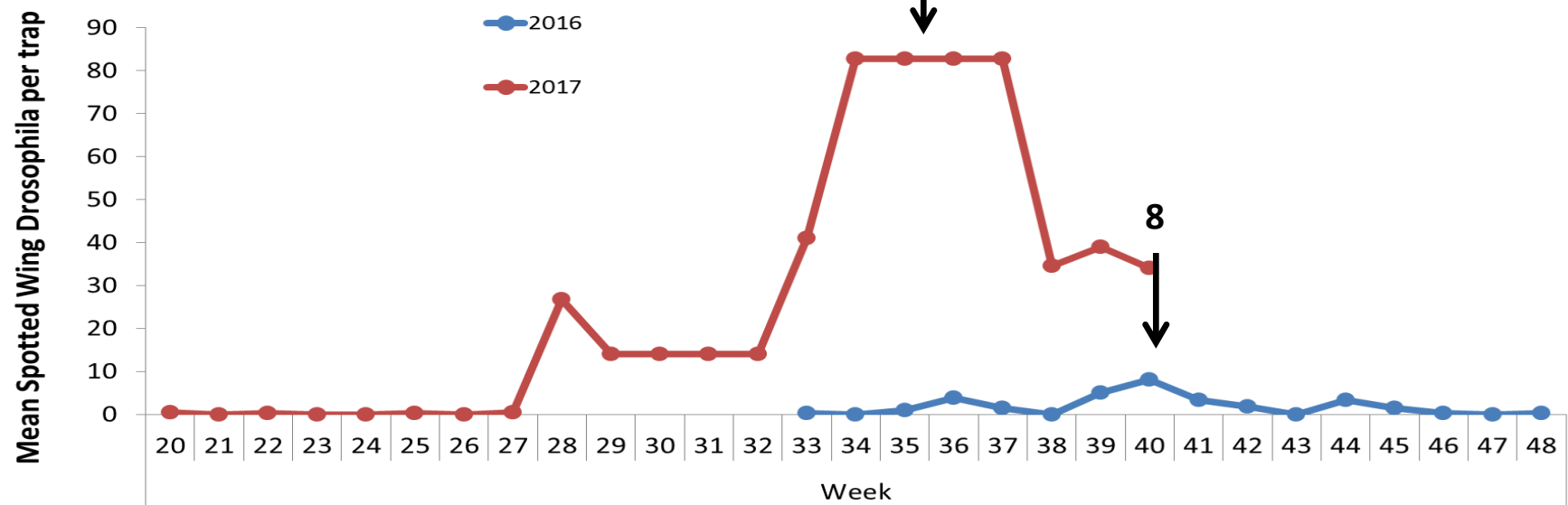
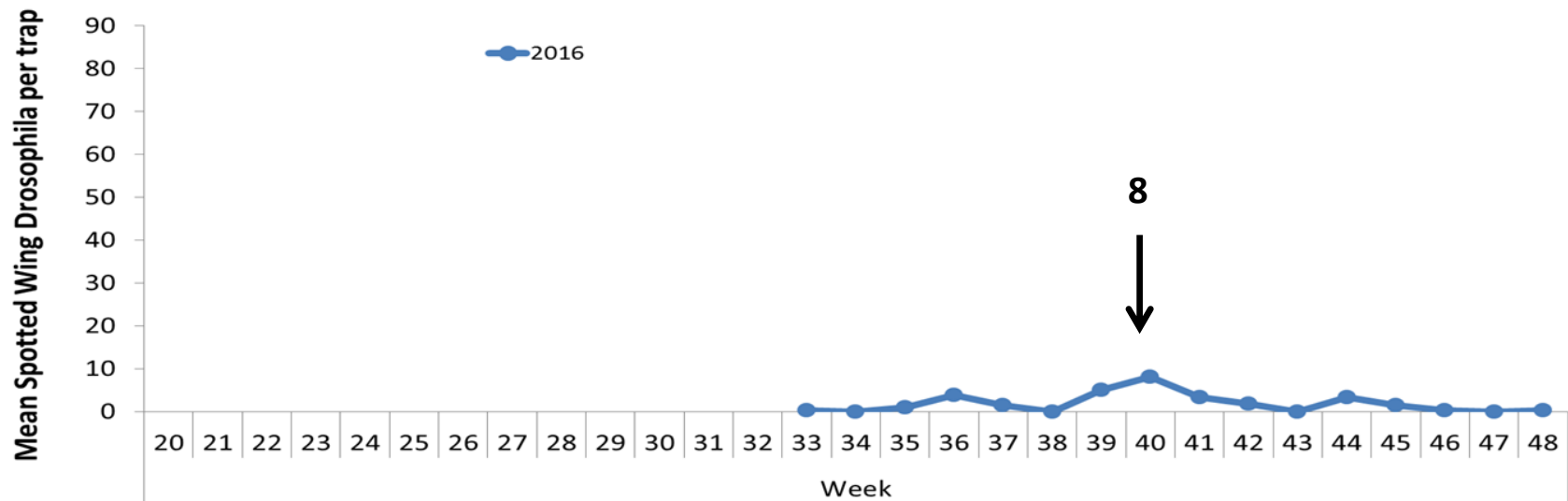


## 2. Development of SWD populations over a 30 month period

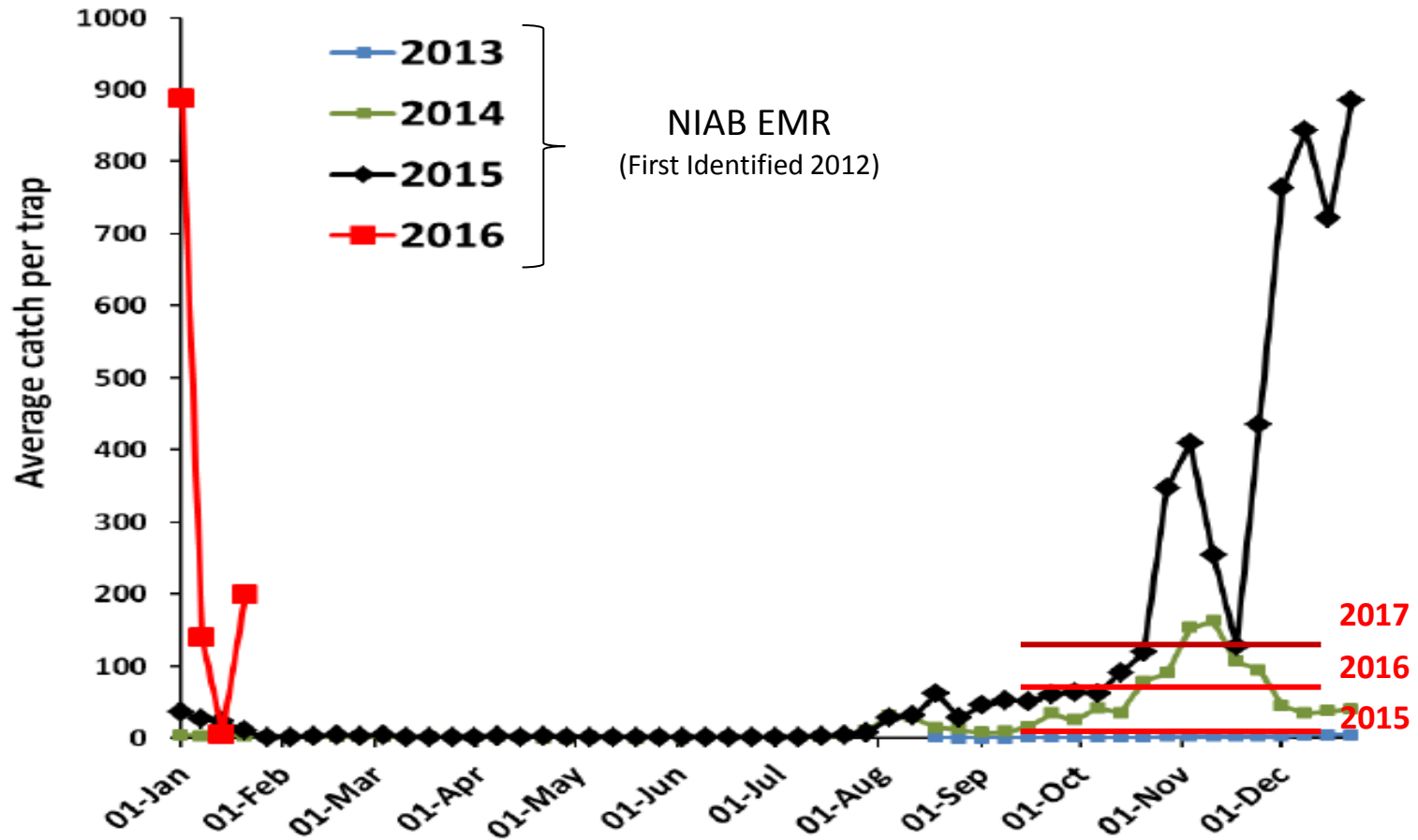








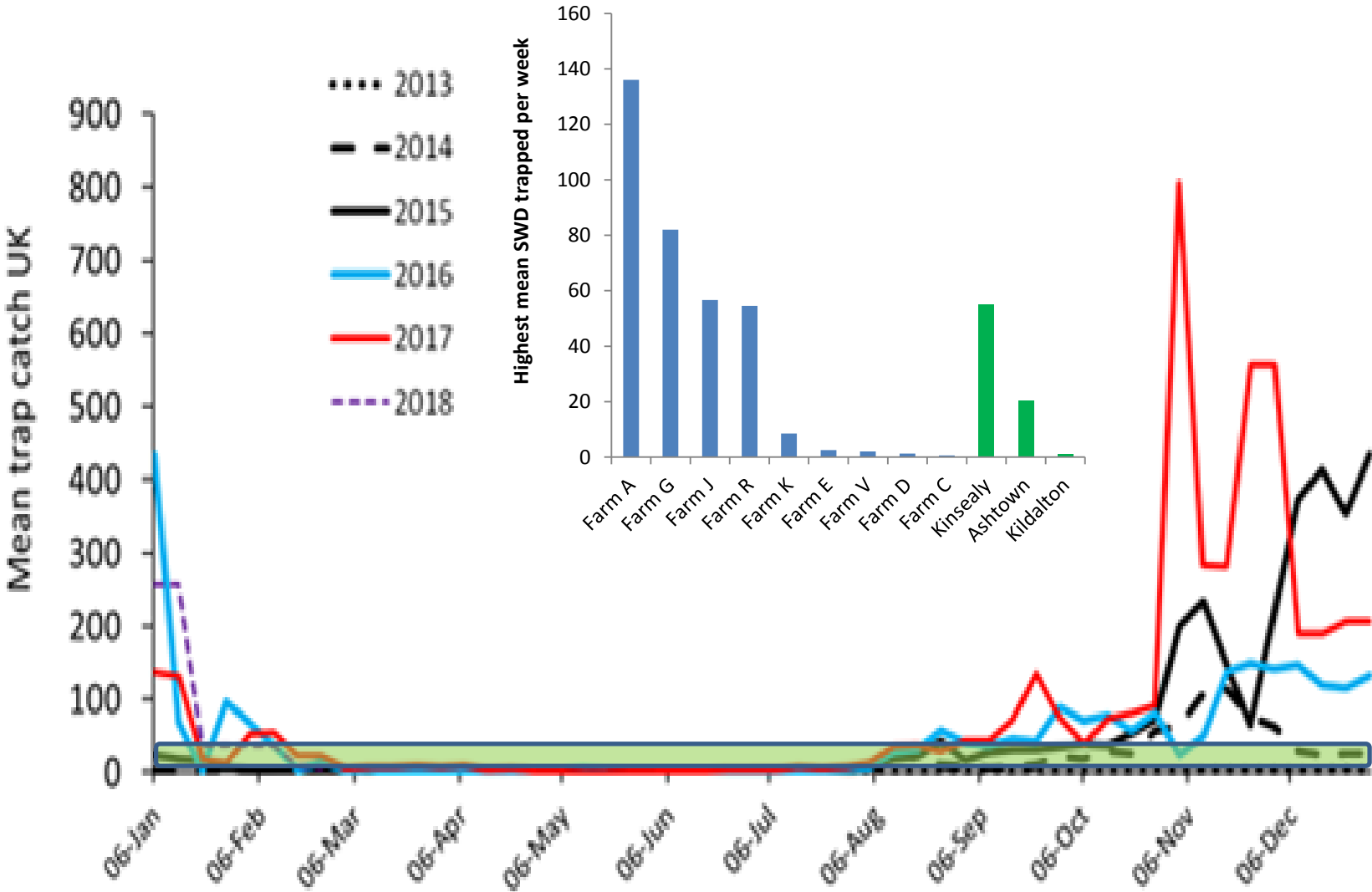
### 3. Comparing Irish SWD populations to UK data



Trapping data for *D. suzukii* from Sept 2013 to Feb 2016. Displayed are the average catch per trap numbers. The November peak in 2013 is less than 10 individuals per trap (Blue Line), over 160 individual per trap in 2014 (Green Line) rising to 900 individuals per trap in 2015 (black line).

Reference: Project Number SF145: Understanding and developing methods for managing spotted wing drosophila (SWD) in the UK: vital research to maintain the viability of the UK fruit industry. AHDB Horticulture.

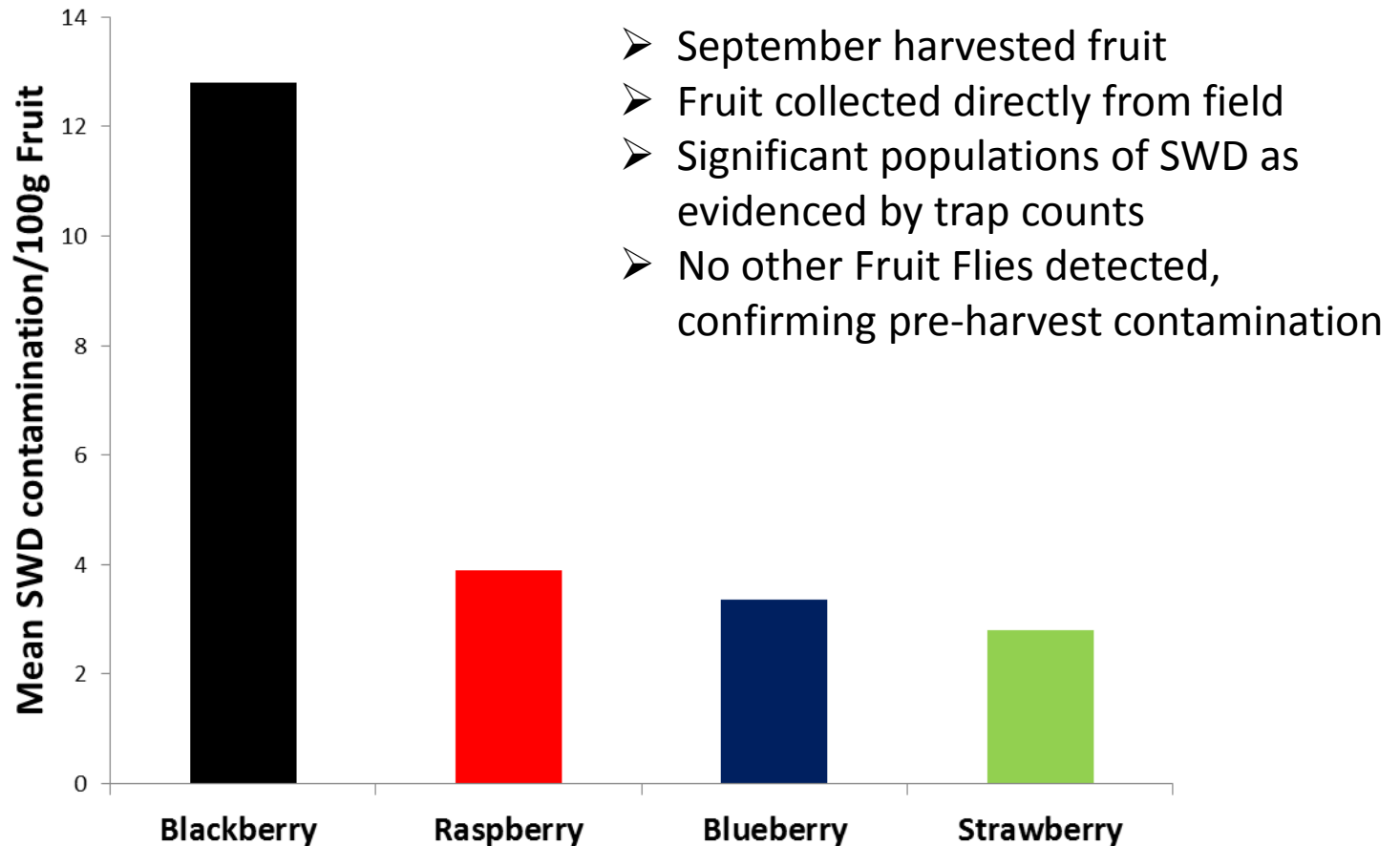
3. Comparing Irish SWD populations to UK farm average



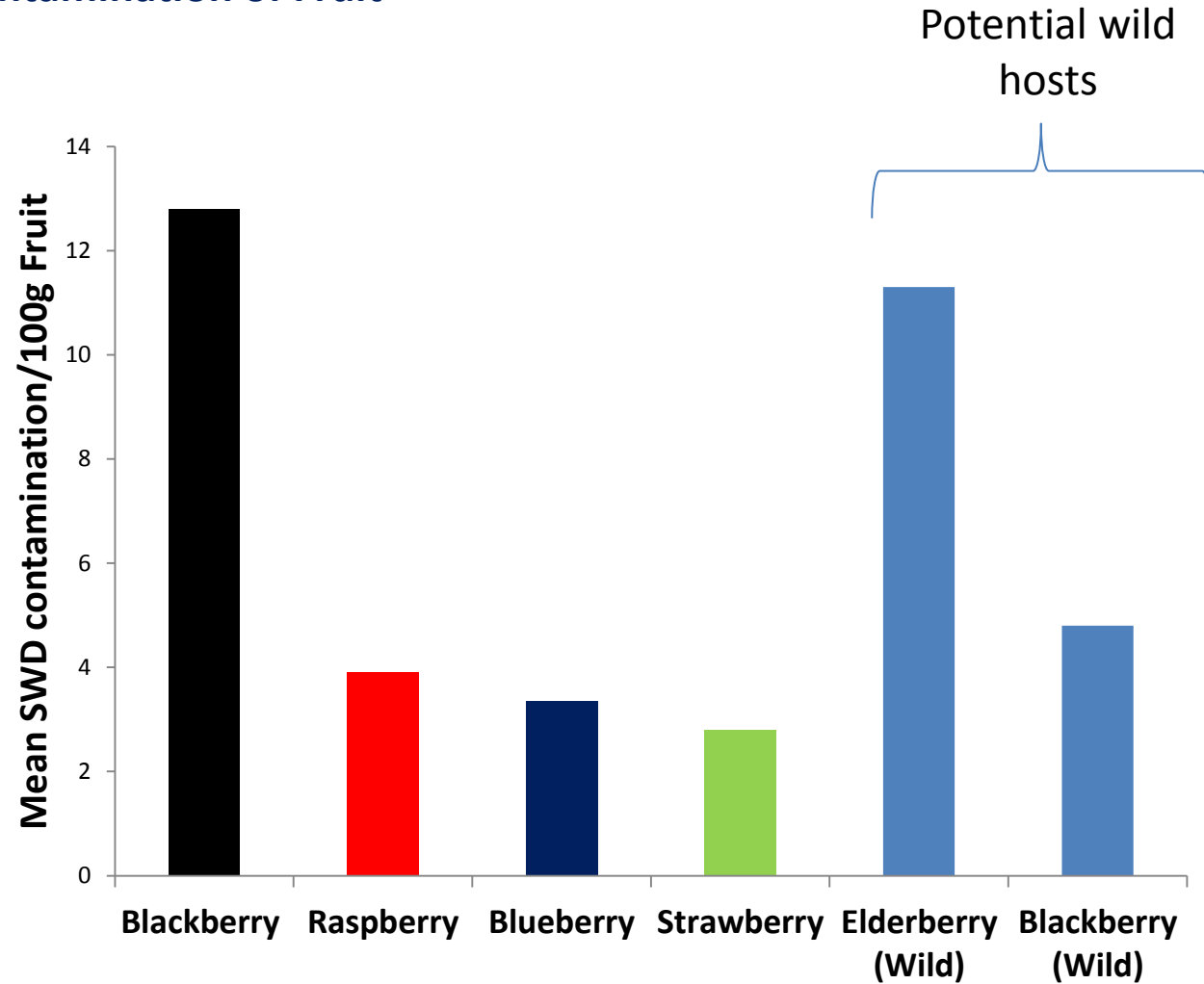
# National SWD Monitoring Programme Synopsis

- Populations are continuing to increase and geographical range of SWD increasing
- Large farm to farm variability in relation to population increases – Impact of landscape?
- Impact of mass trapping?
- Usefulness of in-crop trapping as a treatment threshold?

## 4. SWD Contamination of Fruit

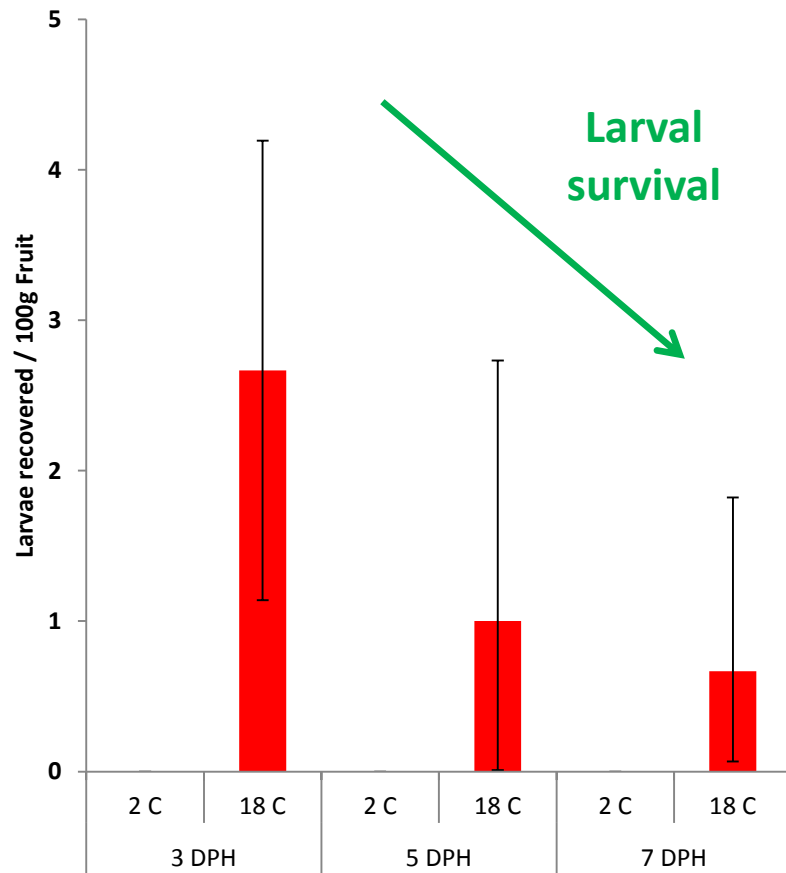


#### 4. SWD Contamination of Fruit

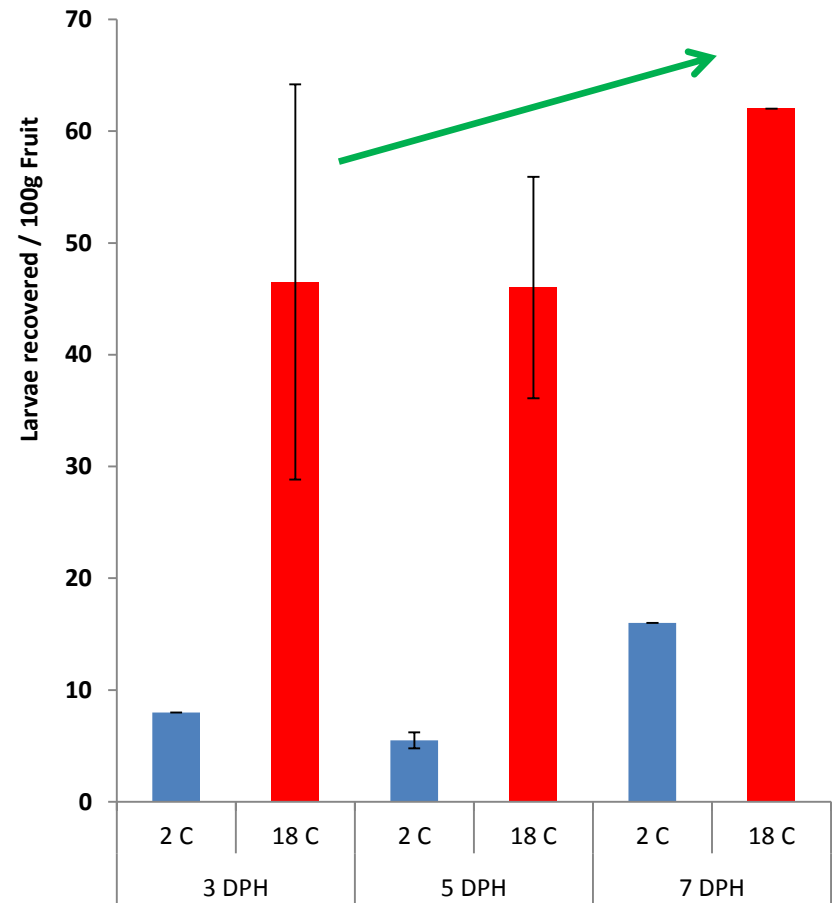


## 5. Cold treatment of Fruit

Strawberry

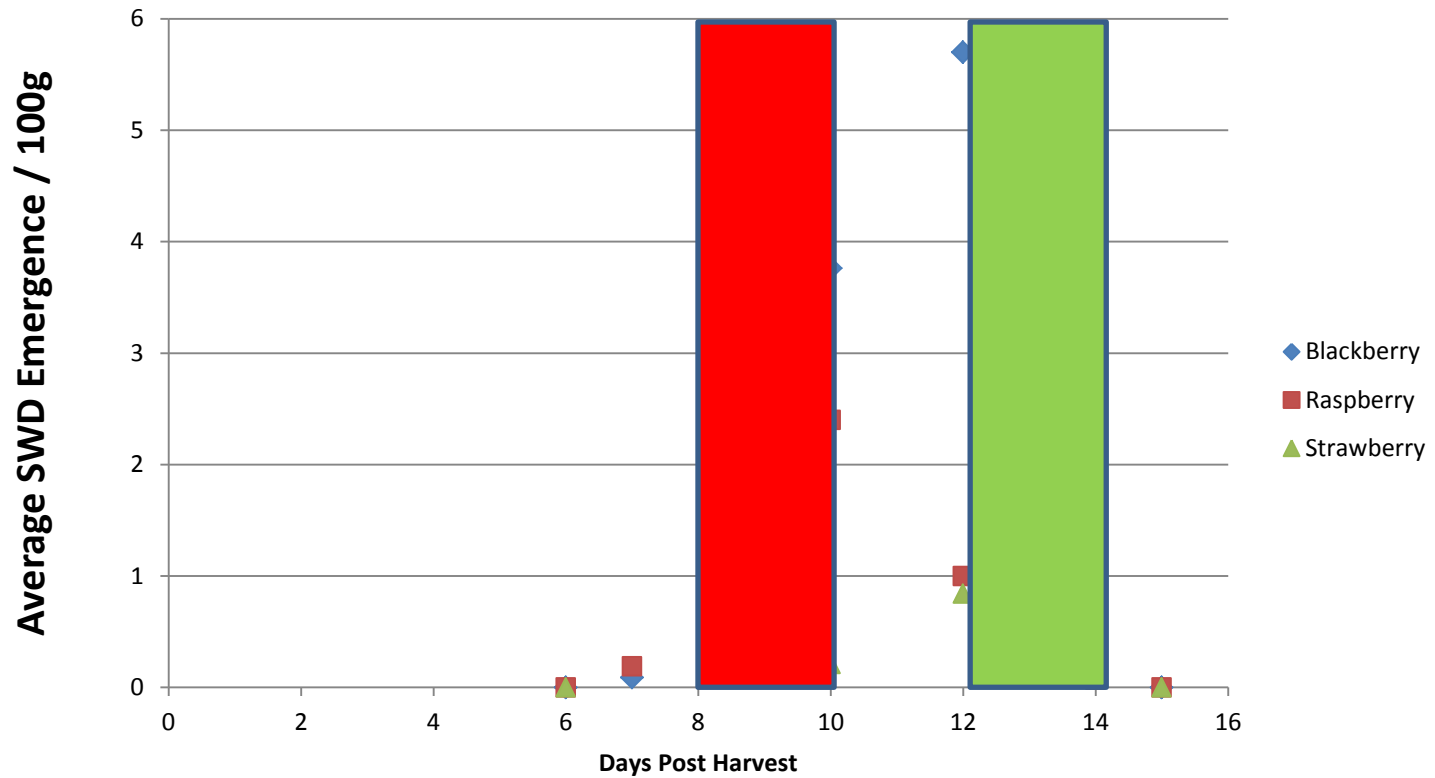


Raspberry





## 5. SWD development within Fruit



Experiment conducted at  
Room temperature (18°C)

## Fruit Monitoring Programme Synopsis

- SWD can access over ripe fruit - Waste management critical to manage pops
- Blackberry > Raspberry > Blueberry > Strawberry
- SWD contamination identified in produce
- SWD seem to develop less successfully in Strawberry
- Cold treatment shows some promise in managing contamination (v. preliminary)

## Current UK approach to SWD Management

*‘SWD was initially in higher populations in the south of the UK but is now widespread and without management can cause significant crop losses.’*

- Monitoring of adult populations and fruit essential
- Removal and destruction of damaged and unmarketable fruit
- Prevention of SWD continuously entering the crop using insect mesh screens and judicious use of PPPs
- Harvested fruit must be checked before leaving farm to maintain integrity of the industry
- Cold chain of harvested fruit must be maintained (incl. at retailers shelves)
- Training of staff to recognise importance of SWD control to the success of the business

*All approaches  
necessary for  
successful  
production of  
Grade 1 fruit*

*Spraying  
alone will not  
be effective*

## Conclusions

- SWD poses a significant threat to the viability of the Irish soft fruit sector
- Populations on some farms have increased to levels where contamination in fruit is evident – preventative measures in 2018 will be required
- However, 2017 data indicates that populations on most farms are low and there is still the potential to effective cultural management
- The lack of coordinated industry response will result in issues at the retailer level
- The current lack of a monitoring programme severely hampers our ability to actively support the sector
- Without an effective response the SF industry is most likely facing significant increased costs from yield loss, staff costs, waste management, increased use of PPPs, use of physical barriers etc.

## Outputs of the National SWD Monitoring Programme

- Has prevented a significant increase in the unnecessary use of PPPs
- Participating growers were informed of population counts and able to make crop protection decisions based on farm specific data
- 10 training courses over 2016 and 2017 have been held where 200 growers have received training in SWD identification and monitoring techniques
- Monitoring data has provided an evidence basis for access to additional pesticides either through EAMU / 120 day approvals (2016, 2017 and 2018)
- Provided preliminary data to secure funding for a 4 year PhD study funded by Teagasc (€180,000) on non-chemical SWD control approaches in collaboration with NIAB EMR and MSU

# Acknowledgements

## Collaborators:

Dr Jan Robert Baars, UCD

Dr Elaine Keenan, Technician SWD monitoring Programme 2016

Ms Martina Caplice, Technician SWD monitoring Programme 2017

Ms Aisling Moffatt, UCD, Mr Chris Ovenden, Teagasc

Mr David Brogan, UCD / Teagasc, Mr Leo Finn, Teagasc



## Funders:

Bord Bia (2016 & 2017)

Teagasc (2015, 2016, 2017)



## Growers:

Our sincere thanks to all growers who have assisted by collecting and returning traps for the last 30 months. Particular thanks to those growers who have allowed us access to their farms to collect samples and agreed to allow us present data collect from their samples.

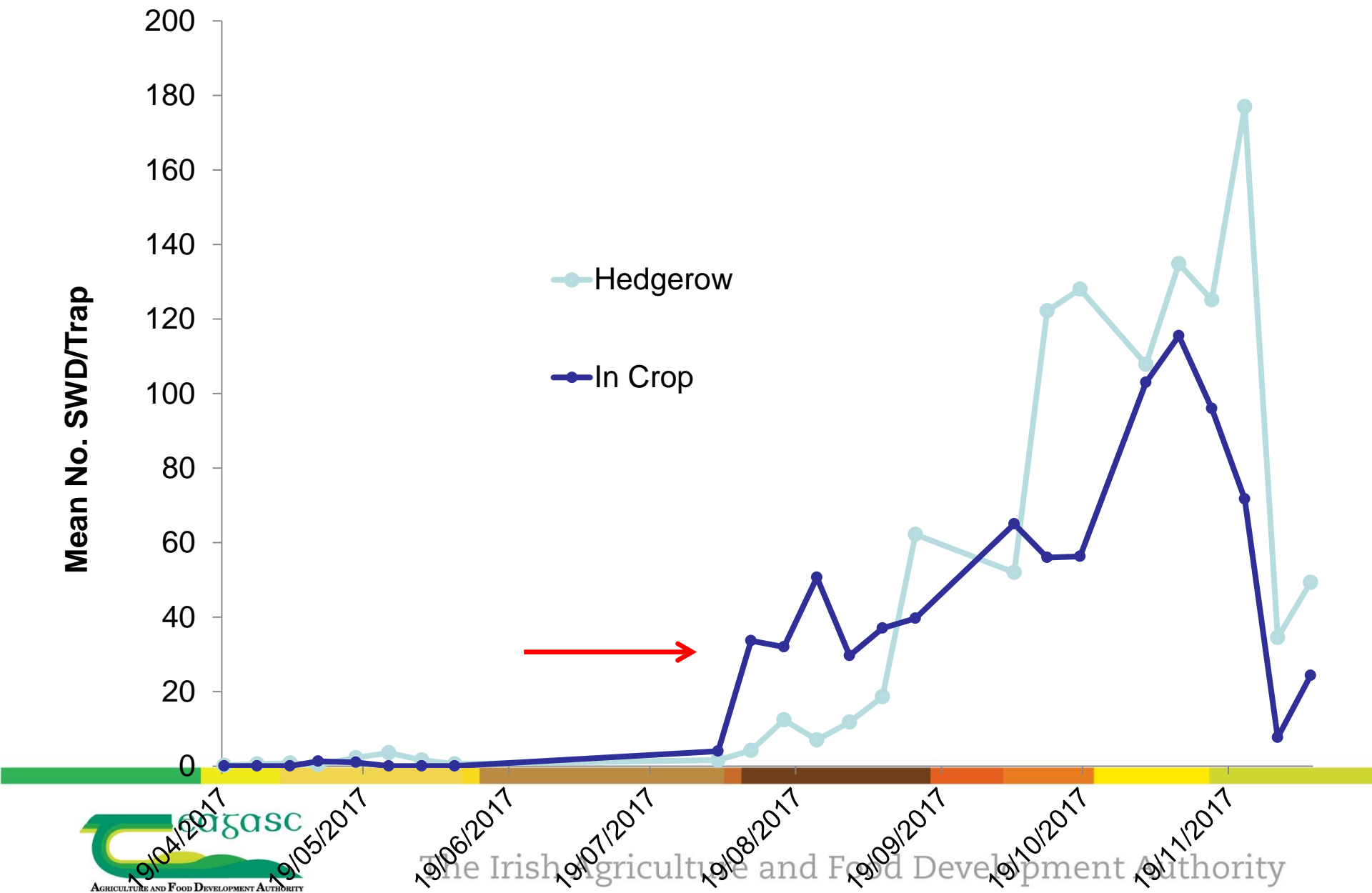


**Thank you**

**Questions?**

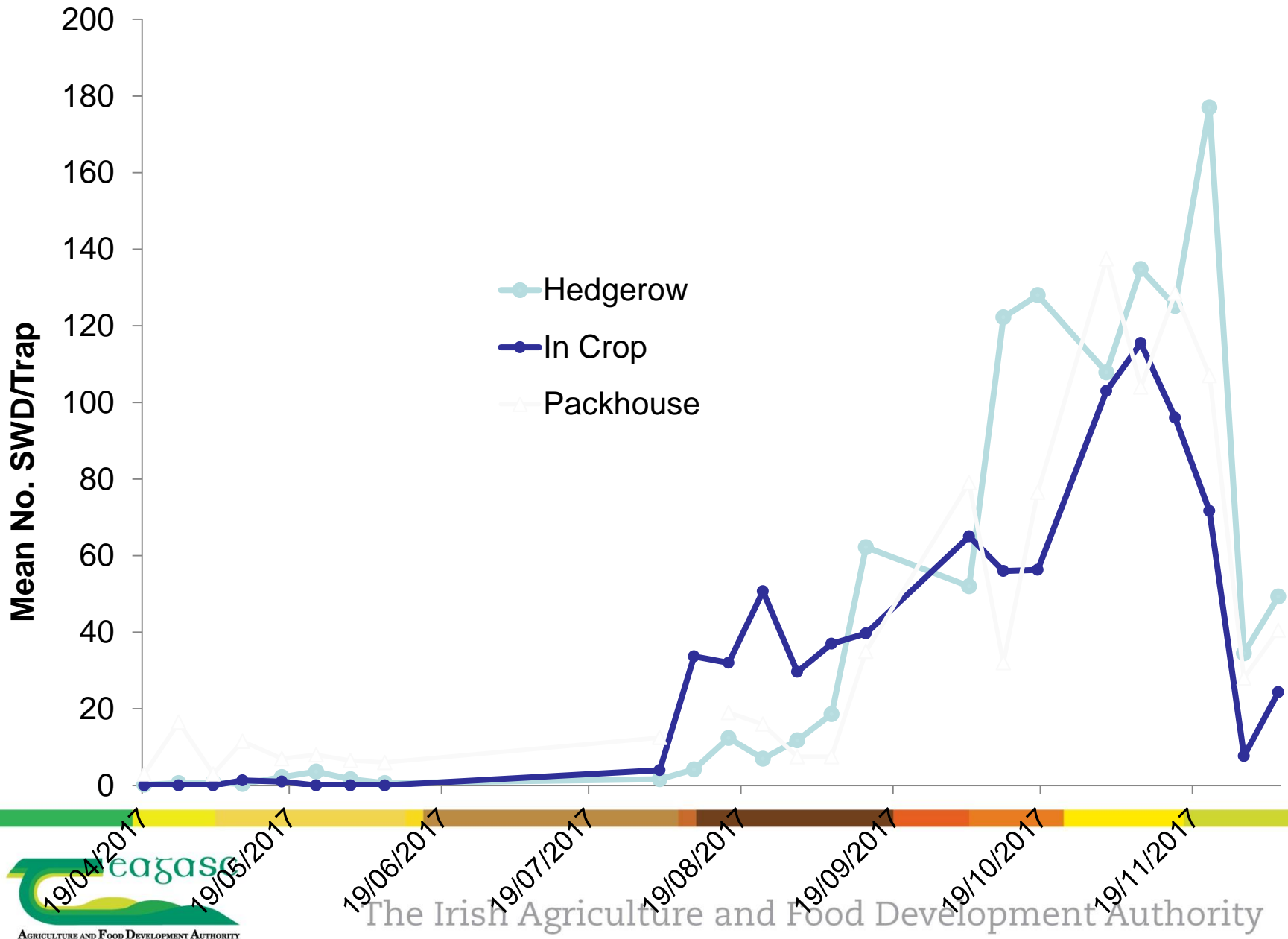


# Placement of monitoring traps



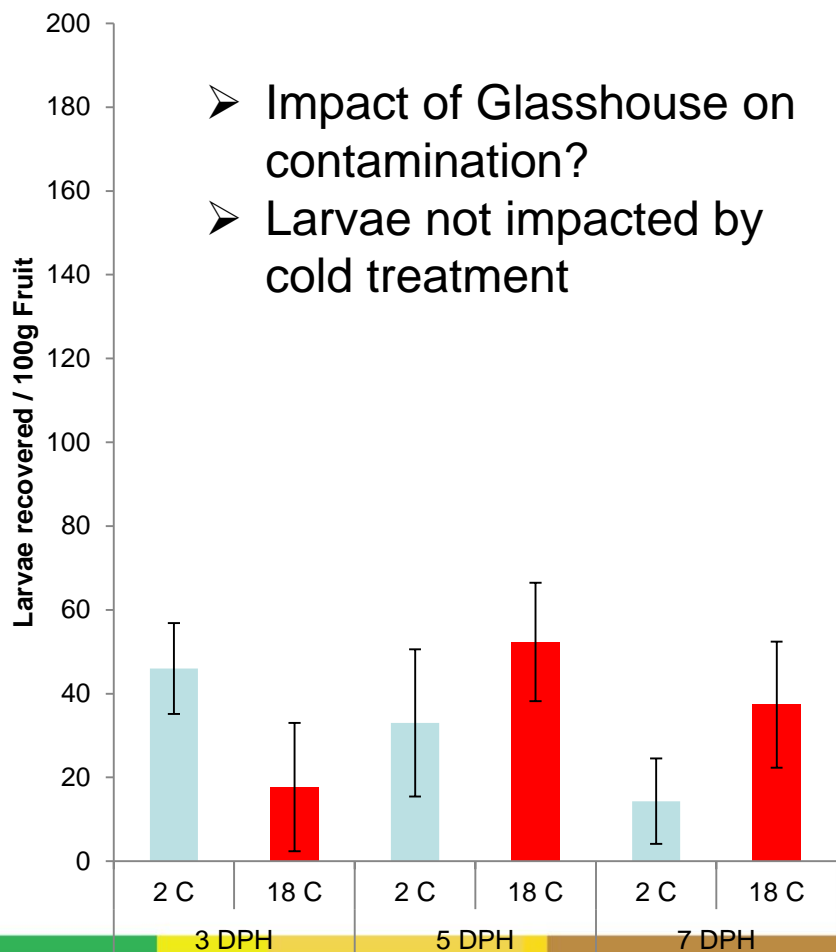


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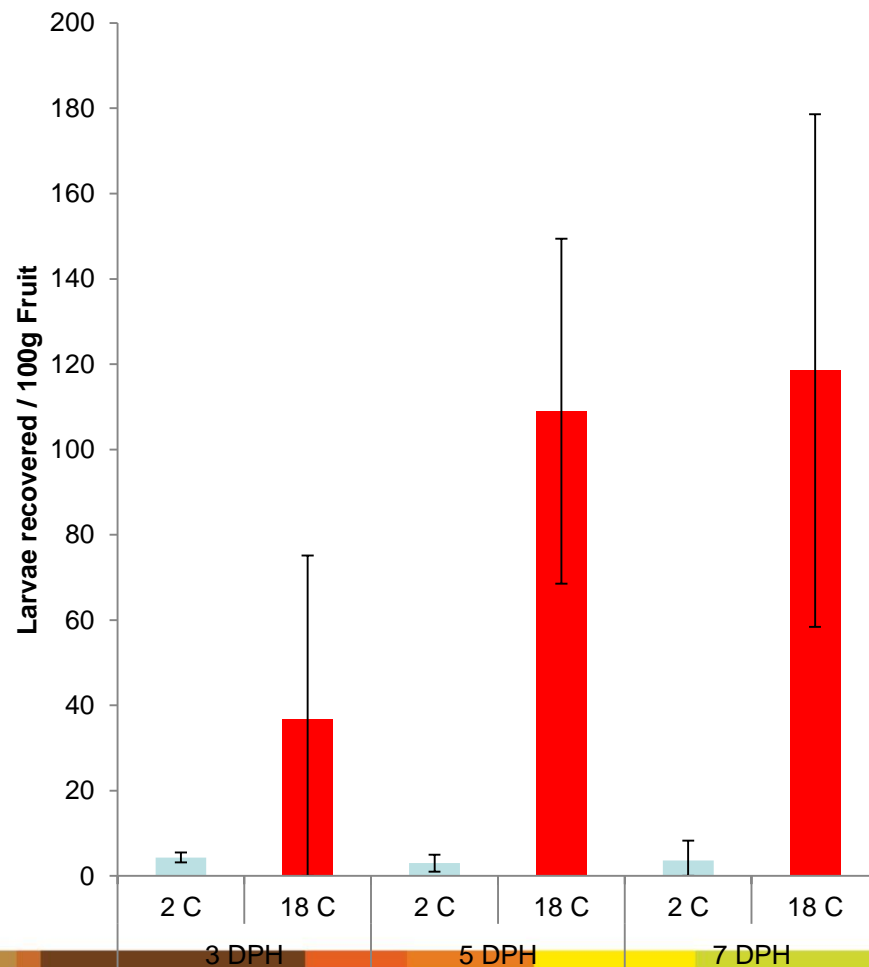


## 5. Cold treatment of Fruit

**Blackberry (Glasshouse)**



**Blackberry (Field)**



#### 4. SWD Contamination of Fruit

	No. of Flies / 100g			
	July		August	
	Fruit Flies	SWD	Fruit Flies	SWD
Strawberry	2.95	0.15	2.1	0
Raspberry	0.3	0.2	2.3	1.25
Blackberry	0	0	6.15	1.05