



# Defoliation of WOSR to control CSFB

## Field Lab

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29 October 2019

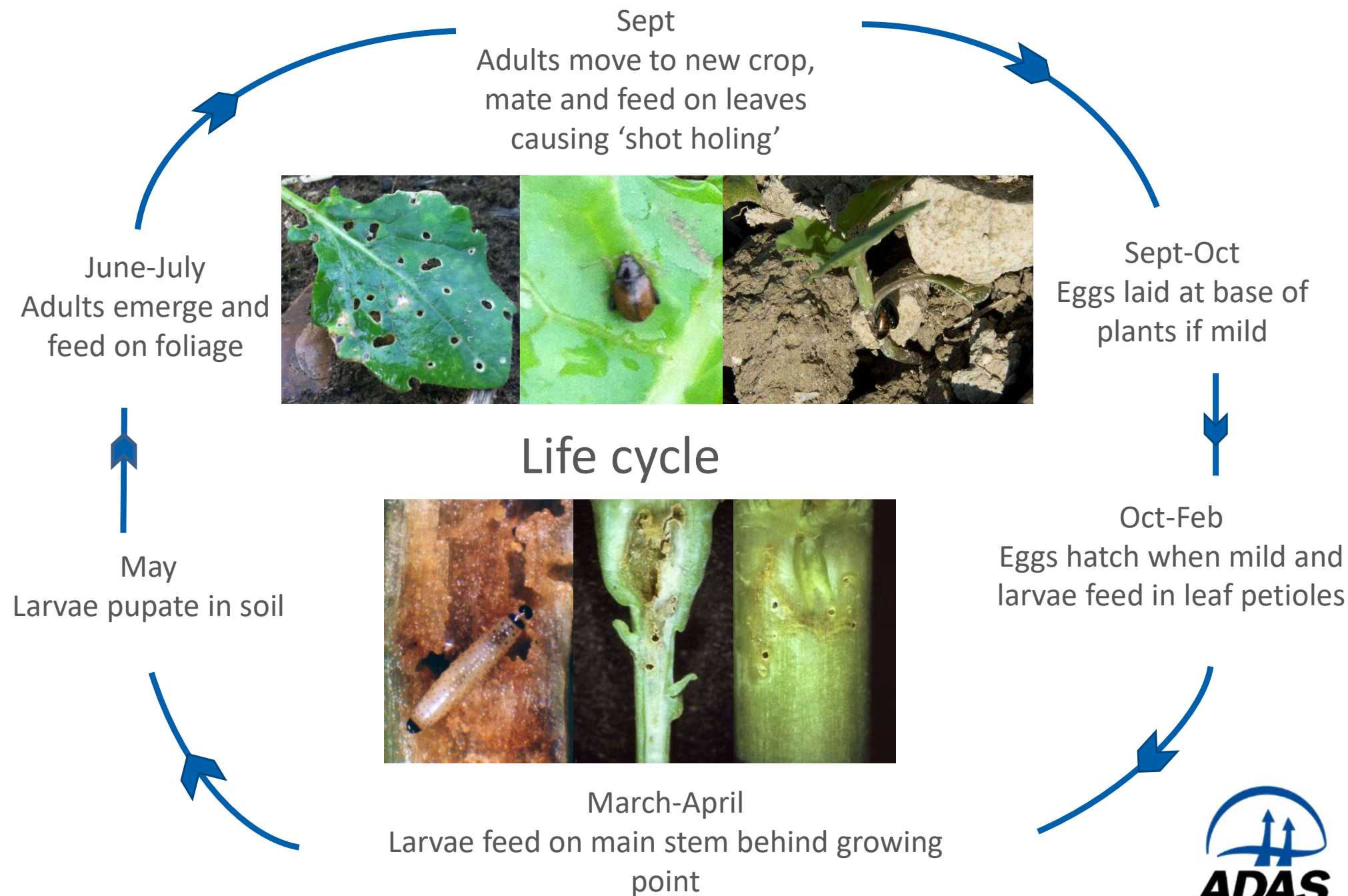
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# Cabbage stem flea beetle (CSFB)

- National crop losses estimated at:
  - 5% in 2014/15
  - 9% in 2016/17
  - 11% in 2018/19
- Larval populations increasing:
  - Highest for 14 years in 2015/16.
  - Second highest on record in autumn 2018.
  - Highest on record in spring 2019.
- Likely due to increasingly mild autumn and winter conditions.
- Few control options. Pyrethroid resistance has resulted in use tripling in six year (247k spray ha in 2010 to 722k spray ha in 2016).





Courtesy of Caroline Nicholls, AHDB





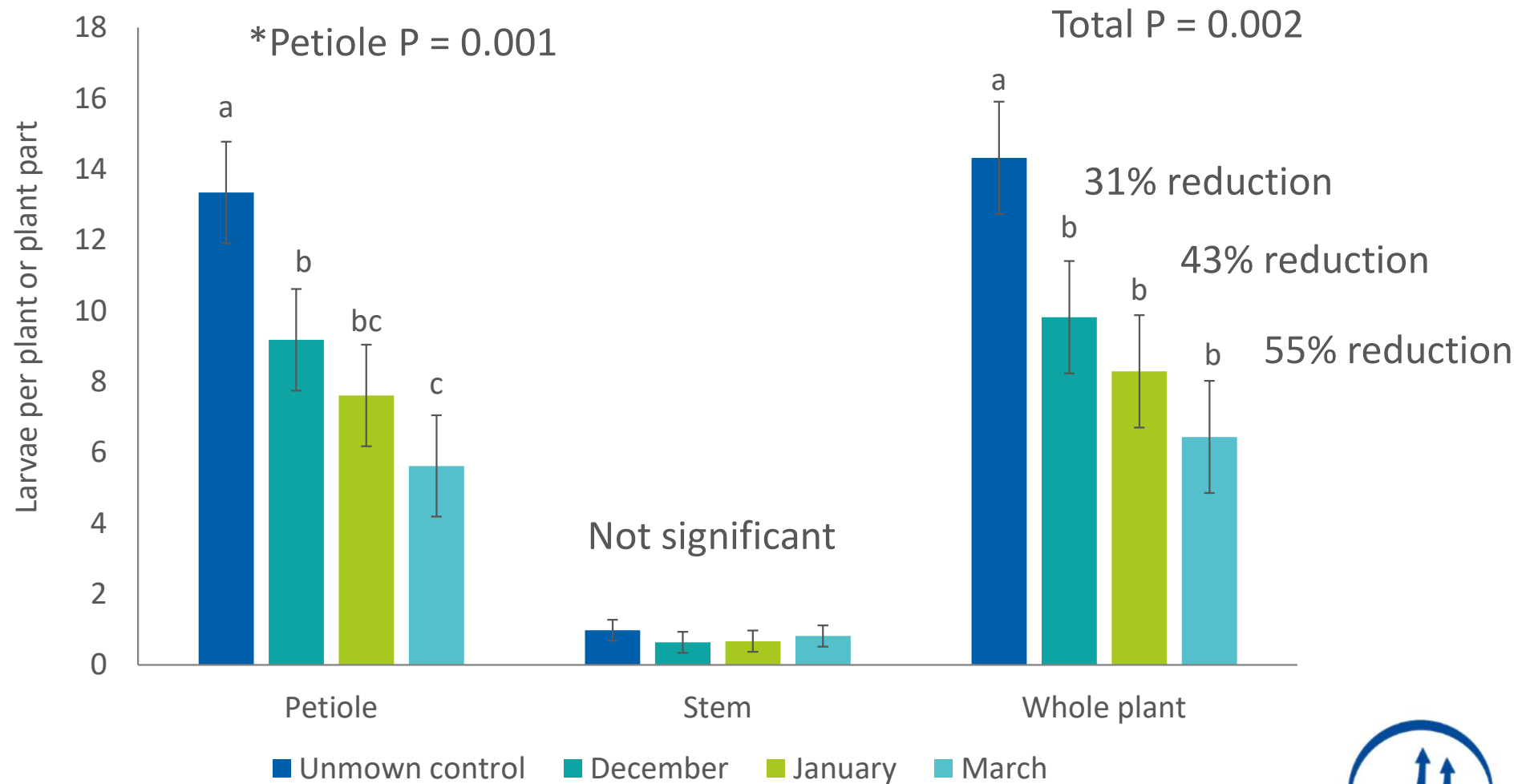
# Controlling larvae

- Resistance means pyrethroids provide little control.
- 2016/17 plot trial to investigate whether defoliation can control CSFB larvae?
- Previous work suggests negligible yield impact provided defoliation occurs before stem extension<sup>1,2</sup>.
- Larval control would occur by livestock ingesting them or defoliation exposing them to cold conditions and natural enemies.
- Randomised, replicated field trial looking at 4 defoliation (mowing) treatments: UTC, December, January and March (post stem extension)
- Assess larval numbers before and after treatment, and yield at harvest.

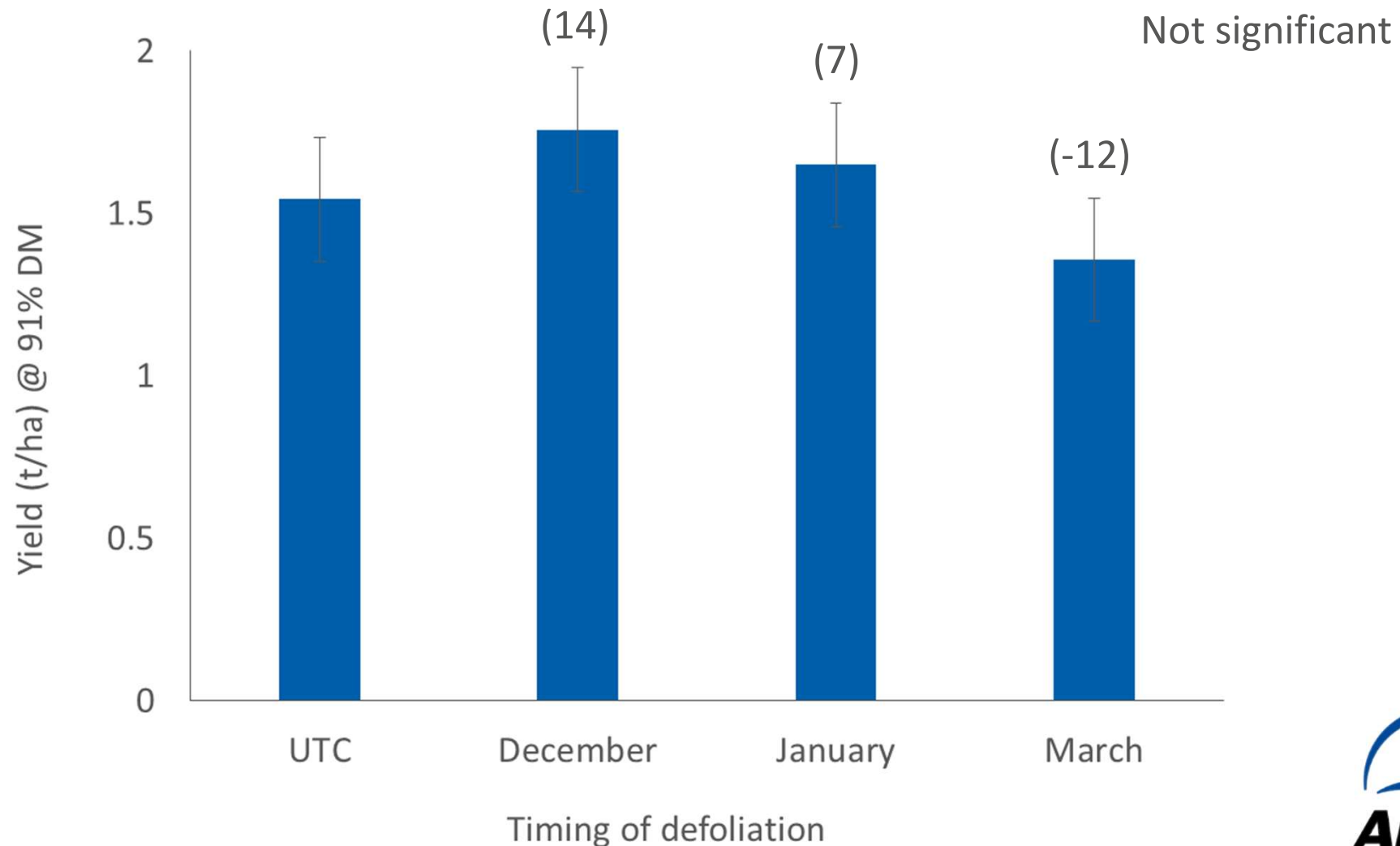


<sup>1</sup> Spink (1992), <sup>2</sup> Sprague *et al.* (2015)

# 2016/17 Impact of defoliation on larval populations (late March)



# Impact of defoliation on yield (Boxworth 2016/17) (figures in brackets = %difference from control)



# Innovative Farmer Field Lab

Aim: Assess the impact of defoliating oilseed rape during the winter on CSFB larval populations and yield at harvest on-farm.

## Why?

- Test the approach on-farm, using equipment available to farmers and carried out by farmers.
- Assess different methods of defoliation.
- Assess affect on larval populations and yield.
- Gather farmer feedback on practicality and economics of approach.
- Speed up the process of adopting new research.
- Identify a means of breaking pest life-cycle.



# Field Lab timeline

- |              |  |
|--------------|--|
| December     | - Project kick-off meeting.  |
| Dec – Jan    | - Form farmer network.   |
| Jan – March  | - Farmers top or graze. Defoliated area in same field as undefoliated preferred. |
| Late March   | - ADAS collect 30 plants from each treatment area per site.                      |
| March – June | - Farmers make additional assessments (e.g. pollen beetles).                     |
| Aug onwards  | - Growers provide yield data and feedback  |
| October      | - Final meeting  |
| November     | - Final report   |

