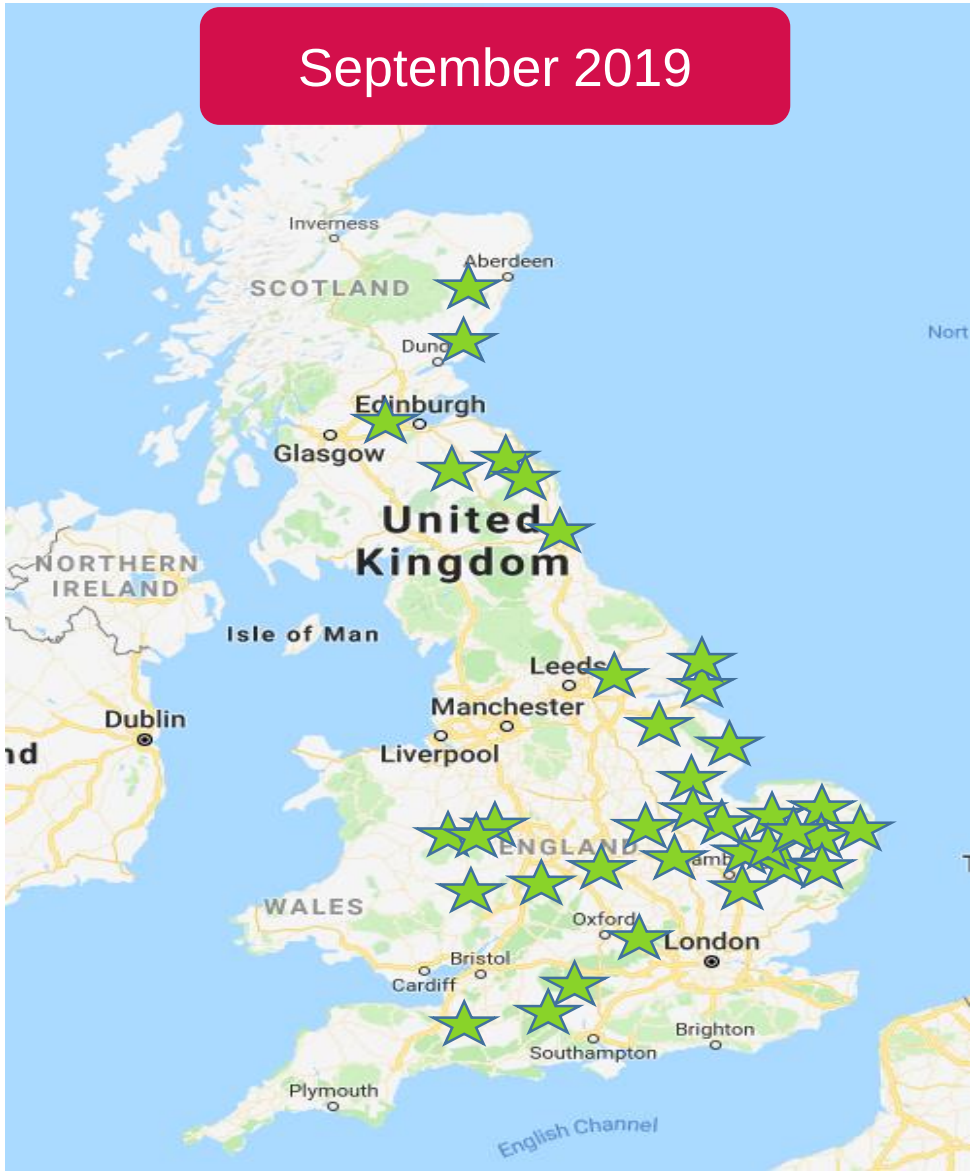
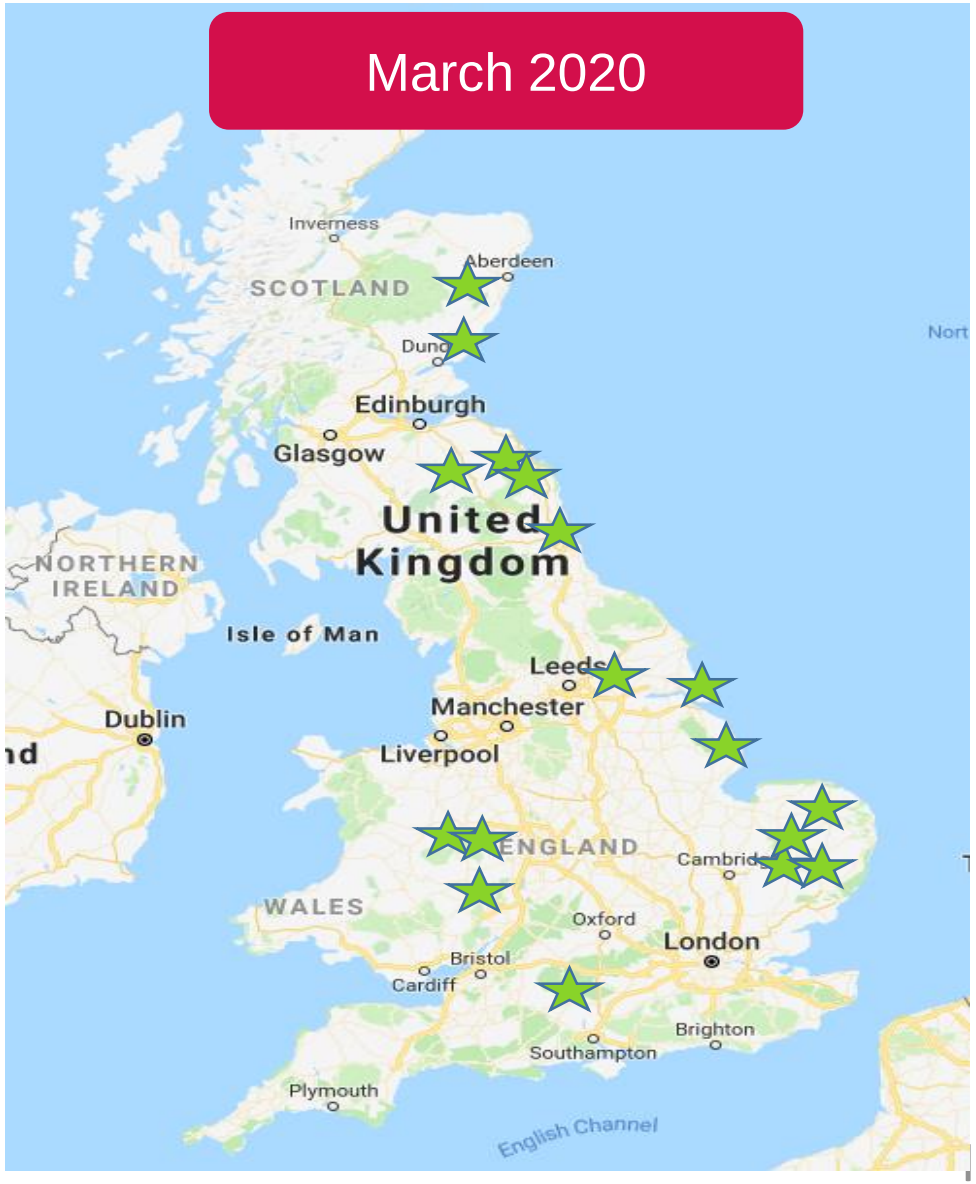
Oilseed Rape Establishment Factors

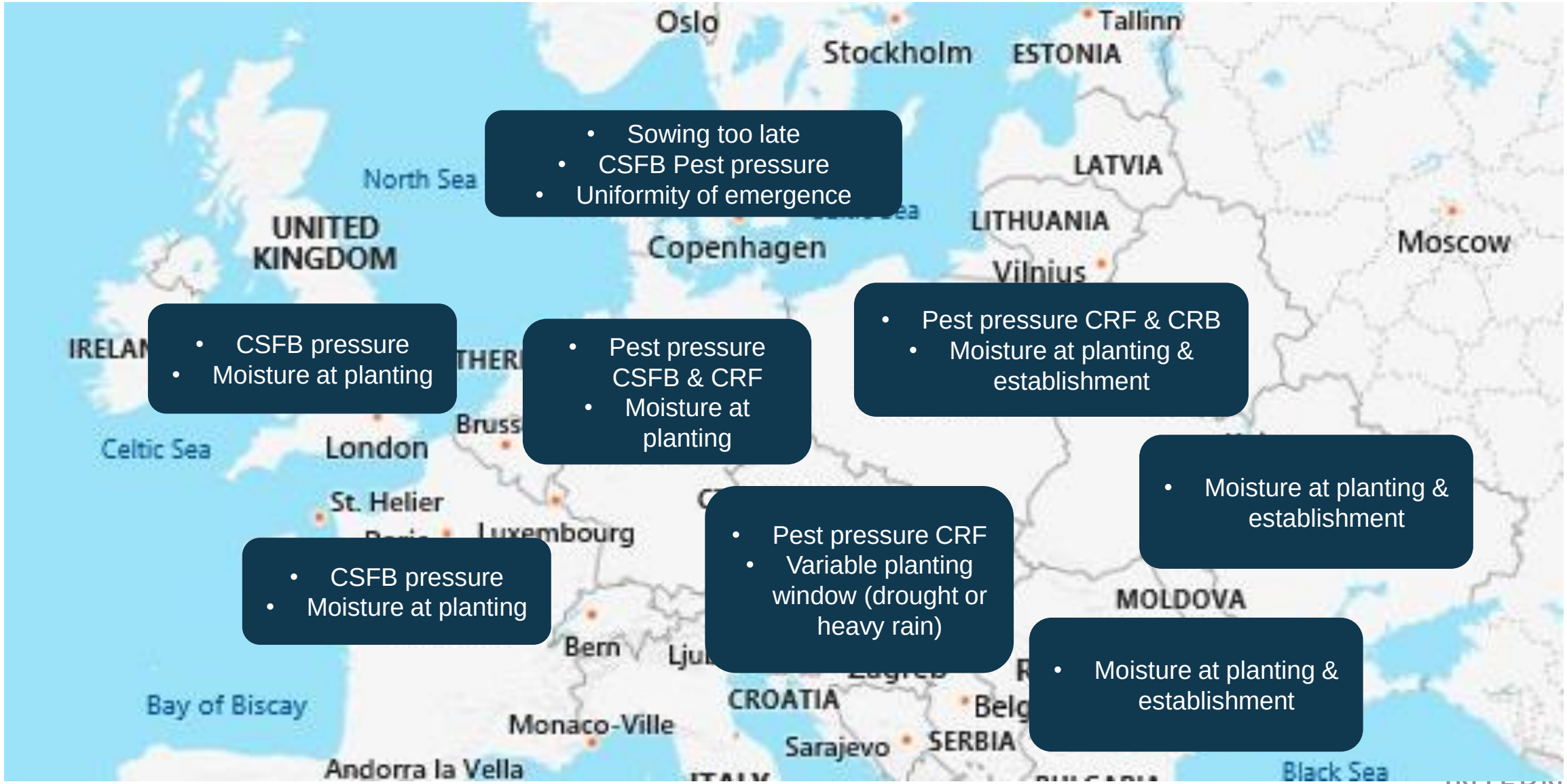
INTERNAL

DEKALB UK Trials - Planted *vs*. Survived





Recent Establishment Challenge's



What is considered successful OSR establishment?

Working through all the challenges to survive over the winter

Planting Machinery

Seedbed Preparation

Drought through establishment

Drought at planting

Waterlogging

Available nutrients

Dropping Temperatures

Downy Mildew
Phoma
Alternaria sp.
Damping off complex

Weeds

Cabbage Root Fly

Adult CSFB

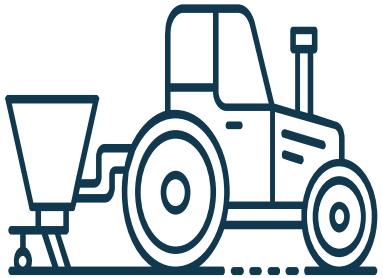
Homogenous Emergence

Vigorous Autumn Biomass

Consistent Plant Density

Sufficient Rooting

BBCH 16-18 Crop considered to have rooted sufficiently to produced enough leaves to survive the winter and reach maturity



Germination | BBCH 10 to 14 | BBCH 14 to 18

Major Stress Factors

Categorise what they are

Water

- Lack of moisture in soil can lead to crop failing to germinate on stalling at early emergence when vulnerable to pest attack
- Waterlogging can inhibit the plants growth
- Later drilling window can inhibit establishment due to the cold wet conditions

Weeds

- Can out compete the crop
- Compete with nutrients
- Host of pest and disease

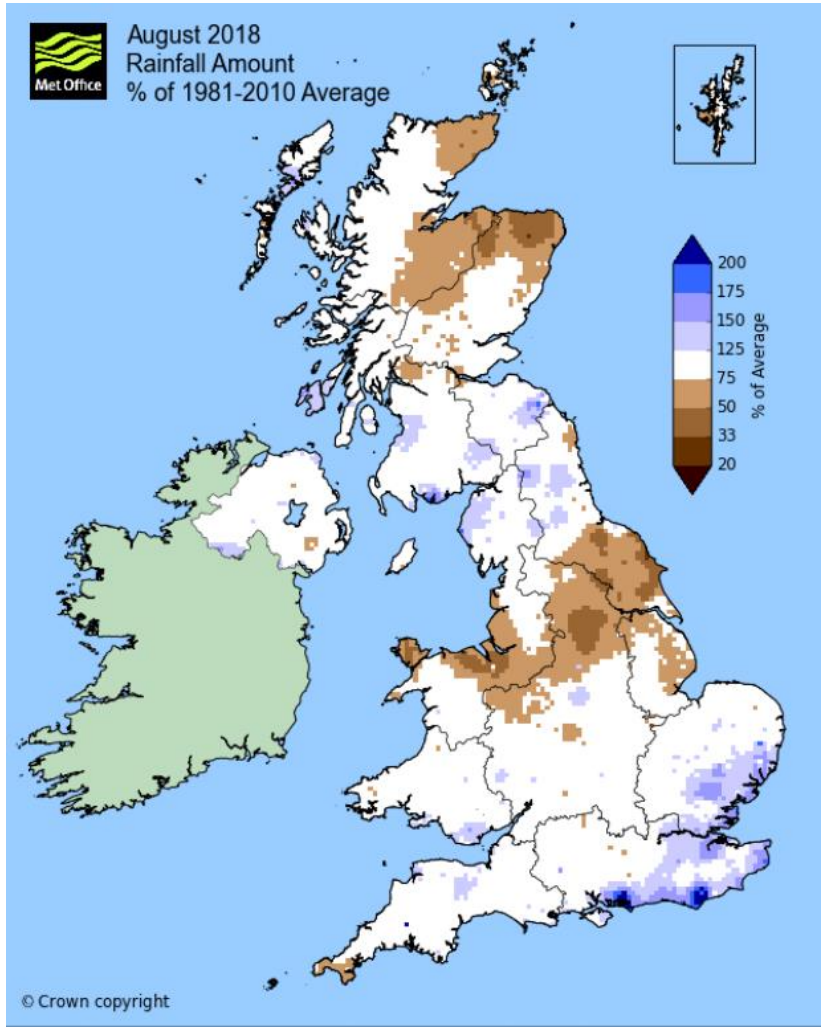
Pest Pressure

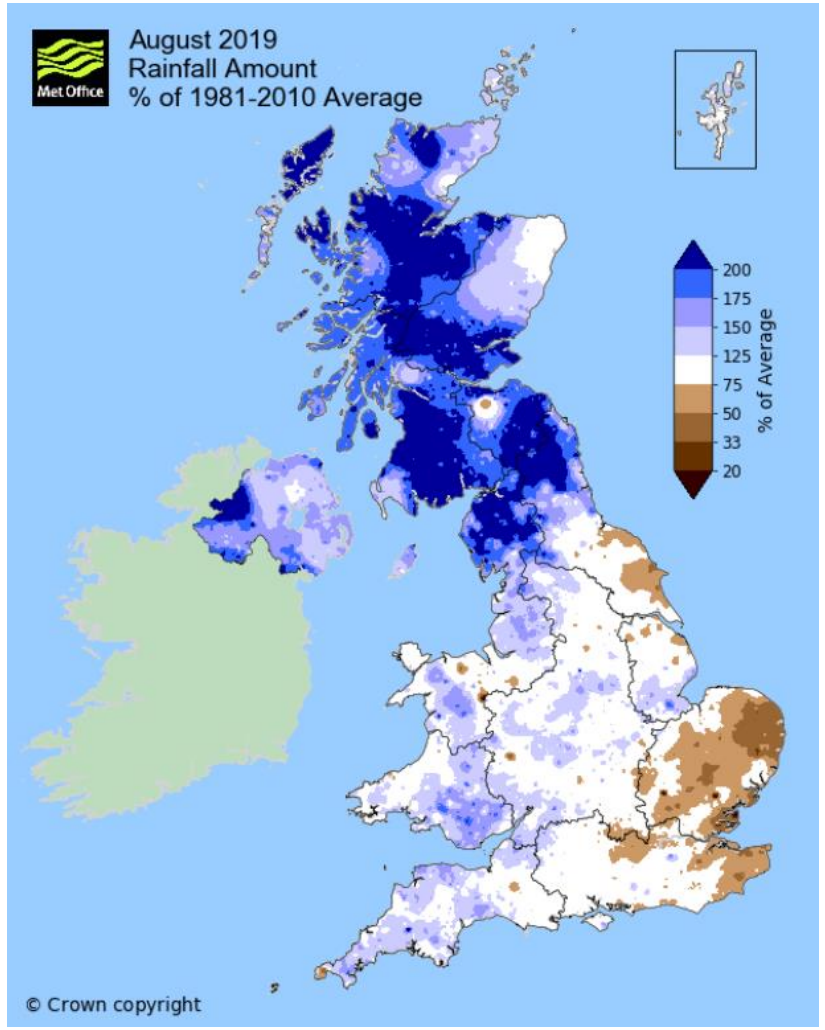
- High pressure can adversely effect crop at vulnerable stage
- Can lead to breakdown of crop protection product

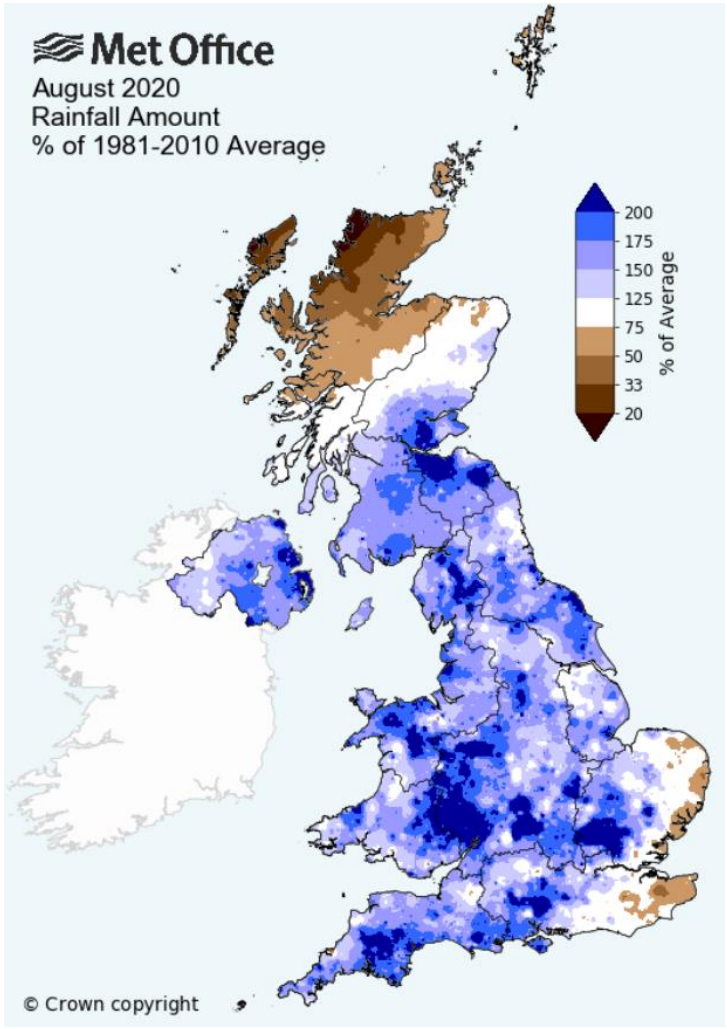
Nutrients

- Lack of N in autumn
- Compound pest pressure
- Early drilled crops growth can stall with low nutrients

UK Planting Conditions



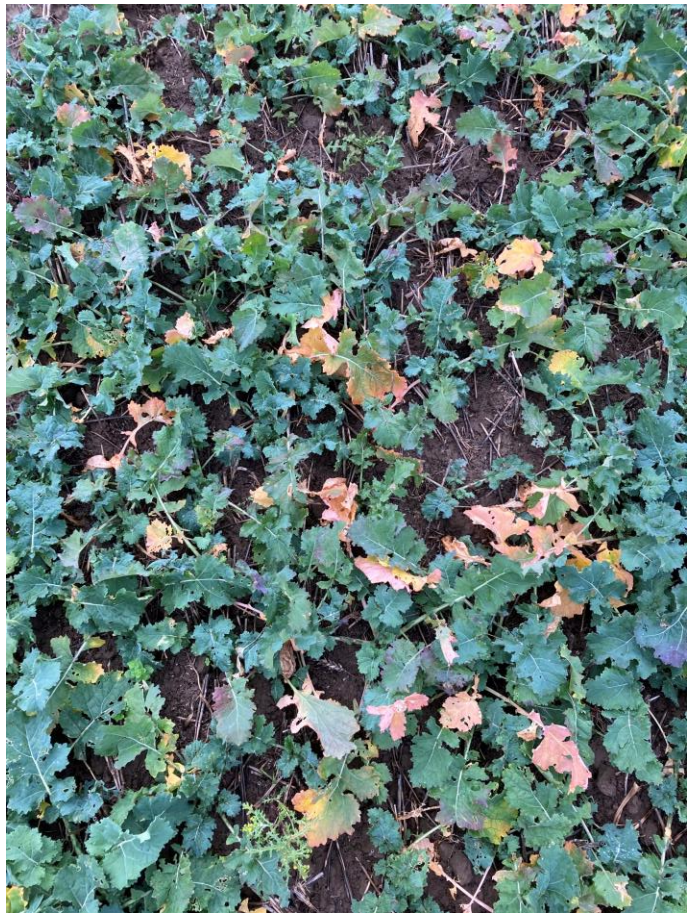




Planting Timing – The UK

27.08.2020

18.08.2020



Planting Timing - Poland

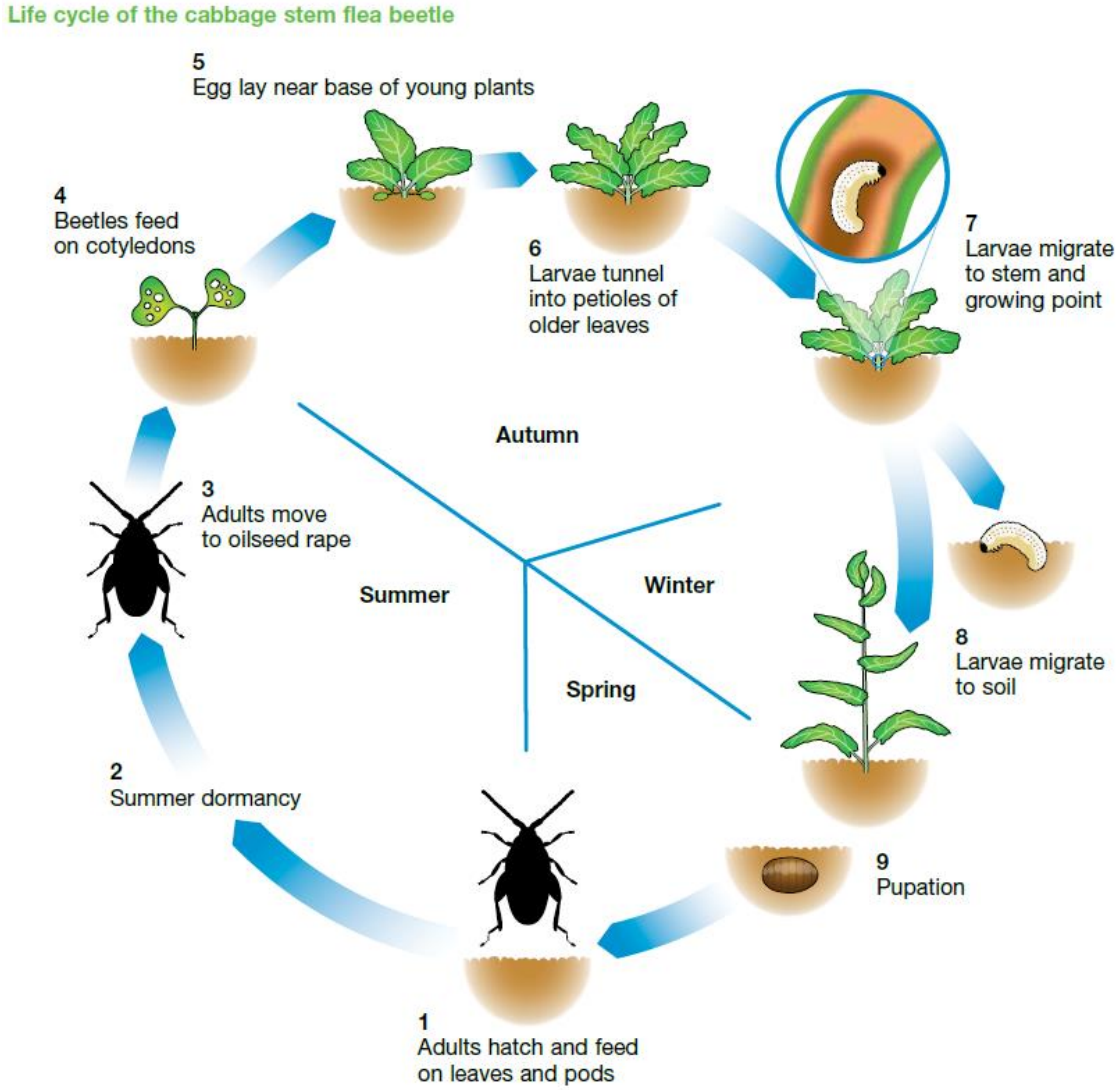
Standard Planting

DK EXCITED
Planting term:
08.09.2020
Stage 3-4 leaves

DK EXCITED
Planting term:
24.08.2020
Stage 6 leaves

Cabbage Stem Flea Beetle (CSFB)
Psylliodes chrysocephala

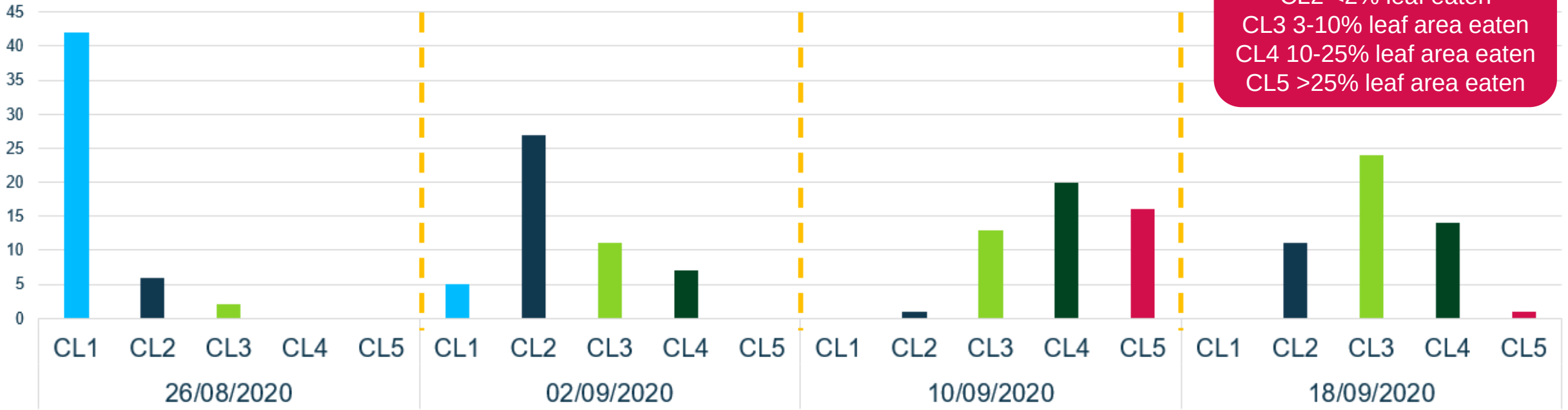
Can we manage this pest?



CSFB Feeding Damage

Lincolnshire Drilled 18th August – DK Extremus assessing 50 plants per timing

CL1 Healthy Plant
CL2 <2% leaf eaten
CL3 3-10% leaf area eaten
CL4 10-25% leaf area eaten
CL5 >25% leaf area eaten

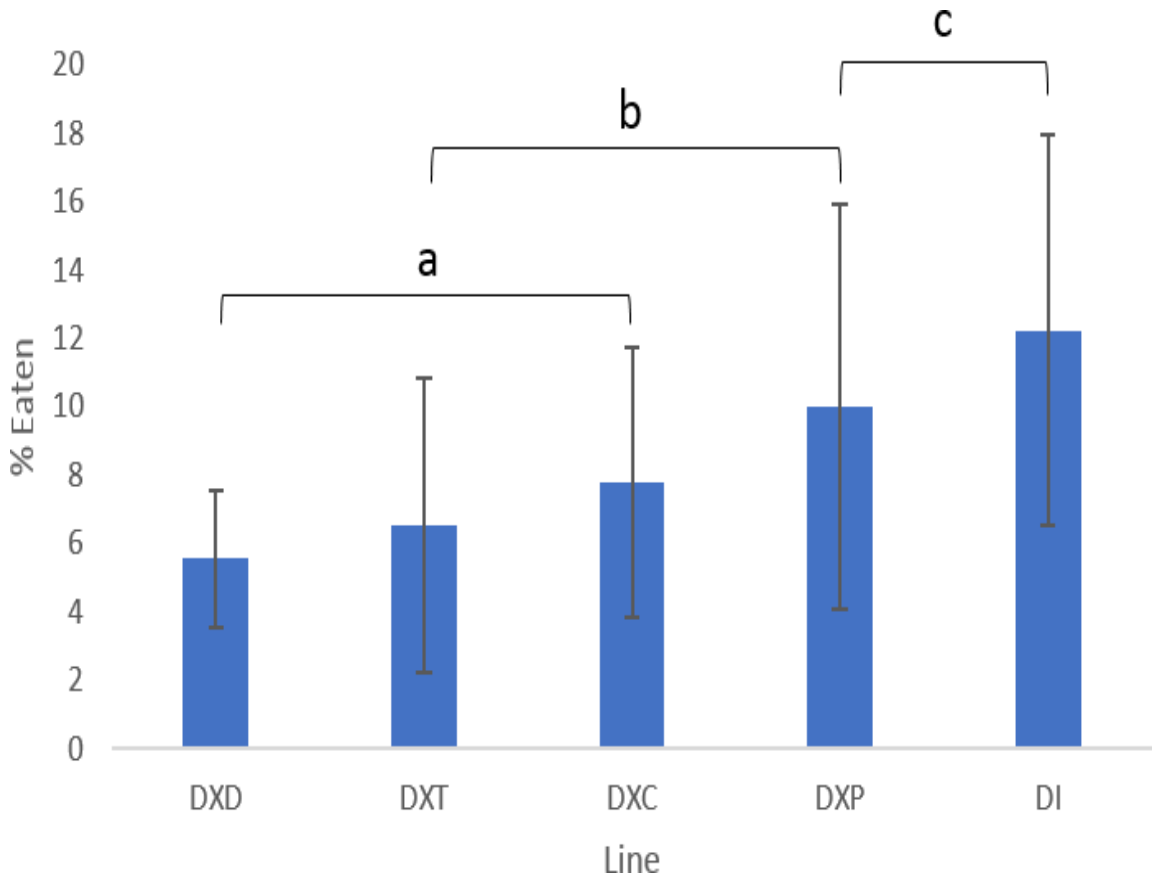


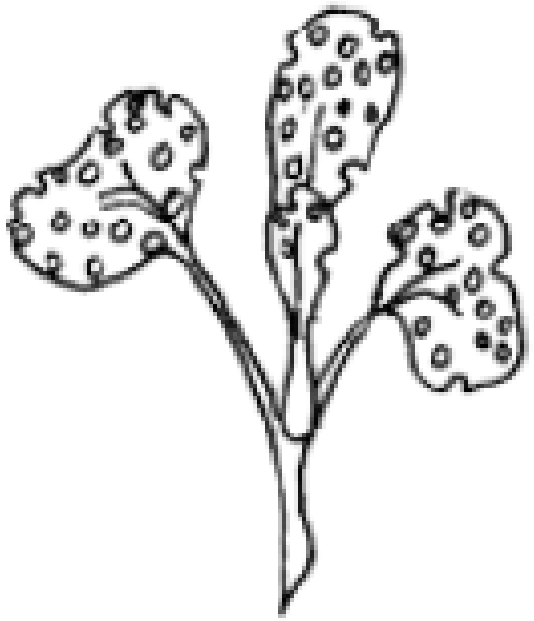
26th August

10th September

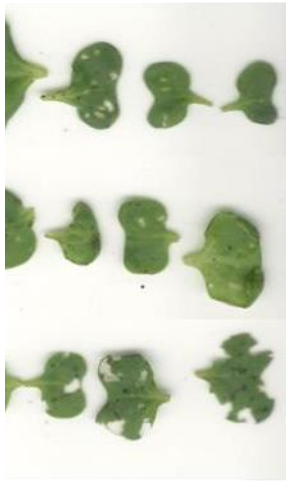
23rd September

Varietal Palatability of Adult CSFB - UK





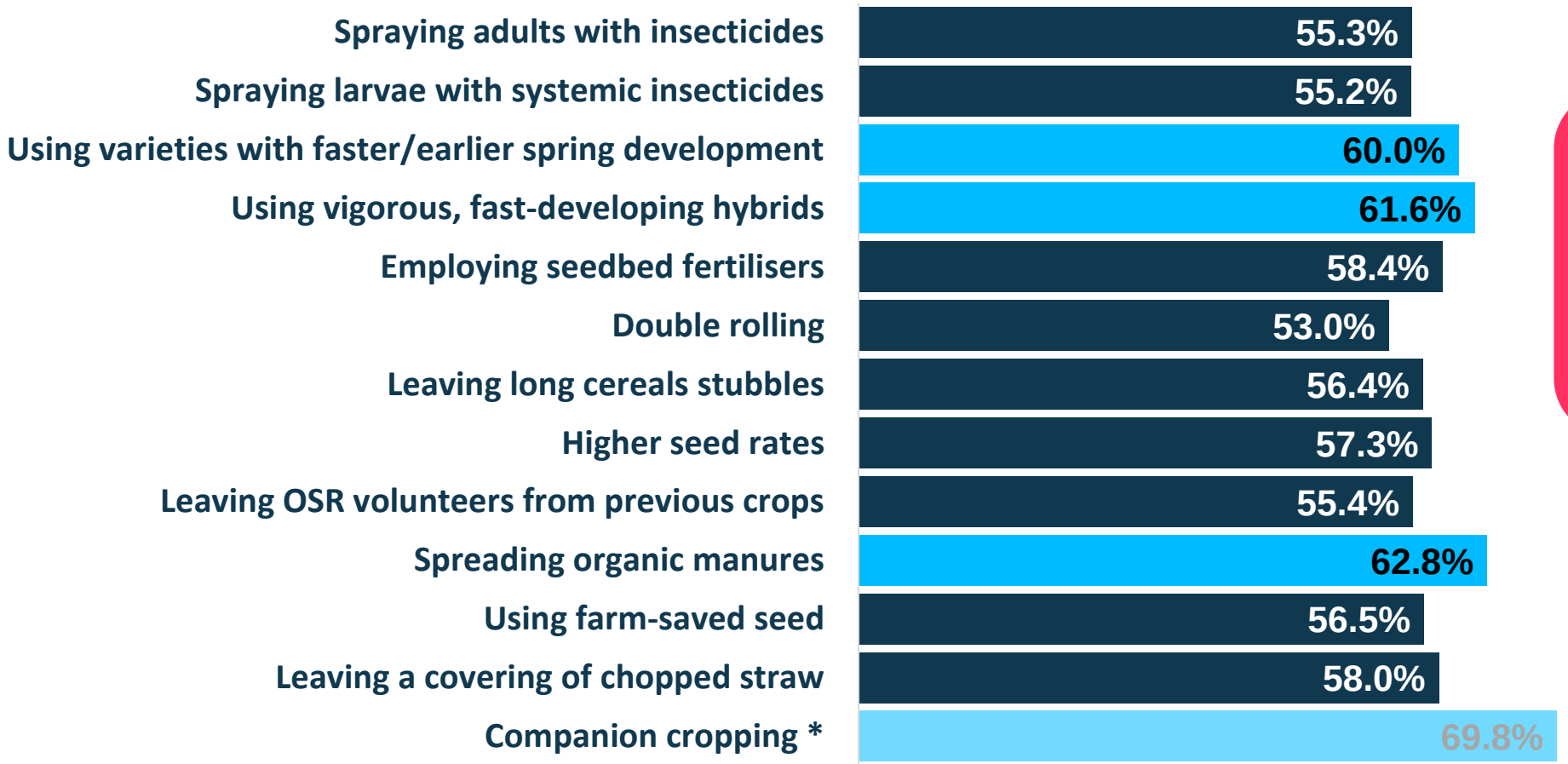
25% leaf surface eaten



National Grower CSFB Management Study

Conducted in April 2020 - 223 growers, responsible for over 24,500 ha of OSR plantings in 2019

Crop Survival to Harvest by Management Technique *(% of plantings)*



* Small sample size; treat data with caution

Only three widely-used techniques stand out as improving overall crop survival

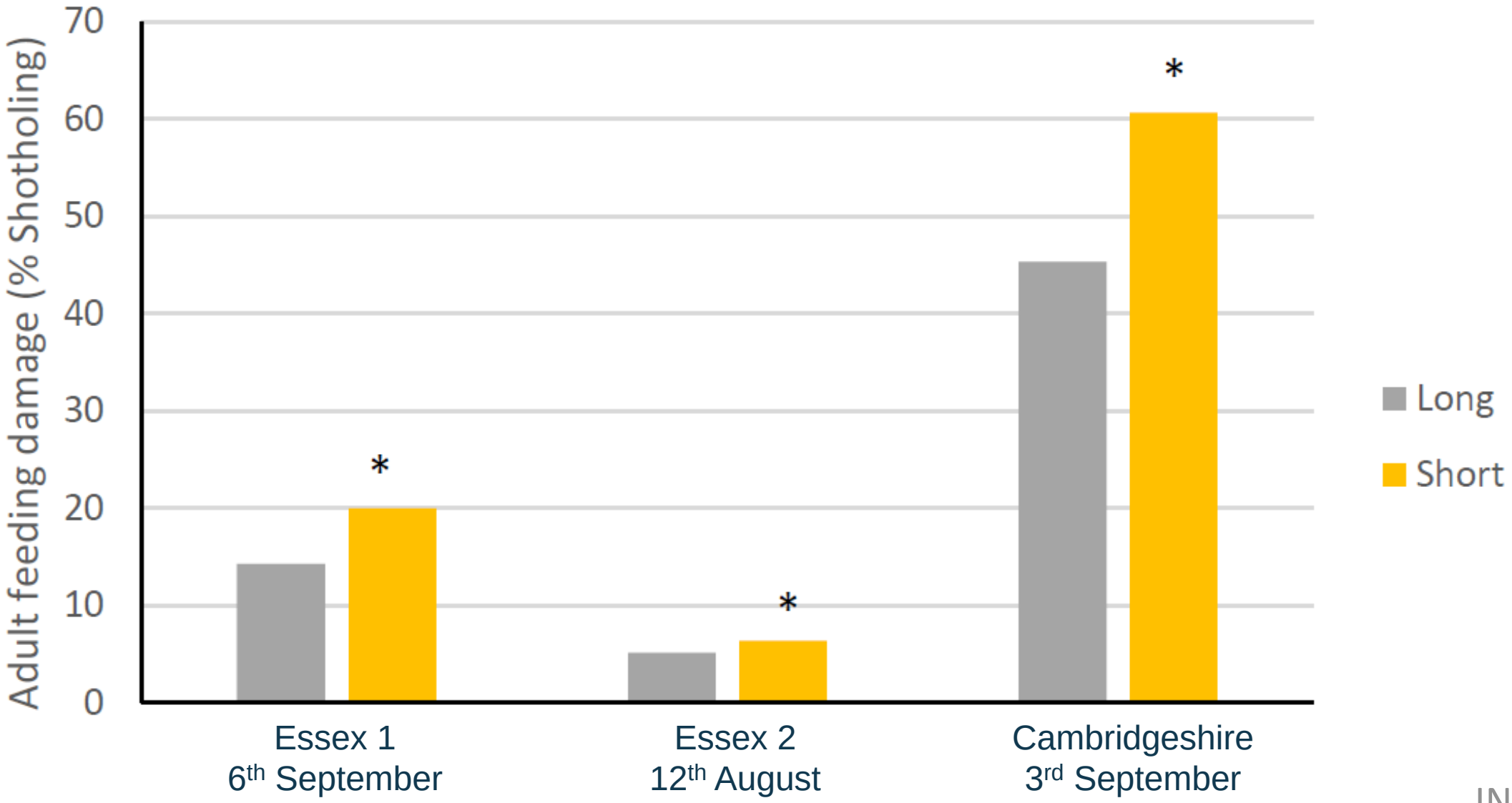
Speed of Autumn Development

Establishment Innovation Group

New Bayer CSFB Management Project with ADAS for 2020/21

- Building on the findings of the CSFB Management Study, with variety type and sowing into the right conditions central elements
- Tramline trial studies looking at alternative sowing regimes and practices alongside farm standards,
  - Straw Length – three farmers
  - Companion Cropping – two farmers
  - Double Rolled – one farmer
- Making soil moisture measurements and assessments of flea beetle pressure/damage

Establishment Innovation Group – Stubble Length



Type of Tillage System Effects Soil Moisture

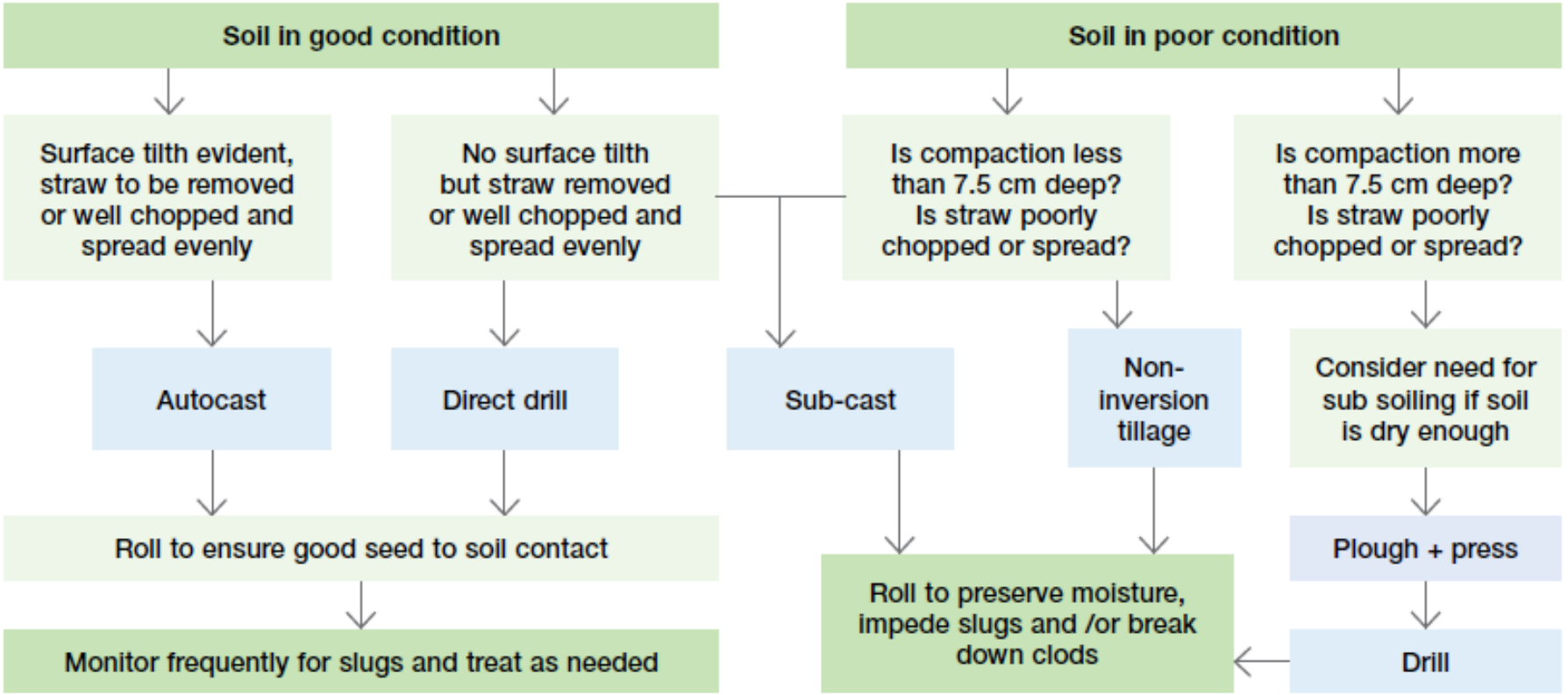


Table 1: Guide to sowing method choice.

Adapted from HGCA Information sheet 10: Soil conditions and oilseed rape establishment.

Note: insecticide treated seed must not be broadcast and must always be covered by soil.

Panting Method - Romania

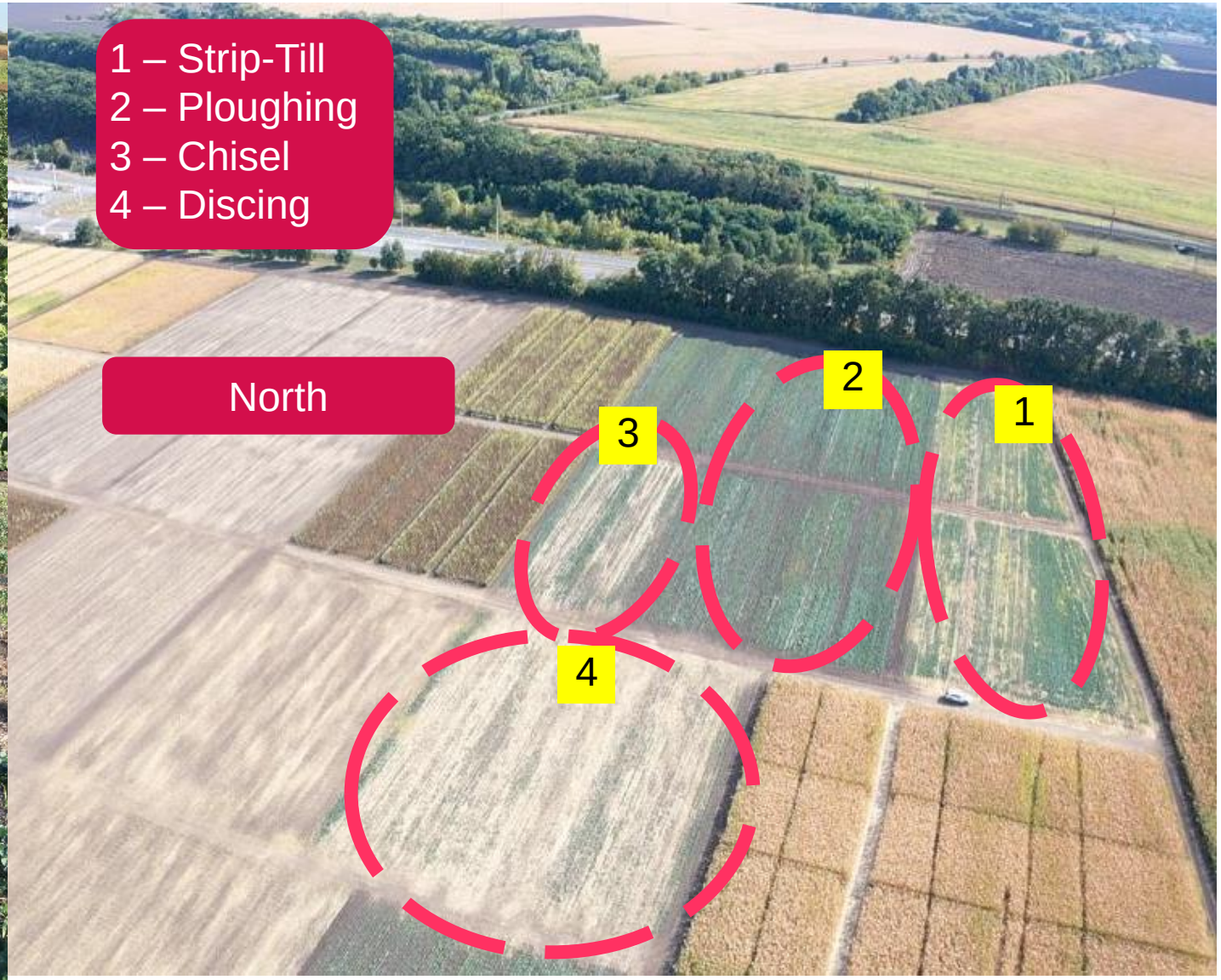
Ploughing

Soil works	Plants/m2
DK IMARET CL **Soil tillage-MinTill**	28
DK IMARET CL **Soil tillage-PLOUGH**	20
DK IMARET CL **Soil tillage-Strip Till**	26

Strip Till

Min Till

Panting Method - Ukraine



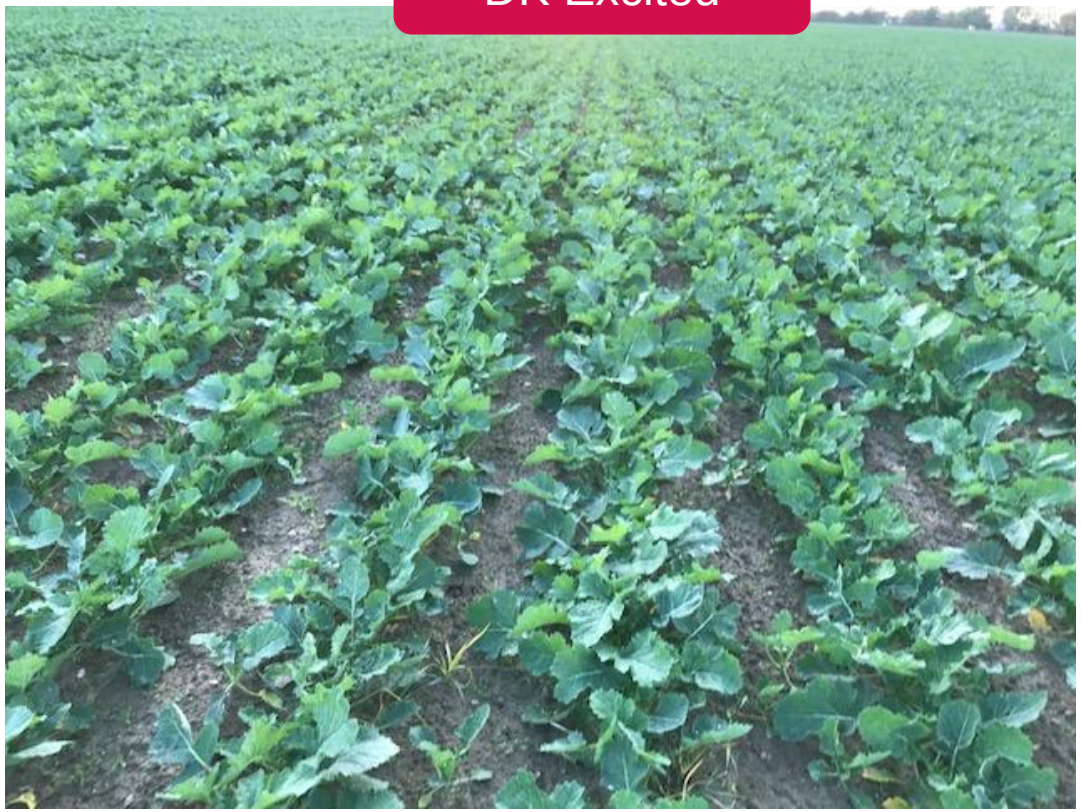
Panting Method - Poland

DK Excited

DK Exima

Standard Planting

DK Excited



Precision Planting

All Going into Best Practice Guide

Establishment Goals at OSR growth stages

EMEA
//// Market Development

Germination	Soil moisture Seed bed preparation Machinery Seed Quality	Seed Treatment Seedbed Nutrients Rainfall
BBCH10-14	Fertilization Insect pressure Soil moisture Hybrid Behaviour Planting Date	Seed Treatment
BBCH14-18	Available nutrients Insect pressure Hybrid Behaviour Planting Date Seed Treatment Rainfall	

Low Soil Moisture Situations

Click to add subtitle

- In **LOW** Soil Moisture situations **DELAY** drilling OSR if CSFB Pressure **MEDIUM** to **HIGH**
  - Lack of moisture in soil can lead to crop failing to germinate or stalling at early emergence when vulnerable to pest attack

% Difference in viable seedlings compared to standard control

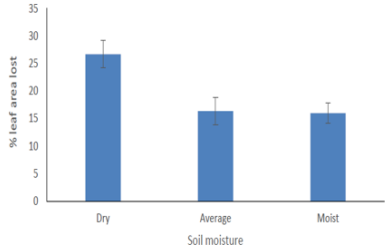


Figure 23. Mean % leaf area lost to adult CSFB in crops sown into seedbeds with different soil moisture levels. Error bars indicate standard error of the mean.

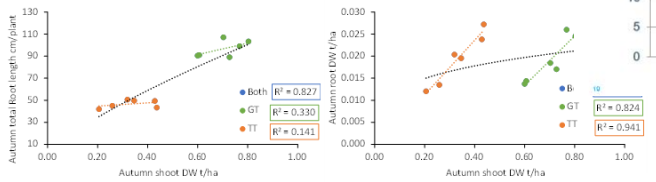
Source; Integrated pest management of cabbage stem flea beetle in oilseed rape Project Report No.623 S. White *et al* 2020

Fertilizer improves early establishment by 30%

Yara, 3 x 3 Project 2014, seed rate 50plants/m²

The Importance of Good Roots

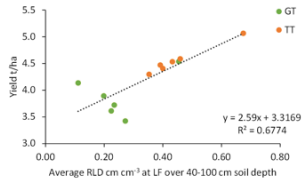
A. Click to add subtitle B.



The relationship between the autumn shoot dry weight (DW) and the autumn A. total root length; B. root dry matter t/ha at two sites, the Gleadthorpe site (GT and the Terrington site (TT). The R^2 values are given.

Autumn root vs Shoot Growth

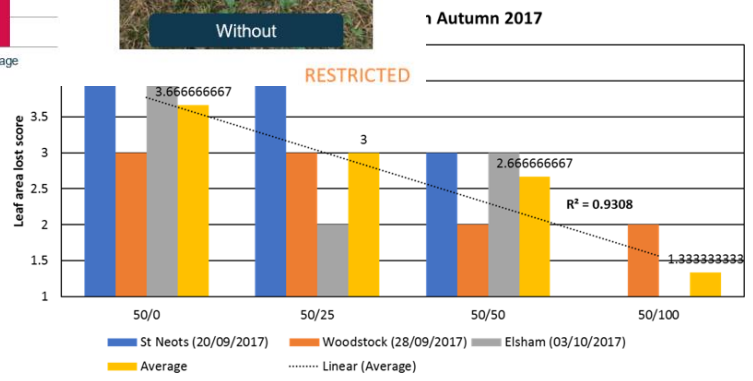
Root length density vs Yield



The relationship between the RLD cm cm^{-3} at late flowering in the 40-100 cm soil horizon and the yield (t/ha) at two sites, Gleadthorpe (GT) and Terrington (TT). The equation of the best fit line and the R^2 value is given.

y vs White Mustard

EMEA
//// Market Development



X axis
1st Number – OSR Seed rate
2nd Number – White Mustard Seed rate

Y Axis
1-9 rating where 9 denotes higher levels of damage

Some reduction in CSFB autumn grazing and CSFB larvae numbers where White Mustard is grown alongside OSR, this effect increases with the mustard rate

Source: DEKALB OSR/White Mustard Strip Trials 2016/17

28 ADAS, 2015. Rapid Rooting Study for Monsanto UK Ltd

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Thank you