AFCP Webinar 15/04/2024

Oilseed rape: biopesticides for CSFB

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CEREALS & OILSEEDS

Oilseed rape in the rotation

- Acts as a break crop in the rotation
- Can help reduce pest burden in the following crop e.g., grass weeds and take-all
- Beneficial for cereals grown after OSR – associated with increase in yield
- Different management strategies to cereals

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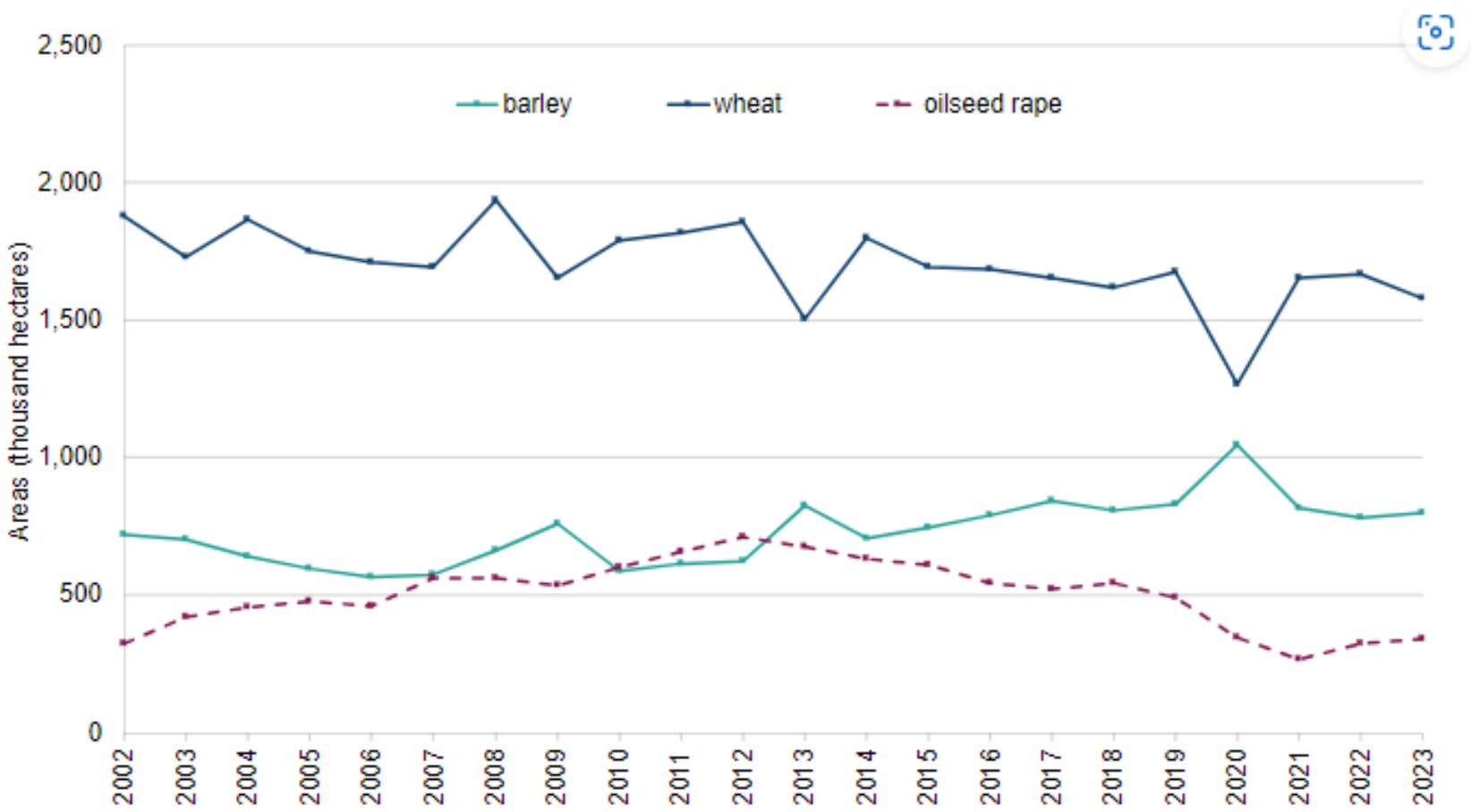
OSR growing area



https://www.gov.uk/government/statistics/cereal-and-oilseed-rape-areas-in-england/cereal-and-oilseed-rape-areas-in-england-at-1-june-2023

OSR growing area

Thousand hectares	Defra June Survey for harvest 2023	March 2024 EBS forecast for harvest 2024	% year-on-year change
All wheat	1,720	1,463	-15%
Winter barley	455	355	-22%
Spring barley	682	881	29%
Oats	167	209	26%
Other cereals*	65	53	-18%
OSR	391	280	-28%
Other oilseeds**	26	20	-24%
Pulses	275	236	-14%
Arable fallow	311	558	79%
Other crops on arable land***	709	745	5%
TOTAL	**4,800**	**4,800**	

*crops included are rye, triticale and mixed grains
**crops included are linseed and borage
***crops include sugar beet, potatoes, vegetables, maize (33%) and temporary grass (20%)
Source: Defra, The Andersons Centre for the AHDB

https://ahdb.org.uk/cereals-oilseeds/early-bird-survey

- Growing area predicted to be lower than in 2023 by 28%
- Challenges faced this growing season:
  - Heavy rainfall
  - Waterlogging
  - Pests

Alternative controls for CSFB

- Limited available control options
- Insecticide resistance
- Changing attitudes towards the way we control pests
- Integrated Pest Management

CEREALS & OILSEEDS

Monitoring insecticide resistance

Home > Knowledge library > Monitoring and managing insecticide resistance in UK pests

Monitoring and managing insecticide resistance in UK pests

Summary

Sector:	Cereals & Oilseeds
Project code:	21510015
Date:	01 April 2012 - 01 May 2022
Funders:	Agrii, AICC, BASF, Bayer, BBRO, Belchim, Certis, Corteva, FMC, Frontier, Hutchinsons, NuFarm, Procam, Sumitomo and Syngenta
Project leader:	Rothamsted Research

Downloads

21510015 Annual Project Report (2022-23).pdf
21510015 Annual Project Report (2021-22)
21510015 Annual Report (2020-21)
21510015 Annual Project Report (2019-20)
21510015 Annual Project Report (2018-19)
21510015 Annual Project Report (2017)
21510015 Annual Project Report (2016)
21510015 Annual Project Report (2015)
21510015 Annual Project Report (2014)
21510015 Annual Project Report (2013)
21510015 Annual Project Report (2012)

About this project

The sensitivity of key pest species to insecticides is monitored by this long-term project. The results show which active ingredients are affected by insecticide resistance. The information can be used to inform management strategies and minimise the risk of control failures. The project helps to retain the availability of effective pesticides and provides robust scientific support to the regulatory decision-making process.

Related resources

The Insecticide Resistance Action Group (IRAG)

Update on pyrethroid resistance in crop pests

https://ahdb.org.uk/monitoring-and-managing-insecticide-resistance-in-uk-pests

Novel Approaches to CSFB Project

- Filling the knowledge gaps – currently no available biopesticides for CSFB in the UK
- Growing interest in biopesticides
- Can be used as part of an IPM programme
- Good foundation for future research

Home > Knowledge library > Novel approaches to control cabbage stem flea beetle (CSFB) (PhD)

Novel approaches to control cabbage stem flea beetle (CSFB) (PhD)

Summary

Following the neonicotinoid seed treatment ban in 2013 and the **development of resistance in CSFB to pyrethroid sprays**, alternative options (not based on synthetic chemistry) are urgently needed.

Chapter 1: Biological control agents for use against CSFB

Relatively few studies have investigated biological control agents against CSFB. However, more research has been published on two closely related chrysomelid pests of brassica crops that have similar life cycles, namely the crucifer flea beetle and the striped flea beetle, which enable us to extrapolate reasonably across to CSFB.

The biological control agents investigated include entomopathogenic fungi (EPF) such as *Metarhizium anisopliae* and *Beauveria bassiana*, entomopathogenic nematodes (EPN) such as *Steinernema feltiae* and *Steinernema carpocapsae*, parasitoids such as *Microctonus brassicae* and predators such as the ground beetle *Trechus quadristriatus*.

Results vary depending on the setting (laboratory versus field), but several biological control agents investigated resulted in CSFB mortality greater than 50% under laboratory conditions. The biological control of the CSFB shows potential as an alternative to the use of conventional synthetic insecticides. Nonetheless, many research gaps remain, as current research has focused largely on crucifer flea beetle and striped flea beetle, with comparatively few studies investigating the potential of biological controls against CSFB. The research published on CSFB has been limited to a small number of species of EPN and EPF with comparatively little work investigating the potential of parasitoids and predators. More field studies using EPF are required while. In contrast, laboratory studies are underrepresented for EPN. Further research is

Related resources

Is there a biological solution to OSR's CSFB woes?

https://ahdb.org.uk/novel-approaches-to-control-cabbage-stem-flea-beetle-phd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