

Fungicide Resistance Action Group-UK

FRAG - UK



FRAG-UK 47th Meeting
9:30, Thursday 19th November 2020
Conducted over TEAMS

Minutes

Present	
Chair	Prof F Burnett (SRUC)
Secretary	Position open
Members	Mr S Jackson (Corteva) Dr K Maguire (Bayer CropScience) P. Kowalski (BASF) Mr B Clark (NIAB-TAG) Dr L Cooke (Specialist/QUB) C. Lambourne (AHDB) Mr M Thompson (AICC) Dr B Fraaije (NIAB-TAG) Mr R Dyason (Nu Farm) Dr D Ellerton (AIC) Dr J Tatnell (Syngenta) Dr S Kildea (Teagasc) Mr A Bailey (Adama) Dr G Kemmitt (FRAC) Dr J Turner (FERA) Dr J Clarkson (Warwick Crop Centre) Mr A Sisson (Belchim) Mr L Powers (Certis) Dr J O'Leary Quinn (HSE)
Guests	Catherine Harries (AHDB) Dr F. Ritchie (ADAS)
Apologies	Dr N Paveley (ADAS) Dr T Fleming (AFBI) Mr D Pendergrast (Arysta)

A copy of the current FRAC anti-trust guidelines was circulated during the meeting.

1 MEMBERSHIP

Due to new members and guests at the meeting, all attendees were invited to introduce themselves.

Fiona wished Paul Ashby well in his new endeavours and to formally thank him for all contributions to FRAG. JQ to pass this on to Paul

2. CONFIRMATION OF PREVIOUS MINUTES

3. ACTIONS FROM PREVIOUS MEETING

3.1 Taking minutes from the meeting - The role of Sec will be circulated between members. KM to take the minutes for the 47th meeting. It is expected that speakers will provide a summary of their presentation to add to the minutes for their section.

3.2 Discussion on the recording of the meeting – It was decided that this would not be beneficial and could stifle the free discussion, which is an essential part of the meeting.

3.3 It was agreed that the Constitution should be amended to make it clear that new members are expected to agree to share their email address. It was also agreed that the revised Constitution would no longer contain details of individual members (published minutes will continue to contain individual names).

ACTION: SEC to update the FRAG Constitution to include a data protection policy statement based on the final yet-to-be agreed IRAG wording, then circulate for agreement prior to it being uploaded onto the website.

4. GDPR Policy

Members present reminded that there was an agreement to share email addresses openly within the group for the purposes of FRAG-UK business only. Any current member who did not wish their email to be shared was subsequently requested to let Sec know and Bcc will be used.

5. FRAC Update (GK)

GK provided an update from the recent FRAC meeting which was held online. Highlights include - Crop Life building links to local groups and EPPO with a Steering group to set the strategy 'till 2025. Crop Life are undertaking a study on Antifungal Resistance especially in human pathogens, to understand where this is coming from and the role of antifungals in agriculture. FRAC are contributing to the new EPPO database for arthropods, weeds, fungi and nematodes for use

by authorities/governments. FRAC are looking at how best to categorise biologicals as there are increasing numbers of questions on this.

Discussion on Biologics / biopesticide / biostimulant – manufacturers would appreciate FRAC classification and Mode of action but this is often complex or unknown. Concluded that FRAG will not get involved apart from referring to IPM.

2) Website has been updated. Any feed back to GK.
Next meeting will be March 2021

7. FRAG-UK Guidelines

7.1. General Fungicide Guidelines

The Cereal guidelines have been circulated and comments back to BC. This is now with AHDB and is available on the website. The decision on the number of printed copies was left with AHDB depending on their priorities. The brand name 'Fungicide Futures' is now being dropped as it was causing confusion.

On the website there are some documents (pdf) which are out of date eg with reference to CTL. FB with help from LC to identify and share with the team for comment where needed (**Action: FB and LC**)

Question: Can the guidelines be downloaded and printed (not just a web page) so these can be kept and referred back to by those who are interested. (**Action CL/CH to check**) **Post meeting note – they can be downloaded.**

7.2 Update on the Resistant Pathogen list

EPPO database on Resistant pathogens. Some documentation had already been circulated. CRD requested FRAG input on the colours on the table. These will be sent round with a deadline to help complete the additional information requirements. For some pathogens there are a lot of mutants – should they all be listed or just field mutants? It was unclear how this document fed into the FRAC database. Also who will have access to the list?

(**Action: J OQ** to follow up on the questions raised and to circulate document (or place on TEAMS) with instructions on how to edit the document, **ALL** to work on the document)

7.3 Strategic messages for 2021

Information on the loss of mancozeb especially for potato and horti crops and the effect this will have. AHDB has use data for Horti and potato crops which could be useful. Potato guidelines will also need updating

Action: FR with help from **CL** and **John Clark** to look into this

8. Research Updates

8.1 – Dr Faye Ritchie ADAS

Update on results from AHDB project 622 'Maximizing the effective life of fungicides to control oilseed rape diseases, through improved resistance management conducted during 2017 to 2019.

Key points:

The *P. brassicae* population in GB has shifted in 13 years from around 30% wild type strains, 10% wild type strains + promoter inserts, 25% G460S mutation and 25% S508T mutation to a population consisting of predominately the G460S mutation + promoter inserts. The S508T mutation was rarely found during this project. Genotypes with G460S + promoter inserts had higher EC50 values than promoter inserts and G460S alone generally, however, field trials showed that the presence of the G460S mutation did not affect the field performance of azoles vs non-azoles. This is supported by efficacy data from field trials in the AHDB Fungicide performance project where azoles perform similarly to non-azoles for disease control and yield.

Link to the report:

<https://projectblue.blob.core.windows.net/media/Default/Research%20Papers/Cereals%20and%20Oilseed/2020/PR622%20Final%20Project%20Report.pdf>

Discussion on the potential cost of stewardship in OSR and the need to use a different MOA (non-azole) for Sclerotinia control.
SK has a PhD student currently working on LLS.

Action: FR to look at OSR guidelines to see if they need updating.

8.2. SK presented results of research looking at the control of *Ramularia collo-cygni* in Ireland

An overview of Irish winter and spring barley trials conducted in 2019 and 2020 was presented. The aim of trials was to evaluate efficacy of main fungicide groups for control of *Ramularia*. With the exception of the untreated control the trials were oversprayed with a half rate of Proline and Comet at the end of tillering. Test treatments were applied at GS49 and with the exception of chlorothalonil all were applied at the recommended label rate. High disease levels were observed in 2019 in all trials, whilst only moderate levels were observed in the spring and winter trial conducted at Kildalton in 2020. Due to low disease levels no data was presented for Oak Park in 2020. In both seasons chlorothalonil provided the best levels of disease control, Proline provided moderate levels of control, comparable to those provided by folpet. Lower levels of control were provided by both the SDHI Imtrex and QoI Comet, demonstrating the impact resistance on levels of efficacy. In 2020 Revystar was included in the trials and at the full rate provided comparable levels of control to chlorothalonil. An overview of winter barley fungicide dose x variety trials from 2016-2019 were

presented demonstrating that optimum fungicide responses (margins over fungicide costs) were in most instances similar across the different varieties, and for a three spray fungicide programme doses of the mixture fungicide treatment (Proline and Jenton) ranged from 0.18 – 0.43 of the full recommended rates of each product.

8.3 BF AHDB project Monitoring Resistance to foliar fungicides in wheat and barley.

BF presented results from the AHDB-funded project 21120018 'Monitoring resistance to foliar fungicides in wheat and barley pathogens'. The current focus is on *Zymoseptoria tritici*. Key objectives are monitoring of sensitivity shifts to existing and new MOA entering the market, investigating the effect of fungicide spray programmes, establish which resistance mechanism are operating, develop DNA-based assays to quantify levels of fungicide-resistant alleles and to engage in KT activities. Early season monitoring of untreated Rothamsted populations did see a further shift in insensitivity for prothioconazole-desthio between 2017 and 2018, but the sensitivity has not changed during 2018 to 2020 with most EC₅₀ values falling in the narrow range of 0.06 to 2.3 ppm. A wide range of sensitivity was recorded for mefentrifluconazole with EC₅₀ values recorded between 0.0005 and 1.5 ppm for the 2020 population. The most frequently isolated CYP51 variants in the 2020 population were [L50S, V136A, S188N, A379G, I381V, Δ & S524T] (10%), [L50S, S188N, I381V, Δ & N513K↑] (13%), [L50S, V136C, S188N, I381V, Y461H & S524T] (13%) and [L50S, D134G, V136A, I381V, Y461H & S524T] (13%) and [L50S, V136C, S188N, A379G, I381V, Δ & S524T] (32%). Mefentrifluconazole and prothioconazole-desthio show differences in selection pressures to the different variants (different ranking of CYP51 variants according to their sensitivity level to each compound). The 2020 population showed a further shift toward insensitivity to SDHIs (95 % of isolates showing EC₅₀ values for bixafen >0.3 ppm (none of the isolates showed EC₅₀ >0.3 ppm till 2016)). Most isolates (91%) carried key Sdh target alterations known to affect the sensitivity to SDHIs. The five most common mutations were C-N86S (38%), C-T79N (27%), C-H152R (7%), C-W80S (4%) and C-R151G (4%). One isolate carried two mutations (B-N225T + C-N86S) and was like C-H152R highly insensitive to different SDHIs. Isolates with increased efflux pump activity (fentin chloride insensitivity as marker) showed higher than expected EC₅₀ values for both azoles and SDHIs. The fungicide sensitivity profiles of other early-season 2020 UK populations tested (e.g., locations in Hampshire, Shropshire, and East Lothian) were similar to the Rothamsted population.

9. Company Resistance Updates

Most companies indicated that testing for 2020 was not yet completed and would be presented at the next meeting. The following updates were provided

9.1 Bayer Crop Science

Kerry provided an update on monitoring from 2019 season (not presented earlier as the meeting was cancelled due to Covid restrictions). *Zymoseptoria tritici* - Increased EC50 for bixafen, mainly due to an increase in the 'soft mutations' which have a shift in SDHI sensitivity. No change in sensitivity for fluopyram, and no change in EC50 for prothioconazole. *Puccinia striiformis* – no change for bixafen, prothioconazole or fluoxastrobin. *Pyrenophora teres* -no change from 2018 in sensitivity for bixafen or prothioconazole for UK. Fluoxastrobin – no change as most of the population carries F129L mutation which decreases sensitivity. However this mutation does not affect Trifloxystrobin where *P. teres* is sensitive. *Ramularia collo-cygni* – no change for either bixafen or prothioconazole, resistance to both can be found. However field data suggests there are areas where both actives are fully sensitive.

10. Company product updates

None

11. FRAG website – covered above in 7.1

12. Liaison with other groups

FAR (New Zealand) – FB

Lise Jørgensen (Denmark) – exchange minutes – FB

Anne Sophie Walker (France) – exchange of minutes FB

13. Future events and publicity

AHDB Agronomist Roadshow (Dec 2020)

Scottish Roadshows (Jan 2021)

14. AOB

ACTION: ALL to consider volunteering to be the SEC for the next meeting

15. Date and Venue of next meeting

TEAMS meeting – date to be confirmed. (25th March 2021)