European Commission

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BAS 750F
(Mefentrifluconazole)
Volume 3 – B.3 (AS)

Rapporteur Member State: United Kingdom
Co-Rapporteur Member State: France & Austria

Version History

When	What
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Table of contents

B.3. DATA ON APPLICATION

This Draft Assessment Report has been drafted by the Rapporteur Member State based on the information submitted by the applicant at Document M-CA, Section 3.

B.3.1. USE OF THE ACTIVE SUBSTANCE

BAS 750 F is for use on cereals against a wide range of pathogenic diseases, the representative use here is *Septoria tritici* ((*Zymoseptoria tritici, Mycosphaerella graminis*) (*SEPTTR)).* It is active against different fungal stages both on the plant surface and in the plant tissue.

B.3.2. FUNCTION

Fungicide.

B.3.3. EFFECTS ON HARMFUL ORGANISMS

BAS 750 F is active against different fungal stages on and in the plant. When applied protectively, BAS 750 F inhibits further pathogen development after germination of fungal spores. Due to its ability to enter into the leaf, its further translocation as well as its high intrinsic activity, it can also control fungal stages that have already become established in deeper tissue layers. BAS 750 F is thus suitable for preventative and curative treatments.

B.3.4. FIELD OF USE ENVISAGED

Agriculture

B.3.5. HARMFUL ORGANISMS CONTROLLED AND CROPS OR PRODUCTS PROTECTED OR TREATED

The applicant states that BAS 750 F containing products are under development to control a broad range of important fungal diseases in several crops worldwide. As a most representative major crop/pest combination for Europe, the control of *Septoria tritici* (*Zymoseptoria tritici, Mycosphaerella graminis*) in wheat is described. Efficacy evaluation for further uses in cereals and other crops are currently under development or evaluation and will be addressed with the individual biological assessment dossiers for the corresponding product evaluations.

B.3.6. MODE OF ACTION

According to the fungicide mode of action classification of the Fungicide Resistance Action Committee (FRAC), BAS 750 F is a fungicide belonging to the group of the sterol biosynthesis inhibitors (SBI, mode of action class G). Within the SBIs, it belongs to the sub group of demethylation inhibitor (DMI, G1) and the chemical group of triazoles. Due to its unique isopropanol moiety, it will be proposed to belong to a new sub-group of triazole fungicides, the isopropanol azoles.

The primary mode of action of DMIs is the blocking of ergosterol biosynthesis through inhibition of cytochrome P450 sterol 14α-demethylase (CYP51). The depletion of ergosterol and accumulation of non-functional 14α-methyl sterols results in inhibition of growth and cell membrane disruption.

B.3.7. INFORMATION ON THE OCCURRENCE OR POSSIBLE DEVELOPMENT OF RESISTANCE AND APPROPRIATE MANAGEMENT STRATEGIES

A more detailed consideration of the resistance situation was presented in Section Doc M-CA Section 3.7. Results of glasshouse sensitivity studies assessing the activity of BAS 750 F and a range of other authorised DMI fungicides against sensitive and shifted strains of *S tritici* was provided. Results of BAS 750F monitoring studies conducted in a range of European countries in 2014 were presented which showed a higher mean sensitivity in *S tritici* compared with epoxiconazole and metconazole. There was no correlation between the sensitivity to BAS 750 F and the SDHI fluxopyroxad in these samples. Further monitoring is stated to be ongoing. Field studies (summarised in Vol 3 CP) indicate sufficiently effective levels of activity against current *S tritici* populations. The applicant makes the following statements:

<u>Mechanism of Resistance</u>

Three major resistance mechanisms are associated with changes in DMI-sensitivity:

- Mutations in the target gene (cyp51), as described e.g. for *Zymoseptoria tritici* (Leroux *et al.* 2006, Stammler *et al.* 2008), *Puccinia triticina* (Stammler *et al.* 2009) and *Phakopsora pachyrhizi* (Schmitz *et al.* 2013).
- Overexpression of the target protein, as described e.g. for *Z. tritici* (Cools *et al.* 2012), *P. pachyrhizi* (Schmitz *et al.*) and *Blumeriella jaapii* (Ma *et al.* 2006), *P. triticina* (Stammler *et al.* 2009).
- Reduced intracellular accumulation of DMIs by overexpression of efflux-pumps, as described e.g. for *Z. tritici* (Leroux and Walker 2011) and *Botrytis cinerea* (Kretschmer *et al.* 2009, Grabke and Stammler 2014).

Fungicide resistance risk: FRAC describes the DMI fungicides in general as medium-risk compounds, according to the principles described in FRAC Monographs 1 and 2 (Brent 1995, Brent and Hollomon 1998).

Pathogen resistance risk: FRAC classified a number of plant pathogenic fungi in classes with a low, medium and high resistance risk. This list is the result of an evaluation of the FRAC member companies. *Z. tritici* is seen as a medium risk pathogen

Appropriate Management Strategies

- Resistance Management shall focus on reduction of selection pressure.
- BASF will conduct a broad sensitivity monitoring of *Z. tritici* in all EPPO climatic zones with focus on "Maritime" and "North East"
- Good agricultural practice leads to less infection pressure (e.g. phytosanitary measurements, cultivation of less susceptible varieties, appropriate crop cultivation unfavourable for the target pathogens).
- Limiting the number of sprays is also an important factor in delaying the build-up of resistant pathogen populations.
- A further tool is the use of fungicide mixtures. Recent studies showed that especially mixtures help in delaying the selection of resistance (Hobbelen *et al.* 2013, 2014, van den Bosch *et al.* 2014). A sound resistance management approach is provided by the combination of mixing partners with a good *Z. tritici* activity.
- Since population size of pathogens is lower at disease onset than when already established in the field, selection pressure is less when using preventive applications rather than curative or eradicative spray schemes. An optimal timing is also an effective resistance management (van den Berg *et al.* 2013).
- Follow FRAC guidelines of the SBI-Working Group

The ZRMS agrees with the applicants resistance risk assessment and acknowledgement that resistance management is required at product authorisation. It is unlikely that the resistance situation within the DMI's will remain stable hence it will be necessary to consider the cross-resistance situation carefully at product authorisation when more recent sensitivity testing and monitoring data should be available.

B.3.8. REFERENCES RELIED ON

Refer to CP Vol 3 section B.3