



All you need in one fungicide



Guide to effective use

www.bayercropscience.co.uk/fandango

Introduction

Fandango contains two new active ingredients, prothioconazole and fluoxastrobin. Prothioconazole is a new, advanced class of azole known as a triazolinthione. Fluoxastrobin is a new leaf systemic strobilurin with a broad spectrum of activity against root, foliar and stem-base diseases.

Working together, these two active ingredients form an unbeatable combination for broad spectrum control of diseases in barley and wheats suffering from 'second wheat syndrome' which can also increasingly include wheat after rape and set-aside. An early Fandango spray controls not just foliar and stem-base diseases but also suppresses take-all. In addition, physiological greening effects further contributing to yield are delivered from fluoxastrobin **and** prothioconazole.

Key features and benefits of the Fandango formulation:

- ▶ Significantly improved yields and margins over current barley and second wheat standards
- ▶ Simple, one-pack approach to crop management
- ▶ Advanced formulation, utilising a unique retention enhancer for excellent leaf coverage and rainfastness, plus new solvent emulsifiers for optimised leaf uptake
- ▶ Balanced ratio of two different modes of action, both active on a range of foliar and stem-base diseases and moving together inside the leaf for ultimate barley disease resistance management (see page 9)
- ▶ Yield-boosting effects from combined physiological benefits of both active ingredients

Product profile

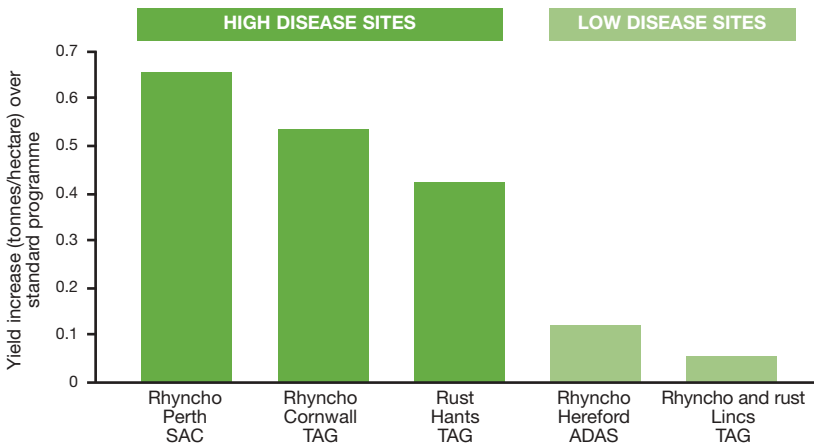
Formulation	Emulsifiable concentrate (EC)
Active ingredient and content	100 g/L prothioconazole + 100 g/L fluoxastrobin
Chemical class	Triazolinthione + strobilurin
Mode of action	Fungal sterol biosynthesis inhibitor + Fungal mitochondrial respiration inhibitor
Cereal crops	Winter wheat, winter and spring barley, winter rye
Pack size	5 L
Water volume	100 – 300 L/ha
Rainfastness	Under 30 minutes
Application rate	1.5 L/ha winter wheat and rye 1.25 L/ha winter and spring barley
Total dose per crop	3.0 L/ha winter wheat and rye. 2.5 L/ha winter and spring barley
Application timing	Wheat – before grain milky ripe Barley – up to beginning of anthesis
LERAP	Category B
MAPP No.	12276

Key benefits in barley

Because of its exceptional all-round disease control profile, Fandango consistently delivers higher yields and better financial returns than current standard barley fungicide solutions. These are further enhanced in high disease situations.

- ▶ Sets new standards in control of spots and blotches
- ▶ Complete security against barley brown rust
- ▶ Excellent stem-base disease suppression profile, including W- and R-type true eyespot, sharp eyespot and brown foot rots caused by *Microdochia* and *Fusaria* – which interact to depress yield and quality
- ▶ Specifically designed to provide an effective anti-resistance strategy, thereby helping to protect both azole and strobilurin chemistry for the future

Improved control of barley diseases compared to current standards, giving an extra 0.35 t/ha average benefit with a two spray Fandango programme.



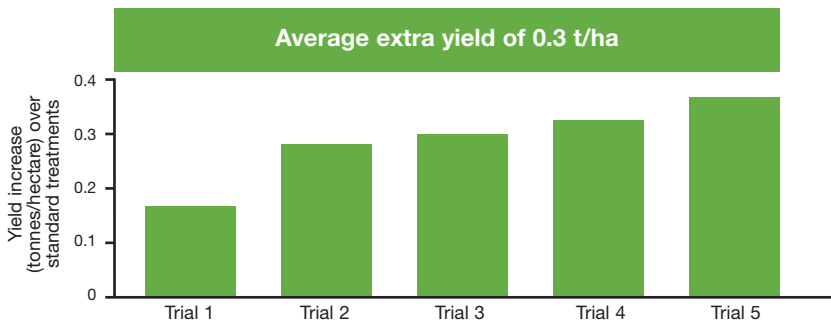
Fandango 1.0 L f/b 0.75 L/ha vs cyprodinil 0.4 kg + picoxystrobin 0.5 L f/b picoxystrobin 0.4 L + epoxiconazole 0.5 L/ha, independent trials 2004.

60% improvement in take-all control compared with azoxystrobin as judged by whitehead reduction in these trials and supported by independent sources.



Fluoxastrobin 250 g/ha vs azoxystrobin 250 g/ha, 3rd wheat, no specific take-all seed treatment, Rothamsted 2004.

Improved overall disease control, combining *Septoria*, rusts, stem-based disease and take-all.



Fandango vs azoxystrobin + epoxiconazole, 0.6 of label dose comparisons at GS 31 – 32, independent trials 2004.

Key benefits in ‘second wheat syndrome’ wheat

Robust control of a wide range of diseases afflicting second and continuous wheats, (or those following rape or set-aside with similar disease burden), combined with better yields and margins than current T1 (GS 31 – 32) standards, make Fandango the ideal choice.

- ▶ Class leading control of *Septoria* and rusts, protecting valuable yield potential
- ▶ Broad stem-base disease suppression, helping to lift yields closer to first wheats
- ▶ Best take-all suppression from a foliar applied T1 spray
- ▶ Dual non-disease yield boosting activity from the strobilurin fluoxastrobin and prothioconazole, which also has a unique ability to stimulate photosynthesis

Disease spectrum

Fandango controls a very broad spectrum of foliar and stem-base cereal diseases in barley and wheat.

Barley		Winter wheat	
Leaf blotch <i>Rhynchosporium secalis</i>	●●●	<i>Septoria</i> leaf spot <i>Septoria tritici</i>	●●●
Net blotch <i>Pyrenophora teres</i>	●●●	Glume blotch	●●●
Powdery mildew <i>Blumeria graminis f. sp tritici</i>	●●(●)	<i>Stagonospora nodorum</i>	●●●
Brown rust <i>Puccinia hordei</i>	●●●	Powdery mildew	●●(●)
Yellow rust <i>Puccinia striiformis</i>	●●●	<i>Blumeria graminis f. sp hordeii</i>	●●●
Eyespot <i>Oculimacula</i> spp	●●●	Yellow rust <i>Puccinia striiformis</i>	●●●
Abiotic spotting and <i>Ramularia</i>	●●●	Brown rust <i>Puccinia recondita</i>	●●●
		<i>Tan spot</i>	●●●
		<i>Pyrenophora tritici-repentis</i>	●●●
		Eyespot <i>Oculimacula</i> spp	●●●
		Sharp eyespot	●●
		<i>Rhizoctonia cerealis</i>	●●
		Take-all	●●●
		<i>Gaeumannomyces graminis</i>	●●●
		Ear blight <i>Fusarium</i> spp	●●●
		Sooty moulds	●●
		<i>Cladosporium</i> and <i>Alternaria</i> spp	●●

Key: ●●● At or above best standards ● Some effects
 ●● Good efficacy () Performance in reduced curative situations

In winter rye, Fandango effectively controls brown rust, *Rhynchosporium*, mildew and eyespot.

Disease control – barley

Fandango is an outstanding broad-spectrum foliar and stem-base fungicide for barley at both GS 30 – 32* (T1) and GS 39 – 55* (T2), offering exceptional control of spots and blotches.

GS 30 – 32* (T1)

- ▶ Target *Rhynchosporium* before disease is established for maximum yield benefits
- ▶ For early mildew eradication, incorporate a specific mildewicide with curative activity e.g. spiroxamine (Torch Extra)
- ▶ For difficult eyespot, use no less than 1.0 L/ha and aim to combine with cultural practices which help reduce risk
- ▶ For take-all recommendations, see 'Disease control – wheat' section on page 7

GS 39 – 55* (T2)

- ▶ For additional control of *Ramularia* and abiotic spotting, the addition of chlorothalonil will improve activity

(*Timings are given for winter barley. For spring barley, first spray is at late tillering and second spray 3 – 4 weeks later.)



Rhynchosporium



Net blotch



Brown rust

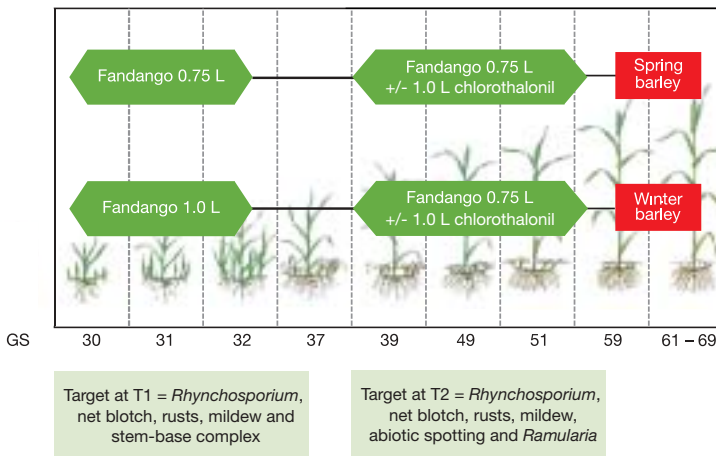


Ramularia



True eyespot

Guidelines for use of Fandango on barley



Disease control – wheat

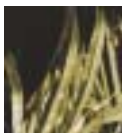
Fandango is a robust all-rounder with a key strength at GS 31 – 32 from combined foliar, stem-base disease and take-all activity. Whilst T1 is the preferred timing for maximum efficacy (and depending on the choice of two strobilurin-based sprays), following a well-timed T1 spray, Fandango also offers good *Septoria* and rust control at GS 37 – 45. It can also be used for excellent broad spectrum foliar and ear disease activity at GS 59 – 69, with a better mycotoxin suppression profile than current strobilurin + azole combinations.

GS 31 – 32:

- ▶ Use in combination with chlorothalonil as part of a responsible resistance management strategy for *Septoria*
- ▶ Where mildew is established, mix with a curative mildewicide e.g. spiroxamine (Torch Extra). For varieties with high risk of rust, incorporation of spiroxamine is also a sensible precaution
- ▶ Fandango is very effective against both the wheat and rye strains of eyespot, with activity from both active ingredients
- ▶ Fandango will suppress take-all when applied at GS 30 – 32. For maximum effect, farmers should utilise good agronomic practises designed to minimise take-all risk and consider using Fandango in programmes with a take-all active seed treatment e.g. Galmano



Septoria tritici



Mildew



Yellow rust



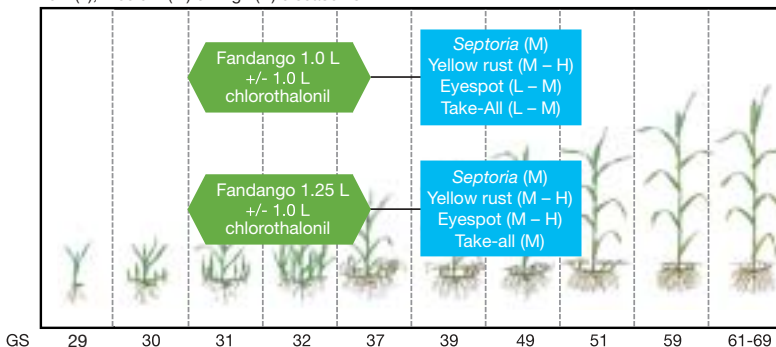
Eyespot



Take-all

Recommendation for use of Fandango on 'second wheat syndrome' wheat

Low (L), Medium (M) or High (H) disease risk



Target at T1 = *Septoria*, yellow rust, mildew, stem-base complex and take-all

Best use

Always:

- ▶ Follow the Fandango resistance management strategy (see page 9)
- ▶ Conduct a Local Environment Risk Assessment for Pesticides (LERAP) assessment or maintain the statutory buffer zone
- ▶ Apply Fandango at the first signs of disease infection
- ▶ Use application techniques that ensure good crop penetration and coverage using 200 – 300 L/ha of water and a medium spray (BCPC category)
- ▶ Allow a minimum of 30 minutes fine dry weather following application before rain is expected
- ▶ Thoroughly clean spray equipment with a detergent immediately after spraying

Avoid:

- ▶ Application to wet leaves if run-off may occur
- ▶ Drift onto crops and non-target plants outside the target area
- ▶ Using Fandango at a dose rate lower than 1.0 L/ha in wheat and 0.75 L/ha in barley which may increase the risk of resistance development
- ▶ Applying Fandango to crops suffering stress. Occasionally, after the application of Fandango, some transient leaf chlorosis on wheat or barley may occur, but these symptoms have not been shown to adversely affect yield responses accruing from the benefits of disease control

Do not:

- ▶ Exceed a total of 3.0 L/ha in a winter wheat or winter rye crop
- ▶ Exceed a total of 2.5 L/ha in a barley crop
- ▶ Apply Fandango more than twice to any crop
- ▶ Apply if rain is imminent (i.e. less than 30 minutes fine dry weather after the end of application)
- ▶ Apply after GS 71 (grain milky ripe) in wheat and rye and up to the beginning of anthesis (GS 61) in barley

Resistance management

- ▶ Effective resistance management refers to mixing two (or more) fungicides with different modes of action:
 - Each with good inherent activity against the ‘at risk’ disease(s)
 - Used at doses giving effective control
 - Ideally with similar foliar uptake and movement properties
- ▶ Fandango has been formulated as a ‘one pack’ barley disease resistance management strategy, fulfilling all the criteria outlined above. Within the advanced formulation, performance of fluoxastrobin and prothioconazole is not only fully optimised but they also move into and along the leaf at the same speed and are both active on all the key barley diseases including *Rhynchosporium* and net blotch. It is a unique feature of Fandango – setting it apart from other tank-mixes, where such complementary activity and linked foliar movement is not found
- ▶ Effective doses should be used to minimise the risk of resistance, and spray timing should be optimised to avoid use in very curative situations. Guidelines for appropriate use are given on page 11
- ▶ Paying close attention to resistance management principles is especially important in order to maintain both azole and strobilurin fungicide activity
- ▶ Practical guidelines to minimise resistance risk are also outlined on the Fungicide Resistance Action Committee (FRAC) website www.frac.info

Tank-mixing compatibility

- ▶ Fandango is physically compatible with a wide range of other fungicides, herbicides, insecticides, PGRs and micro-nutrients (see matrix on pages 11 and 12)
- ▶ The user should ensure that all products to be tank-mixed with Fandango are approved for use on the crops which are to be sprayed
- ▶ Add the required quantity of Fandango to the half-filled spray tank, ensuring constant agitation of the spray solution during mixing, transportation and application
- ▶ When tank-mixing, always add Fandango to the spray tank first
- ▶ Before using any mixture, consult and comply with the recommendations for products from all manufacturers
- ▶ All mixes should be sprayed immediately and agitated throughout until the spray tank is empty

Tank-mix recommendations

Fandango may be applied in specified tank-mixtures. The matrix on pages 11 and 12 shows the recommended fungicide, herbicide, insecticide, PGR and micro-nutrient compatibilities.

Tank-mix precautions

PGR tank-mixtures

Proline + Fandango may be applied, before crop GS 32, in mixture with one of the following (dose/ha):

Moddus 0.2 L + chlormequat 1.25 L (winter wheat)

Moddus 0.1 L + chlormequat 1.25 L (winter barley – light soils or malting crops)

Moddus 0.2 L + chlormequat 1.25 L (winter barley – other soils and feed crops)

Before using any of the mixtures shown above, first check the manufacturer's latest recommendations for Moddus. DO NOT use Fandango + Moddus + chlormequat on spring barley.

Adjuvants

In soft crops avoid the use of tank-mixtures with HBNs, Atlantis + biopower. In particular, tank-mixtures with EC fungicide formulations as this may result in transitory adverse crop effects.

Sulphonylureas

All sulphonylurea (SU) herbicides have the potential to cause damage to sensitive crops if residues are left in the spray tank. For this reason, sprayer hygiene following the use of Eagle, Chekker, Pursuit + chlorothalonil + Fandango is very important.

Sprayers should always be thoroughly cleaned out with a proprietary sprayer cleaner immediately after use. This should always take place, even if further cereal crops have been treated by the sprayer between the last application SU mixtures and a subsequent broad-leaved crop. In addition, Bayer CropScience will not support the use of Eagle, Chekker, Pursuit + chlorothalonil + Fandango if the sprayer is to be immediately used on a broad-leaved crop after the use of this mix.

Cheetah Super, Grasp or Topik

Adjuvant oil recommended by the herbicide manufacturer may be added in mixes with Fandango. Do NOT use any of the herbicides above in mixes with Fandango + Moddus + chlormequat.

Micro-nutrients

These products are physically compatible only, there is no information on crop safety available.

Tank-mix recommendation matrix

Please note that only tank-mixtures selected from a single column and a single row are recommended, e.g. 'Fandango + Tern' and 'Eagle'.

	Fungicides						Herbicides										
	chlorothalonil†	Corbel	Tern	Fortress	Orka	Torch Extra	Ally	Atlantis + biopower	Boxer	Capture	Cheetah Super + Foil	Chekker	DP 911	DP 928	Duplosan	Eagle	Foundation
Fungicides																	
Fandango	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Fandango + chlorothalonil†		●	●	●	●	●	●	●	●	●	●	●			●	●	●
Fandango + Corbel	●			●			●		●	X	●		●	●	●	●	●
Fandango + Fortress	●	●	●		●	●	●		●	X	●		●	●	●	●	●
Fandango + Tern	●			●			●		●	X	●		●	●	●	●	●
Fandango + Torch Extra	●			●			●		●	●	●		●	●	●	●	●

Key: ● compatible X not compatible blank not known

In addition to the tank-mix recommendations in the above chart, Fandango can also be tank-mixed with one additional product from either the lists of insecticides or micro-nutrients.

Do not mix Fandango + Hussar or Fandango + Atlantis + biopower with micro-nutrients or insecticides.

Environmental protection

- ▶ DO NOT CONTAMINATE SURFACE WATERS OR DITCHES WITH CHEMICAL OR USED CONTAINER
- ▶ DO NOT ALLOW DIRECT SPRAY from horizontal boom sprayers to fall within 5 m of the top of the bank of a static or flowing water body, unless a LERAP permits a narrower buffer zone, or within 1 m of the top of a ditch which is dry at the time of application. Aim spray away from water
- ▶ This product qualifies for inclusion within the LERAP scheme. Before each spraying operation from a horizontal boom sprayer, either a LERAP must be carried out in accordance with PSD's published guidance or the statutory buffer zone must be maintained. The results of the LERAP must be recorded and kept available for three years



	Grasp + Output	Harmony M	Hussar	Oxytril CM	Quantum	Starane	Tigress Ultra	Topik + Actiproton	Plant Growth Regulators	Adjust	Cerone	Chlormequat	5C Cycocel	Chlormequat + Moddus*	Moddus	Meteor	Terpal + Agral	Upgrade
	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●
	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●
	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●
	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●
	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●
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	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●

* at rates specified in Tank-mix precautions (page 10)

† approved SC formulations only

Please note that physical compatibilities may not be approved tank-mixes. Physical compatibility tests check the products are physically suitable for application with a conventional sprayer. The tests do not check for any adverse phytotoxicity or for the biological efficacy of the individual components, when applied in a tank-mix. Bayer CropScience gives no warranty and accepts no liability in respect of physical compatibilities.

Insecticides

Aphox
Cypermethrin
Decis
Fury 10 EW
Hallmark
Mavrik
Sumi-Alpha

Micro-nutrients

Headland Mn 15%
Headland Respond
Headland Spirit
Phosyn Coptrel
Phosyn Croplift
Phosyn Foliar Potash
Phosyn Magflo 300
Phosyn Magphos K
Phosyn Mancozin
Phosyn ManCuflo
Phosyn Mantrac DF
Phosyn Photrel
Phosyn Phosamco
Phosyn Stopit
Phosyn Sulphur F 3000
Phosyn Zintrac
Verdi-Crop Human Xtra
Verdi-Crop 4 Yield Extra
Verdi-Crop Magnor
Verdi-Crop Sitec
Verdi-Crop Sulpha N
Verdi-Crop Zinic

Active ingredients

5C Cycocel: chlormequat with choline chloride; Adjust: chlormequat + nonyl phenol ethoxylate; Agral: alkyl phenol ethylene oxide; Ally: metsulfuron; Aphox: pirimicarb; Atlantis: mesosulfuron-methyl + iodosulfuron-methyl-sodium; Boxer: florasulam; Capture: bromoxynil + ioxynil + diflufenican; Cerone: 2-chloroethylphosphonic acid; Cheetah Super: fenoxaprop-p-ethyl Chekker: amidosulfuron + iodosulfuron-methyl-sodium; Corbel: fenpropimorph; Decis: deltamethrin, DP 911: metsulfuron- methyl + tribenuron methyl; DP 928: metsulfuron-methyl + thifensulfuron-methyl; Duplosan: mecoprop-P; Eagle: amidosulfuron; Fandango: prothioconazole + fluoxastrobin; Foil: fluquinconazole + prochloraz; Fortress: quinoxifen; Foundation: dicamba + mecoprop-P; Fury 10 EW: zetacypermethrin; Galmano: fluquinconazole; Grasp: tralkoxydim; Hallmark: lambda-cyhalothrin; Harmony M: metsulfuron-methyl + thifensulfuron; Hussar: iodosulfuron-methyl-sodium; Mavrik: tau-fluvalinate; Meteor: chlormequat + choline chloride + imazaquin; Moddus: trinexapac-methyl; Orka: fenpropimorph + quinoxifen; Oxytril CM: bromoxynil + ioxynil; Proline: prothioconazole; Pursuit: amidosulfuron; Quantum: tribenuron-methyl; Starane: fluoxpyr; Sumi-Alpha: esfenvalerate; Tern: fenpropidin; Terpal: 2-chloroethylphosphonic acid + mepiquat chloride; Tigress Ultra: diclofop-methyl + fenoxaprop-P-ethyl; Topik: clodinafop-propargyl; Torch Extra: spiroxamine; Upgrade: 2-chlorethylphosphonic acid + chlormequat.

Atlantis, biopower, Capture, Cerone, Chekker, Cheetah, Decis, Eagle, Fandango, Galmano, Hussar, Oxytril, Proline, Pursuit, Tigress, Torch Extra and Upgrade are registered trademarks of Bayer.

All other brand names used in this list are trademarks of other manufacturers in which proprietary rights may exist.

Always read the label: use pesticides safely.

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