HGCA Fungicide Performance in Wheat

2009 - 2010
**2009 *Septoria tritici* – product / a.i. list**

<table>
<thead>
<tr>
<th></th>
<th>Active Ingredient</th>
<th>Brand Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>epoxiconazole</td>
<td>Opus</td>
</tr>
<tr>
<td>2</td>
<td>chlorothalonil</td>
<td>Bravo</td>
</tr>
<tr>
<td>3</td>
<td>prothioconazole</td>
<td>Proline</td>
</tr>
<tr>
<td>4</td>
<td>epoxiconazole + metconazole</td>
<td>Brutus</td>
</tr>
<tr>
<td>5-8</td>
<td>experimental products</td>
<td>confidential</td>
</tr>
</tbody>
</table>

*Experimental products confidential*
S. tritici – understanding the data

On each site, at each disease assessment, each leaf layer was assessed and categorised as:

- Eradicant,
- Protectant,
- Mixed.

• At SAC and Teagasc
  - Dose response data for T2 applications only

• At Rosemaund and Andover
  - Dose responses from T1 and T2 - kept separate, for comparison
Overall (mainly T2) - eradicant 2009

Dose (proportion of full label rate) vs. % S. tritici

- Opus
- Bravo
- Proline
- Brutus
Overall - protectant 2009

% S. tritici

Dose (proportion of full label rate)

Opus
Bravo
Proline
Brutus
Overall - mixed activity 2009

% S. tritici

Dose (proportion of full label rate)
Half label rates at T1 and T2
(Average of all *S. tritici* sites)

- **S. tritici**:
  - Untreated: 35
  - Opus: 25
  - Bravo: 85
  - Proline: 7.5
  - Brutus: 7

- **Yield**:
  - Untreated: 30
  - Opus: 9
  - Bravo: 9.5
  - Proline: 9
  - Brutus: 7.5
Yield response (all *S. tritici* sites)

**Graph:**
- **Yield (% of the untreated yield)**
- **Dose (proportion of full label rate)**

- **Opus**
- **Bravo**
- **Proline**
- **Brutus**
Proportion of control from Opus 0.5l/ha

Eradicant activity

% of control from Opus 0.5

Proportion of control from Proline 0.4l/ha

Eradicant activity

% Control from Proline 0.4l/ha

1995 1997 1999 2001 2003 2005 2007 2009
2008 + 09 combined analysis
*S. tritici* protectant activity

- Opus
- Bravo
- Proline
- Brutus

% *S. tritici

Dose (proportion of label rate)
2008 + 09 combined analysis
*S. tritici* eradicant activity

% *S. tritici* vs Dose (proportion of label rate)

- Opus
- Bravo
- Proline
- Brutus
2008 + 09 combined analysis
*S. tritici* overall (eradicant and protectant)

![Graph showing the percentage of *S. tritici* over dose (proportion of label rate). The graph compares different treatments: Opus, Bravo, Proline, and Brutus.](image-url)
Does timing affect the rank order of activity?

(2008 + 09 combined analysis)

T1 eradicant

T2 eradicant

- Opus
- Bravo
- Proline
- Brutus

% S. tritici

Dose (proportion of label rate)
S. tritici 2008 + 2009 - Matched for units of azole
Protectant

% Septoria tritici

units of azole applied

1.5l/ha Brutus
1.0l/ha Opus

Opus
Brutus

HGCA
S. tritici 2008 + 2009 - Matched for units of azole Eradicant

% Septoria tritici

units of azole applied

1.5l/ha Brutus
1.0l/ha Opus

Opus
Brutus

0 0.5 1 1.5 2

0 5 10 15 20 25 30 35 40
# 2009 Rust & Mildew trials

<table>
<thead>
<tr>
<th>Disease</th>
<th>Location</th>
<th>Variety</th>
<th>Fungicide Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow Rust</td>
<td>ADAS Norfolk</td>
<td>Robigus</td>
<td>Half dose at T1 (leaf 3, GS32)</td>
</tr>
<tr>
<td>Brown Rust</td>
<td>TAG Bedfordshire</td>
<td>Hereford</td>
<td>Dose response at T2 (flag leaf emerged, GS37-39)</td>
</tr>
<tr>
<td>Mildew</td>
<td>SAC Fife</td>
<td>Claire</td>
<td>Half dose T1 – T2 sequence</td>
</tr>
</tbody>
</table>
Yellow rust

In 2009
New races, virulent on several varieties
A significant epidemic despite frosts
Increased aggressiveness?

In 2010
Over 25% of the UK cropping area rated 4 or less for YR.
Inoculum not likely to limit disease progress.
Overwinter frosts will determine earliness of the epidemic.
ADAS Yellow rust – 2009
(application at leaf 3 emerged)

% Yellow rust

Opus
Proline
Brutus
Firefly
Comet
ADAS Yellow rust – 2008 and 09

% Yellow rust
Brown rust

In 2009
A late season epidemic,
due to average winter temperatures

In 2010
• Brown rust ~ 60% of varieties are susceptible
  • Already been seen in crops in the south (Crop monitor)
• Winter temperatures likely to determine earliness of the epidemic.
TAG Brown rust 09
(application at leaf 1 emerged)
TAG Brown rust
2008 and 09
Powdery Mildew

In 2009

Favoured by:

• Later sowings
• Rapid lush spring growth,
• Low frequency of rainfall

In 2010

• Being found widely this autumn
• Significance likely to depend on spring conditions
Half label rates at T1 and T2 – mildew 2009
(Yield effects due to *S. tritici* and mildew)
Powdery Mildew – 4 year analysis

- Proline
- Tern
- Flexity
- Torch
- Talius
- Cyflamid
2009 Key messages for S. tritici

• Comparable field performance of Opus and Proline in 2009

• Following decline in performance in the 90’s, no evidence of a shift in the field performance of Opus or Proline since 2001

• Half rate Brutus was as good as full rate Opus, despite having a lower azole content

• We have tested new products that showed up to 80% control in eradicant situations, over 90% control in protectant situations, and 5-10% better yield than average of Opus/Proline

• The rank order of products at T1 is similar to the order at T2

• Bravo – still a very effective protectant fungicide
2009 Key messages for Rusts and Mildew

Brown rust - protectant activity
- Triazole rank order: Brutus > Opus > Proline
- New products will provide new modes of action and levels of control equal to or better than the triazoles
- Strobilurins still remain effective

Yellow rust - eradicant activity
- Triazole rank order Opus/Brutus > Proline
- New products will provide new modes of action with efficacy on yellow rust
- Strobilurins still remain effective

Mildew
- Several different modes of action still show good control of mildew