

Yellow Leaf Spot Control

Summary

Similar to trials undertaken in previous years, the fungicide trials undertaken in 2005 indicated there was no fungicide activity on Yellow Leaf Spot (YLS) when applied early post emergent (GS13 – three leaf stage). Fungicides applied to fertiliser or as a foliar application did not reduce the level of YLS in the crop and showed no yield benefits. Zincsol® applied to crops in paddocks which have had a good zinc fertiliser history also showed no benefit in reducing YLS pressure. After several years work the BCG conclude that spraying fungicides for YLS is not a successful practice.

Background

Yellow Leaf Spot (YLS) is a recurring problem for farmers who grow wheat in intensive cereal rotations. Popular varieties such as Yitpi are especially susceptible to YLS (*Pyrenophora tritici-repentis*) and suffer badly in years when the crop is sown into wheat stubble. Even stubble from two seasons previous can carry YLS spores which can infect the new crop.

YLS mainly affects very young plants as they grow through existing wheat stubble. Rain splash causes the release of spores from the old stubble which then spread through the new crop. YLS in young wheat crops results in decreased vigour and tiller loss is often observed.

In previous work undertaken by the BCG, fungicides and liquid fertilisers such as Zincsol have not been successful in reducing the rate of infection in the crop. This could have been due to the dry seasons experienced over the last few years. In 2005 a wider range of fungicides were tested, including Impact® and Folicur® mixed with fertiliser as well as a range of foliar fungicides. Zincsol applied early post emergent was included again because many farmers believe it helps in reducing the level of YLS.

Methods

Trial 1. Foliar fungicides and Zincsol (Brim)

Replicates:	4
Plot Size:	3 x 20m
Previous crop:	Yitpi wheat
Variety:	Yitpi (sown by the farmer)
Treatments:	Three foliar fungicides and a liquid fertiliser (Zincsol) were applied at the three leaf stage

Treatments

Fungicides and liquid fertiliser treatments (Table 1) were applied at GS13 (3 leaf) on July 15, following 8mm and 9mm of rain on the previous two days. The crop was growing through a Yitpi stubble from the previous year. Conditions were perfect for spraying – the crop was badly affected by YLS and moisture was not limiting. YLS covered all three leaves and the crop was yellow.

Table 1: Treatments, rates and timings for YLS control at Brim

Treatment	Chemical & Rate	Timing
propiconazole	Bumper 500 ml/ha	GS13 (3 leaf)
tebuconazole	Folicur 290 ml/ha	GS13 (3 leaf)
azoxystrobin + cyproconazole	Amistar Xtra 400ml/ha	GS13 (3 leaf)
Zinc sulphate	Zincsol 2L/ha	GS13 (3 leaf)

Trial 2. Fertiliser treated with fungicides, foliar fungicides and Zincsol (BCG Northern site at Sea Lake)

Replicates: 4
 Plot Size: 3 x 20m
 Previous crop: Wheat
 Sowing date: June 8 2005
 Variety: Yitpi (175plants/m²) sown into a wheat stubble
 Fertiliser: Granulock 10Z at 50kg/ha
 Treatments: 10 treatments (control; four fungicides with fertiliser; 4 foliar fungicides and 1 liquid fertiliser applied at the three leaf stage)

Treatments

Four fungicide options mixed with the fertiliser were in the trial (flutriafol was applied as Impact at 200 and 400ml/ha; and tebuconazole as Folicur applied at 145 and 290 ml/ha); the foliar fungicides (propiconazole as Bumper® applied at 250 ml/ha; tebuconazole applied as Folicur at 145 ml/ha; epoxiconazole applied as Opus at 150 ml/ha and azoxystrobin + cyproconazole applied as AmistarXtra® at 400 ml/ha were applied at the three leaf stage (GS13); the liquid fertiliser Zincsol was applied at 5L/ha also at the three leaf stage.

At the time of spraying (three leaf stage) the Yitpi wheat at Sea Lake had low levels of YLS and was recorded only on the oldest leaves.

Results

Trial 1 at Brim

At the time of spraying the Yitpi crop was yellow on all leaves – the crop was severely infected by YLS and did not look like it was going to grow out of the disease.

10 days post spraying there were no discernible differences between treatments in the level of YLS (YLS was still severe), 20 days post spraying the crop had started to grow through the disease and yellowing could only be found on the older leaves.

From the time of spraying July 15 there was little rain for 5 weeks, with a total of only 16mm up to the August 20 (25/7 – 4mm; 4/8 – 2mm; 8/8 – 2mm; 10/8 – 6mm). During this dry period the

crop grew out of the disease and by the middle of August the crop, sprayed and unsprayed, was green without any evidence of YLS, except on the oldest leaves.

There was no affect of the fungicide or liquid fertiliser applications on the crop compared to the control (they all looked the same by the end of tillering) and there were no yield affects (Table 2).

Table 2: Fungicide and liquid fertiliser application at Brim on crop affected by YLS and effect on yield

Chemical & Rate	Yield t/ha
Control	2.7
Bumper 500 ml/ha	2.6
Folicur 290 ml/ha	2.7
Amistar Xtra 400ml/ha	2.6
Zincsol 2L/ha	2.6
Significant difference	NS

Trial 2. BCG trial site at Sea Lake

The fertiliser treated with fungicide was mixed prior to sowing. The foliar fungicides were applied on July 17 at the three leaf stage. All treatments were monitored for YLS ten days after application. No significant differences in YLS on the newest leaves of the crop were observed on untreated, fertiliser mixed with fungicide, foliar fungicide or Zincsol treated crop.

The average yield of Yitpi in the trial at Sea Lake was 3.3t/ha, protein 11.1% and screenings 10.6%. In relation to yield or quality there were no significant differences associated with the fungicide (applied to the fertiliser or foliar) or liquid fertiliser applications. The high level of screenings were also found at other trials at this site.

Interpretation

YLS did establish at the Brim site and the crop was badly infected with YLS on all three leaves by the time the foliar fungicides were applied (at the three leaf stage). At Sea Lake there was only a very low level of YLS infection at the time of spraying the foliar fungicides.

At neither site were the foliar fungicides or the Zincsol treatment beneficial in reducing the level of YLS on the leaves. At Sea Lake the fertiliser treated with fungicides (Impact and Folicur) also did not reduce the level of YLS nor did it improve growth of the crop through reducing other pathogens in the soil.

At neither site was there any discernible differences in yield or quality between treated and untreated crop. The dry spell from mid July to mid August was more than likely responsible for reducing the level of YLS rather than any fungicide treatment effect.

Commercial Practice

After several years of investigations into fungicide activity on YLS during the early growth phase (start of tillering) the BCG conclude that fungicides do not have a commercial role in reducing the impact of YLS on a crop. For crops that have a good zinc fertiliser history there is also no evidence that additional zinc applied as a foliar spray is of any benefit in reducing YLS.

Spending money on fungicides (applied to the fertiliser or as a foliar application) or on liquid fertilisers such as Zincsol for the control of YLS is not a good investment.

The effect of YLS on a crop can only be reduced by judicious crop selection so that Yitpi is not sown into a standing wheat stubble.

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