IV Disease control in grain maize

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Control of eye spot (*Kabatiella zeae*) and *Fusarium*

Four trials were carried out in grain maize during 2017 testing the efficacy of different fungicides regarding control of leaf diseases. Two trials were located in a field with debris from maize and the previous crop being maize for several years. The other two trials were located in Jutland on more sandy soil with the previous crop being maize.

Different timings were tested, varying from GS 37 to GS 65. The trials at Flakkebjerg were irrigated 2 weeks after sowing and again one month after sowing in early June. Precipitation in late June and the first part of July was rather high, and especially September/October contributed high precipitation as well. The temperature during the season was at an average level but with a lack of sun. Days with increased wind especially in September caused leaf injuries, and in combination with wet soil the growth conditions proved poor and the field at Flakkebjerg suffered from lodging in late autumn.

Optimum conditions for eye spot (*Kabatiella zeae)* are high humidity and moderate temperatures (14-17°C). In spite of the good weather conditions provided for this disease in 2017, only a moderate attack developed in this year's trials (Table 1).

One trial at AU Flakkebjerg was inoculated during flowering with a spore suspension of *Fusarium*. Visible symptoms were assessed in cob samples harvested in late October, but assessments showed only a minor attack of *Fusarium* on the cobs (Table 2).

In both trial plans a new granulated formulation of pyraclostrobin was tested. The differences between the two plans were that the treatments were applied at two different timings (GS 39 or GS 65). As a reference product Quilt XCEL was used; this is a formulation containing 122 g propiconazole +141 g azoxystrobin per litre. The new granulated formulation performed similarly to the old Comet 200 formulation and also in line with Quilt XCEL. The trials did not indicate any clear dose response from the Comet granulate used at the 3 tested rates.

All trials had cobs hand harvested and measured. These data showed significant effects from treatments in only 1 of the 4 trials. Only the trials in Jutland were harvested as grain maize. Due to a very wet autumn, the trials at Flakkebjerg were not harvested.

Table 1. Effects of treatment according to standard treatment of eye spot in grain maize as well as yield responses following different applications. 1 trial at AU Flakkebjerg and 1 trial at LMO (17395-1+2). NS = not significant.

Treatments, l/kg/ha	% eye spot				Weight of cob	Yield and increase
GS 39	GS 71/73 L 3-6	GS 75 L 3-6	GS 77-83 L 3-6	GS 83 L 1-2	g	hkg/ha
1. Untreated	5.0	11.8	28.2	63.8	173.4	100.2
2. Comet granulate 0.5	1.8	4.8	15.1	37.5	178.0	3.9
3. Comet granulate 0.7	3.0	5.7	14.2	38.8	182.0	4.2
4. Comet granulate 1.0	2.2	6.7	13.2	33.8	176.6	-0.8
5. Quilt XCEL 1.0	2.1	4.9	10.8	26.3	185.7	-3.1
6. Comet 200 1.0	2.2	5.0	13.2	42.5	178.7	-4.6
No. of trials	2	2	2	1	2	1
LSD_{95}				14.9	NS	NS

Table 2. Effects of treatment according to standard treatment of eye spot and *Fusarium* in grain maize as well as yield responses following different applications. 1 trial at AU Flakkebjerg and 1 trial at LMO (17396-1+2).

Treatments, l/kg/ha	% eye spot				Weight of cob	Yield and increase
GS 65	GS 71/73 L 3-6	GS 75 L 3-6	GS 77-83 L 3-6	GS 83 L 1-2	g	hkg/ha
1. Untreated	6.0	11.0	31.9	80.0	160.7	85.5
2. Comet granulate 0.5	2.6	4.9	15.7	36.3	173.9	4.1
3. Comet granulate 0.7	3.1	5.2	13.8	47.5	169.4	1.3
4. Comet granulate 1.0	2.5	5.3	13.8	41.3	180.1	-1.9
5. Quilt XCEL 1.0	3.3	6.9	17.6	43.8	168.5	5.3
6. Comet 200 1.0	3.3	6.8	9.9	26.3	167.7	5.0
No. of trials	2	2	2	1	2	1
LSD_{95}				16.7	NS	NS

Untreated plots with attack in the trial located in Jutland. 27 September 2017.

Plot treated with 1.0 kg/ha Comet granulate at GS 39.