



Cercospora Leaf Spot in Austria

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Milano, October 20th

SUGAR BEET ACREAGE 2015

Country / Acreage in ha	2014 actual acreage	2015 actual acreage	Modific. '15 to '14 in %
A	50.700	45.500	-10,3
CZ	14.750	14.000	-5,1
SK	12.800	12.000	-6,3
HU	10.860	14.900	+37,2
RO	9.000	8.400	-6,4
AGRANA	98.110	94.800	-3,3

CERCOSPORA BETICOLA IN AUSTRIA

- Most important leaf disease in Austria
- Potential of yield loss: up to 40 % without control





RETROSPECTIVE VIEW TO CLS IN AUSTRIA

- 2009: Cercospora developed to a major problem
- 2010-2011: Mixtures of QoI and DMI showed very good efficacy
More treatments with QoI
- 2012: new problems, first detection of strobilurine resistant Cercospora
- 2013-2014: rapid spread of strobilurine resistant Cercospora,
recommendation of Multi-site fungicides and Thiophanate-methyl



FUNGICIDE ACTIVE INGREDIENTS 2015

Triazoles (DMI, FRAC: G1)

(Difenoconazole, Cyproconazole, Epoxyconazole, Tetraconazole)

Strobilurines (QoI, FRAC: C3)

(Azoxystrobin, Trifloxystrobin, Pyraclostrobin)

Benzimidazoles und Thiophanates (MBC, FRAC: B1)

(Thiophanate-methyl)

Inorganics (Multi site, FRAC: M1)

(Copperoxychloride)

Dithiocarbamates (Multi site, FRAC: M3)

(Mancozeb)

Not registered 2015

Chloronitriles (Multi Site, FRAC: M5)

(Chlorothalonil)

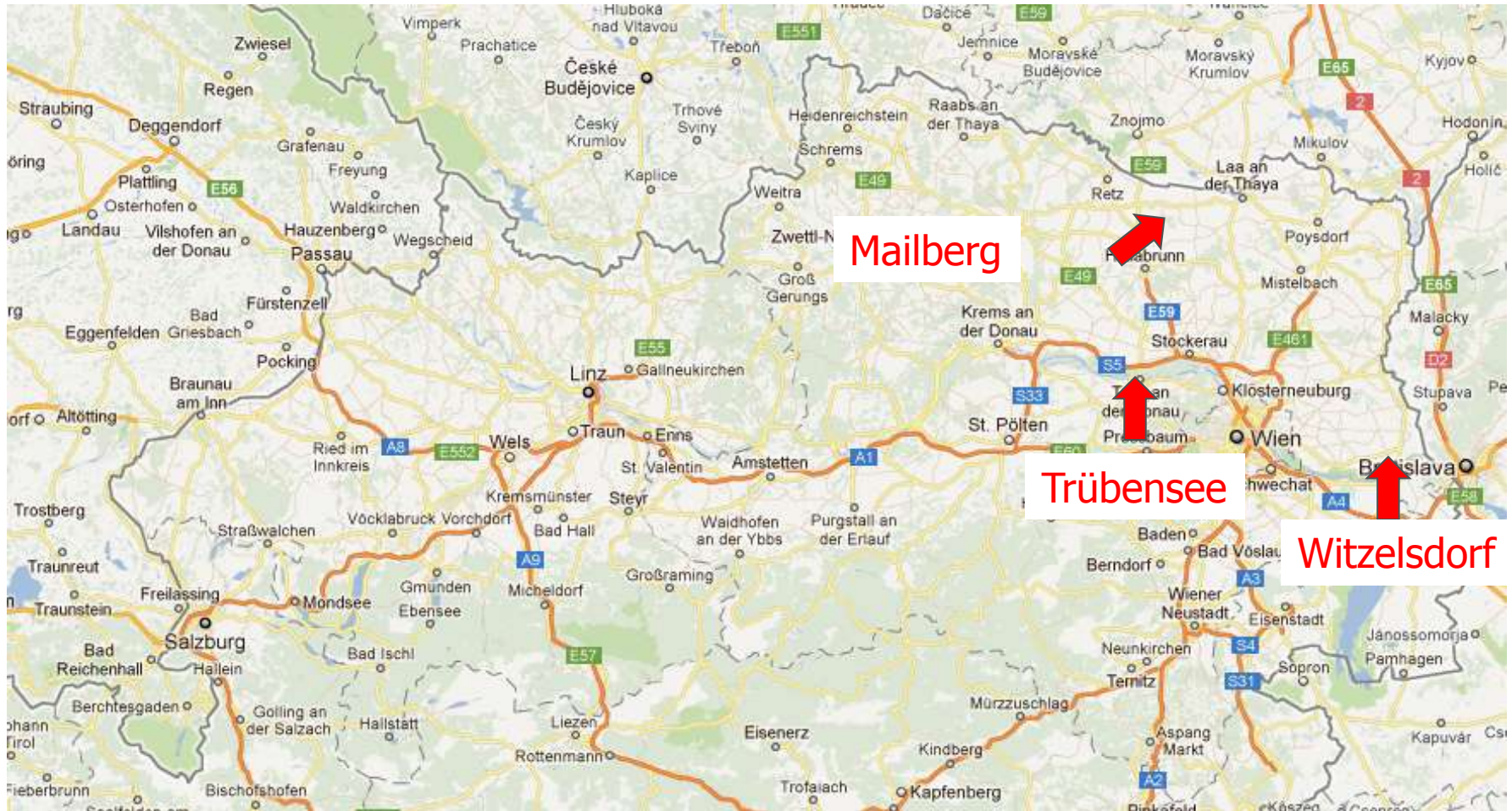
FUNGICIDES 2015

Reg.Nr	Fungicide	A.I.	Wirkstoffgehalt	max. rate kg, l/ha	max. applications	Waiting periode
3034	Cuprofor flow	Copperoxychloride	638.7 g/l (Cu: 380 g/l)	2,6	4	14
2746	Dithane Neo Tec	Mancozeb	750 g/kg	2	4	7
2481	Caddy 200 EC	Cyproconazole	200 g/l	0,4	2	35
3361	Domark 10 EC	Tetraconazole	100 g/l	1	2	28
3255	Score	Difenoconazole	250 g/l	0,4	2	28
2685	Spyrale	Difenoconazole + Fenpropidin	375 g/l + 100 g/l	1	2	28
3367	Opera	Epoxiconazole + Pyraclostrobin	50 g/l + 133 g/l	1	2	28
2978	Sphere SC	Cyproconazole + Trifloxystrobin	160 g/l + 375 g/l	0,35	2	21
3576	Duett ultra	Epoxiconazole + Thiophanate-methyl	187 g/l + 310 g/l	0,6	2	28
238	Cosan-Super Kolloid-Netzschwefel	Sulphur	800 g/kg	6	-	7



***FIELD TESTS
2014***

FUNGICIDE TESTS 2014, 3 SITES

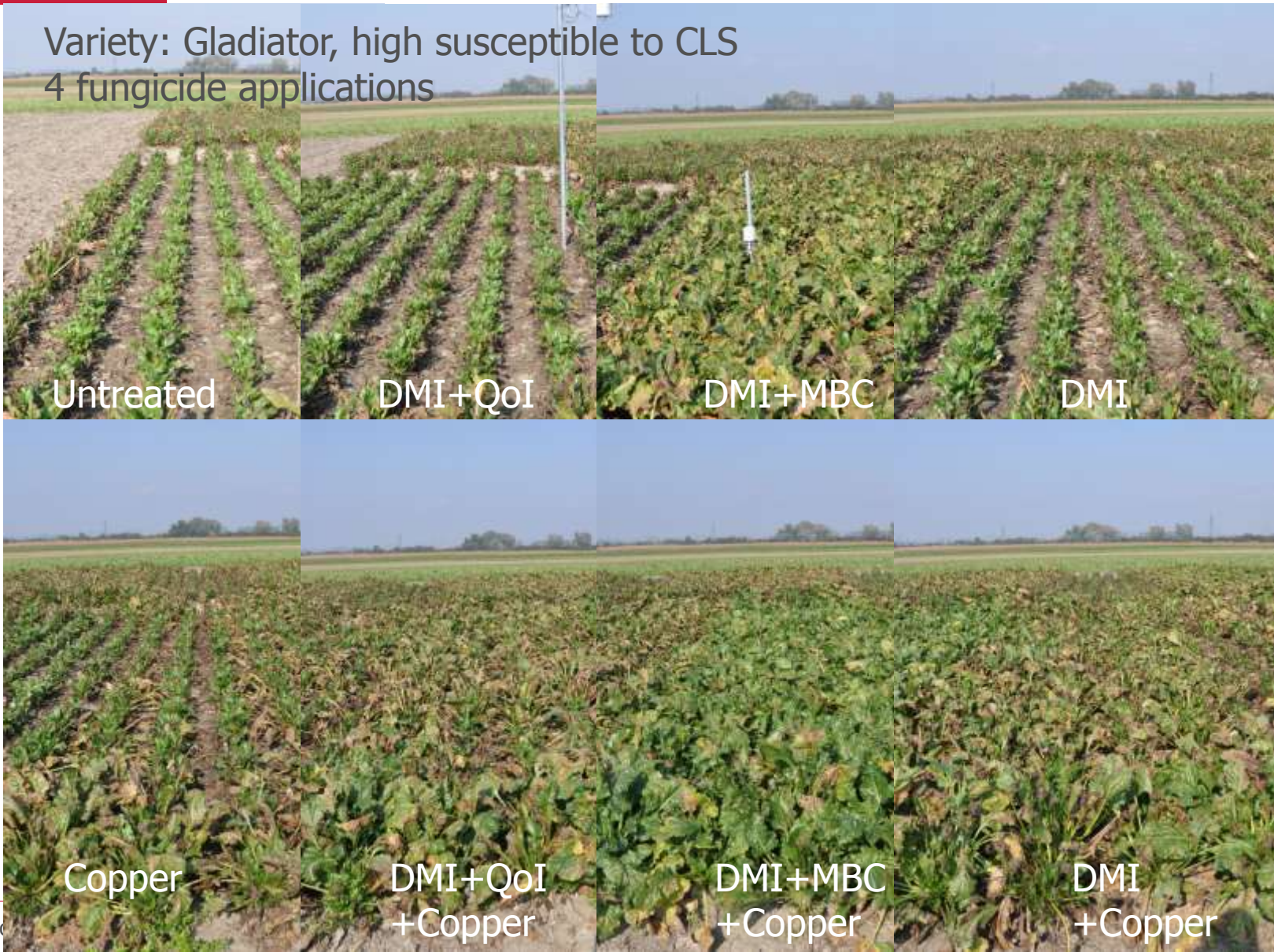


FUNGICIDE TESTS

	Fungicides	1st - 4th Application
1 Untreated	-	-
2 DMI + QoI	Sphere 0,35l	56 g Cyproconazole + 131,5 g Trifloxystrobin /ha
3 DMI + MBC	Duett ultra 0,6l	112,5 g Epoxiconazole + 186 g Thiophanat-methyl /ha
4 DMI	Domark 1l	100 g Tetraconazole /ha
5 Copper	Cuprofor 2l	Copperoxychloride, 1000 g Cu/ha
6 DMI + QoI + Copper	Sphere 0,35l + Cuprofor 2l	56 g Cyproconazole + 131,5 g Trifloxystrobin + Copperoxychloride, 1000 g Cu/ha
7 DMI + MBC + Copper	Duett ultra 0,6l + Cuprofor 2l	112,5 g Epoxiconazole + 186 g Thiophanat-methyl + Copperoxychloride, 1000 g Cu/ha
8 DMI + Copper	Domark 1l + Cuprofor 2l	100 g Tetraconazole + Copperoxychloride, 1000 g Cu/ha

TRÜBENSEE, OCT. 7TH 2014

Variety: Gladiator, high susceptible to CLS
4 fungicide applications



FUNGICIDE TESTS RESULTS 2014, 3 SITES

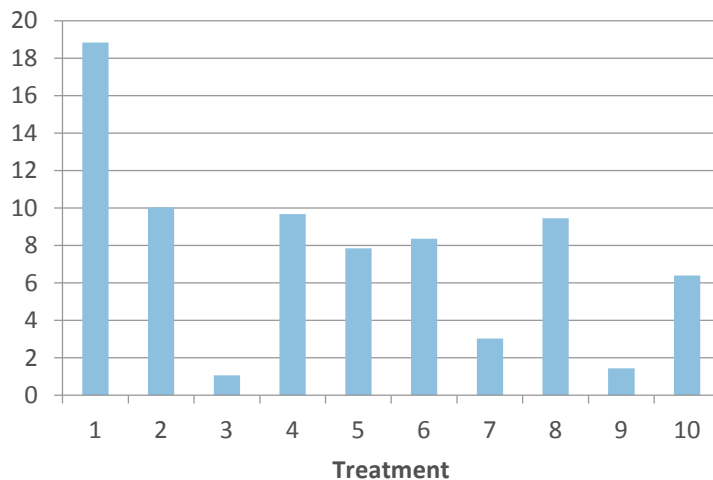
O.Nr.	Treatment	n	root yield [t/ha]		sugar [%]		sugar yield [t/ha]	
1	Untreated	11	95,02	F	13,17	G	12,49	G
2	DMI + QoI	11	100,33	E	13,66	F	13,70	F
3	DMI + MBC	11	118,65	A	15,21	AB	18,02	A
4	DMI	11	101,26	E	13,95	EF	14,12	EF
5	Copper	11	106,11	CD	14,05	E	14,89	D
6	DMI + QoI + Copper	11	109,65	BC	14,75	CD	16,14	BC
7	DMI + MBC + Copper	11	117,30	A	15,29	A	17,92	A
8	DMI + Copper	11	107,94	C	14,62	CD	15,79	C

FUNGICIDE TESTS 2015 AFTER 2 APPLICATIONS

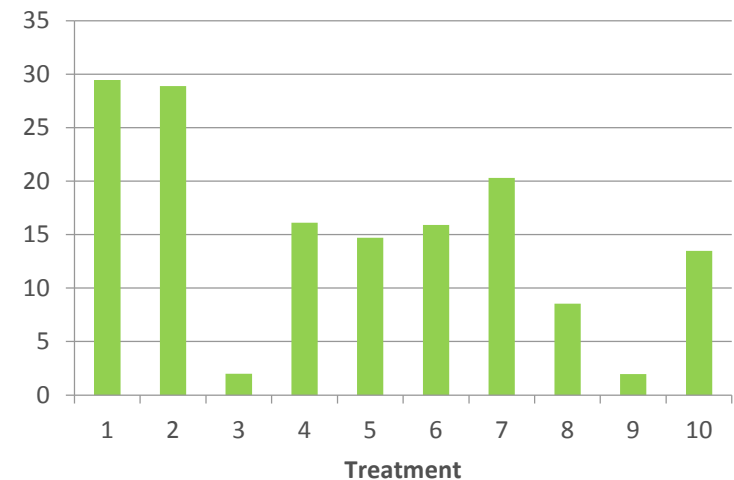
Treatments

1 Untreated	----
2 DMI + Qol	56 g Cyproconazole + 131,5 g Trifloxystrobin /ha
3 DMI + MBC	112,5 g Epoxiconazole + 186 g Thiophanat-methyl /ha
4 DMI: Tetraconazole	100 g Tetraconazole /ha
5 DMI: Epoxyconazole	125 g Epoxyconazole /ha
6 Copper High Dose	950 g Cu /ha (Copperoxychloride)
7 Copper Low Dose	425 g Cu /ha (Copperoxychloride)
8 Mancozeb	1500 g Mancozeb /ha
9 DMI + MBC + Copper	112,5 g Epoxiconazole + 186 g Thiophanat-methyl + 425 g Cu /ha
10 DMI + Copper	100 g Tetraconazole + 425 g Cu /ha

affected leaf area [%]
Trübensee, Aug. 11th 2015



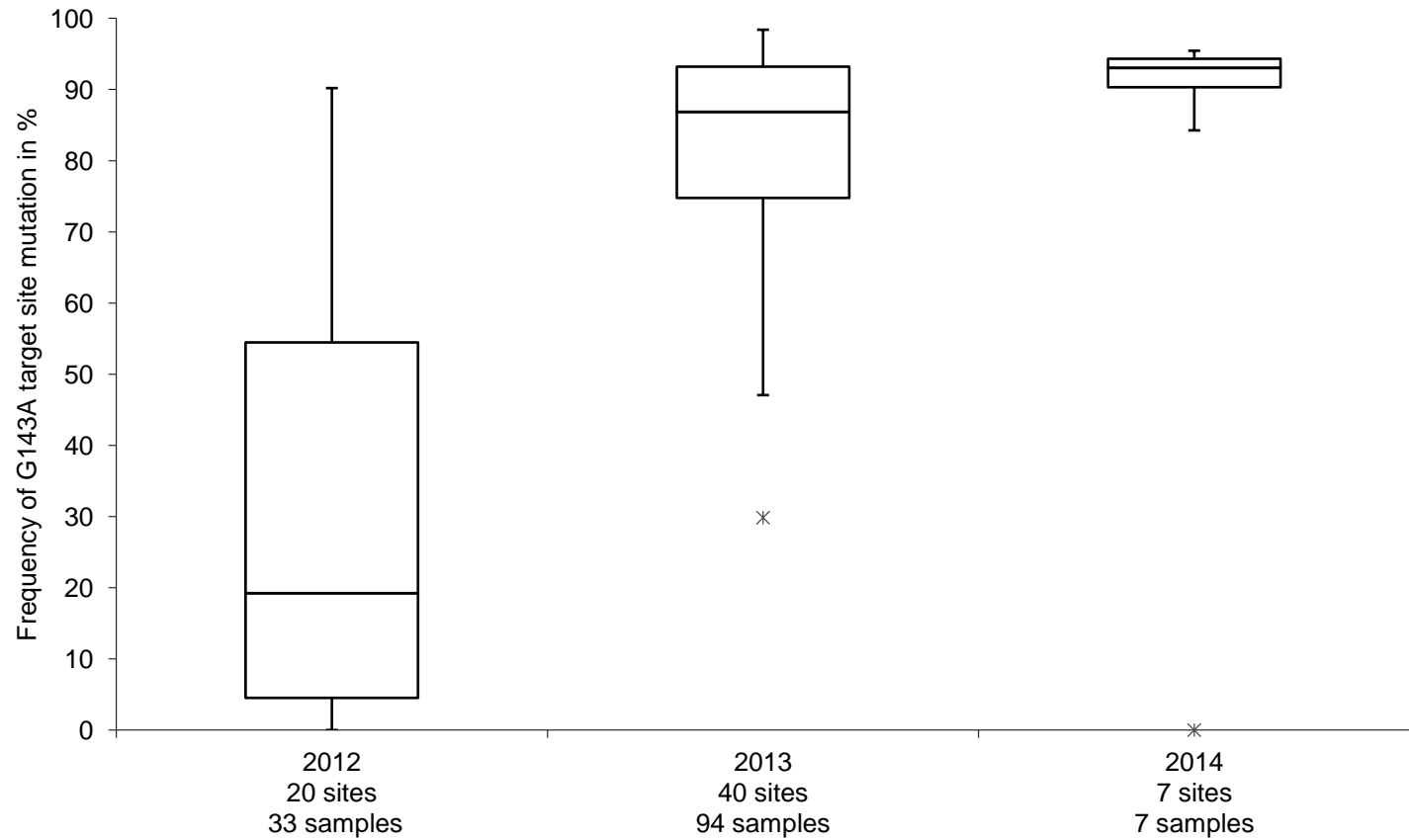
affected leaf area [%]
St. Andrä, Aug. 13th 2015



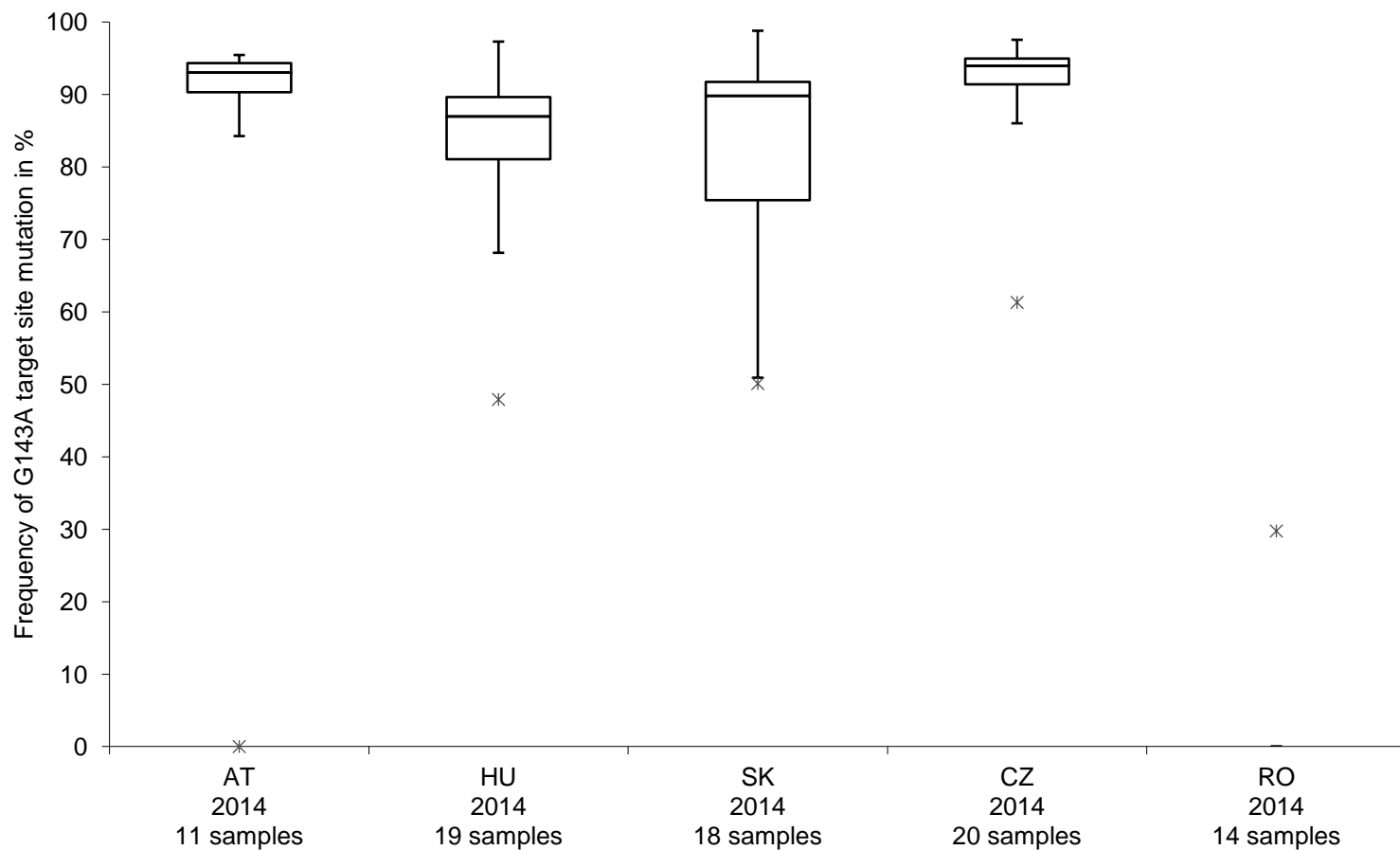


RESISTENCE TESTS
2012 - 2014

FREQUENCY OF STROBILURINE RESISTENCE (G143A TARGET SITE MUTATION REL. FOR QOI RESISTENCE, CERCOSPORA BETICOLA)



FREQUENCY OF STROBILURINE RESISTENCE (G143A TARGET SITE MUTATION REL. FOR QOI RESISTENCE, CERCOSPORA BETICOLA)





RECOMMENDATIONS



CERCOSPORA MONITORING TIMING OF SPRAYINGS

- ~ 50 Monitoring Sites
- Very susceptible sugar beet variety
- Assessment once per week
- Begin: two weeks after row closure
- End: **Mid of September**

- **thresholds: 1/5/15/45 leaves with spots from 100**
(until 15.7. / 1.8. / 15.8. / later)
- After application threshold shifts to the next step



FUNGICIDE STRATEGY 2015

- **2nd application:
Duett ultra (Thiophanate-methyl + Epoxyconazole)
+ Multi Site fungicide (Copper or Mancozeb)**
- **All other applications:
Full rate of Triazole + Multi Site fungicide (Copper or Mancozeb)**
- **→ No efficacy of Strobilurines to Cercospora**
- Addition of sulphur
- Multi Site fungicides (Copper or Mancozeb) for late last applications (End of Aug. to Sept.)



FURTHER RECOMMENDATIONS

- Use of high susceptible varieties should be avoided!
- Planning of sufficient distances to surrounding beet fields of previous year!
- Cleaning of irrigation pipes



AVAILABILITY OF FUNGICIDES

- Copper
 - Up to 2014: Cuprofor 500 g Cu/l (Copperoxychloride)
 - 2015: Cuprofor flow 380 g Cu/l (Copperoxychloride)
- Chlorothalonil
 - 2013-2014 Balear 720 SC (Emergency registration)
- Mancozeb
 - 2015 Dithane NeoTec (Emergency registration)
- Thiophanate-Methyl
 - 2014-2015 Duett ultra (Emergency registration)
regular registration Oct. 2015



Thanks for your attention!