



Chemical Control Strategy of Potato Late Blight Based on the DSS 'China-blight'

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Control of potato late blight in China --- Current situation

- Chemical control ----- main method in the whole country especially in large scale commercial planting;
- Resistant cultivar ----- in rural areas or mountain areas, planting for self-consumption;
- Agronomy methods ----- such as inter-cropping, in some area and mainly for research purpos.





Chemical control strategy of potato late blight in China

- Fixed spray schedule ----- popular in large scale commercial planting, start on fixed date or fixed plants height, fixed spray intervals, 6-12 sprays per season;
- Post-outbreak spray ----- mainly used by small scale commercial planting, start 10-15 days after first symptom of LB in the field, 1-3 sprays per season;
- Never spray ----- in rural areas or mountain areas, planting for self-consumption.





When to start spray and how long the spray intervals should be?

- These are the two 'Key point' for spray on late blight;
- When to start? Just pre- or soon after the first symptom of LB present in the field;
- Time of following sprays: if possible, always before the 'risk day';
- Spray intervals ----- Depend on the weather conditions since last spray and the characteristics of the products of last spray.





When to start spray based on the DSS 'China-blight'?

- Field trail of 2012;
- The result of the trial;
- Conclusions based on the trial;



Table 1 Spray strategies for potato late blight – field trial

(Weichang, Hebei 2012)

Treatment	First spray	Followed spray	Fungicide	Spray interval
A	Plants height ca. 18 cm	Before the risk day according to 'China-blight' (MISP model)	Infinito a.i. 700 g/ ha	See Table 2
B	According to the first symptom forecast by 'China-blight'			
C	When the first symptom appear in the field			
D	Two weeks after the first symptom appear in the field			
E	-	-	-	-

Plots: 4X7 m; 4 replicates; Random block setup.

Table 2 Spray intervals based on weather conditions

Number of risk days since last spray	Spray interval / days
0	10-14
1	7-10
≥ 2	5-7

Note: 1 'highly risk day = 2 risk days'



A Web Based DSS on Potato Late Blight in China
has been set up and used in practice since 2008

www.china-blight.net



Weather based infection risk of *P. infestans* (MISP model)



Measured weather data

Forecasted data



General information about the field trial

(Weichang, Hebei 2012)

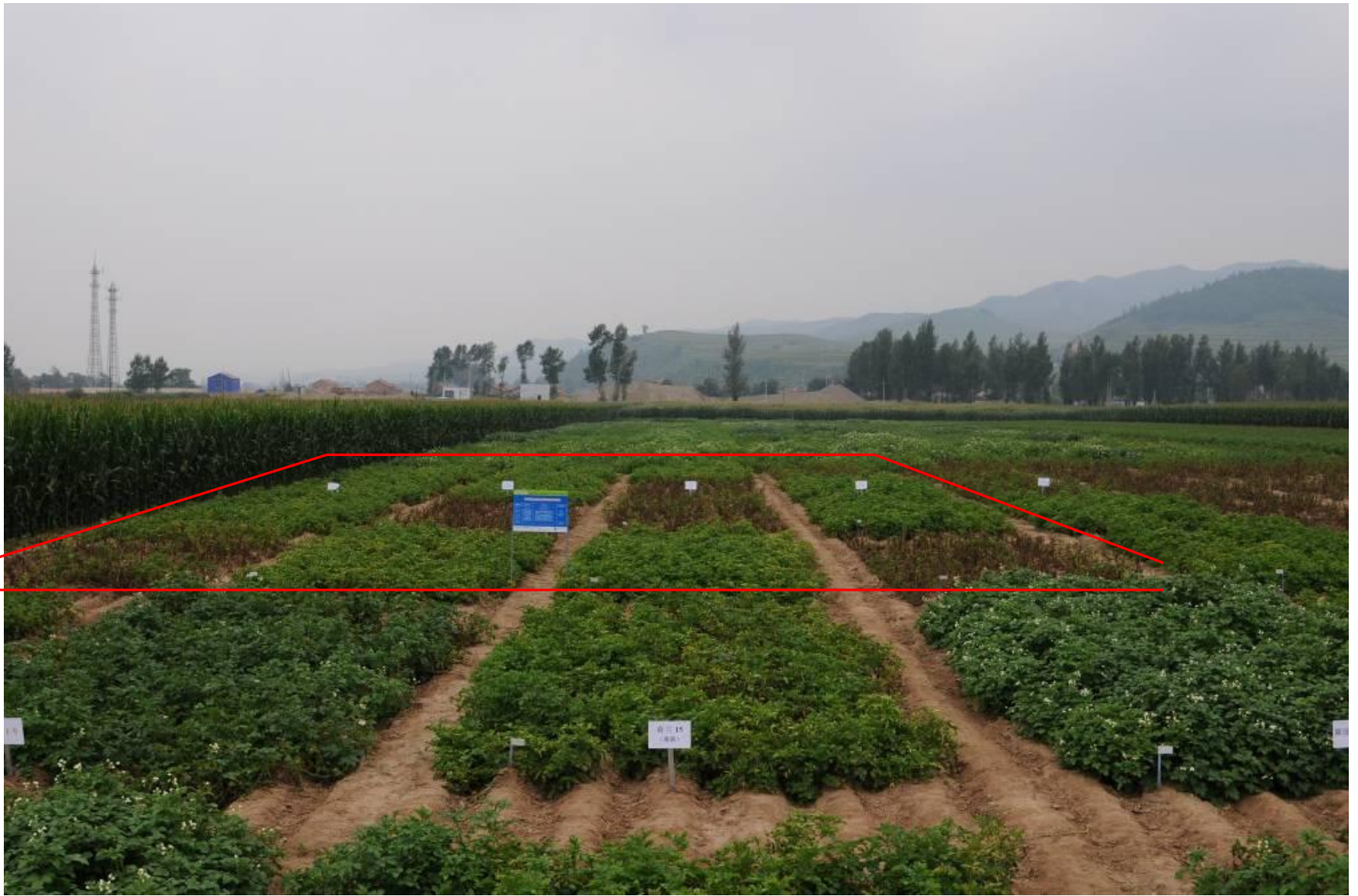
- **Planting date :** **5 May 2012**
- **Date of plant emergence:** **1 Jun. 2012**
- **Date of first symptom of LB forecasted by ‘China-blight’:** **14-21 Jul. 2012**
- **Date of first symptom in the field:** **17 Jul. 2012**
- **Date of harvest:** **6 Sep. 2012**



Table 3 Spray record of the field trial 2012

(Weichang Hebei)

Treatment	Date of spray					
	2 Jul.	13 Jul.	20 Jul.	25 Jul.	30 Jul.	7 Aug.
A	✓	✓	✓	✓	✓	✓
B	—	✓	✓	✓	✓	✓
C	—	—	✓ 19 Jul	✓	✓	✓
D	—	—	—	—	✓	✓
E	—	—	—	—	—	—



Field trial over view on 11 Aug. 2012 (Weichang Hebei)



Plot of treatment A on 11 Aug. 2012



Plot of treatment B on 11 Aug. 2012



Plot of treatment C on 11 Aug. 2012



Plot of treatment D on 11 Aug. 2012



Plot of treatment E on 11 Aug. 2012

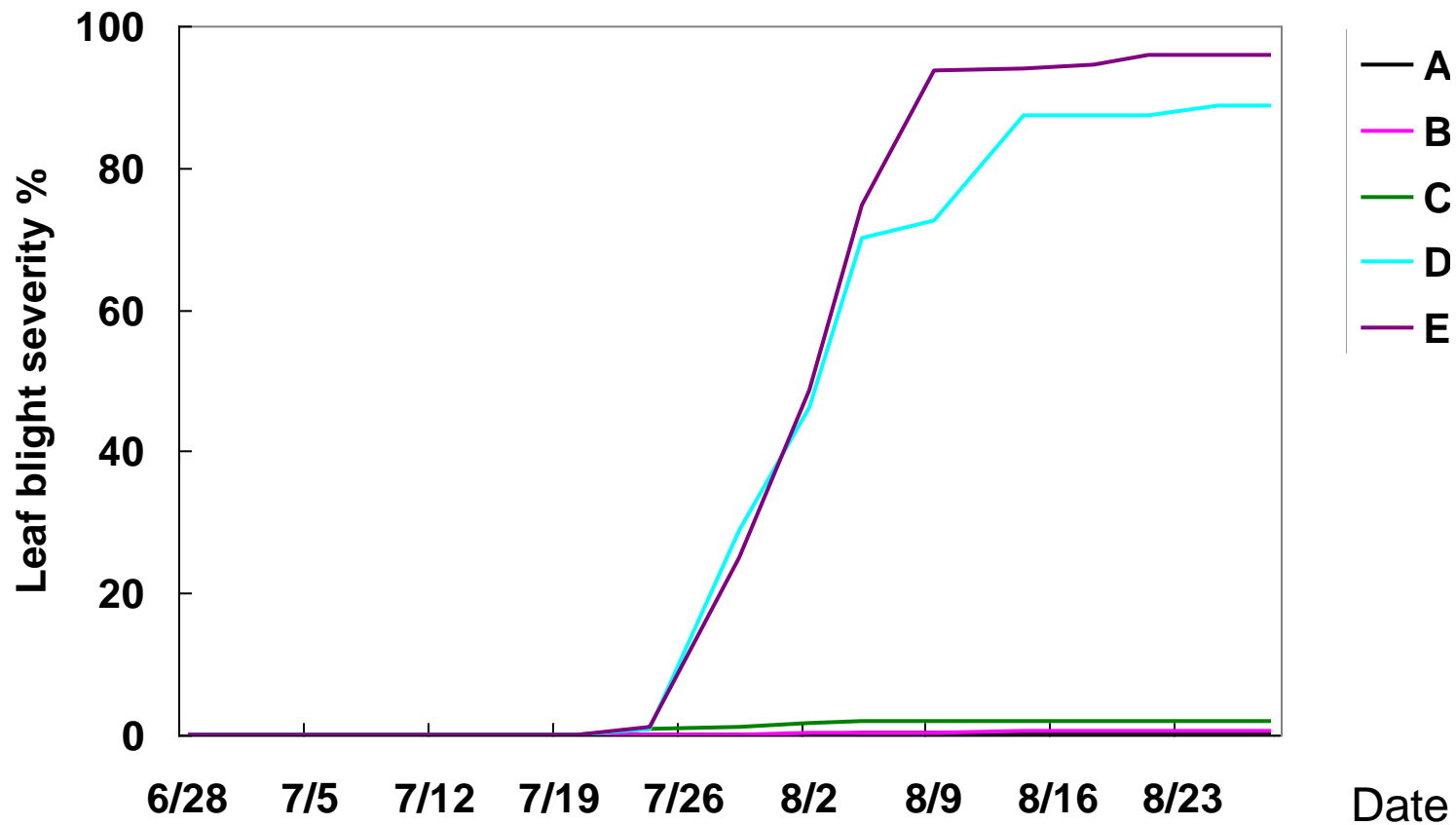


Figure 1 Disease progress of different treatment in field trail 2012



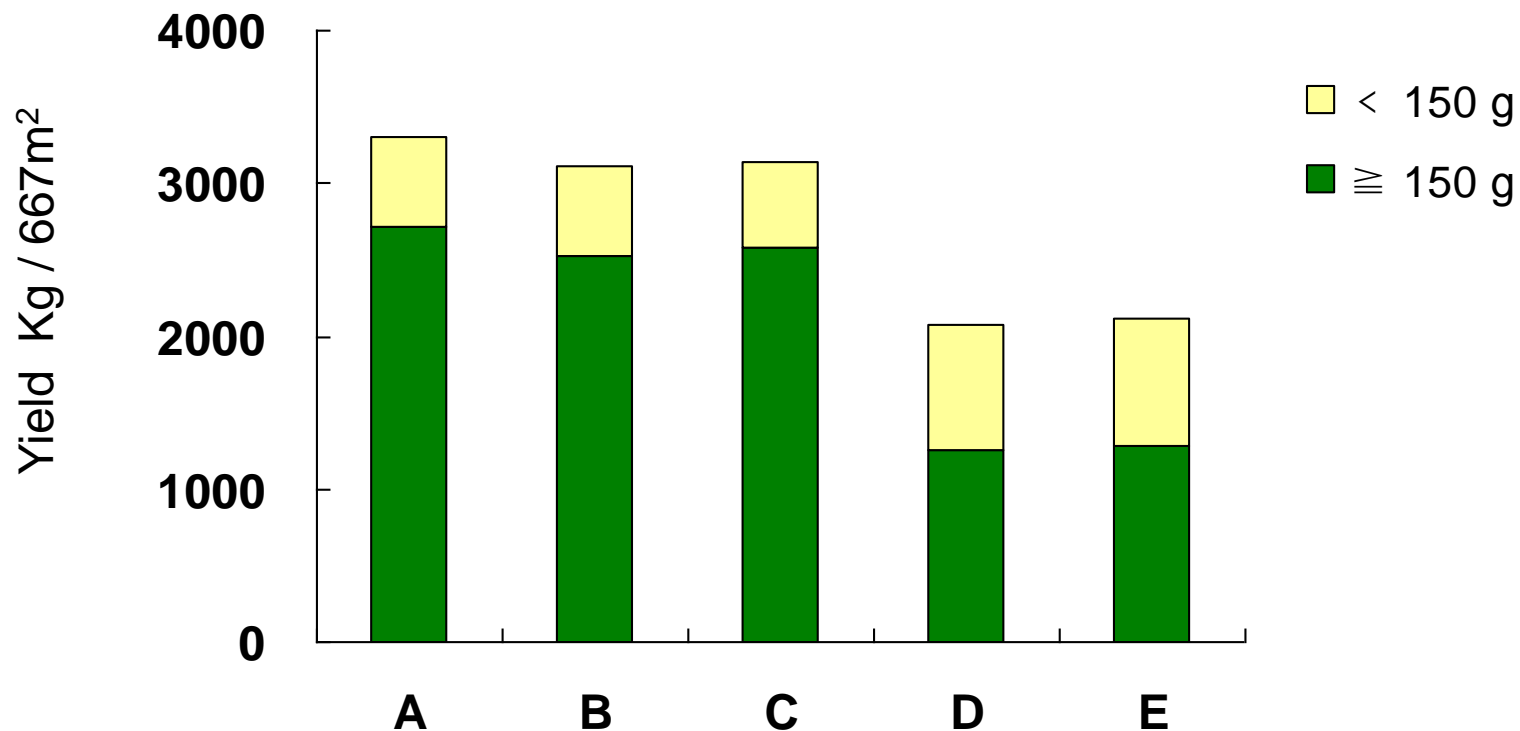


Figure 2 Yield of different treatment in field trail 2012







Four regions of late blight occurrence and epidemics in China

(Source: K. Cao, T. Hu, *et al*, 2008)



For disease epidemics:

The third region with the most potato cultivation and suitable weather conditions usually has the severest disease.

The disease in region one is usually severer than in region two, this is highly correlated with the yearly precipitation amount.

The region four only has late blight in early spring, because only winter potato is cultivated in that region.





Spray strategy for disease control:

Region 1, 3 and 4:

Large scale farms ----- B.

Small scale farms ----- C.

Region 2 :

All farms ----- C.

Solution: LB monitoring net work should be built.





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Thanks for your attention !

