



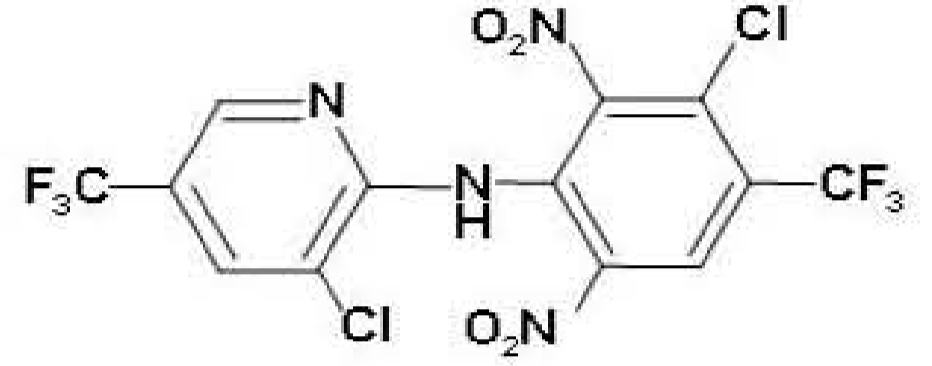
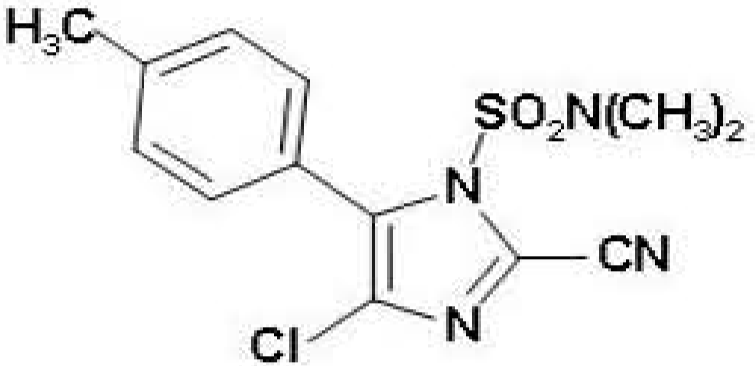
Fluazinam and Cyazofamid: New Solutions for the Control of Potato Late Blight in China

S. Mitani¹, K. Sugimoto¹, N. Akiyoshi¹ and Y. Zhang²
Ishihara Sangyo Kaisha, Ltd., Japan¹, Beijing Representative Office²

Key words: Fluazinam, cyazofamid, Chemical control, China

Abstract

Fluazinam and cyazofamid are very active against one of the most important disease of potato late blight. To evaluate the efficacy of these fungicides against potato late blight in China, field tests were carried out in 2006-2007. Both fluazinam and cyazofamid provided excellent foliar late blight control and significant reduction of tuber blight in the fields. These findings indicate that those fungicides will be useful in spray programs for the control of late blight in potato cultivation in China.

Name	Fluazinam (Fushuaide™)	Cyazofamid (Kejia™)
Chemical Structure		
Dose Rate (g a.i./ha)	200-250	80
Molecular Weight	465.1	324.8
Melting Point (°C)	117	153
Partition Coefficient <i>n</i> -octanol/water(Log Po/w)	4.03	3.2
Water solubility (ppm, pH7, 20°C)	0.135	0.107
Mode of action	Uncoupler of Oxidative Phosphorylation	Mitochondrial Cytochrome <i>bc</i> ₁ at Q _i site

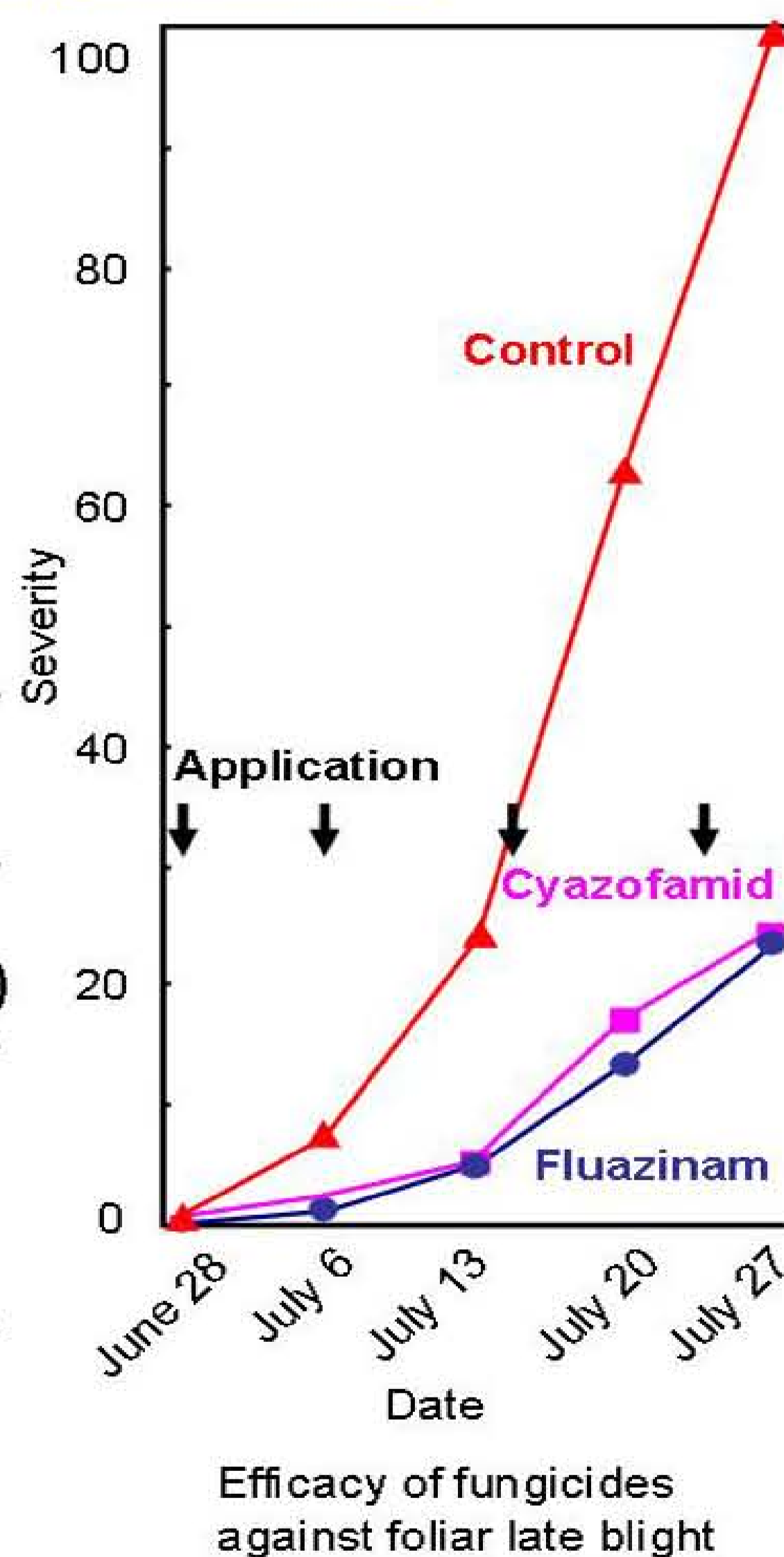
Comparison of Fluazinam and Cyazofamid

Location: Hei Long Jiang
Water Volume: 600 L/ha
Dose rate: Fluazinam; 200 g a.i./ha, Cyazofamid 80 g a.i./ha
Test Scale (total): 1 ha
Date of Application: June 29, July 6, 16, 24 (2006)
Date of Harvest: Sep. 7

Efficacy of fungicides against tuber blight

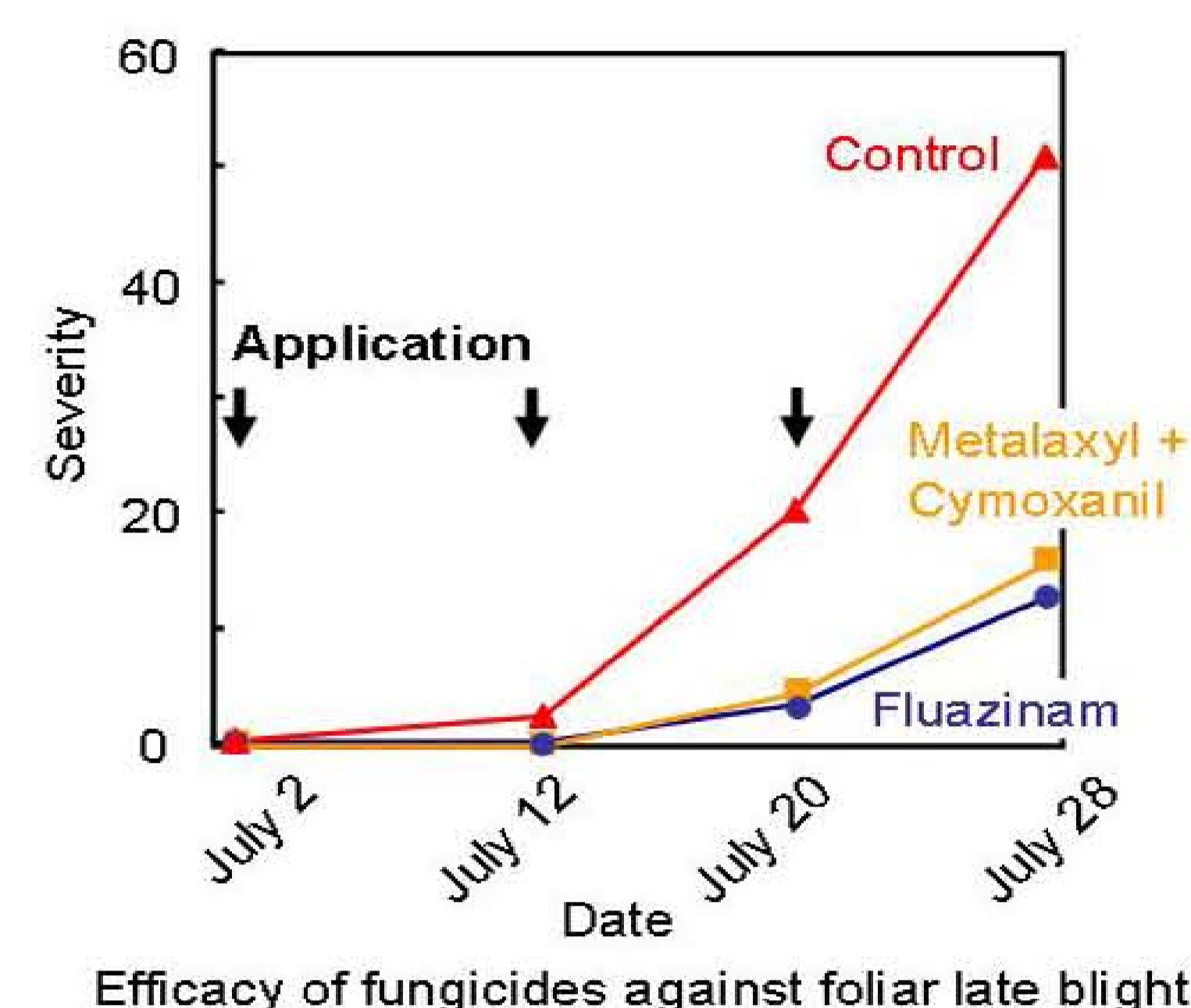
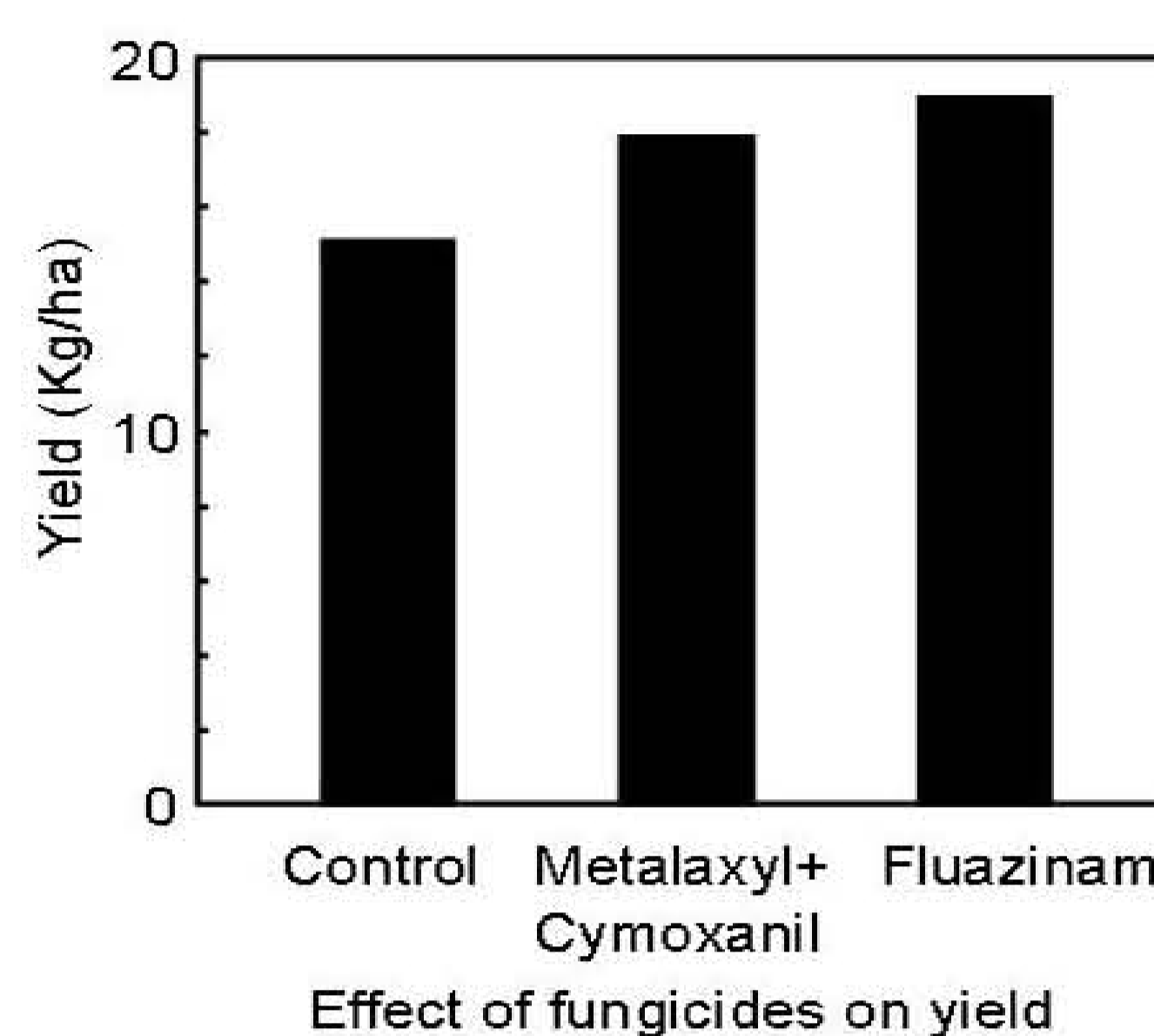
	At harvest		2 months after harvest	
	Yield (Kg/ha)	Infected tubers (%)	Yield (t)	Yield (Kg/ha)
Fluazinam	24.0	1.3	0.3	23.7
Cyazofamid	23.1	1.3	0.3	22.8
Control	20.5	10.9	2.2	18.3

The efficacy of fluazinam was equal to cyazofamid.



Comparison of Fluazinam and Metalaxyl+Cymoxanil

Location: Hei Long Jiang
Water Volume: 600 L/ha
Dose rate: Fluazinam; 200 g a.i./ha, Metalaxyl+Cymoxanil; 65+65 g a.i./ha
Test Scale (total): 4 ha
Date of Application: July 2, 12, 20
Date of Harvest: Sep. 8



The efficacy of fluazinam was equal to or superior to metalaxyl+cymoxanil.

Comparison of Fluazinam, Fluazinam-Cyazofamid Program and Reference Spray Program

Location: Hei Long Jiang
Water Volume: 720-900L/ha
Dose rate: Fluazinam; 200 g a.i./ha, Cyazofamid 80 g a.i./ha
Test Scale (total): 9 ha
Date of Application: June 28, July 9, 20, 28, Aug. 13 (2006)
Date of Harvest: Sep. 17

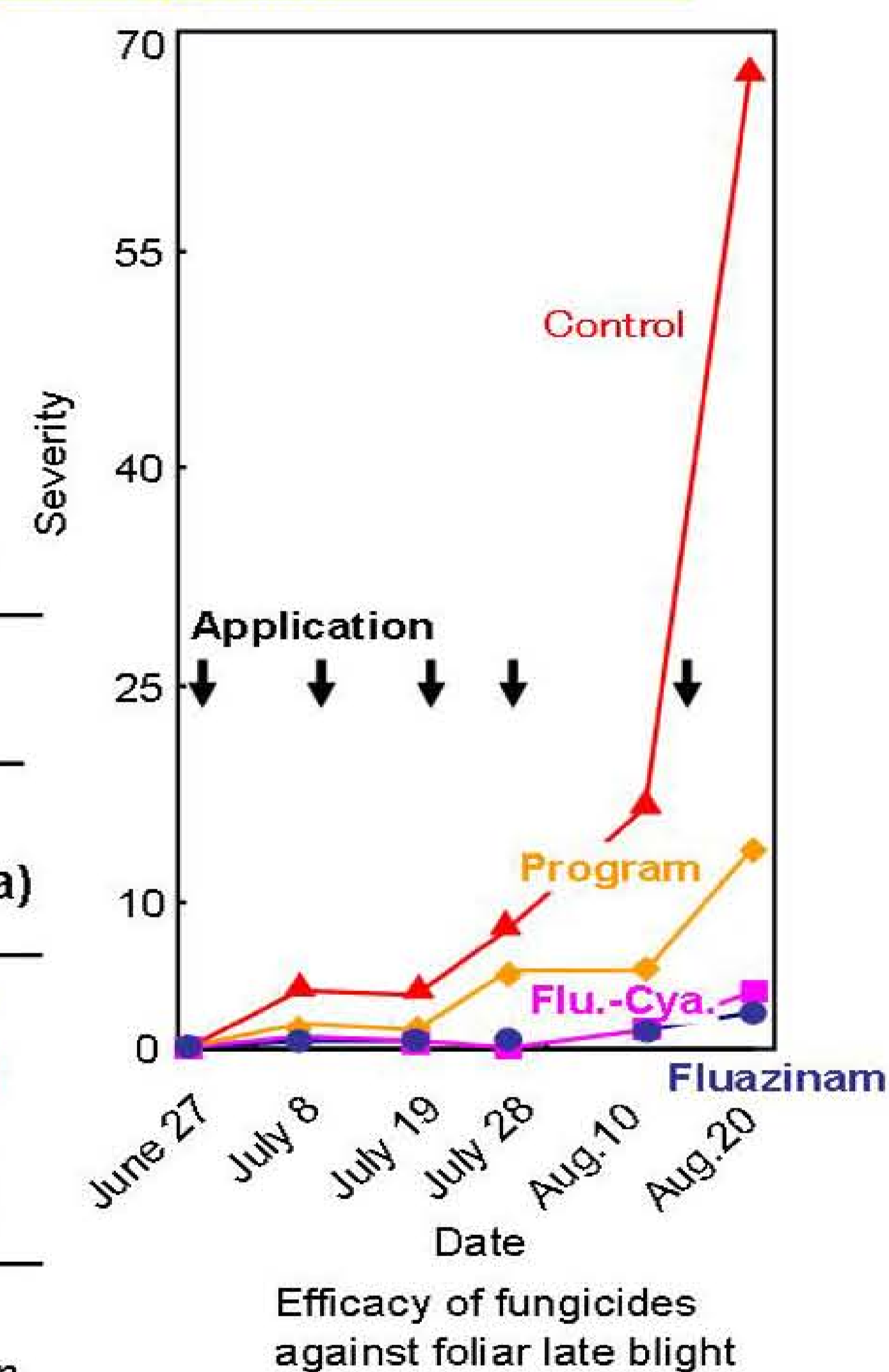
Efficacy of fungicides against tuber blight

	At harvest		2 months after harvest	
	Yield (Kg/ha)	Infected tubers (%)	Yield (t)	Yield (Kg/ha)
Fluaziam	30.0	1.1	0.3	29.7
Flu.-Cya.*	30.1	1.5	0.5	29.6
Program**	25.9	5.9	1.5	24.4
Control	20.2	25.6	5.2	15.0

*Fluazinam: 3, Cyazofamid: 2, total 5 applications

**Copper sulfate basic, Mancozeb, Fosetyl-aluminium, Metalaxyl: total 5 applications

The efficacy of the spray program including fluazinam and cyazofamid was equal to fluazinam alone and was superior to the reference spray program.



Conclusion

Both fluazinam at 200 g a.i./ha and cyazofamid at 80 g a.i./ha provided excellent foliar late blight control and significant reduction of tuber blight in the fields. These findings indicate that both fluazinam and cyazofamid will be useful in spray programs for the control of late blight in potato cultivation in China.

Introduction

Fluazinam and cyazofamid are fungicides discovered and developed by Ishihara Sangyo Kaisha Ltd. Registration of fluazinam and cyazofamid was received in China in 2008 and 2005, respectively. To evaluate the efficacy of these fungicides against potato late blight in China, field tests were carried out in 2006-2007.

Methods (Field Evaluation)

30 plants per plot were evaluated.
Disease severity of the plants were rated on a scale of 0 (no disease) to 4 (more than 75 % infected).
The data was converted into disease severity as follows:
Disease severity = $\sum (\text{Number of plants} \times \text{rate}) \times 100 / 5 \times 30$

References

- 1) Anema B.P., Bouwman J.J., Komyoji T. and Suzuki K (1992) *Brighton Crop Protection Conference Pests and Diseases* 2, 663-668
- 2) Mitani S, Kamachi K, Sugimoto K (2005) *Journal of Pesticide Science* 30,116-119
- 3) Mitani S (2007) *Japanese Journal of Plant Science* 2, 77-84