The comparison of control efficiency among timing and insecticide applied at early stage of second rice crop season

Treatment	Control efficacy to BPH(%)				N+A peak	Reduction rate of natural enemy(%)	
Insecticide	Timing (DAT)	3 d after spraying	N+A[a] peak of 4 gene.	Egg peak of 5 gene.	of 5 gene.	Total spiders	Mirid
Methamidophos	27	47.80	73.58	56.15	46.04	70.76	36.62
Methamidophos	27	50.71	81.76	56.92	50.10	74.67	50.70
Methamidophos	23	65.42	21.17	18.97	22.59	58.48	−22.83
Methamidophos	23	81.31	54.74	37.93	35.17	42.98	34.78
Methamidophos	21	92.86	30.40	−16.47	−15.26	63.46	65.71
Methamidophos	21	93.75	36.00	0.00	6.33	69.87	72.86
Triazophos	18	30.32	2.50	−90.85	−175.73	59.28	33.33
Triazophos	21	16.13	−24.14	−46.45	−87.50	28.96	62.50
Shachongshuang	22	51.16	60.47	21.13	−44.66	59.79	55.55
Mean		58.83	37.39	4.15	−18.10	58.68	43.25
S.E.		8.98	11.44	16.32	24.79	4.83	9.53

[a] N+A=nymph and adult

not be recommended. If it is in urgent need to control the leaffolder and stembored at early stage of a crop season in an outbreak year, the application time and the insecticide chosen are considerably important.

The forecasting models of brown planthopper *Nilaparvata Lugens* (stol) in Zhejiang Provence

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Based on the historical data over 15 years from five counties including Xiaoshan, Longyou, Pujiang, Wenling, and Huangyan, Zhejiang Province, a series of forecasting models were established by step wise regression. These models could be used to predict the population size and the level of the main endangering generation of brown planthopper (BPH) on late-season rice. After eight years validation, 73 models were established from 469 ones as a series of models used as long, medium, and short term forecasting.

The main forecasting factors were selected by principals component analysis. The long term forecasting was mainly based on meteorological factors (temperature, rain days, rainfall, and interacted factors), from Jun to the first twenty days of Jul. The population size from late Jun to the early Jul was also concerned. The medium term forecasting was also based on meteorological factors, meanwhile the population size became a more important one. The short term forecasting mainly depended on the population size during the late Aug. Here the meteorological factores were lass important. Main forecasting factors were varied with different regions.

The accurate rate of these forecasting models were 93.98% for the whole, 87.5% for the long term, 95.83% for the medium term, and 100% for the short term(see table). These forecasting models

were suiteble for more than 4×10^6 ha paddyfield covered 23 cities/counties in Zhejiang Province. The medium and long term models could forecast 25 days and 55 days earlier than the conventional method.

Accurate rate of forecasting model to BPH

Region	Long term forecasting			Middle term forecasting			Shoer term forcecasting			Total		
	FT[a]	TTWR[b]	AR(PC)[c]	FT	TTWR	AR(PC)	FT	TTWR	AR(PC)	FT	TTWR	AR(PC)
Xiaoshan	8	7	87.50	5	5	100.00.	6	6	100.00	19	18	94.74
Huangyan	7	6	85.71	7	7	100.00	7	7	100.00	21	20	95.24
Longyou	7	7	100.00	6	6	100.00	6	6	100.00	19	19	100.00
Pujiang	6	4	66.67	5	4	80.00	5	5	100.00	16	13	81.25
Wenling	4	4	100.00	1	1	100.00	3	3	100.00	8	8	100.00
Total	32	28	87.50	24	23	95.83	27	27	100.00	83	78	93.98

[a] FT=Forecasting times. [b] TTWR=Times of tally with reality. [c] AR(PC)= Accurate rate (Percent)

Effects of temperature and pH on the inhibition of Bensulfuron-Methyl (BSM)

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Bensulfuron-Methyl (BSM) is a highly active sulfonylurea herbicide that effectively controls most annual and perennial broadleaf or sedge weeds in paddy field. However, the activity of BSM is affected by several evironmental factors. Using corn seedlings as material, we found that under different temperatures

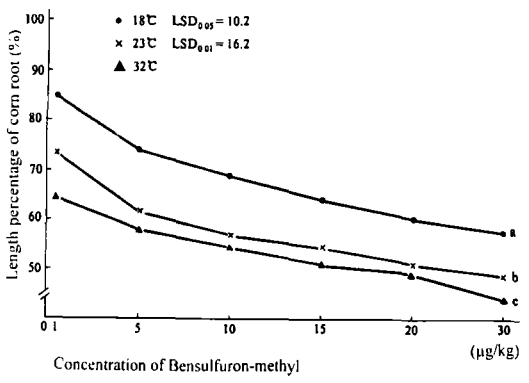

Fig. 1 Effects of BSM on the root growth of corn seedlings under different temperatures.

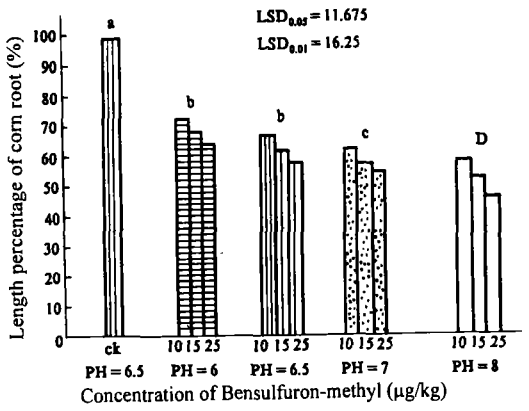

Fig. 2 Effects of BSM on root growth of corn under different pH values.

(10℃, 25℃, and 32℃), the BSM showed different inhibition on the root growth (Fig 1). Such inhibition increased with the rise of temperature. Therefore, to increase the controlling efficiency, it is better to rise the water temperature by adequate sunlight before BSM application, if underground water