Appendix 1

Record Sheet

Series 1

	A	B
1	20 Yuan if ①②③ 5 Yuan if ④⑤⑥⑦⑧⑨⑩	34 Yuan if ① 2.5 Yuan if ②③④⑤⑥⑦⑧⑨⑩
2	20 Yuan if ①②③ 5 Yuan if ④⑤⑥⑦⑧⑨⑩	37.5 Yuan if ① 2.5 Yuan if ②③④⑤⑥⑦⑧⑨⑩
3	20 Yuan if ①②③ 5 Yuan if ④⑤⑥⑦⑧⑨⑩	41.5 Yuan if ① 2.5 Yuan if ②③④⑤⑥⑦⑧⑨⑩
4	20 Yuan if ①②③ 5 Yuan if ④⑤⑥⑦⑧⑨⑩	46.5 Yuan if ① 2.5 Yuan if ②③④⑤⑥⑦⑧⑨⑩
5	20 Yuan if ①②③ 5 Yuan if ④⑤⑥⑦⑧⑨⑩	53 Yuan if ① 2.5 Yuan if ②③④⑤⑥⑦⑧⑨⑩
6	20 Yuan if ①②③ 5 Yuan if ④⑤⑥⑦⑧⑨⑩	62.5 Yuan if ① 2.5 Yuan if ②③④⑤⑥⑦⑧⑨⑩
7	20 Yuan if ①②③ 5 Yuan if ④⑤⑥⑦⑧⑨⑩	75 Yuan if ① 2.5 Yuan if ②③④⑤⑥⑦⑧⑨⑩
8	20 Yuan if ①②③ 5 Yuan if ④⑤⑥⑦⑧⑨⑩	92.5 Yuan if ① 2.5 Yuan if ②③④⑤⑥⑦⑧⑨⑩
9	20 Yuan if ①②③ 5 Yuan if ④⑤⑥⑦⑧⑨⑩	110 Yuan if ① 2.5 Yuan if ②③④⑤⑥⑦⑧⑨⑩
10	20 Yuan if ①②③ 5 Yuan if ④⑤⑥⑦⑧⑨⑩	150 Yuan if ① 2.5 Yuan if ②③④⑤⑥⑦⑧⑨⑩
11	20 Yuan if ①②③ 5 Yuan if ④⑤⑥⑦⑧⑨⑩	200 Yuan if ① 2.5 Yuan if ②③④⑤⑥⑦⑧⑨⑩
12	20 Yuan if ①②③ 5 Yuan if ④⑤⑥⑦⑧⑨⑩	300 Yuan if ① 2.5 Yuan if ②③④⑤⑥⑦⑧⑨⑩

13	20 Yuan if ①②③ 5 Yuan if ④⑤⑥⑦⑧⑨⑩	500 Yuan if ① 2.5 Yuan if ②③④⑤⑥⑦⑧⑨⑩
14	20 Yuan if ①②③ 5 Yuan if ④⑤⑥⑦⑧⑨⑩	850 Yuan if ① 2.5 Yuan if ②③④⑤⑥⑦⑧⑨⑩

I choose lottery A for Row 1 to _____.
I choose lottery B for Row _____ to 14.

Series 2

	A	B
1	20 Yuan if ①②③④⑤⑥⑦⑧⑨ 15 Yuan if ⑩	27 Yuan if ①②③④⑤⑥⑦ 2.5 Yuan if ⑧⑨⑩
2	20 Yuan if ①②③④⑤⑥⑦⑧⑨ 15 Yuan if ⑩	28 Yuan if ①②③④⑤⑥⑦ 2.5 Yuan if ⑧⑨⑩
3	20 Yuan if ①②③④⑤⑥⑦⑧⑨ 15 Yuan if ⑩	29 Yuan if ①②③④⑤⑥⑦ 2.5 Yuan if ⑧⑨⑩
4	20 Yuan if ①②③④⑤⑥⑦⑧⑨ 15 Yuan if ⑩	30 Yuan if ①②③④⑤⑥⑦ 2.5 Yuan if ⑧⑨⑩
5	20 Yuan if ①②③④⑤⑥⑦⑧⑨ 15 Yuan if ⑩	31 Yuan if ①②③④⑤⑥⑦ 2.5 Yuan if ⑧⑨⑩
6	20 Yuan if ①②③④⑤⑥⑦⑧⑨ 15 Yuan if ⑩	32.5 Yuan if ①②③④⑤⑥⑦ 2.5 Yuan if ⑧⑨⑩
7	20 Yuan if ①②③④⑤⑥⑦⑧⑨ 15 Yuan if ⑩	34 Yuan if ①②③④⑤⑥⑦ 2.5 Yuan if ⑧⑨⑩
8	20 Yuan if ①②③④⑤⑥⑦⑧⑨ 15 Yuan if ⑩	36 Yuan if ①②③④⑤⑥⑦ 2.5 Yuan if ⑧⑨⑩
9	20 Yuan if ①②③④⑤⑥⑦⑧⑨ 15 Yuan if ⑩	38.5 Yuan if ①②③④⑤⑥⑦ 2.5 Yuan if ⑧⑨⑩
10	20 Yuan if ①②③④⑤⑥⑦⑧⑨ 15 Yuan if ⑩	41.5 Yuan if ①②③④⑤⑥⑦ 2.5 Yuan if ⑧⑨⑩

11	20 Yuan if ①②③④⑤⑥⑦⑧⑨ 15 Yuan if ⑩	45 Yuan if ①②③④⑤⑥⑦ 2.5 Yuan if ⑧⑨⑩
12	20 Yuan if ①②③④⑤⑥⑦⑧⑨ 15 Yuan if ⑩	50 Yuan if ①②③④⑤⑥⑦ 2.5 Yuan if ⑧⑨⑩
13	20 Yuan if ①②③④⑤⑥⑦⑧⑨ 15 Yuan if ⑩	55 Yuan if ①②③④⑤⑥⑦ 2.5 Yuan if ⑧⑨⑩
14	20 Yuan if ①②③④⑤⑥⑦⑧⑨ 15 Yuan if ⑩	65 Yuan if ①②③④⑤⑥⑦ 2.5 Yuan if ⑧⑨⑩

I choose lottery A for Row 1 to _____.
I choose lottery B for Row _____ to 14.

Series 3

	A	B
1	Receive 12.5 Yuan if ①②③④⑤ Lose 2 Yuan if ⑥⑦⑧⑨⑩	Receive 15 Yuan if ①②③④⑤ Lose 10 Yuan if ⑥⑦⑧⑨⑩
2	Receive 2 Yuan if ①②③④⑤ Lose 2 Yuan if ⑥⑦⑧⑨⑩	Receive 15 Yuan if ①②③④⑤ Lose 10 Yuan if ⑥⑦⑧⑨⑩
3	Receive 0.5 Yuan if ①②③④⑤ Lose 2 Yuan if ⑥⑦⑧⑨⑩	Receive 15 Yuan if ①②③④⑤ Lose 10 Yuan if ⑥⑦⑧⑨⑩
4	Receive 0.5 Yuan if ①②③④⑤ Lose 2 Yuan if ⑥⑦⑧⑨⑩	Receive 15 Yuan if ①②③④⑤ Lose 8 Yuan if ⑥⑦⑧⑨⑩
5	Receive 0.5 Yuan if ①②③④⑤ Lose 4 Yuan if ⑥⑦⑧⑨⑩	Receive 15 Yuan if ①②③④⑤ Lose 8 Yuan if ⑥⑦⑧⑨⑩
6	Receive 0.5 Yuan if ①②③④⑤ Lose 4 Yuan if ⑥⑦⑧⑨⑩	Receive 15 Yuan if ①②③④⑤ Lose 7 Yuan if ⑥⑦⑧⑨⑩
7	Receive 0.5 Yuan if ①②③④⑤ Lose 4 Yuan if ⑥⑦⑧⑨⑩	Receive 15 Yuan if ①②③④⑤ Lose 5.5 Yuan if ⑥⑦⑧⑨⑩

I choose lottery A for Row 1 to _____.
I choose lottery B for Row _____ to 7

Online Appendix 2 (See Section 5.2)

We try to deal with in several ways. First, we create a variable MPI (mean perceived infestation of bollworm and mirids) in Columns 1 and 2, but in Column 2 we do not control for the village-fixed effects. We use bollworm perception in Column 3 and mirid perception in Column 4. We use a ratio capturing the relative risk (perceived mirids level / perceived bollworm level). The coefficients on various pest severity measures are positive and significant in Columns 1 to 4. The coefficient on the ratio measure in Column 5 is not intuitive to interpret. It does not inform us how *absolute* pest severity would affect pesticide use, but how *relative* pest severity would affect pesticide use. It indicates that farmers would spray less when perceived mirids level increases relative to perceived bollworm level.[1]

Online Appendix Table 1: Dependent Variable (Pesticide Use Kg/Ha)

			Various Pest Severity Measure:		
	MPI	*MPI*	*Bollworms*	*Mirids*	*Ratio*
	(1)	(2)	(3)	(4)	(5)
Sigma	7.206***	5.164*	7.480***	7.025***	7.428***
	(2.468)	(2.857)	(2.410)	(2.516)	(2.555)
lambda	-0.509***	-0.670***	-0.485***	-0.525***	-0.561***
	(0.182)	(0.209)	(0.181)	(0.186)	(0.193)
alpha	6.325	2.005	6.577*	6.676	6.772*
	(4.020)	(4.610)	(3.933)	(4.052)	(3.984)
Pest Severity	0.124**	0.135***	0.106**	0.0676*	-0.491*
	(0.055)	(0.051)	(0.050)	(0.037)	(0.266)
Village Fixed Effect	X		X	X	X
Observations	925	925	925	925	869
R-squared	0.379	0.186	0.377	0.372	0.386

Note: All regressions control for age, education, plot size, a dummy for Bt cotton, experience with Bt cotton and price of pesticide. Columns 1 and 2 control for MPI (mean pest severity), which is the mean of self-reported bollworm severity level and mirids severity level. Column 3 controls for self-reported bollworm severity (0..100). Column 4 controls for self-reported mirids severity (0..100). Column 5 controls for a ratio of mirid severity / bollworm severity.

Interaction terms:

Online Appendix Table 2: Dependent Variable: Pesticide Use (Kg/Ha)

	Various Pest Severity Measure:			
	MPI	*Bollworm*	*Mirids*	*Ratio*
	(1)	(2)	(3)	(4)
sigma	7.356	7.148*	6.991	7.896**
	(4.718)	(3.920)	(4.566)	(3.048)
lambda	-0.167	-0.137	-0.397	-0.927***
	(0.322)	(0.283)	(0.327)	(0.241)
alpha	14.17*	8.503	15.12**	9.714**
	(7.296)	(6.092)	(7.372)	(4.431)
Pest Severity	0.300***	0.177*	0.212**	-2.060***

[1] We lose some observations in Column 5 because some farmers report 0% perceived yield loss for bollworm infestation, which is the denominator of the ratio, therefore, the ratio is undefined.

	(0.111)	(0.105)	(0.093)	(0.657)
Pest Severity* Sigma	-0.0133	-0.0045	-0.00634	-0.61
	(0.085)	(0.078)	(0.068)	(0.684)
Pest Severity * Lambda	-0.00747	-0.00945	-0.00239	0.168**
	(0.006)	(0.006)	(0.005)	(0.074)
Pest Severity * Alpha	-0.195	-0.0473	-0.186	1.225*
	(0.141)	(0.137)	(0.119)	(0.678)

Note: All regressions control for age, education, plot size, a dummy for Bt cotton, experience with Bt cotton and price of pesticide. Column 1 controls for MPI (mean pest severity), which is the mean of self-reported bollworm severity level and mirids severity level and a set of interaction terms between MPI and risk preferences. Column 2 controls for self-reported bollworm severity (0..100) and the interaction terms between bollworm and individual risk preferences. Column 3 controls for self-reported mirids severity (0..100) and its interaction terms with risk preferences. Column 4 controls for a ratio of mirid severity / bollworm severity and its interaction terms with risk preferences.

This table includes various perceived pest severity measures and the interaction term between pest severity and risk preferences. Most of the interaction terms are not significant, except for Column 4, when we use a ratio of mirid severity / bollworm severity and its interaction term. First, the insignificant coefficients in Columns 1 – 3 could be due to the sample size. Our dataset might not be powerful enough to detect these effects. A negative coefficient on relative pest severity in Column 4 implies that farmers would be using less pesticide when the severity of mirids increases relative to the severity of bollworm. However, this reduction of pesticide use would be less if one is more loss averse.

Online Appendix 3 (see footnote 30)

Online Appendix. OLS Regression of Pesticide Use (Kilogram/Hectare)

	(1)	(2)	(3)	(4)
σ		7.196***	7.370***	7.450***
(value function curvature)		(2.456)	(2.445)	(2.455)
λ		-0.512***	-0.540***	-0.525***
(loss aversion)		(0.188)	(0.189)	(0.182)
α		7.260*	6.824*	5.989
(probability weighting)		(3.967)	(3.920)	(3.963)
Age	-0.117	-0.106	-0.126	-0.116
	(0.141)	(0.133)	(0.133)	(0.135)
Education (Years)	-0.641*	-0.632*	-0.607*	-0.542
	(0.361)	(0.342)	(0.343)	(0.333)
Plot Size (Ha)	-9.589***	-7.368**	-8.007**	-8.858***
	(3.603)	(3.070)	(3.140)	(3.262)
Price of Pesticide	-0.378***	-0.386***	-0.385***	-0.371***
	(0.061)	(0.062)	(0.062)	(0.063)
Bt[a]	-23.59**	-26.12**	-26.41**	-25.92***
	(10.350)	(10.270)	(10.240)	(9.516)
Experience with Bt (Years)	0.822	1.073	1.135*	1.093
	(0.650)	(0.680)	(0.681)	(0.679)
Training[b]			-3.275	-2.803
			(2.101)	(2.095)
Bollworm Severity[c]				0.0805
				(0.050)
Mirid Severity[d]				0.0438
				(0.035)
Observations	925	925	925	925
R-squared	0.333	0.365	0.37	0.384

The utility function is:

$$U = \bar{p_H} * \bar{H}^{1-\sigma} + \underline{p_H} * (-\lambda)(-\underline{H})^{1-\sigma} + \bar{p_y} * \bar{Y}^{1-\sigma} + \underline{p_y} * \underline{Y}^{1-\sigma}$$

Take the first order condition with respect to x_p

$$\frac{\partial U}{\partial x_p} = \frac{\partial \bar{p_H}}{\partial x_p}\bar{H}^{1-\sigma} + \frac{\partial \underline{p_H}}{\partial x_p}(-\lambda)(-\underline{H})^{1-\sigma} + \frac{\partial \bar{p_y}}{\partial x_p}\bar{Y}^{1-\sigma} + \frac{\partial \underline{p_y}}{\partial x_p}(\underline{Y})^{1-\sigma} = 0$$

Take the partial derivative of the first order condition with respect to σ at the optimal pesticide usage:

$$\frac{\partial x_p^*}{\partial \sigma} = -\frac{\frac{\partial \bar{p_H}}{\partial x_p^*}(\bar{H})^{1-\sigma}\ln \bar{H} + \frac{\partial \underline{p_H}}{\partial x_p^*}(-\underline{H})^{1-\sigma}\ln(-\underline{H})(-\lambda) + \frac{\partial \bar{p_y}}{\partial x_p^*}(\bar{Y})^{1-\sigma}\ln \bar{Y} + \frac{\partial \underline{p_y}}{\partial x_p^*}(\underline{Y})^{1-\sigma}\ln \underline{Y}}{\frac{\partial^2 \bar{p_H}}{\partial x_p^{*2}}\bar{H}^{1-\sigma} + \frac{\partial^2 \underline{p_H}}{\partial x_p^{*2}}(-\lambda)(-\underline{H})^{1-\sigma} + \frac{\partial^2 \bar{p_y}}{\partial x_p^{*2}}\bar{Y}^{1-\sigma} + \frac{\partial^2 \underline{p_y}}{\partial x_p^{*2}}\underline{Y}^{1-\sigma}}$$

In the denominator, we assume that $\frac{\partial^2 \underline{p_H}}{\partial x_p^{*2}} > 0$, (the greater usage of pesticide, the greater the change in the probability of being poisoned). Recall that $\underline{p_H} + \bar{p_H} = 1$ so $\frac{\partial^2 \bar{p_H}}{\partial x_p^{*2}} < 0$ Now with $\frac{\partial^2 \bar{p_H}}{\partial x_p^{*2}}\bar{H}^{1-\sigma} < 0$ and $\frac{\partial^2 \underline{p_H}}{\partial x_p^{*2}}(-\lambda)(-\underline{H})^{1-\sigma} < 0$ and $\frac{\partial^2 \bar{p_y}}{\partial x_p^{*2}}\bar{Y}^{1-\sigma} + \frac{\partial^2 \underline{p_y}}{\partial x_p^{*2}}\underline{Y}^{1-\sigma} = \frac{\partial^2 \bar{p_y}}{\partial x_p^{*2}}(\bar{Y}^{1-\sigma} - \underline{Y}^{1-\sigma}) < 0$. The denominator is negative. Now we focus on the sign of the numerator. Recall that in the first order condition,

$$\frac{\partial U}{\partial x_p} = \frac{\partial \bar{p_H}}{\partial x_p}\bar{H}^{1-\sigma} + \frac{\partial \underline{p_H}}{\partial x_p}(-\lambda)(-\underline{H})^{1-\sigma} + \frac{\partial \bar{p_y}}{\partial x_p}\bar{Y}^{1-\sigma} + \frac{\partial \underline{p_y}}{\partial x_p}(\underline{Y})^{1-\sigma} = 0$$

in which $\frac{\partial \bar{p_y}}{\partial x_p^*}\bar{Y}^{1-\sigma} + \frac{\partial \underline{p_y}}{\partial x_p^*}(\underline{Y})^{1-\sigma} = \frac{\partial \bar{p_y}}{\partial x_p^*}(\bar{Y}^{1-\sigma} - \underline{Y}^{1-\sigma}) > 0$ so that $\frac{\partial \bar{p_H}}{\partial x_p^*}\bar{H}^{1-\sigma} + \frac{\partial \underline{p_H}}{\partial x_p^*}(-\lambda)(-\underline{H})^{1-\sigma} < 0$. We also know it must be $\frac{\partial \bar{p_H}}{\partial x_p^*}\bar{H}^{1-\sigma} < 0$, since $\frac{\partial \underline{p_H}}{\partial x_p^*}(-\lambda)(-\underline{H})^{1-\sigma} > 0$. Accompanied with the assumption in the main text (page 20), $-\underline{H} > e > \bar{H} > 1, \bar{Y} > \underline{Y} > e$ we have $\ln(-\underline{H}) > 1 > \ln \bar{H} > 0, \ln \bar{Y} > \ln \underline{Y} > 1$. All the positive components in the first order condition multiplies a term that is greater than 1 , while the only negative component in the first order condition, $\frac{\partial \bar{p_H}}{\partial x_p^*}\bar{H}^{1-\sigma}$, multiplies $\ln \bar{H}$ which is smaller than 1 and becomes smaller (in terms of abstract value).

Therefore, the overall effect is that the numerator is positive. As a result, $\frac{\partial x_p^*}{\partial \sigma} > 0$.

Similarly, take the partial derivative of the first order condition with respect to λ

$$\frac{\partial^2 \bar{p_H}}{\partial x_p^{*2}}\frac{\partial x_p^*}{\partial \lambda}\bar{H}^{1-\sigma} + \frac{\partial^2 \underline{p_H}}{\partial x_p^{*2}}\frac{\partial x_p^*}{\partial \lambda}(-\lambda)(-\underline{H})^{1-\sigma} - \frac{\partial \underline{p_H}}{\partial x_p^*}(-\underline{H})^{1-\sigma} + \frac{\partial^2 \bar{p_y}}{\partial x_p^{*2}}\frac{\partial x_p^*}{\partial \lambda}\bar{Y}^{1-\sigma} + \frac{\partial^2 \underline{p_y}}{\partial x_p^{*2}}\frac{\partial x_p^*}{\partial \lambda}\underline{Y}^{1-\sigma} = 0$$

Then we can get the comparative statics of x_p^* with respect to λ

$$\frac{\partial x_p^*}{\partial \lambda} = \frac{\frac{\partial p_H}{\partial x_p^*}(-\underline{H})^{1-\sigma}}{\frac{\partial^2 \bar{p_H}}{\partial x_p^{*2}}\bar{H}^{1-\sigma} + \frac{\partial^2 p_H}{\partial x_p^{*2}}(-\lambda)(-\underline{H})^{1-\sigma} + \frac{\partial^2 \bar{p_y}}{\partial x_p^{*2}}\bar{Y}^{1-\sigma} + \frac{\partial^2 p_y}{\partial x_p^{*2}}\underline{Y}^{1-\sigma}}$$

The numerator is positive, since $\frac{\partial p_H}{\partial x_p^*} > 0$. As shown above, the denominator is negative. So $\frac{\partial x_p^*}{\partial \lambda} < 0$.