



Appendices

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

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Appendix A

Sample of Questionnaire:

1. *What is your name?*
2. *How many members do you have in your family?*
3. *How much land do you have?*
4. *What are the methods of cultivation you generally use?*
Line sowing , *Broadcasting* , *Others*
5. *What are the main crops you cultivated?*
6. *Who helps you to cultivate a better crop?*
Extension Officials , *Neighbor* , *Other Advanced farmers*
7. *How many days you normally visit your crop field after transplanting?*
Every Morning , *One day interval,* *Two days interval,* *One Week interval*
8. *Without normal management of crop system (i.e. fertilization, irrigation, weeding) do you visit your field?*
9. *In a day at which time you visit mostly in your field?*
Morning , *Noon* , *Afternoon*
10. *What are the actions you have been taken for pest control?*
Mechanical , *Cultural* , *Chemical*
11. *Before controlling the pest, have you ever been counted the number of defenders and pests in a certain area of your crop field?*
12. *Do You remember any major infestation in your field within past 7 years?*
Yes , *No*
13. *If yes, name that insect and mention the attacking Year?*

14. *If infestation occurred like that what was the crop loss had been resulted that year?*
15. *What was the measure you had been taken then?*
16. *Do you know the harmful effect of insecticides?*
Yes , No
17. *Do you know the critical / threshold level of pest control?*
Yes , No
18. *Who give you the suggestions to select the right insecticide?*
19. *What precaution measures you have taken in the time of using insecticides in your crop field?*
20. *How many times you have applied insecticides in your vegetable/ rice field in a crop season?*
One time , Two times , Three to Seven times , More than Seven times
21. *Have you ever heard about surveillance and forecasting system?*
Yes , No
22. *If Yes do you follow it in your crop field?*

“Thank You for cooperating with me.”

Appendix B

Multinomial Regression Analysis

Table: Model Fitting Information

Model	Model Fitting Criteria	Likelihood Ratio Test		
		Chi-square	df	Sig
	-2 log likelihood			
Intercept only	263.730			
Final	140.717	123.013	64	0.000

Table: Goodness of Fit

	Chi-square	df	Sig
Pearson	470.282	184	0.000
Deviance	140.717	184	0.992

Table: Pseudo R-Square

Cox and Snell	0.626
Nagelkerke	0.713
McFadden	0.466

Appendix C

Table: Parameter Estimates

Status of Farmers' Surveillance Method Adoption	B	Std Error	Wald	df	Sig	Exp(B)	95% CI for Exp(B)	
							Lower Band	Upper Band
Intercept	-30.288	13.004	5.425	1	.020			
[X0=1]	28.112	5881.456	.000	1	.996	1.618E12	.000	. ^b
[X0=2]	7.224	4.615	2.450	1	.118	1371.749	.162	1.163E7
[X0=3]	-7.802	3.931	3.940	1	.047	.000	1.844E-7	.906
[X0=4]	-5.015	3.005	2.786	1	.095	.007	1.838E-5	2.397
[X0=5]	-8.515	4.086	4.342	1	.037	.000	6.661E-8	.603
[X0=6]	6.059	6.513	.865	1	.352	427.797	.001	1.496E8
[X0=7]	-1.707	2.632	.421	1	.517	.181	.001	31.550
[X0=8]	0 ^c	.	.	0	.	.	.	.
[x1=1]	-19.224	.000	.	1	.	4.478E-9	4.478E-9	4.478E-9
[x1=2]	6.553	3.179	4.248	1	.039	701.199	1.379	356603.316
[x1=3]	4.642	3.818	1.479	1	.224	103.787	.058	184403.683
[x1=4]	27.662	12.085	5.239	1	.022	1.032E12	53.273	1.998E22
[x1=5]	25.230	10.465	5.813	1	.016	9.067E10	112.209	7.326E19
[x1=6]	8.834	4.355	4.114	1	.043	6860.370	1.347	3.493E7
[x1=7]	8.085	4.324	3.496	1	.062	3244.694	.677	1.556E7

[x1=8]	16.292	6.817	5.712	1	.017	1.190E7	18.751	7.557E12
[x1=9]	0°	.	.	0	.	.	.	.
[x2=1]	17.675	8.502	4.322	1	.038	4.745E7	2.751	8.183E14
[x2=2]	15.671	7.600	4.251	1	.039	6396397. 797	2.170	1.885E13
[x2=3]	0°	.	.	0	.	.	.	.
[x5=1]	-1.774	2.366	.562	1	.453	.170	.002	17.526
[x5=2]	.287	1.637	.031	1	.861	1.332	.054	32.982
[x5=3]	0°	.	.	0	.	.	.	.
[X6=1]	13.044	6.527	3.994	1	.046	462192.2 63	1.286	1.662E11
[X6=2]	5.530	3.674	2.265	1	.132	252.169	.188	338137.727
[X6=3]	1.300	2.104	.382	1	.537	3.670	.059	226.784
[X6=4]	0°	.	.	0	.	.	.	.
[C8=1.00]	10.917	5.301	4.241	1	.039	55098.02 5	1.694	1.792E9
[C8=2.00]	6.530	3.983	2.688	1	.101	685.252	.279	1682733.06 3
[C8=3.00]	0°	.	.	0	.	.	.	.
[c9=1]	11.535	6.303	3.349	1	.067	9.784E-6	4.218E-11	2.270
[c9=2]	-2.721	2.820	.931	1	.335	.066	.000	16.535
[c9=3]	3.689	2.738	1.816	1	.178	40.005	.187	8559.163
[c9=4]	1.618	2.426	.445	1	.505	5.042	.043	585.828
[c9=5]	0°	.	.	0	.	.	.	.

[C10=1]	4.640	2.658	3.047	1	.081	103.557	.566	18957.842
[C10=2]	-2.665	1.955	1.859	1	.173	.070	.002	3.209
[C10=3]	0 ^c	.	.	0	.	.	.	.
[c11=1.00]	.769	3.506	.048	1	.826	2.158	.002	2082.754
[c11=2.00]	6.561	2.893	5.144	1	.023	707.110	2.439	205042.604
[c11=3.00]	0 ^c	.	.	0	.	.	.	.

Status of Farmers' Surveillance Method Adoption	B	Std Error	Wald	df	Sig	Exp(B)	95% CI for Exp(B)	
							Lower Band	Upper Band
Non-IPM								
Intercept	-27.114	12.839	4.460	1	.035			
[X0=1]	27.743	5881.456	.000	1	.996	1.119E12	.000	. ^b
[X0=2]	5.725	4.601	1.548	1	.213	306.463	.037	2527278.757
[X0=3]	-10.399	4.038	6.631	1	.010	3.045E-5	1.112E-8	.083
[X0=4]	-5.900	3.018	3.821	1	.051	.003	7.386E-6	1.016
[X0=5]	-8.459	4.097	4.262	1	.039	.000	6.901E-8	.652
[X0=6]	7.359	6.462	1.297	1	.255	1570.477	.005	4.971E8
[X0=7]	-1.852	2.590	.511	1	.475	.157	.001	25.150
[X0=8]	0 ^c	.	.	0	.	.	.	.
[x1=1]	-1.895	4.101	.214	1	.644	.150	4.860E-5	464.932
[x1=2]	4.949	2.952	2.811	1	.094	140.995	.433	45896.519

[x1=3]	2.027	3.569	.323	1	.570	7.593	.007	8289.713
[x1=4]	26.460	12.034	4.835	1	.028	3.102E1 1	17.712	5.432E21
[x1=5]	22.773	10.342	4.849	1	.028	7.763E9	12.223	4.931E18
[x1=6]	6.746	4.151	2.640	1	.104	850.322	.249	2906140.4 67
[x1=7]	4.265	4.164	1.049	1	.306	71.164	.020	249138.97 7
[x1=8]	12.795	6.703	3.644	1	.056	360443. 078	.710	1.829E11
[x1=9]	0°	.	.	0	.	.	.	.
[x2=1]	17.410	8.492	4.203	1	.040	3.639E7	2.151	6.155E14
[x2=2]	15.657	7.590	4.255	1	.039	6307018 .506	2.182	1.823E13
[x2=3]	0°	.	.	0	.	.	.	.
[x5=1]	-.944	2.364	.160	1	.690	.389	.004	40.005
[x5=2]	1.129	1.625	.483	1	.487	3.093	.128	74.782
[x5=3]	0°	.	.	0	.	.	.	.
[X6=1]	12.712	6.454	3.879	1	.049	331639. 301	1.064	1.034E11
[X6=2]	4.549	3.629	1.571	1	.210	94.508	.077	115905.80 0
[X6=3]	1.886	2.046	.850	1	.357	6.593	.120	363.528
[X6=4]	0°	.	.	0	.	.	.	.
[C8=1.00]	10.668	5.311	4.035	1	.045	42946.5 23	1.296	1.423E9

[C8=2.00]	7.500	3.988	3.536	1	.060	1807.458	.728	4488280.935
[C8=3.00]	0 ^c	.	.	0	.	.	.	.
[c9=1]	-13.328	6.395	4.343	1	.037	1.629E-6	5.864E-12	.452
[c9=2]	-2.658	2.788	.909	1	.340	.070	.000	16.549
[c9=3]	2.843	2.653	1.148	1	.284	17.161	.095	3112.772
[c9=4]	1.789	2.357	.576	1	.448	5.983	.059	607.353
[c9=5]	0 ^c	.	.	0	.	.	.	.
[C10=1]	3.722	2.662	1.954	1	.162	41.342	.224	7631.617
[C10=2]	-3.624	1.947	3.467	1	.063	.027	.001	1.210
[C10=3]	0 ^c	.	.	0	.	.	.	.
[c11=1.00]	.671	3.450	.038	1	.846	1.956	.002	1690.128
[c11=2.00]	6.397	2.820	5.145	1	.023	600.180	2.386	150966.581
[c11=3.00]	0 ^c	.	.	0	.	.	.	.

- The reference category is: Modern.
- Floating point overflow occurred while computing this statistic. Its value is therefore set to system missing.
- This parameter is set to zero because it is redundant.

X0=Number of insect pest	C8=Pesticide application time (how many time)
X1=Number of defender	C9=Area (m ²)
X2=Number of crop field visit by farmers in a week	C10=Time of field visit
X5=Number of labour forces engaged /ha	C11=Number of household member
X6=Percentage of pest infestation	

Curriculum Vitae

Name	Mr. Md. Arif Hossain
Date of Birth	August 25, 1970
Educational Background	
1988- 1995	Bachelor of Science in Agriculture, Bangladesh Agricultural University, Mymensingh
2008- 2010	Master of Science (Agriculture) in Agricultural Systems, Chiang Mai University, Chiang Mai, Thailand
Scholarships	Thailand International Development Cooperation Agency (TICA), Thailand; 2008- 2010
Working Experiences	
1999- 2002	Agricultural Extension Officer, Department of Agriculture Extension, Narsigdi, Bangladesh.
2002- 2004	Agricultural Extension Officer, Department of Agriculture Extension, Gazipur, Bangladesh.
2004- 2008	Entomologist, Plant Protection Wing, Department of Agriculture Extension, Dhaka, Bangladesh
Publication	“Improvement of Surveillance Method for Rice Pest in Gazipur District, Bangladesh,” Published in Proceedings of International Conference on Food and Agricultural Supply Chain in Indo-China Region:Phitsanulok, Thailand