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APPENDIX A : Artificial diet of armyworms

Add agar (20 g) to 800 ml of water and bring to the boil and then add to dry ingredients included:

Wheat germ 60 g
Maize meal 50 g
Yeast (dried) 50 g
Dried barley 20 g
Methyl p-hydroxybenzoate 1.5 g
Sorbic acid 1.5 g
Ascorbic acid 8 g

Mix everything very well, then add 10 ml Formalin 10% while mixing. Then put in plastic crisper and cool in fridge.

APPENDIX B: Data from preliminary study

Col 1 is row
Col 2 is cultivar (1=Lara, 2=Schooner)
Col 3 is replication
Col 4 is head width (millimetres)
Col 5 is body weight (milligrams)

1	1	1	2.30	218
2	1	1	2.15	171
3	1	1	2.30	80
4	1	1	2.15	145
5	1	1	2.25	164
6	1	1	2.25	161
7	1	1	2.20	54
8	1	1	2.05	161
9	1	1	2.30	91
10	1	1	2.10	96
11	1	1	2.15	179
12	1	1	2.25	153
13	1	1	2.30	175
14	1	1	2.20	197
15	1	1	2.25	67
16	1	1	2.15	98
17	1	1	2.15	105
18	1	2	2.25	145
19	1	2	2.20	184
20	1	2	1.05	10
21	1	2	2.25	199
22	1	2	2.30	73
23	1	2	2.25	130
24	1	2	2.25	215
25	1	2	2.30	115
26	1	2	2.20	72
27	1	2	2.45	82
28	1	2	1.50	18
29	1	2	2.25	204
30	1	2	2.20	171
31	1	2	2.05	78
32	1	2	2.30	134
33	1	2	1.70	58
34	1	2	2.20	162
35	1	2	1.45	42
36	1	2	2.25	105
37	1	2	2.25	206
38	1	3	2.25	71
39	1	3	1.30	12
40	1	3	1.20	25
41	1	3	1.75	58
42	1	3	0.75	7
43	1	3	1.40	38
44	1	3	1.20	24
45	1	3	2.20	78
46	1	3	1.65	22
47	1	3	1.25	15
48	1	3	2.25	74
49	1	3	2.25	71
50	1	3	2.25	54
51	2	1	2.05	159
52	2	1	2.30	246
53	2	1	2.10	193
54	2	1	2.15	167
55	2	1	2.25	213
56	2	1	1.90	122
57	2	1	2.15	59
58	2	1	2.20	203
59	2	1	2.35	137
60	2	1	2.30	135

61	2	1	2.20	80
62	2	1	1.30	43
63	2	1	2.25	162
64	2	1	2.30	100
65	2	1	2.30	239
66	2	2	1.45	49
67	2	2	1.35	41
68	2	2	2.35	147
69	2	2	2.00	96
70	2	2	2.15	64
71	2	2	2.20	114
72	2	2	1.50	48
73	2	2	2.20	68
74	2	2	2.40	51
75	2	2	1.35	41
76	2	2	2.20	111
77	2	2	2.15	93
78	2	2	2.25	82
79	2	2	2.35	59
80	2	2	2.60	103
81	2	2	1.30	35
82	2	2	1.75	109
83	2	3	1.50	32
84	2	3	2.30	45
85	2	3	2.30	153
86	2	3	2.40	157
87	2	3	2.45	82
88	2	3	2.40	168
89	2	3	2.40	75
90	2	3	2.45	80
91	2	3	2.45	172
92	2	3	2.35	46
93	2	3	2.50	78
94	2	3	2.45	99
95	2	3	2.30	202
96	2	3	2.35	151
97	2	3	2.40	176
98	2	3	2.50	214
99	2	3	2.25	193
100	2	3	2.35	212
101	2	3	2.25	45
102	2	3	2.35	204

APPENDIX C: Data from studies on the effect of barley cultivars on armyworms

Col 1 is row

Col 2 is cultivar (1=Lara, 2=Schooner)

Col 3 is replication

Col 4 is head width (millimetres)

Col 5 is body weight (milligrams)

1	1	1	3.250	110
2	1	1	3.250	126
3	1	1	2.250	101
4	1	1	3.000	77
5	1	1	3.500	161
6	1	1	3.625	314
7	1	1	2.500	54
8	1	1	3.500	279
9	1	1	3.500	152
10	1	1	2.875	84
11	1	1	2.500	94
12	1	1	3.625	175
13	1	1	3.625	266
14	1	1	3.625	264
15	1	1	2.250	82
16	1	1	2.875	96
17	1	1	2.250	67
18	1	1	3.625	312
19	1	1	3.500	268
20	1	1	2.500	96
21	1	2	2.500	68
22	1	2	3.625	277
23	1	2	3.625	285
24	1	2	3.625	469
25	1	2	3.500	198
26	1	2	2.500	42
27	1	2	2.250	91
28	1	2	3.625	422
29	1	2	3.625	391
30	1	2	3.625	206
31	1	2	3.250	95
32	1	2	2.250	94
33	1	2	2.375	39
34	1	2	3.125	104
35	1	2	3.375	163
36	1	3	1.625	10
37	1	3	3.500	202
38	1	3	2.125	49
39	1	3	2.625	164
40	1	3	3.375	192
41	1	3	3.250	90
42	1	3	1.750	27
43	1	3	2.375	88
44	1	3	3.500	269
45	1	3	3.500	191
46	1	3	2.500	126
47	1	3	2.250	27
48	1	3	3.500	283
49	1	3	2.375	38
50	1	3	2.500	44
51	1	3	3.250	114
52	1	3	3.500	289
53	1	3	2.375	97
54	1	4	3.500	128
55	1	4	3.250	112
56	1	4	3.500	202
57	1	4	3.375	193
58	1	4	3.500	183
59	1	4	2.375	41
60	1	4	2.250	44
61	1	4	3.500	257
62	1	4	2.375	37
63	1	4	3.625	387
64	1	4	2.500	86
65	1	4	3.625	403
66	1	4	3.375	148
67	1	5	2.375	47
68	1	5	3.500	270
69	1	5	3.500	387
70	1	5	2.250	44
71	1	5	2.500	62
72	1	5	3.625	233
73	1	5	2.125	95
74	1	5	3.500	285
75	1	5	3.250	142
76	1	5	3.250	216
77	1	5	1.500	26
78	1	5	2.000	17
79	1	5	2.125	46
80	1	5	3.500	273
81	2	1	3.625	408
82	2	1	3.500	342
83	2	1	3.375	307
84	2	1	2.500	108

85	2	1	3.375	193
86	2	1	3.625	431
87	2	1	3.375	139
88	2	1	3.500	398
89	2	1	3.625	194
90	2	1	3.625	196
91	2	1	3.625	211
92	2	1	3.500	138
93	2	1	3.500	287
94	2	1	3.500	371
95	2	2	3.625	379
96	2	2	3.625	363
97	2	2	3.250	141
98	2	2	2.375	102
99	2	2	3.500	272
100	2	2	2.250	120
101	2	2	3.250	159
102	2	2	3.125	110
103	2	2	3.625	371
104	2	2	3.625	382
105	2	2	3.375	138
106	2	3	3.500	361
107	2	3	3.375	152
108	2	3	3.000	89
109	2	3	2.625	134
110	2	3	3.500	194
111	2	3	3.625	446
112	2	3	3.625	353
113	2	3	2.500	117
114	2	3	3.500	306
115	2	3	3.500	261
116	2	3	3.375	147
117	2	3	3.500	139
118	2	3	3.250	248
119	2	3	3.375	333
120	2	4	3.375	188
121	2	4	3.250	116
122	2	4	3.500	378
123	2	4	3.125	100
124	2	4	3.500	379
125	2	4	2.375	68
126	2	4	3.625	333
127	2	4	2.625	96
128	2	4	3.375	203
129	2	4	3.500	505
130	2	4	3.375	211
131	2	4	3.375	162
132	2	4	3.625	354
133	2	5	3.625	321
134	2	5	2.375	42
135	2	5	3.375	182
136	2	5	3.375	175
137	2	5	3.375	113
138	2	5	3.500	136
139	2	5	2.250	114
140	2	5	2.375	141
141	2	5	2.375	38
142	2	5	2.250	62
143	2	5	2.500	58
144	2	5	3.500	312
145	2	5	3.625	364
146	2	5	3.500	352
147	2	5	3.500	219

APPENDIX D: Data from studies on the effect of barley cultivars on locusts

Col 1 is row

Col 2 is cultivar (1 = Lara, 2 = Schooner)

Col 3 is sex (1 = Male, 2 = Female)

Col 4 is body weight (milligrams)

* The incomplete locusts (eg those missing legs) were not weighed and data are not shown

1	1	1	664
2	1	1	630
3	1	1	457
4	1	1	377
5	1	1	585
6	1	1	301
7	1	1	303
8	1	1	605
9	1	1	414
10	1	2	503
11	1	2	889
12	1	2	790
13	1	2	599
14	1	2	377
15	1	2	486
16	1	2	291
17	2	1	543
18	2	1	698
19	2	1	598
20	2	1	622
21	2	1	481
22	2	1	689
23	2	1	611
24	2	1	654
25	2	1	773
26	2	1	671
27	2	1	721
28	2	2	222
29	2	2	540
30	2	2	719
31	2	2	757
32	2	2	660
33	2	2	290
34	2	2	349
35	2	2	660
36	2	2	519
37	2	2	395
38	2	2	419
39	2	2	429
40	2	2	358

APPENDIX E: Data from studies on the effect of gramine on armyworms reared on artificial diet

Col 1 is treatment (0 = control, 1 = 500 ppm, 2 = 1000 ppm)
Col 2 is sex (1 = male, 2 = female)
Col 3 is pupation (days)
Col 4 is pupal weight (milligrams)
Col 5 is adult emergence (days)
* is died before adult emergence

0	2	32	490	45
0	2	31	427	*
0	1	33	531	48
0	1	34	425	48
0	1	34	475	49
0	2	35	488	48
0	2	35	507	49
0	2	35	496	48
0	1	35	435	49
0	1	34	533	48
0	1	35	444	49
0	2	34	499	49
0	2	35	532	48
0	1	34	460	48
0	1	35	506	50
0	2	36	483	*
0	1	35	520	50
0	1	35	548	49
0	1	35	529	49
0	2	36	483	51
0	2	36	431	50
0	1	36	435	49
0	1	37	481	*
0	1	37	485	52
0	2	37	411	50
0	1	37	408	50
1	2	32	467	45

1	2	34	479	48
1	2	33	463	46
1	[illegible]	34	535	49
1	[illegible]	33	486	47
1	[illegible]	34	459	*
1	2	34	430	47
1	2	36	493	50
1	2	37	444	50
1	[illegible]	41	333	55
2	2	30	461	44
2	2	31	471	45
2	[illegible]	32	444	46
2	1	32	381	45
2	1	31	465	48
2	1	34	455	48
2	2	34	462	47
2	1	35	521	50
2	1	35	469	49
2	1	36	432	50
2	1	35	480	48
2	2	35	460	*
2	1	36	357	50
2	1	37	444	51
2	1	37	514	51
2	2	37	504	53
2	2	38	464	52
2	2	39	500	53

2	1	39	472	54
2	1	39	478	53
2	1	41	456	55
2	1	40	472	54
2	1	40	533	54
2	2	40	466	54
2	2	40	395	*

APPENDIX F: Artificial diet of *Helicoverpa*

Put soyabeans (soaked overnight) 200 g in water and bring to the boil in pressure cooker, simmer for 10-15 mins until soyabeans are soft.Then add drained soyabeans to ingredients included:

Wheatgerm 40 g
Brewers yeast 35 g
Methyl p-hydroxybenzoate 1.2 g
Sorbic acid 1.1 g
Formalin 10 % 9 ml
Distilled water 350 ml

Blend ingredients to a paste. Add 10 g of agar to 200 ml of distilled water and bring to the boil and then add to the mixture. Blend everything very well and add 3.5 g of Ascorbic acid when the temperature of diet is between 44 and 60 ^{o}C. Pour in plastic crisper and cool in fridge.

APPENDIX G: Data from studies on the effect of gramine and hordenine on armyworms reared on artificial diet

Col 1 is treatment

0 = control

1 = gramine 500 ppm

2 = hordenine 60 ppm

3 = gramine 500 ppm + hordenine 60 ppm (no larvae survived)

4 = gramine 500 ppm + hordenine 500 ppm

Col 2 is sex (1 = male, 2 = female)

Col 3 is pupation (days)

Col 4 is pupal weight (milligrams)

Col 5 is adult emergence (days)

* is died before adult emergence

0	1	30	427	44
0	1	31	337	45
0	2	31	412	44
0	2	32	303	45
0	2	32	424	44
0	2	33	344	44
0	2	33	397	47
0	1	33	389	*
0	2	33	303	46
0	1	33	424	47
0	2	33	330	46
0	2	34	392	46
0	1	34	315	46
0	1	34	290	47
0	1	35	361	48
0	1	36	301	*
0	1	36	388	50
0	2	37	338	*
0	1	41	285	54
1	2	35	400	48
1	1	35	344	48
1	1	36	337	*
1	2	36	431	*
1	1	37	366	51
1	1	38	338	51
1	1	38	408	51
1	2	38	327	50
1	1	38	355	*
1	2	40	407	54
1	2	41	365	*
1	2	44	452	58
1	2	44	344	*
1	2	45	419	59
1	1	52	301	66
1	2	55	348	*
2	2	32	368	*
2	1	32	420	46
2	2	33	393	46
2	2	33	445	46
2	1	34	331	48
2	2	34	282	46
2	2	35	401	47
2	1	37	375	51
2	2	38	371	52
2	1	46	276	60
2	2	52	244	66
4	2	36	411	50
4	1	39	387	52
4	2	42	321	54
4	1	48	337	62

APPENDIX H: Data from studies on the effect of gramine and hordenine on *Helicoverpa punctigera* reared on artificial diets.

Col 1 is treatment

1 = gramine 500 ppm

2 = hordenine 60 ppm

3 = gramine 500 ppm + hordenine 60 ppm

4 = gramine 500 ppm + hordenine 500 ppm

5 = control (with ethanol)

6 = control (without ethanol)

Col 2 is sex (1 = male, 2 = female)

Col 3 is pupation (days)

Col 4 is pupal weight (milligrams)

Col 5 is adult emergence (days)

* is dead

1	1	27	296	42
1	2	28	161	*
1	2	28	260	40
1	2	23	241	39
1	2	21	234	37
1	1	29	258	*
1	2	19	294	33
1	1	21	267	36
1	1	22	326	*
1	2	22	329	35
1	2	26	256	40
1	2	23	300	36
1	2	30	239	*
1	2	22	308	35
1	2	22	264	37
1	2	27	240	*
1	1	22	252	*
1	1	22	305	37
1	1	22	332	37
1	1	23	328	39
1	1	23	320	*

1	2	26	316	41
1	1	22	341	37
1	1	21	353	36
2	1	21	310	36
2	1	20	327	35
2	2	23	239	*
2	2	22	268	36
2	1	22	293	37
2	2	20	315	34
2	1	21	340	36
2	1	20	292	35
2	2	29	323	44
2		23	263	38
2	2	37	374	*
2		28	316	*
2		22	264	36
2		20	284	34
2	2	21	266	*
2		19	301	33
2	2	21	264	*
2		23	306	39

2	2	20	303	34
2	2	24	198	37
2	2	20	295	*
2	1	23	322	37
2	1	31	248	46
2	2	24	282	*
3	1	20	274	*
3	2	19	309	33
3	2	21	287	35
3	1	25	332	39
3	2	22	331	36
3	2	22	261	*
3	2	21	301	34
3	2	31	174	*
3	1	26	285	41
3	2	23	286	37
3	1	22	316	37
3	1	30	299	46
3	2	20	268	33
3	1	23	260	38
3	2	22	283	*

3	2	21	313	35
3	1	22	290	37
3	2	23	170	*
3	2	19	329	*
3	2	21	267	34
3	1	19	310	33
3	1	23	328	38
3	1	23	227	*
3	2	21	284	35
3	2	21	317	35
4	1	21	274	36
4	1	21	300	37
4	2	22	282	36
4	2	22	333	36
4	1	23	340	38
4	2	20	320	*
4	2	20	274	33
4	2	17	306	32
4	1	20	313	36
4	2	19	286	33
4	2	20	292	33
4	1	20	332	*
4	1	17	280	*
4	2	21	292	35
4	2	23	219	36
4	2	20	320	35
4	1	25	273	42
4	2	17	272	32

4	2	20	275	*
4	2	20	291	*
4	1	20	227	38
4	2	21	258	35
5	1	21	320	*
5	1	25	305	39
5	2	20	318	*
5	2	24	290	39
5	1	25	355	40
5	1	21	332	36
5	2	23	202	*
5	1	20	350	36
5	2	22	186	*
5	1	20	271	35
5	2	24	291	41
5	1	23	305	38
5	2	20	310	35
5	1	22	243	36
5	2	19	257	32
5	2	21	267	34
5	1	23	231	*
5	1	20	278	36
5	1	20	302	35
5	2	22	299	*
5	1	22	316	37
6	2	19	295	32
6	2	17	330	30
6	2	18	358	*

6	1	17	354	32
6	2	19	272	*
6	2	18	335	33
6	1	18	362	32
6	1	19	335	33
6	1	17	347	32
6	1	19	355	33
6	1	26	365	43
6	2	18	382	*
6	2	16	356	*
6	2	18	360	32
6	1	16	330	*
6	2	19	293	32
6	2	32	317	*
6	2	18	308	31
6	2	17	363	31
6	1	17	325	32
6	1	18	312	33
6	2	18	370	*
6	1	19	352	40
6	2	16	294	29
6	1	18	356	32
6	2	18	310	32
6	1	22	318	40
6	2	19	310	33
6	2	17	319	*
6	2	34	273	*
6	2	17	331	*

APPENDIX I: Data from studies on the effect of gramine and hordenine on *Agrotis ipsilon* reared on artificial diet

Col 1 is treatment

1 = gramine 500 ppm

2 = hordenine 60 ppm

3 = gramine 500 ppm+hordenine 60 ppm

4 = gramine 500 ppm+hordenine 500 ppm

5 = control with ethanol

6 = control without ethanol

Col 2 is sex (1 = male, 2 = female)

Col 3 is pupation (days)

Col 4 is pupal weight (milligrams)

Col 5 is adult emergence (days)

* is dead

1	2	32	546	46
1	2	33	614	46
1	2	38	507	51
1	1	29	599	42
1	2	35	670	49
1	2	30	576	43
1	2	41	332	*
1	2	41	564	55
2	2	36	552	49
2	1	30	473	44
2	1	32	363	*
2	2	32	640	48
2	2	29	668	43
2	1	32	516	46
2	2	28	582	41
2	2	32	599	45
2	2	30	674	44
2	2	33	501	45
2	2	41	288	*
2	1	30	462	*
2	[illegible]	30	440	43
2	2	34	590	47
2	[illegible]	26	397	39
2	[illegible]	28	471	43
2	[illegible]	27	452	40
2	2	26	694	41
3	2	40	314	*
3	2	38	506	52
3	2	33	610	48
3		29	535	43
3	2	31	599	45
3	2	30	446	44
4	2	31	591	43
4	2	43	540	*
4	[illegible]	32	576	46
4	[illegible]	31	360	*
4	[illegible]	36	518	51
4	[illegible]	32	493	45
4	2	47	366	60
4	2	31	613	45
4	2	36	504	49
4	2	37	272	*
5	1	30	380	*
5	1	31	531	45
5	2	31	624	44
5	1	32	579	45
6	1	27	613	41
6	2	32	509	*
6	1	29	537	*
6	2	33	484	*
6	1	30	631	44
6	2	28	578	41
6	2	30	633	45

APPENDIX J: Data from studies on feeding deterrent effect of gramine and hordenine on armyworms

Col 1 = choice (0 = no choice, 1 = choice)

Col 2 = larval instar (1 = 2nd instar. 2 = 4th instar)

Col 3 = replication

Col 4 = treatment

1 = control

2 = gramine 500 ppm

3 = hordenine 60 ppm

4 = gramine 500 ppm+hordenine 60 ppm

Col 5 = initial leaf area

Col 6 = final leaf area

0	1	1	1	631	356
0	1	1	1	637	344
0	1	1	1	627	420
0	1	1	1	721	483
0	1	2	1	685	168
0	1	2	1	689	615
0	1	2	1	677	509
0	1	2	1	700	559
0	1	3	1	662	438
0	1	3	1	636	373
0	1	3	1	698	599
0	1	3	1	614	450
0	1	4	1	648	309
0	1	4	1	727	528
0	1	4	1	681	648
0	1	4	1	662	274
0	1	5	1	600	522
0	1	5	1	653	608
0	1	5	1	677	345
0	1	5	1	606	510
0	1	6	1	618	491
0	1	6	1	751	465
0	1	6	1	726	675
0	1	6	1	593	527
0	1	7	1	735	550
0	1	7	1	708	586
0	1	7	1	610	279
0	1	7	1	644	567
0	1	8	1	636	482
0	1	8	1	723	507
0	1	8	1	599	544
0	1	8	1	697	546
0	1	1	2	694	479
0	1	1	2	750	424
0	1	1	2	811	670
0	1	1	2	696	361
0	1	2	2	638	108
0	1	2	2	596	378
0	1	2	2	661	439
0	1	2	2	724	645
0	1	3	2	753	505
0	1	3	2	659	387
0	1	3	2	719	412
0	1	3	2	720	640
0	1	4	2	608	623
0	1	4	2	682	523
0	1	4	2	631	584
0	1	4	2	724	257
0	1	5	2	627	622
0	1	5	2	680	532
0	1	5	2	579	539
0	1	5	2	682	520
0	1	6	2	655	543
0	1	6	2	590	590
0	1	6	2	781	782
0	1	6	2	648	537
0	1	7	2	657	514
0	1	7	2	558	577
0	1	7	2	586	534
0	1	7	2	663	613
0	1	8	2	529	386
0	1	8	2	641	624

0	1	8	2	676	565
0	1	8	2	672	516
0	1	1	3	698	540
0	1	1	3	745	483
0	1	1	3	692	312
0	1	1	3	639	588
0	1	2	3	682	529
0	1	2	3	666	450
0	1	2	3	648	470
0	1	2	3	678	372
0	1	3	3	783	589
0	1	3	3	589	563
0	1	3	3	695	507
0	1	3	3	784	450
0	1	4	3	731	681
0	1	4	3	715	682
0	1	4	3	698	300
0	1	4	3	767	268
0	1	5	3	700	623
0	1	5	3	643	632
0	1	5	3	721	569
0	1	5	3	701	608
0	1	6	3	690	354
0	1	6	3	649	516
0	1	6	3	606	103
0	1	6	3	728	516
0	1	7	3	759	578
0	1	7	3	608	637
0	1	7	3	689	676
0	1	7	3	593	102
0	1	8	3	590	339
0	1	8	3	660	567
0	1	8	3	660	572
0	1	8	3	563	376
0	1	1	4	646	603
0	1	1	4	632	217
0	1	1	4	669	181
0	1	1	4	761	704
0	1	2	4	668	407
0	1	2	4	752	382
0	1	2	4	696	609
0	1	2	4	645	585
0	1	3	4	654	310
0	1	3	4	733	485
0	1	3	4	623	318
0	1	3	4	791	763
0	1	4	4	695	633
0	1	4	4	588	159
0	1	4	4	708	437
0	1	4	4	713	477
0	1	5	4	648	470
0	1	5	4	647	575
0	1	5	4	760	574
0	1	5	4	637	516
0	1	6	4	708	444
0	1	6	4	698	685
0	1	6	4	700	394
0	1	6	4	631	624
0	1	7	4	672	641
0	1	7	4	631	567
0	1	7	4	748	512
0	1	7	4	656	498
0	1	8	4	563	446
0	1	8	4	645	551
0	1	8	4	662	489
0	1	8	4	652	628
0	2	1	1	1480	1571
0	2	1	1	1206	1269
0	2	1	1	1219	1184
0	2	1	1	1259	1267
0	2	2	1	1146	1202
0	2	2	1	1139	1167
0	2	2	1	1407	1520
0	2	2	1	1329	1319
0	2	3	1	1087	68
0	2	3	1	1402	1382
0	2	3	1	1346	289
0	2	3	1	1319	1289
0	2	4	1	1247	571
0	2	4	1	1084	1140
0	2	4	1	1347	1376
0	2	4	1	1177	1195
0	2	5	1	1156	1195
0	2	5	1	1092	66
0	2	5	1	1137	65
0	2	5	1	1226	142
0	2	6	1	1082	332
0	2	6	1	1122	436
0	2	6	1	1224	1263
0	2	6	1	1186	61
0	2	7	1	1062	1175
0	2	7	1	1110	178
0	2	7	1	1210	1282
0	2	7	1	1240	243
0	2	8	1	1217	1264
0	2	8	1	1136	129
0	2	8	1	975	1177
0	2	8	1	1167	1142
0	2	9	1	1360	1396
0	2	9	1	1344	1371

0	2	9	1	1334	76
0	2	9	1	1378	1387
0	2	10	1	1176	70
0	2	10	1	1399	492
0	2	10	1	1134	1187
0	2	10	1	1198	1204
0	2	11	1	1119	1262
0	2	11	1	1336	1357
0	2	11	1	1326	1322
0	2	11	1	1434	466
0	2	12	1	1243	1273
0	2	12	1	1421	639
0	2	12	1	1276	1319
0	2	12	1	1371	1443
0	2	13	1	1329	69
0	2	13	1	1178	810
0	2	13	1	1258	166
0	2	13	1	1238	67
0	2	14	1	1314	1357
0	2	14	1	1346	46
0	2	14	1	1352	399
0	2	14	1	1300	1358
0	2	15	1	1311	1370
0	2	15	1	1251	1279
0	2	15	1	1416	919
0	2	15	1	1231	1350
0	2	16	1	1278	439
0	2	16	1	1443	1544
0	2	16	1	1307	1404
0	2	16	1	1423	1490
0	2	1	2	1333	265
0	2	1	2	1242	54
0	2	1	2	1087	349
0	2	1	2	1174	678
0	2	2	2	1242	1385
0	2	2	2	1171	806
0	2	2	2	1178	1290
0	2	2	2	1465	1492
0	2	3	2	1293	738
0	2	3	2	1305	1306
0	2	3	2	1409	978
0	2	3	2	1372	309
0	2	4	2	1150	1293
0	2	4	2	1250	1304
0	2	4	2	1406	391
0	2	4	2	1170	152
0	2	5	2	1118	1265
0	2	5	2	1208	1230
0	2	5	2	1006	1092
0	2	5	2	1415	1408
0	2	6	2	1222	60
0	2	6	2	1272	94
0	2	6	2	1216	1228
0	2	6	2	1065	1124
0	2	7	2	1120	1136
0	2	7	2	1101	1247
0	2	7	2	1326	1379
0	2	7	2	1169	1080
0	2	8	2	1203	92
0	2	8	2	1147	10
0	2	8	2	1186	1313
0	2	8	2	1185	150
0	2	9	2	1204	1323
0	2	9	2	1230	1206
0	2	9	2	1267	1302
0	2	9	2	1374	92
0	2	10	2	1481	1496
0	2	10	2	1271	193
0	2	10	2	1321	1390
0	2	10	2	1459	1527
0	2	11	2	1402	1462
0	2	11	2	1213	1077
0	2	11	2	1539	87
0	2	11	2	1302	1304
0	2	12	2	1423	305
0	2	12	2	1426	1474
0	2	12	2	1388	1356
0	2	12	2	1412	1424
0	2	13	2	1201	78
0	2	13	2	1214	1271
0	2	13	2	1410	1492
0	2	13	2	1317	567
0	2	14	2	1360	69
0	2	14	2	1217	1260
0	2	14	2	1183	1246
0	2	14	2	1310	1307
0	2	15	2	1235	260
0	2	15	2	1245	1280
0	2	15	2	1237	111
0	2	15	2	1216	74
0	2	16	2	1310	1381
0	2	16	2	1110	1212
0	2	16	2	1356	449
0	2	16	2	1190	68
0	2	1	3	1221	186
0	2	1	3	1226	1067
0	2	1	3	1094	1159
0	2	1	3	1374	748
0	2	2	3	1309	69
0	2	2	3	1287	1323

0	2	2	3	1358	705
0	2	2	3	1376	82
0	2	3	3	1244	70
0	2	3	3	1238	1267
0	2	3	3	1352	1379
0	2	3	3	1283	1244
0	2	4	3	1236	1235
0	2	4	3	1410	31
0	2	4	3	1452	1419
0	2	4	3	1289	1327
0	2	5	3	1322	1370
0	2	5	3	1190	1188
0	2	5	3	1170	1214
0	2	5	3	1314	1301
0	2	6	3	998	1151
0	2	6	3	1277	1317
0	2	6	3	1190	1204
0	2	6	3	1139	543
0	2	7	3	1235	1331
0	2	7	3	1526	1524
0	2	7	3	1321	1347
0	2	7	3	1301	1378
0	2	8	3	1188	46
0	2	8	3	1113	1166
0	2	8	3	1407	1437
0	2	8	3	1350	1329
0	2	9	3	1383	1378
0	2	9	3	1279	396
0	2	9	3	1313	1327
0	2	9	3	1323	1384
0	2	10	3	1300	1308
0	2	10	3	1261	1314
0	2	10	3	1282	1301
0	2	10	3	1309	69
0	2	11	3	1188	1104
0	2	11	3	1268	1267
0	2	11	3	1288	709
0	2	11	3	1225	149
0	2	12	3	1065	344
0	2	12	3	1425	1431
0	2	12	3	1202	1242
0	2	12	3	1396	1474
0	2	13	3	1160	1230
0	2	13	3	1254	70
0	2	13	3	1228	1292
0	2	13	3	1242	1331
0	2	14	3	1389	1418
0	2	14	3	1344	1359
0	2	14	3	1129	663
0	2	14	3	1197	1270
0	2	15	3	1318	900
0	2	15	3	1294	69
0	2	15	3	1388	1144
0	2	15	3	1328	1432
0	2	16	3	1264	1287
0	2	16	3	1328	90
0	2	16	3	1151	1195
0	2	16	3	1227	1211
0	2	1	4	1458	67
0	2	1	4	1249	571
0	2	1	4	1266	272
0	2	1	4	1347	1341
0	2	2	4	1135	1223
0	2	2	4	1329	907
0	2	2	4	1065	35
0	2	2	4	1005	1162
0	2	3	4	972	206
0	2	3	4	1266	1268
0	2	3	4	1185	1263
0	2	3	4	1338	1332
0	2	4	4	1338	851
0	2	4	4	1399	1399
0	2	4	4	1102	1231
0	2	4	4	1361	1343
0	2	5	4	1113	1260
0	2	5	4	1304	790
0	2	5	4	1187	109
0	2	5	4	1397	1342
0	2	6	4	1002	782
0	2	6	4	1160	1329
0	2	6	4	1352	1350
0	2	6	4	1475	62
0	2	7	4	1178	1147
0	2	7	4	1359	1295
0	2	7	4	1236	1224
0	2	7	4	1229	1199
0	2	8	4	1043	1173
0	2	8	4	996	1018
0	2	8	4	1193	1331
0	2	8	4	896	96
0	2	9	4	1326	1347
0	2	9	4	1242	1274
0	2	9	4	1431	1435
0	2	9	4	1235	1310
0	2	10	4	1251	95
0	2	10	4	1366	1392
0	2	10	4	1394	1390
0	2	10	4	1295	117
0	2	11	4	1292	427
0	2	11	4	1410	84

0	2	11	4	1275	1298
0	2	11	4	1387	1418
0	2	12	4	1586	1620
0	2	12	4	1317	1319
0	2	12	4	1285	1311
0	2	12	4	1297	142
0	2	13	4	1253	1325
0	2	13	4	1370	1402
0	2	13	4	1296	228
0	2	13	4	1200	1253
0	2	14	4	1285	479
0	2	14	4	1528	1568
0	2	14	4	1281	39
0	2	14	4	1162	48
0	2	15	4	1404	106
0	2	15	4	1260	90
0	2	15	4	1386	859
0	2	15	4	1241	745
0	2	16	4	1117	40
0	2	16	4	1295	508
0	2	16	4	1279	68
0	2	16	4	977	72
1	1	1	2	610	321
1	1	1	2	685	659
1	1	2	2	742	530
1	1	2	2	710	93
1	1	3	2	594	547
1	1	3	2.	687	48
1	1	4	2	686	168
1	1	4	2	747	593
1	1	1	1	762	254
1	1	1	1	620	481
1	1	2	1	594	592
1	1	2	1	573	540
1	1	3	1	548	496
1	1	3	1	632	562
1	1	4	1	629	590
1	1	4	1	652	339
1	1	5	2	623	597
1	1	5	2	660	610
1	1	6	2	721	458
1	1	6	2	653	625
1	1	7	2	745	630
1	1	7	2	697	293
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1	1	5	1.	578	376
1	1	5	1	607	336
1	1	6	1	651	342
1	1	6	1	614	555
1	1	7	1	733	667
1	1	7	1	659	434
1	1	8	1	613	649
1	1	8	1	678	205
1	1	1	3	700	272
1	1	1	3	710	662
1	1	2	3	570	201
1	1	2	3	563	654
1	1	3	3	582	571
1	1	3	3	624	236
1	1	4	3	667	628
1	1	4	3	714	208
1	1	1	1	561	365
1	1	1	1	739	496
1	1	2	1	604	312
1	1	2	1	671	197
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1	1	3	1	706	725
1	1	4	1	663	606
1	1	4	1	642	662
1	1	5	3	669	56
1	1	5	3	664	649
1	1	6	3	646	241
1	1	6	3	722	683
1	1	7	3	631	210
1	1	7	3	684	475
1	1	8	3	640	298
1	1	8	3	673	208
1	1	5	1	554	438
1	1	5	1	617	425
1	1	6	1	712	173
1	1	6	1	617	575
1	1	7	1	610	445
1	1	7	1	618	517
1	1	8	1	672	512
1	1	8	1	613	464
1	1	1	4	701	266
1	1	1	4	700	638
1	1	2	4	637	475
1	1	2	4	648	439
1	1	3	4	606	578
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1	1	4	4	726	444
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1	1	2	1	669	156
1	1	2	1	540	492
1	1	3	1	687	511
1	1	3	1	737	557

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1	1	5	4	627	617
1	1	6	4	704	432
1	1	6	4	644	358
1	1	7	4	750	474
1	1	7	4	689	390
1	1	8	4	628	517
1	1	8	4	615	70
1	1	5	1	622	559
1	1	5	1	713	405
1	1	6	1	639	657
1	1	6	1	634	277
1	1	7	1	704	536
1	1	7	1	673	530
1	1	8	1	691	693
1	1	8	1	717	514
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1	2	1	1	1352	563
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1	2	2	1	1375	1337
1	2	3	1	1304	887
1	2	3	1	1237	1221
1	2	4	1	1160	1261
1	2	4	1	1411	88
1	2	5	2	1106	44
1	2	5	2	1495	682
1	2	6	2	1287	50
1	2	6	2	1204	1321
1	2	7	2	1319	1390
1	2	7	2	1403	1480
1	2	8	2	1515	1525
1	2	8	2	1360	1419
1	2	5	1	1364	960
1	2	5	1	1417	981
1	2	6	1	1474	1511
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1	2	8	1	1406	1392
1	2	8	1	1408	415
1	2	9	2	1251	1352
1	2	9	2	1513	1482
1	2	10	2	1279	89
1	2	10	2	1331	1364
1	2	11	2	1251	88
1	2	11	2	1276	495
1	2	12	2	1054	749
1	2	12	2	1102	1137
1	2	9	1	1496	841
1	2	9	1	1498	714
1	2	10	1	1396	364
1	2	10	1	1288	1269
1	2	11	1	1430	64
1	2	11	1	1503	1057
1	2	12	1	1176	840
1	2	12	1	1209	167
1	2	13	2	1344	517
1	2	13	2	1250	146
1	2	14	2	1260	1235
1	2	14	2	1131	1272
1	2	15	2	1306	957
1	2	15	2	1157	61
1	2	16	2	1387	1497
1	2	16	2	1210	1344
1	2	13	1	1380	448
1	2	13	1	1540	1229
1	2	14	1	1315	1273
1	2	14	1	1371	851
1	2	15	1	1221	743
1	2	15	1	1354	93
1	2	16	1	1252	1230
1	2	16	1	1392	1370
1	2	1	3	1452	475
1	2	1	3	1394	144
1	2	2	3	1274	1316
1	2	2	3	1389	1367
1	2	3	3	1405	163
1	2	3	3	1388	56
1	2	4	3	1474	402
1	2	4	3	1350	299
1	2	1	1	1435	685
1	2	1	1	1376	797
1	2	2	1	1316	22
1	2	2	1	1409	1367
1	2	3	1	1378	1312
1	2	3	1	1476	59
1	2	4	1	1563	642
1	2	4	1	1251	375
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1	2	5	3	1483	1480

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1	2	7	3	1435	1432
1	2	7	3	1270	1278
1	2	8	3	1297	1270
1	2	8	3	1389	691
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1	2	5	1	1588	1485
1	2	6	1	1200	51
1	2	6	1	1505	910
1	2	7	1	1462	1523
1	2	7	1	1333	949
1	2	8	1	1246	954
1	2	8	1	1204	425
1	2	9	3	1203	587
1	2	9	3	1451	1072
1	2	10	3	1465	1195
1	2	10	3	1473	628
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1	2	11	3	1471	77
1	2	12	3	1317	43
1	2	12	3	1436	476
1	2	9	1	1200	830
1	2	9	1	1196	1224
1	2	10	1	1221	689
1	2	10	1	1368	88
1	2	11	1	1378	356
1	2	11	1	1447	64
1	2	12	1	1279	1300
1	2	12	1	1411	1463
1	2	13	3	1631	995
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1	2	14	3	1309	168
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1	2	15	3	1279	63
1	2	15	3	1513	107
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1	2	14	1	1332	1304
1	2	14	1	1366	1207
1	2	15	1	1457	864
1	2	15	1	1405	832
1	2	16	1	1297	713
1	2	16	1	1271	1244
1	2	1	4	1371	58
1	2	1	4	1376	1313
1	2	2	4	1274	72
1	2	2	4	1416	1414
1	2	3	4	1379	86
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1	2	4	4	1435	1416
1	2	4	4	1317	1283
1	2	1	1	1613	754
1	2	1	1	1404	1322
1	2	2	1	1235	1229
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1	2	3	1	1344	706
1	2	3	1	1352	1006
1	2	4	1	1381	1339
1	2	4	1	1526	252
1	2	5	4	1265	1286
1	2	5	4	1171	746
1	2	6	4	1422	260
1	2	6	4	1359	75
1	2	7	4	1261	1050
1	2	7	4	1286	1326
1	2	8	4	1543	1508
1	2	8	4	1367	64
1	2	5	1	1386	723
1	2	5	1	1445	638
1	2	6	1	1490	1115
1	2	6	1	1358	687
1	2	7	1	1636	1576
1	2	7	1	1263	1233
1	2	8	1	1387	434
1	2	8	1	1439	1421
1	2	9	4	1050	1264
1	2	9	4	1234	1301
1	2	10	4	1231	1326
1	2	10	4	1234	1257
1	2	11	4	1257	1211
1	2	11	4	1536	120
1	2	12	4	1482	1136
1	2	12	4	1474	1502
1	2	9	1	1532	1537
1	2	9	1	1388	1392
1	2	10	1	1351	1363
1	2	10	1	1432	1457
1	2	11	1	1428	1430
1	2	11	1	1505	1320
1	2	12	1	1242	1287
1	2	12	1	1455	1451
1	2	13	4	1485	1504
1	2	13	4	1466	1489
1	2	14	4	1496	1435
1	2	14	4	1352	1346
1	2	15	4	1246	88
1	2	15	4	1294	273

1	2	16	4	1460	52
1	2	16	4	1294	601
1	2	13	1	1431	1421
1	2	13	1	1365	1354
1	2	14	1	1398	1394
1	2	14	1	1401	1103
1	2	15	1	1456	629
1	2	15	1	1391	95
1	2	16	1	1222	65
1	2	16	1	1453	1139

APPENDIX K: Gramine and hordenine concentration (ppm) in artificial diet used for feeding *Mythimna convecta.*

Time (days)	New/ Old diets	Treatments	n	% moisture (Mean±se)	Gramine Fresh wt. (Mean±se)	Gramine Dry wt. (Mean±se)	Hordenine Fresh wt. (Mean±se)	Hordenine Dry wt. (Mean±se)
1	New	1. 500 ppm gramine	3	75.2±0.4	512.4±10.1	2069.4±71.1	0.0±0.0	0.0±0.0
		2. 60 ppm hordenine	3	76.5±0.3	1.4±0.9	5.8±3.8	13.2±0.7	56.0±2.6
		3. 500 ppm gramine + 60 ppm hordenine	3	75.6±0.1	534.5±12.3	2191.5±41.8	32.0±4.9	131.1±19.4
		4. 500 ppm gramine + 500 ppm hordenine	3	75.4±0.2	537.4±17.0	2188.3±79.3	135.0±29.2	547.6±113.3
		5. control	3	77.6±0.3	0.4±0.2	1.8±0.9	1.7±1.7	7.5±7.5
12	Old	1. 500 ppm gramine	3	70.6±0.6	561.5±28.7	1911.9±90.4	3.4±3.4	11.6±11.6
		2. 60 ppm hordenine	3	72.2±0.8	1.5±1.0	5.7±4.0	9.5±0.3	33.9±0.2
		3. 500 ppm gramine + 60 ppm hordenine	3	71.2±0.2	589.1±23.1	2044.6±85.5	77.3±23.9	268.1±83.0
		4. 500 ppm gramine + 500 ppm hordenine	3	71.5±0.4	559.4±13.2	1963.3±43.3	59.1±8.4	206.8±26.4
		5. control	3	73.3±0.4	0.4±0.2	1.4±0.7	2.2±2.2	8.1±8.1
	New	1. 500 ppm gramine	3	75.1±0.2	537.4±14.1	2155.6±46.2	2.0±2.0	8.0±8.0
		2. 60 ppm hordenine	3	77.7±0.03	1.2±0.1	5.4±0.5	12.1±1.1	54.4±5.0
		3. 500 ppm gramine + 60 ppm hordenine	3	76.9±0.1	506.0±14.8	2192.0±64.7	16.9±10.6	72.9±45.5
		4. 500 ppm gramine + 500 ppm hordenine	3	76.6±0.1	476.1±32.0	2036.2±141.7	69.0±10.0	295.0±42.9
		5. control	3	76.1±0.6	1.0±0.2	4.1±1.0	2.9±2.3	12.3±9.8

Time (days)	New/ Old diets	Treatments	n	% moisture (Mean±se)	Gramine Fresh wt. (Mean±se)	Gramine Dry wt. (Mean±se)	Hordenine Fresh wt. (Mean±se)	Hordenine Dry wt. (Mean±se)
26	Old	1. 500 ppm gramine	3	71.9±0.5	587.0±16.2	2094.6±86.6	6.8±6.8	24.5±24.5
		2. 60 ppm hordenine	3	75.0±0.2	1.6±0.3	6.5±1.1	10.0±0.5	39.9±2.3
		3. 500 ppm gramine + 60 ppm hordenine	3	74.7±0.1	548.2±19.1	2165.2±81.4	30.2±19.2	119.1±75.3
		4. 500 ppm gramine + 500 ppm hordenine	3	74.1±0.3	546.9±13.1	2115.7±74.5	45.8±3.4	177.1±11.9
		5. control	3	72.5±0.9	1.5±0.2	5.4±0.8	2.9±2.9	10.9±10.9
	New	1. 500 ppm gramine	3	74.7±1.3	531.0±9.1	2116.0±131.9	1.5±1.5	6.2±6.2
		2. 60 ppm hordenine	3	77.3±0.2	0.4±0.2	2.0±1.0	18.3±3.1	80.8±13.3
		5. control	3	74.8±0.9	1.2±0.1	4.8±0.5	3.1±3.1	13.3±13.3
33	Old	1. 500 ppm gramine	3	72.0±0.4	607.2±23.6	2172.6±115.6	4.7±4.7	16.9±16.9
		2. 60 ppm hordenine	3	75.2±0.4	1.3±0.3	5.4±1.3	16.2±0.8	65.2±2.7
		5. control	3	73.4±1.0	1.9±0.7	7.4±2.7	3.0±3.0	11.7±11.7

APPENDIX L: Gramine and hordenine concentration (ppm) in artificial diet used for feeding *Helicoverpa punctigera.*

Time (days)	New/ Old diets	Treatments	n	% moisture (Mean±se)	Gramine Fresh wt. (Mean±se)	Gramine Dry wt. (Mean±se)	Hordenine Fresh wt. (Mean±se)	Hordenine Dry wt. (Mean±se)
1	New	1. 500 ppm gramine	3	80.2±0.6	513.6±13.0	2603.1±118.2	0.0±0.0	0.0±0.0
		2. 60 ppm hordenine	3	80.2±0.7	0.0±0.0	0.0±0.0	0.0±0.0	0.0±0.0
		3. 500 ppm gramine + 60 ppm hordenine	3	79.1±0.3	548.3±23.9	2617.2±97.0	0.0±0.0	0.0±0.0
		4. 500 ppm gramine + 500 ppm hordenine	3	80.1±0.6	466.7±5.2	2349.0±66.5	34.7±20.8	175.0±104.3
		5. control (+ ethanol)	2	78.7±0.4	0.0±0.0	0.0±0.0	0.0±0.0	0.0±0.0
		6. control (- ethanol)	2	78.9±0.7	0.0±0.0	0.0±0.0	0.0±0.0	0.0±0.0
7	Old	1. 500 ppm gramine	3	77.6±0.4	589.8±18.8	2627.1±35.5	0.0±0.0	0.0±0.0
		2. 60 ppm hordenine	3	78.0±0.1	0.0±0.0	0.0±0.0	0.0±0.0	0.0±0.0
		3. 500 ppm gramine + 60 ppm hordenine	3	76.8±1.2	608.4±31.9	2627.4±48.3	0.0±0.0	0.0±0.0
		4. 500 ppm gramine + 500 ppm hordenine	3	77.4±1.0	531.0±20.1	2346.6±14.4	0.0±0.0	0.0±0.0
		5. control (+ ethanol)	2	72.8±4.6	0.0±0.0	0.0±0.0	0.0±0.0	0.0±0.0
		6. control (- ethanol)	2	76.0±0.3	0.0±0.0	0.0±0.0	0.0±0.0	0.0±0.0
21	New	1. 500 ppm gramine	3	78.7±1.0	563.7±24.4	2646.5±55.3	0.0±0.0	0.0±0.0
		2. 60 ppm hordenine	3	80.7±0.2	0.0±0.0	0.0±0.0	0.9±0.9	4.9±4.9
		3. 500 ppm gramine + 60 ppm hordenine	3	80.1±0.3	526.3±11.8	2646.1±61.2	0.0±0.0	0.0±0.0
		4. 500 ppm gramine + 500 ppm hordenine	3	79.1±0.5	538.6±30.3	2576.0±78.9	21.8±4.2	105.3±21.9
		5. control (+ ethanol)	2	80.5±0.7	0.0±0.0	0.0±0.0	0.0±0.0	0.0±0.0
		6. control (- ethanol)	-	-	-	-	-	-

APPENDIX M: Gramine and hordenine concentration (ppm) in artificial diet used for feeding *Agrotis ipsilon*.

Time (days)	New/ Old diets	Treatments	n	% moisture (Mean±se)	Gramine Fresh wt. (Mean±se)	Gramine Dry wt. (Mean±se)	Hordenine Fresh wt. (Mean±se)	Hordenine Dry wt. (Mean±se)
1	New	1. 500 ppm gramine	3	77.5±0.3	458.0±12.9	2039.1±34.4	0.0±0.0	0.0±0.0
		2. 60 ppm hordenine	3	78.1±0.2	2.3±0.3	10.4±1.2	41.3±0.7	188.3±5.0
		3. 500 ppm gramine + 60 ppm hordenine	3	77.1±0.2	484.1±3.3	2116.8±29.5	39.2±0.8	171.6±4.4
		4. 500 ppm gramine + 500 ppm hordenine	3	77.9±0.1	533.5±14.9	2417.9±82.4	273.9±24.8	1242.1±119.7
		5. control (+ ethanol)	2	76.3±2.0	1.9±1.9	7.2±7.2	6.4±0.3	27.3±1.1
		6. control (- ethanol)	2	78.2±0.1	0.0±0.0	0.0±0.0	5.1±0.1	23.5±0.5
10	Old	1. 500 ppm gramine	3	71.8±0.9	513.0±0.3	1825.1±58.2	0.0±0.0	0.0±0.0
		2. 60 ppm hordenine	3	73.1±1.1	2.4±0.2	8.8±0.7	20.7±2.2	77.9±11.7
		3. 500 ppm gramine + 60 ppm hordenine	3	72.7±0.5	532.1±6.2	1948.6±39.8	18.5±3.4	67.3±11.5
		4. 500 ppm gramine + 500 ppm hordenine	3	72.2±0.8	556.3±20.7	2006.6±103.1	129.4±17.0	463.7±50.2
		5. control (+ ethanol)	2	68.4±0.2	3.7±0.03	11.8±0.2	3.0±3.0	9.5±9.5
		6. control (- ethanol)	2	75.5±0.1	0.0±0.0	0.0±0.0	0.0±0.0	0.0±0.0
	New	1. 500 ppm gramine	3	78.6±0.6	466.0±9.9	2180.5±46.0	0.0±0.0	0.0±0.0
		2. 60 ppm hordenine	3	78.0±0.1	0.7±0.7	3.1±3.1	41.3±3.4	187.0±14.9
		3. 500 ppm gramine + 60 ppm hordenine	3	77.6±0.2	462.3±2.2	2063.2±23.4	39.9±2.9	177.8±11.8
		4. 500 ppm gramine + 500 ppm hordenine	3	77.5±1.0	493.9±6.8	2203.6±98.1	260.6±21.2	1157.2±70.7
		5. control (+ ethanol)	2	78.4±0.0	3.4±0.7	15.5±3.3	3.1±3.1	14.2±14.2
		6.control (- ethanol)	2	79.2±1.0	0.6±0.6	2.6±2.6	2.4±2.4	10.9±10.9

Time (days)	New/ Old diets	Treatments	n	% moisture (Mean±se)	Gramine Fresh wt. (Mean±se)	Gramine Dry wt. (Mean±se)	Hordenine Fresh wt. (Mean±se)	Hordenine Dry wt. (Mean±se)
24	Old	1. 500 ppm gramine	3	74.9±0.1	521.2±7.7	2073.5±36.6	0.0±0.0	0.0±0.0
		2. 60 ppm hordenine	3	75.4±0.3	2.4±0.3	9.8±1.0	15.2±0.7	61.6±3.6
		3. 500 ppm gramine + 60 ppm hordenine	3	75.0±0.7	529.8±15.0	2124.8±63.9	16.5±1.3	66.2±5.3
		4. 500 ppm gramine + 500 ppm hordenine	3	75.9±0.5	519.4±14.9	2155.6±38.8	112.0±11.6	467.1±56.3
		5. control (+ ethanol)	2	75.8±0.2	3.3±0.4	13.7±1.4	2.1±2.1	8.4±8.4
		6. control (- ethanol)	2	76.7±0.4	0.0±0.0	0.0±0.0	4.3±0.6	18.2±2.2