PRIME

PRE-SEMESTER BULLETIN

July 2018 to June 2019

REGION I – Ilocos Region

Table. Mean incidence of pest injuries, count of insect pests, and percentage of weed cover by month.

Region I

	2018						2019					
	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
A. FOLIAR DISEASES												
Bacterial leaf blight	0.5	2.1	1.8	9.1	1.0	0.4	2.1	1.2	1.6	1.3	1.1	0.6
Bacterial leaf streak	0.3	0.7	1.6	1.7	4.2	0.1	0.3	0.2	0	0.2	0	0.0
Brown spot	1.4	1.6	0.7	1.2	1.3	1.5	2.2	1.7	2.6	3.6	8.3	5.4
Leaf blast	0.4	0.2	0.2	0.4	0.2	0.8	0.4	0.4	0.1	0.7	0.1	0.5
Red stripe	0.1	0.1	0.1	0.1	0.0	0.2	0.1	0.0	0.2	0	0	0.0
B. DISEASE OR PEST INJURY ON TILLERS												
Deadheart	0.2	0.3	0.6	0.3	0.5	0.1	0.3	0.4	0.7	0.6	0.2	0.4
Sheath Blight	0.7	1.0	1.5	2.8	0.2	0.2	0.2	0.2	0.3	1.2	2.5	0.6
C. DISEASE OR PEST INJURY ON PANICLES												
Neck Blast	0	0.6	0.8	0.2	1.1	0.2	0.1	0.1	0	0	0	0
Whitehead	0.5	0.8	0.8	1.5	2.4	0.8	1.5	0.8	0.7	3.8	0.7	2.2
D. SYSTEMIC DISEASE OR PEST INJURY												
Bugburn	0.1	0.0	0	0	0	0	0	0	0	0	0	0
Hopperburn	0	0.4	0	0	0	0	0	0	0	0	0	0
Tungro	0	0.0	0.2	0	0	0.1	0	0	0	0	0	0
E. INSECT COUNT												
Brown Plant Hopper	0.0	0.9	0.9	0.1	0.1	0.1	0.0	0.0	0.2	0.8	0	0.0
Green Leaf Hopper	0.0	0.3	1.1	0.5	0.2	0.1	0.1	0.1	0.1	0.2	0.0	0.0
Rice Black Bug	0.1	0.0	0.0	0.1	0.0	0	0.1	0.0	0	0	0	0
Rice Bug	0.1	0.2	0.3	0.8	0.6	0.2	0.2	0.2	0.2	0.4	0.3	0.2
Rice Grain Bug	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.1	0	0
F. RODENT INJURY	0.1	0.0	0.0	0.1	0	0	0	0.1	0.1	0.1	0.1	0
G. WEED COVER	1.2	2.9	1.6	0.5	4.2	0.7	1.7	1.8	4.0	1.1	0.4	2.5

LEGEND 1-5 % 5 %

Disclaimer: All the data presented in this report are based on the monthly monitoring of farmers' fields by regional data collectors of PRIME.

Monitored fields and data collectors

Municipalities surveyed:	Ilocos Norte: Bacarra, Dingras, and Vintar Ilocos Sur: Bantay, Cabugao, Sinait, and Sta. Lucia La union: Luna, Bangar, Nagulian, Bauang, Aringay, and Agoo Pangasinan: Mangatarem, Rosales, and Sta. Barbara
Monitoring date:	July 2018 – June 2019
Number of monitoring fields:	139 monitoring fields
Data collectors:	Andrelord Medina, Arnel Felipe, Cesar Vidad, Chris Quinto, Clemente Viernes, Comelia Opinaldo, Cornelio Balbesino, Danilo Bajit, Elizabeth Carreon, Florie Mae Chung, Frederick Gomez, Freida Aquino, Grace Gotgotao, Jayson Anthony Domingo, Jessie Sacopla, Jhonas Marion Visitacion, Joey Gapuzan, Jordan Briones, Juan De Guzman, Juvy Aromin, Katrine Joy Tapuro, Leander De la Rosa, Maria Cristina Rarogal, Marvin Estoesta, noemi inong, Obas Baclig, Oliver Jasmin, Perlira Corpuz, Raquel Lopez, Raymond Tunac, Raymund Sarmiento, Regina Labiano, Ricardo Jr Navarro, Romel Pio, Romeo Yapit, Rosemarie Vilog, Samuel Villanueva, Sheila Blair Torio, and Victoria Cavinta

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Growth stage

Crop establishment of the majority of the monitored fields during the second semester of 2018 occurred in July to August and the peak of harvest occurred in October 2018 (Figure 1). Crop establishment of the fields during the first semester of 2019 started in November 2018, although most of the fields were fallow in this month. Harvest peaked in February and majority of the fields were fallow in March to June 2019.

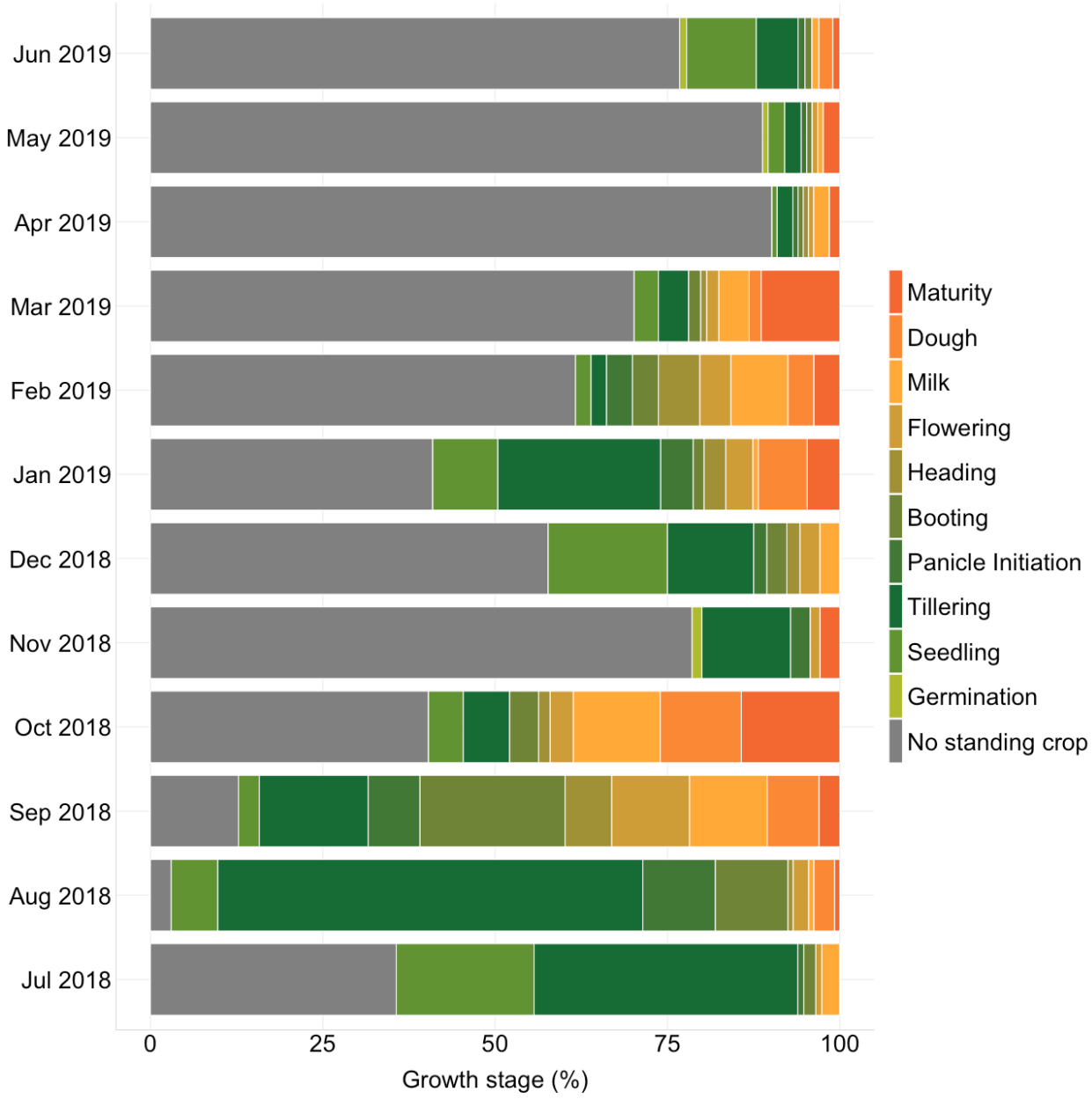

Figure 1. Proportion of crop growth stage of monitored fields by month.

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Box plots, also known box-and-whisker plots, are presented in Figures 2, 4, 6, 8, 10, and 12 to facilitate the visualization of the distribution or range of collected data. The black closed circle in or near each bar represents the mean of each pest injury. The black vertical line in each bar represents the median which refers to the midpoint of the range of data. Since it is not affected by extreme values or outliers like the mean, the median represents the most common value of a variable.

A. Foliar diseases

Bacterial leaf blight was observed in all months. The highest mean and median incidences of 9% and 5%, respectively, were observed in October 2018 (Figures 2 and 3). The highest mean incidence of brown spot was observed in May (8%) and June (6%) 2019, but the median incidence was 0 in both months. The incidence of bacterial leaf streak, leaf blast and red stripe was negligible during the year.

Figure 2. Incidence of foliar diseases in Region I, July 2018 to June 2019.

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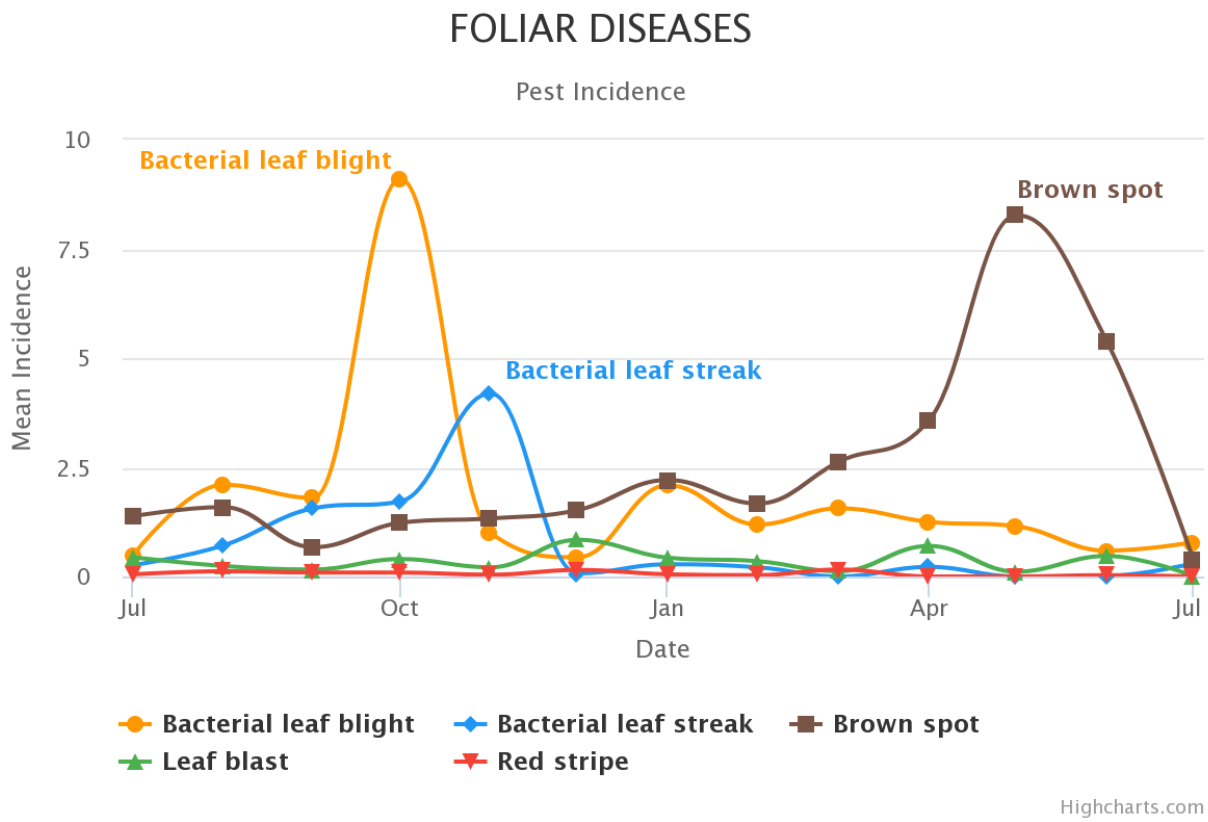

Figure 3. Mean incidence of foliar diseases in Region I, July 2018 to June 2019.

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A. Insect pests or diseases on tillers

The incidence of deadheart was negligible during the year (Figures 4 and 5). The mean incidence was lower than 1% and the median incidence was 0 in all months, which indicates that deadheart was not observed in most of the fields. The mean incidence of sheath blight of 3% was observed in October 2018 and May 2019 but the median was 0 in all months

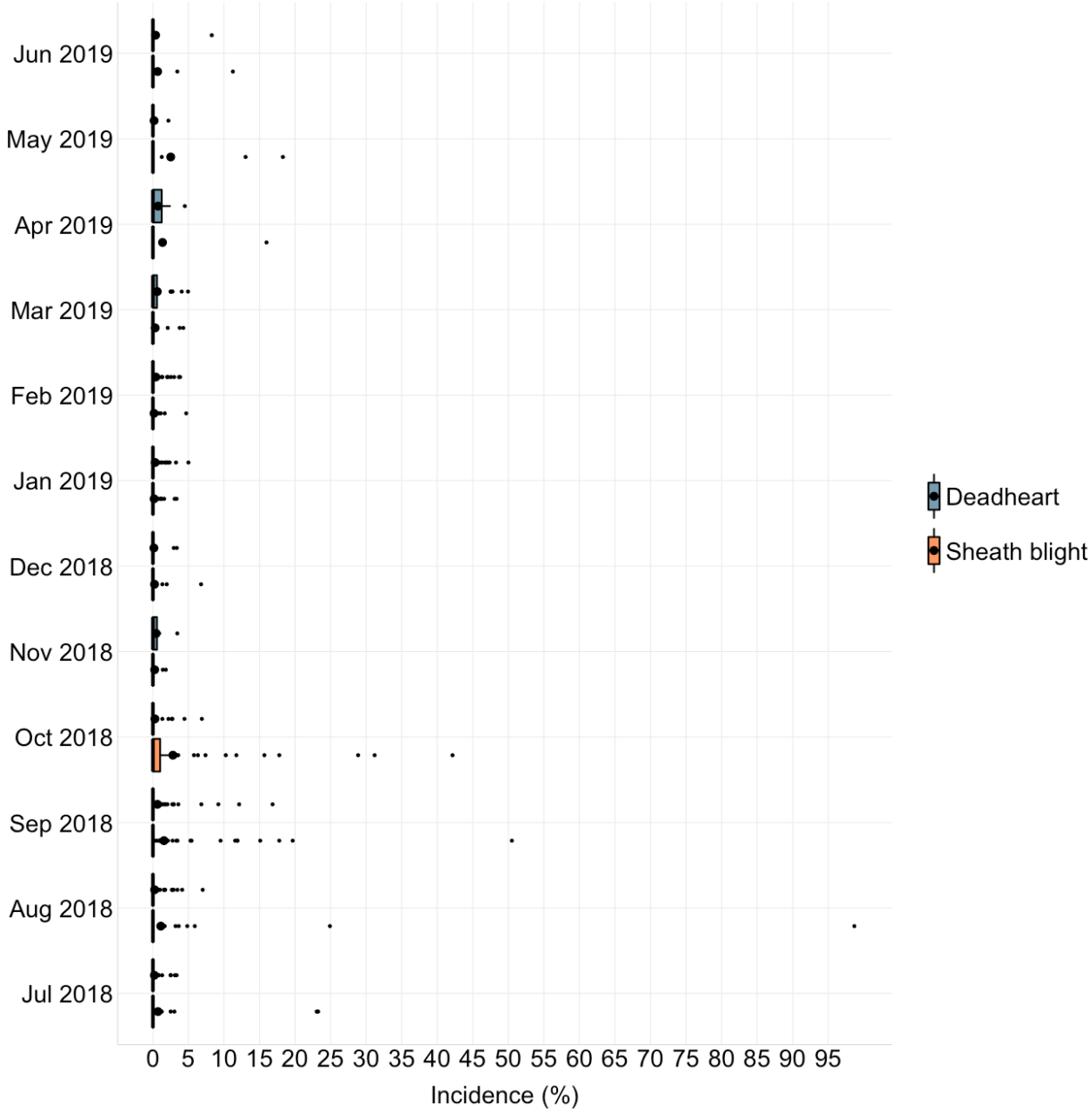

Figure 4. Incidence of deadheart and sheath blight in Region I, July 2018 to June 2019.

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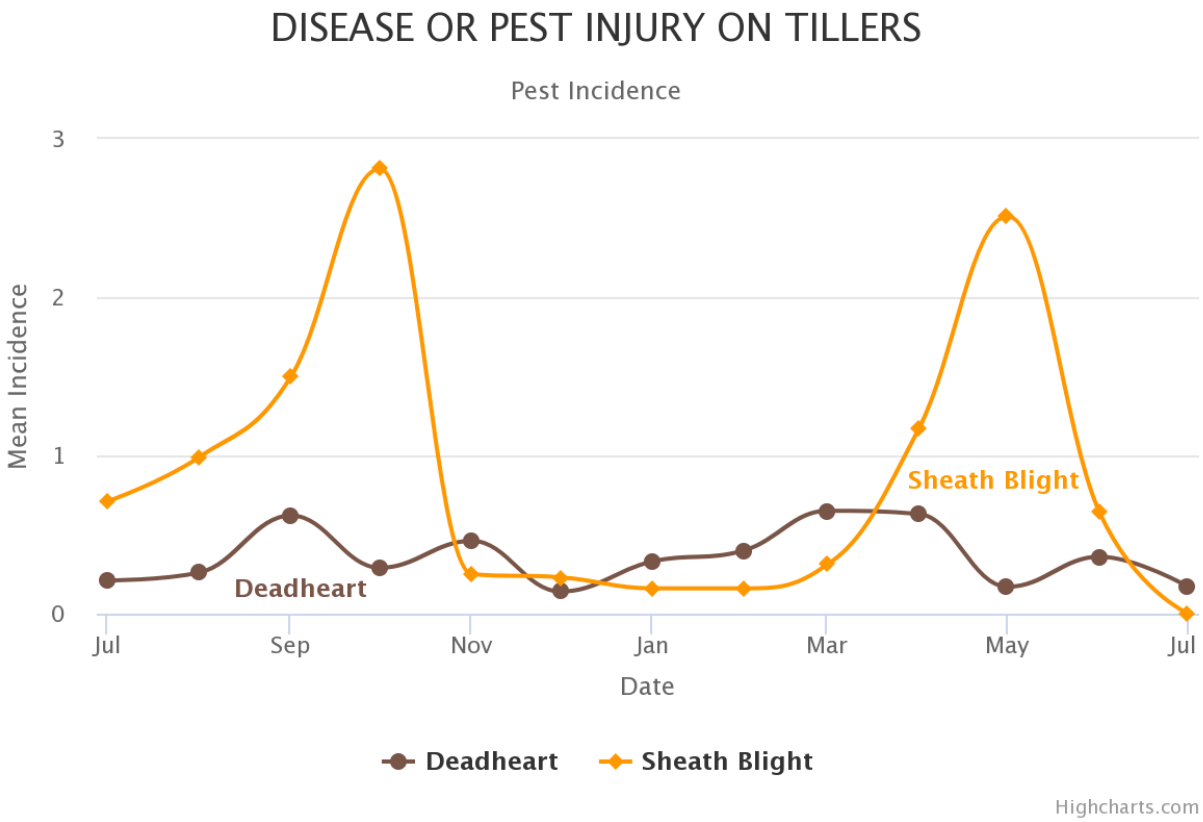

Figure 5. Mean Incidence of deadheart and sheath blight in Region I, July 2018 to June 2019.

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B. Insect pests or diseases on panicles

The incidence of neck blast was negligible during the year (Figures 6 and 7). The highest mean of whitehead incidence (4%) was observed in April 2019. The median of whitehead incidence in April and in most of the other months was 0.

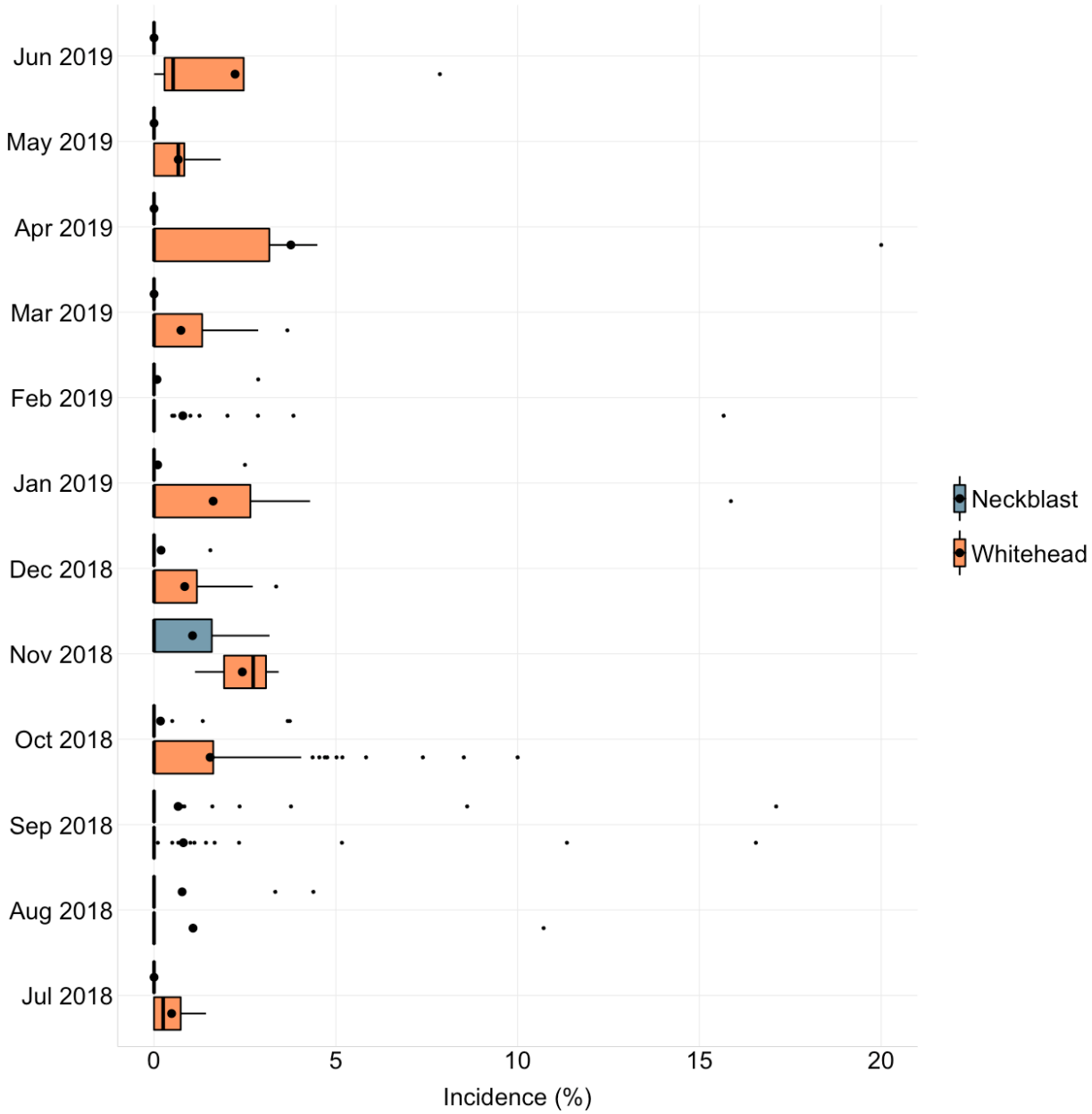

Figure 6. Incidence of neck blast and whitehead caused by stemborers in Region I, July 2018 to June 2019.

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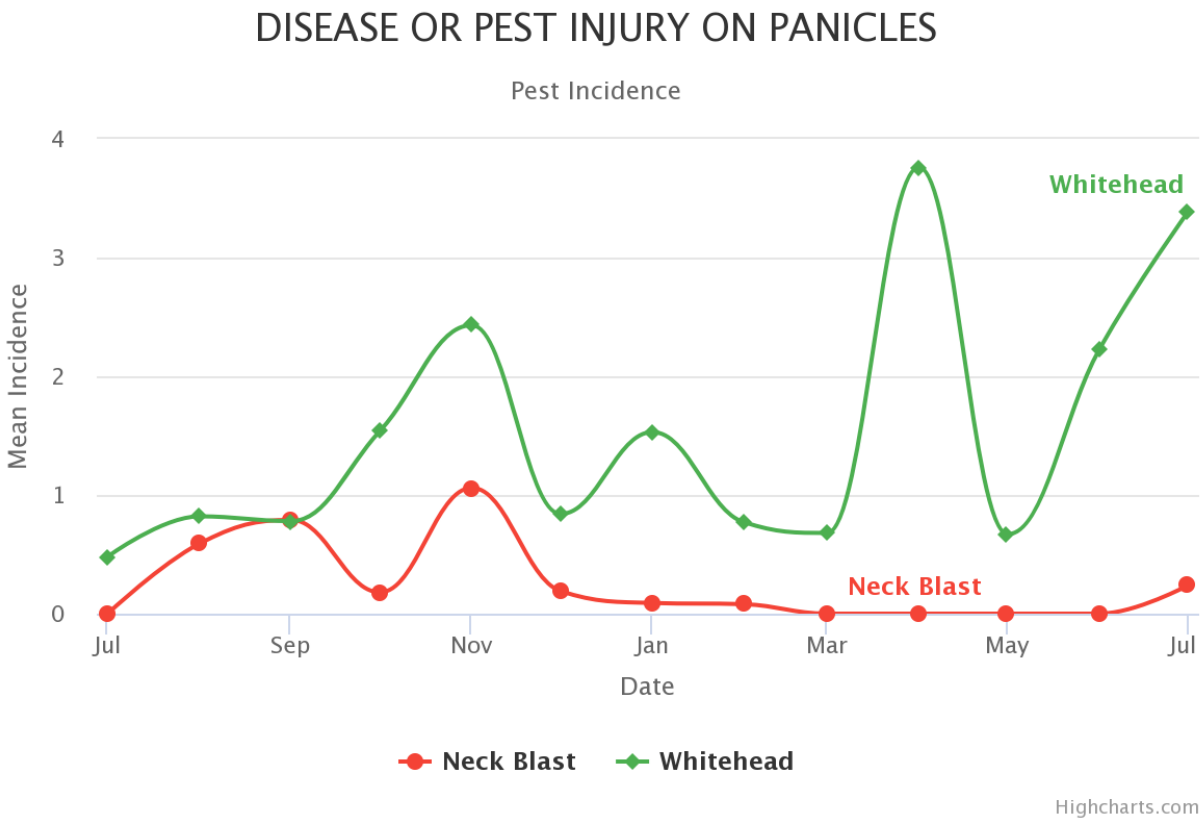

Figure 7. Mean incidence of neck blast and whitehead in Region I, July 2018 to June 2019.

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C. Systemic diseases and insect pest injuries

The incidence of bugburn, hopperburn and tungro was negligible in majority of the fields during the year (Figures 8 and 9). In September 2018, tungro incidence was 21% and hopperburn incidence was 60% in one of the monitored fields.

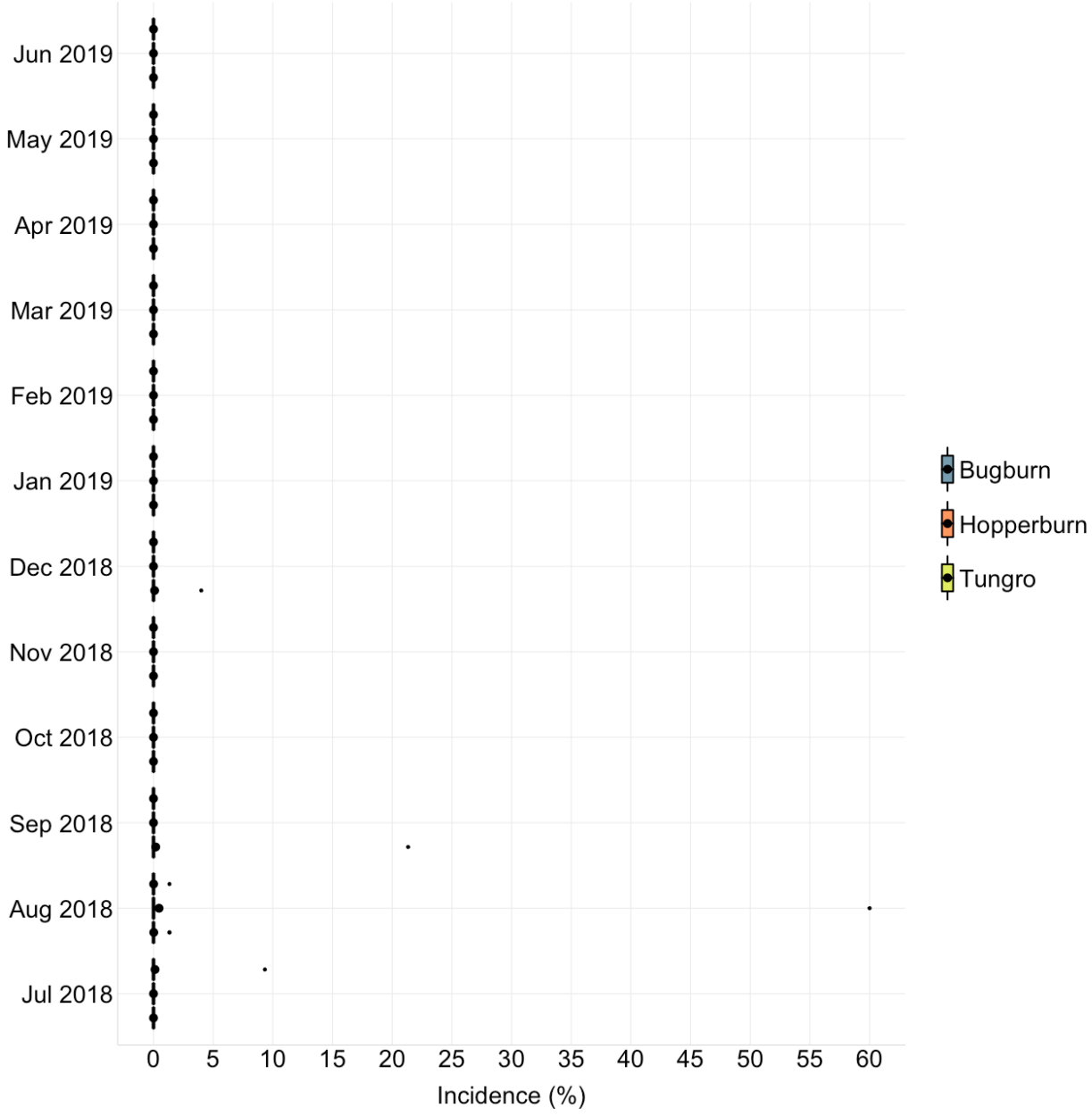

Figure 8. Incidence of bugburn, hopperburn and tungro in Region I, July 2018 to June 2019.

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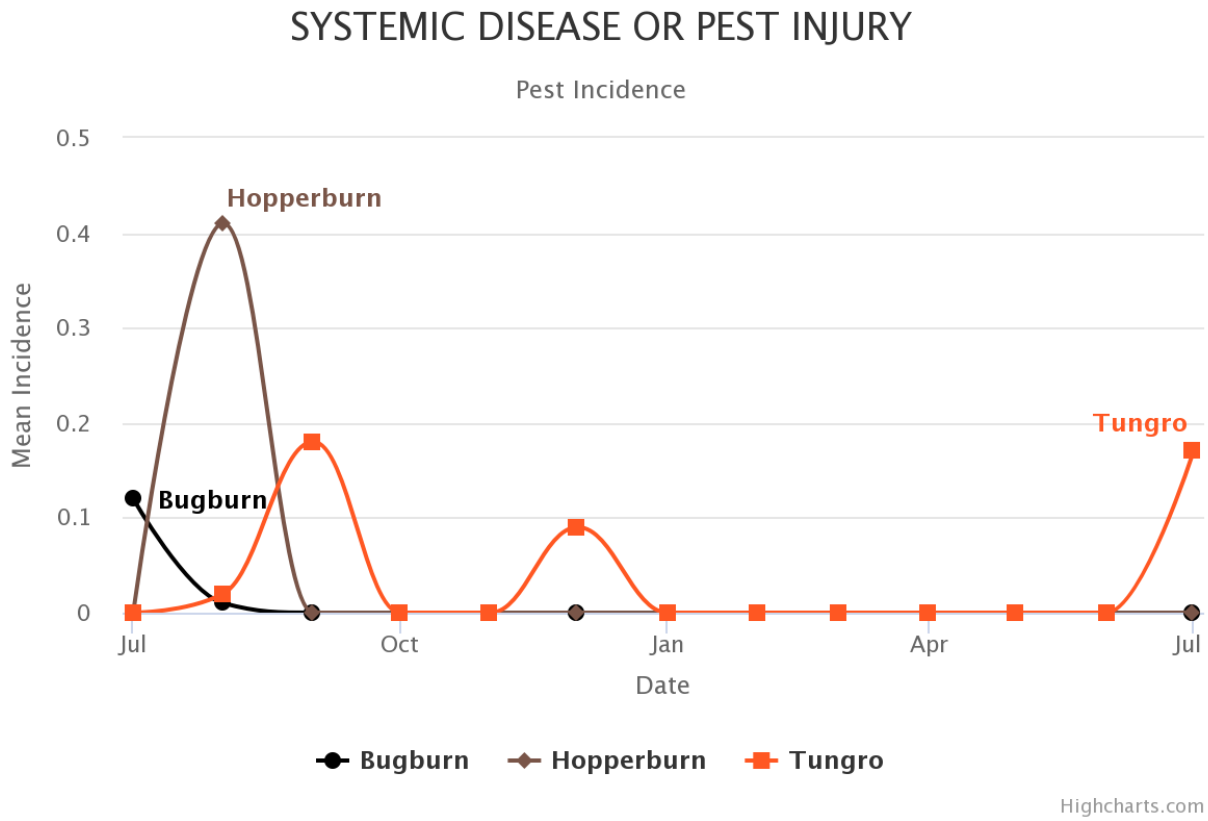

Figure 9. Mean incidence of bugburn, hopperburn and tungro in Region I, July 2018 to June 2019.

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D. Insect count

The population of insect pests was low during the year (Figures 10 and 11). The median was 0 in all months indicating that insect pests were not observed in majority of the fields.

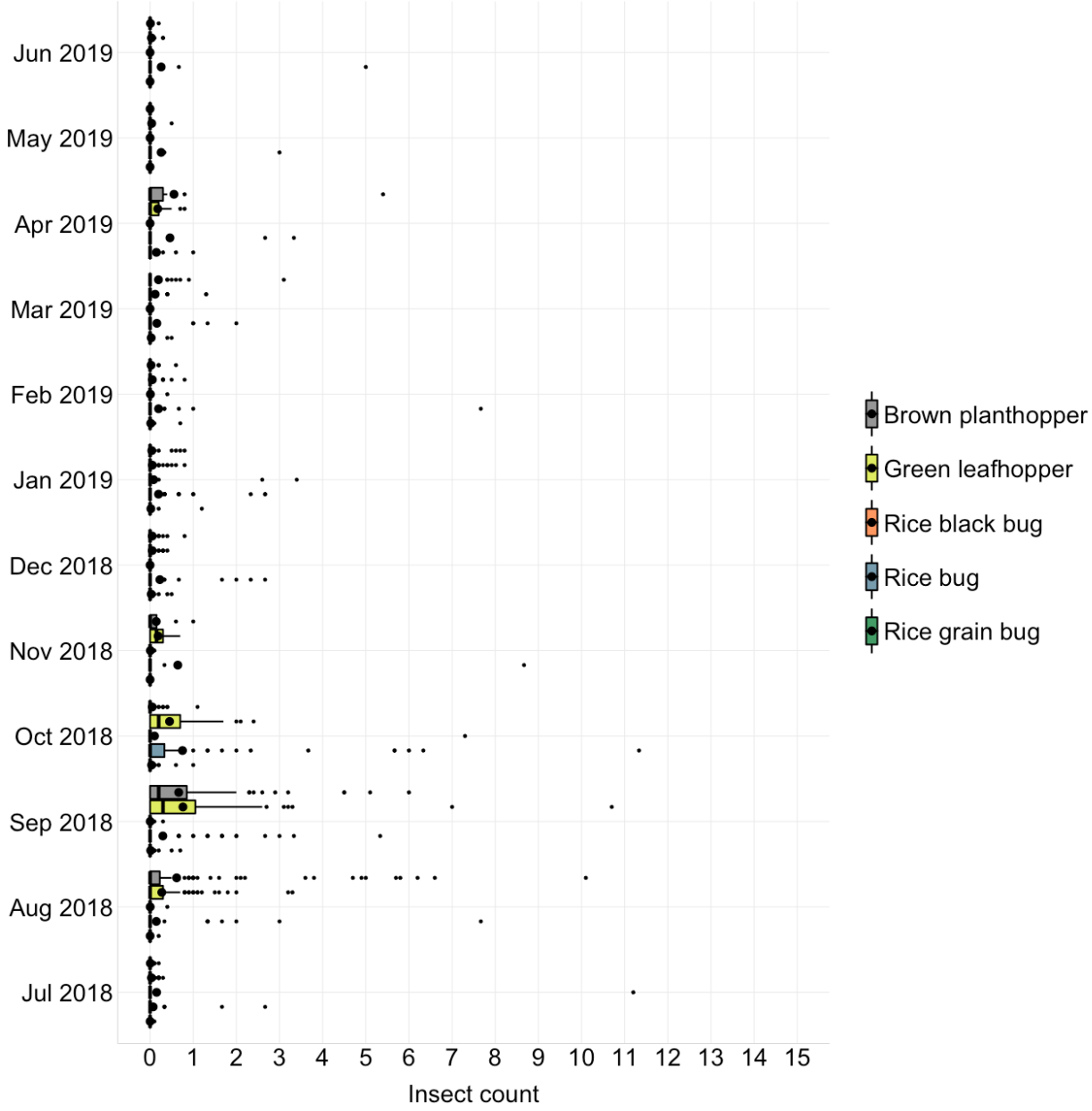

Figure 10. Count of insect pests in Region I, July 2018 to June 2019.

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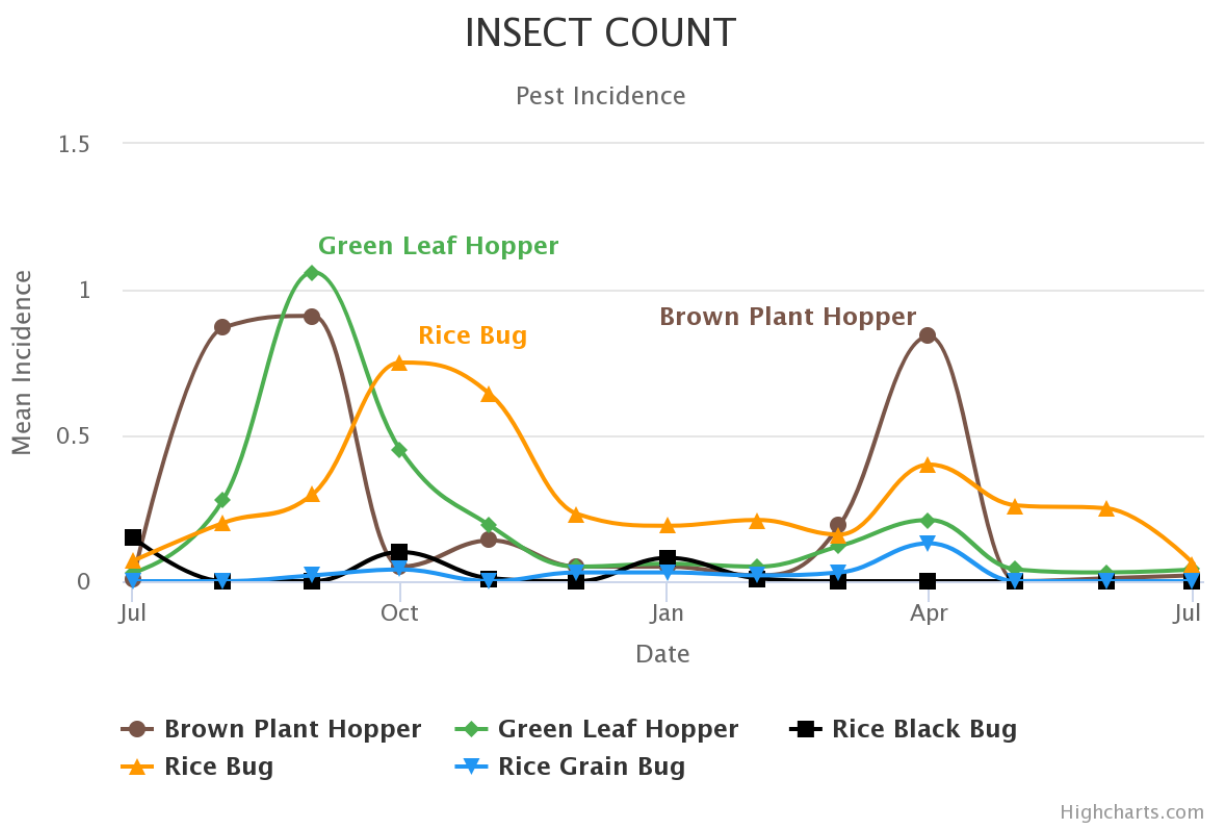

Figure 11. Mean count of insect pests in Region I, July 2018 to June 2019.

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E. Rat injury

The incidence of rat injury was negligible during the year (Figures 12 and 14). The highest incidence was 0.15% and the median was 0 in all months.

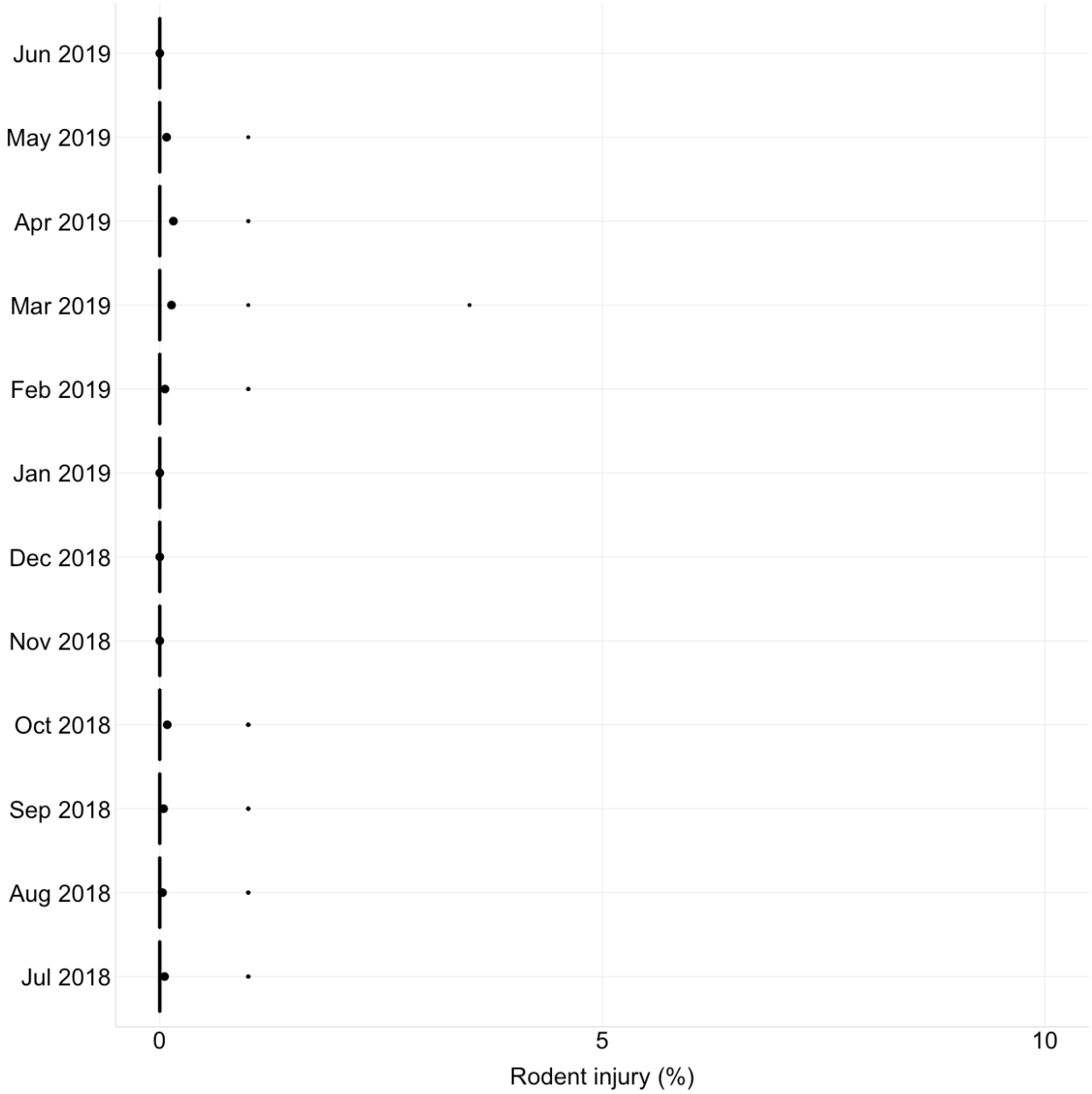

Figure 12. Incidence of rat injury in Region I, July 2018 to June 2019.

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F. Weed cover

Weed cover was lower than 5% and the median incidence was 0 in all months, except in June 2019 in which the median incidence was 0.83% (Figure 13 and 14).

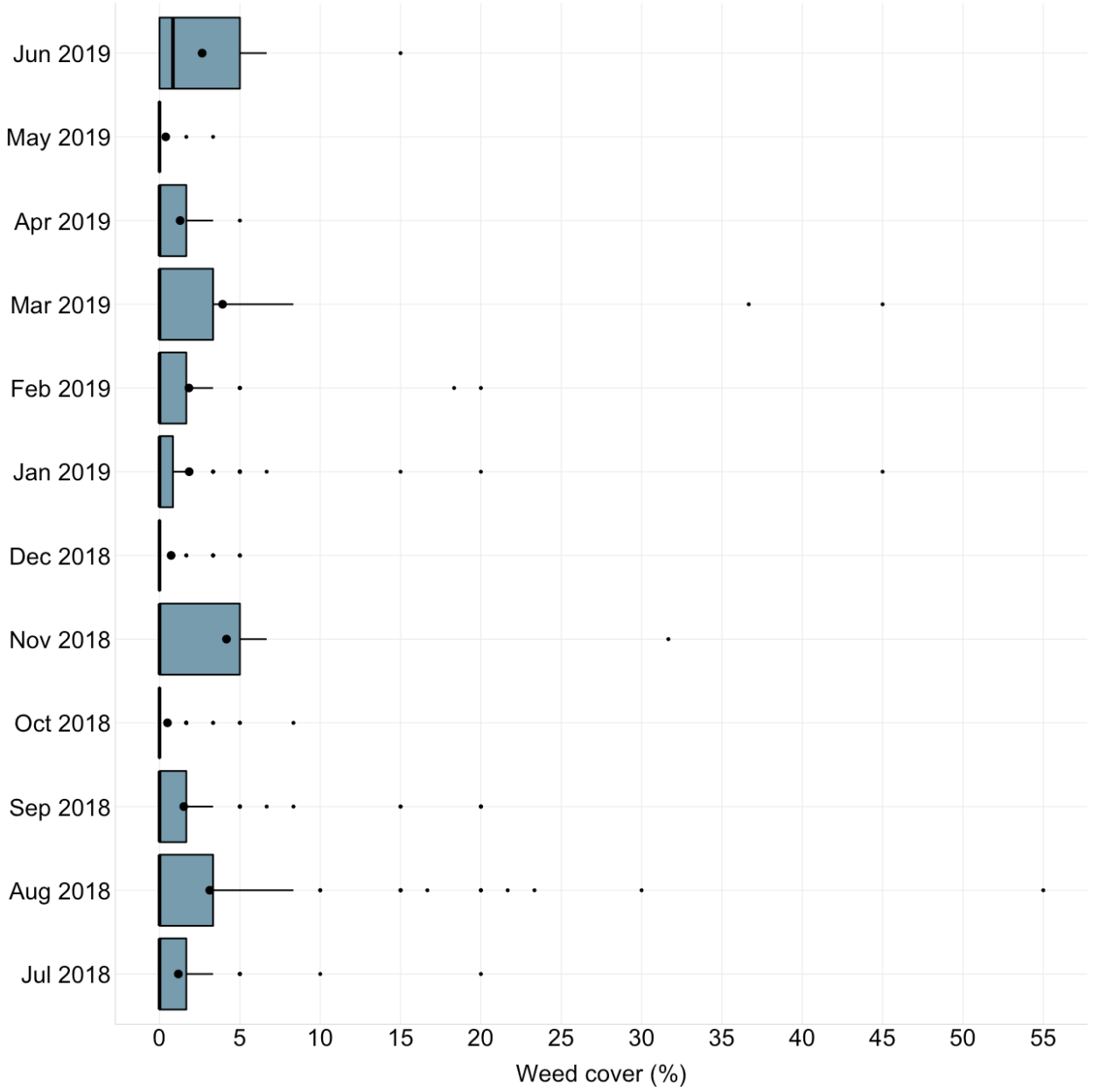

Figure 13. Mean incidence of rat injury in Region I, July 2018 to June 2019.

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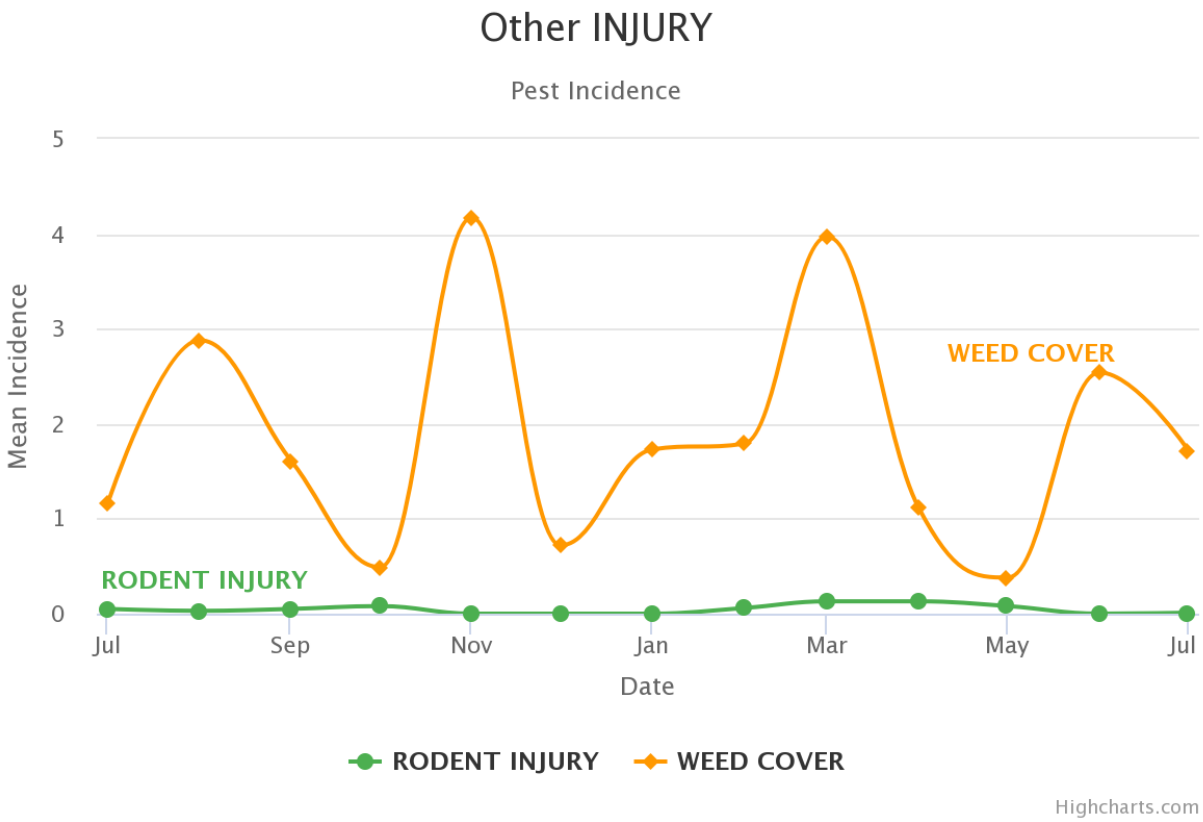

Figure 14. Mean incidence of rat injury and weed infestation in Region I, July 2018 to June 2019.

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Management of pests

This section describes the management of the most important pests during the reporting period. A pest is operationally considered important if the mean incidence of injury (for insect pests and diseases) or percentage of cover (for weeds) in at least one month was at least 5%, or in the case of insect pests, the count was at least 5 per square meter.

Bacterial leaf blight

1. The most practical and economical approach to manage blast is to grow a resistant variety. Rotate varieties with different levels of resistance because a resistant variety may later become susceptible if grown continuously across several cropping seasons.
2. Use optimum seeding rate (80 kg per hectare) for direct-seeded rice and optimum plant spacing (e.g., 20cm x 20cm) for transplanted rice. A dense plant canopy reduces sunlight penetration, increases leaf wetness duration and lowers temperature in the plant canopy, creating a favorable microclimate for disease development.
3. Apply only the recommended amount of nitrogen. Aside from creating a dense plant canopy, excessive amount of nitrogen makes the plant tissues softer and facilitates the entry of the pathogen into the plant.
4. Manage the application of nutrient fertilizers. Apply the required amount of nitrogen in splits instead of applying all the required amount at the start of the cropping season.
5. Apply potassium and other required nutrients in addition to nitrogen. Potassium reduces the amount of most rice diseases.
6. Apply calcium silicate fertilizer or silicon fertilizer when feasible.
7. Remove weeds from the field because the pathogen can survive and cause disease on several weed species.
8. Use copper fungicides as last resort in controlling the disease. Copper fungicides should be applied with caution because copper accumulates in the soil surface (does not leach easily) and in the roots. Copper toxicity deforms roots and may eventually reduce yield.
9. Avoid using antibiotics because bacteria easily develop resistance to antibiotics. IRRI plant pathologists have observed that several strains of isolates collected from farmers' fields in the Philippines are resistant to antibiotics.
10. If plants had severe disease, cut the stubbles close to the ground and remove them from the field. A less laborious option is to immediately plow or rotavate the field after harvest to incorporate infected stubbles and crop residues in the soil. Avoid ratooning because the pathogen can survive on ratoon.
11. Keep the field dry during the fallow period to control the pathogens in infected stubbles.

Brown spot

1. The most practical and economical approach to manage brown spot is to grow a resistant variety.
2. When feasible, improve soil fertility by regularly monitoring nutrients in the soil. and the application of required fertilizers.
3. If possible, determine the occurrence of Akiochi, a nutritional disorder, in the field. Brown spot develops on plants affected by Akiochi and has, in fact, been used as its indicator.

   It is caused by excessive concentration of hydrogen sulfide in the soil and results in reduced nutrient uptake. Akiochi occurs in irrigated fields that are poorly drained and have excessive organic matter. Low decomposition of stubbles, which usually occurs in areas with short fallow period, results in high organic matter.
4. Use certified seeds or clean seeds. Brown spot is a seedborne disease which means that growing an infected seed will result in diseased plants during the cropping season. Seeds can be cleaned manually using flotation method which consists of the following steps:
   a. Dissolve 1.5 kg salt in 40 liters of water.
   b. Soak seeds in the salt solution.
   c. Stir to float diseased, unfilled and broken seeds.
   d. Remove floating seeds by hand or with a sieve.
   e. Wash seeds 3 to 4 times with clean water.
   f. Dry in the shade thoroughly before sowing.
5. The pathogen in the seeds can be eliminated by hot water seed treatment. This treatment is not recommended if seeds had been chemically treated or primed (pre-soaked to promote germination). It consists of the following steps:
   a. Soak seeds for 1 to 3 hours in tap water.
   b. Preheat water bath. To ensure uniform temperature in the container, the amount of water should allow seeds to move freely and constantly stir the mixture. Maintain temperature by adding room temperature water.
   c. Prepare packets made of cheese cloth or nets and fill half of each packet with seeds.
   d. Transfer and soak seeds in hot water bath (52 to 57°C) for 15 mins. Put weights to keep the seeds submerged. Constantly check the temperature.
   e. Immediately remove and cool the seeds by washing with room temperature water.
   f. Spread and dry the seeds in the shade completely before sowing.

   A disadvantage of the hot water seed treatment is that it requires careful handling. However, it is more effective than fungicide treatment because fungicides may not penetrate the seed coat.

6. Use optimum seeding rate (e.g., 80 kg per hectare) for direct-seeded rice and optimum plant spacing (e.g., 20 cm x 20 cm) for transplanted rice. A dense plant canopy reduces sunlight penetration, increases leaf wetness duration and lowers temperature in the plant canopy, creating a favorable microclimate for disease development.
7. Apply potassium and other required nutrients in addition to nitrogen. Potassium reduces the amount of most rice diseases.

8. Apply calcium silicate fertilizer or silicon fertilizer before crop establishment if the soil is deficient in silicon.
9. Apply fungicides, such as azoxystrobin, ready mixture of azoxystrobin and difenoconazole, and propiconazole, as foliar spray. Seeds may also be treated with fungicides, such as carbendazin and benomyl. Use fungicides as a last resort in controlling the disease. Pathogens become resistant to chemical pesticides if these are not used properly. Avoid repetitive use of a single active ingredient and mix or alternate an active ingredient with an appropriate partner. Integrate the use of chemical pesticides with cultural practices or non-chemical methods. Wherever feasible, several strategies should be used together.
10. If possible, irrigate the field continuously until one week before harvest. Do not drain the field for long periods because drought stress favors brown spot.
11. Remove alternate hosts in the field, such as *Echinochloa* spp. and weedy rice.
12. If harvested plants had severe disease, immediately plow or rotavate the field after harvest to incorporate infected stubbles and crop residues in the soil.
13. Dry grains immediately after harvest to moisture content of at least 14%.
14. Store grains in sealed containers with moisture content of at least 14%.

Region I

July 2018	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	75	0.00	14.17	
Bacterial leaf streak	75	0.00	12.15	
Brown spot	75	0.00	18.97	
Leaf blast	75	0.00	21.92	
Red stripe	75	0.00	1.91	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	75	0.00	3.33	
Sheath Blight	75	0.00	23.24	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	4	0.00	0.00	
Whitehead	4	0.00	1.43	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	75	0.00	9.33	
Hopperburn	75	0.00	0.00	
Tungro	75	0.00	0.00	
E. INSECT COUNT				
Brown Plant Hopper	75	0.00	0.20	
Green Leaf Hopper	75	0.00	0.30	
Rice Black Bug	75	0.00	11.20	
Rice Bug	75	0.00	2.67	
Rice Grain Bug	75	0.00	0.10	
F. RODENT INJURY	75	0.00	1.00	
G. WEED COVER	75	0.00	20.00	

Annex Figure 1. Incidence of pest injuries, count of insect pests and weed cover in July 2018. Horizontal bar shows the proportion of fields in each range of pest injury incidence, insect count or weed cover.

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Region I

August 2018	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	147	0.00	39.09	
Bacterial leaf streak	147	0.00	11.10	
Brown spot	147	0.00	33.15	
Leaf blast	147	0.00	10.17	
Red stripe	147	0.00	8.13	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	147	0.00	7.00	
Sheath Blight	147	0.00	98.67	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	13	0.00	4.38	
Whitehead	13	0.00	10.71	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	147	0.00	1.33	
Hopperburn	147	0.00	60.00	
Tungro	147	0.00	1.33	
E. INSECT COUNT				
Brown Plant Hopper	147	0.00	20.00	
Green Leaf Hopper	147	0.00	3.30	
Rice Black Bug	147	0.00	0.40	
Rice Bug	147	0.00	7.67	
Rice Grain Bug	147	0.00	0.20	
F. RODENT INJURY	147	0.00	1.00	
G. WEED COVER	147	0.00	55.00	

Annex Figure 2. Incidence of pest injuries, count of insect pests, and weed cover in August 2018. Horizontal bar shows the proportion of fields in each range of pest injury incidence, insect count or weed cover.

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Region I

September 2018	n	min	max	Pest incidence (%) 0	<1	1-5	>5
A. FOLIAR DISEASES							
Bacterial leaf blight	121	0.00	13.53				
Bacterial leaf streak	121	0.00	24.05				
Brown spot	121	0.00	5.87				
Leaf blast	121	0.00	3.09				
Red stripe	121	0.00	6.49				
B. DISEASE OR PEST INJURY ON TILLERS							
Deadheart	121	0.00	16.84				
Sheath Blight	121	0.00	50.50				
C. DISEASE OR PEST INJURY ON PANICLES							
Neck Blast	55	0.00	17.11				
Whitehead	55	0.00	16.55				
D. SYSTEMIC DISEASE OR PEST INJURY							
Bugburn	121	0.00	0.00				
Hopperburn	121	0.00	0.00				
Tungro	121	0.00	21.33				
E. INSECT COUNT							
Brown Plant Hopper	121	0.00	31.50				
Green Leaf Hopper	121	0.00	37.50				
Rice Black Bug	121	0.00	0.30				
Rice Bug	121	0.00	5.33				
Rice Grain Bug	121	0.00	0.70				
F. RODENT INJURY	121	0.00	1.00				
G. WEED COVER	121	0.00	20.00				

Annex Figure 3. Incidence of pest injuries, count of insect pests, and weed cover in September 2018. Horizontal bar shows the proportion of fields in each range of pest injury incidence, insect count or weed cover.

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Region I

October 2018	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	71	0.00	59.27	
Bacterial leaf streak	71	0.00	23.71	
Brown spot	71	0.00	17.63	
Leaf blast	71	0.00	19.86	
Red stripe	71	0.00	5.11	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	71	0.00	6.89	
Sheath Blight	71	0.00	42.15	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	52	0.00	3.73	
Whitehead	52	0.00	10.00	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	71	0.00	0.00	
Hopperburn	71	0.00	0.00	
Tungro	71	0.00	0.00	
E. INSECT COUNT				
Brown Plant Hopper	71	0.00	1.10	
Green Leaf Hopper	71	0.00	2.40	
Rice Black Bug	71	0.00	7.30	
Rice Bug	71	0.00	11.33	
Rice Grain Bug	71	0.00	1.00	
F. RODENT INJURY	71	0.00	1.00	
G. WEED COVER	71	0.00	8.33	
				10 20 30 40 50 60 70 80 90 100

Annex Figure 4. Incidence of pest injuries, count of insect pests, and weed cover in October 2018. Horizontal bar shows the proportion of fields in each range of pest injury incidence, insect count or weed cover.

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Region I

November 2018	n	min	max	Pest incidence (%) 0	<1	1-5	>5
A. FOLIAR DISEASES							
Bacterial leaf blight	14	0.00	10.48				
Bacterial leaf streak	14	0.00	26.03				
Brown spot	14	0.00	4.44				
Leaf blast	14	0.00	1.59				
Red stripe	14	0.00	0.58				
B. DISEASE OR PEST INJURY ON TILLERS							
Deadheart	14	0.00	3.43				
Sheath Blight	14	0.00	1.82				
C. DISEASE OR PEST INJURY ON PANICLES							
Neck Blast	3	0.00	3.18				
Whitehead	3	1.13	3.43				
D. SYSTEMIC DISEASE OR PEST INJURY							
Bugburn	14	0.00	0.00				
Hopperburn	14	0.00	0.00				
Tungro	14	0.00	0.00				
E. INSECT COUNT							
Brown Plant Hopper	14	0.00	1.00				
Green Leaf Hopper	14	0.00	0.70				
Rice Black Bug	14	0.00	0.10				
Rice Bug	14	0.00	8.67				
Rice Grain Bug	14	0.00	0.00				
F. RODENT INJURY	14	0.00	0.00				
G. WEED COVER	14	0.00	31.67				

Annex Figure 5. Incidence of pest injuries, count of insect pests, and weed cover in November 2018. Horizontal bar shows the proportion of fields in each range of pest injury incidence, insect count or weed cover.

Disclaimer: All the data presented in this report are based on the monthly monitoring of farmers' fields by regional data collectors of PRIME.

Region I

December 2018	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	44	0.00	6.67	
Bacterial leaf streak	44	0.00	3.05	
Brown spot	44	0.00	27.59	
Leaf blast	44	0.00	11.66	
Red stripe	44	0.00	4.94	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	44	0.00	3.36	
Sheath Blight	44	0.00	6.77	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	8	0.00	1.55	
Whitehead	8	0.00	3.36	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	44	0.00	0.00	
Hopperburn	44	0.00	0.00	
Tungro	44	0.00	4.00	
E. INSECT COUNT				
Brown Plant Hopper	44	0.00	0.80	
Green Leaf Hopper	44	0.00	0.40	
Rice Black Bug	44	0.00	0.00	
Rice Bug	44	0.00	2.67	
Rice Grain Bug	44	0.00	0.50	
F. RODENT INJURY	44	0.00	0.00	
G. WEED COVER	44	0.00	5.00	
				10 20 30 40 50 60 70 80 90 100

Annex Figure 6. Incidence of pest injuries, count of insect pests, and weed cover in December 2018. Horizontal bar shows the proportion of fields in each range of pest injury incidence, insect count or weed cover.

Disclaimer: All the data presented in this report are based on the monthly monitoring of farmers' fields by regional data collectors of PRIME.

Region I

January 2019	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	80	0.00	22.39	
Bacterial leaf streak	80	0.00	6.17	
Brown spot	80	0.00	29.54	
Leaf blast	80	0.00	6.13	
Red stripe	80	0.00	1.67	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	80	0.00	5.00	
Sheath Blight	80	0.00	3.33	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	27	0.00	2.50	
Whitehead	27	0.00	15.87	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	80	0.00	0.00	
Hopperburn	80	0.00	0.00	
Tungro	80	0.00	0.00	
E. INSECT COUNT				
Brown Plant Hopper	80	0.00	0.80	
Green Leaf Hopper	80	0.00	0.80	
Rice Black Bug	80	0.00	3.40	
Rice Bug	80	0.00	2.67	
Rice Grain Bug	80	0.00	1.20	
F. RODENT INJURY	80	0.00	0.00	
G. WEED COVER	80	0.00	45.00	
				10 20 30 40 50 60 70 80 90 100

Annex Figure 7. Incidence of pest injuries, count of insect pests, and weed cover in January 2019. Horizontal bar shows the proportion of fields in each range of pest injury incidence, insect count or weed cover.

Disclaimer: All the data presented in this report are based on the monthly monitoring of farmers' fields by regional data collectors of PRIME.

Region I

February 2019	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	52	0.00	10.37	
Bacterial leaf streak	52	0.00	3.11	
Brown spot	52	0.00	16.30	
Leaf blast	52	0.00	7.76	
Red stripe	52	0.00	0.85	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	52	0.00	3.83	
Sheath Blight	52	0.00	4.69	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	36	0.00	2.86	
Whitehead	36	0.00	15.67	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	52	0.00	0.00	
Hopperburn	52	0.00	0.00	
Tungro	52	0.00	0.00	
E. INSECT COUNT				
Brown Plant Hopper	52	0.00	0.60	
Green Leaf Hopper	52	0.00	0.80	
Rice Black Bug	52	0.00	0.40	
Rice Bug	52	0.00	7.67	
Rice Grain Bug	52	0.00	0.70	
F. RODENT INJURY	52	0.00	1.00	
G. WEED COVER	52	0.00	20.00	
				10 20 30 40 50 60 70 80 90 100

Annex Figure 8. Incidence of pest injuries, count of insect pests, and weed cover in February 2019. Horizontal bar shows the proportion of fields in each range of pest injury incidence, insect count or weed cover.

Disclaimer: All the data presented in this report are based on the monthly monitoring of farmers' fields by regional data collectors of PRIME.

Region I

March 2019	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	34	0.00	8.75	
Bacterial leaf streak	34	0.00	0.00	
Brown spot	34	0.00	23.06	
Leaf blast	34	0.00	2.02	
Red stripe	34	0.00	5.48	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	34	0.00	4.94	
Sheath Blight	34	0.00	4.27	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	23	0.00	0.00	
Whitehead	23	0.00	3.67	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	34	0.00	0.00	
Hopperburn	34	0.00	0.00	
Tungro	34	0.00	0.00	
E. INSECT COUNT				
Brown Plant Hopper	34	0.00	3.10	
Green Leaf Hopper	34	0.00	1.30	
Rice Black Bug	34	0.00	0.00	
Rice Bug	34	0.00	2.00	
Rice Grain Bug	34	0.00	0.50	
F. RODENT INJURY	34	0.00	3.50	
G. WEED COVER	34	0.00	45.00	

Annex Figure 9. Incidence of pest injuries, count of insect pests, and weed cover in March 2019. Horizontal bar shows the proportion of fields in each range of pest injury incidence, insect count or weed cover.

Disclaimer: All the data presented in this report are based on the monthly monitoring of farmers' fields by regional data collectors of PRIME.

Region I

April 2019	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	15	0.00	7.83	
Bacterial leaf streak	15	0.00	1.67	
Brown spot	15	0.00	17.80	
Leaf blast	15	0.00	10.01	
Red stripe	15	0.00	0.00	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	15	0.00	4.49	
Sheath Blight	15	0.00	15.98	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	7	0.00	0.00	
Whitehead	7	0.00	20.00	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	15	0.00	0.00	
Hopperburn	15	0.00	0.00	
Tungro	15	0.00	0.00	
E. INSECT COUNT				
Brown Plant Hopper	15	0.00	5.40	
Green Leaf Hopper	15	0.00	0.80	
Rice Black Bug	15	0.00	0.00	
Rice Bug	15	0.00	3.33	
Rice Grain Bug	15	0.00	1.00	
F. RODENT INJURY	15	0.00	1.00	
G. WEED COVER	15	0.00	5.00	

Annex Figure 10. Incidence of pest injuries, count of insect pests, and weed cover in April 2019. Horizontal bar shows the proportion of fields in each range of pest injury incidence, insect count or weed cover.

Disclaimer: All the data presented in this report are based on the monthly monitoring of farmers' fields by regional data collectors of PRIME.

Region I

May 2019	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	13	0.00	12.28	
Bacterial leaf streak	13	0.00	0.00	
Brown spot	13	0.00	58.96	
Leaf blast	13	0.00	1.23	
Red stripe	13	0.00	0.00	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	13	0.00	2.19	
Sheath Blight	13	0.00	18.29	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	5	0.00	0.00	
Whitehead	5	0.00	1.83	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	13	0.00	0.00	
Hopperburn	13	0.00	0.00	
Tungro	13	0.00	0.00	
E. INSECT COUNT				
Brown Plant Hopper	13	0.00	0.00	
Green Leaf Hopper	13	0.00	0.50	
Rice Black Bug	13	0.00	0.00	
Rice Bug	13	0.00	3.00	
Rice Grain Bug	13	0.00	0.00	
F. RODENT INJURY	13	0.00	1.00	
G. WEED COVER	13	0.00	3.33	
				10 20 30 40 50 60 70 80 90 100

Annex Figure 11. Incidence of pest injuries, count of insect pests, and weed cover in May 2019. Horizontal bar shows the proportion of fields in each range of pest injury incidence, insect count or weed cover.

Disclaimer: All the data presented in this report are based on the monthly monitoring of farmers' fields by regional data collectors of PRIME.

Region I

June 2019	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	23	0.00	11.44	
Bacterial leaf streak	23	0.00	0.30	
Brown spot	23	0.00	71.91	
Leaf blast	23	0.00	5.44	
Red stripe	23	0.00	0.51	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	23	0.00	8.28	
Sheath Blight	23	0.00	11.25	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	4	0.00	0.00	
Whitehead	4	0.00	7.86	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	23	0.00	0.00	
Hopperburn	23	0.00	0.00	
Tungro	23	0.00	0.00	
E. INSECT COUNT				
Brown Plant Hopper	23	0.00	0.20	
Green Leaf Hopper	23	0.00	0.30	
Rice Black Bug	23	0.00	0.00	
Rice Bug	23	0.00	5.00	
Rice Grain Bug	23	0.00	0.00	
F. RODENT INJURY	23	0.00	0.00	
G. WEED COVER	23	0.00	15.00	

Annex Figure 12. Incidence of pest injuries, count of insect pests, and weed cover in June 2019. Horizontal bar shows the proportion of fields in each range of pest injury incidence, insect count or weed cover.

Disclaimer: All the data presented in this report are based on the monthly monitoring of farmers' fields by regional data collectors of PRIME.