PRIME

PRE-SEMESTER BULLETIN

July 2018 to June 2019

REGION XII – Central Mindanao Region

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

Region XII

	2018					2019				
	JUL	AUG	SEP	OCT	NOV	FEB	MAR	APR	MAY	JUN
A. FOLIAR DISEASES										
Bacterial leaf blight	0.4	0.6	0.3	0.4	0.1	0.5	0.4	0.0	0.1	0.0
Bacterial leaf streak	0.2	0.5	0.1	0.3	0.0	0.0	0.5	0	0	0.0
Brown spot	0.4	0.7	0.7	0.6	0.4	0.8	1.2	0.6	1.0	0.4
Leaf blast	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0	0.0	0.0
Red stripe	0.0	0.0	0	0	0.0	0.0	0.1	0.0	0	0
B. DISEASE OR PEST INJURY ON TILLERS										
Deadheart	1.1	0.8	0.4	0.1	0.3	0.7	0.7	0.2	1.1	0.6
Sheath Blight	0.4	0.3	0.2	0.3	0.1	0.1	0.0	0	0.0	0
C. DISEASE OR PEST INJURY ON PANICLES										
Neck Blast	0.0	0.0	0	0	0	0	0	0	0.1	0
Whitehead	2.4	2.4	1.9	2.8	0.4	2.4	1.3	4.3	0.7	1.2
D. SYSTEMIC DISEASE OR PEST INJURY										
Bugburn	0	0.1	0	0	0	0	0	0	0	0
Hopperburn	0	0	0	0	0	0.6	0	0	0	0
Tungro	0	0.0	0	0	0	0	0	0	0	0
E. INSECT COUNT										
Brown Plant Hopper	0.0	0.1	0.0	0	0	0.0	0	0	0	0.0
Green Leaf Hopper	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0
Rice Black Bug	0.0	0.0	0.1	0	0.0	0.0	0.0	0.5	0.1	0.5
Rice Bug	0.1	0.3	0.3	0.5	0.1	0.4	0.5	0.5	0.3	0.2
Rice Grain Bug	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0	0.0	0
F. RODENT INJURY	0.0	0.0	0	0	0	0	0	0.0	0.0	0
G. WEED COVER	3.1	3.6	2.6	3.2	3.1	3.0	3.2	6.8	6.6	6.3

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:	North Cotabato: Kabacan, Midsayap, M'Lang, Pigkawayan, and Tulunan Sultan Kudarat: Columbio, Esperanza, and Lambayong
Monitoring date:	July 2018 - June 2019
Number of monitored fields:	160
Data collectors:	Aran Jean Anota, Darwin Collado, Ivan Talatala, Jennefer Bitoon, Joeharry Langcuyan, and John Greg Castre

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Growth stages

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Most of the monitored fields in the second semester of 2018 were at the vegetative stage in July to August and the peak of harvest occurred in September (Figure 1). Majority of the fields were had no standing crop in October. In the first semester of 2019, the peak of crop establishment was in November and harvesting was in February and March. A large proportion of the fields were fallow in March to May 2019.

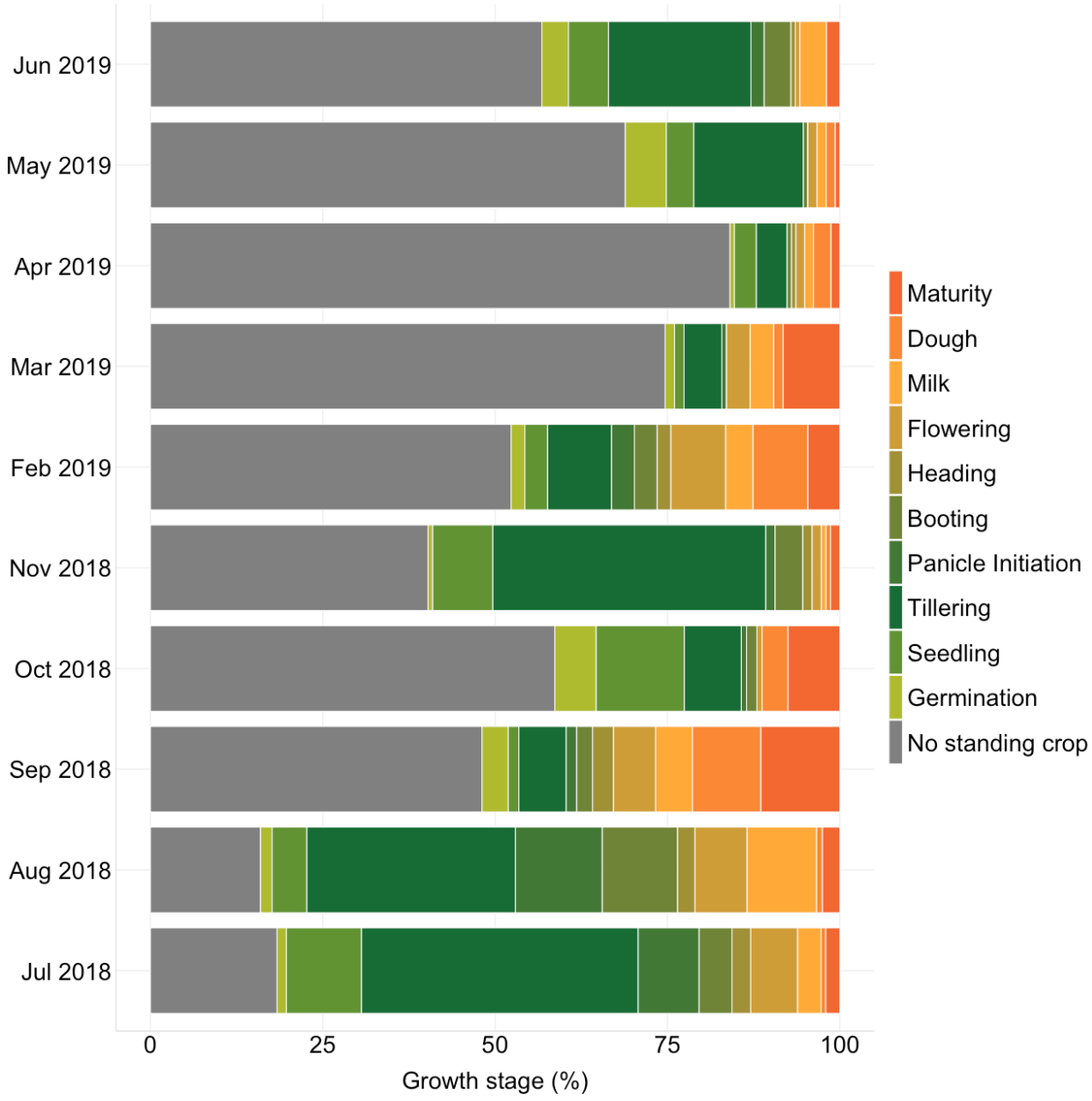

Figure 1. Proportion of crop growth stage in fields by month.

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Box plots, also known box-and-whisker plots, are presented to facilitate the visualization of the distribution or range of collected data (Figures 2 to 8). 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.

Foliar diseases

The mean incidence of foliar diseases was negligible and the median was 0 in almost all months (Figure 2).

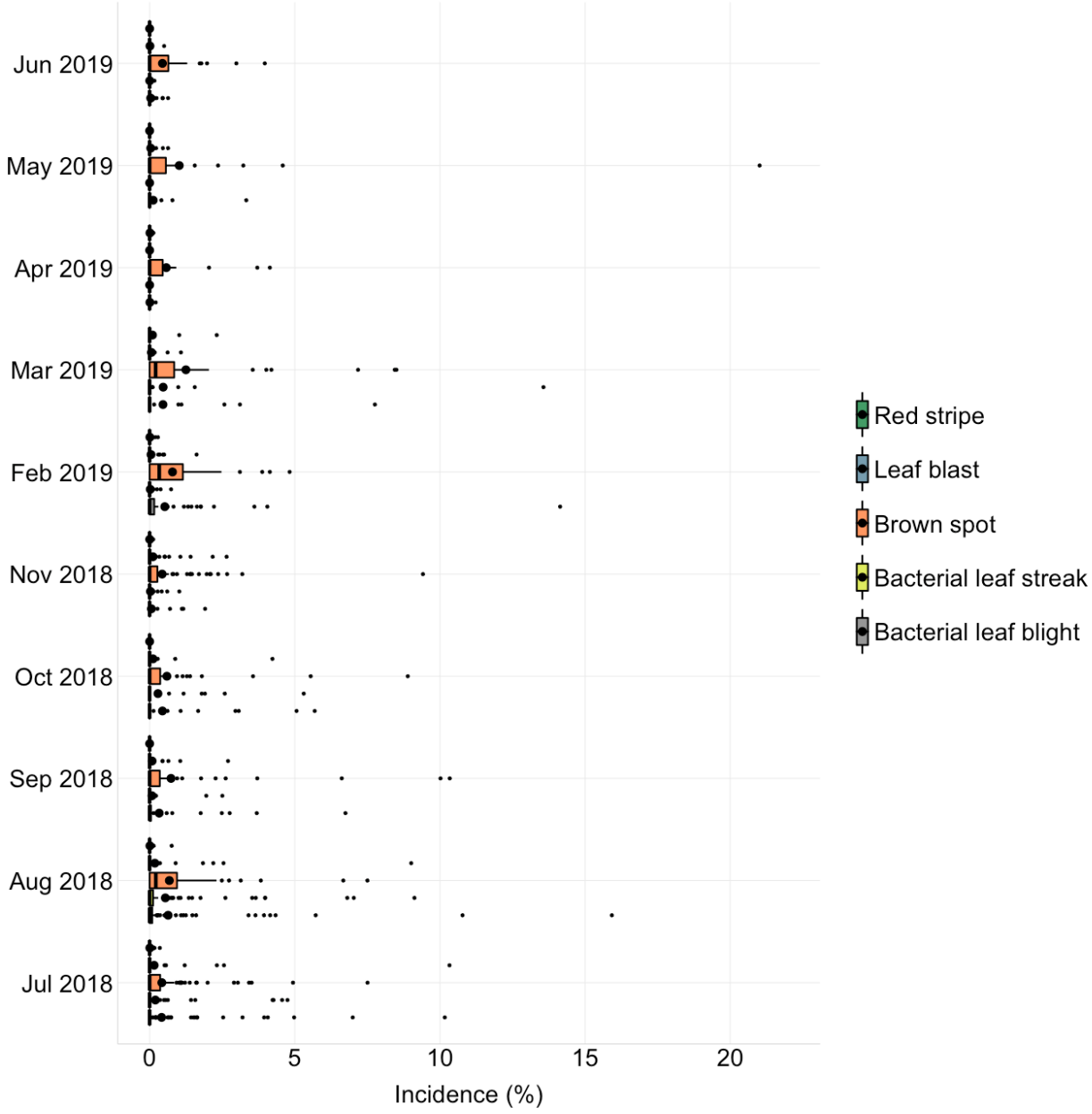

Figure 2. Incidence of foliar diseases in Region XII, July 2018 to June 2019.

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A. Insect pest injuries and diseases on tillers

The incidence of deadheart and sheath blight was negligible (Figure 3). The mean incidence of deadheart ranged from 0 to 1% and that of sheath blight ranged from 0 to 0.36%. The median incidence of both pest injuries was 0 in all months.

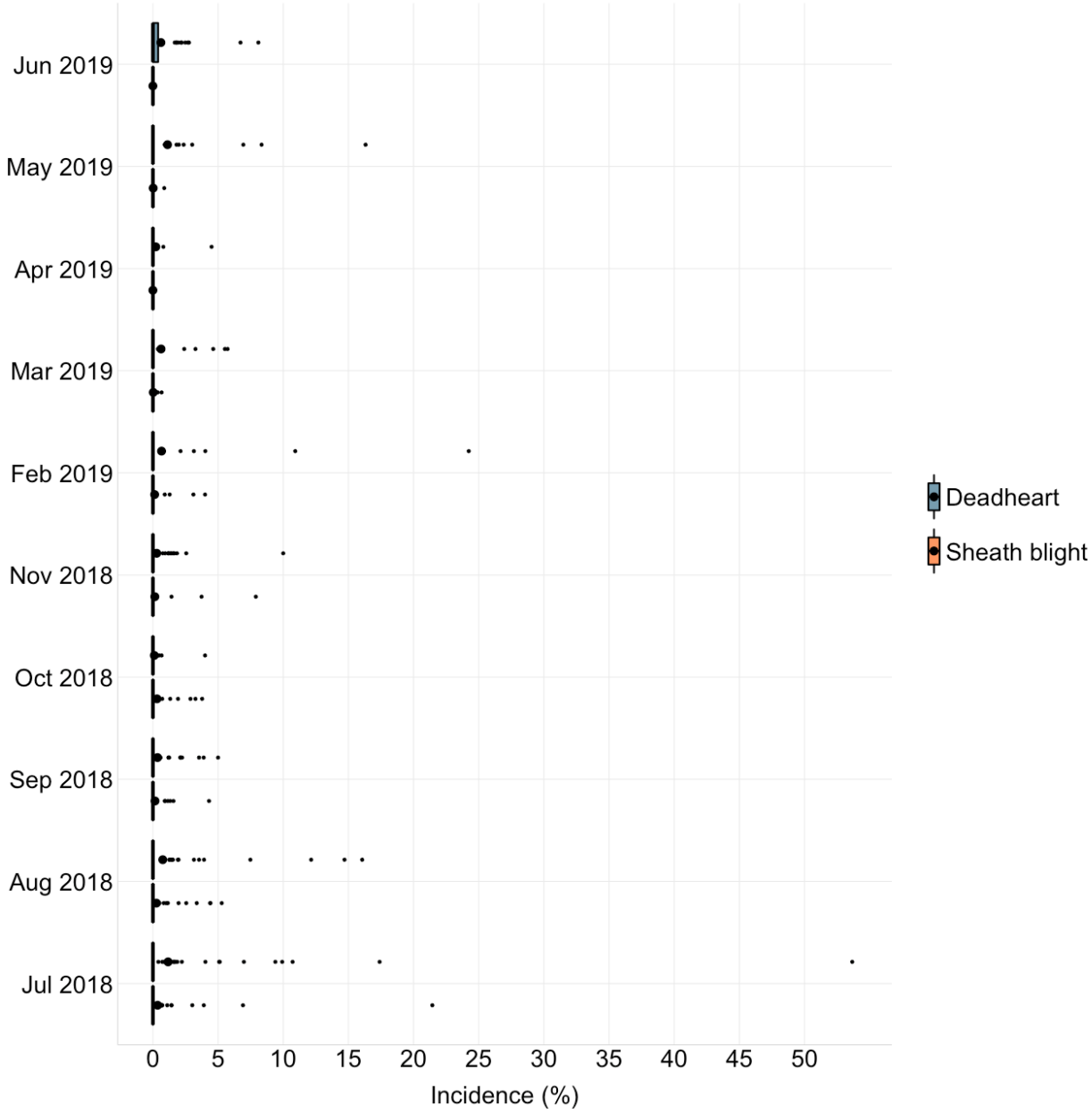

Figure 4. Incidence of deadheart and sheath blight in Region XII, July 2018 to June 2019.

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B. Insect pest injuries and diseases on panicles

The highest mean incidence of neck blast was 0.10% and the median was 0 in all months (Figure 4). The mean incidence of whitehead ranged from 0.36% to 4%.The highest median incidence, which was observed in October 2018, was 3%.

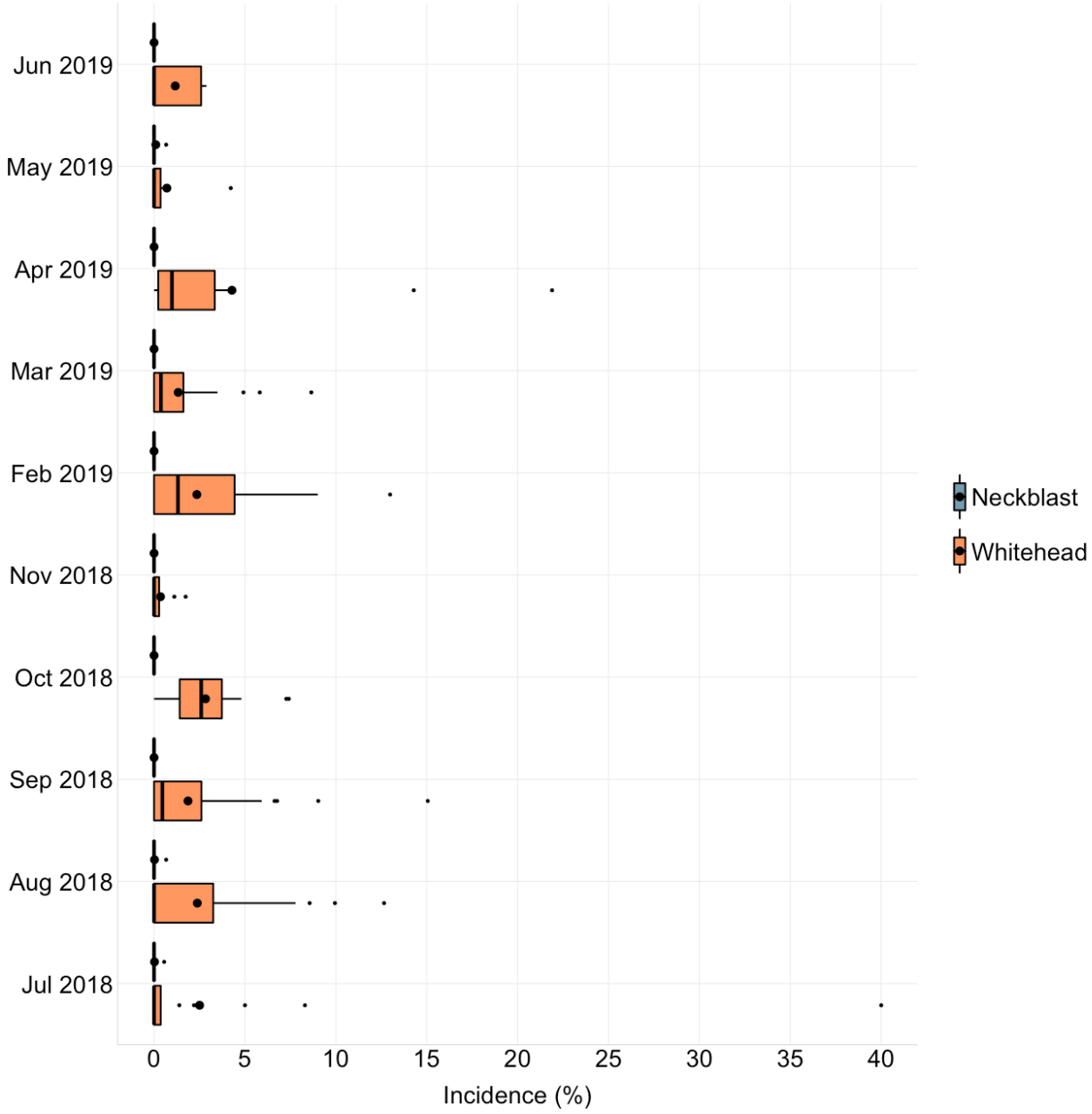

Figure 4. Incidence of neck blast and sheath blight in Region XII, July 2018 to June 2019.

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C. Systemic diseases and insect pest injuries

The incidence of bugburn, hopperburn and tungro was negligible (Figure 5).

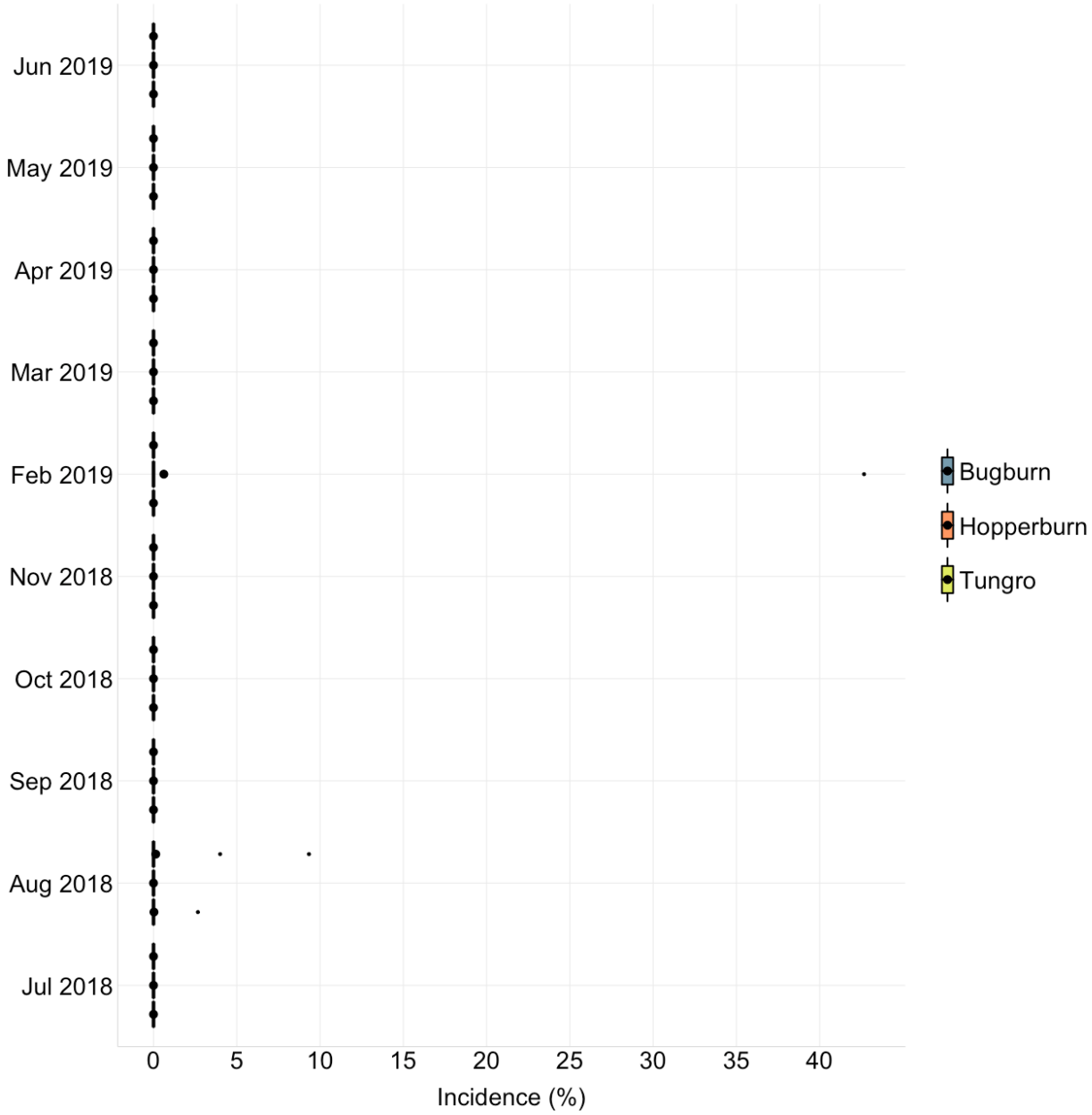

Figure 5. Incidence of bugburn, hopperburn and tungro in Region XII, July 2018 to June 2019.

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D. Insect pests

The number of insects observed during the year was negligible (Figure 6).

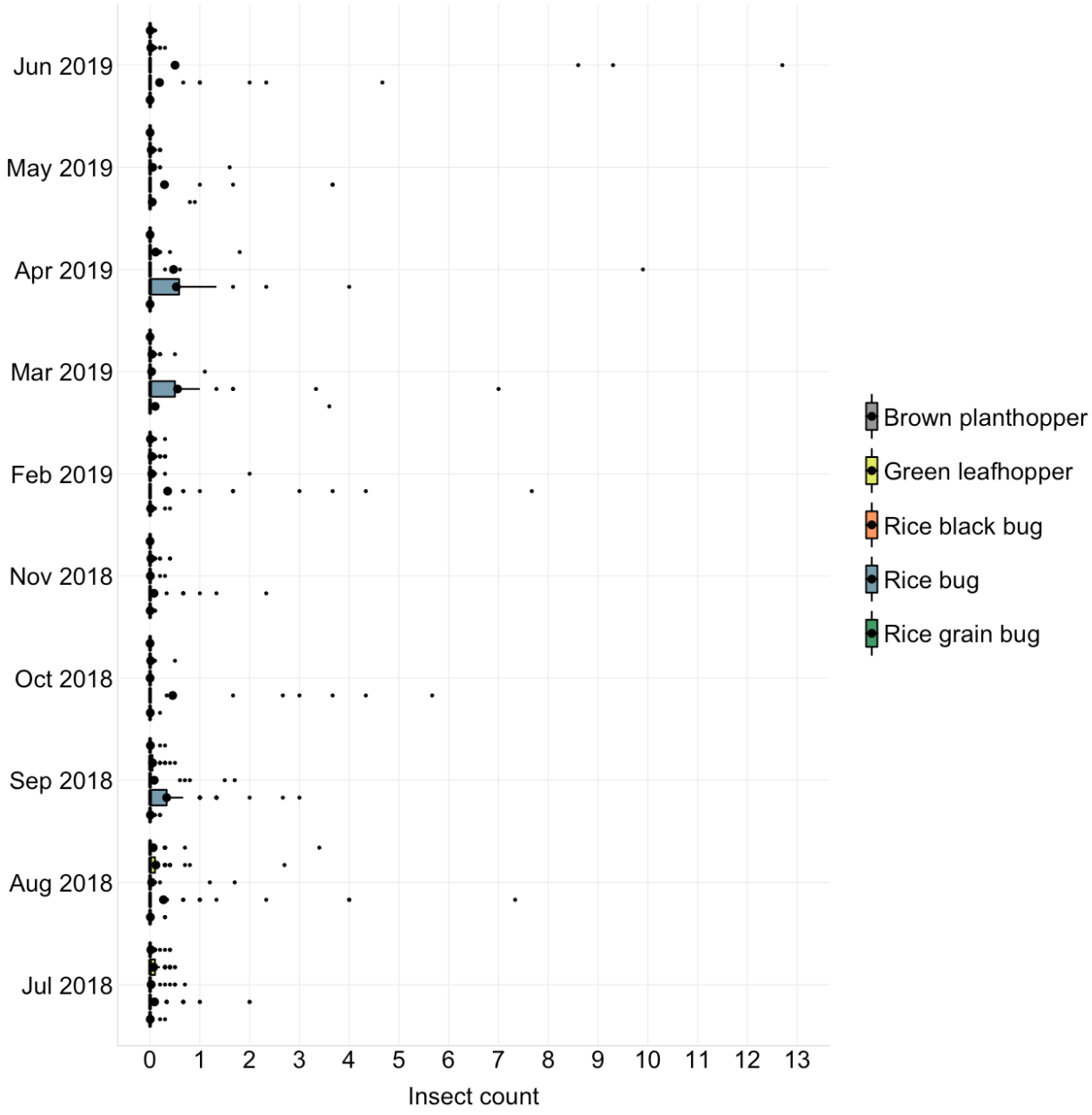

Figure 6. Insect count in Region XII, July 2018 to June 2019.

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E. Rat injury

The incidence of rat injury during the year was negligible (Figure 7).

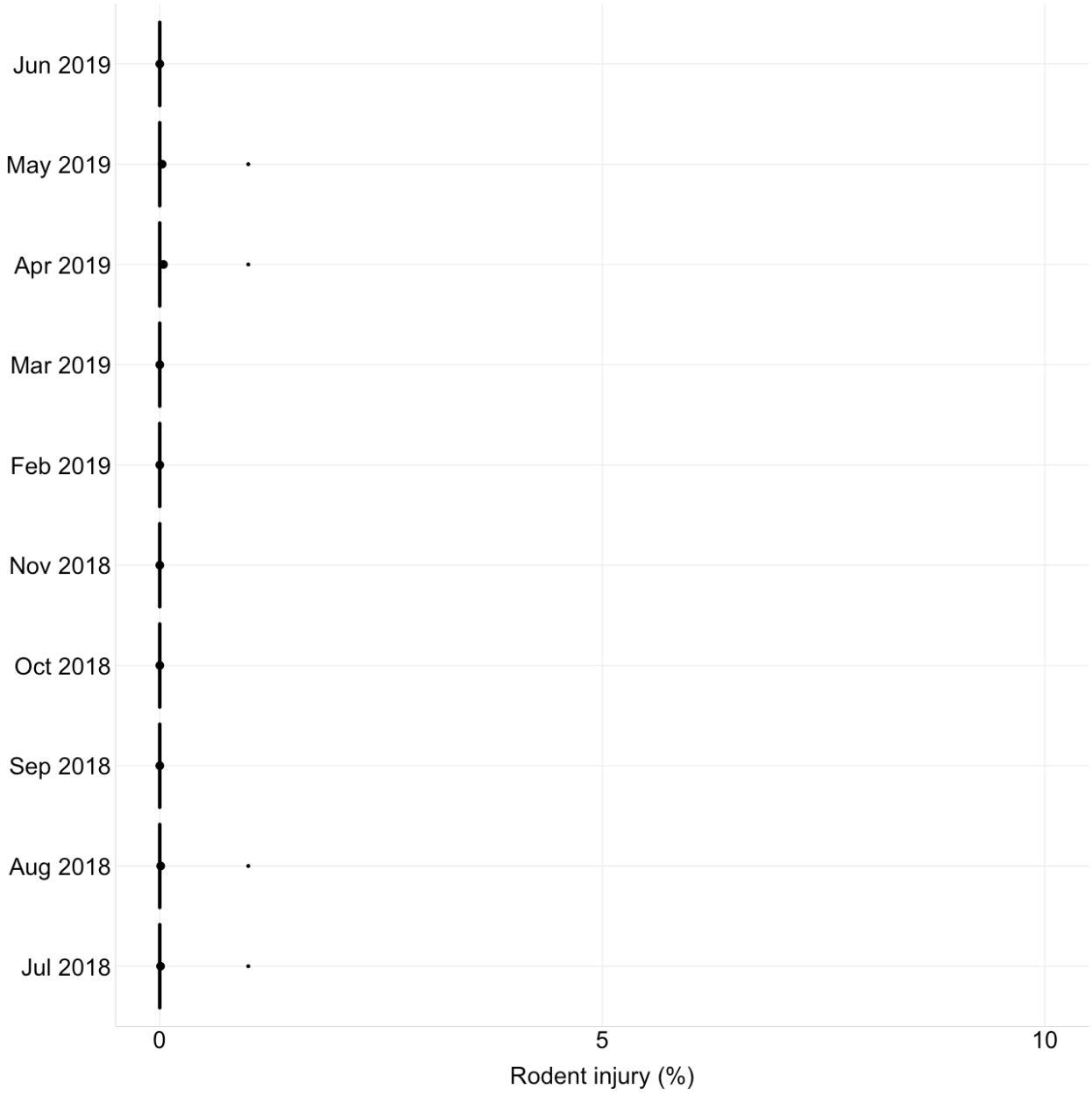

Figure 7. Incidence of rat injury in Region XII, July 2018 to June 2019.

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F. Weed cover

The percentage of weed cover during the year ranged from 3% to 7% (observed in April 2019). The highest median incidence of 3% was observed in June 2019 but the median was 0 in most of the months. The percentage weed cover in some fields was higher than 15%.

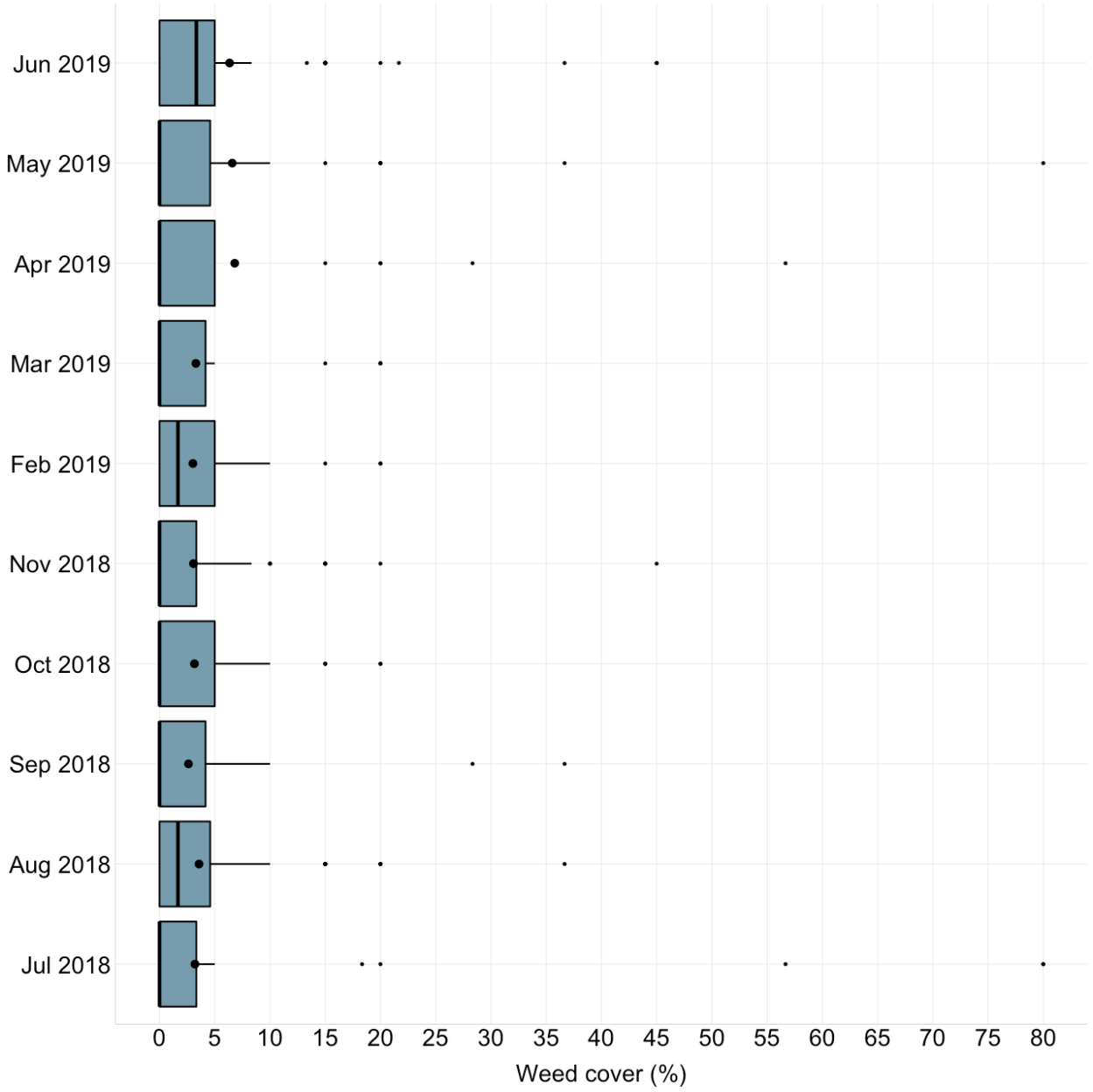

Figure 8. Percentage of weed cover in Region XII, July 2018 to June 2019.

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Management of major 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.

Weeds

1. Plow and harrow the field several times before crop establishment. If feasible, start land preparation 3−4 weeks before planting.
2. If weedy rice is a problem, apply glyphosate before land preparation or seeding. The application of pretilachlor with fenchlorim during final land preparation or levelling has also been reported to reduce weedy rice.
3. Practice stale seedbed technique. According to the IRRI Knowledge Bank (http://www.knowledgebank.irri.org/step-by-step-production/growth/weed-management/stale-seedbed-technique), this technique is done as follows:
   a. Perform tillage operations. Plow, harrow, and level the field.
   b. Stimulate weed emergence by light irrigation.
   c. Irrigate the field at least two weeks before sowing.
   d. Maintain enough soil moisture to allow weeds to germinate.
   e. Kill the emerged seedlings using non-selective herbicides (e.g., glyphosate) or light cultivation.
   f. If the soil condition is suitable for sowing, broadcast seeds without further tillage operations. Tillage could bring more weed seeds near the soil surface, thus promoting weed germination.
4. Level the field to ensure a constant water level. Avoid high spots where weeds can grow.
5. Apply pre-emergence herbicide (e.g., pretilachlor + fenclorim) 2−3 days after sowing. Follow recommended amount and timing of product and water condition in the field as indicated in the label. Do not use the same herbicide over long periods to prevent herbicide resistance.
6. If grass weeds are the main weed problem, apply early post-emergence herbicide.
7. Maintain a 2-5 cm water level in the field to minimize weed emergence. If water is sufficient, flood the fields until closure of the plant canopy.
8. Apply nitrogen fertilizer just after weeding to minimize rice-weed competition for nitrogen.
9. If feasibile, consider the use of biological control agents to suppress growth or reduce population of weeds.
10. If feasible, plow the field during fallow to kill weeds and prevent the build-up of weed seeds in the soil.

Annexes

Region XII

July 2018	n	min	max	Pest incidence (%) 0	<1	1-5	>5
A. FOLIAR DISEASES							
Bacterial leaf blight	121	0.00	10.17				
Bacterial leaf streak	121	0.00	4.75				
Brown spot	121	0.00	7.51				
Leaf blast	121	0.00	10.33				
Red stripe	121	0.00	0.35				
B. DISEASE OR PEST INJURY ON TILLERS							
Deadheart	121	0.00	53.66				
Sheath Blight	121	0.00	21.44				
C. DISEASE OR PEST INJURY ON PANICLES							
Neck Blast	24	0.00	0.56				
Whitehead	24	0.00	40.00				
D. SYSTEMIC DISEASE OR PEST INJURY							
Bugburn	121	0.00	0.00				
Hopperburn	121	0.00	0.00				
Tungro	121	0.00	0.00				
E. INSECT COUNT							
Brown Plant Hopper	121	0.00	0.40				
Green Leaf Hopper	121	0.00	0.50				
Rice Black Bug	121	0.00	0.70				
Rice Bug	121	0.00	2.00				
Rice Grain Bug	121	0.00	0.30				
F. RODENT INJURY	121	0.00	1.00				
G. WEED COVER	121	0.00	80.00				

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 XII

August 2018	n	min	max	Pest incidence (%) 0	<1	1-5	>5
A. FOLIAR DISEASES							
Bacterial leaf blight	98	0.00	15.92				
Bacterial leaf streak	98	0.00	9.12				
Brown spot	98	0.00	7.50				
Leaf blast	98	0.00	9.01				
Red stripe	98	0.00	0.76				
B. DISEASE OR PEST INJURY ON TILLERS							
Deadheart	98	0.00	16.06				
Sheath Blight	98	0.00	5.28				
C. DISEASE OR PEST INJURY ON PANICLES							
Neck Blast	28	0.00	0.67				
Whitehead	28	0.00	12.65				
D. SYSTEMIC DISEASE OR PEST INJURY							
Bugburn	98	0.00	9.33				
Hopperburn	98	0.00	0.00				
Tungro	98	0.00	2.67				
E. INSECT COUNT							
Brown Plant Hopper	98	0.00	3.40				
Green Leaf Hopper	98	0.00	2.70				
Rice Black Bug	98	0.00	1.70				
Rice Bug	98	0.00	7.33				
Rice Grain Bug	98	0.00	0.30				
F. RODENT INJURY	98	0.00	1.00				
G. WEED COVER	98	0.00	36.67				

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 XII

September 2018	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	63	0.00	6.75	
Bacterial leaf streak	63	0.00	2.50	
Brown spot	63	0.00	10.34	
Leaf blast	63	0.00	2.70	
Red stripe	63	0.00	0.00	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	63	0.00	5.00	
Sheath Blight	63	0.00	4.31	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	47	0.00	0.00	
Whitehead	47	0.00	15.06	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	63	0.00	0.00	
Hopperburn	63	0.00	0.00	
Tungro	63	0.00	0.00	
E. INSECT COUNT				
Brown Plant Hopper	63	0.00	0.30	
Green Leaf Hopper	63	0.00	0.50	
Rice Black Bug	63	0.00	1.70	
Rice Bug	63	0.00	3.00	
Rice Grain Bug	63	0.00	0.20	
F. RODENT INJURY	63	0.00	0.00	
G. WEED COVER	63	0.00	36.67	

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 XII

October 2018	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	47	0.00	5.69	
Bacterial leaf streak	47	0.00	5.31	
Brown spot	47	0.00	8.89	
Leaf blast	47	0.00	4.23	
Red stripe	47	0.00	0.00	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	47	0.00	4.00	
Sheath Blight	47	0.00	3.78	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	16	0.00	0.00	
Whitehead	16	0.00	7.41	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	47	0.00	0.00	
Hopperburn	47	0.00	0.00	
Tungro	47	0.00	0.00	
E. INSECT COUNT				
Brown Plant Hopper	47	0.00	0.00	
Green Leaf Hopper	47	0.00	0.50	
Rice Black Bug	47	0.00	0.00	
Rice Bug	47	0.00	5.67	
Rice Grain Bug	47	0.00	0.20	
F. RODENT INJURY	47	0.00	0.00	
G. WEED COVER	47	0.00	20.00	

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 XII

November 2018	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	88	0.00	1.91	
Bacterial leaf streak	88	0.00	1.02	
Brown spot	88	0.00	9.42	
Leaf blast	88	0.00	2.65	
Red stripe	88	0.00	0.12	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	88	0.00	10.00	
Sheath Blight	88	0.00	7.90	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	8	0.00	0.00	
Whitehead	8	0.00	1.74	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	88	0.00	0.00	
Hopperburn	88	0.00	0.00	
Tungro	88	0.00	0.00	
E. INSECT COUNT				
Brown Plant Hopper	88	0.00	0.00	
Green Leaf Hopper	88	0.00	0.40	
Rice Black Bug	88	0.00	0.30	
Rice Bug	88	0.00	2.33	
Rice Grain Bug	88	0.00	0.10	
F. RODENT INJURY	88	0.00	0.00	
G. WEED COVER	88	0.00	45.00	

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.

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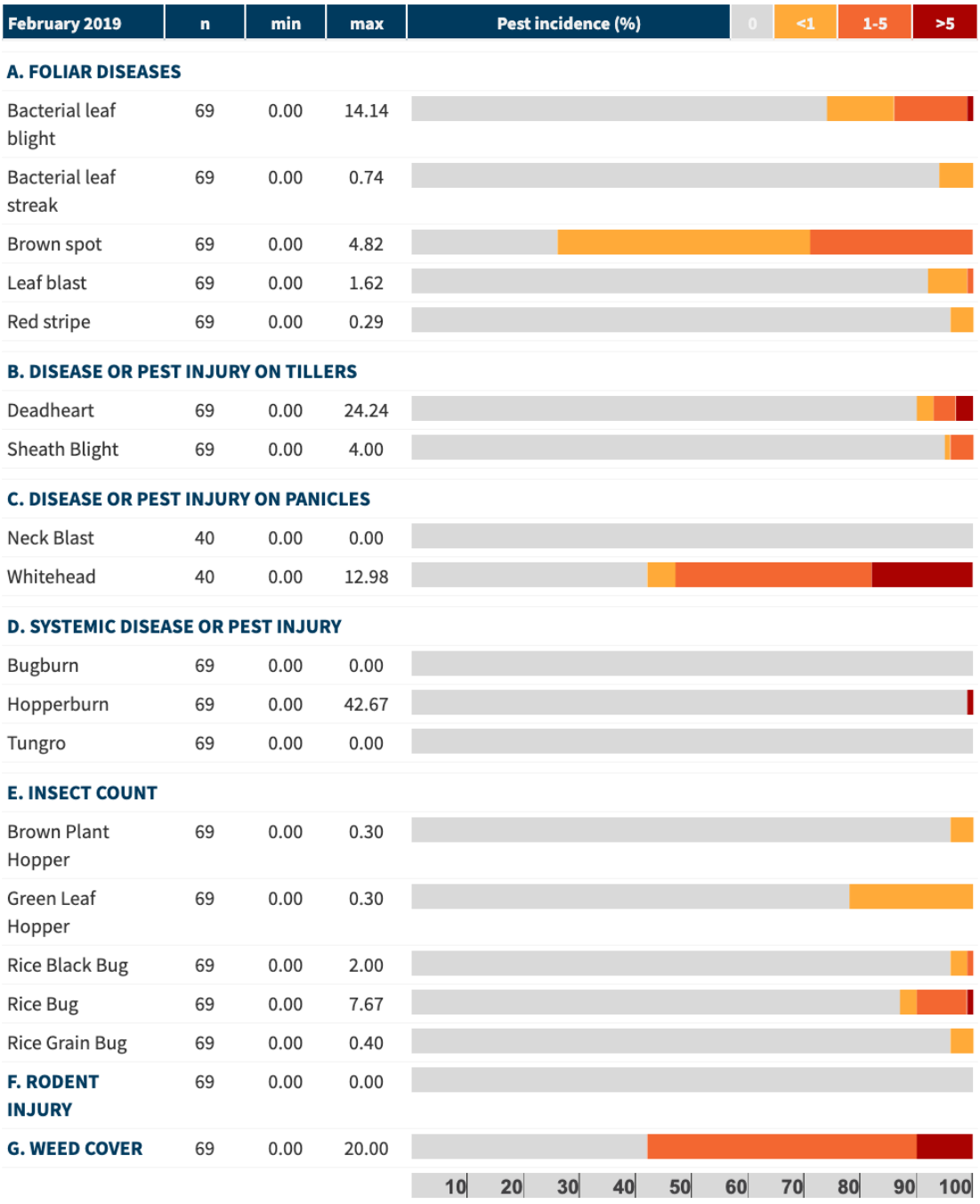
Region XII

February 2019	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	69	0.00	14.14	
Bacterial leaf streak	69	0.00	0.74	
Brown spot	69	0.00	4.82	
Leaf blast	69	0.00	1.62	
Red stripe	69	0.00	0.29	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	69	0.00	24.24	
Sheath Blight	69	0.00	4.00	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	40	0.00	0.00	
Whitehead	40	0.00	12.98	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	69	0.00	0.00	
Hopperburn	69	0.00	42.67	
Tungro	69	0.00	0.00	
E. INSECT COUNT				
Brown Plant Hopper	69	0.00	0.30	
Green Leaf Hopper	69	0.00	0.30	
Rice Black Bug	69	0.00	2.00	
Rice Bug	69	0.00	7.67	
Rice Grain Bug	69	0.00	0.40	
F. RODENT INJURY	69	0.00	0.00	
G. WEED COVER	69	0.00	20.00	
				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 February 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 XII

March 2019	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	36	0.00	7.76	
Bacterial leaf streak	36	0.00	13.57	
Brown spot	36	0.00	8.50	
Leaf blast	36	0.00	1.08	
Red stripe	36	0.00	2.31	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	36	0.00	5.73	
Sheath Blight	36	0.00	0.67	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	24	0.00	0.00	
Whitehead	24	0.00	8.65	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	36	0.00	0.00	
Hopperburn	36	0.00	0.00	
Tungro	36	0.00	0.00	
E. INSECT COUNT				
Brown Plant Hopper	36	0.00	0.00	
Green Leaf Hopper	36	0.00	0.50	
Rice Black Bug	36	0.00	1.10	
Rice Bug	36	0.00	7.00	
Rice Grain Bug	36	0.00	3.60	
F. RODENT INJURY	36	0.00	0.00	
G. WEED COVER	36	0.00	20.00	

Annex Figure 7. 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.

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Region XII

April 2019	n	min	max	Pest incidence (%) 0	<1	1-5	>5
A. FOLIAR DISEASES							
Bacterial leaf blight	24	0.00	0.21				
Bacterial leaf streak	24	0.00	0.00				
Brown spot	24	0.00	4.14				
Leaf blast	24	0.00	0.00				
Red stripe	24	0.00	0.12				
B. DISEASE OR PEST INJURY ON TILLERS							
Deadheart	24	0.00	4.50				
Sheath Blight	24	0.00	0.00				
C. DISEASE OR PEST INJURY ON PANICLES							
Neck Blast	11	0.00	0.00				
Whitehead	11	0.00	21.89				
D. SYSTEMIC DISEASE OR PEST INJURY							
Bugburn	24	0.00	0.00				
Hopperburn	24	0.00	0.00				
Tungro	24	0.00	0.00				
E. INSECT COUNT							
Brown Plant Hopper	24	0.00	0.00				
Green Leaf Hopper	24	0.00	1.80				
Rice Black Bug	24	0.00	9.90				
Rice Bug	24	0.00	4.00				
Rice Grain Bug	24	0.00	0.00				
F. RODENT INJURY	24	0.00	1.00				
G. WEED COVER	24	0.00	56.67				

Annex Figure 8. 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.

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Region XII

May 2019	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	38	0.00	3.33	
Bacterial leaf streak	38	0.00	0.00	
Brown spot	38	0.00	21.01	
Leaf blast	38	0.00	0.64	
Red stripe	38	0.00	0.00	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	38	0.00	16.32	
Sheath Blight	38	0.00	0.87	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	7	0.00	0.67	
Whitehead	7	0.00	4.22	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	38	0.00	0.00	
Hopperburn	38	0.00	0.00	
Tungro	38	0.00	0.00	
E. INSECT COUNT				
Brown Plant Hopper	38	0.00	0.00	
Green Leaf Hopper	38	0.00	0.20	
Rice Black Bug	38	0.00	1.60	
Rice Bug	38	0.00	3.67	
Rice Grain Bug	38	0.00	0.90	
F. RODENT INJURY	38	0.00	1.00	
G. WEED COVER	38	0.00	80.00	

Annex Figure 9. 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.

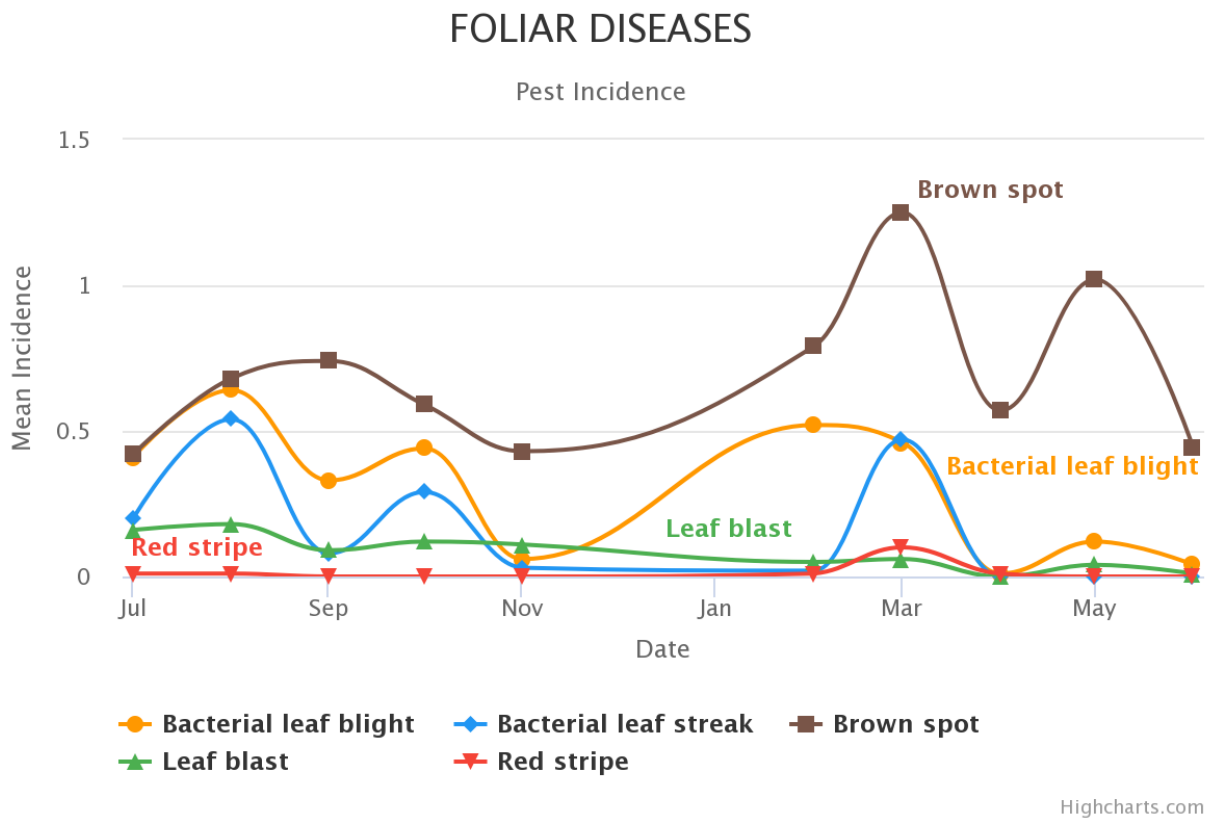
Disclaimer: All the data presented in this report are based on the monthly monitoring of farmers' fields by regional data collectors of PRIME.

Region XII

June 2019	n	min	max	Pest incidence (%) 0	<1	1-5	>5
A. FOLIAR DISEASES							
Bacterial leaf blight	61	0.00	0.63				
Bacterial leaf streak	61	0.00	0.17				
Brown spot	61	0.00	3.97				
Leaf blast	61	0.00	0.50				
Red stripe	61	0.00	0.00				
B. DISEASE OR PEST INJURY ON TILLERS							
Deadheart	61	0.00	8.09				
Sheath Blight	61	0.00	0.00				
C. DISEASE OR PEST INJURY ON PANICLES							
Neck Blast	11	0.00	0.00				
Whitehead	11	0.00	2.89				
D. SYSTEMIC DISEASE OR PEST INJURY							
Bugburn	61	0.00	0.00				
Hopperburn	61	0.00	0.00				
Tungro	61	0.00	0.00				
E. INSECT COUNT							
Brown Plant Hopper	61	0.00	0.10				
Green Leaf Hopper	61	0.00	0.30				
Rice Black Bug	61	0.00	12.70				
Rice Bug	61	0.00	4.67				
Rice Grain Bug	61	0.00	0.00				
F. RODENT INJURY	61	0.00	0.00				
G. WEED COVER	61	0.00	45.00				

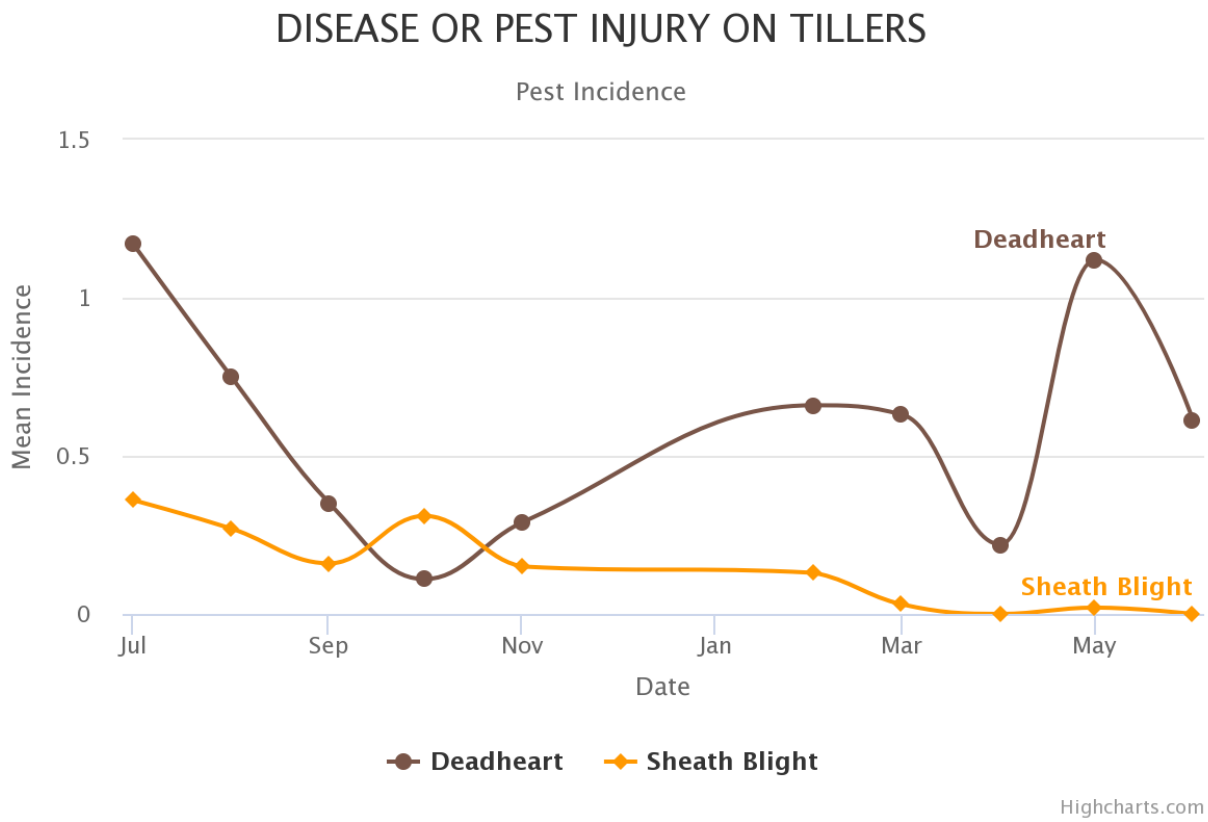
Annex Figure 10. Incidence of pest injuries, count of insect pests, and weed cover in June 2019. Horizontal bar shows the proportion of fields in each range of pest injury incidence, insect count or weed cover.

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



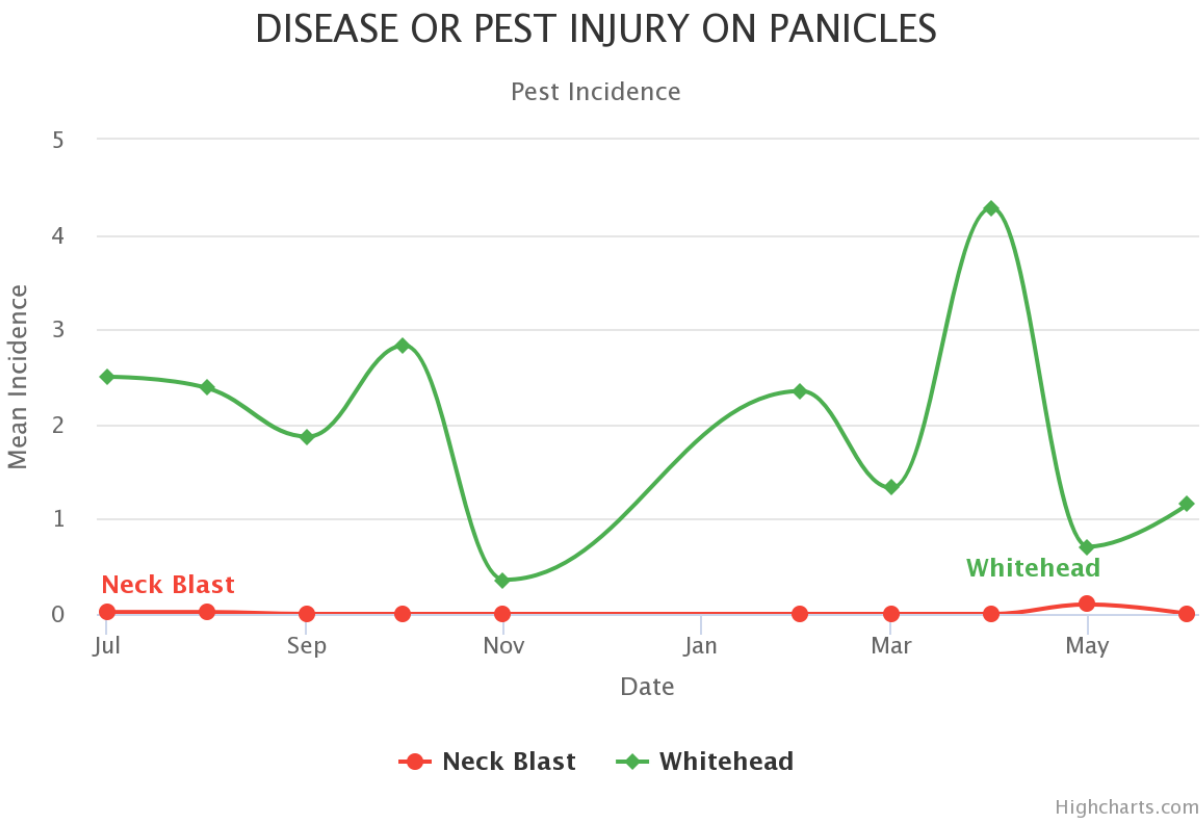
Annex Figure 11. Mean incidence of foliar diseases in Region XII, July 2018 to June 2019.

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



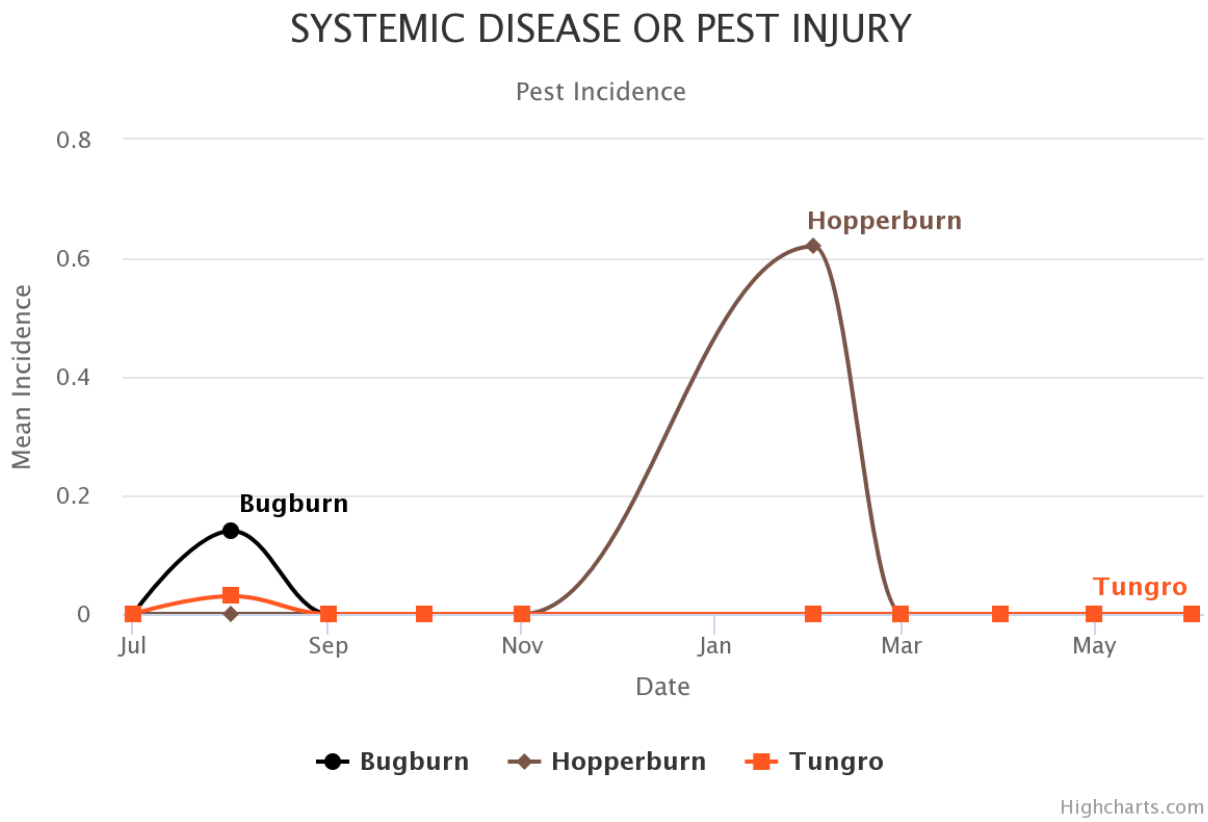
Annex Figure 12. Mean Incidence of deadheart and sheath blight in Region XII, July 2018 to June 2019.

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



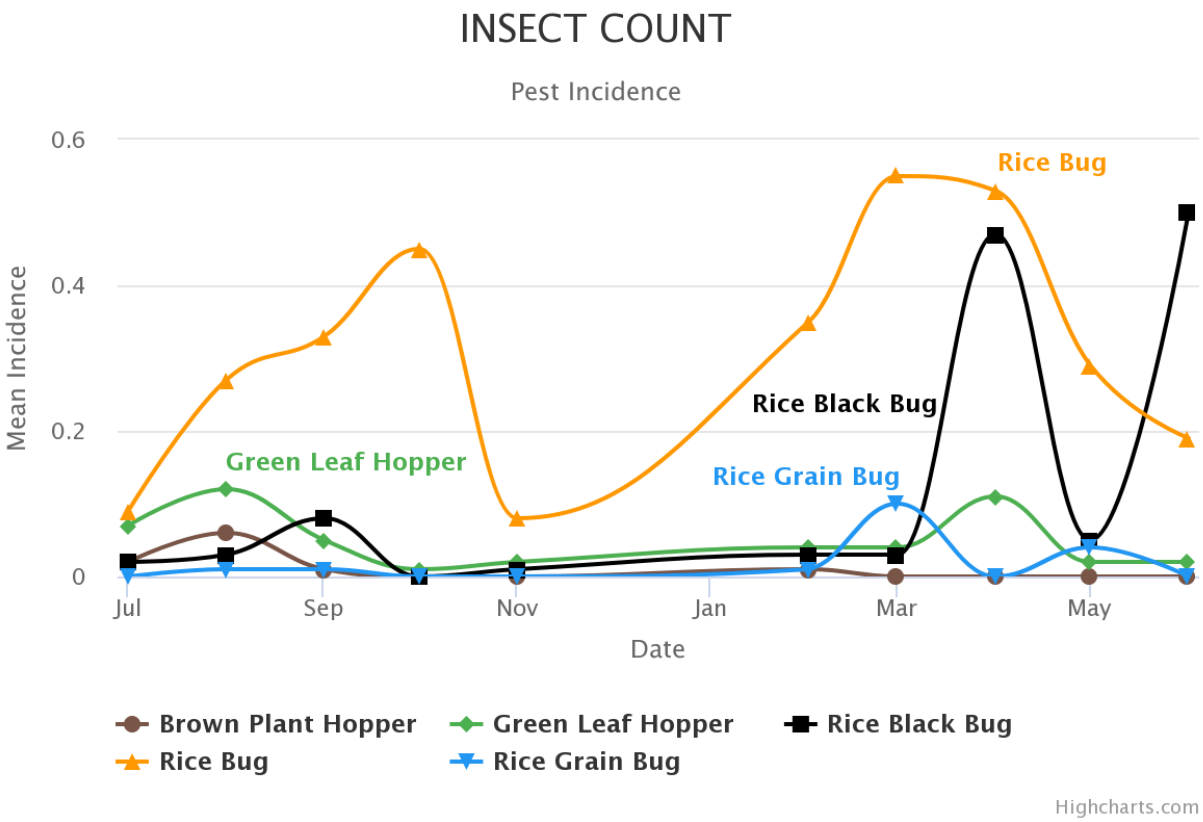
Annex Figure 13. Mean incidence of neck blast and whitehead in Region XII, July 2018 to June 2019.

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



Annex Figure 14. Mean incidence of bugburn, hopperburn and tungro in Region XII, July 2018 to June 2019.

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



Annex Figure 15. Mean count of insect pests in Region XII, July 2018 to June 2019.

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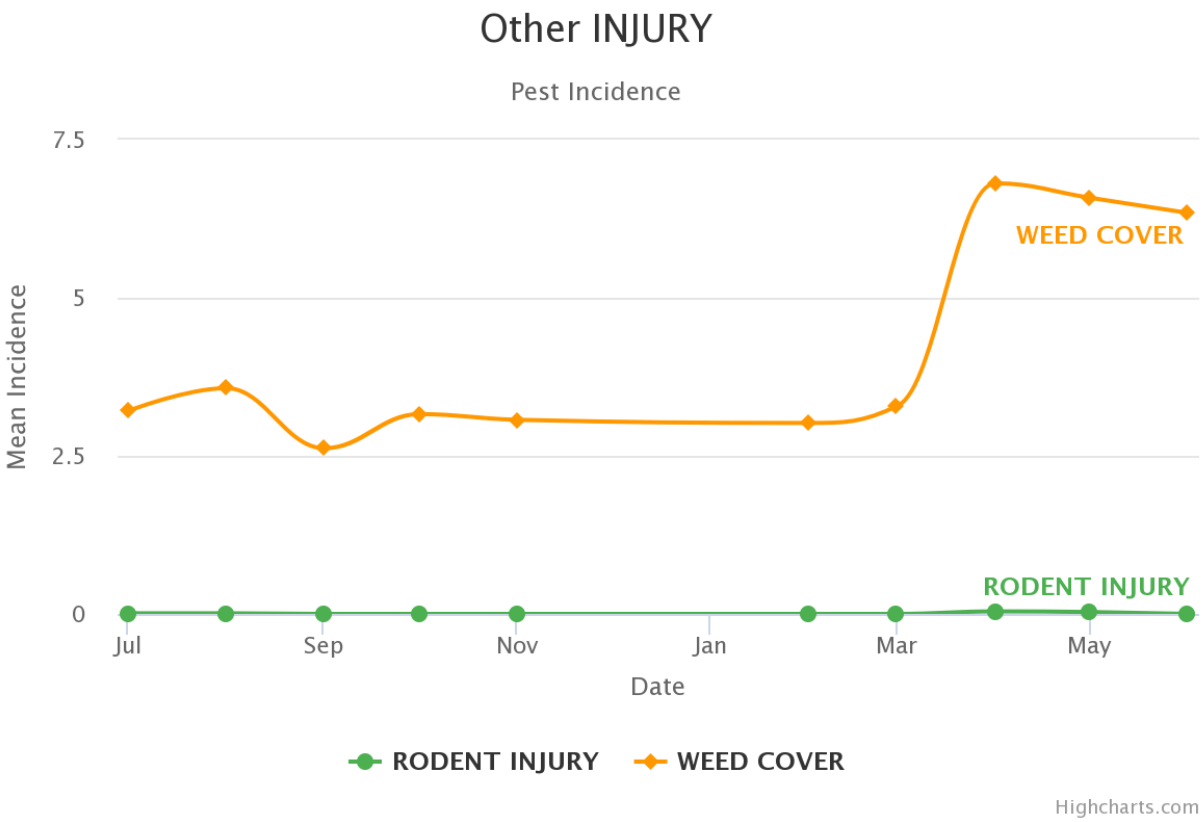

Annex Figure 16. Mean incidence of rat injury and weed infestation in Region XII, July 2018 to June 2019.

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