PRIME

PRE-SEMESTER BULLETIN

July 2018 to June 2019

CAR – Cordillera Administrative Region

AT A GLANCE

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

CAR

	2018				2019				
	AUG	SEP	OCT	NOV	FEB	MAR	APR	MAY	JUN
A. FOLIAR DISEASES									
Bacterial leaf blight	0.1	2.6	5.2	7.1	0.3	2.7	0.3	3.3	0
Bacterial leaf streak	0.0	5.5	8.7	7.3	0.0	1.1	0.0	7.3	0
Brown spot	1.6	0.6	1.7	1.7	0.2	3.6	2.1	2.1	0
Leaf blast	0.8	1.3	1.1	0.0	0.0	1.1	0.4	3.6	0
Red stripe	0.5	0.8	3.5	12.0	0.1	8.2	0.0	9.1	0
B. DISEASE OR PEST INJURY ON TILLERS									
Deadheart	0.2	0.1	0	0.0	0.2	0	0.2	0	0
Sheath Blight	0.3	0.4	0.7	14.5	0.1	0.6	0.4	4.1	0
C. DISEASE OR PEST INJURY ON PANICLES									
Neck Blast	7.9	0	2.3	2.8	0.4	0	0.8	0.2	0
Whitehead	0.5	0	1.3	0.5	0.7	5.0	0.6	2.9	0
D. SYSTEMIC DISEASE OR PEST INJURY									
Bugburn	0	0	0.1	0	0	0	0	0	0
Hopperburn	0	0	2.8	0	0	0	0.9	0	0
Tungro	0	0.7	0	0	0	0	0	0	0
E. INSECT COUNT									
Brown Plant Hopper	0.3	1.2	1.5	0.4	0	0.8	1.1	0.3	0
Green Leaf Hopper	0.1	0.4	1.5	0.2	0	0.1	0.1	0	0
Rice Black Bug	0	0.0	0.0	0	0	0	0	0	0
Rice Bug	0.3	0.5	1.5	1.6	0.1	0	0.1	3.9	0
Rice Grain Bug	0.0	0.0	0.0	0.0	0	0	0.0	0	0
F. RODENT INJURY	0.2	0.0	0.0	0	0.1	0	0.1	0	0
G. WEED COVER	1.4	1.5	5.3	10.6	1.0	4.6	3.5	7.2	0

LEGEND 1-5 % 5 %

Disclaimer: All information provided in this monitoring report are generated from the PRIME monthly pest survey results submitted by the regional data collectors.

Monitored fields and data collectors

Municipalities surveyed:	Kalinga: Pinukpuk, Rizal, Tabuk City
Monitoring date:	July 2018 – June 2019
Number of monitored fields:	74
Data collectors:	Daisy Jane Valdez, Delbert Wayet, Jay Sagario, Joshua Andres, Ronan Soriano

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

Growth stages

Most of the monitored fields in the second semester of 2018 were at the vegetative stage in August to September and most of the fields were harvested in October (Figure 1). Majority of the fields were fallow in November. In the first semester of 2019, the peaks of crop establishment and harvest were in February and March to April, respectively. A large proportion of the fields were fallow in May to June 2019.

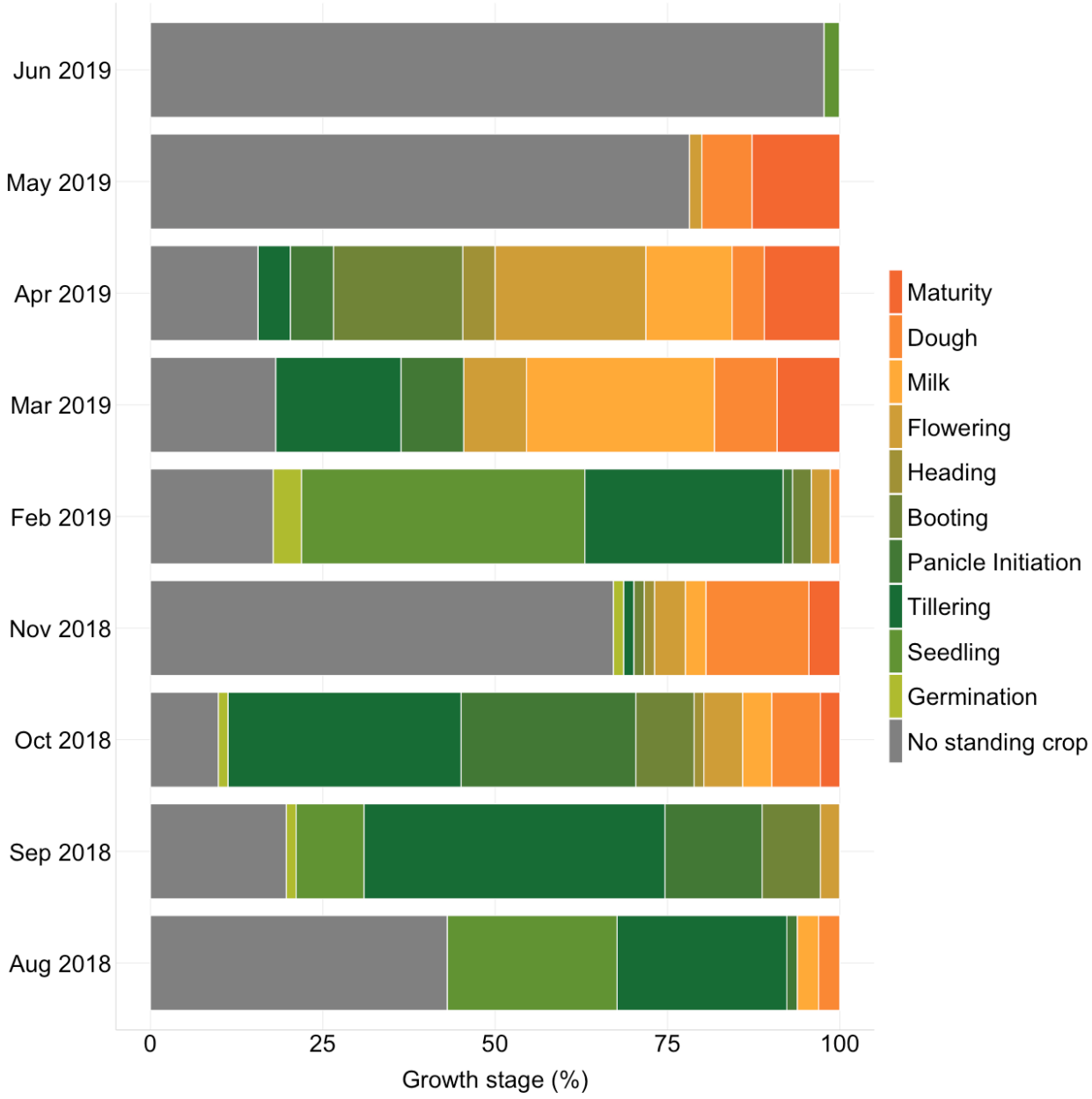

Figure 1. Percentage of crop growth stage of fields by month

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

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.

A. Foliar diseases

As shown in Figure 2, the two highest mean incidences of bacterial blight were 5% (October 2018) and 7% (November 2018). The median incidence was 4% in November 2018 and negligible in the other months. The highest incidences of bacterial leaf streak were 5% (September 2018), 9% (October 2018), and 7% (November 2018 and May 2019). The highest median incidence, which was observed in October 2018, was 7%. The incidence of bacterial leaf streak was higher in the second semester of 2018 than in the first semester of 2019. The mean incidence of red stripe was higher than 5% in three months during the year. The mean and median incidences of red stripe were 12% in November 2018, 8% in March 2019, and 9% and 8%, respectively, in May 2019.

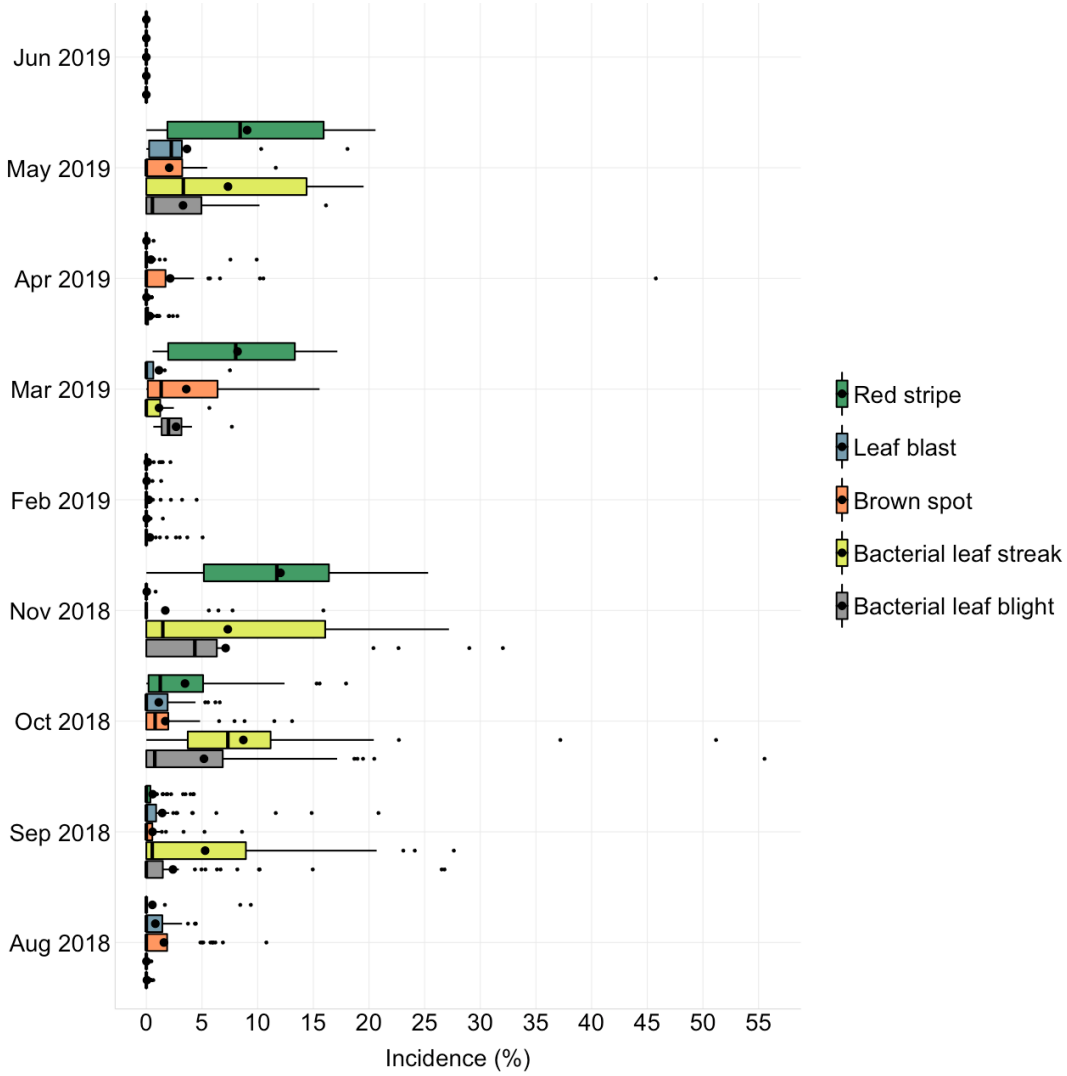

Figure 2. Incidence of foliar diseases in CAR, July 2018 to June 2019.

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

B. Insect pests and diseases on tillers

The incidence of deadheart was negligible (Figure 3). The highest mean incidence of sheath blight were 14% (November 2018) and 4% (May 2019). The median incidence was negligible.

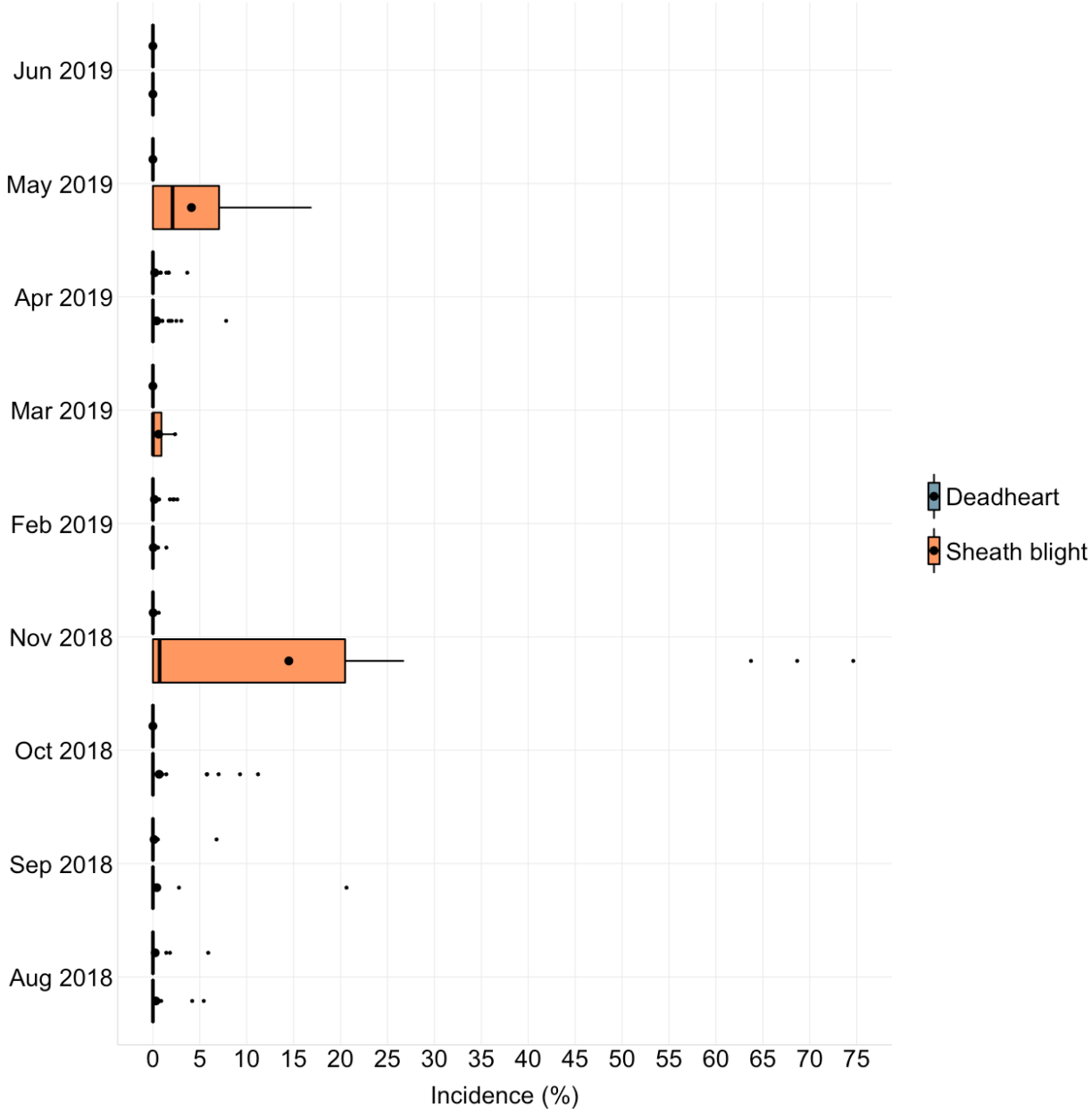

Figure 3. Incidence of deadheart and sheath blight in CAR, July 2018 to June 2019.

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C. Insect pests and diseases on panicles

The highest mean and median incidences of neck blast were 8% and 1%, respectively, in August 2018 (Figure 4). Only four fields were monitored in this month. Most of the fields were at vegetative stage and neck blast occurred in fields that were established late. The incidence of neck blast in other months was negligible. The highest mean and median whitehead incidences, which were 5% and 3%, respectively, were recorded in March 2019. The median was 0 in most of the other months.

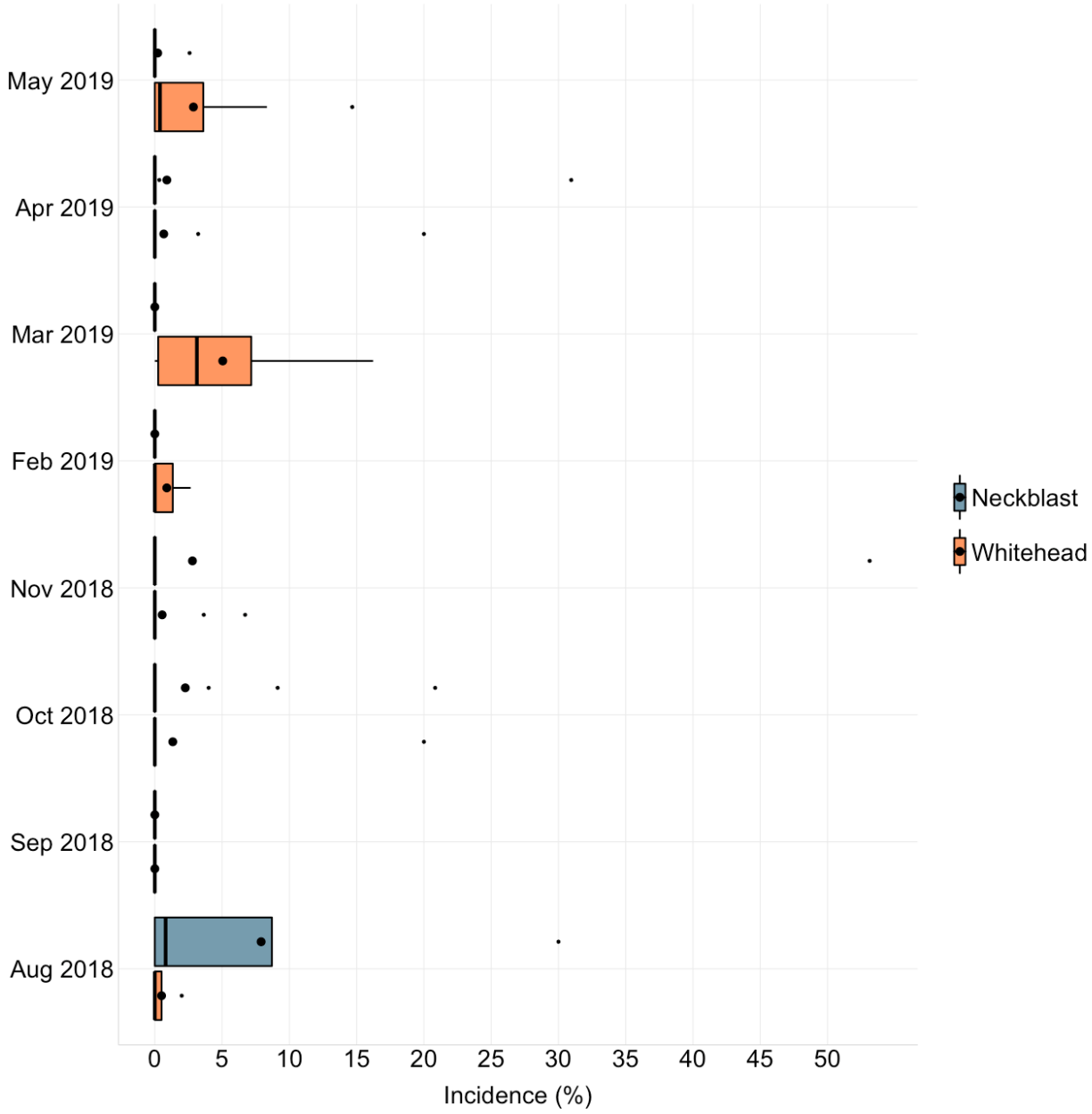

Figure 4. Incidence of neck blast and whitehead in CAR, July 2018 to June 2019.

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D. Systemic insect pest injuries and diseases

The incidence of systemic pest injuries was negligible (Figure 5)

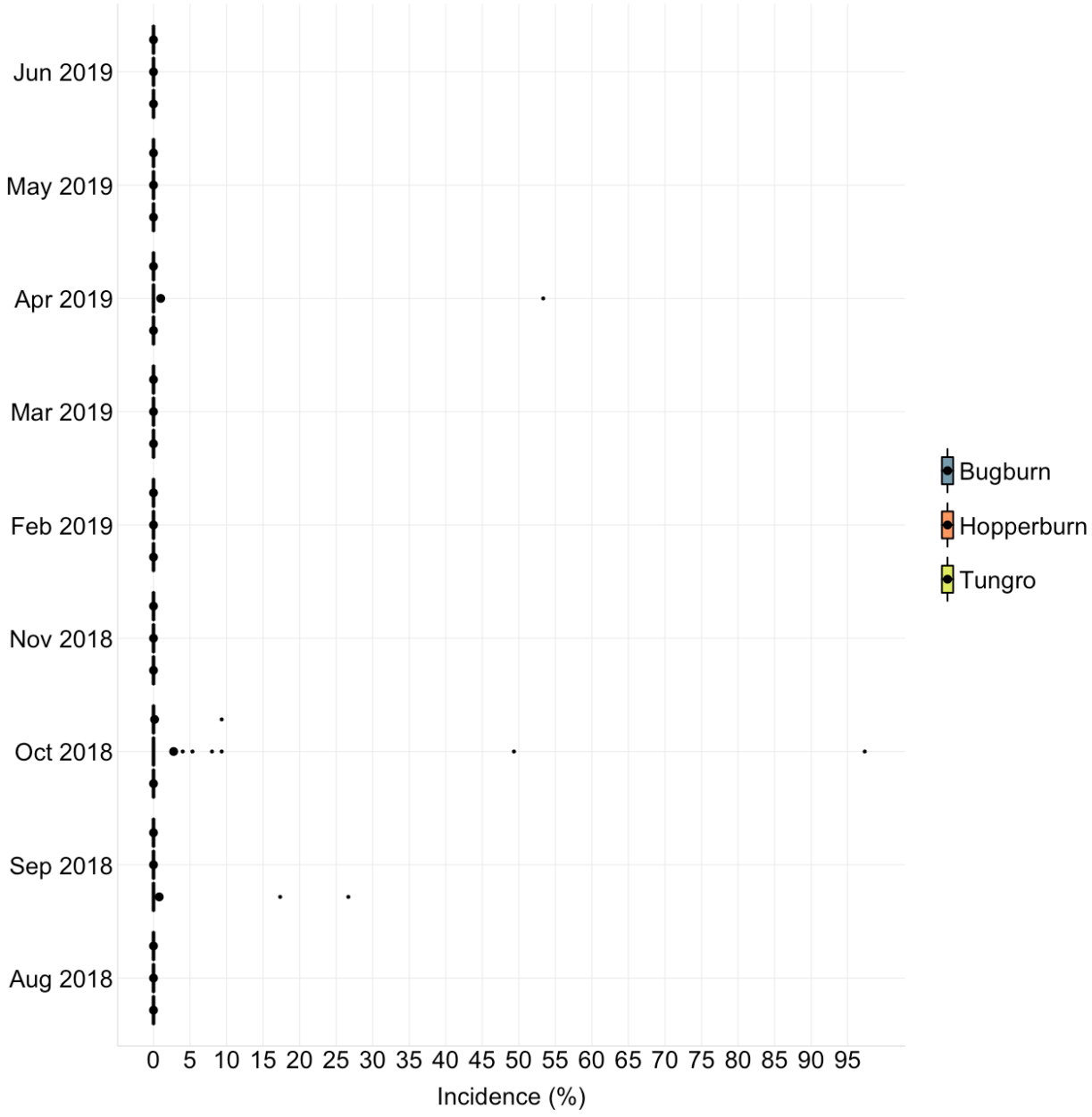

Figure 5. Incidence of bugburn, hopperburn and tungro in CAR, July 2018 to June 2019.

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E. Insect pests

The highest number of rice bug were 4 per square meter, which was recorded in May 2019, and 2 per square meter, which was recorded in November 2018 (Figure 6). The count of the other insect pests was negligible.

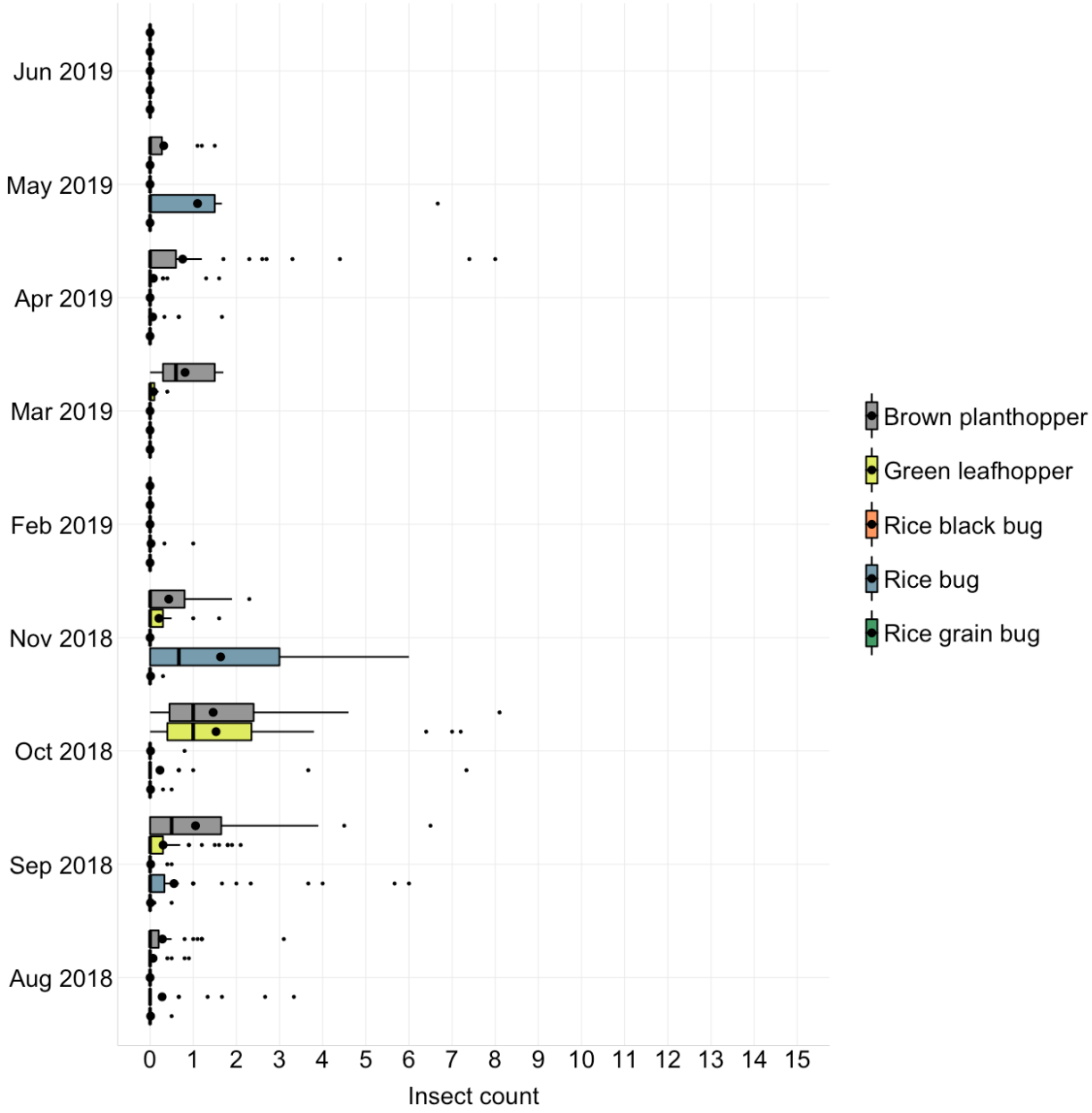

Figure 6. Count of insect pests in CAR, July 2018 to June 2019.

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F. Rat injury

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

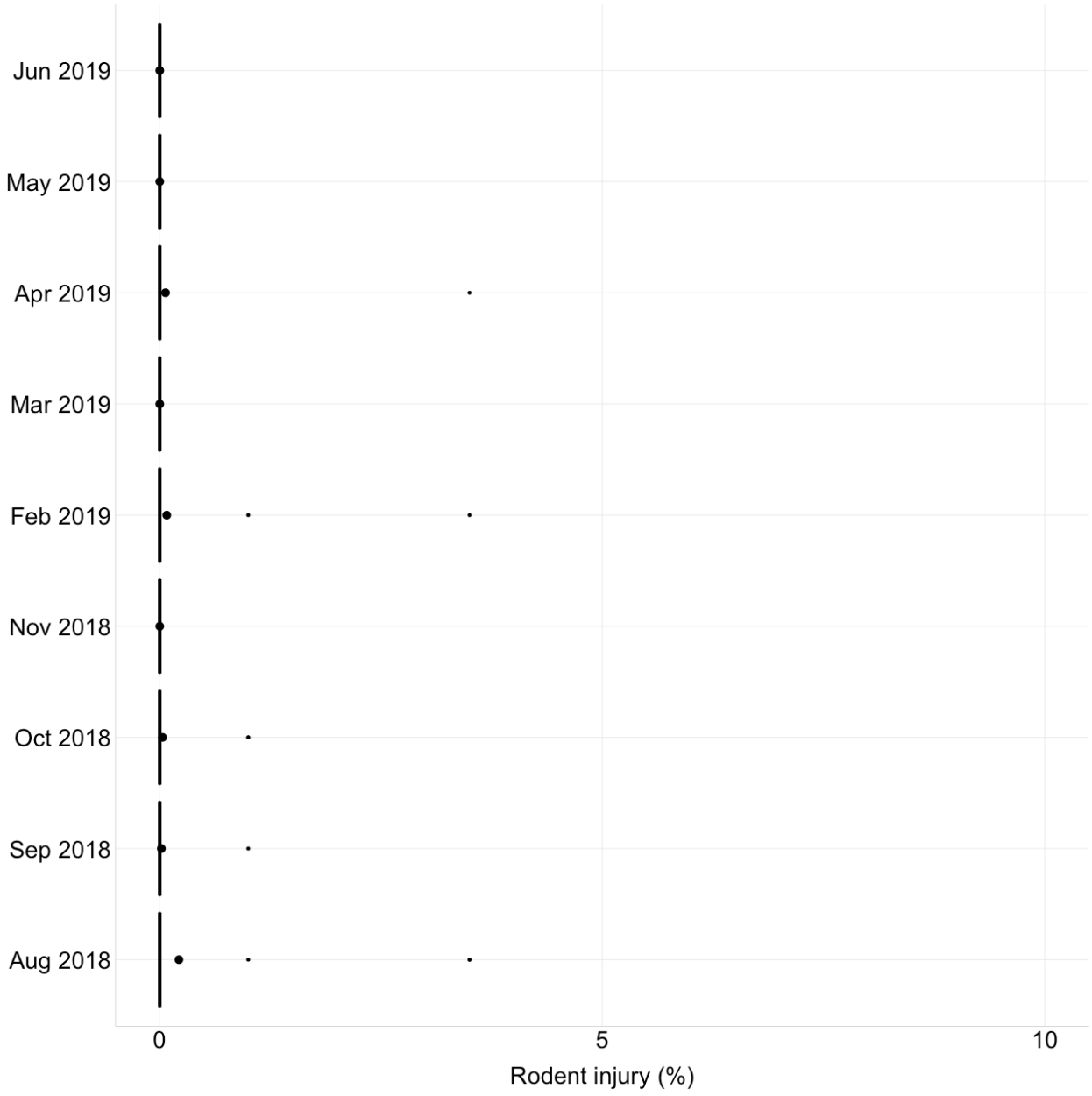

Figure 7. Incidence of rat injury in CAR, July 2018 to June 2019.

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G. Weed cover

The percentage of weed cover was at least 5% in October 2018 (5%), November 2018 (11%, March 2019 (5%) and May 2019 (7%).The highest median incidence was 7% which was observed in November 2018.

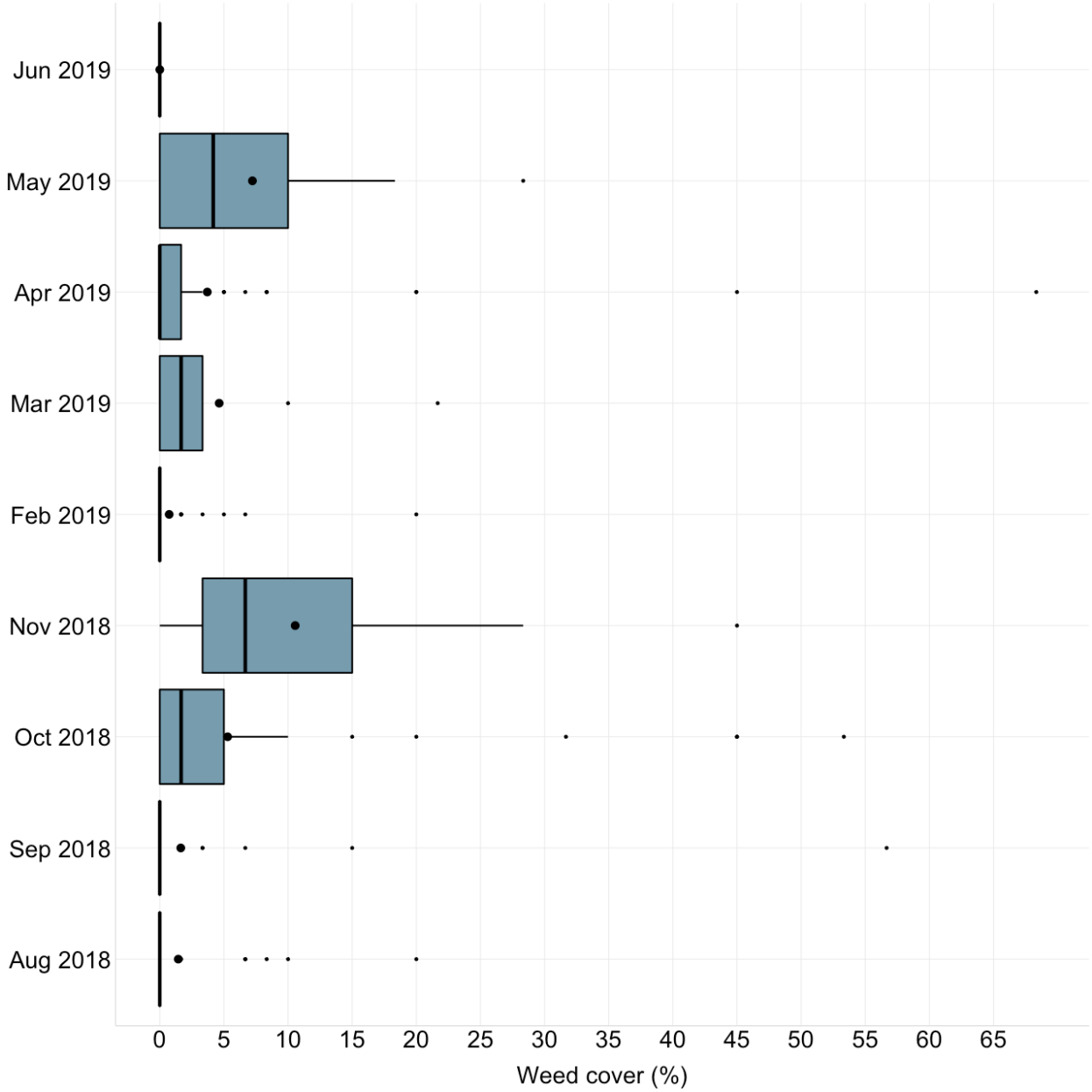

Figure 8. Percentage of weed cover in CAR, July 2018 to June 2019.

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Management of major pests

Bacterial leaf blight and bacterial leaf streak

1. The most practical and economical approach to manage both bacterial diseases 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., 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.
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 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. Keep the field dry during the fallow period to control the pathogens in infected stubbles.

Red stripe

There are very limited studies on the management of red stripe. Based on available information on its etiology and field observations, red stripe can be managed following recommendations for most foliar diseases of rice.

1. Just like most foliar diseases of rice, the most practical and economical approach to manage red stripe is to grow a resistant variety. However, there are no studies yet on host plant resistance to this disease.
2. Use optimum seeding rate (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.
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. 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. Keep the field dry during the fallow period to control the pathogens in infected stubbles.
8. Studies conducted at IRRI under greenhouse conditions have shown that red stripe can be controlled by fungicides but field trials are necessary before recommendations on chemical control can be made.

Sheath blight

1. There is currently no variety with reliable resistance to sheath blight. Varieties are either moderately or highly susceptible.
2. 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.
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. Apply *Trichoderma* spp. to control sheath blight. The application of *Trichoderma* may also increase plant vigor. Purchase a product that has been formulated and maintained according to strict quality control measures. Follow the directions on how to use and store the product as recommended by the manufacturer to maintain its viability.
8. Keep the field, including levees, free from weeds because the pathogen can infect most of the weed species in rice fields.
9. Use fungicides as last resort in controlling the disease. If necessary, apply fungicides, such as azoxystrobin (alone or in combination propiconazole), ready mixture of trifloxystrobin and propiconazole, and ready mixture of pyraclostrobin and flutolanil, at 7 days after panicle differentiation to heading. Fungicide application after heading may not be necessary because infection after grain filling, which begins within one to five days after heading and is completed within three weeks, does not usually affect yield.
10. 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.
11. 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.

12. Keep the field dry during fallow period. Drying may reduce the survival of the pathogen but may not completely control the disease because the pathogen can survive on dead plant tissues.

Leaf blast and neck blast

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. Practice planting synchrony with defined fallow period in your area. If this is not possible, a farmer who intends to grow a susceptible variety should not plant rice later than most farmers' fields.
3. 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.
4. 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.
5. 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.
6. Apply potassium and other required nutrients in addition to nitrogen. Potassium reduces the amount of most rice diseases.
7. Apply calcium silicate fertilizer or silicon fertilizer when feasible.
8. For transplanted rice, grow seedlings in well irrigated seedbeds. After crop establishment, irrigate the field continuously until one week before harvest. Do not drain the field for long periods because drought stress favors blast.
9. Use fungicides as last resort in controlling the disease. Apply fungicide, such as tricyclazole and ready mixture of tebuconazole and trifloxystrobin, at late booting and 50% heading stages if (a) the variety is susceptible, (b) leaf blast increased before booting stage, and (c) if the weather is rainy and cool. Apply the insecticide according to the instructions in the product label including the pre-harvest interval (wait time between a pesticide application and when a crop can be harvested). Avoid repetitive use of a single active ingredient and mix or alternate an active ingredient with an appropriate partner. Pathogens become resistant to chemical pesticides if these are not used properly. Integrate the use of chemical pesticides with cultural practices or non-chemical methods. Wherever feasible, several strategies should be used together.
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.

Deadheart and whitehead caused by stemborer

1. Monitor the peak of yellow stem borer population in the area. This can be done using light traps. Do not transplant or sow seeds when insect population is high.

2. Consider the use of pheromones to control stemborers.
3. The most practical and economical approach to manage whitehead 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.
4. Practice planting synchrony with defined fallow period in your area. Asynchronous planting results in overlapping generations of stemborer throughout the year. If this is not possible, a farmer who intends to grow a susceptible variety should not establish his crop later than most farmers' fields.
5. Raise level of irrigation water periodically to submerge the eggs on the lower parts of the plant.
6. Remove egg masses manually in the nursery and field.
7. 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. Nitrogen makes the plant tissues softer and facilitates penetration of stemborer larvae.
8. Remove alternate hosts during the cropping season and fallow period.
9. If high infestation occurred, cut stubbles close to the ground and dry or remove stubbles from the field. A less laborious option is to plow the field during fallow to bury stubbles.
10. Do not apply insecticides during the early vegetative stage. Systemic insecticides may be applied after the vegetative stage. Systemic insecticides were found to be more effective than contact insecticides because the larvae and pupae stay inside the stem. Insecticides should be used with extreme caution. Monitor the population of stemborers and intensity of deadheart or whitehead prior to the application of insecticides because its efficacy is low when generations of stemborer overlap and when damage is already severe. Apply the insecticide according to the instructions in the product label including the pre-harvest interval (wait time between a pesticide application and when a crop can be harvested). Insecticides should be used as the last resort and should be integrated with other methods to conserve natural enemies. Avoid repetitive use of a single active ingredient and mix or alternate an active ingredient with an appropriate partner.

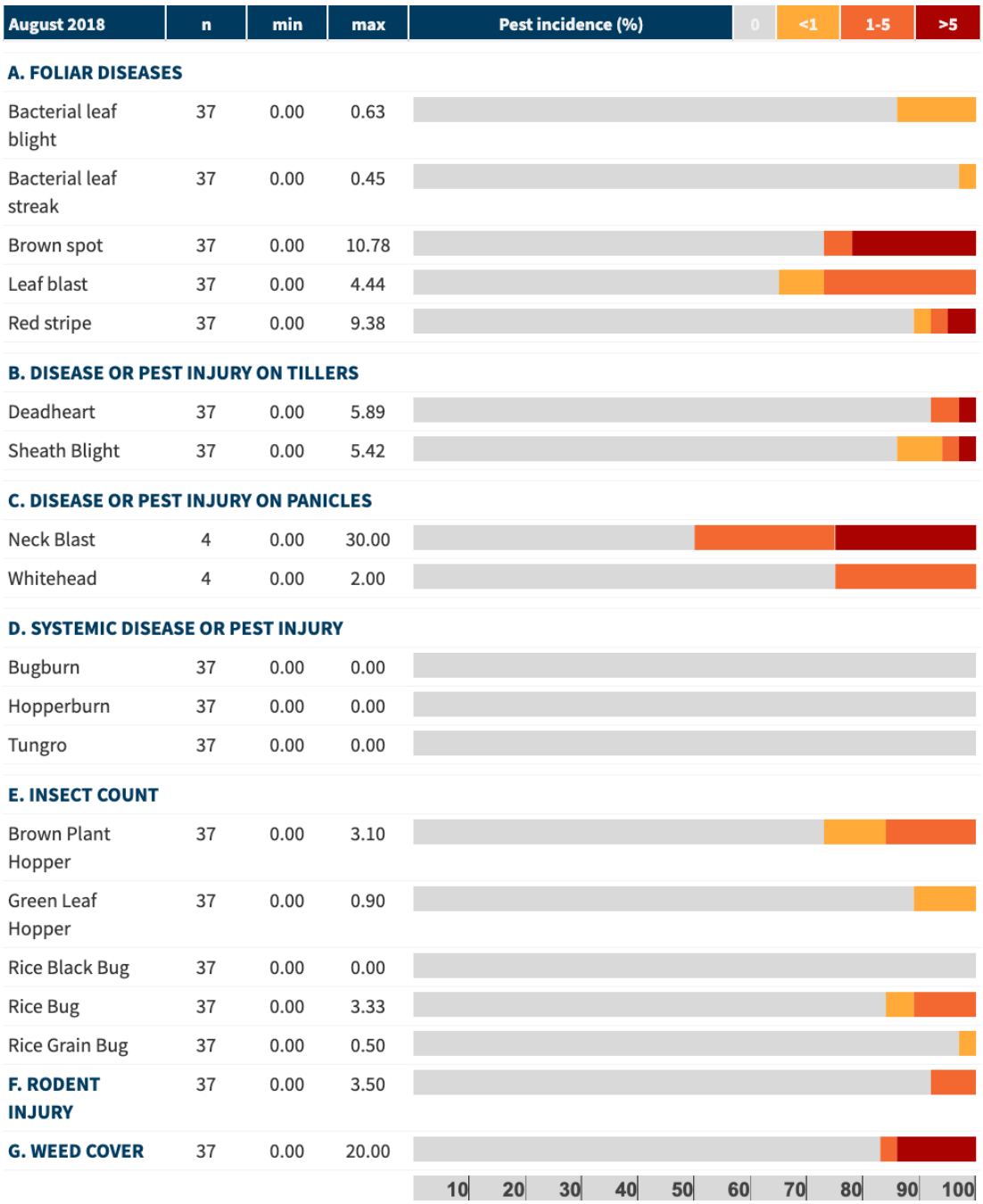
Weeds

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

CAR



Annex Figure 1. 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.

CAR

September 2018	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	60	0.00	26.78	
Bacterial leaf streak	60	0.00	27.62	
Brown spot	60	0.00	8.60	
Leaf blast	60	0.00	20.85	
Red stripe	60	0.00	13.32	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	60	0.00	6.79	
Sheath Blight	60	0.00	20.63	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	4	0.00	0.00	
Whitehead	4	0.00	0.00	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	60	0.00	0.00	
Hopperburn	60	0.00	0.00	
Tungro	60	0.00	26.67	
E. INSECT COUNT				
Brown Plant Hopper	60	0.00	6.50	
Green Leaf Hopper	60	0.00	3.50	
Rice Black Bug	60	0.00	0.50	
Rice Bug	60	0.00	6.00	
Rice Grain Bug	60	0.00	0.50	
F. RODENT INJURY	60	0.00	1.00	
G. WEED COVER	60	0.00	56.67	

Annex Figure 2. 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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CAR

October 2018	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	63	0.00	55.53	
Bacterial leaf streak	63	0.00	51.18	
Brown spot	63	0.00	13.09	
Leaf blast	63	0.00	6.60	
Red stripe	63	0.00	17.94	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	63	0.00	0.00	
Sheath Blight	63	0.00	11.20	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	15	0.00	20.83	
Whitehead	15	0.00	20.00	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	63	0.00	9.33	
Hopperburn	63	0.00	97.33	
Tungro	63	0.00	0.00	
E. INSECT COUNT				
Brown Plant Hopper	63	0.00	8.10	
Green Leaf Hopper	63	0.00	7.20	
Rice Black Bug	63	0.00	0.80	
Rice Bug	63	0.00	58.67	
Rice Grain Bug	63	0.00	0.50	
F. RODENT INJURY	63	0.00	1.00	
G. WEED COVER	63	0.00	53.33	

Annex Figure 3. 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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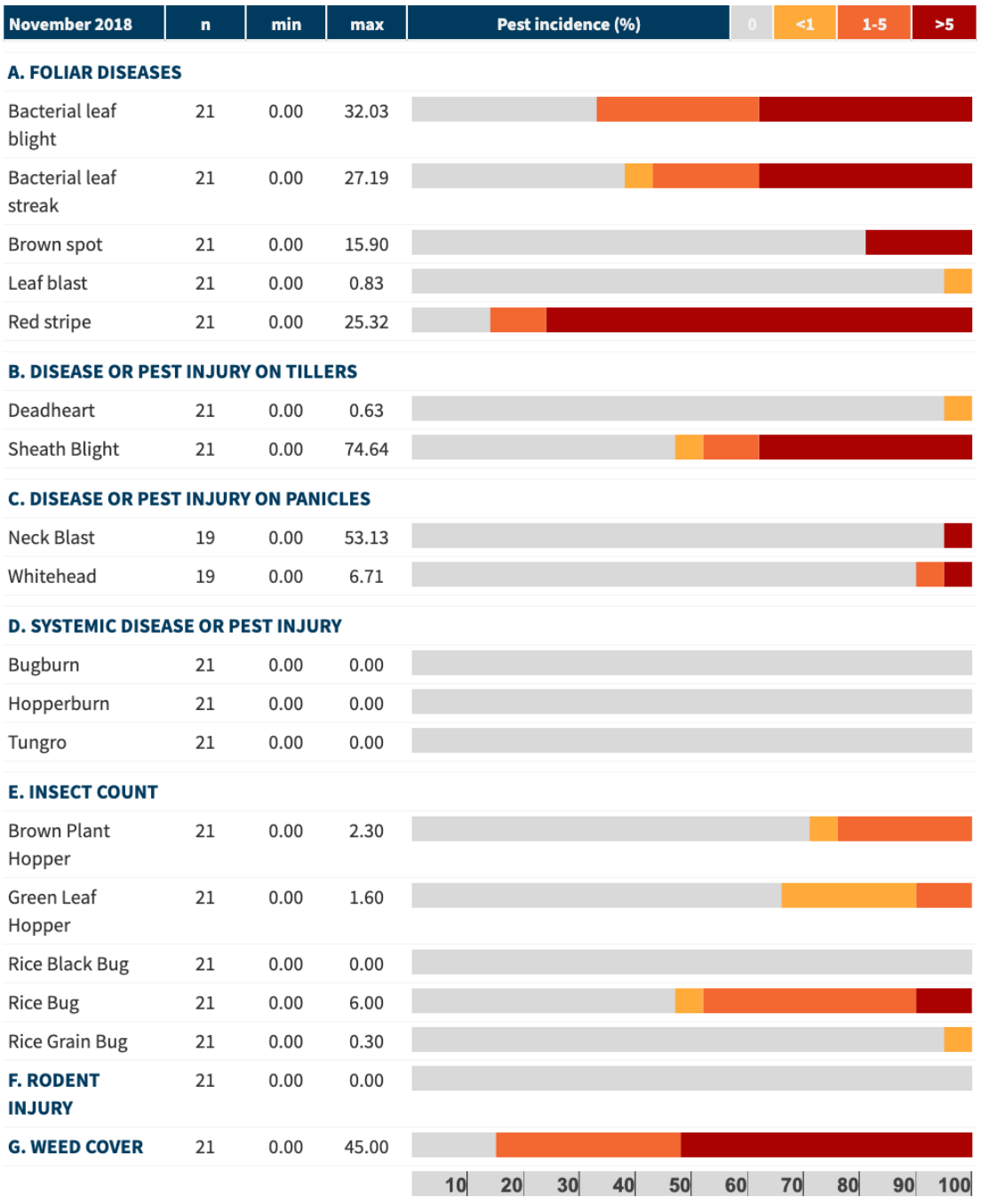
CAR



Annex Figure 4. 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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CAR

February 2019	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	58	0.00	5.05	
Bacterial leaf streak	58	0.00	1.49	
Brown spot	58	0.00	4.52	
Leaf blast	58	0.00	1.33	
Red stripe	58	0.00	2.16	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	58	0.00	3.73	
Sheath Blight	58	0.00	2.49	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	4	0.00	1.67	
Whitehead	4	0.00	2.67	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	58	0.00	0.00	
Hopperburn	58	0.00	0.00	
Tungro	58	0.00	0.00	
E. INSECT COUNT				
Brown Plant Hopper	58	0.00	0.00	
Green Leaf Hopper	58	0.00	0.00	
Rice Black Bug	58	0.00	0.00	
Rice Bug	58	0.00	1.67	
Rice Grain Bug	58	0.00	0.00	
F. RODENT INJURY	58	0.00	3.50	
G. WEED COVER	58	0.00	20.00	

Annex Figure 5. 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.

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CAR

March 2019	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	9	0.63	7.68	
Bacterial leaf streak	9	0.00	5.66	
Brown spot	9	0.00	15.56	
Leaf blast	9	0.00	7.51	
Red stripe	9	0.56	17.16	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	9	0.00	0.00	
Sheath Blight	9	0.00	2.36	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	6	0.00	0.00	
Whitehead	6	0.00	16.23	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	9	0.00	0.00	
Hopperburn	9	0.00	0.00	
Tungro	9	0.00	0.00	
E. INSECT COUNT				
Brown Plant Hopper	9	0.00	1.70	
Green Leaf Hopper	9	0.00	0.40	
Rice Black Bug	9	0.00	0.00	
Rice Bug	9	0.00	0.00	
Rice Grain Bug	9	0.00	0.00	
F. RODENT INJURY	9	0.00	0.00	
G. WEED COVER	9	0.00	21.67	

Annex Figure 6. 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.

CAR

April 2019	n	min	max	Pest incidence (%) 0	<1	1-5	>5
A. FOLIAR DISEASES							
Bacterial leaf blight	57	0.00	2.79				
Bacterial leaf streak	57	0.00	0.50				
Brown spot	57	0.00	45.77				
Leaf blast	57	0.00	9.92				
Red stripe	57	0.00	0.65				
B. DISEASE OR PEST INJURY ON TILLERS							
Deadheart	57	0.00	3.67				
Sheath Blight	57	0.00	7.81				
C. DISEASE OR PEST INJURY ON PANICLES							
Neck Blast	38	0.00	30.95				
Whitehead	38	0.00	20.00				
D. SYSTEMIC DISEASE OR PEST INJURY							
Bugburn	57	0.00	0.00				
Hopperburn	57	0.00	53.33				
Tungro	57	0.00	0.00				
E. INSECT COUNT							
Brown Plant Hopper	57	0.00	19.90				
Green Leaf Hopper	57	0.00	1.60				
Rice Black Bug	57	0.00	0.00				
Rice Bug	57	0.00	1.67				
Rice Grain Bug	57	0.00	0.10				
F. RODENT INJURY	57	0.00	3.50				
G. WEED COVER	57	0.00	68.33				

Annex Figure 7. 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.

CAR

May 2019	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	12	0.00	16.14	
Bacterial leaf streak	12	0.00	19.52	
Brown spot	12	0.00	11.63	
Leaf blast	12	0.00	18.07	
Red stripe	12	0.00	20.59	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	12	0.00	0.00	
Sheath Blight	12	0.00	16.91	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	12	0.00	2.58	
Whitehead	12	0.00	14.67	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	12	0.00	0.00	
Hopperburn	12	0.00	0.00	
Tungro	12	0.00	0.00	
E. INSECT COUNT				
Brown Plant Hopper	12	0.00	1.50	
Green Leaf Hopper	12	0.00	0.00	
Rice Black Bug	12	0.00	0.00	
Rice Bug	12	0.00	19.67	
Rice Grain Bug	12	0.00	0.00	
F. RODENT INJURY	12	0.00	0.00	
G. WEED COVER	12	0.00	28.33	

Annex Figure 8. 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.

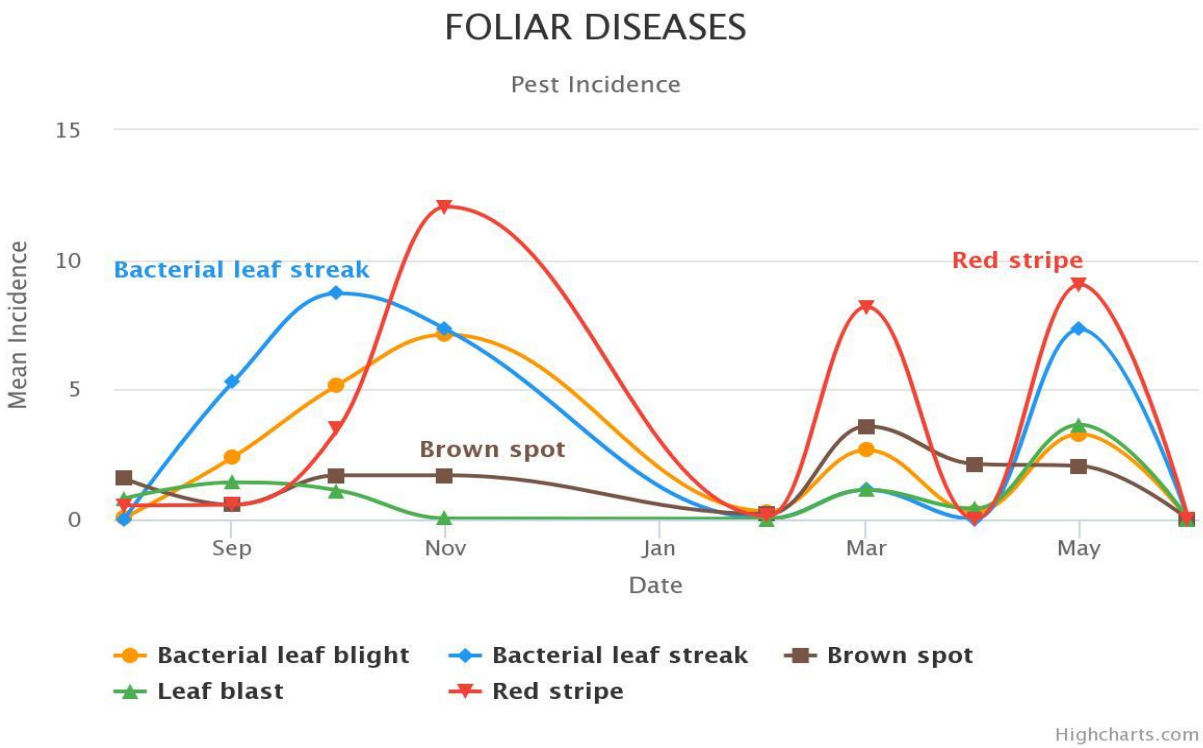
Disclaimer: All the data presented in this report are based on the monthly monitoring of farmers' fields by regional data collectors of PRIME.

CAR

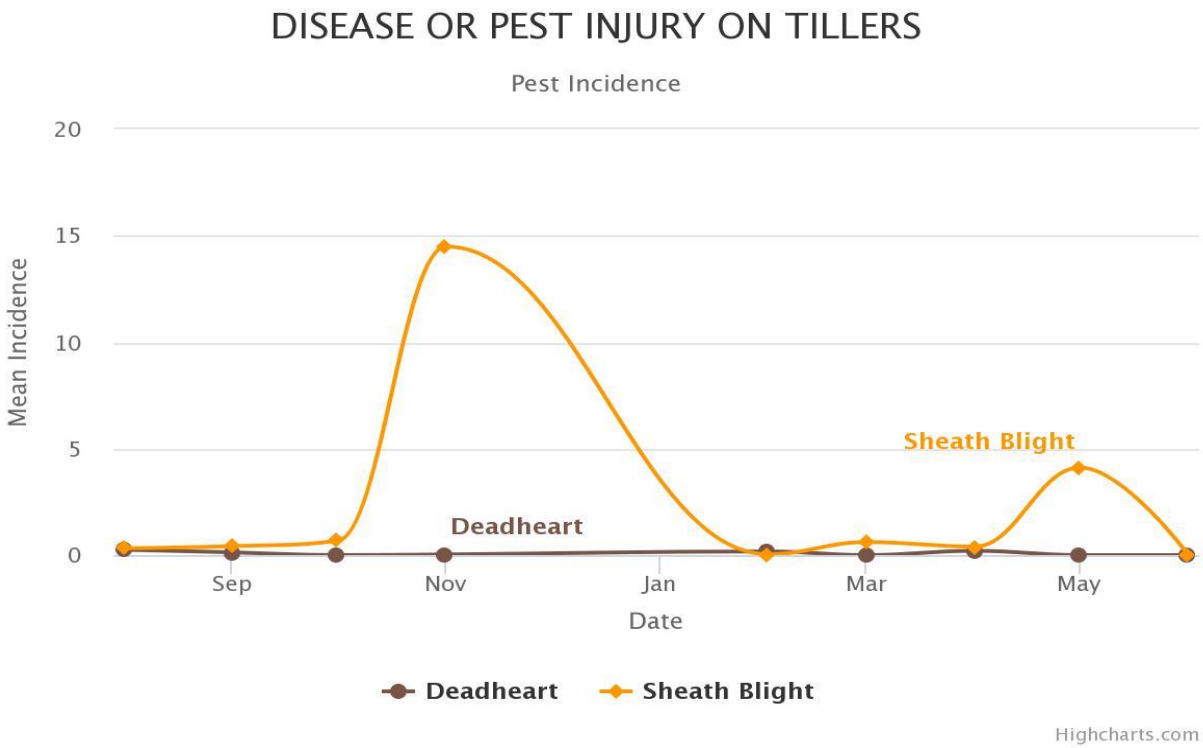
June 2019	n	min	max	Pest incidence (%)	0	<1	1-5	>5
A. FOLIAR DISEASES								
Bacterial leaf blight	1	0.00	0.00					
Bacterial leaf streak	1	0.00	0.00					
Brown spot	1	0.00	0.00					
Leaf blast	1	0.00	0.00					
Red stripe	1	0.00	0.00					
B. DISEASE OR PEST INJURY ON TILLERS								
Deadheart	1	0.00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

Annex Figure 9. 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.

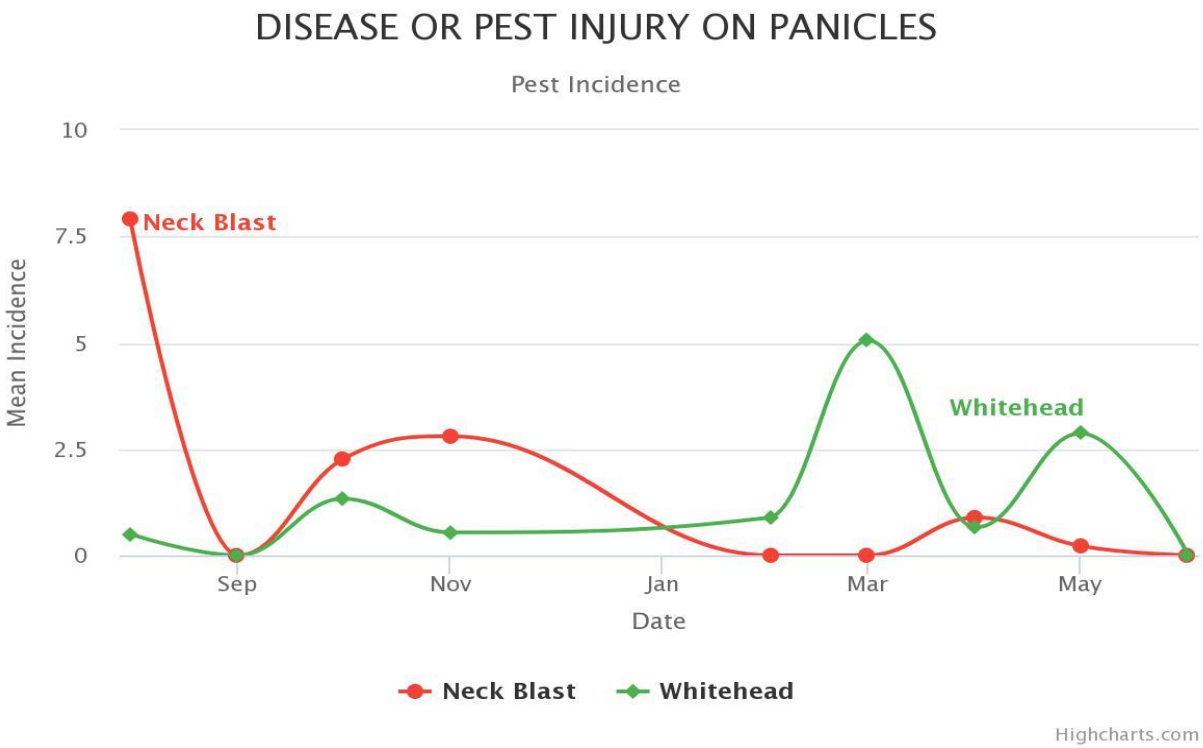


Annex Figure 10. Mean incidence of foliar diseases in CAR, August 2018 to June 2019.

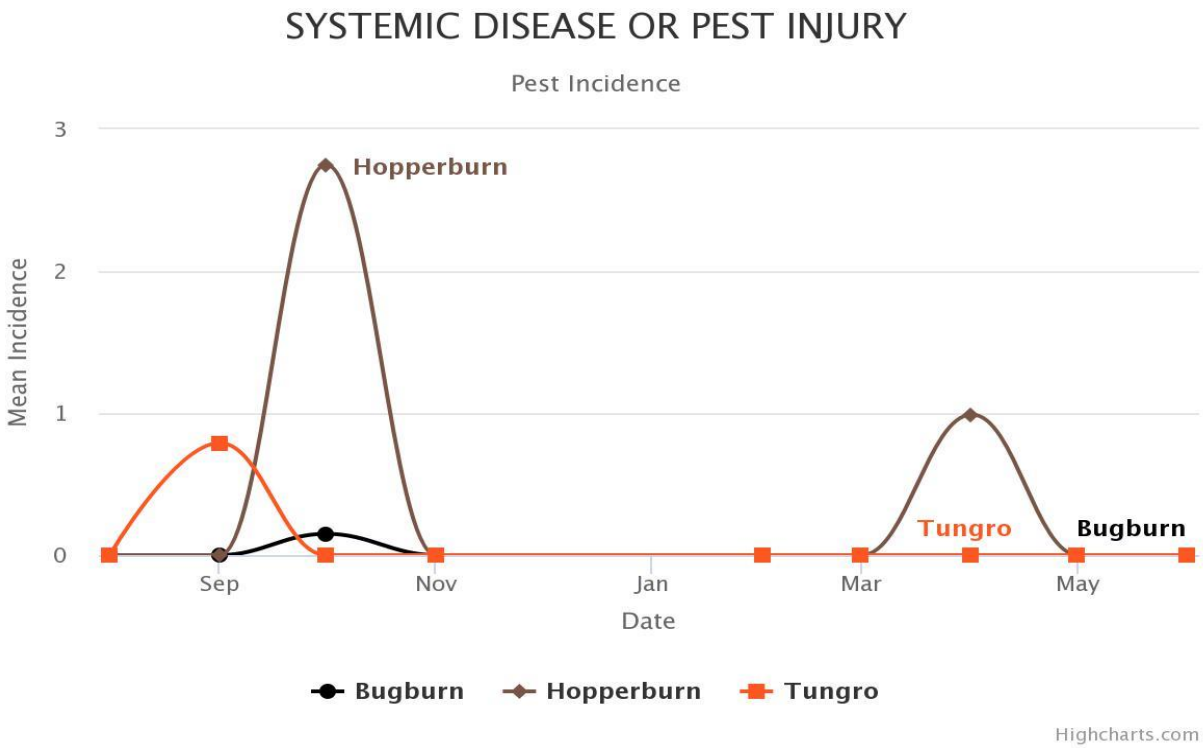


Annex Figure 11. Mean incidence of deadheart and sheath blight in CAR, August 2018 to June 2019.

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

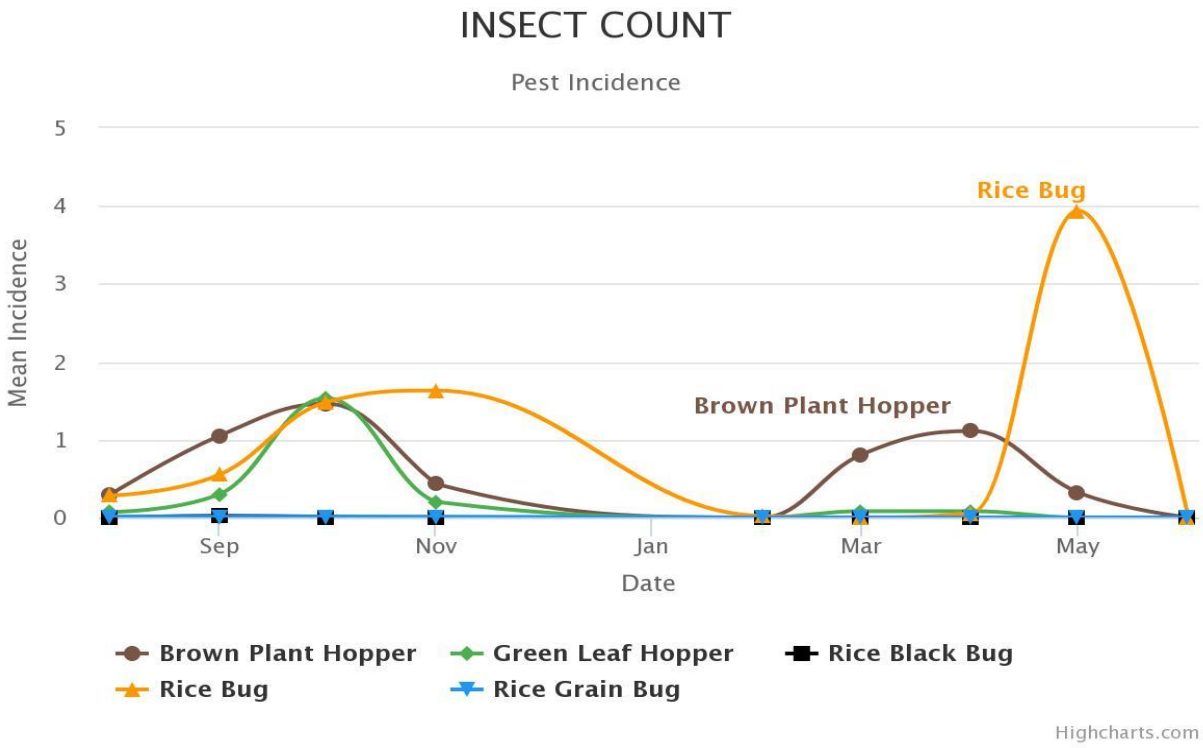


Annex Figure 12. Mean incidence of neck blast and whitehead in CAR, August 2018 to June 2019.

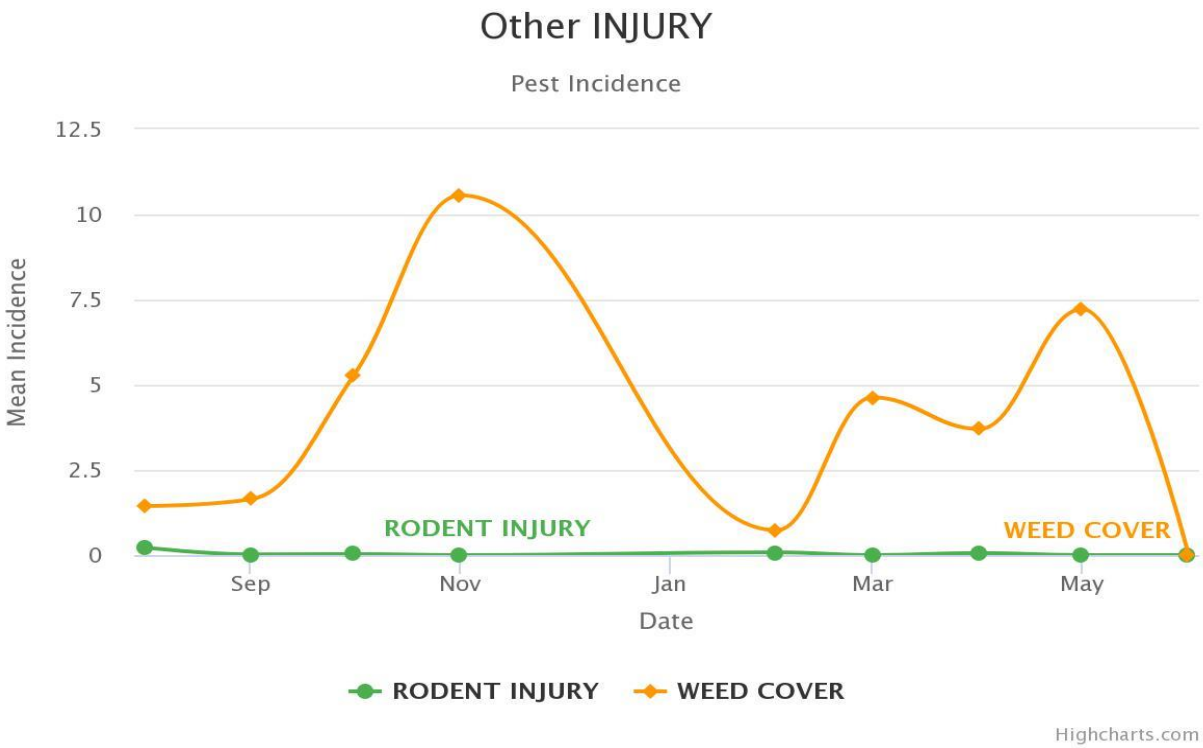


Annex Figure 13. Mean incidence of bugburn, hopperburn and tungro in CAR, August 2018 to June 2019.

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 count of insect pests in CAR, August 2018 to June 2019.



Annex Figure 15. Mean incidence of rat injury and weed infestation in CAR, August 2018 to June 2019.

Note: Data on the Incidence of pest injuries, count of insect pests, and weed cover for July 2018, December 2018 and January 2019 are missing.

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