PRIME

PRE-SEMESTER BULLETIN

July 2018 to June 2019

REGION VII – Central Visayas Region

AT A GLANCE

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

Region VII

	2018						2019					
	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
A. FOLIAR DISEASES												
Bacterial leaf blight	6.2	4.0	3.8	5.5	2.1	4.1	2.6	5.9	8.0	1.5	5.1	5.2
Bacterial leaf streak	0.5	0.2	0.4	0.2	0.1	0.0	0.4	0.2	0.4	0.1	0	0.6
Brown spot	2.9	1.7	2.9	10.4	6.7	3.1	3.3	9.0	9.8	15.0	17.2	11.5
Leaf blast	2.3	2.2	2.9	0.6	1.8	0.8	2.0	1.3	6.2	1.0	5.5	1.3
Red stripe	0.1	0.1	0.0	0.1	0.5	0.0	0.2	0.1	0.0	0.2	0.1	1.2
B. DISEASE OR PEST INJURY ON TILLERS												
Deadheart	3.0	1.4	0.9	1.5	2.7	1.4	1.4	2.6	1.0	10.9	3.2	2.3
Sheath Blight	1.0	0.3	2.8	7.6	0.1	0.7	0.1	1.7	4.9	3.2	5.8	2.8
C. DISEASE OR PEST INJURY ON PANICLES												
Neck Blast	0.4	0	2.0	0.5	0.6	0.8	2.0	1.2	0.3	23.4	4.0	1.4
Whitehead	3.4	2.5	2.7	2.1	2.3	12.3	2.2	4.0	4.7	0.7	1.9	3.6
D. SYSTEMIC DISEASE OR PEST INJURY												
Bugburn	0	1.6	1.7	0	0	0	0	0	0	0	0	0
Hopperburn	0	0.0	0	0	0	0	0	0	0	0	0	0
Tungro	0.2	0	0	0	0	0	0	0	0	0	0	0
E. INSECT COUNT												
Brown Plant Hopper	0.2	0.0	0.3	0.0	0.0	0.1	0.0	0.1	0.0	0.2	0.1	0
Green Leaf Hopper	0.4	0.2	0.7	0.1	0.8	0.7	0.0	0.3	0.5	0.8	0.4	0.1
Rice Black Bug	0.1	0.0	0.1	0.0	0.0	0.0	0	0.0	0.0	0	0	0
Rice Bug	0.8	0.3	0.6	1.4	2.5	0.6	0.7	0.4	0.6	0.7	0.6	1.1
Rice Grain Bug	0.1	0.0	0.1	0.0	0	0.0	0.0	0.0	0.0	0	0.0	0.0
F. RODENT INJURY	0.1	0.0	0.0	0.1	0.1	0	0.0	0.2	0.0	0	0.1	0
G. WEED COVER	1.4	3.6	2.4	6.4	4.8	1.5	1.9	5.5	4.4	12.6	2.2	9.7

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:	Bohol: Carmen, Pilar, and Ubay Cebu: Asturias and Toledo City Negros Oriental: Bayawan City, Canlaon City, Santa Catalina, and Siaton
Monitoring date:	July 2018 – June 2019
Number of monitored fields:	49
Data collectors:	Benedict Ivann Gabrito, Cipriano Payot, Harvey Neil Revelegia, Ivann Gabrito, Ivan Philip Apale, Jorge Algabre, Jorge Odiaman, Jose Andro Vendiola, Juanito Napitan, Juveline Alama, Juvelene Huaton, Merlita De la Cruz, Nickie Duero, Rogelio Davalan, Roy Autor, Shem Abrau, and Teodoro Petalcorin

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Growth stages

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 October (Figure 1). Majority of the fields were fallow in November to December. In the first semester of 2019, the peaks of crop establishment and harvest were in January and March, respectively. A large proportion of the fields were fallow in April to June 2019.

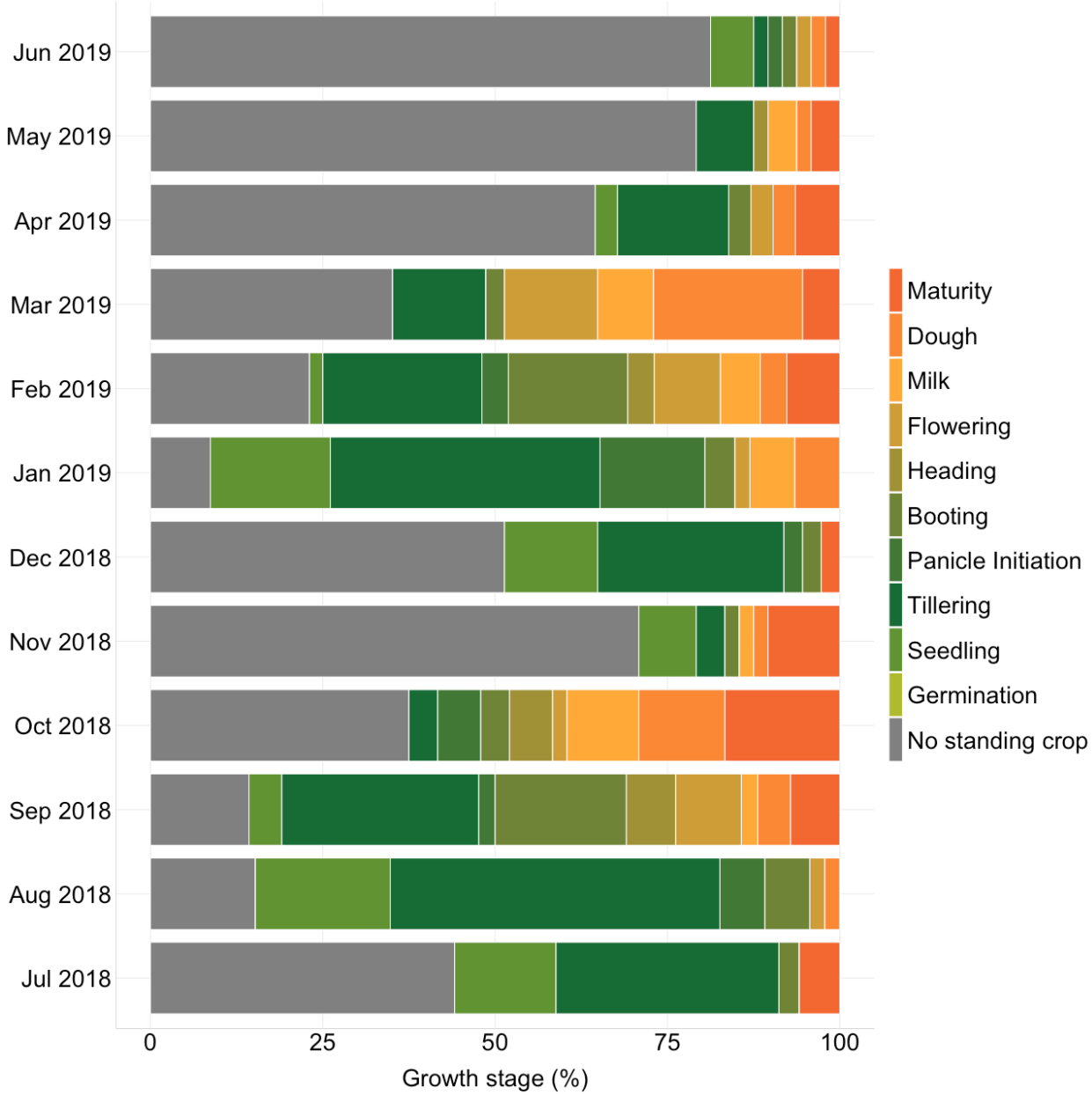

Figure 1. Proportion of crop growth stages of fields by month.

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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.

A. Foliar diseases

The incidence of foliar diseases was higher in the first semester of 2019 than in the second semester of 2018 (Figure 2). Brown spot was the most important disease during the year. The mean incidence ranged from 10% to 17% in October 2018 and April to June 2019. The median incidence in these months ranged from 6% to 11%. The median and median incidences of brown spot were 10% and 6%, respectively, in October 2018; 15% and 7%, respectively, in April 2019; and 17% and 7%, respectively, in May 2019. The mean and median incidences of bacterial leaf blight ranged from 5% to 8% in October 2018, February 2019, March 2019, June 2019 and May 2019. The highest incidence of bacterial leaf blight was observed in March 2019, with mean of 8% and median of 6%. The highest incidence of leaf blast was observed in March and May 2019. The mean and median incidences were 6% and 2%, respectively, in March 2019 and 5% and 2%, respectively, in May 2019.

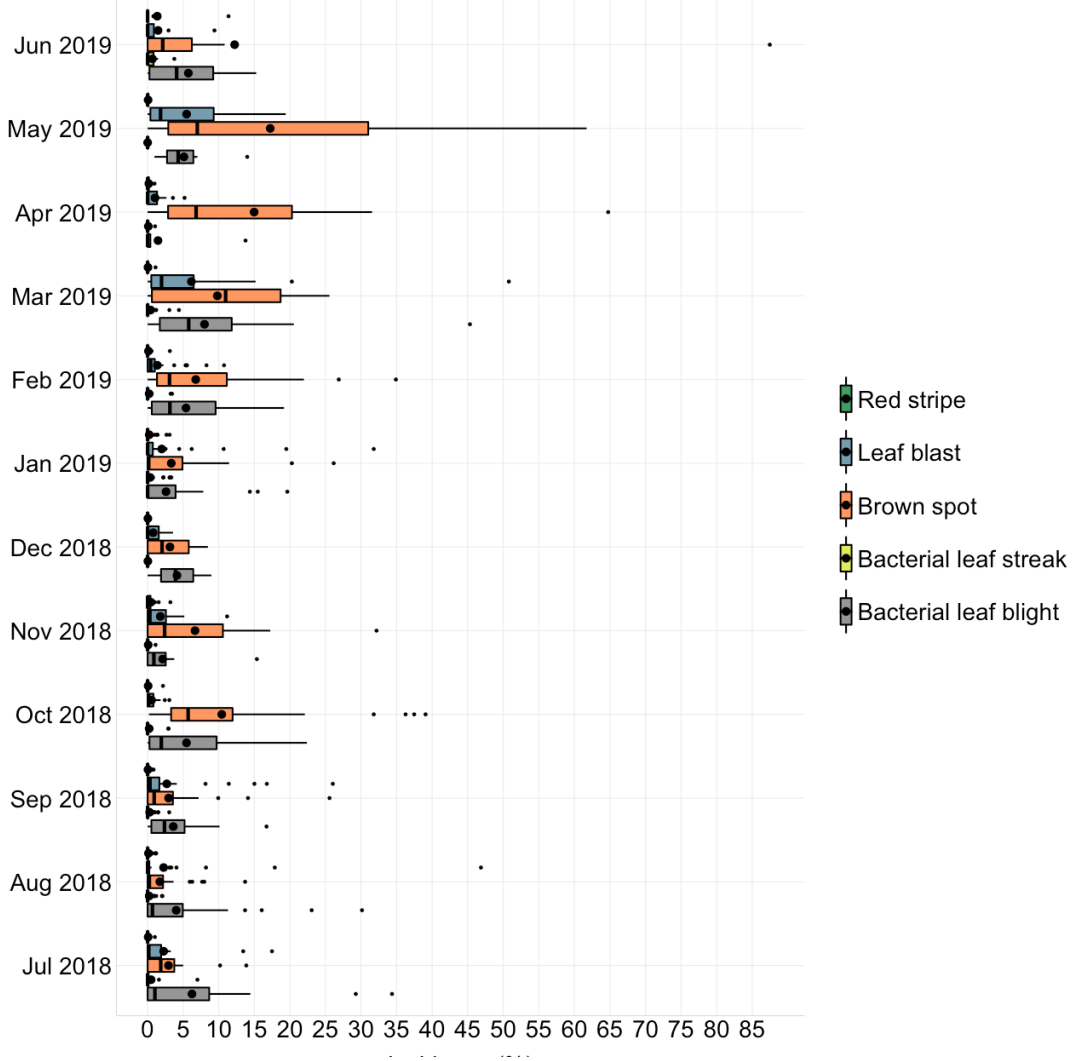

Figure 2. Incidence of foliar diseases in Region VII, July 2018 to June 2019.

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B. Insect pest injuries and diseases on tillers

The mean incidence of deadheart ranged from 0.9% to 3%, except in April 2019 in which the mean was 11% and the median was 9% (Figure 3). The median was 0 in most of the months which indicates that deadheart was not observed in majority of the fields. The mean incidence of sheath blight was at least 3% in September 2018, October 2018 and March to June 2019. The highest mean incidence (8%) was observed in October 2018. The median was 0 in all the months, except in May 2019 in which the median was 3%.

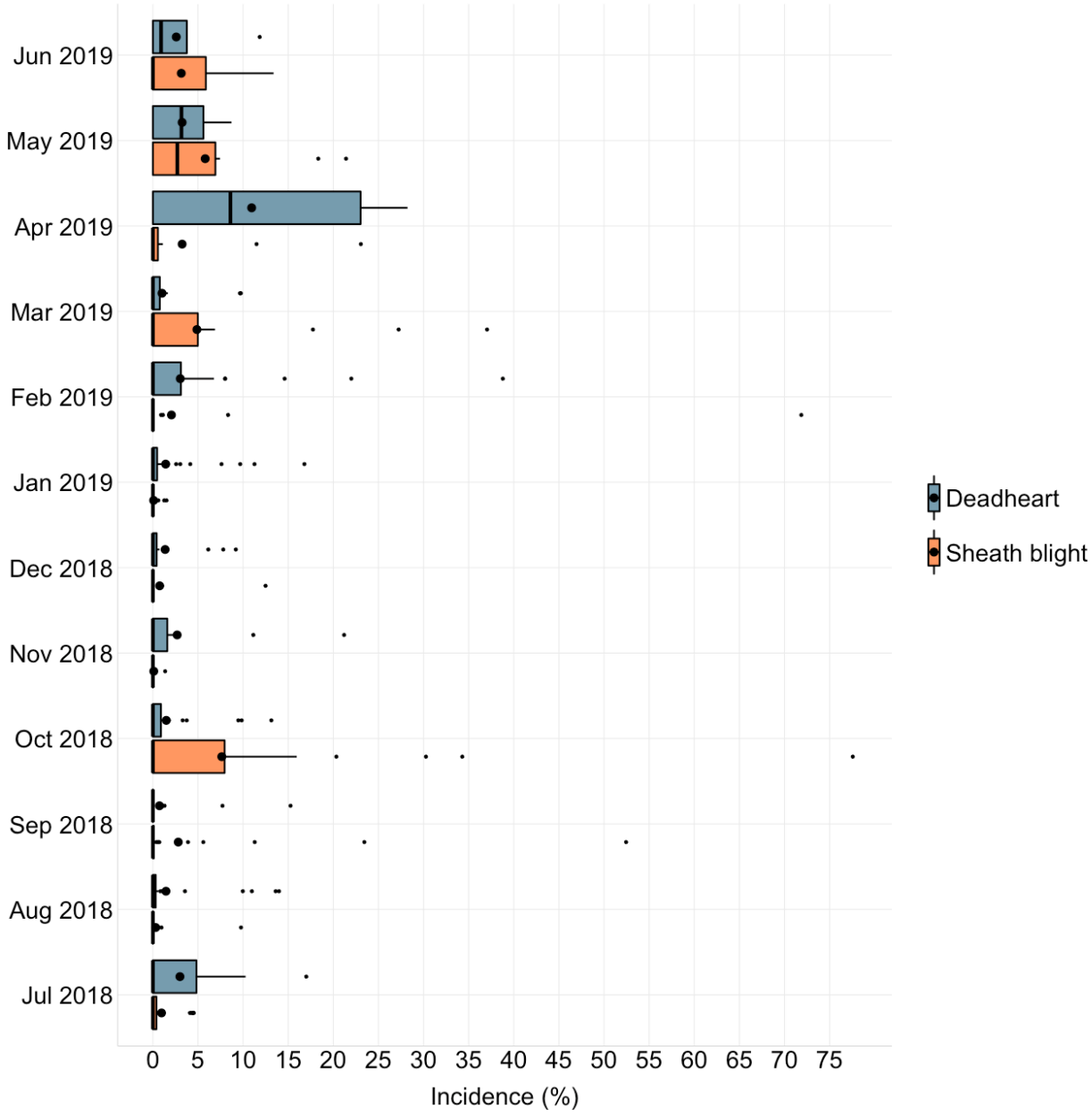

Figure 3. Incidence of deadheart and sheath blight in Region VII, July 2018 to June 2019.

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C. Insect pest injuries and diseases on panicles

The highest incidence of neck blast (mean = 23%, median = 5%) was observed in April 2019 (Figure 4). The incidence was lower than 5% in all the other months. Whitehead incidence of the only field visited in December 2018 was 12%. The mean incidence of whitehead in16 fields that were visited in February 2019 was 5%, but it was not observed in most of the fields (median was 0).

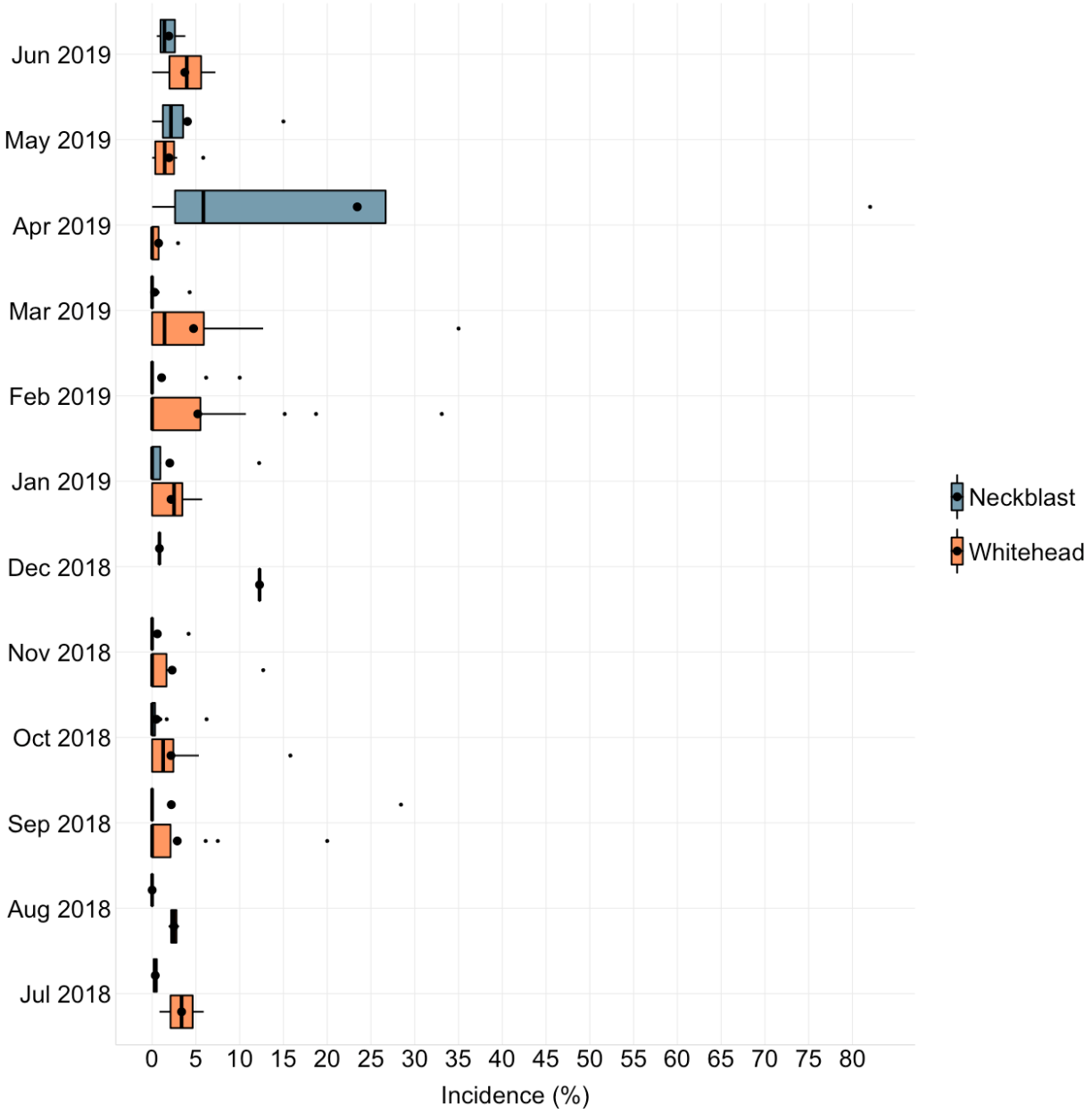

Figure 4. Incidence of neck blast and whitehead in Region VII, July 2018 to June 2019.

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D. Systemic insect pest injuries and diseases

The incidence of bugburn and hopperburn caused by stemborers and tungro during the year was negligible (Figure 5). The incidence of bugburn was 2% in August and September 2018. The median incidence of these three pest injuries was 0 in all months.

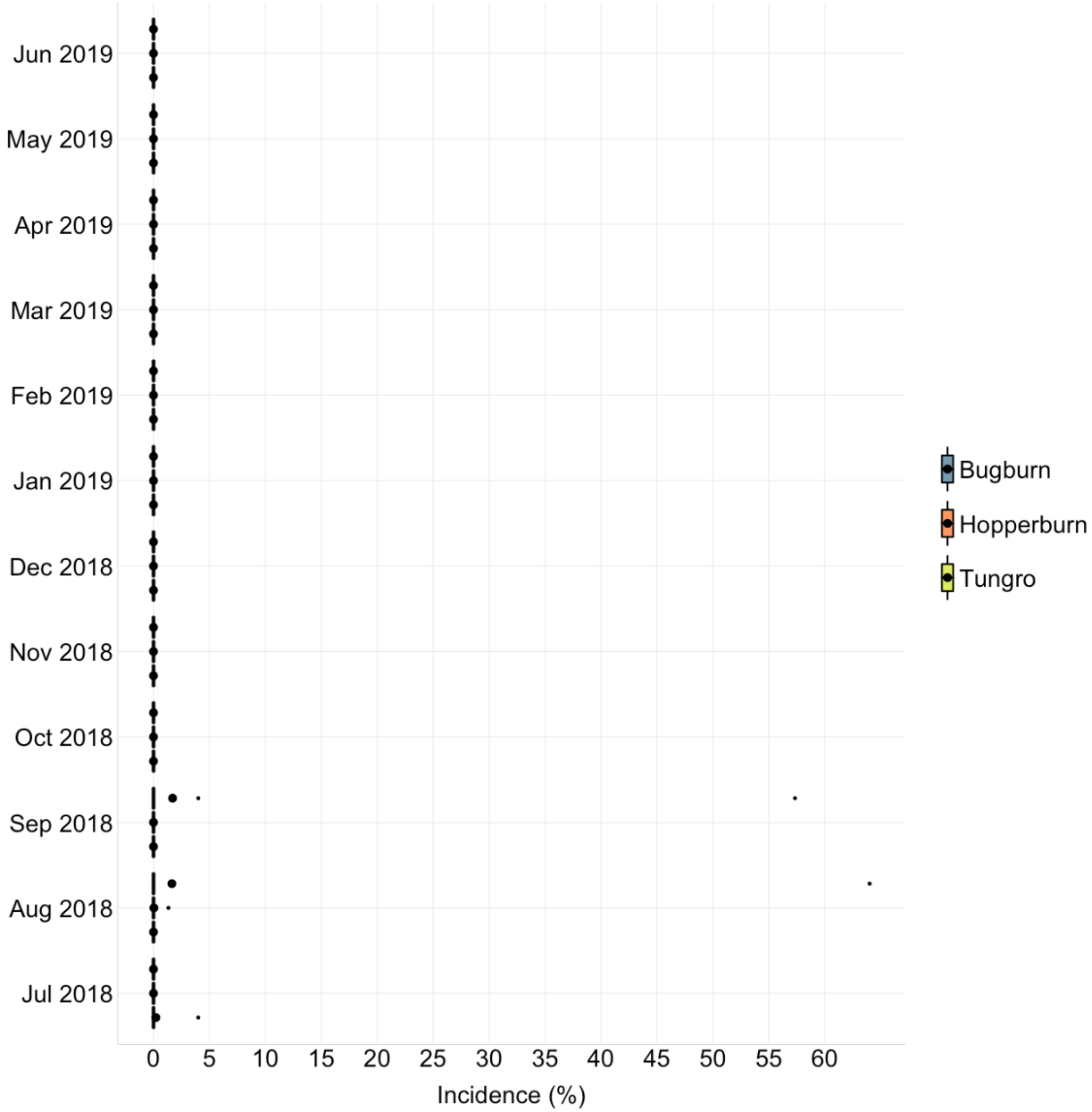

Figure 5. Incidence of bugburn, hopperburn and tungro in Region VII, July 2018 to June 2019.

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E. Insect pests

The number of brown planthoppers, green leafhoppers, rice black bug, and rice grain bug during the year was negligible (Figure 6). One to 3 rice bugs per square were observed in October and November 2018 and June 2019. The median incidence was 0 in all months except in October 2019 in which the median was 0.5.

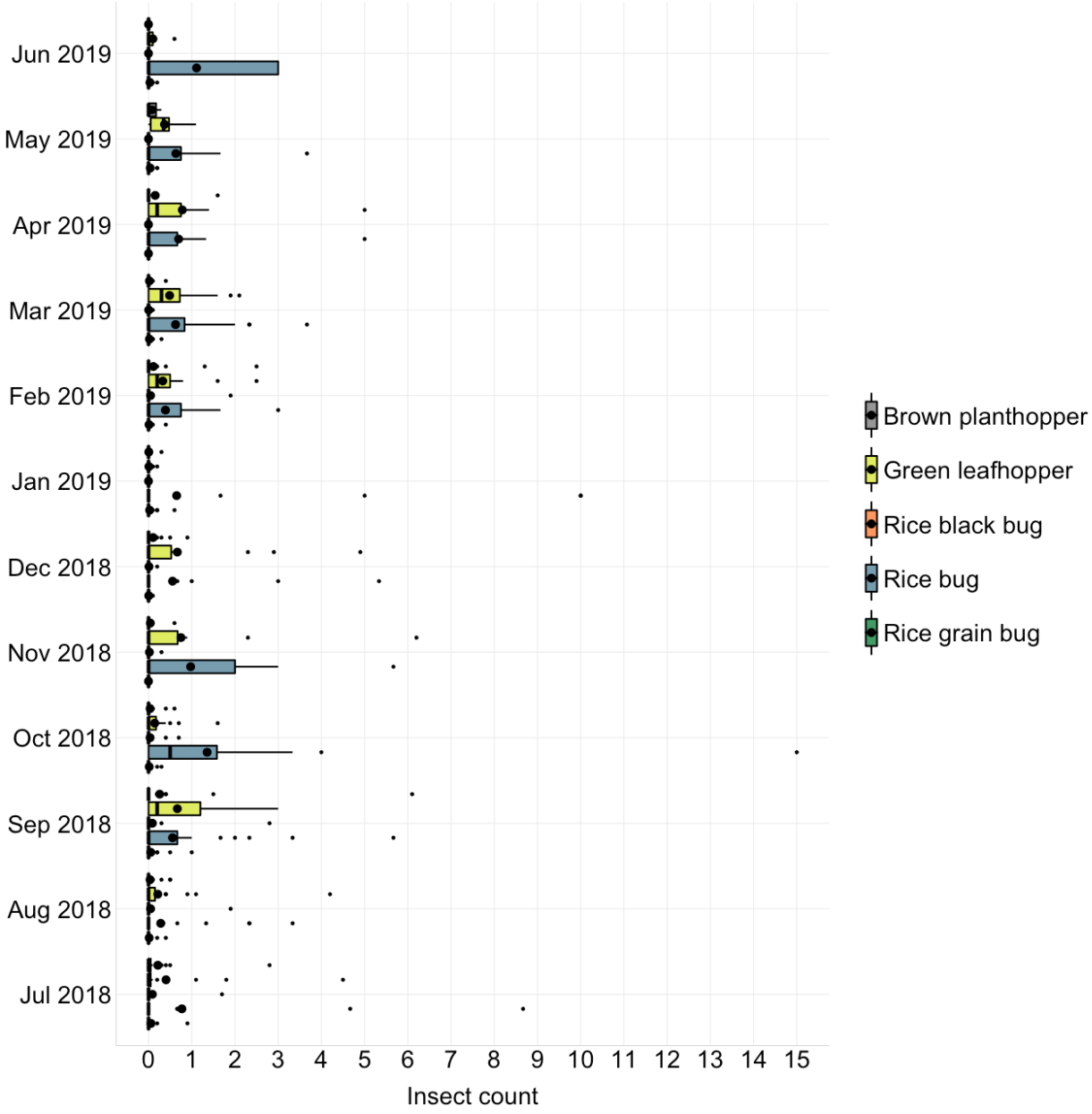

Figure 6. Count of insect pests in Region VII, July 2018 to June 2019.

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F. Rat injury

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

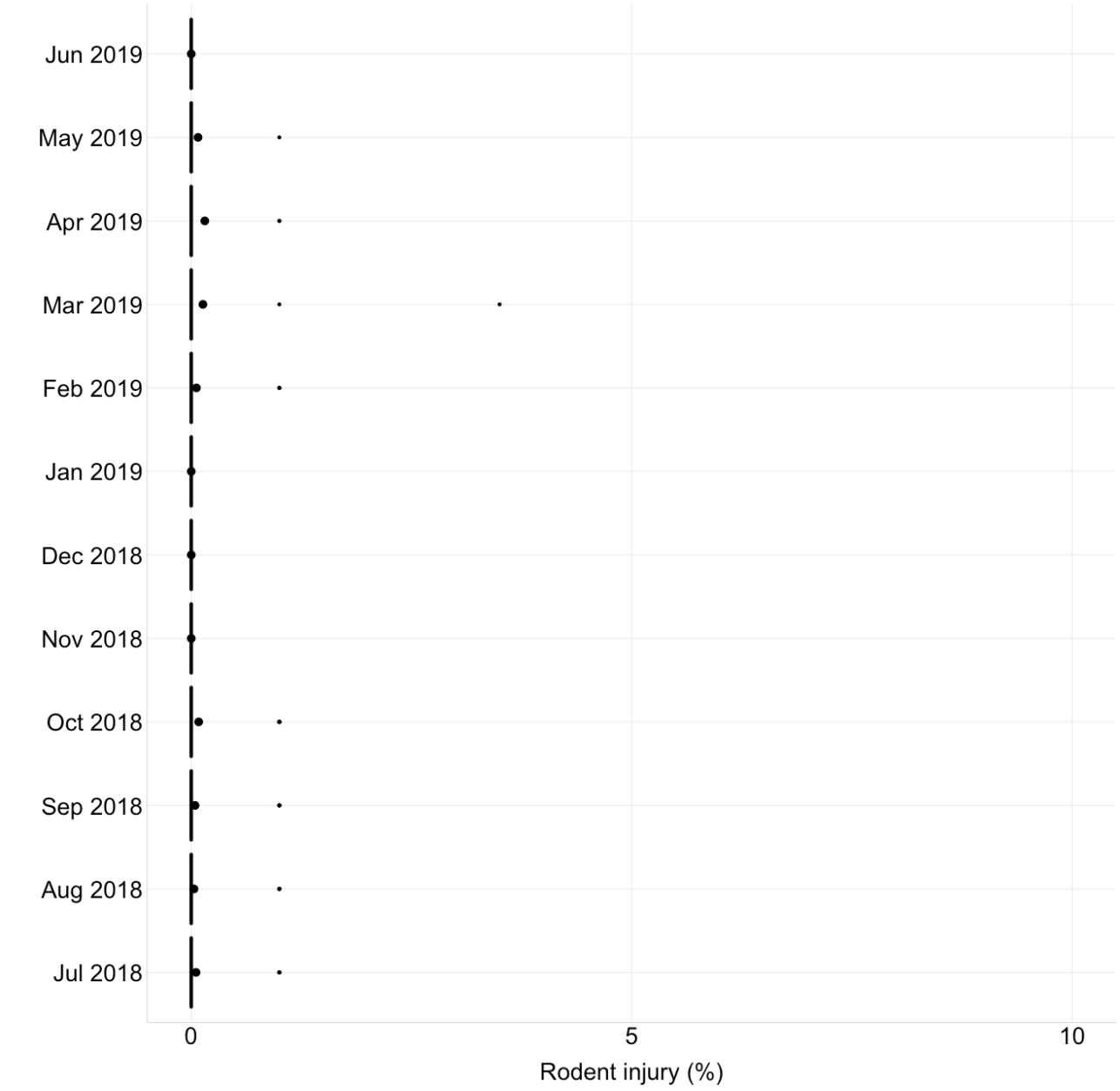

Figure 7. Incidence of rat injury in Region VII, July 2018 to June 2019.

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G. Weed cover

The highest mean percentage of weed cover was observed in October 2018 (6%), February 2019 (6%), April 2019 (13%), and June 2019 (11%) (Figure 8). The median incidence was 0 in most of the months and the highest was 2% which was recorded in April and June 2019.

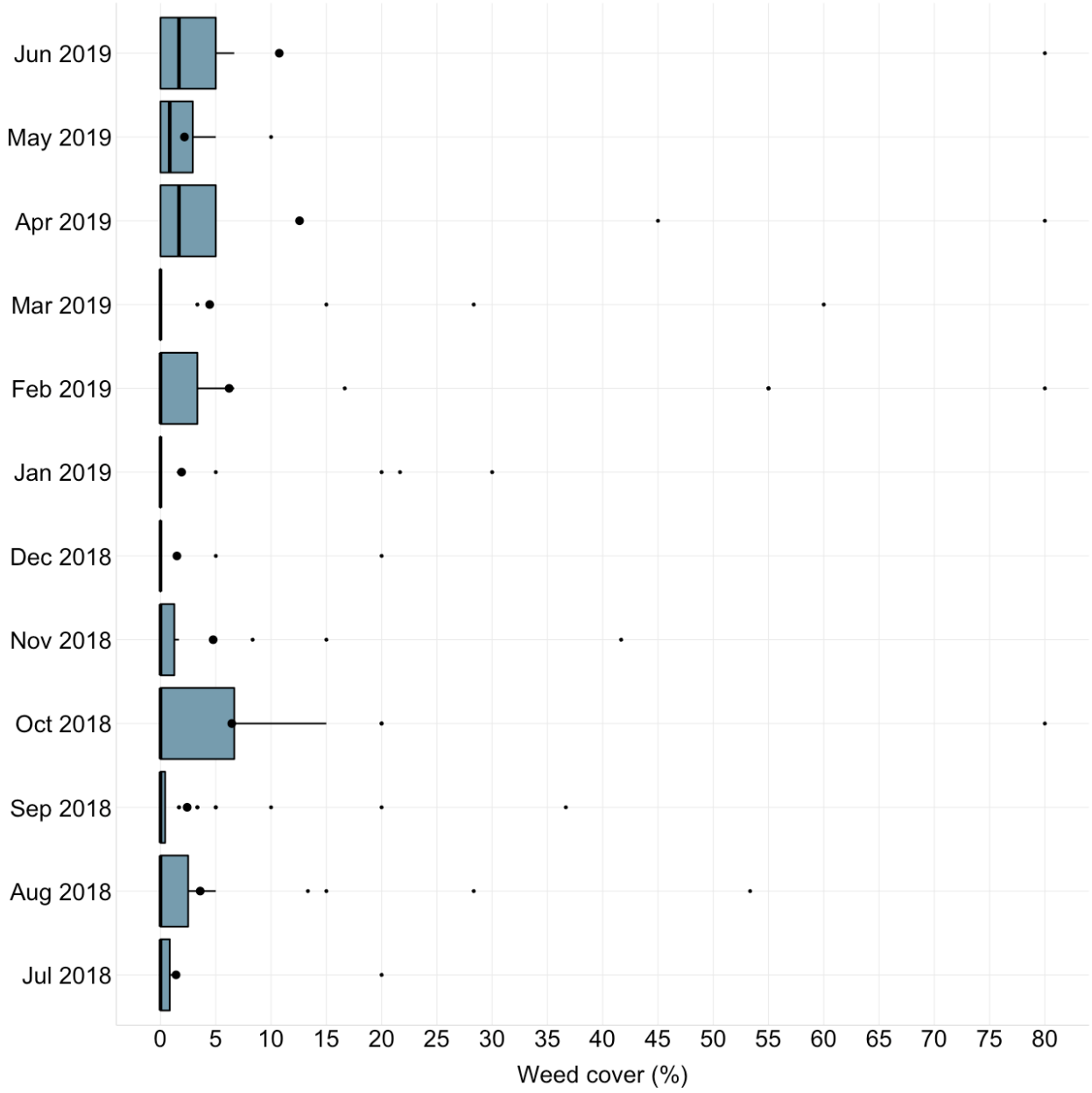

Figure 8. Percentage of weed cover in Region VII, July 2018 to June 2019.

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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.

Bacterial leaf blight

1. The most practical and economical approach to manage bacterial blight 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.

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%.

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 T*richoderma* 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.

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.

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.

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 VII

July 2018	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	19	0.00	34.36	
Bacterial leaf streak	19	0.00	7.00	
Brown spot	19	0.00	13.87	
Leaf blast	19	0.00	17.49	
Red stripe	19	0.00	1.02	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	19	0.00	17.00	
Sheath Blight	19	0.00	4.53	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	2	0.00	0.71	
Whitehead	2	0.83	5.89	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	19	0.00	0.00	
Hopperburn	19	0.00	0.00	
Tungro	19	0.00	4.00	
E. INSECT COUNT				
Brown Plant Hopper	19	0.00	2.80	
Green Leaf Hopper	19	0.00	4.50	
Rice Black Bug	19	0.00	1.70	
Rice Bug	19	0.00	8.67	
Rice Grain Bug	19	0.00	0.90	
F. RODENT INJURY	19	0.00	1.00	
G. WEED COVER	19	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 VII

August 2018	n	min	max	Pest incidence (%) 0	<1	1-5	>5
A. FOLIAR DISEASES							
Bacterial leaf blight	39	0.00	30.14				
Bacterial leaf streak	39	0.00	2.07				
Brown spot	39	0.00	13.71				
Leaf blast	39	0.00	46.87				
Red stripe	39	0.00	1.19				
B. DISEASE OR PEST INJURY ON TILLERS							
Deadheart	39	0.00	13.98				
Sheath Blight	39	0.00	9.76				
C. DISEASE OR PEST INJURY ON PANICLES							
Neck Blast	2	0.00	0.00				
Whitehead	2	1.87	3.08				
D. SYSTEMIC DISEASE OR PEST INJURY							
Bugburn	39	0.00	64.00				
Hopperburn	39	0.00	1.33				
Tungro	39	0.00	0.00				
E. INSECT COUNT							
Brown Plant Hopper	39	0.00	0.50				
Green Leaf Hopper	39	0.00	4.20				
Rice Black Bug	39	0.00	1.90				
Rice Bug	39	0.00	3.33				
Rice Grain Bug	39	0.00	0.40				
F. RODENT INJURY	39	0.00	1.00				
G. WEED COVER	39	0.00	53.33				

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.

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

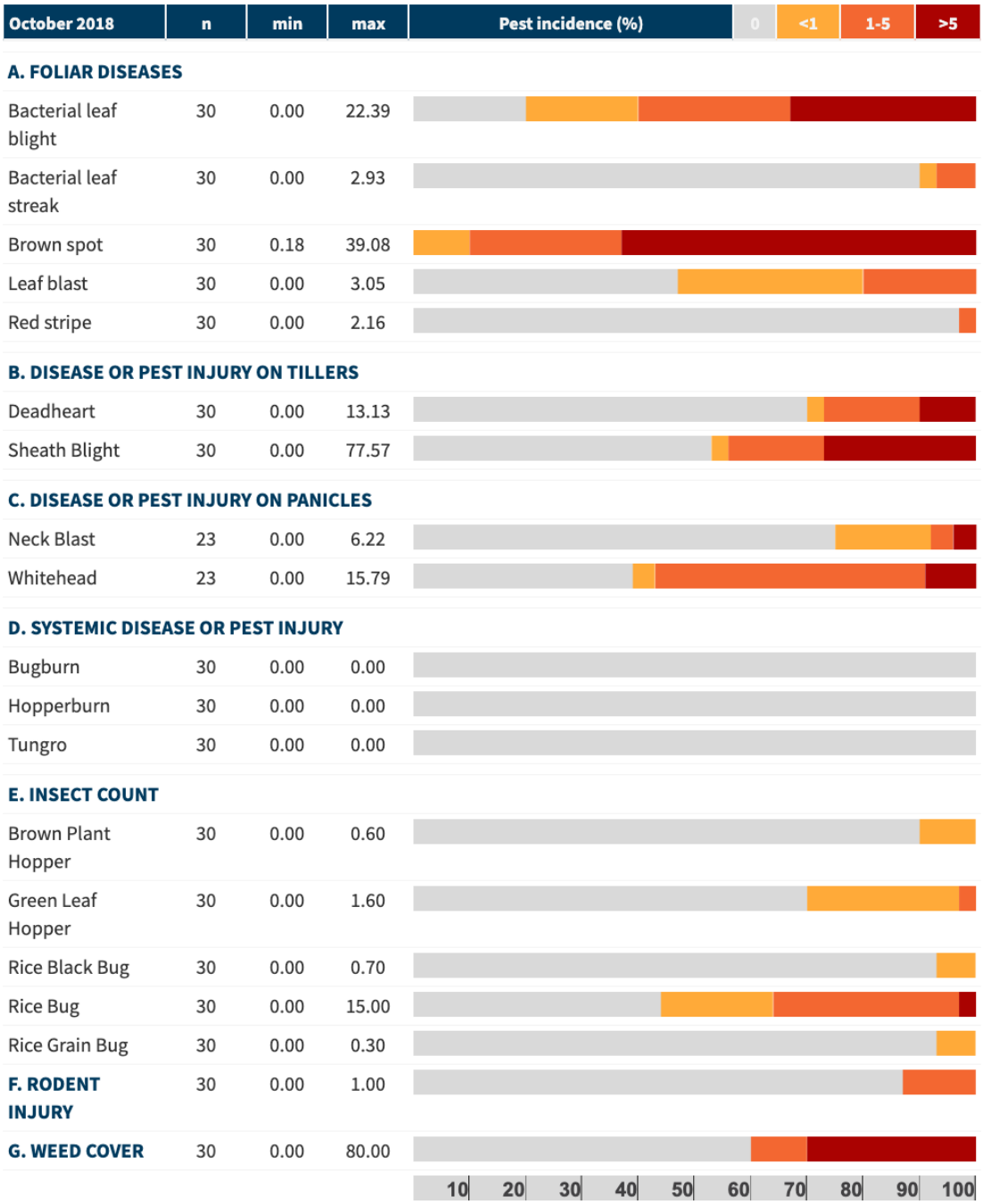
Region VII

September 2018	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	37	0.00	16.71	
Bacterial leaf streak	37	0.00	4.77	
Brown spot	37	0.00	25.58	
Leaf blast	37	0.00	26.04	
Red stripe	37	0.00	0.83	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	37	0.00	15.26	
Sheath Blight	37	0.00	52.45	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	14	0.00	28.42	
Whitehead	14	0.00	20.00	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	37	0.00	57.33	
Hopperburn	37	0.00	0.00	
Tungro	37	0.00	0.00	
E. INSECT COUNT				
Brown Plant Hopper	37	0.00	6.10	
Green Leaf Hopper	37	0.00	3.00	
Rice Black Bug	37	0.00	2.80	
Rice Bug	37	0.00	5.67	
Rice Grain Bug	37	0.00	1.00	
F. RODENT INJURY	37	0.00	1.00	
G. WEED COVER	37	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.

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

Region VII



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.

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

Region VII

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 VII

December 2018	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	18	0.00	8.96	
Bacterial leaf streak	18	0.00	0.33	
Brown spot	18	0.00	8.48	
Leaf blast	18	0.00	3.57	
Red stripe	18	0.00	0.28	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	18	0.00	9.19	
Sheath Blight	18	0.00	12.48	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	1	0.83	0.83	
Whitehead	1	12.27	12.27	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	18	0.00	0.00	
Hopperburn	18	0.00	0.00	
Tungro	18	0.00	0.00	
E. INSECT COUNT				
Brown Plant Hopper	18	0.00	0.90	
Green Leaf Hopper	18	0.00	4.90	
Rice Black Bug	18	0.00	0.20	
Rice Bug	18	0.00	5.33	
Rice Grain Bug	18	0.00	0.10	
F. RODENT INJURY	18	0.00	0.00	
G. WEED COVER	18	0.00	20.00	

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 VII

January 2019	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	42	0.00	19.64	
Bacterial leaf streak	42	0.00	3.33	
Brown spot	42	0.00	26.16	
Leaf blast	42	0.00	31.79	
Red stripe	42	0.00	3.09	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	42	0.00	16.79	
Sheath Blight	42	0.00	1.51	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	7	0.00	12.22	
Whitehead	7	0.00	5.71	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	42	0.00	0.00	
Hopperburn	42	0.00	0.00	
Tungro	42	0.00	0.00	
E. INSECT COUNT				
Brown Plant Hopper	42	0.00	0.30	
Green Leaf Hopper	42	0.00	0.20	
Rice Black Bug	42	0.00	0.00	
Rice Bug	42	0.00	10.00	
Rice Grain Bug	42	0.00	0.60	
F. RODENT INJURY	42	0.00	1.00	
G. WEED COVER	42	0.00	30.00	

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.

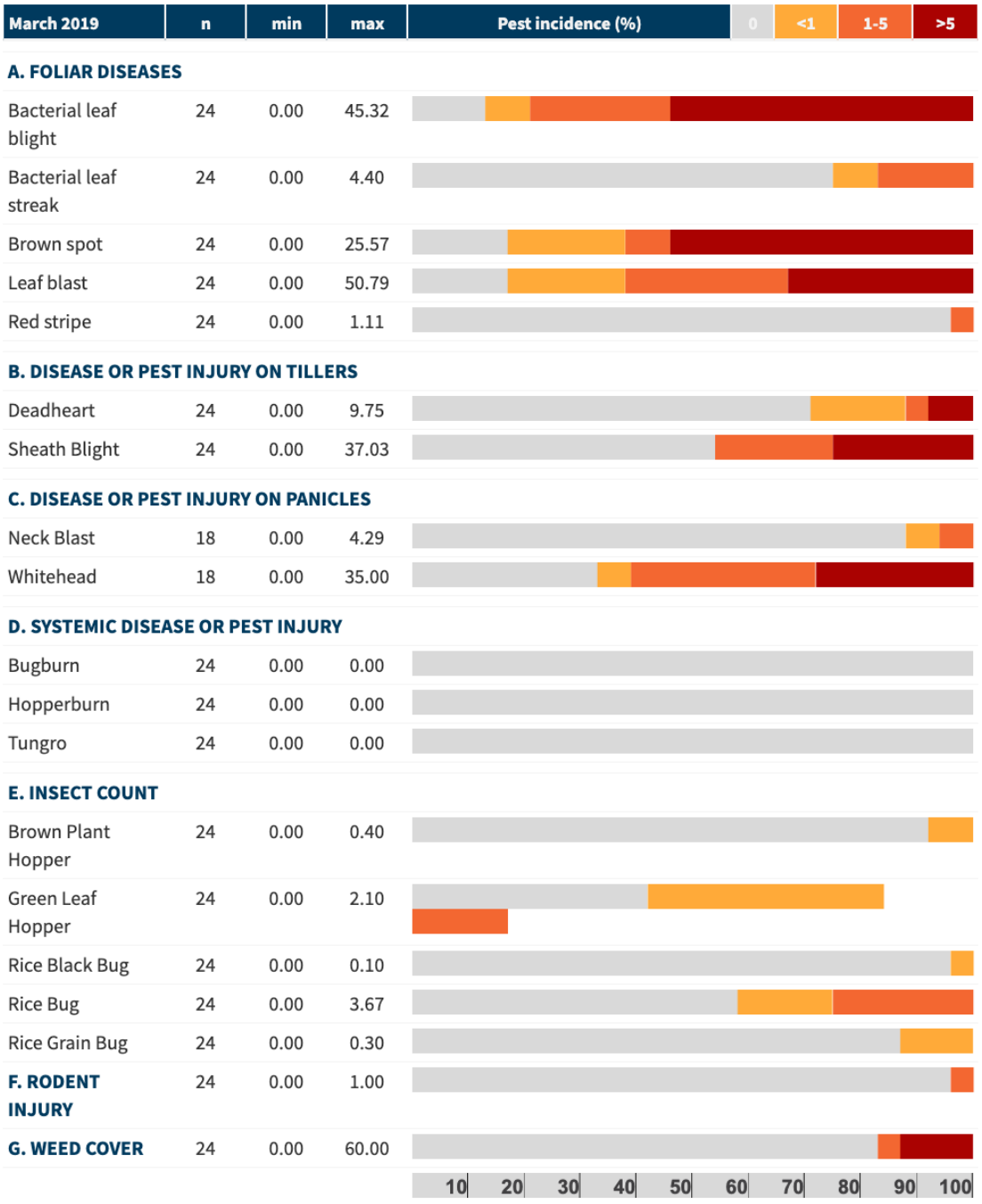
Region VII

February 2019	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	47	0.00	19.18	
Bacterial leaf streak	47	0.00	3.43	
Brown spot	47	0.00	34.91	
Leaf blast	47	0.00	10.74	
Red stripe	47	0.00	3.13	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	47	0.00	38.79	
Sheath Blight	47	0.00	71.86	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	22	0.00	10.00	
Whitehead	22	0.00	33.08	
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	2.50	
Green Leaf Hopper	47	0.00	2.50	
Rice Black Bug	47	0.00	1.90	
Rice Bug	47	0.00	3.00	
Rice Grain Bug	47	0.00	0.40	
F. RODENT INJURY	47	0.00	1.00	
G. WEED COVER	47	0.00	80.00	

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 VII



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.

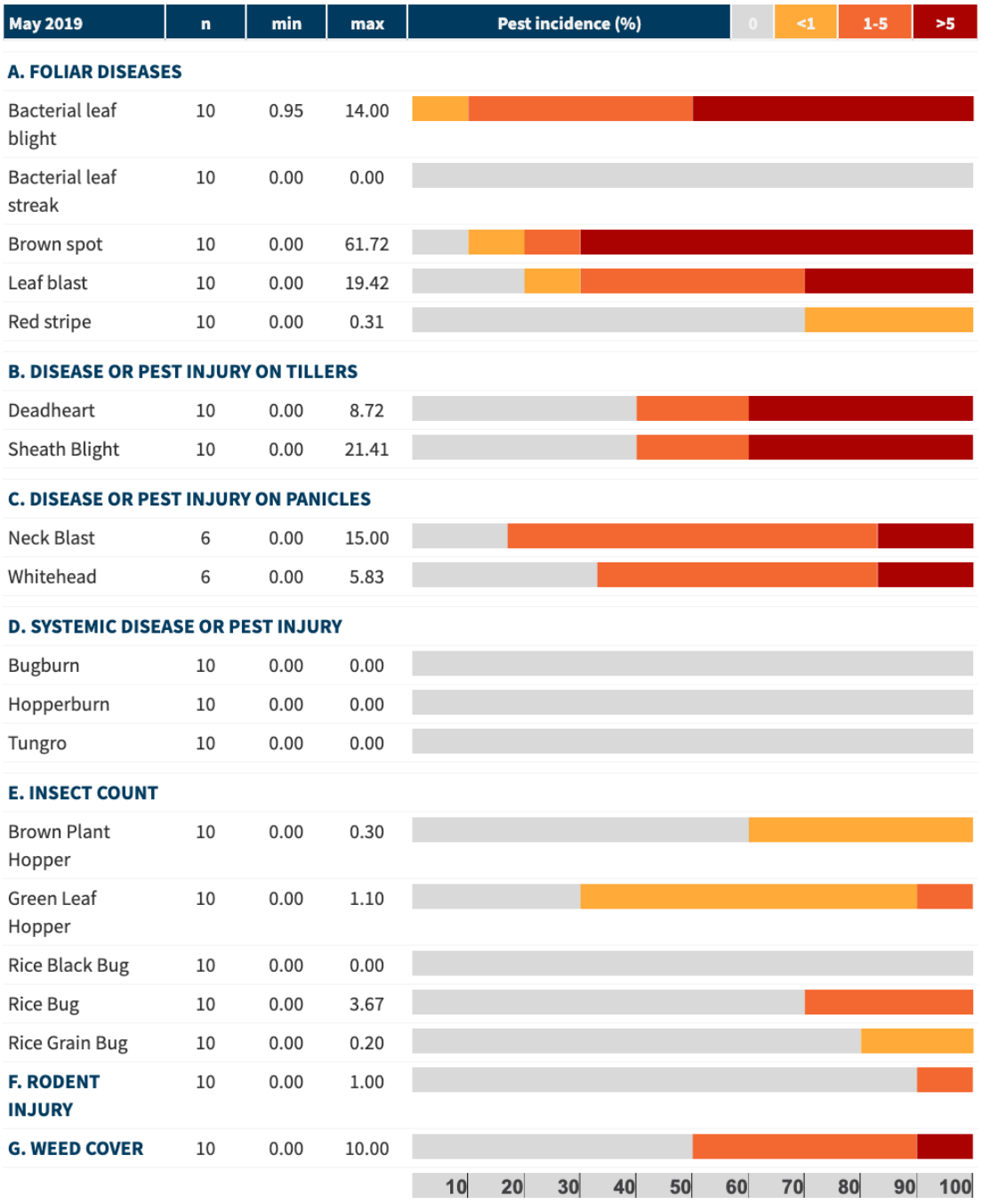
Region VII

April 2019	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	11	0.00	13.76	
Bacterial leaf streak	11	0.00	1.04	
Brown spot	11	0.00	64.76	
Leaf blast	11	0.00	5.19	
Red stripe	11	0.00	0.97	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	11	0.00	28.22	
Sheath Blight	11	0.00	23.05	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	4	0.00	82.02	
Whitehead	4	0.00	2.96	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	11	0.00	0.00	
Hopperburn	11	0.00	0.00	
Tungro	11	0.00	0.00	
E. INSECT COUNT				
Brown Plant Hopper	11	0.00	1.60	
Green Leaf Hopper	11	0.00	5.00	
Rice Black Bug	11	0.00	0.00	
Rice Bug	11	0.00	5.00	
Rice Grain Bug	11	0.00	0.00	
F. RODENT INJURY	11	0.00	0.00	
G. WEED COVER	11	0.00	80.00	

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 VII



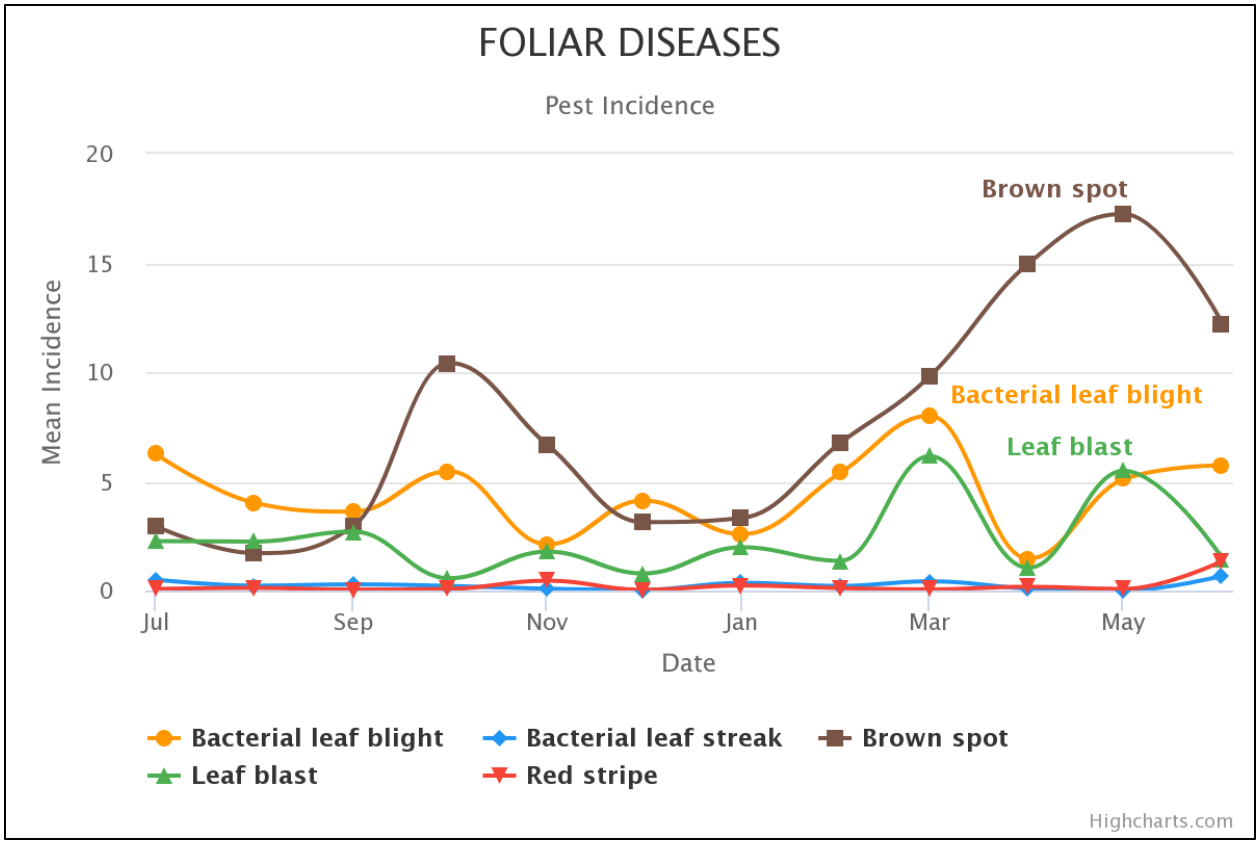
Annex Figure 11. Incidence of pest injuries, count of insect pests, and weed cover in May 2019. Horizontal bar shows the proportion of fields in each range of pest injury incidence, insect count or weed cover.

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

Region VII

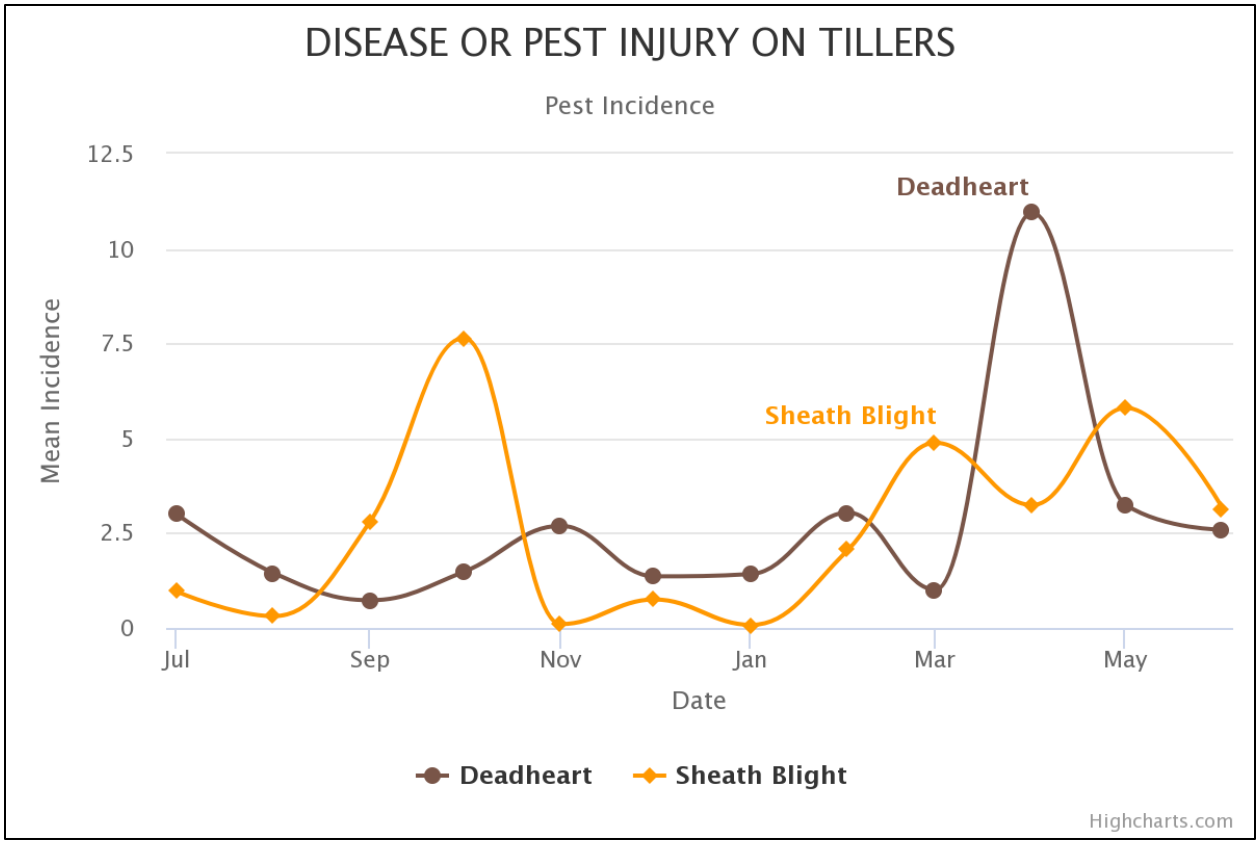
June 2019	n	min	max	Pest incidence (%) 0 <1 1-5 >5
A. FOLIAR DISEASES				
Bacterial leaf blight	10	0.00	15.28	
Bacterial leaf streak	10	0.00	3.75	
Brown spot	10	0.00	87.48	
Leaf blast	10	0.00	9.40	
Red stripe	10	0.00	11.37	
B. DISEASE OR PEST INJURY ON TILLERS				
Deadheart	10	0.00	11.84	
Sheath Blight	10	0.00	13.38	
C. DISEASE OR PEST INJURY ON PANICLES				
Neck Blast	4	0.00	3.80	
Whitehead	4	0.00	7.23	
D. SYSTEMIC DISEASE OR PEST INJURY				
Bugburn	10	0.00	0.00	
Hopperburn	10	0.00	0.00	
Tungro	10	0.00	0.00	
E. INSECT COUNT				
Brown Plant Hopper	10	0.00	0.00	
Green Leaf Hopper	10	0.00	0.60	
Rice Black Bug	10	0.00	0.00	
Rice Bug	10	0.00	3.00	
Rice Grain Bug	10	0.00	0.20	
F. RODENT INJURY	10	0.00	0.00	
G. WEED COVER	10	0.00	80.00	

Annex Figure 12. Annex 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.



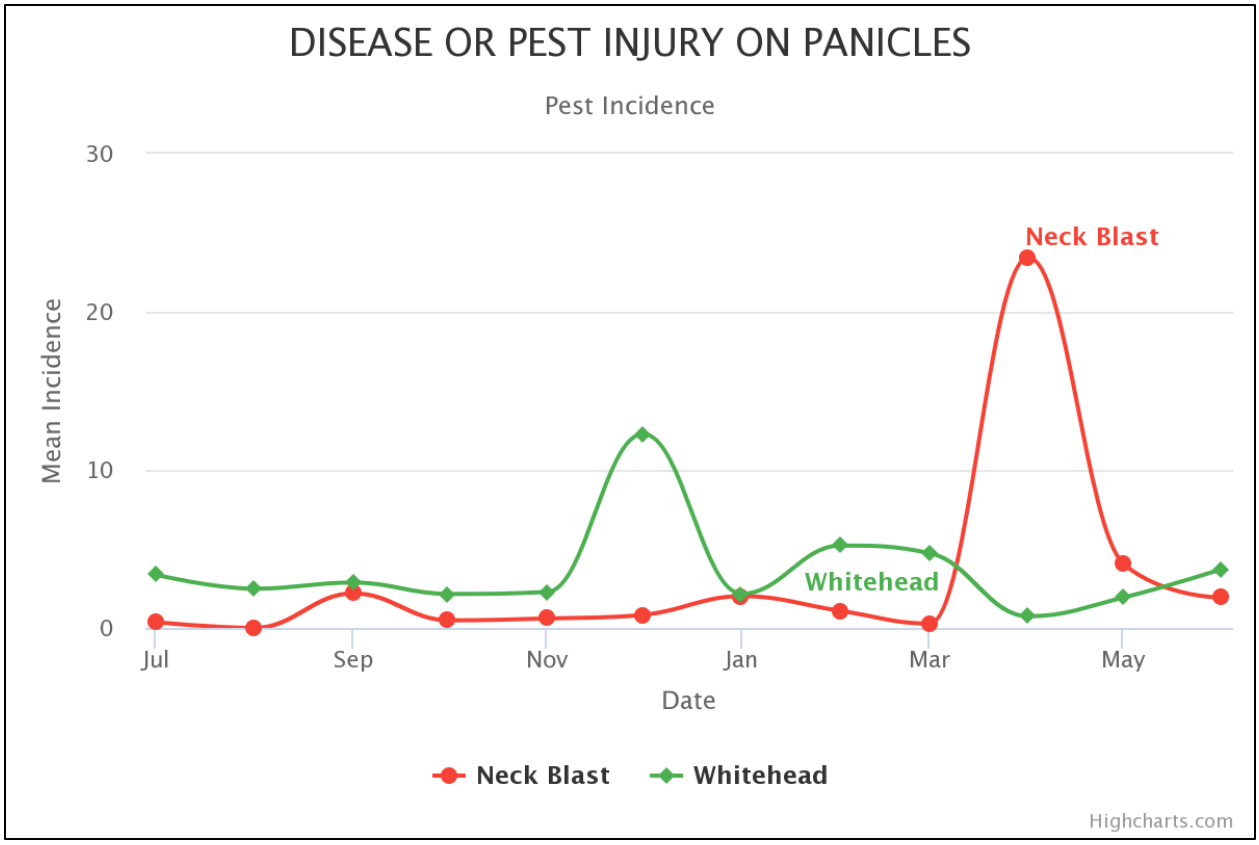
Annex Figure 13. Mean incidence of foliar diseases in Region VII, July 2018 to June 2019.

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



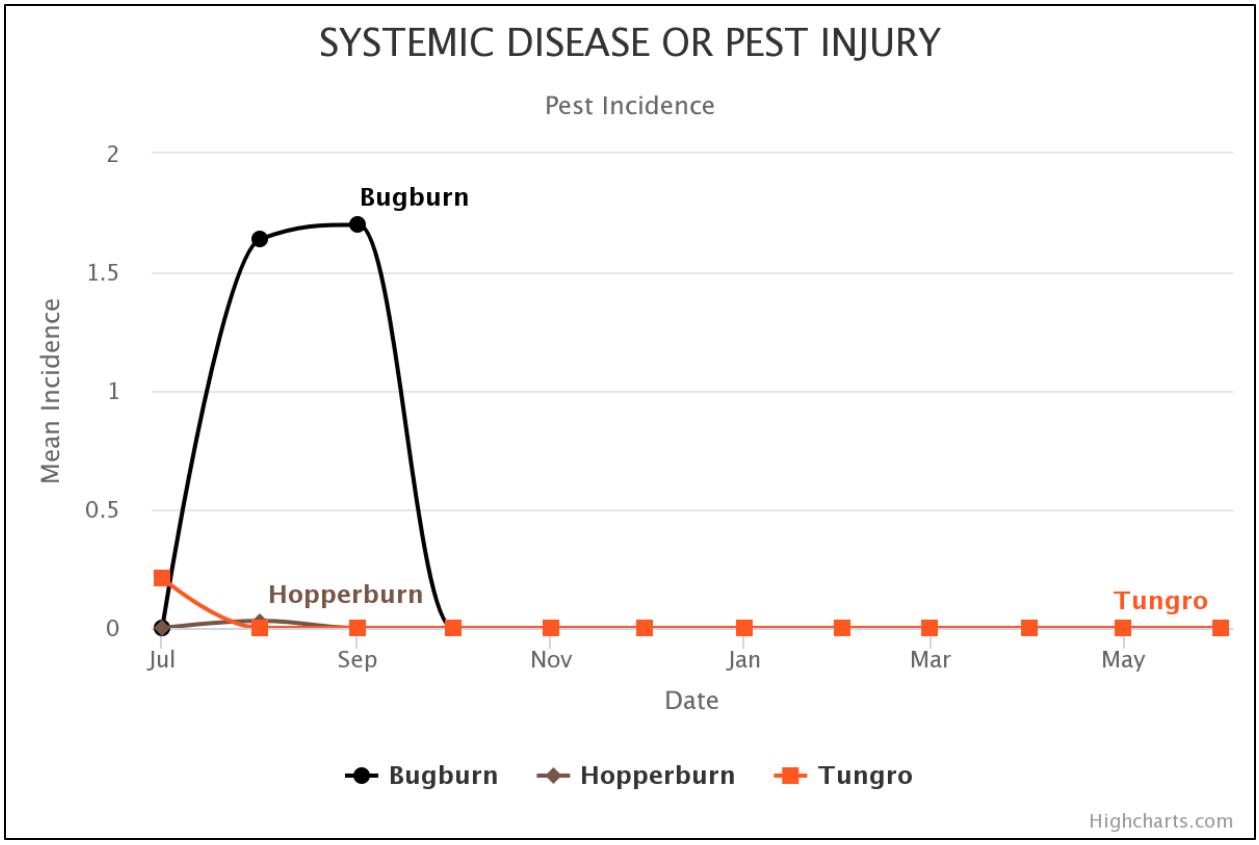
Annex Figure 14. Mean Incidence of deadheart and sheath blight in Region VII, July 2018 to June 2019.

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



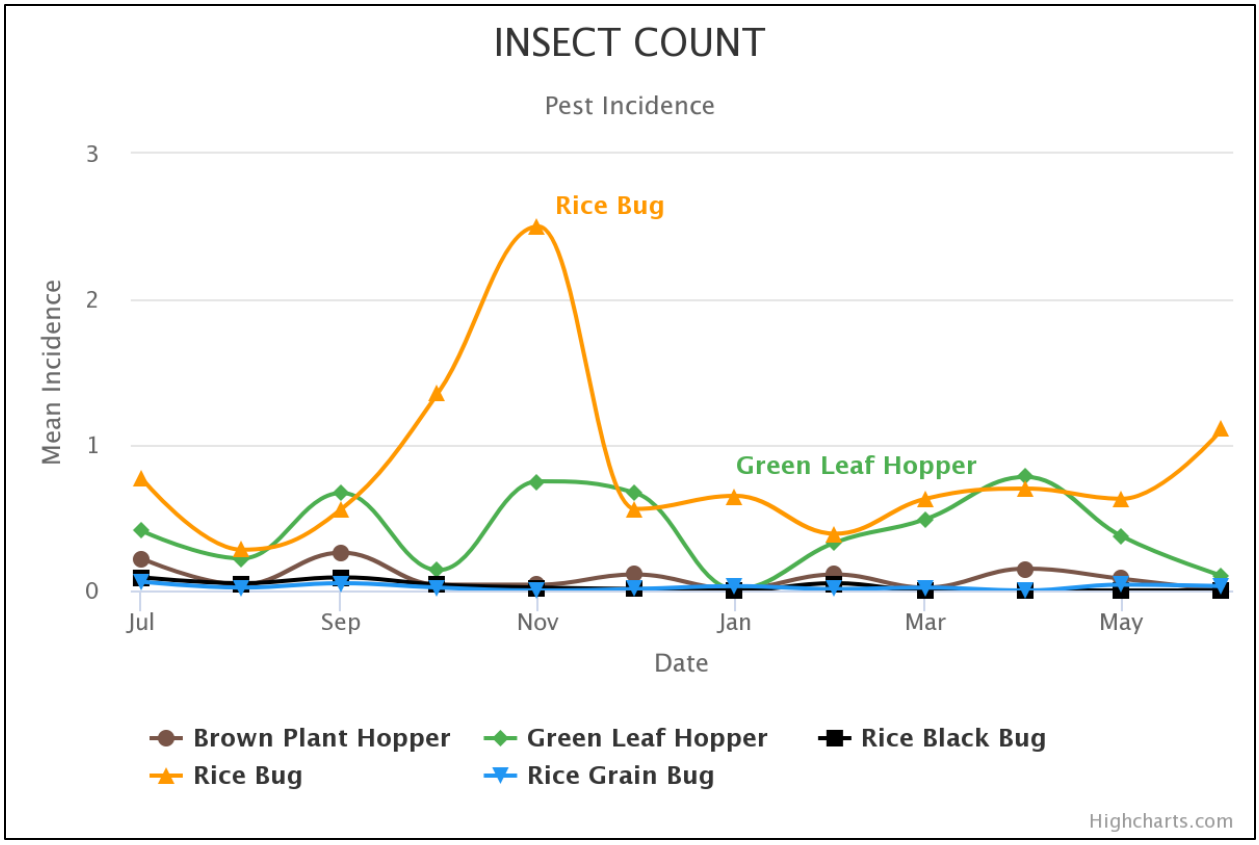
Annex Figure 15. Mean incidence of neck blast and whitehead in Region VII July 2018 to June 2019.

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



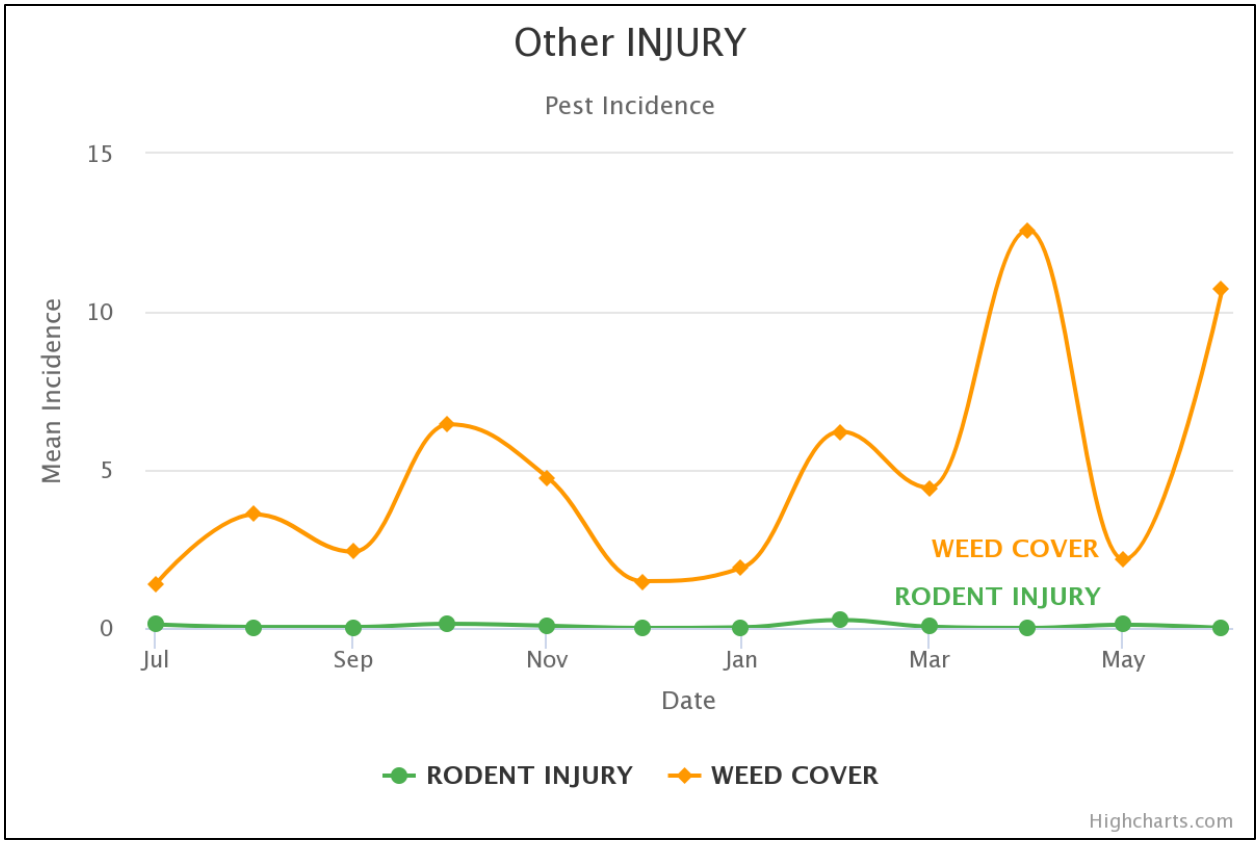
Annex Figure 16. Mean incidence of bugburn, hopperburn and tungro in Region VII, July 2018 to June 2019.

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 17. Mean count of insect pests in Region VII, 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 18. Mean incidence of rat injury and weed infestation in Region VII, 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.