PRIME

# PRE-SEMESTER BULLETIN

July 2018 to June 2019

**REGION IV-A – CALABARZON Region**

# AT A GLANCE

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

CALABARZON

| | 2018 | | | | | | 2019 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JUL | AUG | SEP | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN |
| **A. FOLIAR DISEASES** | | | | | | | | | | | | |
| Bacterial leaf blight | 0 | 0.1 | 0.1 | 1.5 | 0.2 | 0 | 0 | 0.1 | 0 | 0 | 0 | 0 |
| Bacterial leaf streak | 0 | 0 | 0.1 | 0.2 | 0.0 | 0 | 0.1 | 0.0 | 0 | 0 | 0 | 0 |
| Brown spot | 0 | 0.2 | 1.0 | 0.6 | 1.0 | 0 | 0.6 | 3.7 | 2.8 | 0.2 | 0.9 | 0.6 |
| Leaf blast | 0 | 0.0 | 0.6 | 0.8 | 0.1 | 0 | 0.2 | 0 | 0 | 0.0 | 0 | 0 |
| Red stripe | 0 | 0.0 | 0 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.2 |
| **B. DISEASE OR PEST INJURY ON TILLERS** | | | | | | | | | | | | |
| Deadheart | 0 | 0.2 | 0.5 | 0.3 | 0.2 | 0 | 0.4 | 0.1 | 2.0 | 0 | 0 | 0.5 |
| Sheath Blight | 0 | 0.6 | 0.3 | 12.8 | 8.3 | 0.1 | 0.3 | 0.5 | 1.7 | 4.4 | 0.5 | 0.5 |
| **C. DISEASE OR PEST INJURY ON PANICLES** | | | | | | | | | | | | |
| Neck Blast | 0 | 0 | 0 | 0 | 0 | 0 | 0.3 | 0 | 0 | 0 | 0 | 0 |
| Whitehead | 0 | 0 | 0 | 4.8 | 1.9 | 0 | 0.7 | 1.8 | 1.5 | 2.9 | 16.9 | 0 |
| **D. SYSTEMIC DISEASE OR PEST INJURY** | | | | | | | | | | | | |
| Bugburn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hopperburn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tungro | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **E. INSECT COUNT** | | | | | | | | | | | | |
| Brown Plant Hopper | 0 | 0 | 0 | 0.1 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Green Leaf Hopper | 0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0 | 0.3 | 0.1 | 0.1 | 0.1 | 0 |
| Rice Black Bug | 0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rice Bug | 0 | 0.3 | 0.4 | 1.4 | 1.0 | 0 | 0.0 | 0.0 | 0.2 | 0.5 | 0.9 | 0.7 |
| Rice Grain Bug | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.1 | 0 |
| **F. RODENT INJURY** | 0 | 0 | 0.1 | 0.4 | 0.1 | 0 | 0 | 0.1 | 0.4 | 0 | 0.3 | 0 |
| **G. WEED COVER** | 0 | 2.7 | 9.8 | 17.5 | 13.3 | 1.7 | 2.4 | 9.3 | 6.8 | 4.8 | 23.3 | 30.6 |

**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:** | Quezon: Infanta, Lopez, and Sariaya |
| **Monitoring date:** | July 2018 - June 2019 |
| **Number of monitoring fields:** | 27 monitoring fields |
| **Data collectors:** | Aries Labonera, Eugene Calabia, Krizzia Ivy Sumilang, Marianito Jr. Mendoza, and Rojohn Velasco |

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# Growth stages

Transplanting of the fields in the second semester of 2018 mostly occurred in July to August and most of the fields were harvested in October to November (Figure 1). Most of the monitored fields were at the vegetative stage in August to September 2018 and the peak of harvest was in October 2018. Transplanting in the first semester of 2019 started in December 2018 and most of the fields were at vegetative stage in January to February 2019. A large proportion of the fields were fallow in April to June 2019.

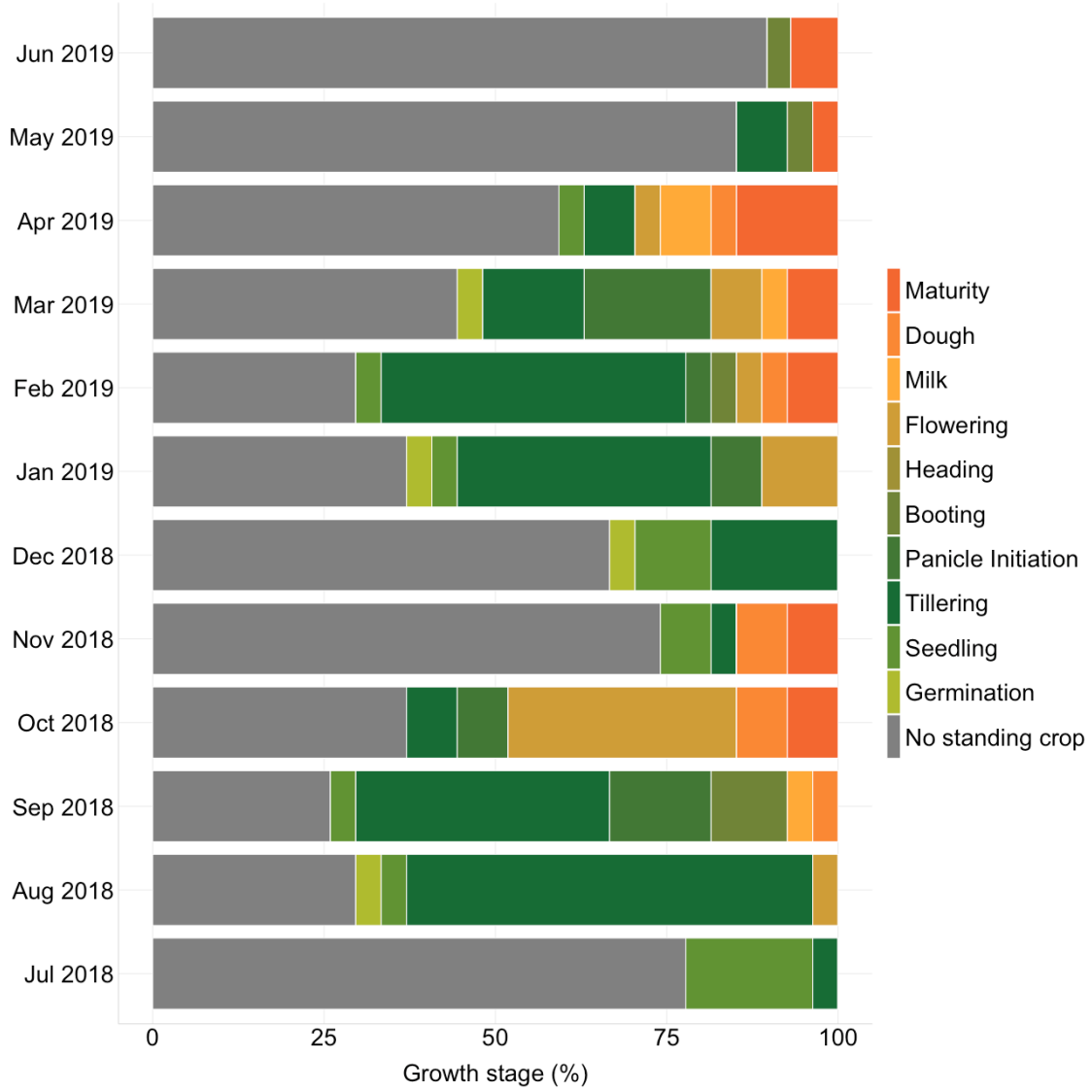


Figure 1. Proportion of crop growth stage of fields by month.

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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 mean incidence of all foliar diseases during the year was negligible (Figure 2). The highest mean incidences of brown spot were 4% (February 2019) and 3% (March 2019). The median incidence was 0 in almost all months was 0.

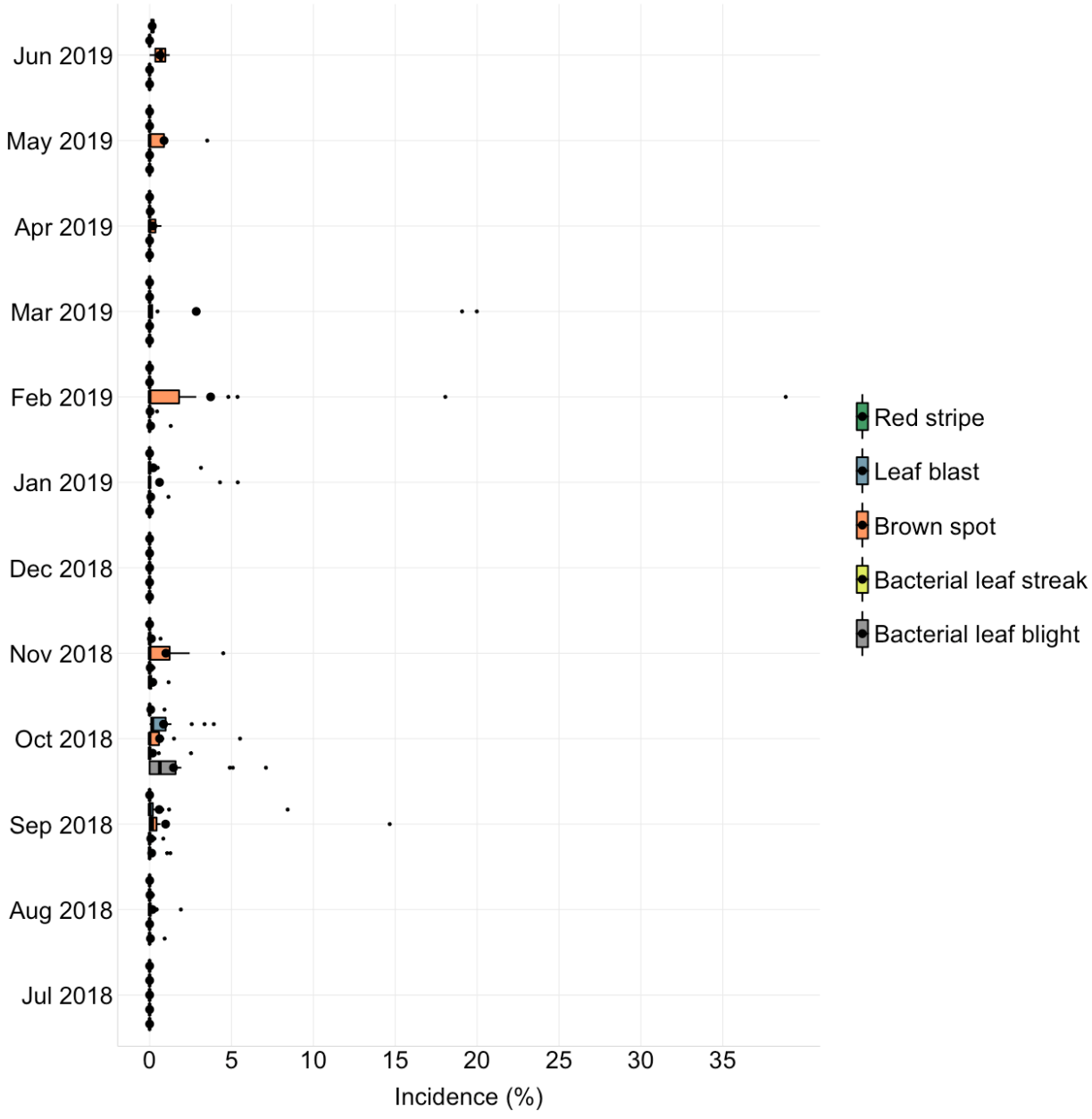


Figure 2. Incidence of foliar diseases in CALABARZON from July 2018 to June 2019.

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## B. Pest injuries and diseases on tillers

The mean and median incidence of sheath blight was 13% and 8%, respectively, in October 2018, when most of the standing crop was at milk to maturity stages (Figure 3). The mean and median incidence was 8% and 0, respectively in November 2018. The incidence of sheath blight was higher in the second semester of 2018 than in the first semester of 2019, which coincided with the wet and dry seasons, respectively. The incidence of deadheart was negligible during the year.

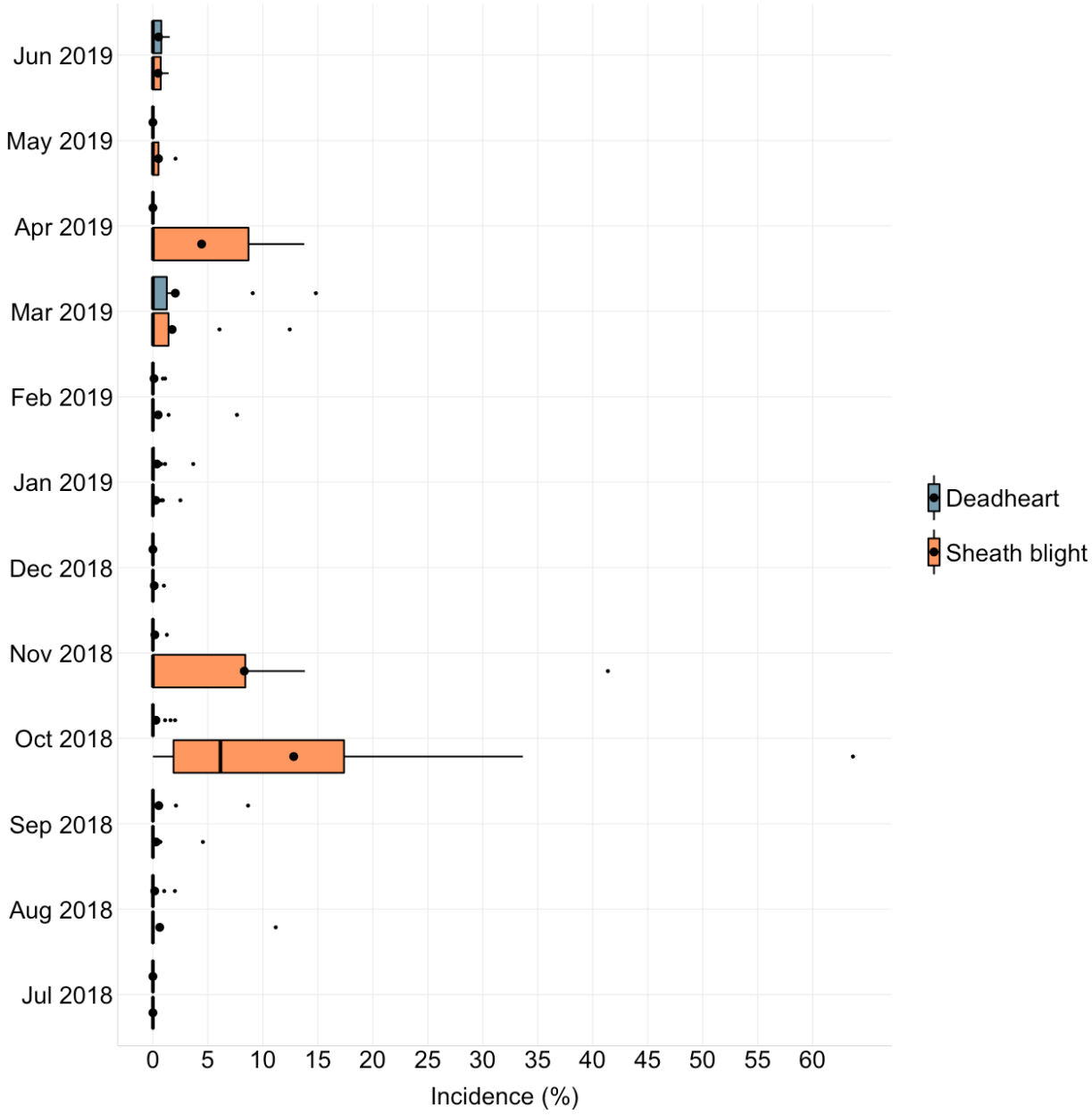


Figure 3. Incidence of deadheart and sheath blight in CALABARZON, July 2018 to June 2019.

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## C. Pest injuries and diseases on panicles

The only field that was monitored in May 2019 had a whitehead incidence of 17%, which was the highest incidence observed during the year (Figure 4). The incidence of whitehead was lower than 5% in the other months.

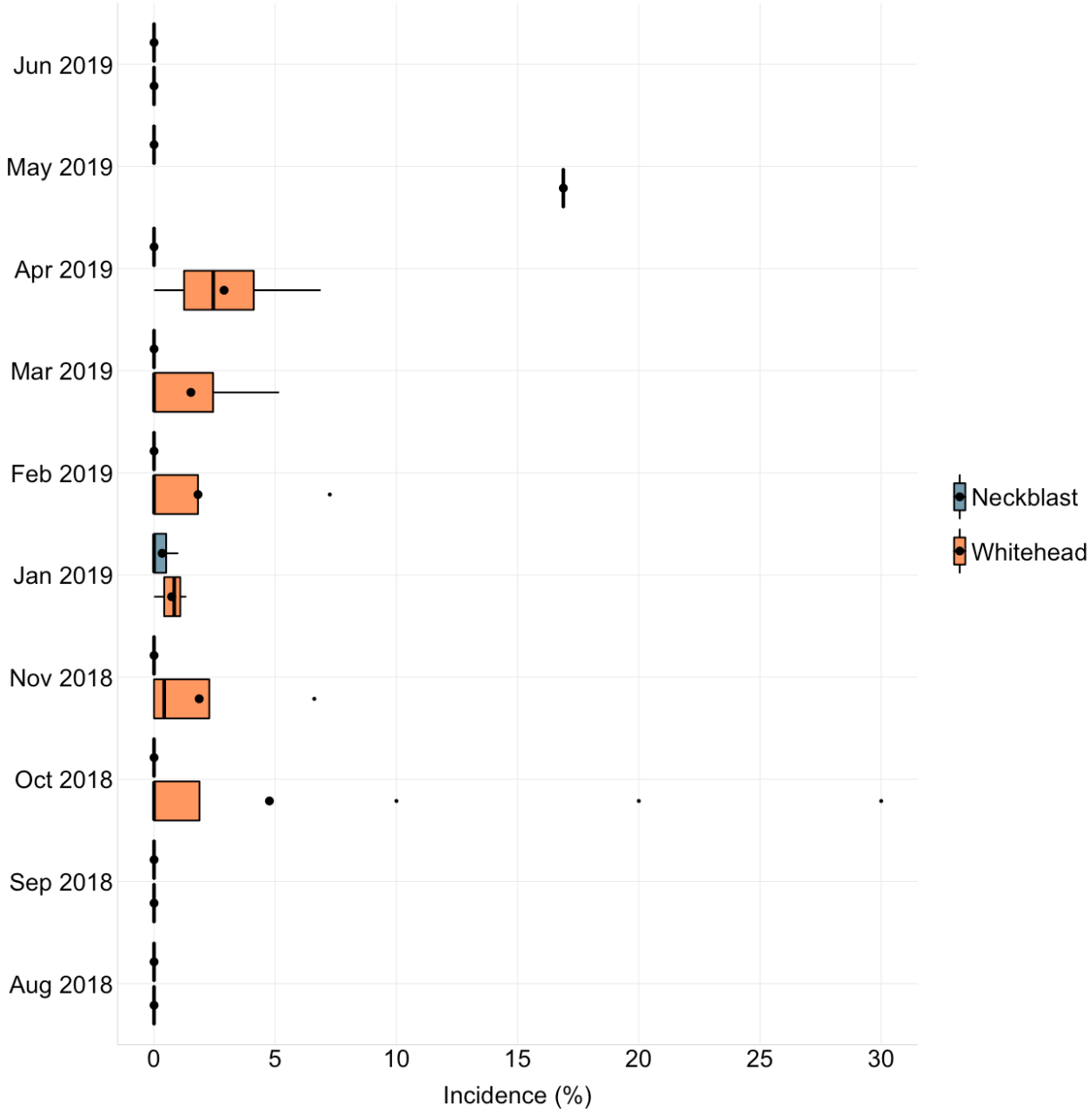


Figure 4. Incidence of neck blast and whitehead caused by stemborer in CALABARZON, July 2018 to June 2019.

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# D. Systemic diseases and pest injuries

Systemic pest injuries or diseases were not observed during the year (Figure 5).

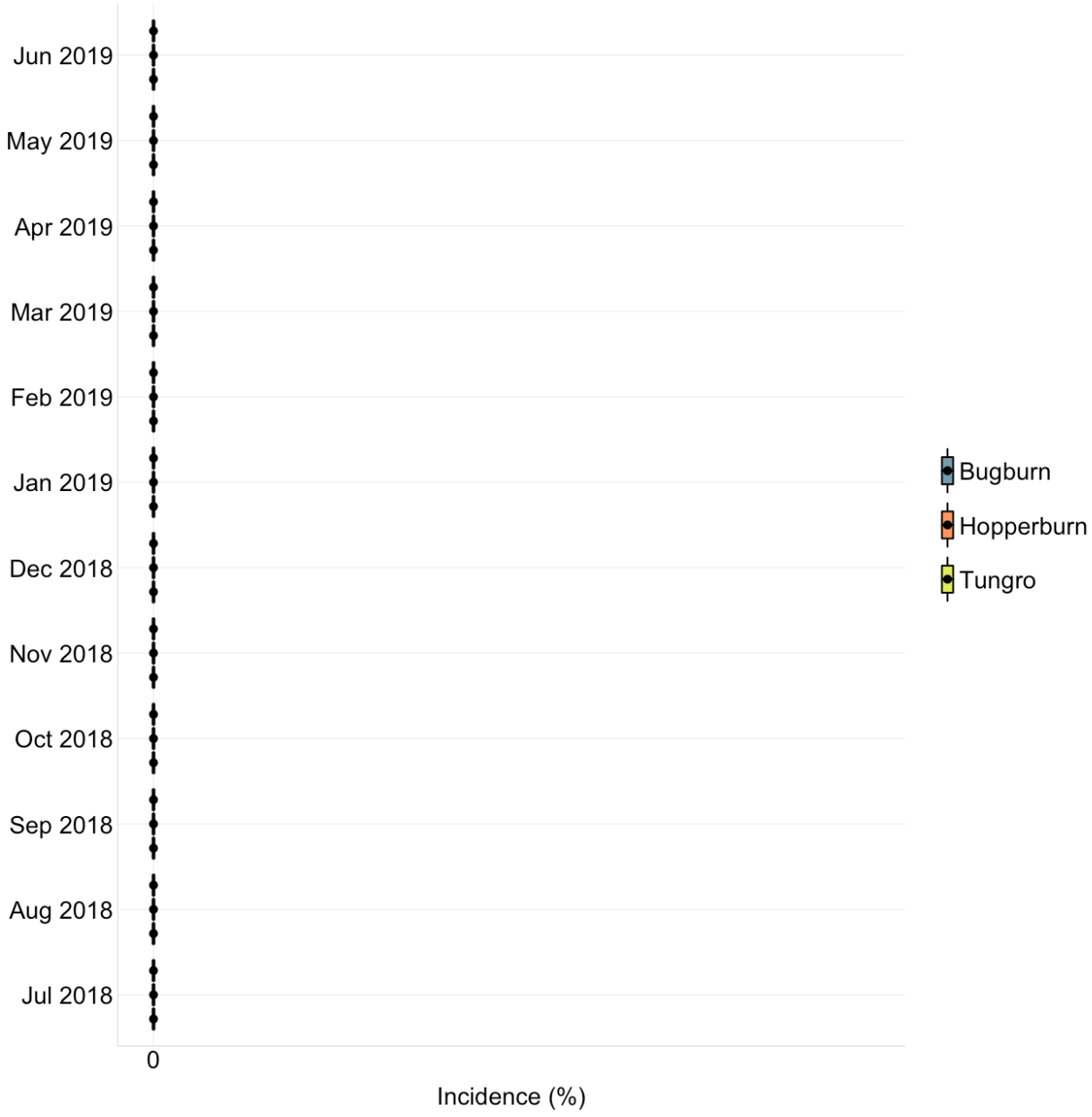


Figure 5. Incidence of bugburn and hopperburn caused by brown planthopper and tungro in CALABARZON, July 2018 to June 2019.

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# E. Insect count

The number of observed insect pests during the year was negligible (Figure 6). The highest mean count of rice bug in the second semester of 2018 were observed in October and November (1.41 and 0.95 per square meter, respectively). In the first semester of 2019, the highest mean count of rice bug was observed in May to June (0.92 and 0.67 per square meter, respectively).

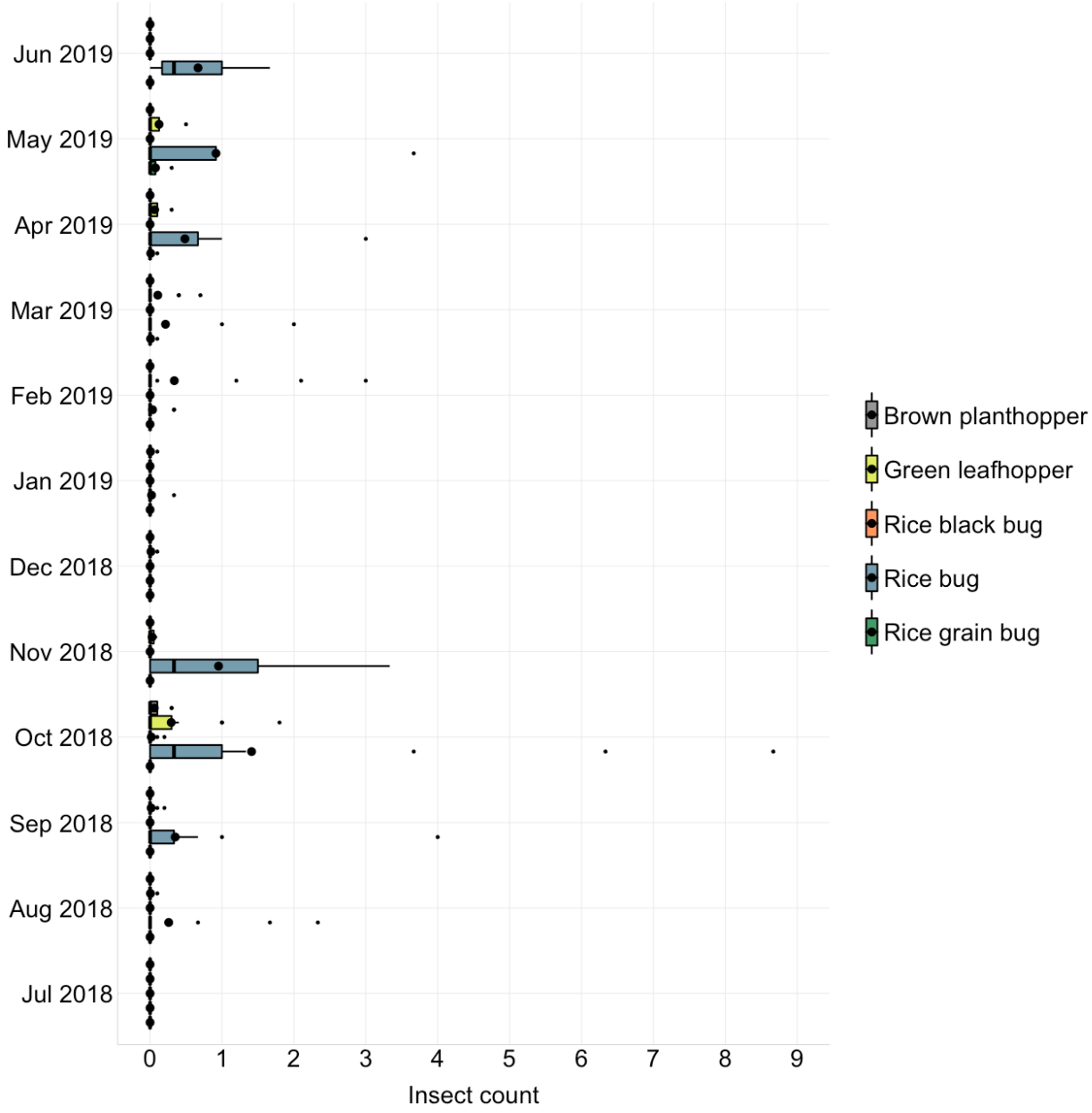


Figure 6. Count of insect pests in CALABARZON, July 2018 to June 2019.

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## F. Rat injury

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

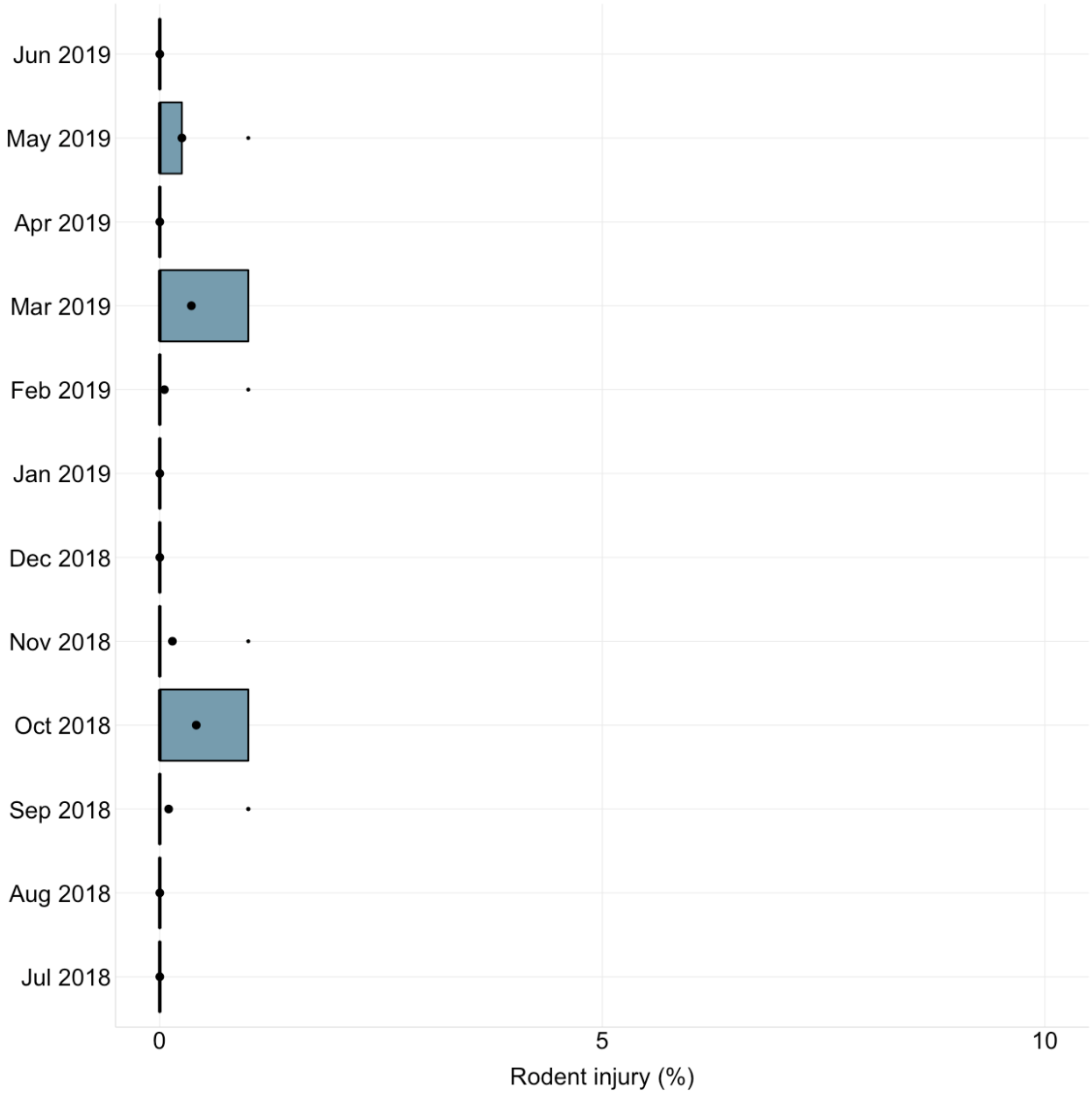


Figure 7. Incidence of rat injury in CALABARZON, July 2018 to June 2019.

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# G. Weed cover

The mean percentage of weed cover was higher than 5% in most of the months (Figure 8). The data collectors recorded weed infestation when fields were fallow. The highest mean and median percentage of weed cover was observed in October (18% and 5%, respectively) and November 2018 (13% and 3%), respectively. The highest mean and median of weed cover during the first semester of 2019 was observed in May (23% and 20%, respectively) and June 2019 (31% and 20%, respectively). Most of the monitored fields had no standing crop during these months.

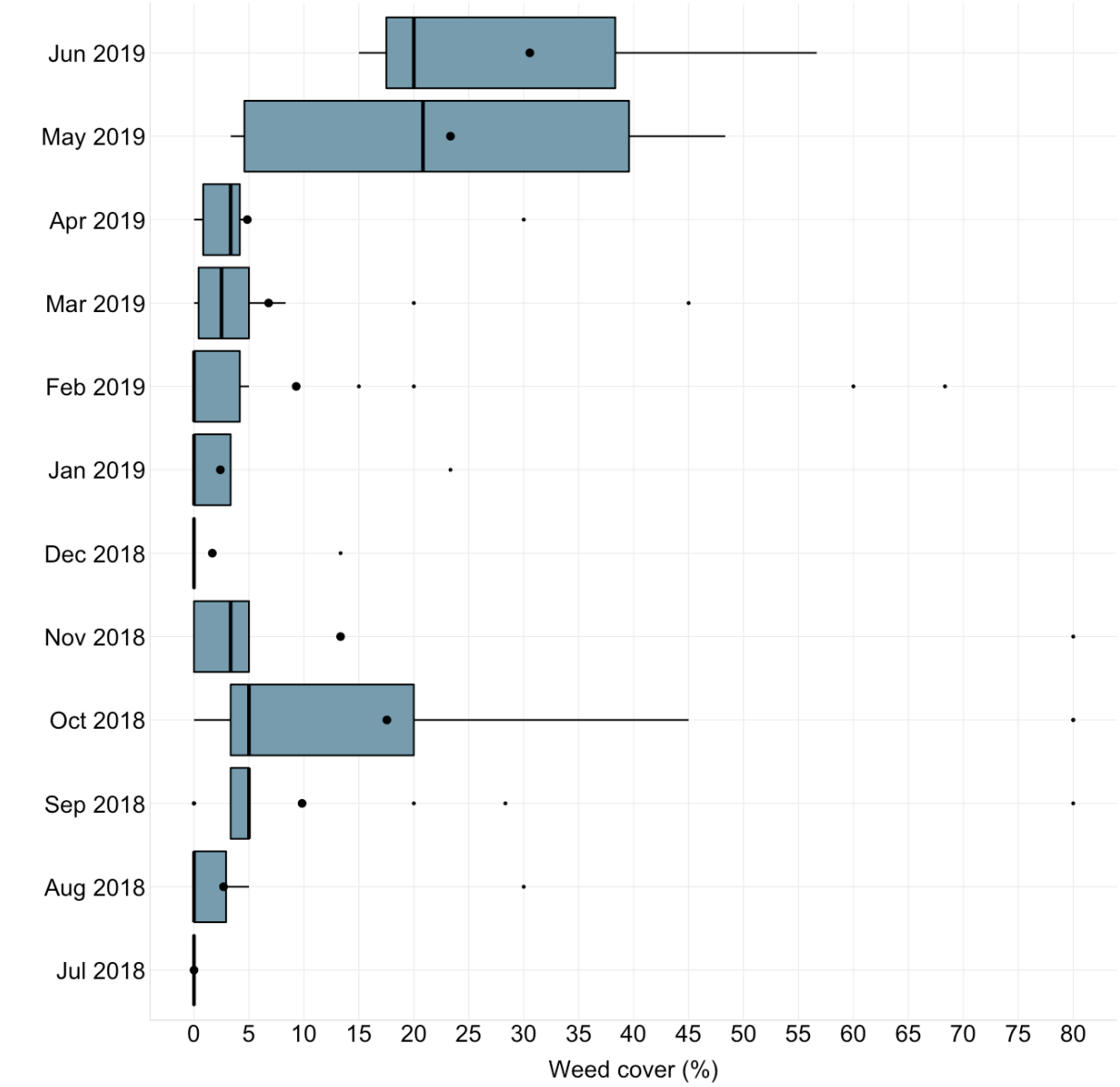


Figure 8. Percentage of weed cover in CALABARZON, July 2018 to June 2019.

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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 feasible, 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.

## 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.

## 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.

# Annexes

CALABARZON

| July 2018 | n | min | max | Pest incidence (%) | 0 | <1 | 1-5 | >5 |
|---|---|---|---|---|---|---|---|---|
| **A. FOLIAR DISEASES** | | | | | | | | |
| Bacterial leaf blight | 6 | 0.00 | 0.00 | | | | | |
| Bacterial leaf streak | 6 | 0.00 | 0.00 | | | | | |
| Brown spot | 6 | 0.00 | 0.00 | | | | | |
| Leaf blast | 6 | 0.00 | 0.00 | | | | | |
| Red stripe | 6 | 0.00 | 0.00 | | | | | |
| **B. DISEASE OR PEST INJURY ON TILLERS** | | | | | | | | |
| Deadheart | 6 | 0.00 | 0.00 | | | | | |
| Sheath Blight | 6 | 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 | 6 | 0.00 | 0.00 | | | | | |
| Hopperburn | 6 | 0.00 | 0.00 | | | | | |
| Tungro | 6 | 0.00 | 0.00 | | | | | |
| **E. INSECT COUNT** | | | | | | | | |
| Brown Plant Hopper | 6 | 0.00 | 0.00 | | | | | |
| Green Leaf Hopper | 6 | 0.00 | 0.00 | | | | | |
| Rice Black Bug | 6 | 0.00 | 0.00 | | | | | |
| Rice Bug | 6 | 0.00 | 0.00 | | | | | |
| Rice Grain Bug | 6 | 0.00 | 0.00 | | | | | |
| **F. RODENT INJURY** | 6 | 0.00 | 0.00 | | | | | |
| **G. WEED COVER** | 6 | 0.00 | 0.00 | | | | | |
| | | | | 10 20 30 40 50 60 70 80 90 100 | | | | |

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.

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

CALABARZON

| August 2018 | n | min | max | Pest incidence (%) 0 <1 1-5 >5 |
|---|---|---|---|---|
| **A. FOLIAR DISEASES** | | | | |
| Bacterial leaf blight | 18 | 0.00 | 0.92 | |
| Bacterial leaf streak | 18 | 0.00 | 0.00 | |
| Brown spot | 18 | 0.00 | 1.91 | |
| Leaf blast | 18 | 0.00 | 0.20 | |
| Red stripe | 18 | 0.00 | 0.10 | |
| **B. DISEASE OR PEST INJURY ON TILLERS** | | | | |
| Deadheart | 18 | 0.00 | 2.00 | |
| Sheath Blight | 18 | 0.00 | 11.17 | |
| **C. DISEASE OR PEST INJURY ON PANICLES** | | | | |
| Neck Blast | 1 | 0.00 | 0.00 | |
| Whitehead | 1 | 0.00 | 0.00 | |
| **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 | 0.00 | |
| Green Leaf Hopper | 18 | 0.00 | 0.10 | |
| Rice Black Bug | 18 | 0.00 | 0.00 | |
| Rice Bug | 18 | 0.00 | 2.33 | |
| Rice Grain Bug | 18 | 0.00 | 0.00 | |
| **F. RODENT INJURY** | 18 | 0.00 | 0.00 | |
| **G. WEED COVER** | 18 | 0.00 | 30.00 | |
| | | | | 10 20 30 40 50 60 70 80 90 100 |

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.

CALABARZON

| September 2018 | n | min | max | Pest incidence (%) 0 <1 1-5 >5 |
|---|---|---|---|---|
| **A. FOLIAR DISEASES** | | | | |
| Bacterial leaf blight | 20 | 0.00 | 1.26 | |
| Bacterial leaf streak | 20 | 0.00 | 0.83 | |
| Brown spot | 20 | 0.00 | 14.66 | |
| Leaf blast | 20 | 0.00 | 8.43 | |
| Red stripe | 20 | 0.00 | 0.00 | |
| **B. DISEASE OR PEST INJURY ON TILLERS** | | | | |
| Deadheart | 20 | 0.00 | 8.65 | |
| Sheath Blight | 20 | 0.00 | 4.55 | |
| **C. DISEASE OR PEST INJURY ON PANICLES** | | | | |
| Neck Blast | 2 | 0.00 | 0.00 | |
| Whitehead | 2 | 0.00 | 0.00 | |
| **D. SYSTEMIC DISEASE OR PEST INJURY** | | | | |
| Bugburn | 20 | 0.00 | 0.00 | |
| Hopperburn | 20 | 0.00 | 0.00 | |
| Tungro | 20 | 0.00 | 0.00 | |
| **E. INSECT COUNT** | | | | |
| Brown Plant Hopper | 20 | 0.00 | 0.00 | |
| Green Leaf Hopper | 20 | 0.00 | 0.20 | |
| Rice Black Bug | 20 | 0.00 | 0.00 | |
| Rice Bug | 20 | 0.00 | 4.00 | |
| Rice Grain Bug | 20 | 0.00 | 0.00 | |
| **F. RODENT INJURY** | 20 | 0.00 | 1.00 | |
| **G. WEED COVER** | 20 | 0.00 | 80.00 | |


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

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

CALABARZON

| October 2018 | n | min | max | Pest incidence (%) 0 | <1 | 1-5 | >5 |
|---|---|---|---|---|---|---|---|
| **A. FOLIAR DISEASES** | | | | | | | |
| Bacterial leaf blight | 17 | 0.00 | 7.10 | | | | |
| Bacterial leaf streak | 17 | 0.00 | 2.53 | | | | |
| Brown spot | 17 | 0.00 | 5.52 | | | | |
| Leaf blast | 17 | 0.00 | 3.92 | | | | |
| Red stripe | 17 | 0.00 | 0.91 | | | | |
| **B. DISEASE OR PEST INJURY ON TILLERS** | | | | | | | |
| Deadheart | 17 | 0.00 | 2.02 | | | | |
| Sheath Blight | 17 | 0.00 | 63.66 | | | | |
| **C. DISEASE OR PEST INJURY ON PANICLES** | | | | | | | |
| Neck Blast | 13 | 0.00 | 0.00 | | | | |
| Whitehead | 13 | 0.00 | 30.00 | | | | |
| **D. SYSTEMIC DISEASE OR PEST INJURY** | | | | | | | |
| Bugburn | 17 | 0.00 | 0.00 | | | | |
| Hopperburn | 17 | 0.00 | 0.00 | | | | |
| Tungro | 17 | 0.00 | 0.00 | | | | |
| **E. INSECT COUNT** | | | | | | | |
| Brown Plant Hopper | 17 | 0.00 | 0.30 | | | | |
| Green Leaf Hopper | 17 | 0.00 | 1.80 | | | | |
| Rice Black Bug | 17 | 0.00 | 0.20 | | | | |
| Rice Bug | 17 | 0.00 | 8.67 | | | | |
| Rice Grain Bug | 17 | 0.00 | 0.00 | | | | |
| **F. RODENT INJURY** | 17 | 0.00 | 1.00 | | | | |
| **G. WEED COVER** | 17 | 0.00 | 80.00 | | | | |


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.

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

CALABARZON

| November 2018 | n | min | max | Pest incidence (%) 0 <1 1-5 >5 |
|---|---|---|---|---|
| **A. FOLIAR DISEASES** | | | | |
| Bacterial leaf blight | 7 | 0.00 | 1.16 | |
| Bacterial leaf streak | 7 | 0.00 | 0.24 | |
| Brown spot | 7 | 0.00 | 4.49 | |
| Leaf blast | 7 | 0.00 | 0.67 | |
| Red stripe | 7 | 0.00 | 0.00 | |
| **B. DISEASE OR PEST INJURY ON TILLERS** | | | | |
| Deadheart | 7 | 0.00 | 1.27 | |
| Sheath Blight | 7 | 0.00 | 41.38 | |
| **C. DISEASE OR PEST INJURY ON PANICLES** | | | | |
| Neck Blast | 4 | 0.00 | 0.00 | |
| Whitehead | 4 | 0.00 | 6.61 | |
| **D. SYSTEMIC DISEASE OR PEST INJURY** | | | | |
| Bugburn | 7 | 0.00 | 0.00 | |
| Hopperburn | 7 | 0.00 | 0.00 | |
| Tungro | 7 | 0.00 | 0.00 | |
| **E. INSECT COUNT** | | | | |
| Brown Plant Hopper | 7 | 0.00 | 0.00 | |
| Green Leaf Hopper | 7 | 0.00 | 0.10 | |
| Rice Black Bug | 7 | 0.00 | 0.00 | |
| Rice Bug | 7 | 0.00 | 3.33 | |
| Rice Grain Bug | 7 | 0.00 | 0.00 | |
| **F. RODENT INJURY** | 7 | 0.00 | 1.00 | |
| **G. WEED COVER** | 7 | 0.00 | 80.00 | |


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.

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

CALABARZON

| December 2018 | n | min | max | Pest incidence (%) | 0 | <1 | 1-5 | >5 |
|---|---|---|---|---|---|---|---|---|
| **A. FOLIAR DISEASES** | | | | | | | | |
| Bacterial leaf blight | 8 | 0.00 | 0.00 | | | | | |
| Bacterial leaf streak | 8 | 0.00 | 0.00 | | | | | |
| Brown spot | 8 | 0.00 | 0.00 | | | | | |
| Leaf blast | 8 | 0.00 | 0.00 | | | | | |
| Red stripe | 8 | 0.00 | 0.00 | | | | | |
| **B. DISEASE OR PEST INJURY ON TILLERS** | | | | | | | | |
| Deadheart | 8 | 0.00 | 0.00 | | | | | |
| Sheath Blight | 8 | 0.00 | 1.00 | | | | | |
| **C. DISEASE OR PEST INJURY ON PANICLES** | | | | | | | | |
| Neck Blast | 0 | 0 | 0 | | | | | |
| Whitehead | 0 | 0 | 0 | | | | | |
| **D. SYSTEMIC DISEASE OR PEST INJURY** | | | | | | | | |
| Bugburn | 8 | 0.00 | 0.00 | | | | | |
| Hopperburn | 8 | 0.00 | 0.00 | | | | | |
| Tungro | 8 | 0.00 | 0.00 | | | | | |
| **E. INSECT COUNT** | | | | | | | | |
| Brown Plant Hopper | 8 | 0.00 | 0.00 | | | | | |
| Green Leaf Hopper | 8 | 0.00 | 0.10 | | | | | |
| Rice Black Bug | 8 | 0.00 | 0.00 | | | | | |
| Rice Bug | 8 | 0.00 | 0.00 | | | | | |
| Rice Grain Bug | 8 | 0.00 | 0.00 | | | | | |
| **F. RODENT INJURY** | 8 | 0.00 | 0.00 | | | | | |
| **G. WEED COVER** | 8 | 0.00 | 13.33 | | | | | |


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.

CALABARZON

| January 2019 | n | min | max | Pest incidence (%) 0 <1 1-5 >5 |
|---|---|---|---|---|
| **A. FOLIAR DISEASES** | | | | |
| Bacterial leaf blight | 16 | 0.00 | 0.00 | |
| Bacterial leaf streak | 16 | 0.00 | 1.15 | |
| Brown spot | 16 | 0.00 | 5.38 | |
| Leaf blast | 16 | 0.00 | 3.13 | |
| Red stripe | 16 | 0.00 | 0.00 | |
| **B. DISEASE OR PEST INJURY ON TILLERS** | | | | |
| Deadheart | 16 | 0.00 | 3.67 | |
| Sheath Blight | 16 | 0.00 | 2.50 | |
| **C. DISEASE OR PEST INJURY ON PANICLES** | | | | |
| Neck Blast | 3 | 0.00 | 1.00 | |
| Whitehead | 3 | 0.00 | 1.33 | |
| **D. SYSTEMIC DISEASE OR PEST INJURY** | | | | |
| Bugburn | 16 | 0.00 | 0.00 | |
| Hopperburn | 16 | 0.00 | 0.00 | |
| Tungro | 16 | 0.00 | 0.00 | |
| **E. INSECT COUNT** | | | | |
| Brown Plant Hopper | 16 | 0.00 | 0.10 | |
| Green Leaf Hopper | 16 | 0.00 | 0.00 | |
| Rice Black Bug | 16 | 0.00 | 0.00 | |
| Rice Bug | 16 | 0.00 | 0.33 | |
| Rice Grain Bug | 16 | 0.00 | 0.00 | |
| **F. RODENT INJURY** | 16 | 0.00 | 0.00 | |
| **G. WEED COVER** | 16 | 0.00 | 23.33 | |


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.

CALABARZON

| February 2019 | n | min | max | Pest incidence (%) 0 <1 1-5 >5 |
|---|---|---|---|---|
| **A. FOLIAR DISEASES** | | | | |
| Bacterial leaf blight | 19 | 0.00 | 1.29 | |
| Bacterial leaf streak | 19 | 0.00 | 0.45 | |
| Brown spot | 19 | 0.00 | 38.84 | |
| Leaf blast | 19 | 0.00 | 0.00 | |
| Red stripe | 19 | 0.00 | 0.00 | |
| **B. DISEASE OR PEST INJURY ON TILLERS** | | | | |
| Deadheart | 19 | 0.00 | 1.11 | |
| Sheath Blight | 19 | 0.00 | 7.64 | |
| **C. DISEASE OR PEST INJURY ON PANICLES** | | | | |
| Neck Blast | 4 | 0.00 | 0.00 | |
| Whitehead | 4 | 0.00 | 7.25 | |
| **D. SYSTEMIC DISEASE OR PEST INJURY** | | | | |
| Bugburn | 19 | 0.00 | 0.00 | |
| Hopperburn | 19 | 0.00 | 0.00 | |
| Tungro | 19 | 0.00 | 0.00 | |
| **E. INSECT COUNT** | | | | |
| Brown Plant Hopper | 19 | 0.00 | 0.00 | |
| Green Leaf Hopper | 19 | 0.00 | 3.00 | |
| Rice Black Bug | 19 | 0.00 | 0.00 | |
| Rice Bug | 19 | 0.00 | 0.33 | |
| Rice Grain Bug | 19 | 0.00 | 0.00 | |
| **F. RODENT INJURY** | 19 | 0.00 | 1.00 | |
| **G. WEED COVER** | 19 | 0.00 | 68.33 | |
| | | | | 10 20 30 40 50 60 70 80 90 100 |

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

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

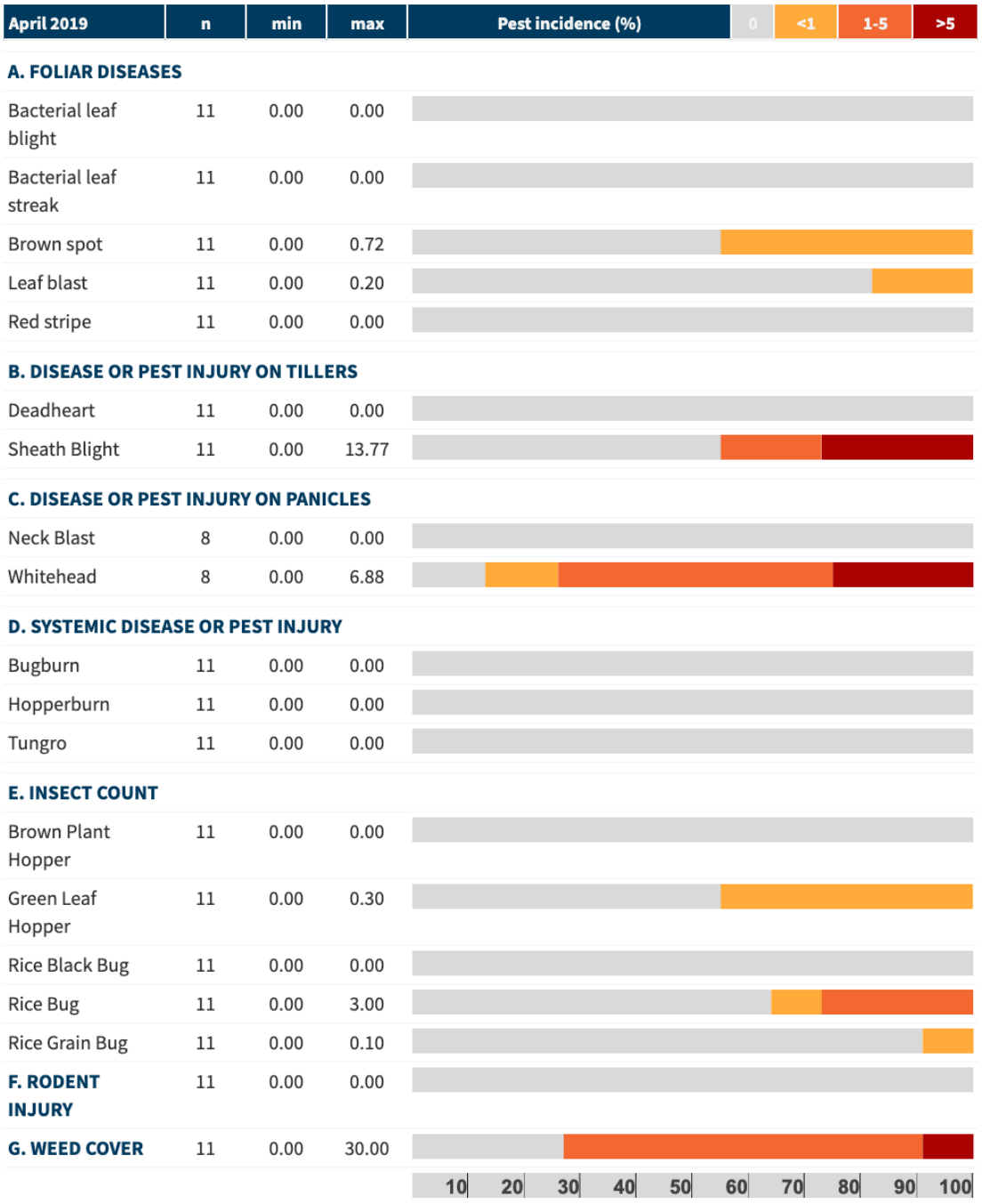
CALABARZON

| March 2019 | n | min | max | Pest incidence (%) 0 <1 1-5 >5 |
|---|---|---|---|---|
| **A. FOLIAR DISEASES** | | | | |
| Bacterial leaf blight | 14 | 0.00 | 0.00 | |
| Bacterial leaf streak | 14 | 0.00 | 0.00 | |
| Brown spot | 14 | 0.00 | 19.98 | |
| Leaf blast | 14 | 0.00 | 0.00 | |
| Red stripe | 14 | 0.00 | 0.00 | |
| **B. DISEASE OR PEST INJURY ON TILLERS** | | | | |
| Deadheart | 14 | 0.00 | 14.82 | |
| Sheath Blight | 14 | 0.00 | 12.44 | |
| **C. DISEASE OR PEST INJURY ON PANICLES** | | | | |
| Neck Blast | 5 | 0.00 | 0.00 | |
| Whitehead | 5 | 0.00 | 5.16 | |
| **D. SYSTEMIC DISEASE OR PEST INJURY** | | | | |
| Bugburn | 14 | 0.00 | 0.00 | |
| Hopperburn | 14 | 0.00 | 0.00 | |
| Tungro | 14 | 0.00 | 0.00 | |
| **E. INSECT COUNT** | | | | |
| Brown Plant Hopper | 14 | 0.00 | 0.00 | |
| Green Leaf Hopper | 14 | 0.00 | 0.70 | |
| Rice Black Bug | 14 | 0.00 | 0.00 | |
| Rice Bug | 14 | 0.00 | 2.00 | |
| Rice Grain Bug | 14 | 0.00 | 0.10 | |
| **F. RODENT INJURY** | 14 | 0.00 | 1.00 | |
| **G. WEED COVER** | 14 | 0.00 | 45.00 | |


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

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

CALABARZON




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.

CALABARZON

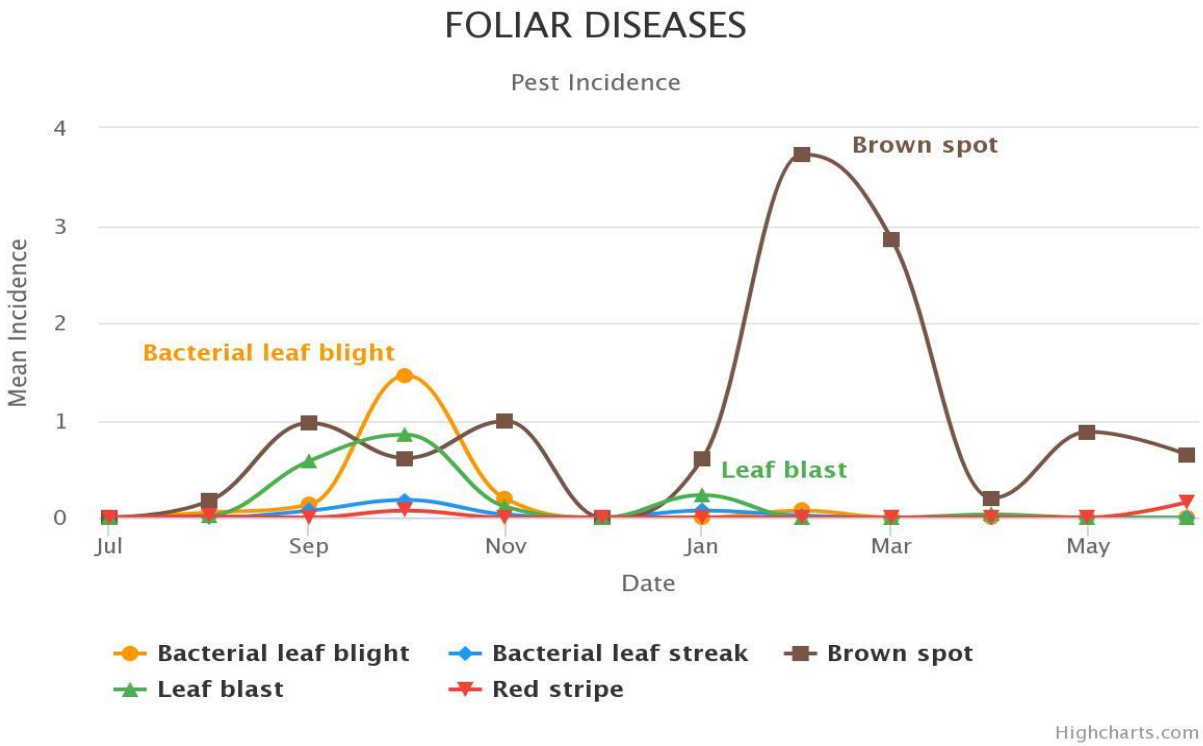
| May 2019 | n | min | max | Pest incidence (%) 0 <1 1-5 >5 |
|---|---|---|---|---|
| **A. FOLIAR DISEASES** | | | | |
| Bacterial leaf blight | 4 | 0.00 | 0.00 | |
| Bacterial leaf streak | 4 | 0.00 | 0.00 | |
| Brown spot | 4 | 0.00 | 3.52 | |
| Leaf blast | 4 | 0.00 | 0.00 | |
| Red stripe | 4 | 0.00 | 0.00 | |
| **B. DISEASE OR PEST INJURY ON TILLERS** | | | | |
| Deadheart | 4 | 0.00 | 0.00 | |
| Sheath Blight | 4 | 0.00 | 2.05 | |
| **C. DISEASE OR PEST INJURY ON PANICLES** | | | | |
| Neck Blast | 1 | 0.00 | 0.00 | |
| Whitehead | 1 | 16.89 | 16.89 | |
| **D. SYSTEMIC DISEASE OR PEST INJURY** | | | | |
| Bugburn | 4 | 0.00 | 0.00 | |
| Hopperburn | 4 | 0.00 | 0.00 | |
| Tungro | 4 | 0.00 | 0.00 | |
| **E. INSECT COUNT** | | | | |
| Brown Plant Hopper | 4 | 0.00 | 0.00 | |
| Green Leaf Hopper | 4 | 0.00 | 0.50 | |
| Rice Black Bug | 4 | 0.00 | 0.00 | |
| Rice Bug | 4 | 0.00 | 3.67 | |
| Rice Grain Bug | 4 | 0.00 | 0.30 | |
| **F. RODENT INJURY** | 4 | 0.00 | 1.00 | |
| **G. WEED COVER** | 4 | 3.33 | 48.33 | |


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.

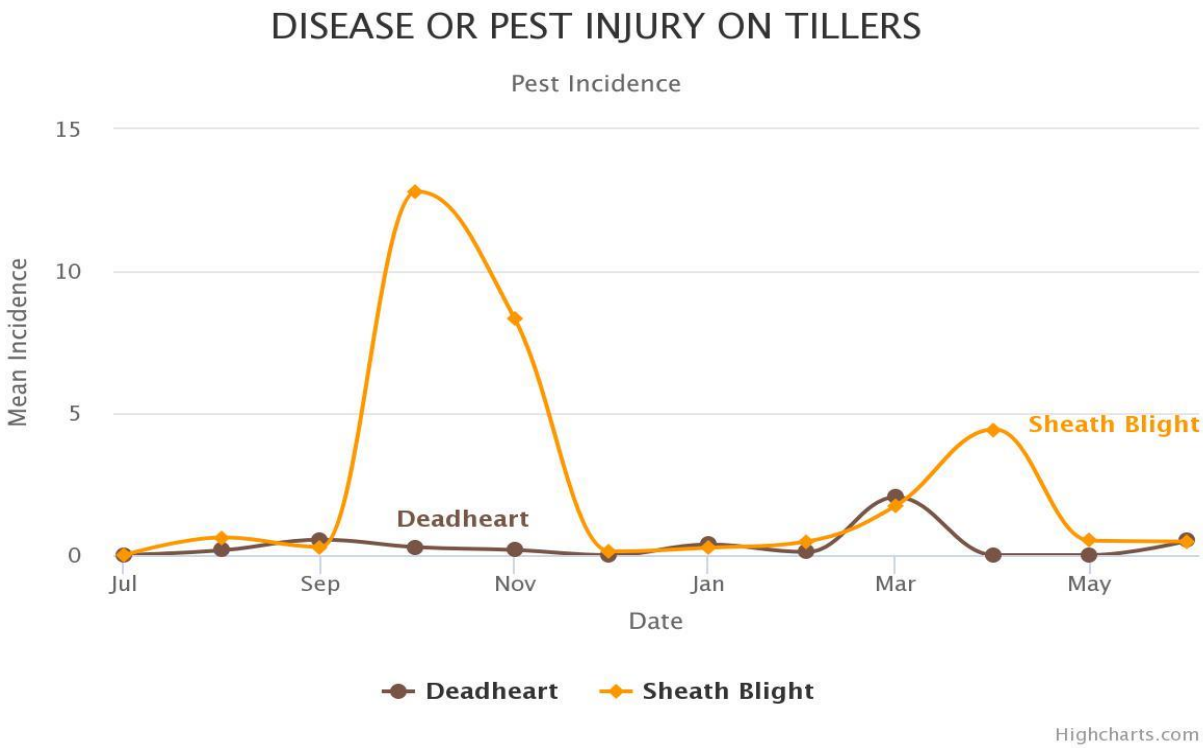
CALABARZON

| June 2019 | n | min | max | Pest incidence (%) 0 | <1 | 1-5 | >5 |
|---|---|---|---|---|---|---|---|
| **A. FOLIAR DISEASES** | | | | | | | |
| Bacterial leaf blight | 3 | 0.00 | 0.00 | | | | |
| Bacterial leaf streak | 3 | 0.00 | 0.00 | | | | |
| Brown spot | 3 | 0.00 | 1.23 | | | | |
| Leaf blast | 3 | 0.00 | 0.00 | | | | |
| Red stripe | 3 | 0.00 | 0.28 | | | | |
| **B. DISEASE OR PEST INJURY ON TILLERS** | | | | | | | |
| Deadheart | 3 | 0.00 | 1.54 | | | | |
| Sheath Blight | 3 | 0.00 | 1.43 | | | | |
| **C. DISEASE OR PEST INJURY ON PANICLES** | | | | | | | |
| Neck Blast | 2 | 0.00 | 0.00 | | | | |
| Whitehead | 2 | 0.00 | 0.00 | | | | |
| **D. SYSTEMIC DISEASE OR PEST INJURY** | | | | | | | |
| Bugburn | 3 | 0.00 | 0.00 | | | | |
| Hopperburn | 3 | 0.00 | 0.00 | | | | |
| Tungro | 3 | 0.00 | 0.00 | | | | |
| **E. INSECT COUNT** | | | | | | | |
| Brown Plant Hopper | 3 | 0.00 | 0.00 | | | | |
| Green Leaf Hopper | 3 | 0.00 | 0.00 | | | | |
| Rice Black Bug | 3 | 0.00 | 0.00 | | | | |
| Rice Bug | 3 | 0.00 | 1.67 | | | | |
| Rice Grain Bug | 3 | 0.00 | 0.00 | | | | |
| **F. RODENT INJURY** | 3 | 0.00 | 0.00 | | | | |
| **G. WEED COVER** | 3 | 15.00 | 56.67 | | | | |


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

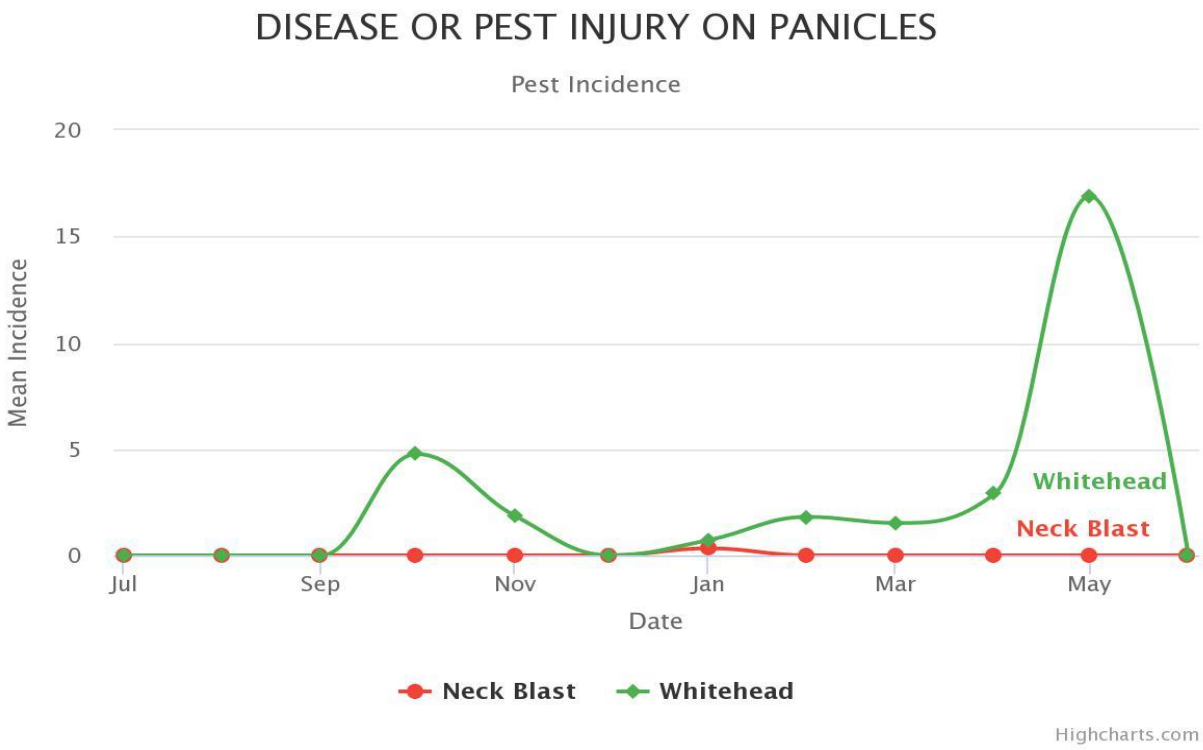



Annex Figure 13. Mean incidence of foliar diseases in CALABARZON, July 2018 to June 2019.

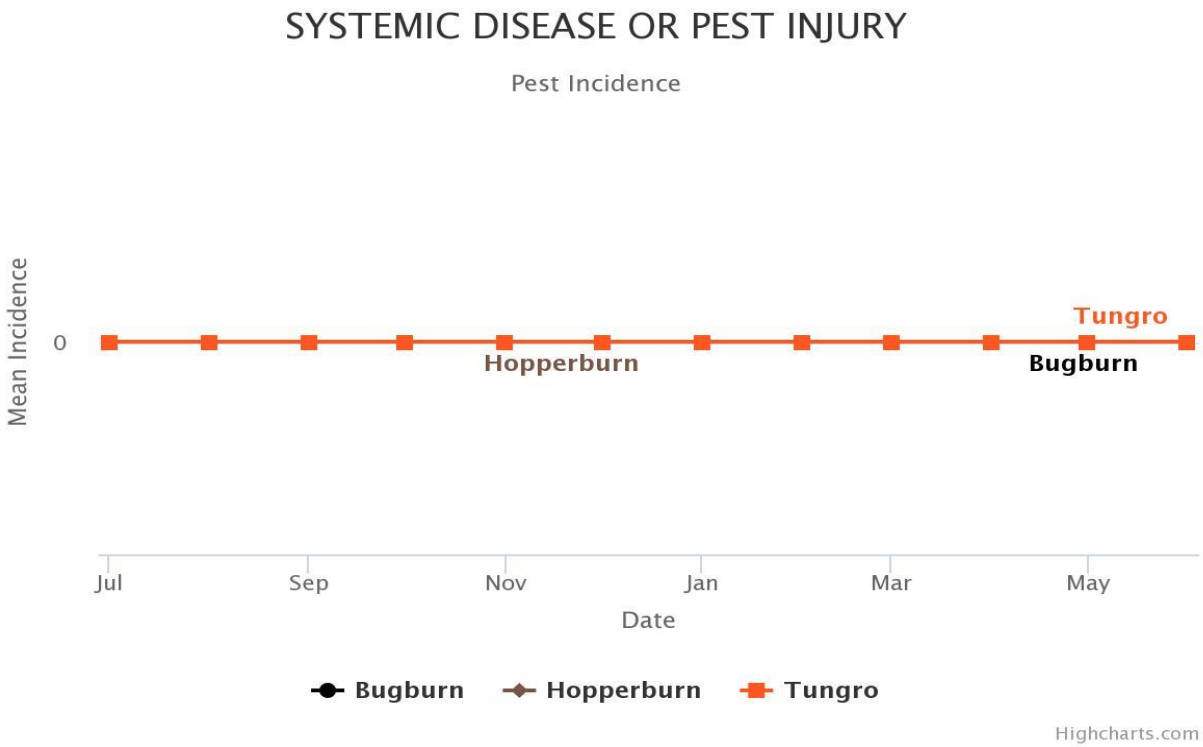



Annex Figure 14. Mean Incidence of deadheart and sheath blight in CALABARZON, July 2018 to June 2019.

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

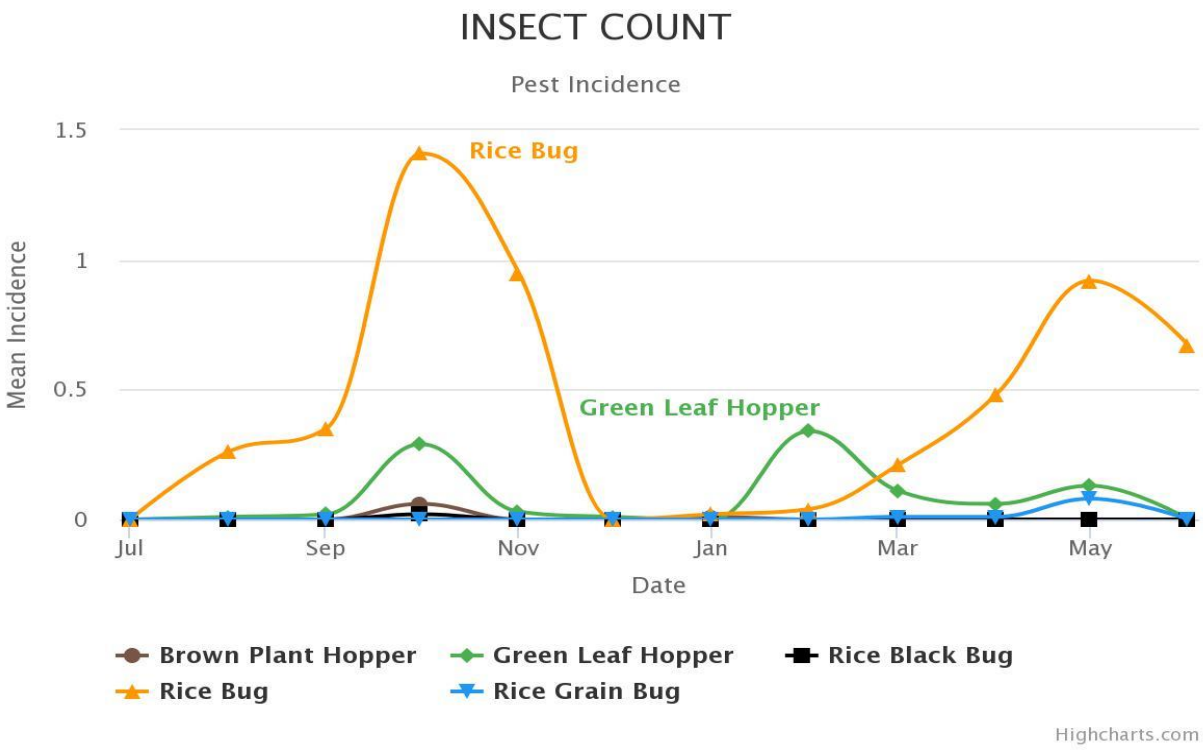



Annex Figure 15. Mean incidence of neck blast and whitehead in CALABARZON, July 2018 to June 2019.

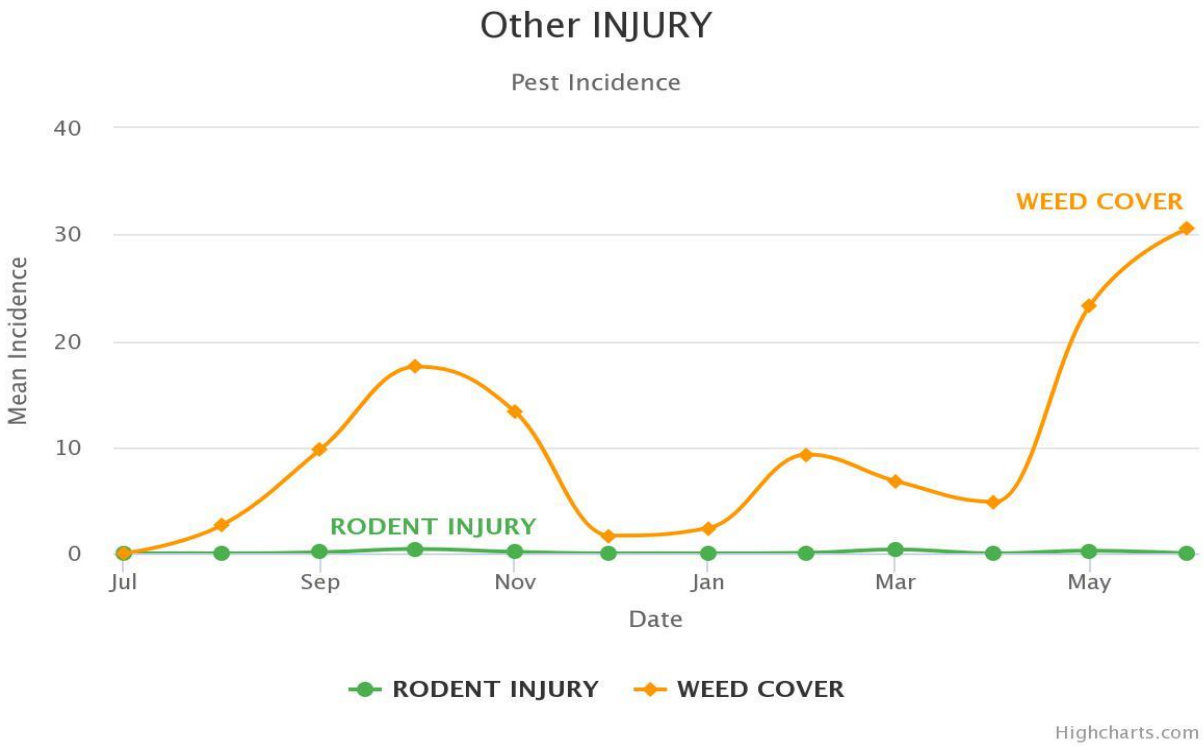



Annex Figure 16. Mean incidence of bugburn, hopperburn and tungro in CALABARZON, July 2018 to June 2019.

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 CALABARZON, July 2018 to June 2019.




Annex Figure 18. Mean incidence of rat injury and weed infestation in CALABARZON, 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.