



INTERNATIONAL YEAR OF
PLANT HEALTH

2020

Australia's National Priority Plant Pests (NPPP) playing cards: *Beastie the Bug* and

NOVEL CORONAVIRUS 2019 VERSION

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This STEM (Science, Technology, Engineering and Maths) Professionals in Schools project could not have been achieved without the support of the staff of the Biosecurity Plant Division, Australia's Chief Plant Protection Officer, and commitment from Farrer and Mawson Primary Schools students and teachers, Ms Kate Elliot (Farrer Primary School) and Mrs Kathryn Glanville (Namadgi Primary School, ex-Mawson).

Main sources of references

- CABI Invasive Species Compendium <https://www.cabi.org/ISC>
- National Priority Plant Pests (2019) <https://www.agriculture.gov.au/pests-diseases-weeds/plant/national-priority-plant-pests-2019>
 - Plant pests and diseases <https://www.agriculture.gov.au/pests-diseases-weeds/plant>
 - Bugwood <https://www.bugwood.org/> & <https://www.insectimages.org/index.cfm>
- Beastie the Bug <https://beastiebug.eppo.int/> and <https://gd.eppo.int/taxon/BEASTY> accessed 27 March 2020

Printing instructions

Print single-sided on A4 paper or card 200-300 gsm:

1. Pages 3-10 playing card fronts (8 pages)
2. Page 11 playing card backs (1 page)
 - copy onto the backs of play cards
3. Page 12-13 playing card box template (1 page)
4. Page 14 NPPP game instructions (1 page)

A

Varroa mite on bee

Varroa destructor

RATING 10

COUNTRIES 56

HOSTS 3

Source: Scott Bauer,
USDA Agricultural Research Service, Bugwood.org**K**

Giant African snail

Achatina fulica

RATING 12

COUNTRIES 73

HOSTS 500

Source: Scott Bauer,
USDA Agricultural Research Service, Bugwood.org**Q**

Tomato-potato psyllid

Bactericera cockerelli

RATING 13

COUNTRIES 10

HOSTS 14



Source: Pest and Diseases Image Library, Bugwood.org

J

Golden apple snail

Pomacea canaliculata

RATING 12

COUNTRIES 26

HOSTS 11



Source: Pest and Diseases Image Library, Bugwood.org

10

Grape phylloxera

Daktulosphaira vitifoliae

RATING 35

COUNTRIES 63

HOSTS 4

Source: Phylloxera adults, nymphs and eggs.
Image courtesy Agriculture Victoria**9**

Silver leaf whitefly

Bemisia tabaci

RATING 40

COUNTRIES 165

HOSTS 44

Source: Scott Bauer,
USDA Agricultural Research Service, Bugwood.org**8**

Asian honey bee

Apis cerana

RATING 17

COUNTRIES 26

HOSTS 97

**7**

West Indian dry wood termite

Cryptotermes brevis

RATING 25

COUNTRIES 62

HOSTS 25



Source: Pest and Diseases Image Library, Bugwood.org

6

Formosan subterranean termite

Coptotermes formosanus



RATING 29
COUNTRIES 8
HOSTS 12

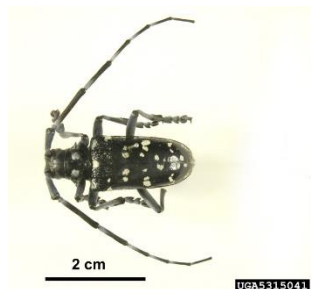
♥
9

Source: Pest and Diseases Image Library, Bugwood.org

5

Citrus longicorn beetle

Anoplophora chinensis



RATING 34
COUNTRIES 12
HOSTS 92

♥
5

Source: Pest and Diseases Image Library, Bugwood.org

4

Japanese sawyer beetle

Monochamus alternatus



RATING 33
COUNTRIES 6
HOSTS 32

♥
7

Source: Pest and Diseases Image Library, Bugwood.org

3

Fall armyworm

Spodoptera frugiperda



RATING 31
COUNTRIES 104
HOSTS 353

♥
3

Source: South African National Biodiversity Institute

2

Asian citrus psyllid

Diaphorina citri



RATING 6
COUNTRIES 56
HOSTS 8

♥
7

Source: Pest and Diseases Image Library, Bugwood.org

J
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Source: Lauren Venugoban

A**Khapra beetle***Trogoderma granarium*

RATING 2
 COUNTRIES 34
 HOSTS 16

**K****Oriental fruit fly***Bactrocera dorsalis*

RATING 4
 COUNTRIES 65
 HOSTS 300

**Q****Spotted wing drosophila***Drosophila suzukii*

RATING 3
 COUNTRIES 49
 HOSTS 41



Source: John Davis

J**Asian Gypsy moth***Lymantria dispar asiatica*

RATING 8
 COUNTRIES 54
 HOSTS 500

**10****Red imported fire ant***Solenopsis invicta*

RATING 7
 COUNTRIES 27
 HOSTS 20



Source: Pest and Diseases Image Library, Bugwood.org

9**Tomato leaf miner***Tuta absoluta*

RATING 20
 COUNTRIES 95
 HOSTS 8



Source: Marja van der Straten, NVWA Plant Protection Service, Bugwood.org

8**Brown marmorated stink bug***Halyomorpha halys*

RATING 9
 COUNTRIES 28
 HOSTS 100

**7****Glassy-winged sharpshooter***Homalodisca vitripennis*

RATING 1
 COUNTRIES 6
 HOSTS 3



Source: Reyes Garcia III, USDA Agricultural Research Service, Bugwood.org

6

Serpentine leaf miner

Liriomyza huidobrensis



RATING 20
COUNTRIES 66
HOSTS 365



9

5

Hessian fly

Mayetiola destructor



RATING 28
COUNTRIES 37
HOSTS 3



5

Source: Scott Bauer, USDA Agricultural Research Service, Bugwood.org

4

Wheat stem sawfly

Cephus cinctus



RATING 26
COUNTRIES 4
HOSTS 10



7

Source: Pest and Diseases Image Library, Bugwood.org

3

Sugarcane stalk borer

Chilo infuscatellus



RATING 36
COUNTRIES 15
HOSTS 4



8

Source: Natural History Museum, London

2

Meadow spittlebug

Philaenus spumarius



RATING 1
COUNTRIES 55
HOSTS 1000



7

◆

Beastie the Bug

Eppotina beastii



RATING 43*
COUNTRIES 35
HOSTS 2



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Source: Carol Quashie-Williams <https://gd.eppo.int/taxon/BEASTY> & <https://beastiebug.eppo.int/> accessed 26 March 2020 * Unofficial rating

A**Xylella***Xylella fastidiosa*

RATING 1
 COUNTRIES 12
 HOSTS 350

**W****K****Karnal bunt***Tilletia indica*

RATING 5
 COUNTRIES 10
 HOSTS 3

**Y****Q****Huanglongbing***Candidatus Liberibacter asiaticus*

RATING 6
 COUNTRIES 65
 HOSTS 10

**O****J****Zebra chip***Candidatus Liberibacter solanacearum*

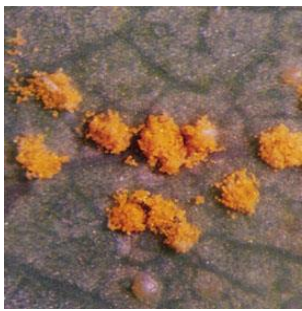
RATING 13
 COUNTRIES 22
 HOSTS 7

**P****10****Ug99****Wheat stem rust***Puccinia graminis f. sp. tritici*

RATING 15
 COUNTRIES 13
 HOSTS 5

**OL****9****Citrus canker***Xanthomonas citri subsp. citri*

RATING 16
 COUNTRIES 61
 HOSTS 29

**6****8****Guava (eucalyptus) rust***Austropuccinia psidii*

RATING 11
 COUNTRIES 25
 HOSTS 300

**8****7****Phytophthora blight***Phytophthora kernoviae*

RATING 14
 COUNTRIES 4
 HOSTS 17

**L**

6

Sudden oak death

Phytophthora ramorum



RATING 14
COUNTRIES 19
HOSTS 73



9

Source: Bruce Moltzan, USDA Forest Service, Bugwood.org

5

Panama disease Tropical Race 4

Fusarium oxysporum
f. sp. *cubense* Tropical Race 4



RATING 22
COUNTRIES 89
HOSTS 14



5

4

Fire blight

Erwinia amylovora



RATING 18
COUNTRIES 58
HOSTS 42



7

3

Texas root rot

Phymatotrichum omnivorum



RATING 21
COUNTRIES 5
HOSTS 2300



8

Source: The University of Arizona Cooperative Extension

2

Barley stripe rust

Puccinia striiformis
f. sp. *hordei*



RATING 27
COUNTRIES 99
HOSTS 5



7

J

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Source: Lauren Venugoban

A

Sharka

♣ *Plum pox virus (Potyvirus)*



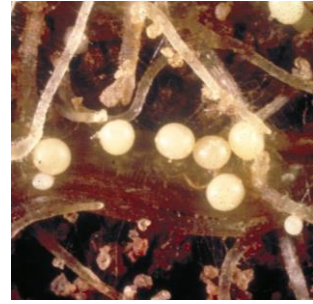
RATING 24
COUNTRIES 55 ♣
HOSTS 11

Source: John Hammond, USDA Agricultural Research Service, Bugwood.org

W**K**

Potato cyst nematode (white)

♣ *Globodera pallida*



RATING 19
COUNTRIES 50 ♣
HOSTS 24

Source: Central Science Laboratory, Harpenden, British Crown, Bugwood.org

Y**Q**

Soybean cyst nematode

♣ *Heterodera glycines*



RATING 23
COUNTRIES 19 ♣
HOSTS 26

Source: Penn State Department of Plant Pathology & Environmental Microbiology Archives, Penn State University, Bugwood.org

D**J**

Potato late blight

♣ *Phytophthora infestans*



RATING 37
COUNTRIES 118 ♣
HOSTS 35

P**10**

Aster yellows group

♣ *Phytoplasmas 16Srl group*



RATING 30
COUNTRIES 40 ♣
HOSTS 249

Source: Whitney Cranshaw, Colorado State University, Bugwood.org

OL**9**

Dutch elm disease

♣ *Ophiostoma novo-ulmi*



RATING 41
COUNTRIES 42 ♣
HOSTS 11

Source: Pest and Diseases Image Library, www.padil.gov.au

6**8**

Cucumber green mottle mosaic virus

♣ *Tobamovirus*



RATING 32
COUNTRIES 42 ♣
HOSTS 46

Source: Alberta Agriculture and Forestry

8**7**

Pine wilt nematode

♣ *Bursaphelenchus xylophilus*



RATING 33
COUNTRIES 9 ♣
HOSTS 57

Source: USDA Forest Service - North Central Research Station, USDA Forest Service, Bugwood.org

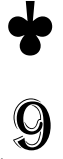
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6

♣ Pine pitch canker
Fusarium circinatum



RATING 38
COUNTRIES 10
HOSTS 20



Source: Pest and Diseases Image Library, www.padil.gov.au

5

♣ Grapevine leaf rust
Phakopsora euvtis



RATING 39
COUNTRIES 20
HOSTS 17



Source: Pest and Diseases Image Library, www.padil.gov.au

4

♣ Tomato yellow leaf curl virus
Begomovirus



RATING 40
COUNTRIES 66
HOSTS 27



Source: Pest and Diseases Image Library, www.padil.gov.au

3

♣ Banana Elephantiasis Disease
Candidatus Phytoplasma asteris



RATING 42
COUNTRIES 40
HOSTS 249



Source: Javed Musarrat

2

♣ Tomato brown rugose fruit virus
Tobamovirus



RATING 32
COUNTRIES 9
HOSTS 2

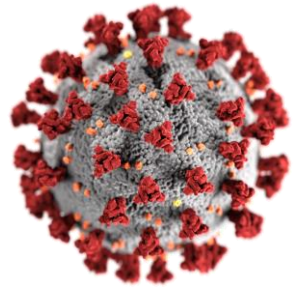


Source: Salvatore Davino, EPP0

Novel Coronavirus Disease 2019 (COVID-19)
Novel Coronavirus



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RATING* 1
COUNTRIES** 213
HOSTS*** 3

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Source: CDC / Alissa Eckert, MS; Dan Higgins, MAM
<https://phil.cdc.gov/Details.aspx?pid=23311>

*Unofficial rating ** WHO-Countries, areas or territories with cases, *** Zhang et al 2020, (Humans, bats and pangolin!) Accessed 29 April 2020



Australia's National Priority Plant Pests



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Australia's National Priority Plant Pests

www.agriculture.gov.au/pests-diseases-weeds/plant/national-priority-plant-pests-2019

Australia's National Priority Plant Pests

Australia is lucky to be free from many of the world's most damaging plant pests. The National Priority Plant Pests are capable of damaging our natural environment, destroying our food production and agriculture industries, and some could change our way of life. These playing cards promote and raise awareness of Australia's National Priority Plant Pests and the International Year of Plant Health 'Protecting plants, protecting life'. The cards include information on the National Priority Plant Pests (NPPP) ratings, the most important being No. 1 Xylella, plus information on the number of countries each pest is found in and the number of plant hosts the pest infests or feeds on, as researched by students from Farrer and Mawson Primary Schools as part of a STEM (Science, Technology, Engineering and Mathematics) Professionals in Schools project.

INSTRUCTIONS - NPPP GAME 2-6 Players.

Shuffle and deal out all the cards including the Jokers face down to the players. Players turn over their top card and the dealer reads out the pest name on the card then selects a category of Rating, Countries or Hosts and reads out the number for the category. All the other players read out their pest name and number for the chosen category. Depending on the category selected, the winner of the hand is the player with the lowest Rating, or highest number of Countries or highest number of Hosts or the player with the Joker card (Joker 'trumps' or beats all other categories). If there is a tie, another card is selected by the tying players and they read out the number for the same category. The winner of the hand then collects all the cards on the table, except the Joker card and places them face down under their card pile-LONG game (or face up on the table-SHORT game).

The winner then turns over the next top card and selects a category. The winner of the next hand collects all the cards on the table including the Joker card. The winner of the game is the player with the most cards.

www.agriculture.gov.au/pests-diseases-weeds/plant



INTERNATIONAL YEAR OF
PLANT HEALTH
2020

Australia's National Priority Plant Pests

(COVID-19 & Beastie Bug edition)

Australia's National
Priority Plant Pests

Shallower box

<https://www.template.net/design-templates/box-templates/playing-card-box-template/>

Adapted from:

MINI BOX
(when 2 sheets
printed per A4)

Australia's National Priority Plant Pests

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www.agriculture.gov.au/pests-diseases-
weeds/plant/national-priority-plant-pests-2019

www.agriculture.gov.au/pests-diseases-weeds/plant



Australia's National Priority Plant Pests

Australia's National Priority Plant Pests

Adapted from:
<https://www.template.net/design-templates/box-templates/playing-card-box-template/>
Shallower box

INSTRUCTIONS

National Priority Plant Pests (NPPP) Game *Version 3: Beastie the Bug and COVID-19*

For 2-6 Players

- Shuffle and deal out all the cards including the Jokers face down to the players.
- Players pick up the cards but don't look at their cards.
- Players turn over their top card and the dealer reads out the pest name on the card then selects a category of Rating, Countries or Hosts and reads out the number for the category and puts the card on the table.
- All the other players read out their pest name and number for the chosen category and put their cards on the table.
- Depending on the category selected, the winner of the hand is the player with the lowest Rating, or highest number of Countries or highest number of Hosts or the player with the Joker card (Joker 'trumps' or beats all other categories).
 - If there is a tie, another card is selected by the tying players and they read out the number for the same category.
- The winner of the hand then collects all the cards on the table, except the Joker card (who has to stay in the 'field' to check the next lot of pests!) and places them face down under their card pile-LONG game (or face up on the table-SHORT game). The winner then turns over the next top card and selects a category.
 - The winner of the next hand collects all the cards on the table including the Joker card and places them face down under their card pile-LONG game (or face up on the table-SHORT game). The winner then turns over the next top card and selects a category.
- The winner of the game is the player with the most cards in their pile (LONG game) or face up on the table (SHORT game).

Hope you enjoy playing Australia's NPPP game, if you have any comments or suggestions (especially for the topic for the next set of cards), please email me Carol.Quashie-Williams@awe.gov.au