Management and Weed Control of Grass Based Pastures for Horses

RDA (NSW) Coaches Workshop 2022

Horses have Different Pasture Requirements

- Sheep and Cattle are ruminants (4 stomachs)
- Horses are monogastric with a well developed large intestine
  - Limits digestion of low quality feed
  - Increased grazing time
  - Horses waste more pasture
- Horses have very selective grazing habits
  - Weeds can easily dominate desirable species
- Horses prefer short pasture
- Management of manure and fertiliser
  - Rotation of paddocks is critical

Desirable Pasture

Continuity of feed throughout the year

- Summer or winter active
  - Warm season: kikuyu, bluegrass, paspalum, rhodes grass, consul love grass, lucerne
  - Cool season: Phalaris, cocksfoot, fescue, brome grass, perennial ryegrass, sub clover, white clover

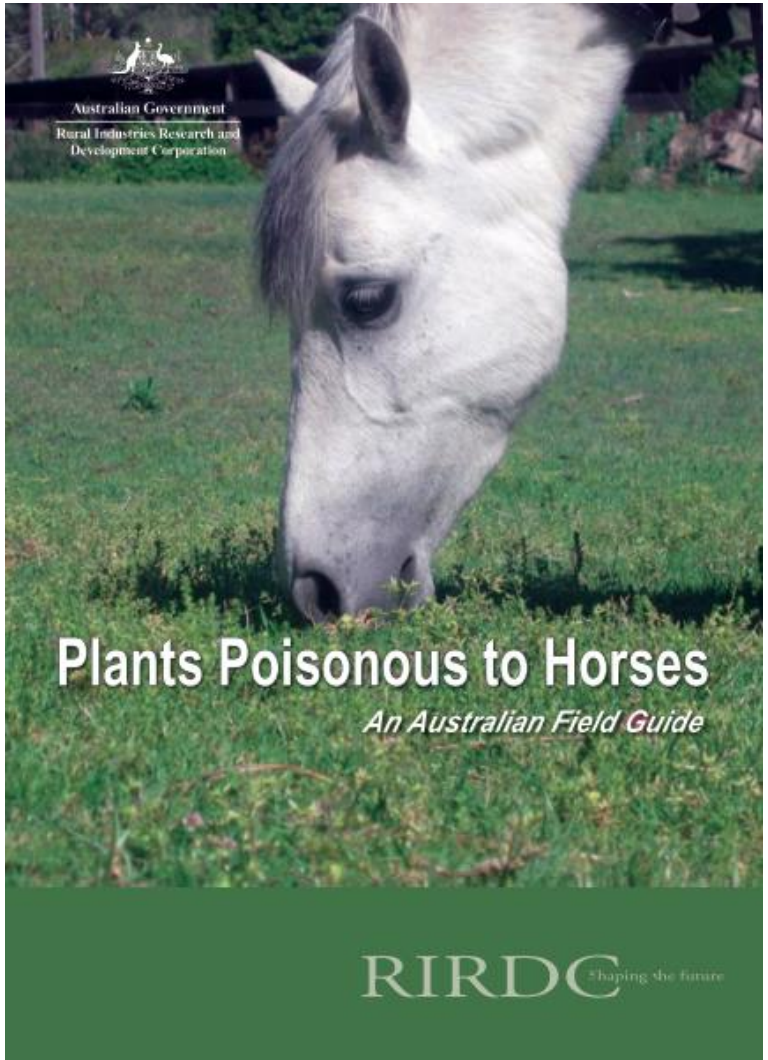
Agronomic Considerations

- Soil type and Fertility
  - Key determinant of pasture species mix
  - Soil test: Ph, organic matter, CEC, plant available nutrients
- Rainfall and Climate
  - How much rain and when it falls, temperature range, frost etc
- Property plan
  - Number, size and aspect of paddocks
  - Trees and shading
  - Potential to rotationally graze
    - Electric fence

Agronomic Considerations

- Grazing management
  - Stocking rate
  - Time of year (plant physiology)
  - Rotational grazing (essential)
    - Parasite control
- Fertiliser
  - Single super, starter fertiliser (N,P,K), trace elements, nitrogen, lime (ph), Gypsum (sodicity), poultry manure
  - PGR's - ProGibb
- Sacrificial paddock
  - Supplementary feed

Toxic Weed Species



Toxic Weed Species

Pyrrolizidine alkaloids

- Patterson's curse
  - Contains up to 10 types of pyrrolizidine alkaloids
  - Usually unpalatable to horses, however they will eat it if there is little else
  - All parts of the plant are toxic and toxicity is not lost in dry plants
  - Responsible for many horse deaths

  - Avoid grazing
  - Spray at rosette stage
  - Spray with Broadleaf selective herbicide
    - Metsulfuron-methyl (Group 2, ALS inhibitors)
    - MCPA (Group 4, Auxin mimics)

Toxic Weed Species

Pyrrolizidine alkaloids

- Blue billy goat weed (*Ageratum houstonianum)*
  - Causes liver lesions in horses, sheep and cattle
  - Avoid grazing
  - Spray with Broadleaf selective herbicide
    - Metsulfuron-methyl (Group2, ALS inhibitors)
  - Sow competitive species

Toxic Weed Species

Jun 22, 2021

The noxious weed known as *Ageratum houstonianum*, or blue billygoat weed, has completely taken over paddocks, causing illness in horses and forcing the closure of Riding for the Disabled until the weed at Manning Great Lakes Centre is controlled.

“We’ve got six paddocks and this horror purple weed has infested the whole lot,” Manning Great Lakes RDA administrator Sue Harding-White said.

“After the fires went through they made our grounds sour, and then all the rain. It’s the perfect breeding ground for the weed to take over.”

Toxic Weed Species

Tryptamine alkaloids

- Phalaris Grasses
  - Cause sudden death (heart failure)

    Blue Canary Grass
      - Short lived perennial

    Phalaris paradoxa
      - Annual – winter and spring

  - Avoid grazing
  - Grass selective herbicides
    - Clethodim (Group 1, ACC'ase inhibitors)
  - Sow competitive species

Weed Control

- Grazing management
  - Stocking rate
  - Time of year (plant physiology)
  - Rotational grazing

- Mechanical
  - Hand weeding
  - Mowing/slashing, harvesting, burning

Weed Control

- Chemical
  - Selective herbicides
    - Control of broadleaf species in grasses
      - Caution legumes (E.g., MCPA)
    - Control of grasses in broadleaf pastures – E.g., grass in lucerne
  - Spray / Graze
    - E.g., MCPA to control Pattersons Curse in grass based pasture

Always consult your local agronomist

Questions

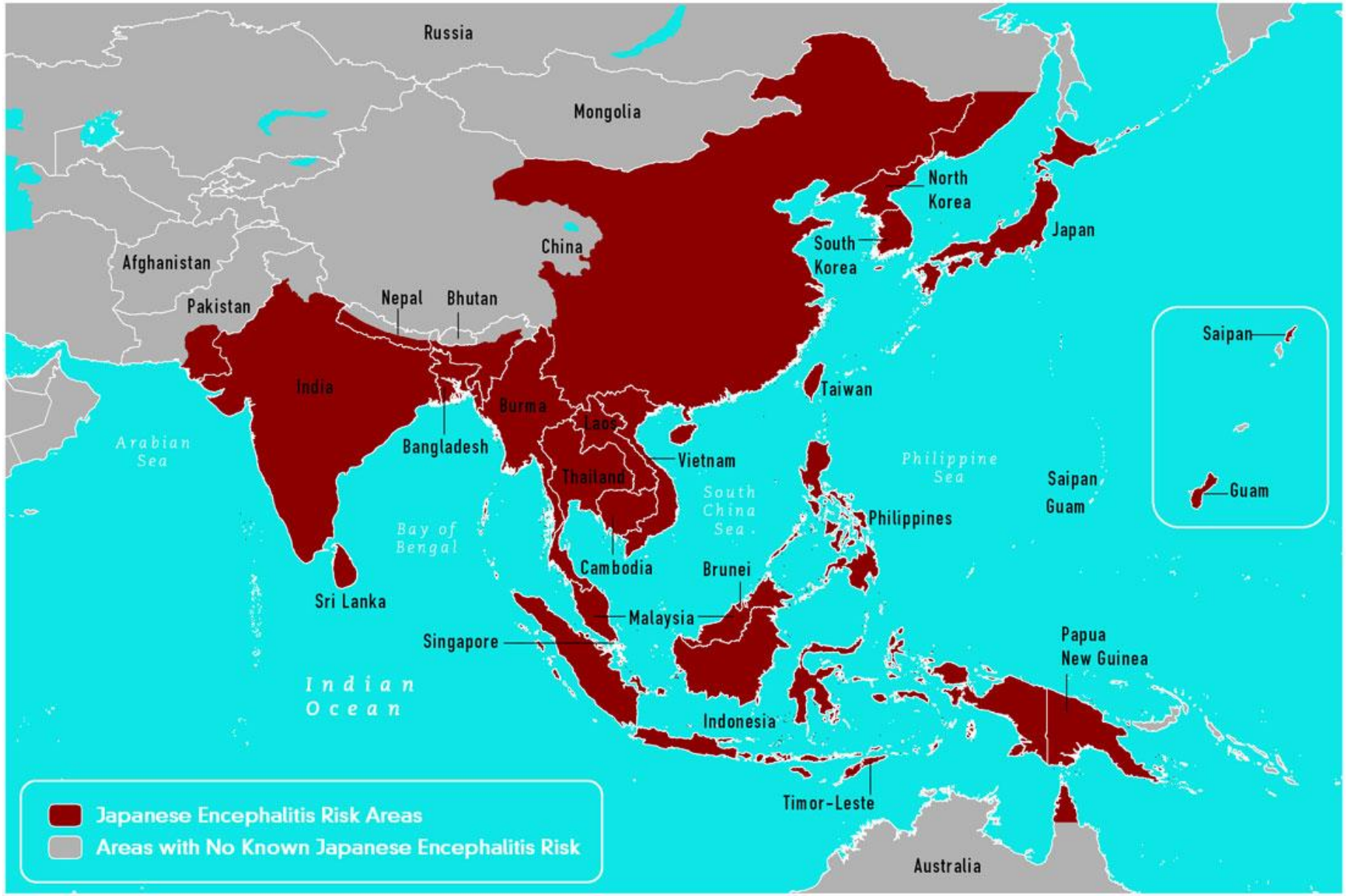
What is Japanese encephalitis

Japanese encephalitis (JE) is a potentially severe disease caused by a virus spread by infected mosquitoes.

JE virus is one of a group of mosquito-transmitted viruses that can cause inflammation of the brain (encephalitis).

Japanese encephalitis virus, a flavivirus, is closely related to West Nile virus.

Geographic Distribution of Japanese encephalitis Virus



How soon do people get sick after being bitten by an infected mosquito

It takes 5 to 15 days after the bite of an infected mosquito to develop symptoms.

What are the symptoms of Japanese encephalitis

Less than 1% of people infected with the JE virus develop severe illness, but in some, the pathogen can trigger inflammation of the brain, called encephalitis, which can cause coma, tremors and convulsions.

An estimated one-quarter to one-third of these cases are fatal.

Most people who are infected develop mild symptoms or no symptoms at all.

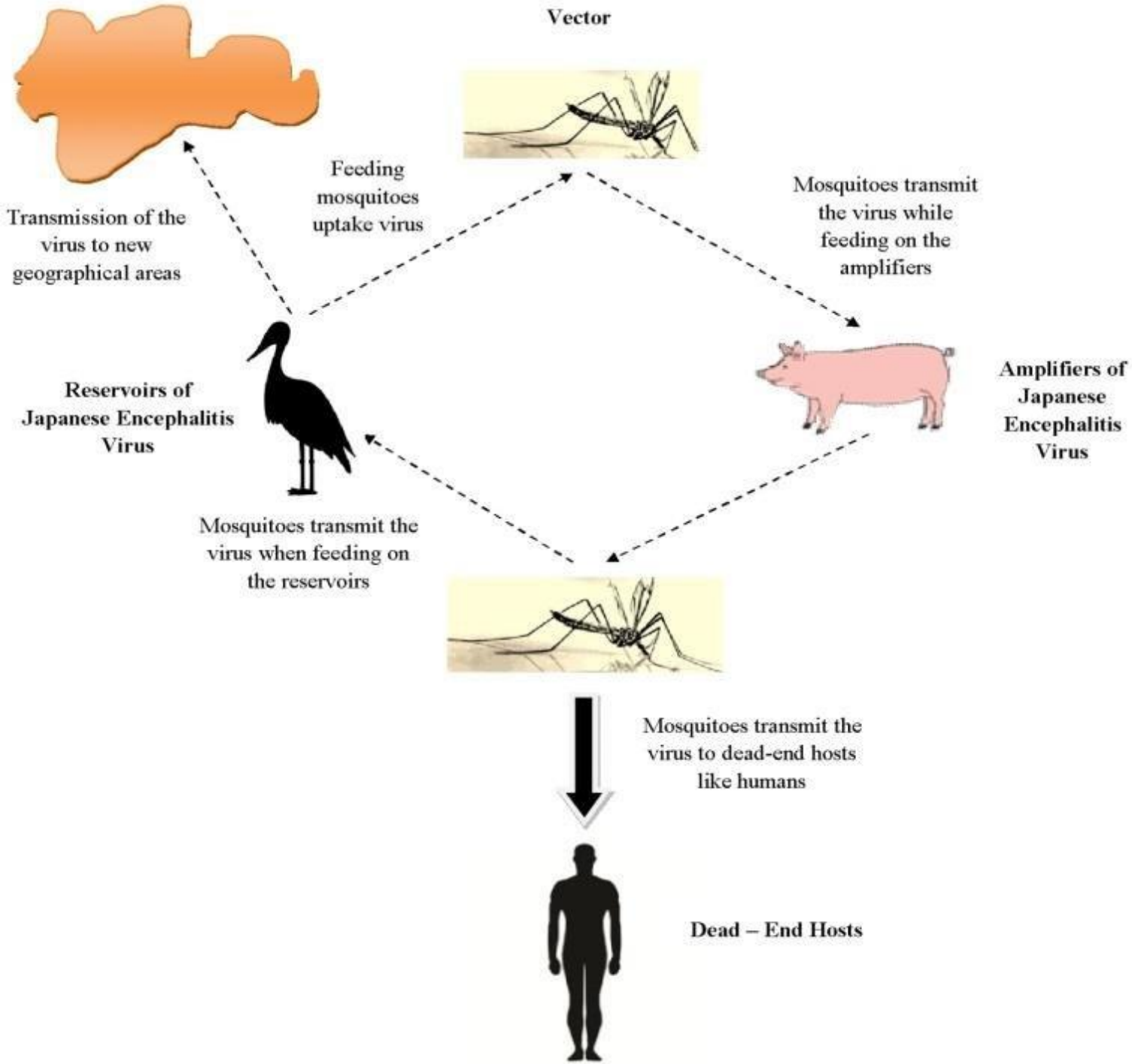
Transmission of Japanese encephalitis virus

JE virus is transmitted to humans through the bite of infected *Culex* species mosquitoes.

The virus is maintained in a cycle between mosquitoes and vertebrate hosts, primarily pigs and wading birds.

Humans are incidental or dead-end hosts, because they usually do not develop high enough concentrations of JE virus in their bloodstreams to infect feeding mosquitoes.

Other livestock such as horses, cattle, sheep and goats are also dead-end carriers and cannot transmit the disease back to mosquitoes.


Vector
Transmission of the virus to new geographical areas
Feeding mosquitoes uptake virus
Mosquitoes transmit the virus while feeding on the amplifiers
Reservoirs of Japanese Encephalitis Virus
Amplifiers of Japanese Encephalitis Virus
Mosquitoes transmit the virus when feeding on the reservoirs
Mosquitoes transmit the virus to dead-end hosts like humans
Dead – End Hosts

JE in Horses

While there have been no confirmed cases of JE in horses in NSW, horse owners are encouraged be aware of the clinical signs of JE

- The disease may be subclinical, meaning that they can be infected but show no signs of the disease
- Most clinical disease is mild, however more severe encephalitis can occur which may be fatal
- Clinical signs may include:
  - An elevated temperature
  - Jaundice (yellowing around the eyes, nose and mouth)
  - Lethargy (dull, lack of energy)
  - Anorexia (loss of appetite)
  - Neurological signs which can vary in severity
  - Neurological signs can include incoordination, difficulty swallowing, impaired vision, and rarely the horse becomes over excited

Australia's first-ever major outbreak of JE

In the past, cases of JE in Australia have only cropped up in very northern regions of the country, including the Torres Strait Islands, the tip of Cape York and the Tiwi Islands

In recent weeks, eastern Australia has been inundated with heavy rains and floods which have drawn migratory birds to newly formed wetlands further south.

Australia's first-ever major outbreak of JE

These birds may have carried the JE virus deep into Australia, where mosquito populations have recently increased due to the unusually warm, wet weather.

Once laden with virus, these mosquitoes likely passed the pathogen to pigs, causing an "amplifying effect.“

The JE virus has now been detected in pigs on more than 70 Australian farms.

Australia's first-ever major outbreak of JE

As of 4 May 2022

38 human cases of JEV have been identified in Australia

- New South Wales (13)
- Queensland (4)
- South Australia (8)
- Victoria (13)

Australia's first-ever major outbreak of JE

Sadly, 4 people have been reported to have died as a result of JEV.

One in New South Wales, one in South Australia, one in Victoria and one in Queensland.

Australia's first-ever major outbreak of JE

"A national surveillance plan is being developed to identify and locate infected mosquitoes, birds, pigs — including feral pigs — horses, and humans," Australia's agriculture minister, David Littleproud, said in a statement, according to AFP.

Species

Culex annulirostris

- Freshwater mosquito
- The major pest of inland riverine areas of southeastern Australia
- Vector for Japanese encephalitis, Murray Valley encephalitis, Kunjin, Barmah Forest virus and Ross River virus
- Also carries dog heart worm and myxomatosis

Species

Culex quinquefasciatus

- Freshwater mosquito
- Breeds in standing polluted/stagnant water and is therefore relevant in the context of piggeries.
- Vector for Japanese encephalitis, Murray Valley encephalitis, Kunjin, Barmah Forest virus and Ross River virus