Rabbit Management

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Presentation Overview

Legislation

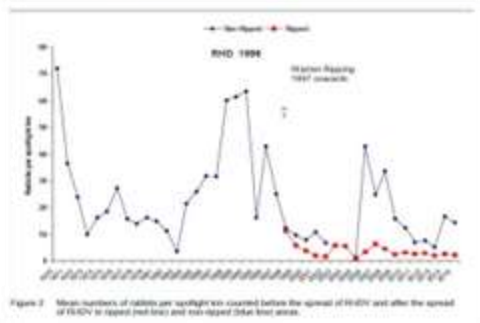
Biology, Ecology & Impacts – brief overview

Control Techniques

Science and Rabbit Recipe

Monitoring

FeralScan Demonstration



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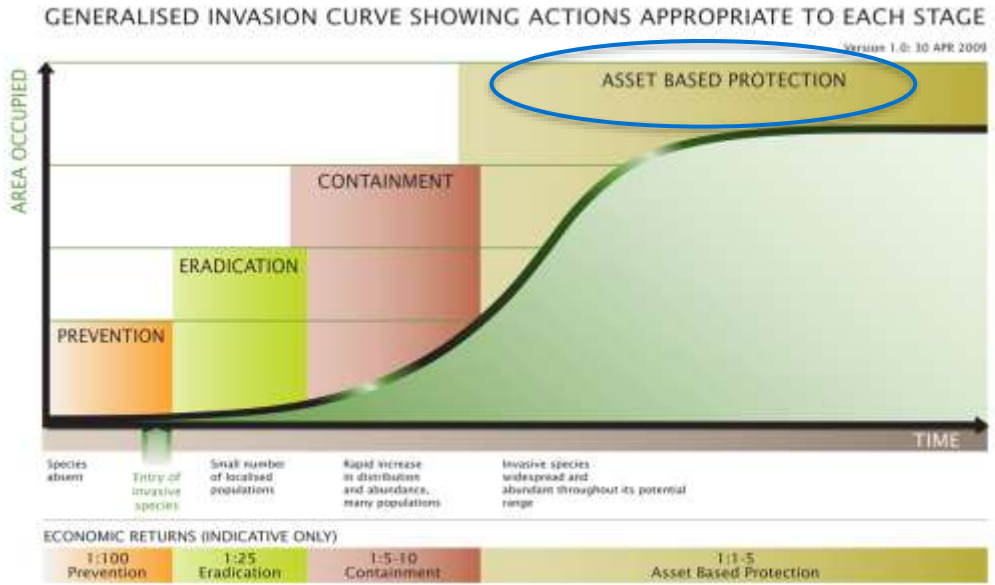
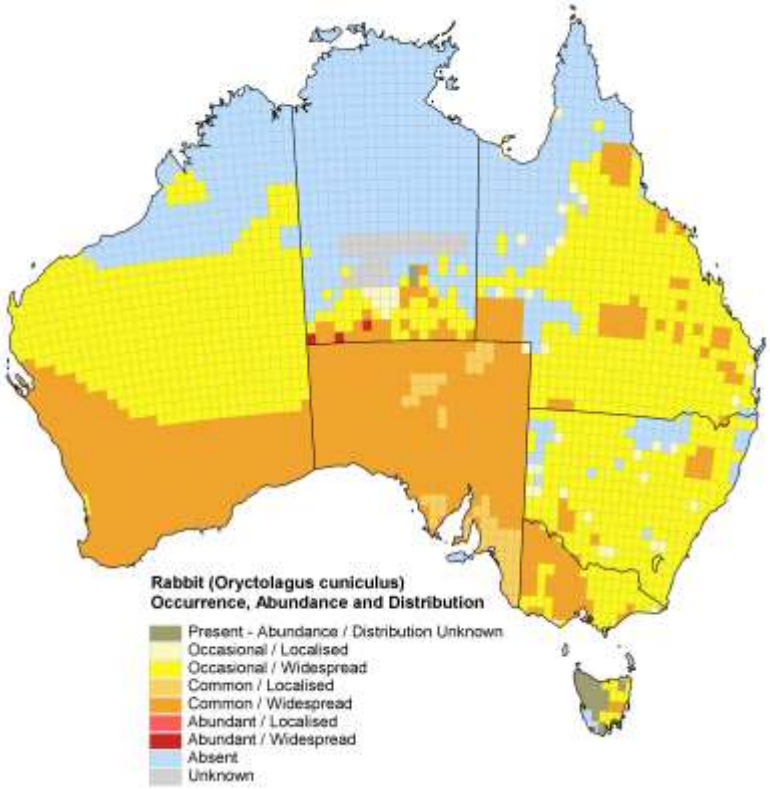
Victorian status

- European Rabbits are declared as established pest animals under *Catchment and Land Protection* (CaLP) *Act 1994*
- Landowners must “take all reasonable steps to prevent the spread of, and as far as possible, eradicate established pest animals” on their land under section 20 of the CaLP Act.
- Eradication of European Rabbits from Victoria is not possible
- Therefore asset-based protection and impact minimisation is the aim



- Ag Vic do not generally undertake enforcement on rabbits in the Port Phillip and Westernport catchment due to their widespread nature
- Community led action may be supported with Good Neighbour Funding on adjoining public land such as reserves and Crown Land
- Local Council's may also implement their own rabbit control programs where appropriate or to protect valuable assets



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Biology, ecology & impacts

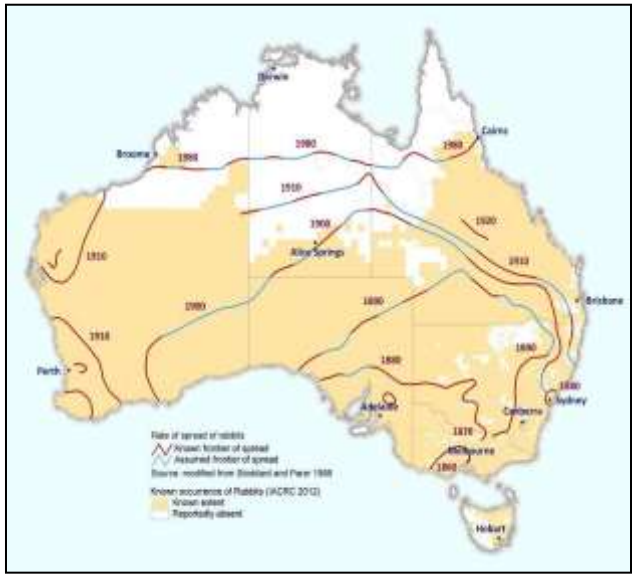
Introduced in 1859 - Colonised 2/3 of Australian continent by 1930s

2 rabbits can become 184 rabbits within 18 months

An adult (ave wt 1.5 kg) can consume 1/3 of its weight (500 gm) daily

Spend about 2.5 to 6 hours per night grazing

Biological control introduced in the 1950s has reduced the impact



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Rabbit Signs

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Environmental Damage

Safe Harbour

Time to burrow

Selective Grazing

Disturbance

Seed Spread

Woody Weeds

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Timing of control measures: issues

There is a right and a wrong time to implement rabbit control

The best time to control rabbits is the NON-BREEDING SEASON because:

- Controlling when numbers are at their greatest leaves a higher residual population compared to controlling rabbits at their lowest
- Control in late summer early autumn after disease such as RHD and Myxomatosis have taken effect
- Feed is limited making baits more attractive
- Vegetation is reduced and bait trails are more accessible to rabbits
- Does (females) controlled by baiting aren't leaving dependant kittens in the warrens
- Young rabbits are feeding further away from the warren
- Soils are more friable and warrens tend to collapse more readily when ripped by heavy machinery
- After warrens are destroyed rabbit survival is constrained by extremes of climate and predation

So what time of the year is the best time to implement rabbit control?

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Assess the Problem and Develop a Plan

- Gather Information
- Identify Barriers
- Consider control options
- Consider timing of program
- Work with neighbors

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Remove Rabbit Harbour

- Rip rabbit warrens with heavy machinery
- Remove rubbish and woody weeds
- Use spotter
- Implosion

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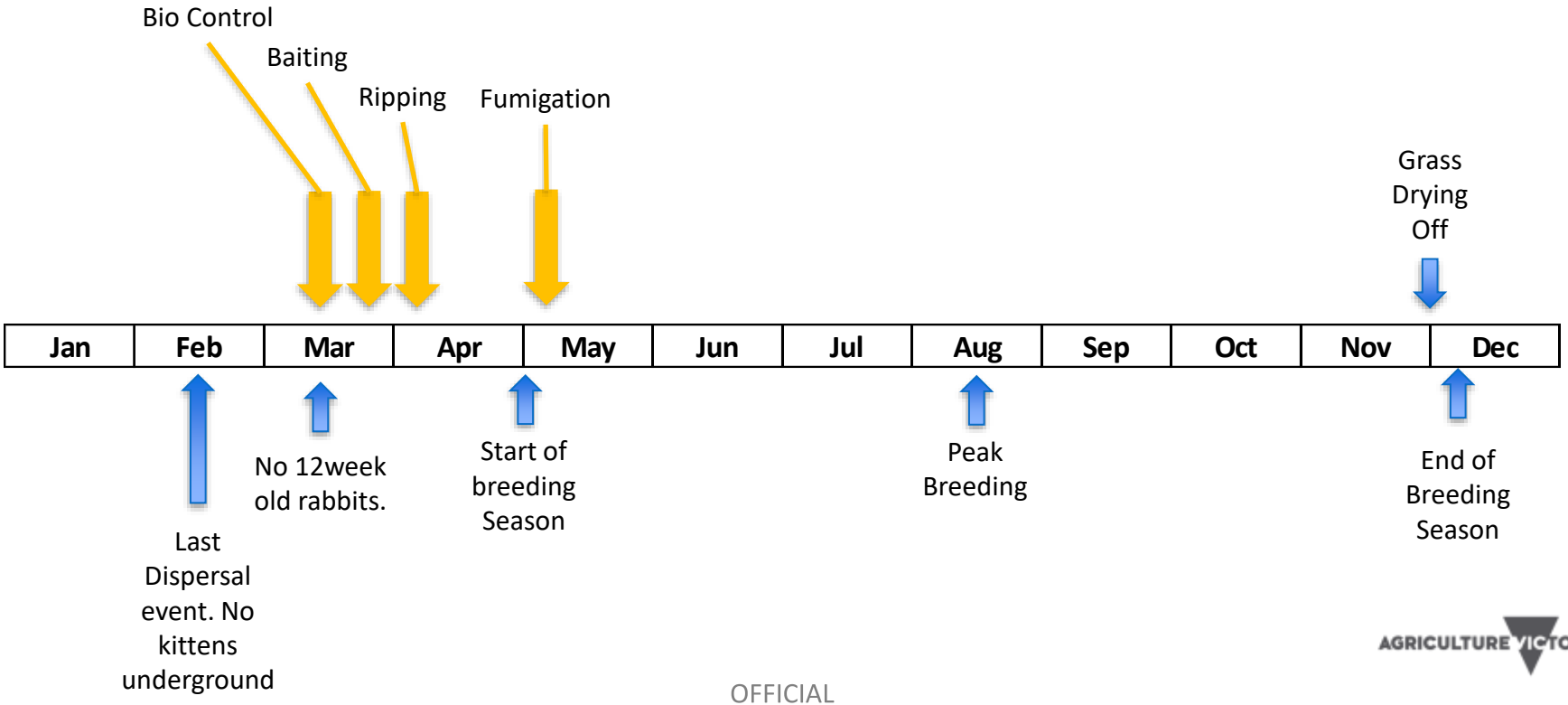
Reduce Rabbit Numbers

- Baiting and/or Biological Control
- Wait for Myxo or RHDV and bait if required.
- Baiting is the single most effective at crashing rabbit populations

Rabbit Control Timing



Control Techniques

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Biological Control – Myxomatosis (myxo)

What is Myxo

- Virus spread via biting insects (Fleas & mosquitos)

Signs of Myxo

- Legions around eyes, nose, ears and anus
- Lethargic
- Loss of sight in late stages

Positives

- Was an important tool in rabbit management

Negatives

- Not humane
- Resistances building up

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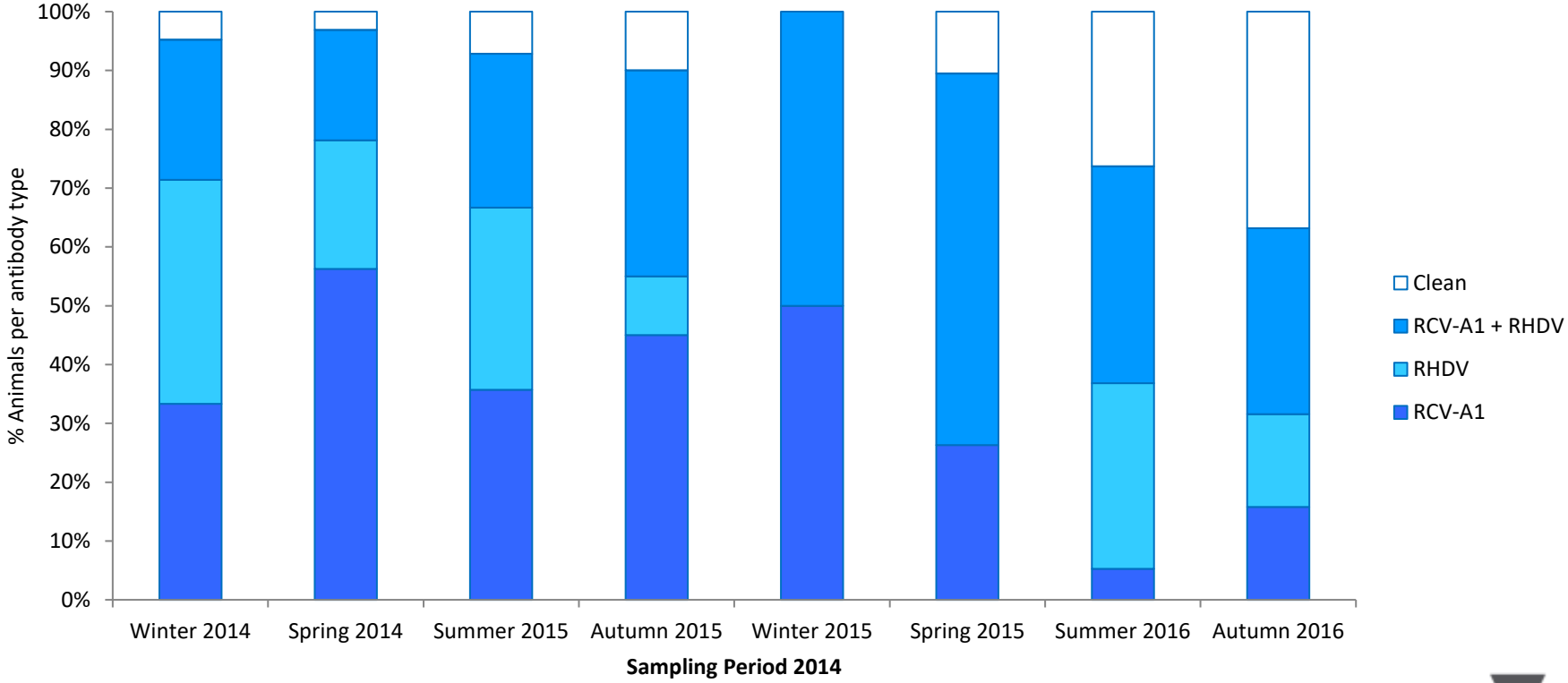
Biological Control – RHDV1, RHDV1aK5, RHDV2

- What is RHDV
  - RHDV1
  - RHDV1a-K5
  - RHDV2
- Signs of RHDV
  - Head thrown back
  - Front legs outstretched
  - Healthy dead rabbit

- Positives
  - Keeps a cap on rabbit populations on a continental scale
- Negatives
  - Resistances building up
  - Not a silver bullet

The Rabbit Immunity Profile



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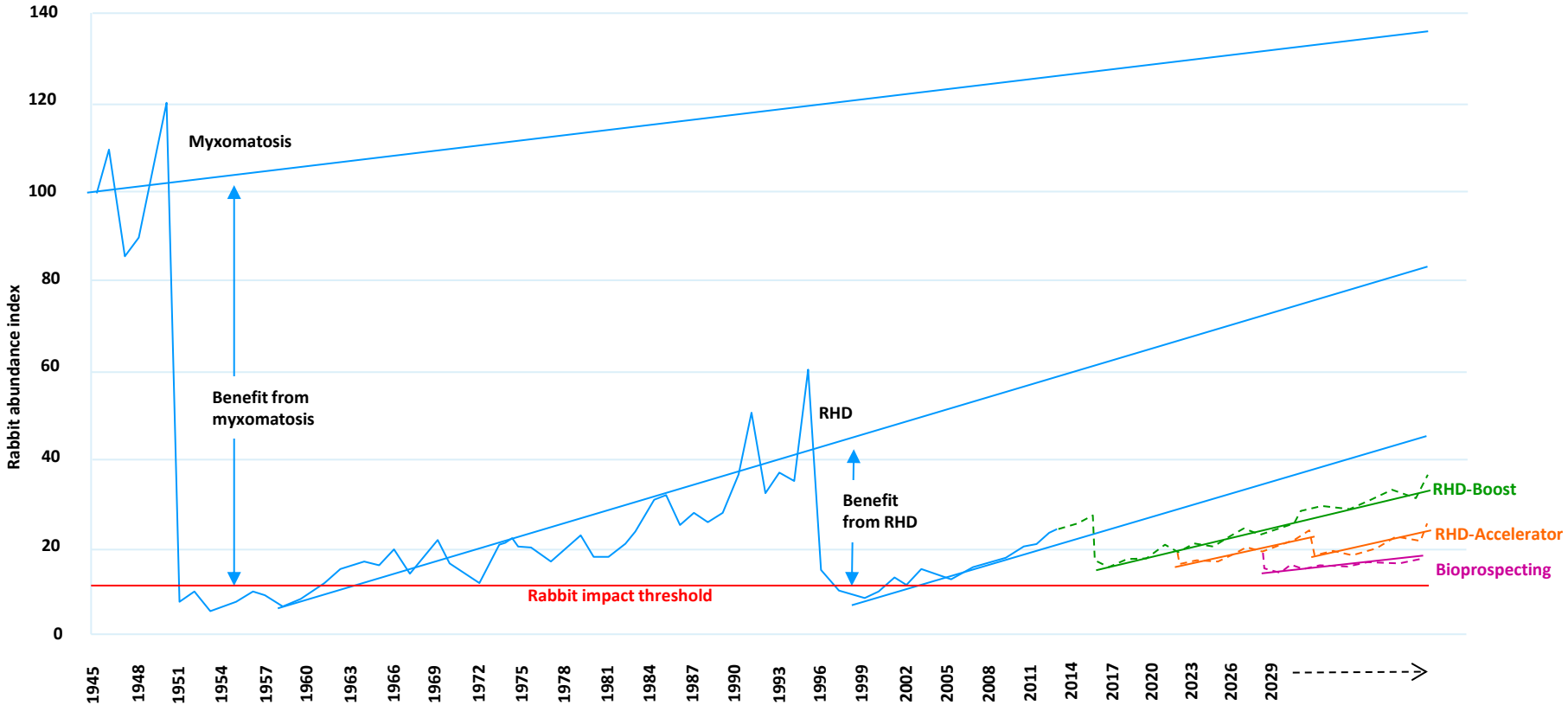
Biological Control - The Silver Bullet?



Baiting

https://www.youtube.com/watch?v=2LInyp4FfDg

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Baiting

- Two bait substrates used
  - Carrots and oats
- Different poisons can be used
  - 1080 and Pindone
- Best results are achieved when
  - Grass dried off
  - Free feeding is undertaken
  - Bait placed in right spots
  - Bait placed at right time
- Positives
  - Single most effective way to crash a population
- Negatives
  - Use toxic chemicals that pose risk to native and domestic animals
  - Not a final solution

1080

- Occurs naturally in some Australian plants
- Native wildlife has some resistance to 1080
- Foxes among the most sensitive
- Long history of use in Australia
- Difficult to detect in bait
- Rapidly breaks down in soil
- Blocks energy production at a cellular level
- Affects ventral nervous and respiratory system
- Death occurs within 3-4 hours

Positives

Native Animals already resistant

Cheap & easy

Negatives

Domestic animals highly susceptible

Heavily Regulated

No antidote

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Pindone

- Schedule 6 poison – (No ACUP required)
- Cumulative poisoning
- Domestic Animals less susceptible
- Antidote available
- Can be used in urban town boundary

Positives

Can be used where 1080 can't

No licence required

Negatives

Perception that it's safe

More cost and effort than 1080

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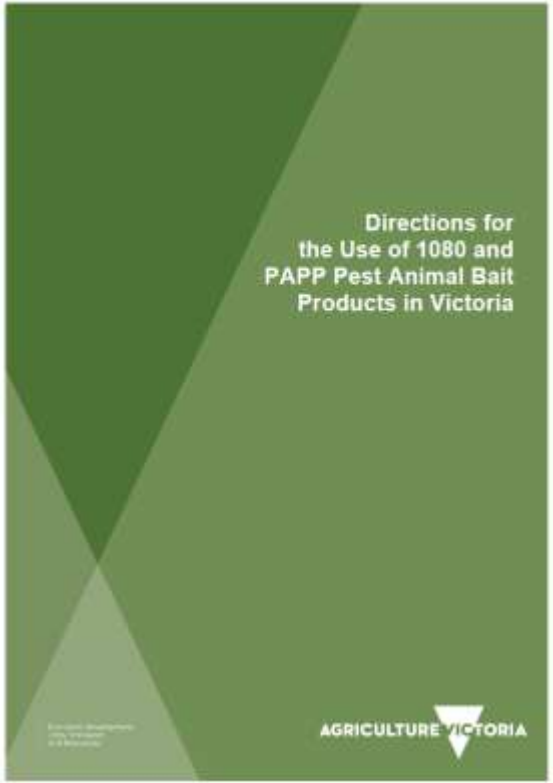
Strategy for effective baiting

1. Bait when alternate foods are scarce
2. Conduct monitoring to find rabbit feeding zones
3. Work with neighbours
4. Use good quality bait substrates
5. Place trails/bait where rabbits will encounter it
6. Pre-feed to ensure good uptake by rabbits
7. Place bait in late afternoon / early evening

Bait removal, clean-up and disposal

- Carcasses are to be incinerated or buried in accordance with Directions For Use
- Unused and untaken baits must also be incinerated or buried in accordance with the Directions For Use
- Bait station location must be recorded
- Remove warning signs four weeks after the baiting program is completed
- Report any incidents of suspected poisoning of non-target animals to Customer Contact Centre 136 186



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Warren ripping

- What is warren ripping?
  - Using heavy machinery to deep till soil causing the internal structure of the warren to collapse rendering it unusable
- Best results are achieved when
  - Soils are dry and friable
  - After a significant population decline (baiting)
  - Using large machines. More horsepower = better!
  - >600mm deep, 4m beyond warren, cross rip, back blade, track rolled
  - When using a spotter
- Positives
  - Single most effective long term control option
- Negatives
  - Big upfront cost

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The Achilles' Heel

Destroy the warren, and you remove the rabbit's defense, ability to reproduce, re-establish & rebound

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Harbour removal

- What is Harbour Removal?
  - Removal of any harbour that can give rabbits time to dig burrows
  - Woody weeds (Gorse, Blackberry, Boxthorn)
  - Rubbish piles, wood piles
- Best results are achieved when
  - Used in a coordinated strategic plan
- Positives
  - Covering all bases ensures best long term success
- Negatives
  - Can be time consuming

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Fumigation

- What is fumigation
  - Aluminium Phosphide Tablets
  - Seal entrances
- Best results are achieved when
  - Using a smoking device
  - Used in a coordinated strategic management plan
- Positives
  - Can be used to remove hard to reach burrows
  - Good follow-up tool
- Negatives
  - Burrows need to be treated 5-6 times before the are shut down completely
  - Labour intensive
  - Need to have ACUP to purchase and use

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Aluminium phosphide

- Most commonly used fumigant product in Victoria
- Also used to fumigate grain silos for weevils but it is illegal to use the product labelled for weevils, on rabbit warrens
- Time to death 30mins – 4 hours
- Carbon Monoxide is not recommended as it is not registered for use as a rabbit fumigant

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Exclusion Fencing

- Fences must be
  - ✓ Made of wire (plastic can be eaten through)
  - ✓ Mesh size is typically 40 mm or less and at least 900 mm high (rabbits can jump over 500 mm fences)
  - ✓ It should be impenetrable from underneath; sometimes aprons are installed but in sandy soils this may not be enough.
  - ✓ Gates and waterway crossings etc are often weak points that are exploited by feral animals.

Best results are achieved when

combined with baiting to reduce rabbit numbers

- Positives
  - Useful in urban environments with recalcitrant neighbours
  - Good protection for infrastructure
- Negatives
  - Expensive up-front cost
  - Require maintenance

Trapping

- Various trap designs are used
  - Padded Jaw Traps
  - Confinement traps
- Best results are achieved when
  - Low populations
  - Nuisance rabbit removal
- Positives
  - Can be useful when all other techniques fail
  - Good for very small isolated populations
- Negatives
  - Time Consuming
  - Doesn’t deal with warren systems
- Must adhere to POCTA legislation

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Ground shooting

- Various types of ground shooting
  - Spotlight
  - Lead Netting
  - Rabbit Drives

- Best results achieved when
  - Used after ripping program to remove surface rabbits
  - Small isolated populations

- Positives
  - Remove small isolated populations
  - Maintain long term rabbit control

- Negatives
  - Not effective enough on its own
  - Behavioural change technique
  - Can’t be used in urban town boundary

Image: Sporting Shooters Association of Australia

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Science & Rabbit Recipe

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Science

- Williams, C. K., and Moore, R. L. (1995). Effectiveness and cost-efficiency of control of the wild rabbit *Oryctolagus cuniculus* (L.), by combinations of poisoning, ripping, fumigation and maintenance fumigation.

- Bait + Ripping
- Bait + Fumigation
- Ripping + Fumigation
- Bait + Ripping + Fumigation

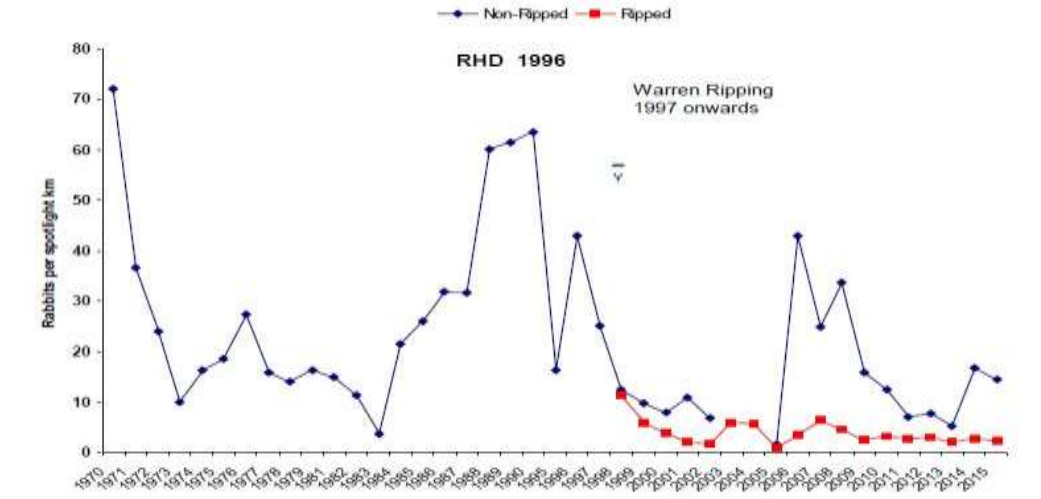

Figure 2 Mean numbers of rabbits per spotlight km counted before the spread of RHDV and after the spread of RHDV in ripped (red line) and non-ripped (blue line) areas.

The Rabbit Recipe – Integrated Rabbit Control

Assess the problem and develop a plan

Reduce Rabbit Numbers

Remove Rabbit Harbour

Monitor and React

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Monitor and React

- Ground Surveys
- Spotlight counts
- Follow up Fumigation or Re-ripping
- Signs of rabbits such as excrement mounds or diggings

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Monitoring Techniques

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Spotlight counts

- Spotlighting generally undertaken
  - At Night
  - As an index of change
- Best results are achieved with
  - Replicates
  - No Bias
- Positives
  - Cheap & Easy way to monitor changes in populations
- Negatives
  - Does not represent total number of rabbits in the environment

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Warren assessments

- Generally undertaken with
  GPS points and stakes
- Best results are achieved when
  Eliminating Bias
- Positives
  Cheap & Easy
- Negatives
  Does not cover large areas

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Other monitoring techniques

- Rapid assessment
- Scratchings
- Dung heaps
- Vegetation damage
- Camera Traps
- Sand Pads

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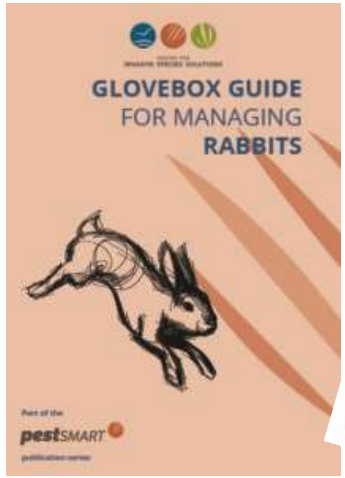
Important things to remember

- Develop a strategic management plan
- Only use techniques that suit
- Use more than one!!
- Ripping should be included
- Implement each when most effective
- Consider biology & behavior
- Work with neighbors
- Adhere to legislation and label directions
- Monitor, refine and adapt



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Further information

Agriculture Victoria Website

https://agriculture.vic.gov.au/biosecurity/pest-animals

Agriculture Victoria YouTube best practice video series

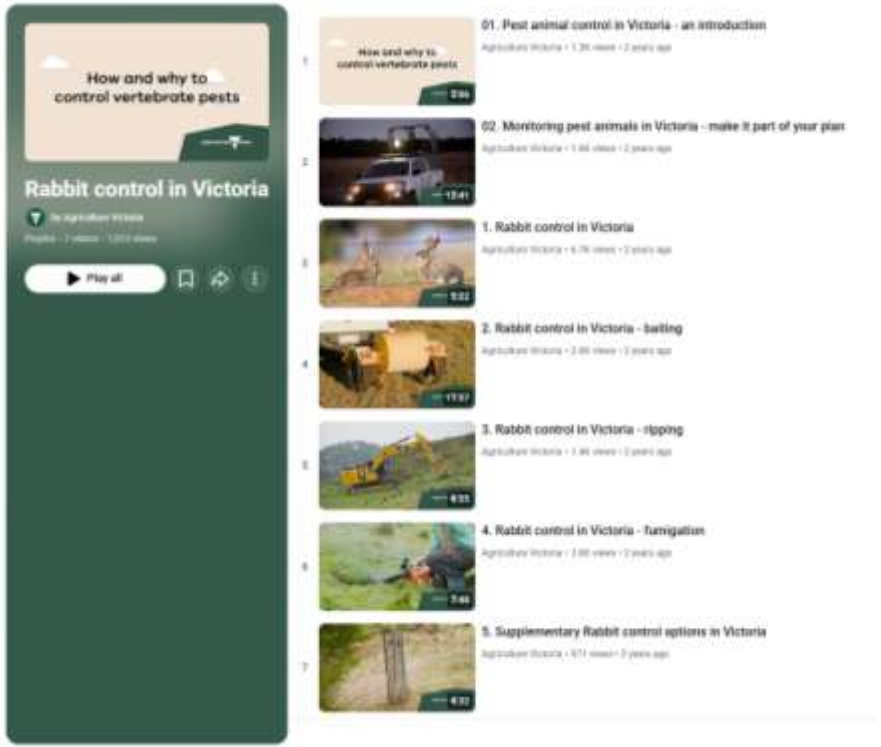
https://www.youtube.com/playlist?list=PLFDdaBaOVmBAhYrSoXT9whgZrvWfwwm2u

Pestsmart

https://pestsmart.org.au/

Meet the ferals (ABC series)

https://iview.abc.net.au/show/meet-the-ferals



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Any questions?

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