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IVM Airside Grass Management Program
Brisbane Airport

Nick Bloor Founder & CEO

AAWHG Forum

Cairns, 3rd August 2018

Utilising grass management technology to make the airport as unattractive to wildlife as possible, in an environmentally responsible way.
(Passive Management)

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Manage your grass.

Manage your risk.

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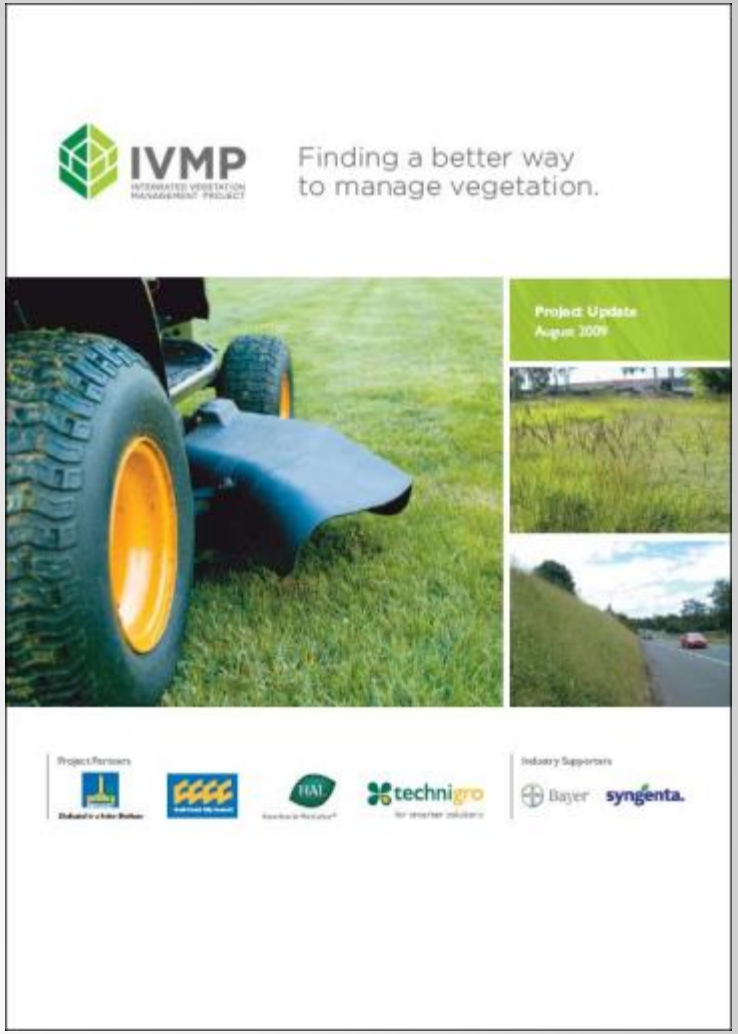
IVM RESEARCH

Integrated Vegetation Management (IVM)

Science based solutions

- **3 year international research project IVM Project (2008-2011)**
- **Trial sites throughout Australia**
- **Pilot projects in airports, parks, roadsides and utility easements**



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IVMP
INTEGRATED VEGETATION MANAGEMENT PROJECT

Finding a better way to manage vegetation

IVM CLIENTS

- Brisbane Airport
- Darwin Airport
- Perth Airport
- Cairns Airport
- Melbourne Airport
- ACT Government
- Northern Territory Government
- Powerlink Queensland

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CASE STUDY – **BRISBANE AIRPORT**

- 20 mowing cycles per annum
- Most intensive mowing - Sept to March (15 mowing cycles)
- Harvesting of grass clippings during peak growth periods
- Flight strip mowing carried out at night to reduce wildlife risk
- Post-mowing wildlife harassment after daytime mowing

BRISBANE AIRPORT AUSTRALIA

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QANTAS
3

L-852

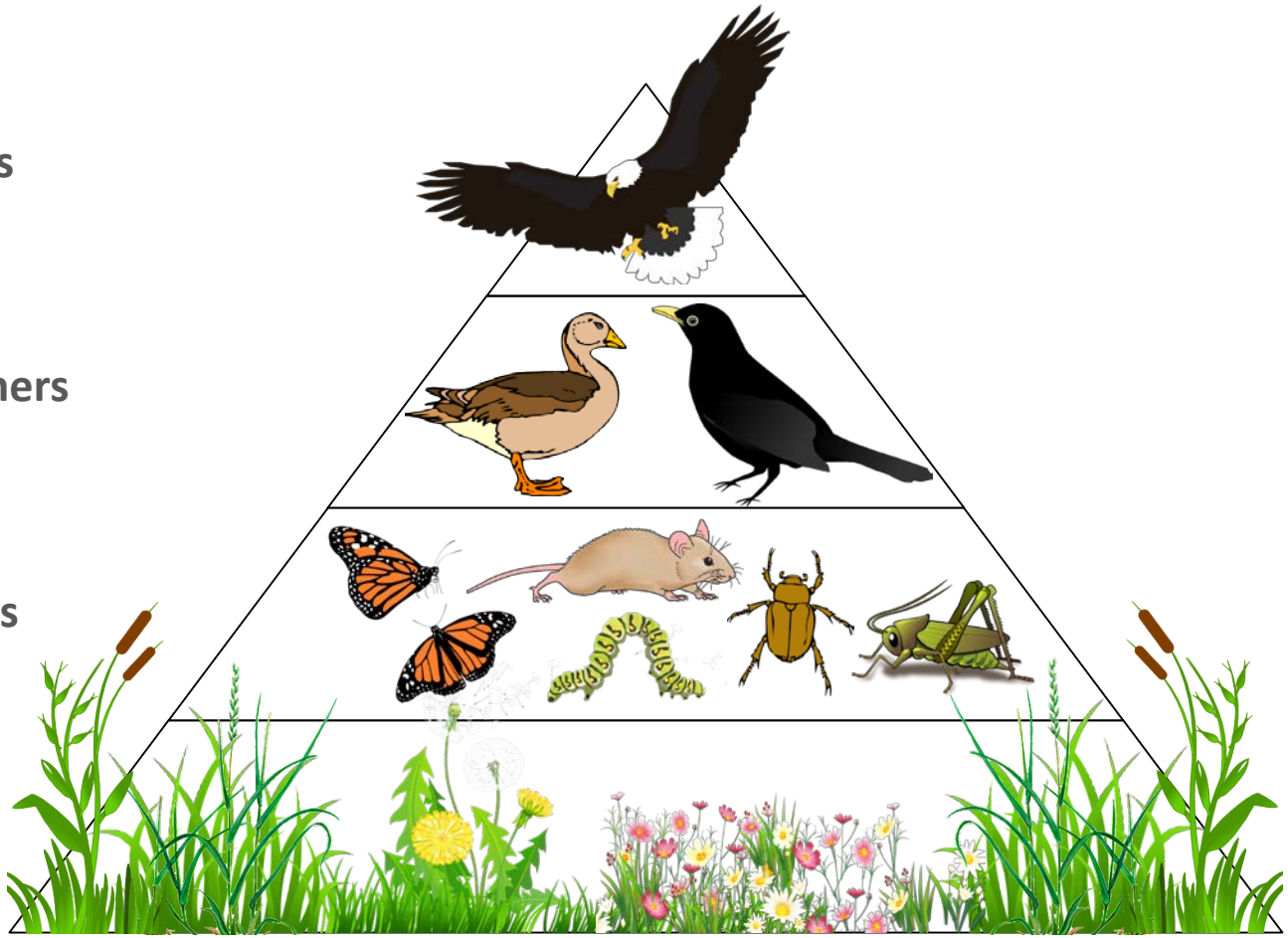
PRODUCER CONSUMER FOOD PYRAMID

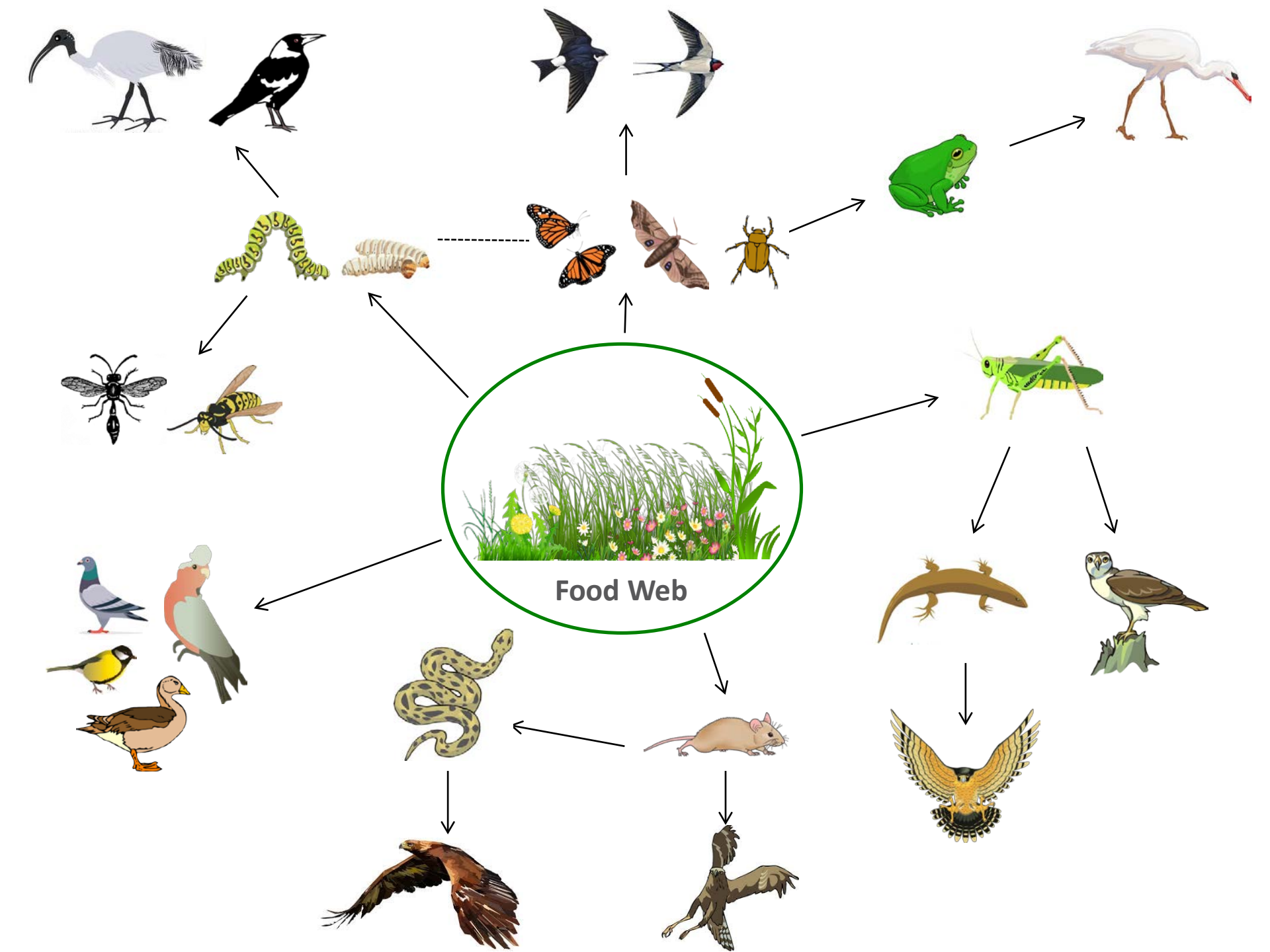
Tertiary Consumers

Secondary Consumers

Primary Consumers

Producers




Food Web

CASE STUDY – **BRISBANE AIRPORT**

Phase 1 – Airside Trial

Trial Objectives:

- **Reduce mowing frequency by 50%**
- **Reduce vegetation biomass (post-mowing clip/debris) by 30%**
- **Reduce wildlife activity**

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CASE STUDY – **BRISBANE AIRPORT**

7 Month Trial (Growing Season) September – March

Month	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Total
Historical Data	2 mows	2 mows	2 mows	2 mows	3 mows	2 mows	2 mows	**15**

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CASE STUDY – **BRISBANE AIRPORT**

BRISBANE AIRPORT AUSTRALIA

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CASE STUDY – **BRISBANE AIRPORT**

Invasive high-biomass grasses

Winter growing broadleaf species

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CASE STUDY – **BRISBANE AIRPORT**

Wildlife attracting species

Bare areas

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CASE STUDY – **BRISBANE AIRPORT**

Airside Trial Program:

- Species Survey & Data Analysis
- Training Airport Staff & Spray Equipment Calibration
- Grass Management Technology Tools
  - Growth Regulation (GA synthesis)
  - Seed Head Suppression
  - Selective Species Transition
- Site Monitoring & Data Capture
- Program Review

BRISBANE AIRPORT AUSTRALIA

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CASE STUDY – **BRISBANE AIRPORT**

7 Month Trial (Growing Season) September – March

Month	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Total
Control Actual	2 mows	2 mows	2 mows	2 mows	3 mows	2 mows	2 mows	**15**
IVM Actual		1 mow		1 mow	1 mow		1 mow	**4**

73% reduction in mowing frequency

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CASE STUDY – **BRISBANE AIRPORT**

Program Results…

- **Mowing frequency reduced by 73% (target 50%)**
- **Vegetation biomass reduced by 49% or 800kg per Ha (target 30%)**
- **Wildlife activity visibly reduced**

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CASE STUDY – **BRISBANE AIRPORT**

IVM Trial Plot
56 days after mowing

Control Plot
14 days after mowing

27 March

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CASE STUDY – **BRISBANE AIRPORT**

Phase 2 – Airside Field Program

Program Objectives:

- **Reduction in mud daubing wasp activity**
- **Reduction in bird activity**
- **Reduction in mowing frequency**
- **Reduction in post-mowing debris (FOD)**

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DB	ORIGINAL ISSUE.	19/10/15	1
Drawn	Amendment	Date	Rev. No.

Authorised Rep. & Signature	Date
Authorised Rep. & Signature	Date
Checked By	Date

AIRSIDE GRASSLAND MANAGEMENT
MOWING BLOCK NUMBERS

BRISBANE AIRPORT AUSTRALIA

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Telephone : 61 7 3406 3000
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Email : info@bne.com.au

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ABN 54 076 870 650

Scale	Size	Revision
1 : 20 000	A3	1

	Design Ref.	Project Ref.	Discipline	Airport Precinct	Sub-Number
Drg. No.	BAC	151476	B	22	0010

CASE STUDY – **BRISBANE AIRPORT**

Airside Field Program:

- Species Survey & Data Analysis
- Spray Equipment Resourcing
- Grass Management Technology Tools
  - Growth Regulation
  - Seed Head Suppression
  - Selective Species Transition
  - Insect Control
- Site Monitoring & Data Capture
- Program Review

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CASE STUDY – **BRISBANE AIRPORT**

Example Insect Control Tool

Chlorantraniliprole (Acelepryn)

- New chemistry – the anthranilic diamides
- Inspired by the insecticide properties of Ryanodine, a natural substance found in the bark of shrubs and trees of the genus *Ryania*
- Selective – non-toxic to non-target organisms (bees & earthworms)
- Regulates release of stored calcium through the calcium channels in insects' cells which is critical for muscle contraction

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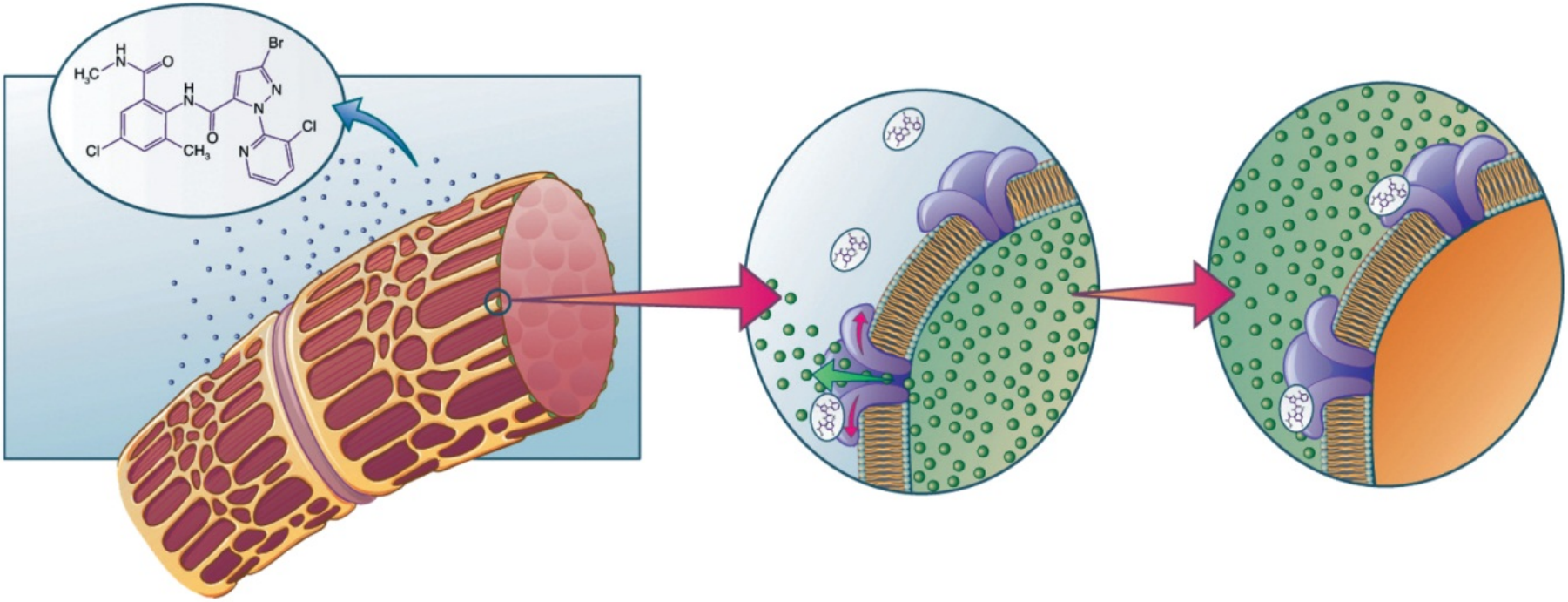
Unique Mode of Action



Phase 1 - Exposure

Insect comes in contact with or ingests Chlorantraniliprole, the active ingredient in ACELEPRYN insecticide.

Phase 2 - Activation

Chlorantraniliprole binds to and activates the ryanodine receptors located in the insect's muscle, and causes them to open.

Phase 3 - Paralysis

Calcium ions flow out of the open ryanodine receptors, depleting calcium needed for muscle contraction. Paralysis of the insect muscle leads to death.

CASE STUDY – **BRISBANE AIRPORT**

Primary Target Insects:

- Caterpillars (Lepidoptera)
  - Armyworm
  - Black Cutworm
  - Sod Webworm
- Beetle larvae (Coleoptera)
  - African Black Beetle
  - Argentinian Scarab
  - Billbug

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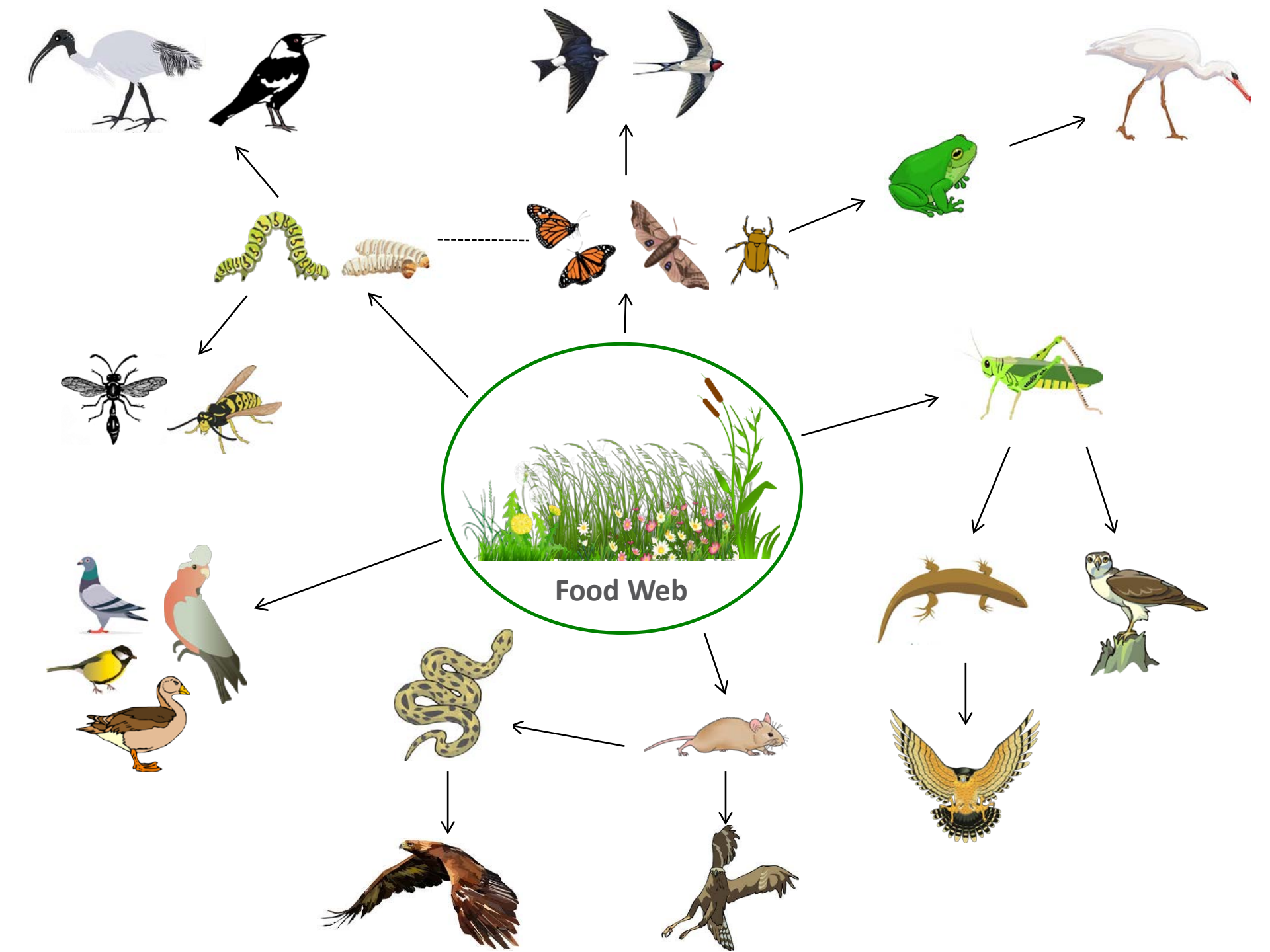
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PARTNER ACKNOWLEDGEMENTS

Jackson Ring and the BAC team

Dr Mike Parkin and the Syngenta global team

Dr Sheldon Navie and our IVM team

Questions?

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Thank you

Further information…

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3rd August 2018

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