CBH's Fumigation, Pest Control and Bio-security Practices

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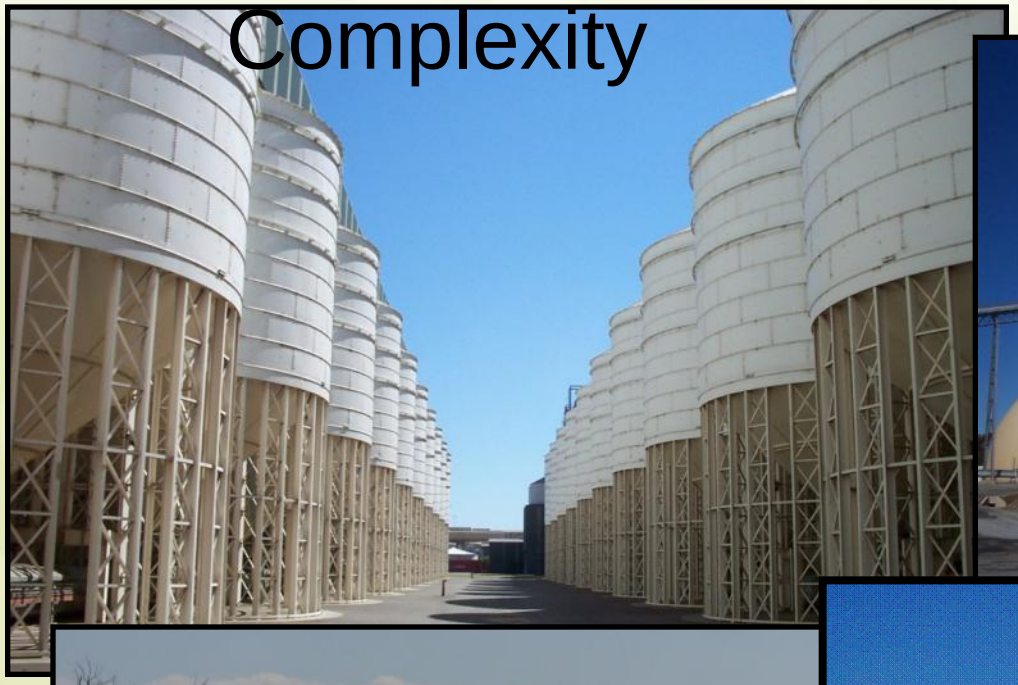
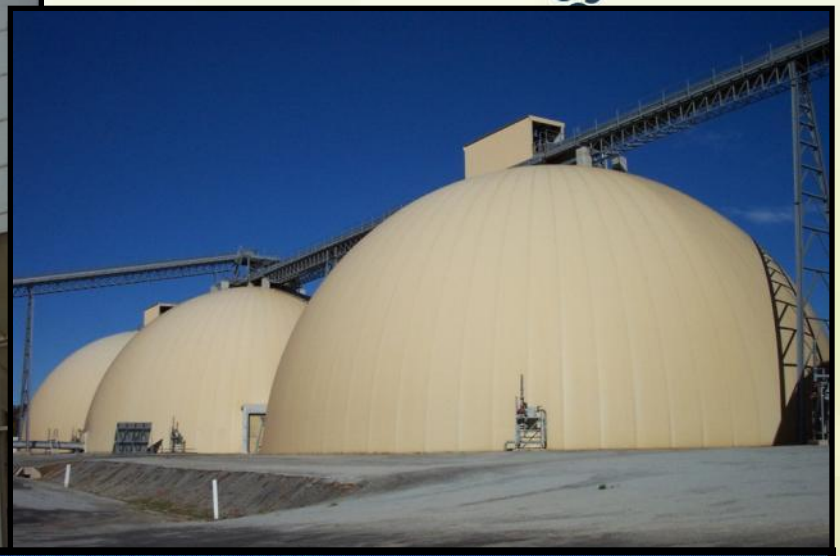
Manager, Grain Protection and Sealing

Storage Infrastructure - Size

Storage Infrastructure - Complexity





Fumigation with Phosphine

Aluminium Phosphide

Fumigation with Phosphine

Cylinder Formulation

Storage Preparation

Storage Preparation - Safety

Fumigation Application

Fumigation Application

Monitoring


SILO CHEK
PPM Phosphine
Fumigation Monitor
Light
On


ToxiPro

Resistance Management Strategies

Fumigation Protocols

Storage Type	Fumigant	*Dosage Rate of Fumigant	*Dosage Rate of Fumigant (Insect Infested)	#Exposure Period of Fumigant (Days)	Monitoring Interval (Days)	Minimum PPM Required
Sealed Storages	Phosphine	0.5 grams per tonne storage capacity	0.66 grams per tonne storage capacity	28 Days	Weekly ideally at 7, 14 & 21 days Minimum 3 Readings	100 ppm at 14 days
Sealed Storage (Containing >40% Canola, Oats or Peas)	Phosphine	0.66 grams per tonne storage capacity	Liaise with Grain Protection Supervisor	28 Days	As Above	100 ppm at 14 days
Internal Tarping (All commodities)	Phosphine	1.5 grams per tonne	Liaise with Grain Protection Supervisor	28 Days	As Above	100 ppm at 14 days
Open Bulkheads	Phosphine	0.75 grams per tonne	1.5 grams per tonne	28 Days	As Above	100 ppm at 14 days
Open Bulkheads (Containing canola, oats or peas)	Phosphine	1.5 grams per tonne	Liaise with Grain Protection Supervisor	28 Days	As Above	100 ppm at 14 days
Cells	Phosphine	0.5 grams per tonne storage capacity	0.66 grams per tonne storage capacity	14 days	As Above	100 ppm at 14 days
Cells (Rapid Fumigation)	Phosphine	0.5 grams per tonne storage capacity	0.66 grams per tonne storage capacity	7 Days	Daily	350 ppm for 7 days
Monitoring: To be carried out using approved monitoring equipment.		*Dosage rate can be varied to help achieve minimum PPM requirements.				

Resistance Management Strategies

Resistance Monitoring

Monitoring fumigation	Ensuring minimum fumigation concentrations are met	Readings entered into IBIS.	Readings taken ideally at 7, 14 and 21 days		GPC/O, Terminal Supervisor	RPO, Authorised fumigator

Receival point code	Sample Information	Date Collected	Date Tested	Species Code	Number Tested	Number Survived	Comments
WMGC	cell 2/12 empty cell recirc back of discharge valve	20/6/08	8/7/08	TCO	80	0	-CL- No resistance detected. Many live TCOs in sample
WGERAL	1050444270	17/6/08	7/7/08	CRY	49	8	-CL- Resistance detected; insects in culture awaiting further testing.
WGERAL	1050444270	17/6/08	7/7/08	TC	5	1	-CL- Resistance detected; insects in culture awaiting further testing.
WGERAL	1050444270	17/6/08	7/7/08	RD	80	3	-CL- Resistance detected; insects in culture awaiting further testing.

Resistance Management Strategies

Extension Programs – "Operation Phosure"

- Safe and responsible use
- Correct dosage rates
- Fumigate in sealed storages
- Ensuring seals are not compromised
- Hygiene (Infestation sources)
- Importance of phosphine

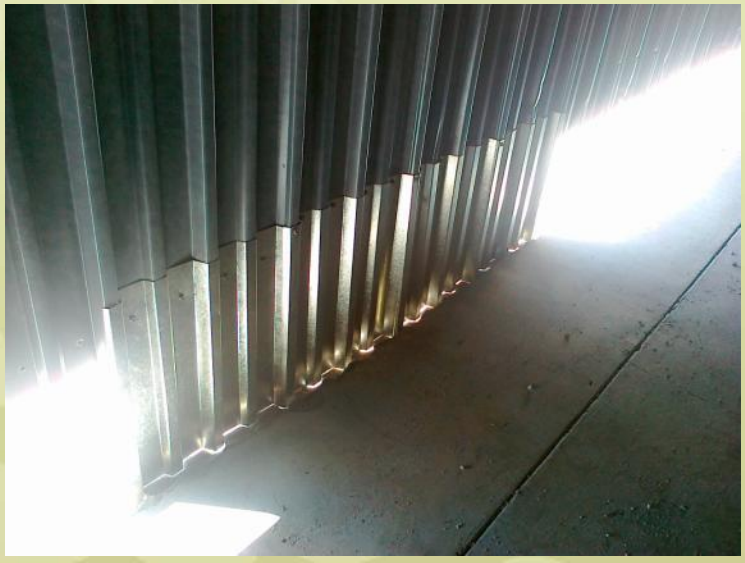
Resistance Management Strategies

Sealed Storage Maintenance Program

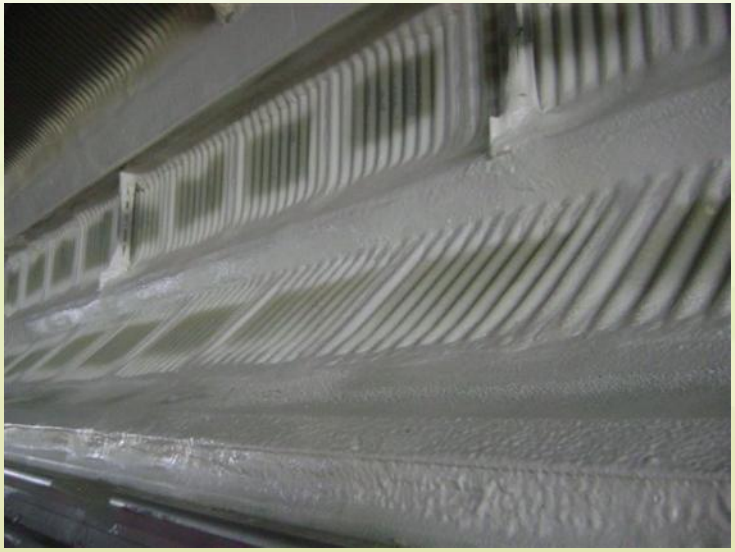
- $6 Million annual budget
- $300,000 - $700,000 per storage
- Ability to hold fumigant
- Water damage

Sealed Storage Maintenance

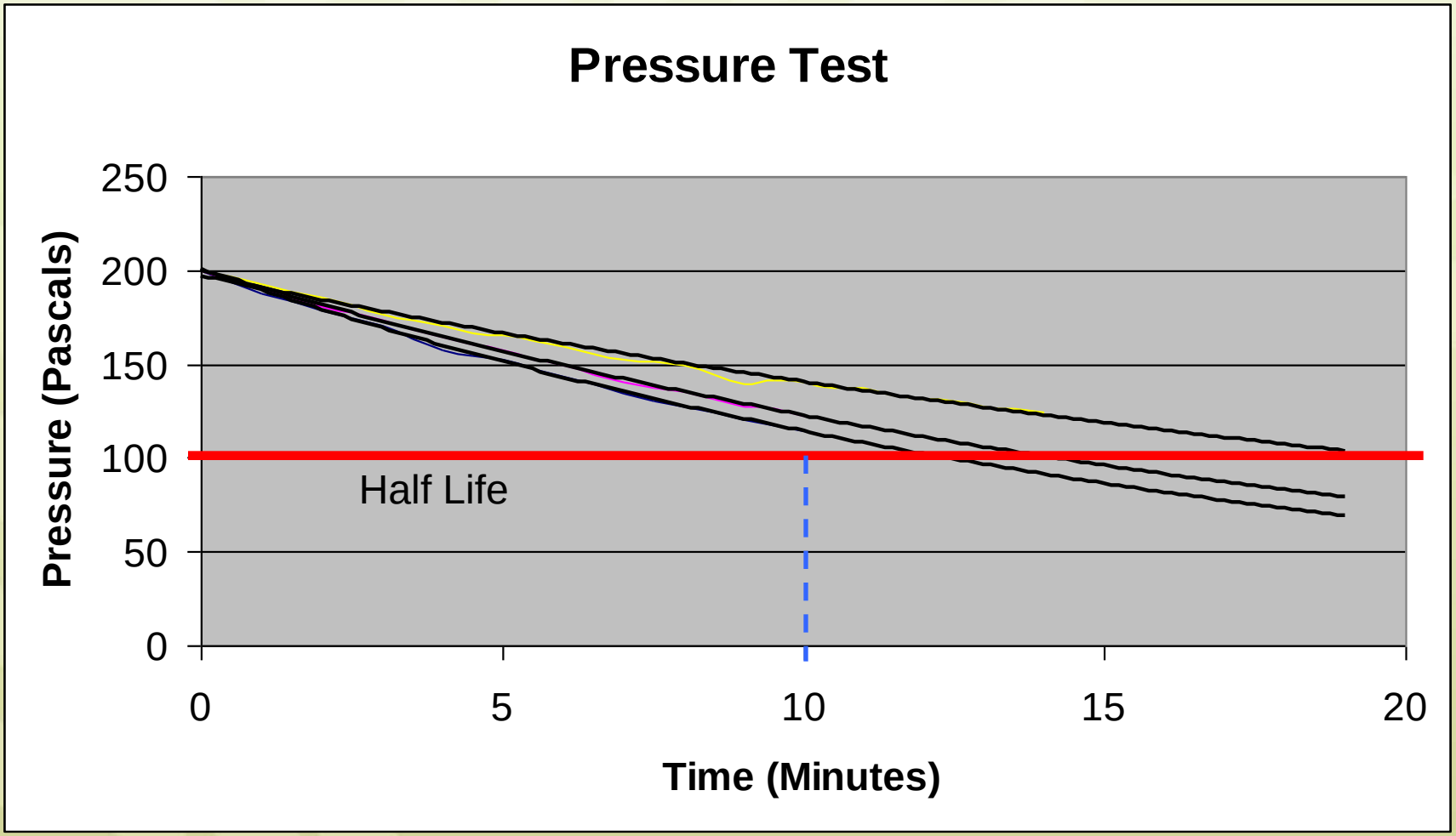
Sealed Storage Maintenance



Sealed Storage Maintenance



Sealed Storage Maintenance

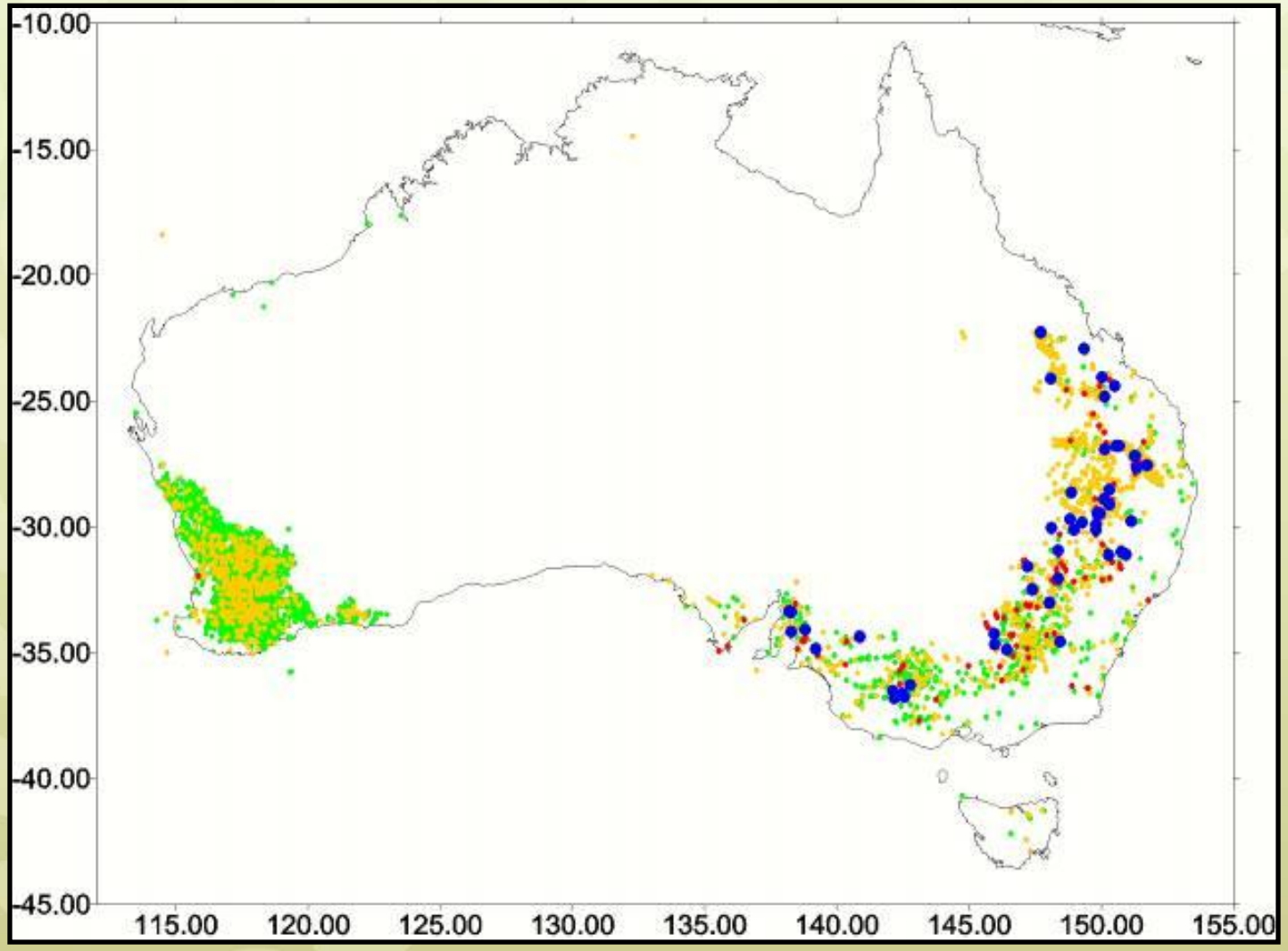


Resistance Management Strategies

Research and Development

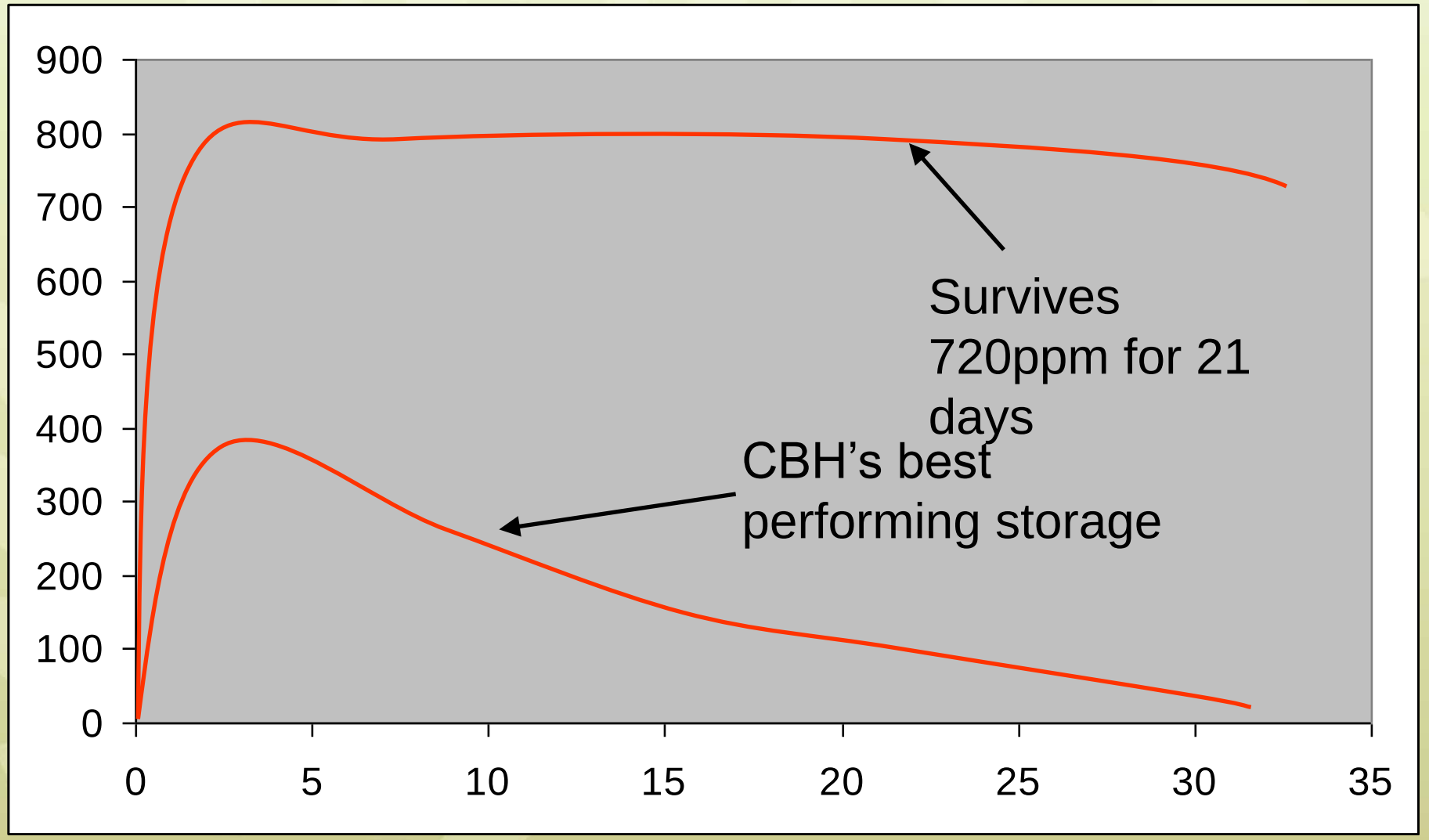
Challenges for the Future

Resistance Development – Super Bugs



Challenges for the Future

Resistance Development – How Resistant ?



Challenges for the Future

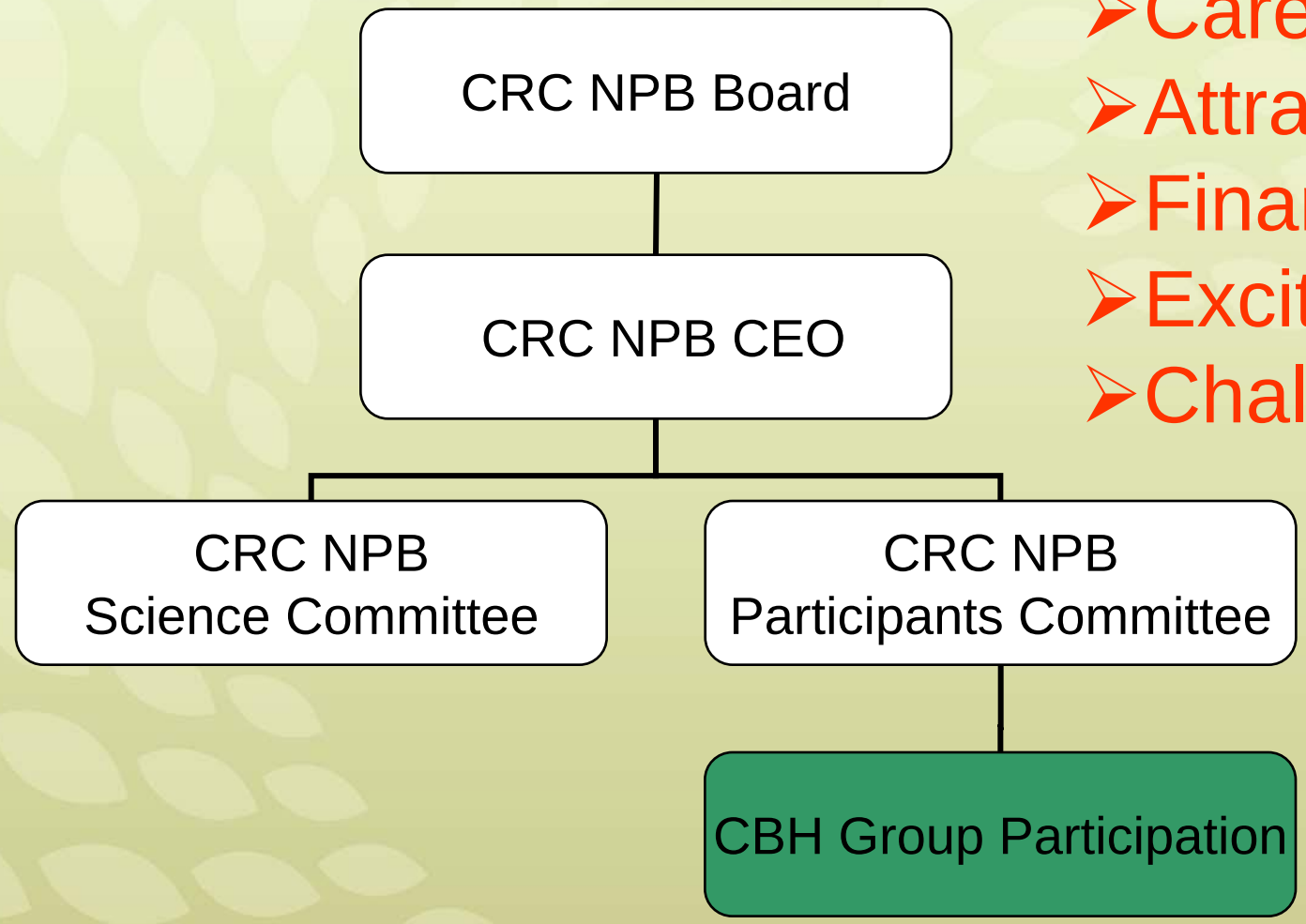
Break Strategies – Limited Options

- Methyl Bromide
- Ethyl Formate
- Nitrogen PSA

Nitrogen PSA

Challenges for the Future

Research and Development Capacity



- Career paths
- Attraction
- Financial
- Excitement
- Challenges

Questions?