

GRDC On-Farm Grain Storage Extension Western Australia

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What is this project about?

- Extend best practice management techniques
- Provide grower information resources
- Inform latest research findings
- Test grower questions to guide research
- Assist growers with follow-up support



Why is this important for growers?

To improve the management of on-farm seed and domestic market bound grain.

- **Reduce seed germination losses**
- **Reduce spoilt grain in storage**
- **Reduce freight and handling costs with storage**
- **Reduce storage costs – purchasing decisions**
- **Increase yield and quality by enabling harvest timeliness**
- **Increase price by maintaining grain quality in storage until desired selling price point**



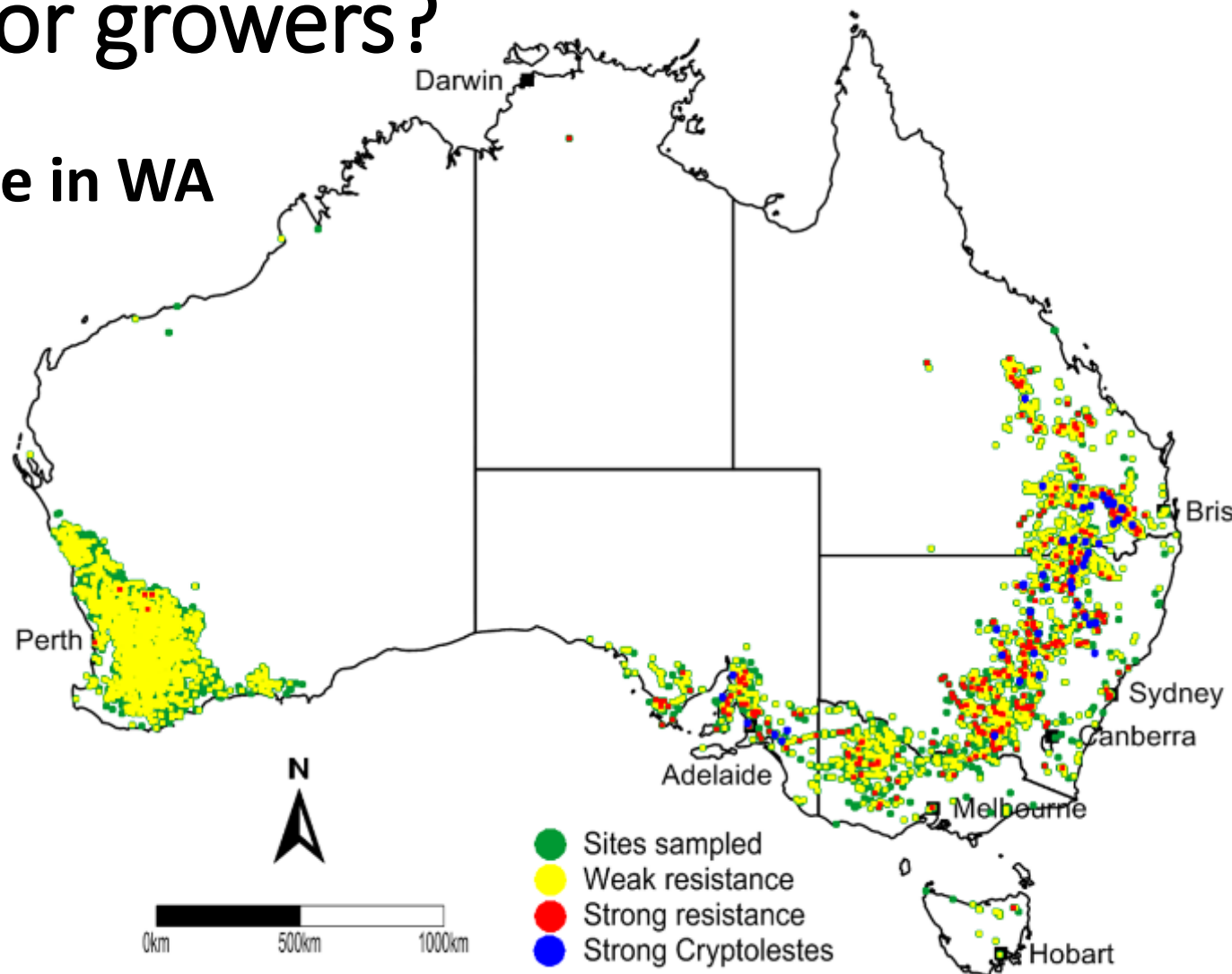
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Why is this important for growers?

To maintain the efficacy of Phosphine in WA

- For Growers
- For CBH



How can we help growers?

- Target all required elements that enable practice change
 - Awareness – Motivation – Knowledge – Skills – Equipment
- Multiple communication methods
- Ensure growers get consistent, accurate information from everywhere
- Work with industry to enable on-farm best management practices
 - Chemical registrants and regulators, bulk handlers, exporters, manufacturers



How can we help grower groups?

- Workshops – indoor and on-farm
- Demonstrations on-farm
- Speaking at grower group events
- Loan silo pressure test kits
- Webinars
- Q&A
- Newsletter information
- Videos - YouTube
- Social Media X @[1800weevil](#)
- Website – www.storedgrain.com.au



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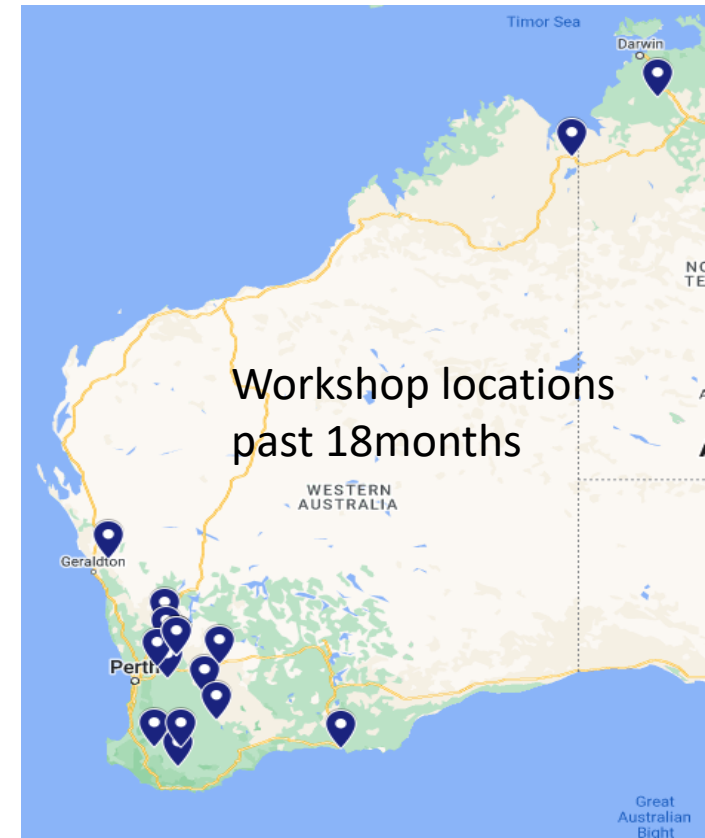
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Who, Where, When



Workshops and practical learning

- Joint events are an opportunity
- Ben will be touring WA for harvester workshops in September
 - Gardiner 10th
 - Dumbleyung 11th
 - Wickepin 12th
 - Beacon 13th
 - Esperance 16th
- Also regularly on the road for Kondinin Group work
- Happy to incorporate Kondinin research work also
 - Machinery, Technology, Livestock equipment



Extending Reach

Joint workshops – multi topic

Reaching growers who don't know what they don't know



Development Activities – Grain storage

Testing new concepts, answering key frequent questions, developing new management methods



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Independent results – Pressure testing and build quality

Happy to assist growers with grain storage

- Economics
- Planning
- Purchasing decisions



Collaborative testing silos meet Australian Standard for gas-tight sealing (suitable for fumigation)



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Topics covered

Grain storage hygiene
+
Structural treatments

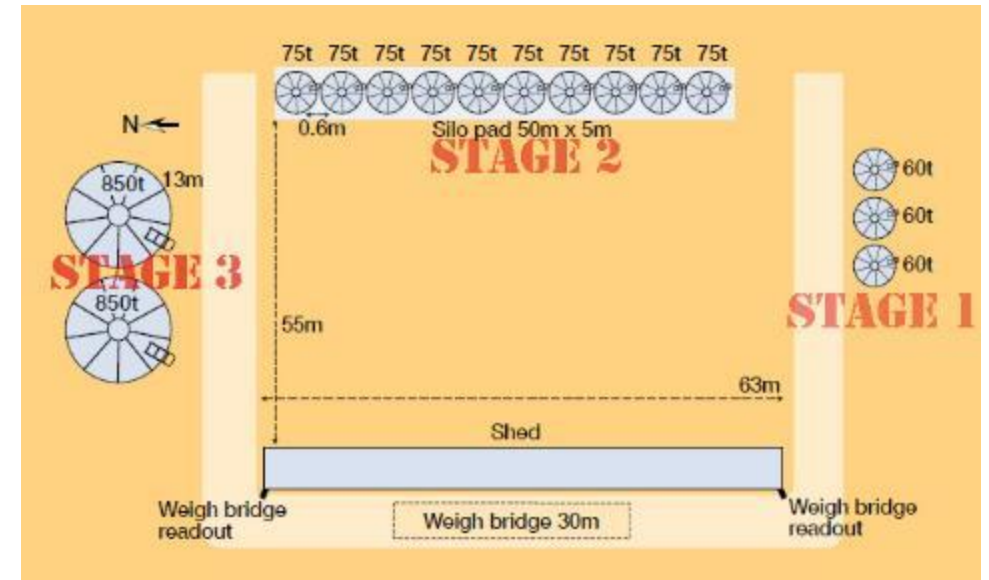


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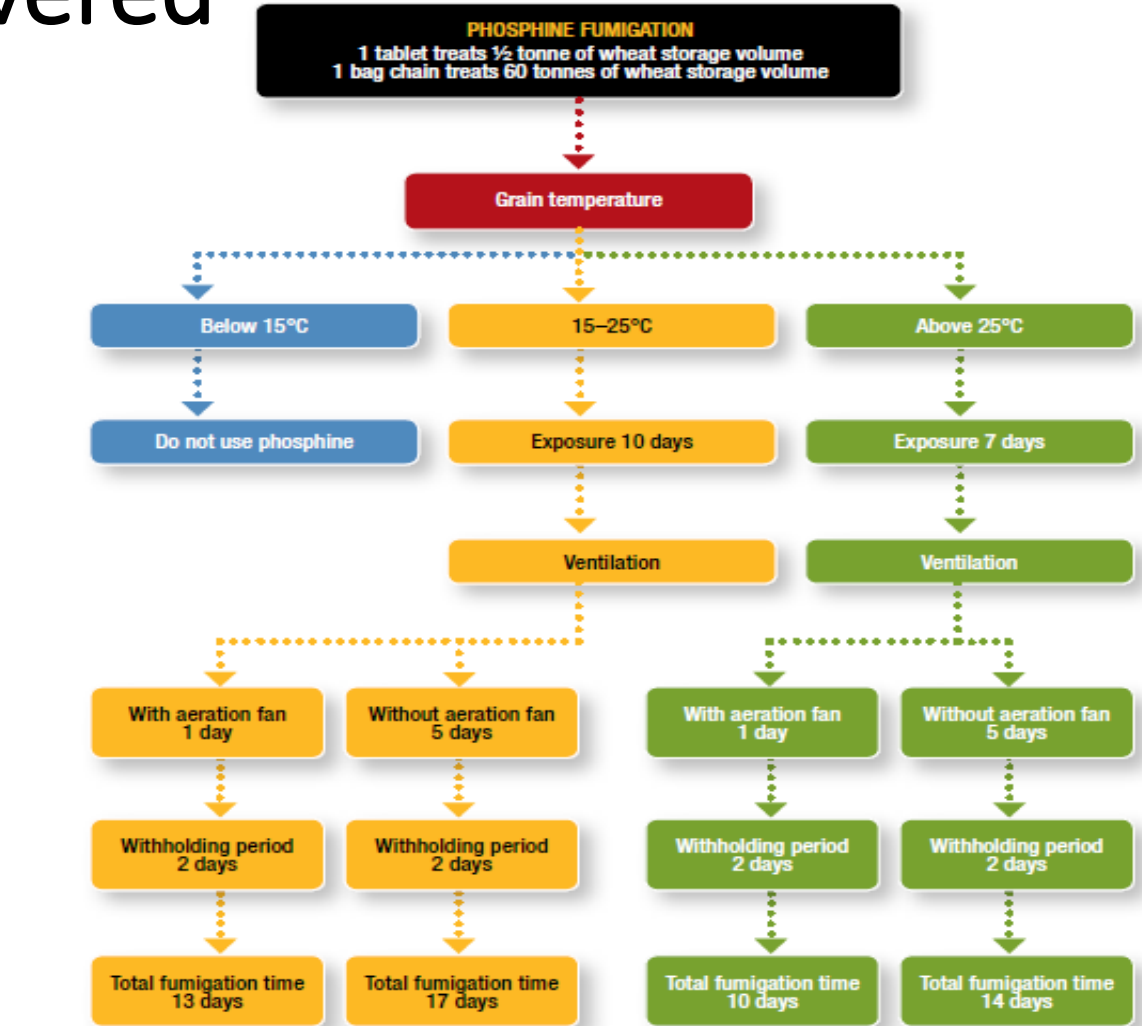
Topics covered

Grain storage investment planning and considerations



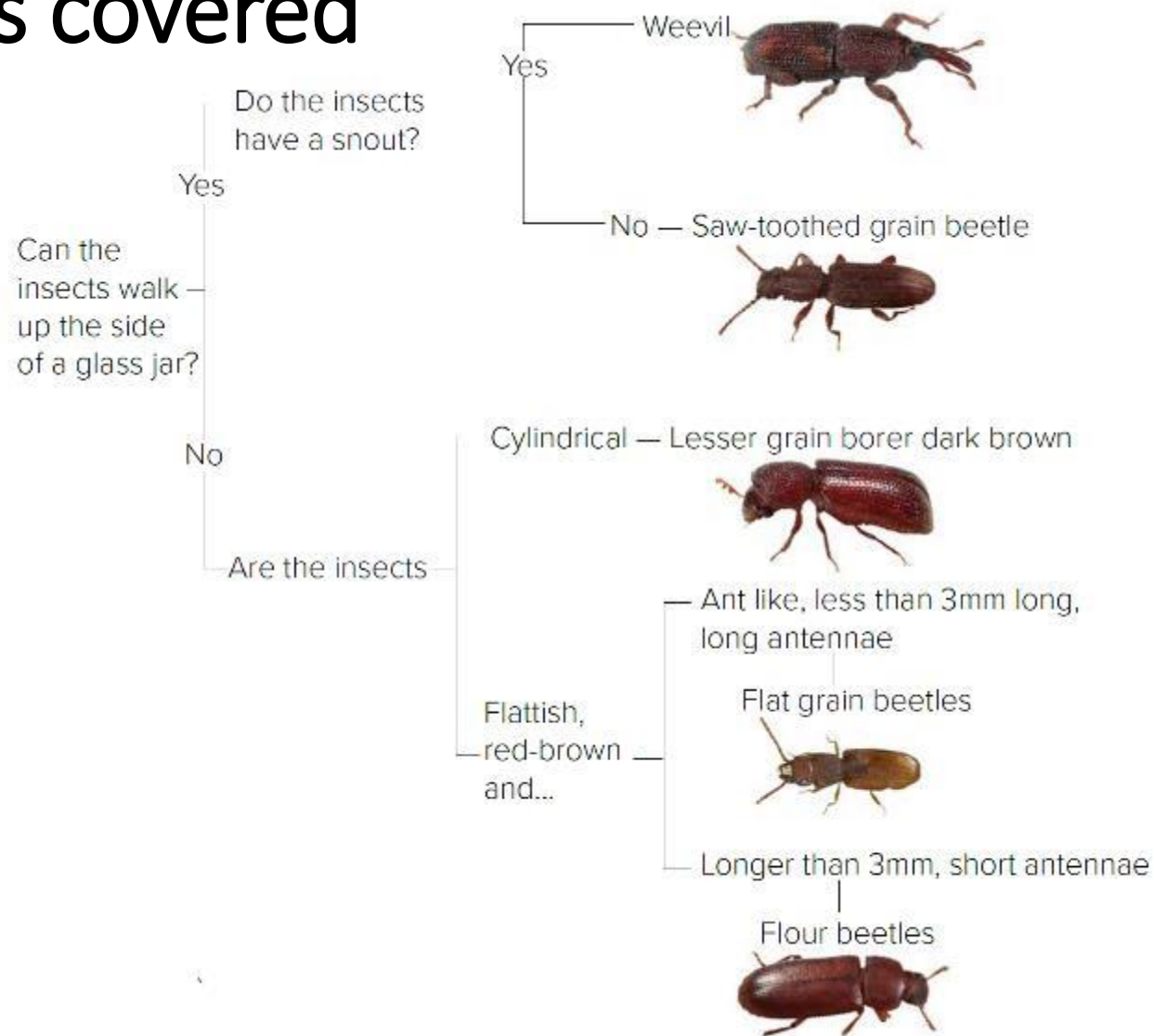
Topics covered

Fumigation



Topics covered

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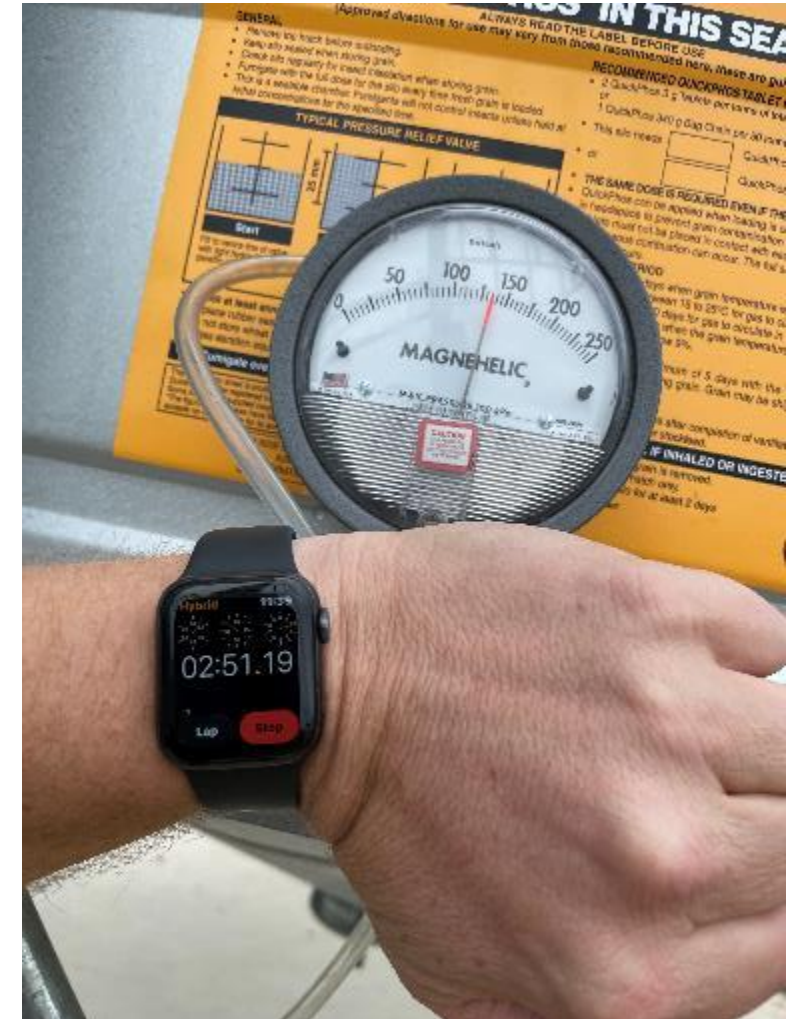


Topics covered

Grain storage safety



Pressure testing



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Topics covered

Options for organic growers/markets



Topics covered

Aeration for cooling



Topics covered

Wet harvest options

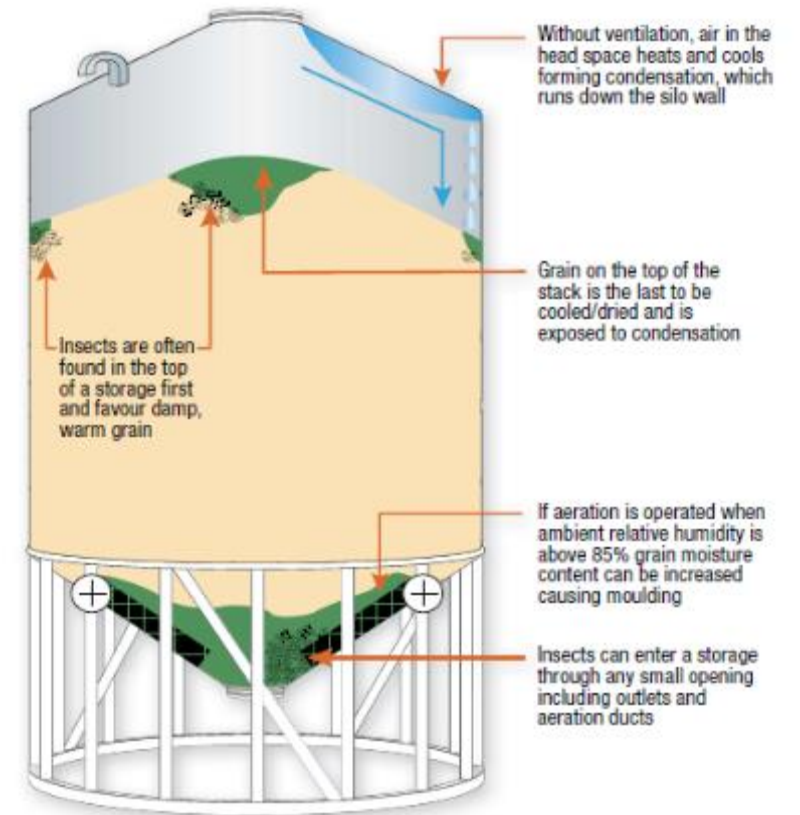


Topics covered

Monitoring + Resistance testing



FIGURE 1 COMMON PROBLEM AREAS IN GRAIN STORES



Source: Kondinin Group

Grain storage options

Topics covered



Topics covered

Economics of grain storage

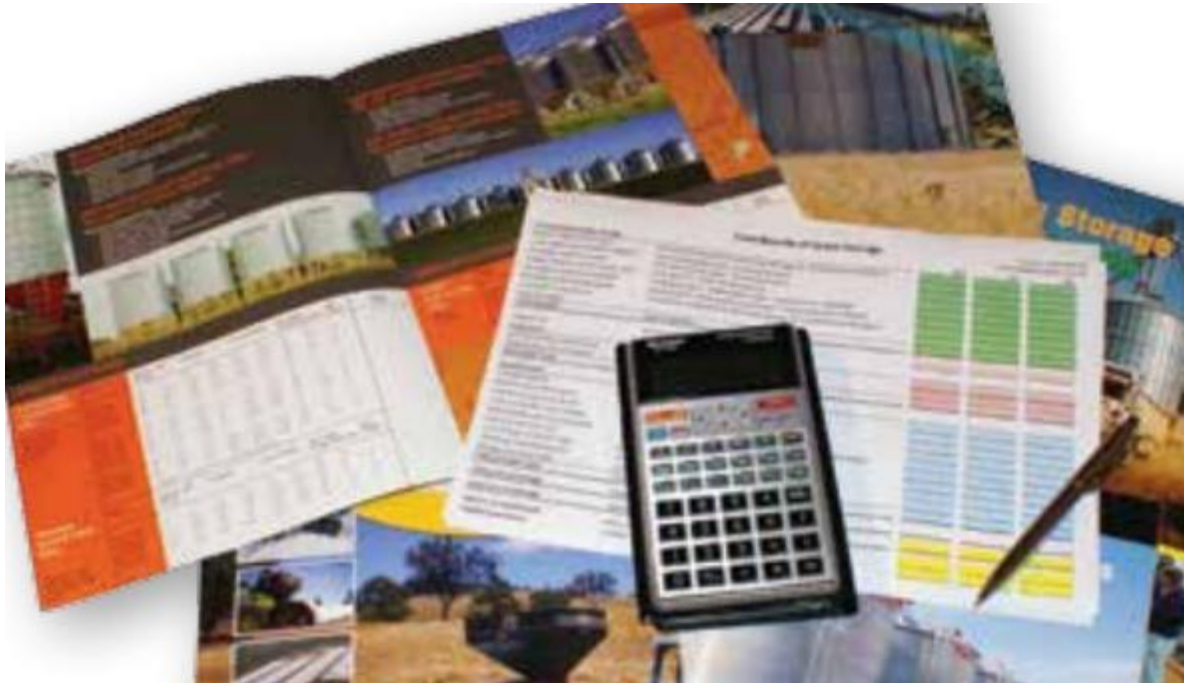


Table 1: Grain storage cost-benefit analysis template

Financial gains from storage			Example (\$/t)
A	Harvest logistical benefits	Grain price x reduction in value after damage % x probability of damage %	17A
B	Seasonal trends in market	(Post harvest) grain price - harvest grain price	23.00
C	Use of market gain (first to 5000t)	Post harvest grain price - harvest grain price	
D	Freight (previous opportunity cost)	Post harvest grain price - post harvest rate \$/t	10.00
E	Cleaning to improve the grade	Clean grain price - original grain price - cleaning costs - shrinkage	
F	Blending to fill average grade	Blended price - (low grade price x 50% + high grade price x 50%)	
G	Drying for early harvest	Grain price x reduction in value after damage % x probability of damage %	
H	Other benefits		
I	Total benefits	Sum of benefits	4740
J	Capex costs	Infrastructure cost ÷ storage capacity	90.00
Fixed costs			
K	Annualised depreciation cost	Capital cost \$/t ÷ expected life of storage, eg 30yrs	6.33
L	Opportunity cost of capital	Capital cost \$/t x opportunity cost of funds, eg 5% x 2	4.75
M	Total fixed costs	Sum of fixed costs	11.08
Variable costs			
N	Storage hygiene	Quota rate \$/m x time to clean line ÷ storage capacity ÷ structural treatment	0.25
O	Aeration cooling	Initial cost 25% for the first month then 15% per month x	1.25
P	Repairs and maintenance	Estimate eg capital cost \$/t x 0.5%	1.0
Q	Insulation and heat	Labour rate \$/hr ÷ 60 minutes ÷ repair rate \$/hr x 2	0.88
R	Time to monitor and manage	Labour rate \$/hr x total time to manage hrs ÷ storage capacity	0.28
S	Opportunity cost of stored grain	Grain price x opportunity cost rate, eg 5% x 12 months x hrs months stored	7.25
T	Treatments cost	Treatment cost \$/t x no. of treatments	0.40
U	Cost of bags or trailer hire	Price of bag ÷ bag capacity tonne	
V	Shrinkage (physical grain)	Grain price \$/t x percentage lost eg 0.2%	
W	Drying costs (optional)	Total drying costs ÷ tonne dried	
X	Total variable costs	Sum of variable costs	11.25
Y	Total cost of storage	Total fixed costs + total variable costs	22.33
Z	Profit/Loss on storage	Total benefits - total costs of storage	25.06
	Return on investment	Profit or loss ÷ capital cost x 100	13.2%
	Payback period years	Capital cost ÷ profit or loss on storage	8 years

Source: GRDC Economics of on-farm grain storage

Challenges

- Resistance and reliance on phosphine fumigant
- Market requirements for Pesticide, Residue Free (PRF)
- Late adopters risk industry reputation and access
- Misinformation from manufacturers
- Stringent grain delivery requirements



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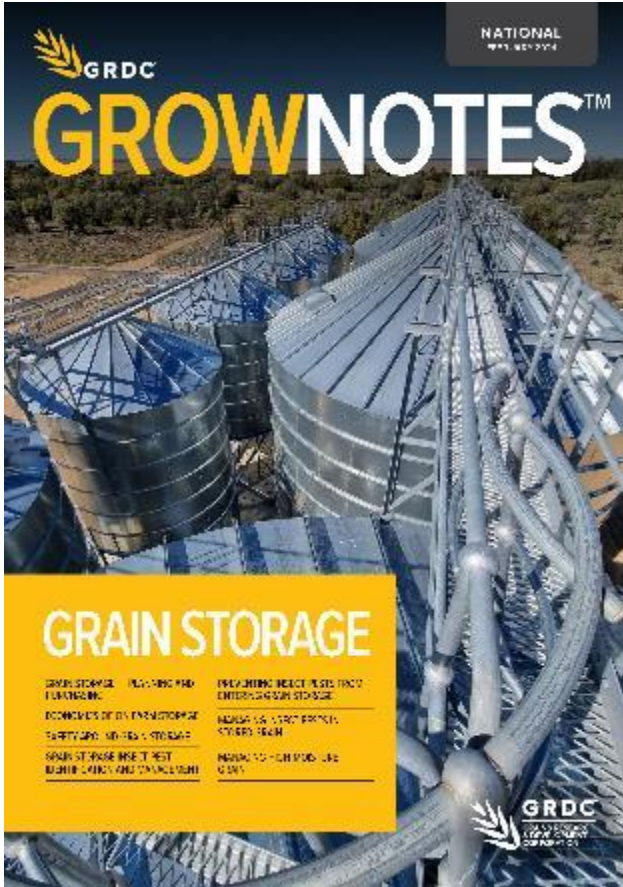
Support – Post workshop

Industry referring to the team for support

Independent, evidence based advice



Welcome



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