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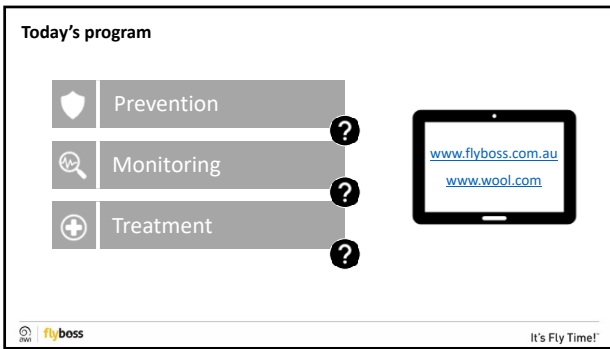
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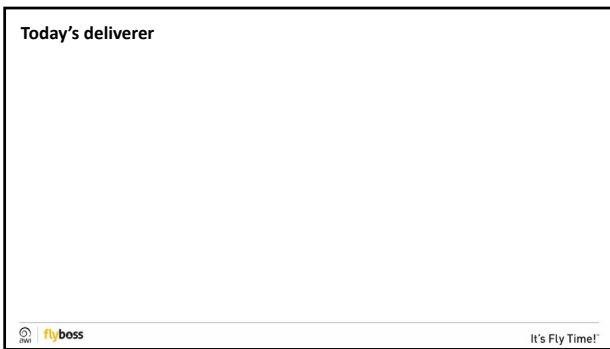
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Today's program

- Prevention ?
- Monitoring ?
- Treatment ?

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What we will cover - prevention

- When flystrike risk is the highest
- What makes sheep susceptible to flystrike
- How to prevent flystrike
- Questions

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When flystrike risk is highest

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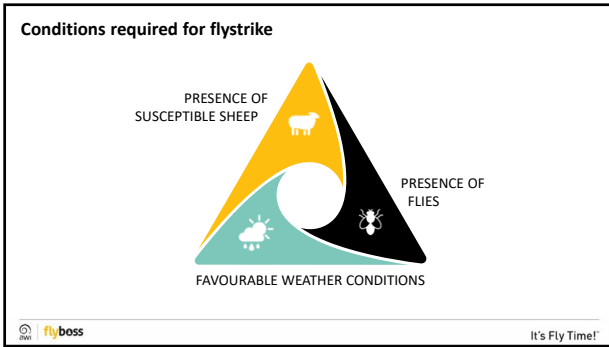
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**Weather conditions**

Greater risk in:

- Warm and wet conditions
- Spring and autumn

 **Can occur throughout the year**

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**Weather conditions**

Blowflies prefer:

-  Temperatures > 15°C (most active 26-36°C)
-  Wind speeds < 9 km/h (activity stops > 30 km/h)
-  Regular and consistent rainfall (keeps skin moist for 2+ days)

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**Presence of flies**

The main culprit of flystrike:

- Australian sheep blowfly (*Lucilia cuprina*)



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**Presence of susceptible sheep**

Some sheep are more inclined to be struck.



More sheep at risk...



The greater risk of fly wave and flystrike

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What makes sheep susceptible to flystrike

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**Sheep at risk**

Those with:

- Breach wrinkles or long wool
- Dags, urine stain or yellow wool
- Fleece rot and dermatitis
- Wet or moist wool and skin
- Wounds



Young sheep and sheep that have been struck before are also more susceptible to flystrike

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**How to prevent flystrike**

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**Prevention activities**

- Reducing fly populations
- Classing and lamb marking
- Shearing or crutching
- Applying preventative chemicals
- Reducing scouring risk and dags
- Careful paddock selection

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**Classing**

Long term - breed and select sheep for:

- Low breech wrinkle and cover
- Dags and stain
- Productivity

 **Cull sheep that have been struck previously**



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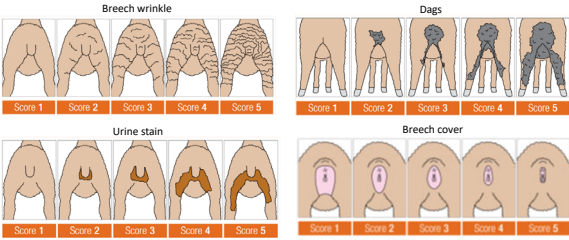
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**Class out high risk sheep - examples**



Source: AWI/MLA Visual Score Guide

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**Lamb marking - Mulesing**

If you deem the risk of flystrike in your sheep is high and they require mulesing - ensure that best practice procedures are used.


Two guides are available from AWI



<http://bit.ly/BP-Lamb-Marking>



<http://bit.ly/Plan-Non-Mulesed>

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**Lamb marking - Tail docking**

Optimal tail length helps:

- Channel urine and faeces away from breech area
- Minimise breech stain and reduce flystrike
- Protect from sun exposure and cancer



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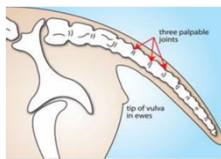
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**Lamb marking - Tail docking**

Immediately below 3rd palpable joint



Source: FlyBoss



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**Shearing and crutching**

Shearing and crutching sheep:

- Protects up to 6 weeks (reduced to 3 weeks if scouring)
- Needs to be timed to extend protection over the fly season



Consider periods of high-risk in your area



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**Applying preventative chemicals**

Insecticides:

- Are used in combination with other activities
- Should not be relied upon alone
- Can be used preventatively or as a treatment

 **Make sure you use the right chemical for the task**

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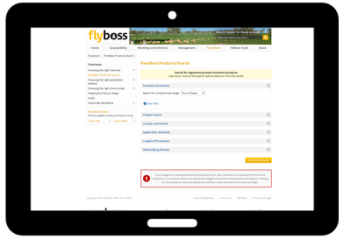
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**FlyBoss has tools to help chemical selection**

[www.flyboss.com.au](http://www.flyboss.com.au)

[www.flyboss.com.au/sheep-goats/treatment/products](http://www.flyboss.com.au/sheep-goats/treatment/products)  
[www.flyboss.com.au/sheep-goats/treatment/choosing-the-right-chemical](http://www.flyboss.com.au/sheep-goats/treatment/choosing-the-right-chemical)

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**Applying preventative chemicals**

Points to consider when applying chemicals:

- Ensure wool length is consistent with label instructions
- Time application to extend protection
- Check WHPs and other intervals - keep records

 **If protection period is reducing consider a fly resistance test**

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**Chemical resistance is a growing concern**

Use the right chemical

Ensure full coverage

Follow label instructions

Calibrate equipment

Do not overdose or underdose

**Regular monitoring is important even with preventative chemicals**

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Do you think flystrike preventative chemicals still work on your property for the protection period listed on the label?

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**Chemical resistance**

- Do you think chemicals still work on your property?
- Read *Resistance management strategy* available from [www.flyboss.com.au](http://www.flyboss.com.au)
- Search "resistance management strategies"

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**Chemical resistance**

- Do you think resistance might be increasing on your property?
- Read *A fly in the ointment* available from [www.flyboss.com.au](http://www.flyboss.com.au)
- Search "resistance management strategies"



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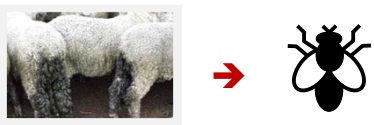
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**Reducing scouring risk and dags**



Scouring leads to dags  
Breech stays warm and moist

→

Ideal conditions  
to attract flies

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### Reducing scouring risk and dags

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### Careful selection of paddocks

Select paddocks which:

- Are open with more wind
- Have less ground cover, timber and wet areas
- Do not have large worm populations

Source: FlyBoss

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### Reducing the presence of flies

The lifecycle of *Lucilia cuprina*, the Australian sheep blowfly  
Source: Levot (1998) from Managing Breesech Flystrike (2015), AWI

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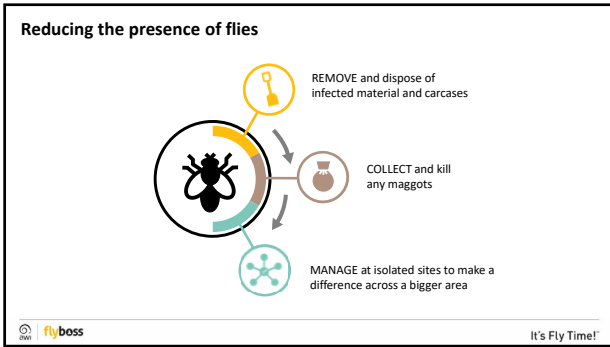
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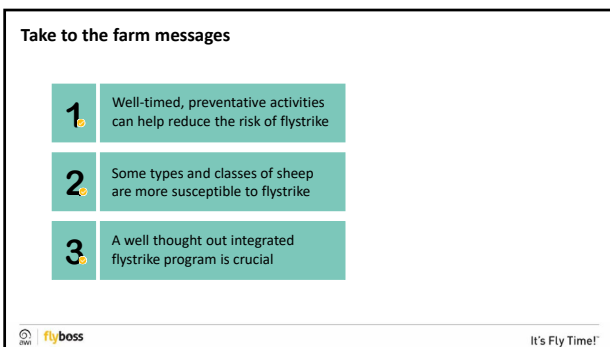
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**Take to the farm messages**

- 4. No single preventative activity should be relied upon alone
- 5. Monitoring is required even with the use of preventative activities
- 6. Flystrike management considers prevention, monitoring, treatment

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**Questions**

- Prevention ?
- Monitoring ?
- Treatment ?

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**Progress check**

- Prevention
- Monitoring ?
- Treatment ?

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**What we will cover - monitoring**

-  Why monitoring is important
-  How to monitor for flystrike
-  Signs of flystrike
-  Questions

 It's Fly Time!

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 **Why monitoring is important**

 It's Fly Time!

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**The aim of monitoring**

Detect and deal with flystrike as soon as possible to prevent:

- Further suffering in flystruck animals
- Increased flystrike across the flock
- Negative impacts on:
  - wool production
  - condition and fertility
  - growth and survival

 It's Fly Time!

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 **How to monitor for flystrike**

 It's Fly Time!

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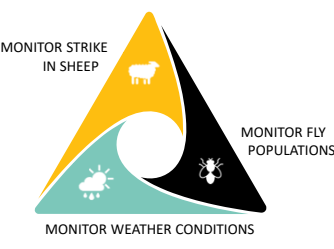
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**Monitor conditions required for flystrike**



 It's Fly Time!

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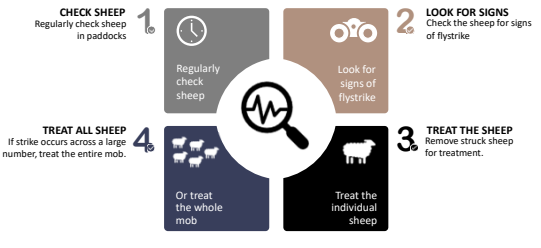
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**Monitor flystrike in sheep**



 It's Fly Time!

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 Signs of flystrike

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**Covert flystrike**

Covert flystrike is:

- Common
- Not easily seen unless looking closely

 Covert strikes can last for some weeks and advance or resolve

  
Covert flystrike can be difficult to detect unless handling sheep

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**Early detectable flystrike**

Early detectable flystrike signs:

- Discoloured wool
- Sheep behaviour

 As soon as detected, implement treatment and prevention

  
Discoloured wool may indicate early detectable flystrike

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**Early detectable flystrike**

Act now to prevent advanced strike:

- Treat struck sheep
- Work out cause of strike
- Crutch or apply preventative chemicals

 **If a fly wave is likely, increase monitoring and prevention**

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**Advanced flystrike**



Signs of advanced flystrike:

- Wound is large, wet, dark and smelly
- Affected area is swollen and inflamed
- Isolation, fatigue and loss of appetite

 **Treat immediately to promote wellbeing - increase monitoring**



An obvious wound site

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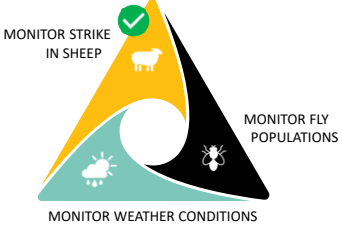
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
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**Monitor conditions required for flystrike**



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### Monitor fly populations


Regularly check:

- Sheep camps
- Watering points
- Fly traps (where used)



Sheep watering points and camps attract flies

**!** Watering points act as epicentres for infection

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### Monitor fly populations – adult flies



An adult female (left) and male (right) Australian sheep blowfly

Source: J. Larsen, L. Lyrell and N. Andersen, The Mackinnon Project, University of Melbourne, from Early Season Treatment and the Control of Breach Striker in Unmulesed Sheep – A National R&D Technical Update (2010), AWI

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### Monitor fly populations - blowfly larvae



Various stages of Australian sheep blowfly larvae development

Source: S. De Cat and J. Larsen, The Mackinnon Project, University of Melbourne, from Managing Breach Flystrike (2019), AWI

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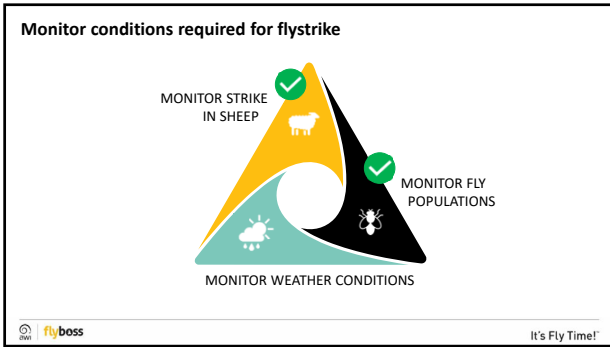
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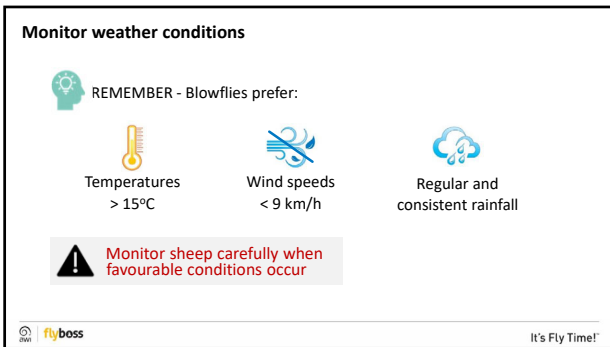
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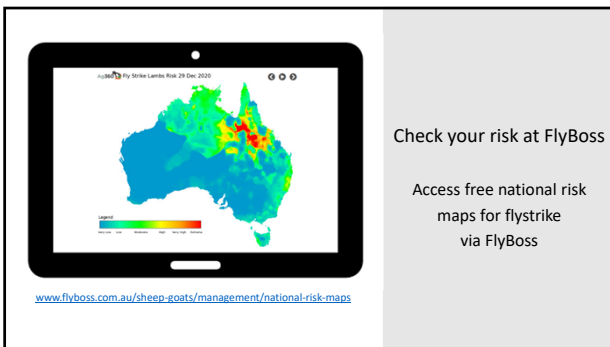
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**Monitor conditions required for flystrike**

MONITOR STRIKE IN SHEEP

MONITOR WEATHER CONDITIONS

MONITOR FLY POPULATIONS

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**Take to the farm messages**

- 1 Monitoring activities help detect signs and conditions of flystrike
- 2 Monitoring is a combination of checking sheep, flies and weather
- 3 Monitoring is important even with the use of preventative activities

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**Questions**

- Prevention
- Monitoring
- Treatment

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**Progress check**

- Prevention
- Monitoring
- Treatment 

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**What we will cover - treatment**

-  How to treat flystruck sheep
-  What chemical treatment to use
-  How to treat the cause of additional strike
-  Overall questions

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 **How to treat flystruck sheep**

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**Steps to follow**

**1 CLEAN THE STRIKE AREA**  
Clip wool close to the skin on the strike area and 5cm into clean wool around the site.

**2 COLLECT & KILL MAGGOTS**  
Put wool and maggots into plastic bag, seal and leave in sun to kill maggots.

**3 DRESS INFECTED AREA**  
Dress the infected area using suitable registered chemical to prevent restrike.

**4 MOVE TO 'HOSPITAL'**  
Move struck, treated sheep to a hospital paddock to reduce risk to rest of flock.

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**What chemical treatment to use**

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**Dressings**

Chemical treatments or 'dressings':

- Help prevent restrikes
- Provide short-term protection
- Shouldn't be relied upon alone

**Keep records of treatments**

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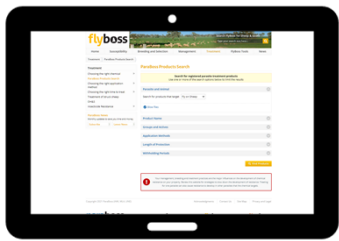
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**REMEMBER**

Access tools to help with chemical selection via FlyBoss

[www.flyboss.com.au/sheep-goats/treatment/products](http://www.flyboss.com.au/sheep-goats/treatment/products)  
[www.flyboss.com.au/sheep-goats/treatment/choosing-the-right-chemical](http://www.flyboss.com.au/sheep-goats/treatment/choosing-the-right-chemical)

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### Chemical resistance

**REMEMBER**

- Chemical resistance is a growing concern
- Some chemicals won't kill maggots



[www.flyboss.com.au](http://www.flyboss.com.au)

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How to treat the cause of additional strike

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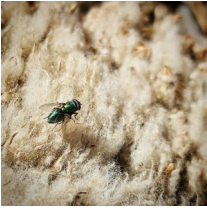
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**Break the blowfly lifecycle**

Prevent further strike:

- Remove protein sources
- Destroy maggots



 **Effective control prevents the spread of flies**

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**Take to the farm messages**

- 1 Use a combination of treatment activities, not one single activity
- 2 Correctly treat sheep, kill maggots and remove protein sources
- 3 Flystrike management should also consider prevention and monitoring

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
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**Progress check**

-  Prevention 
-  Monitoring 
-  Treatment 

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**Summary**

- ➡ Prevention, monitoring and treatment activities are all important *but* preventing flystrike is key.
- ➡ Have an integrated plan for prevention, monitoring and treatment – review regularly
- ➡ Prevention, monitoring and treatment activities consider sheep, flies and weather holistically

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**Questions**



 It's Fly Time!

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**Resources**



[www.flyboss.com.au](http://www.flyboss.com.au)  
[www.wool.com/fliestrikeresources](http://www.wool.com/fliestrikeresources)

 It's Fly Time!

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 **Please provide your feedback**  
Help us improve the presentation  
by answering 5 short poll questions

 **flyboss** It's Fly Time!

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 **AWI** Australian Wool Innovation Limited

**THANK YOU**

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