

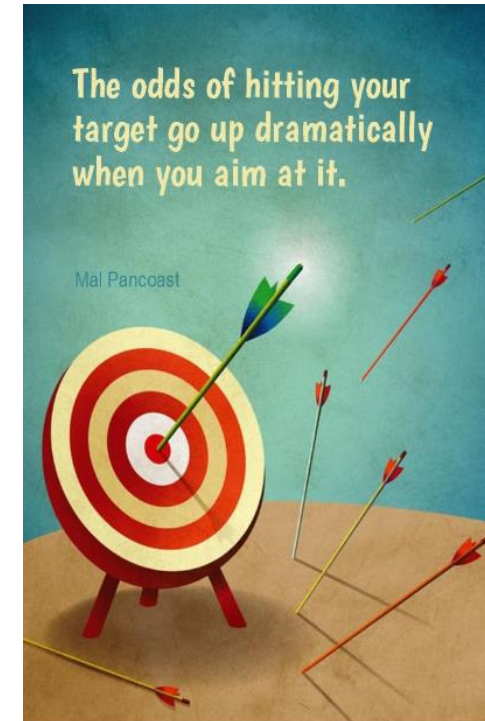
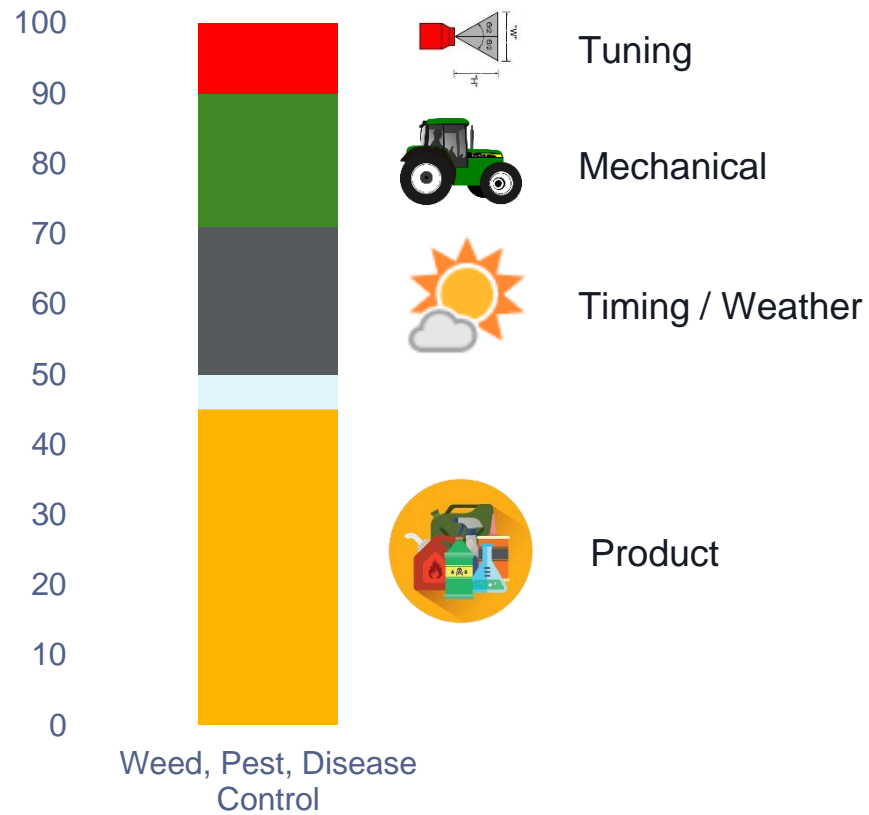
NEW FARM TECHNOLOGIES

Pre-emergence Application - #LowSlowCovered

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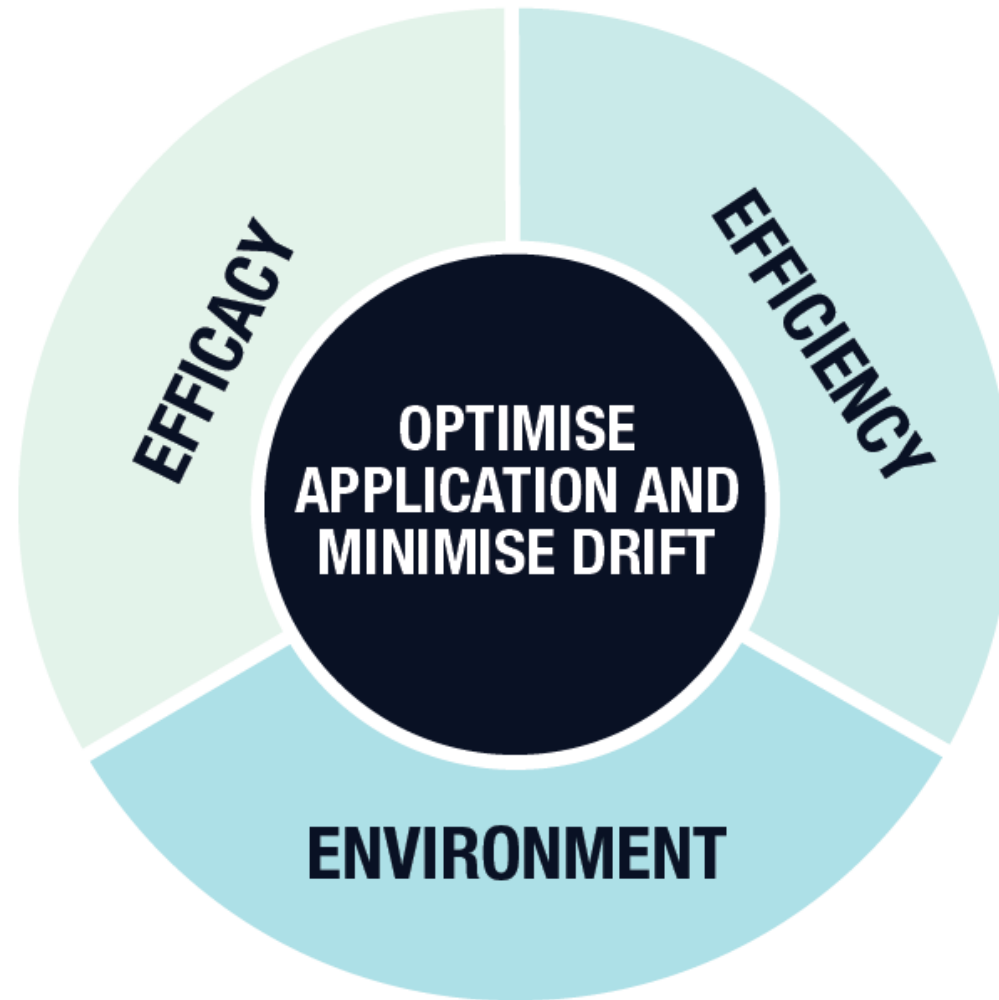
James Southgate
Field Technical Manager

Why is Application Important



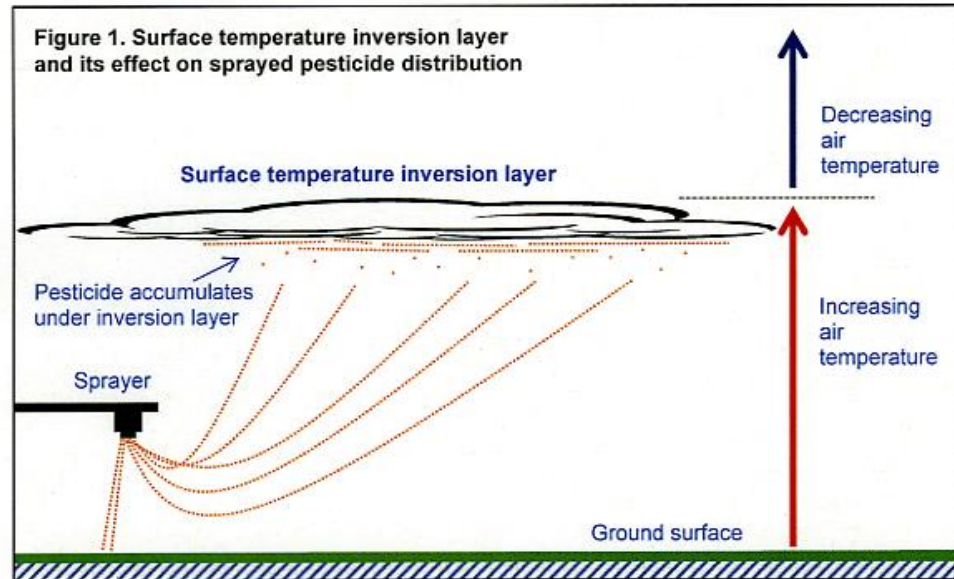
Pre-em: ON TARGET

REDUCING SPRAY DRIFT



Pre-ems at high risk of drift - Bare Soil

- No crop to catch small droplets
- Lack of wind break
- Small droplets travel further >100m
- Bare soils releasing stored heat causing air/spray to rise

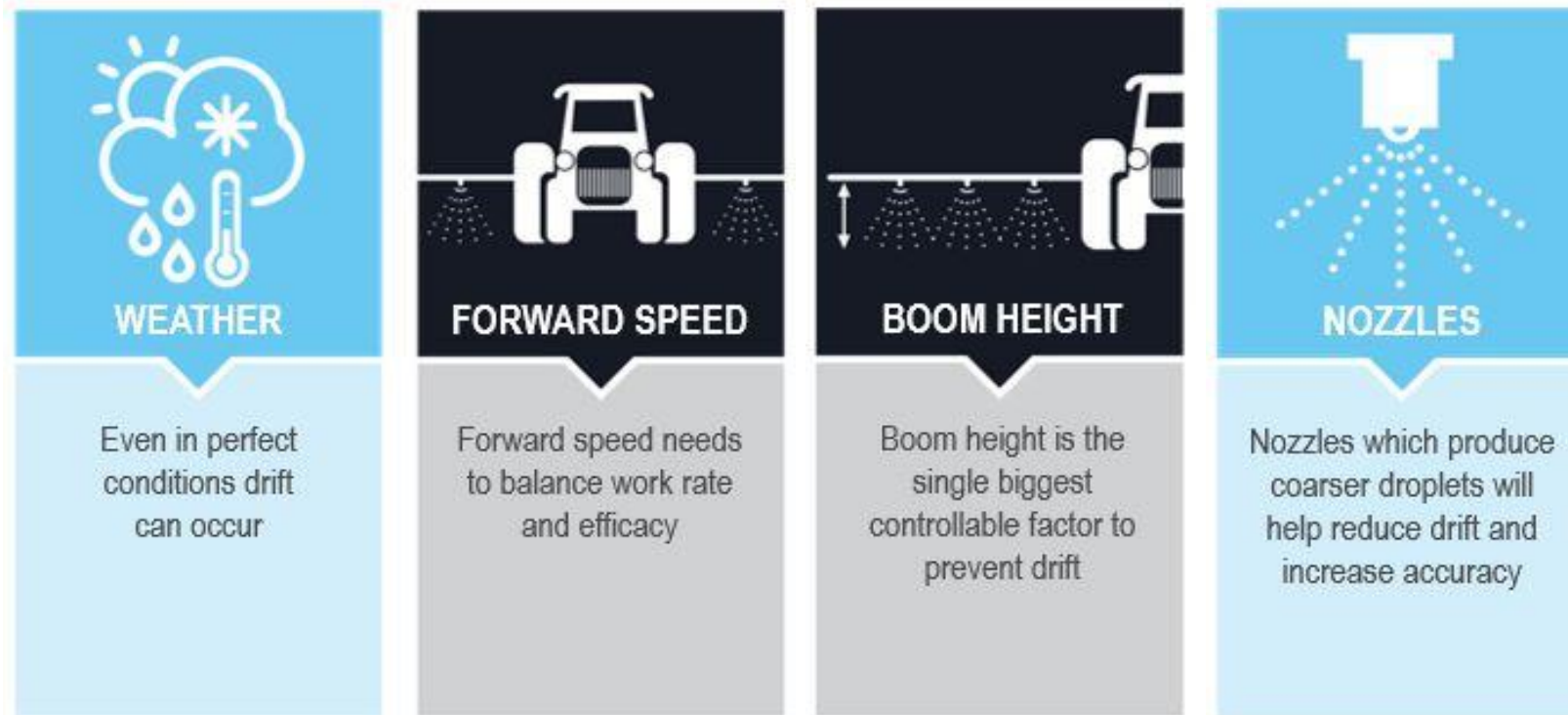


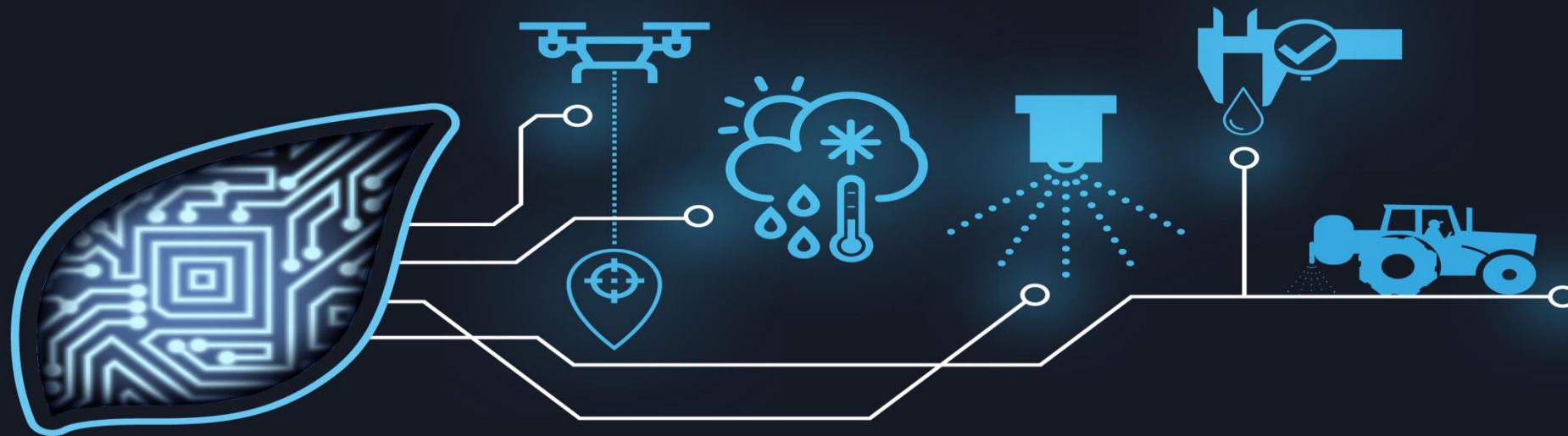
Is this a very good application?



Pre-em: ON TARGET

#LowSlowCovered





NEW FARM TECHNOLOGIES

Forward Speeds & Boom heights

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FORWARD SPEED

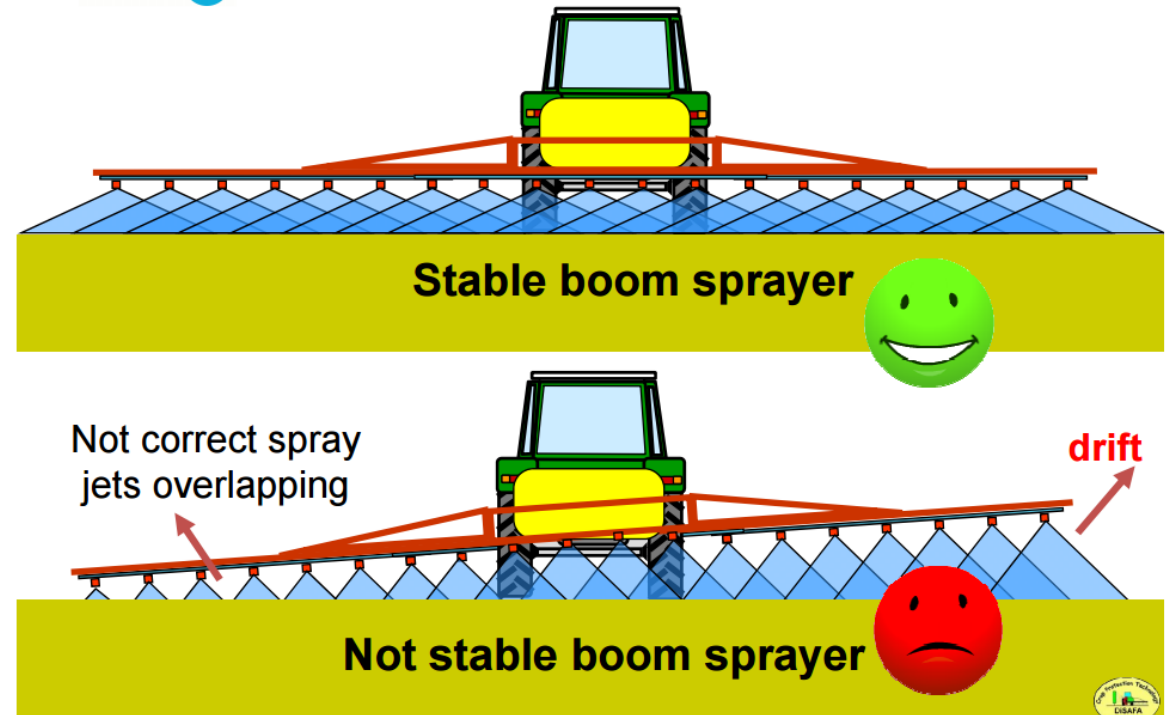
The turbulence factor – drift increases as you drive faster
Improved boom stability at optimum speed



NEW FARM
TECHNOLOGIES



Pay attention to boom stability to reduce the spray drift risk



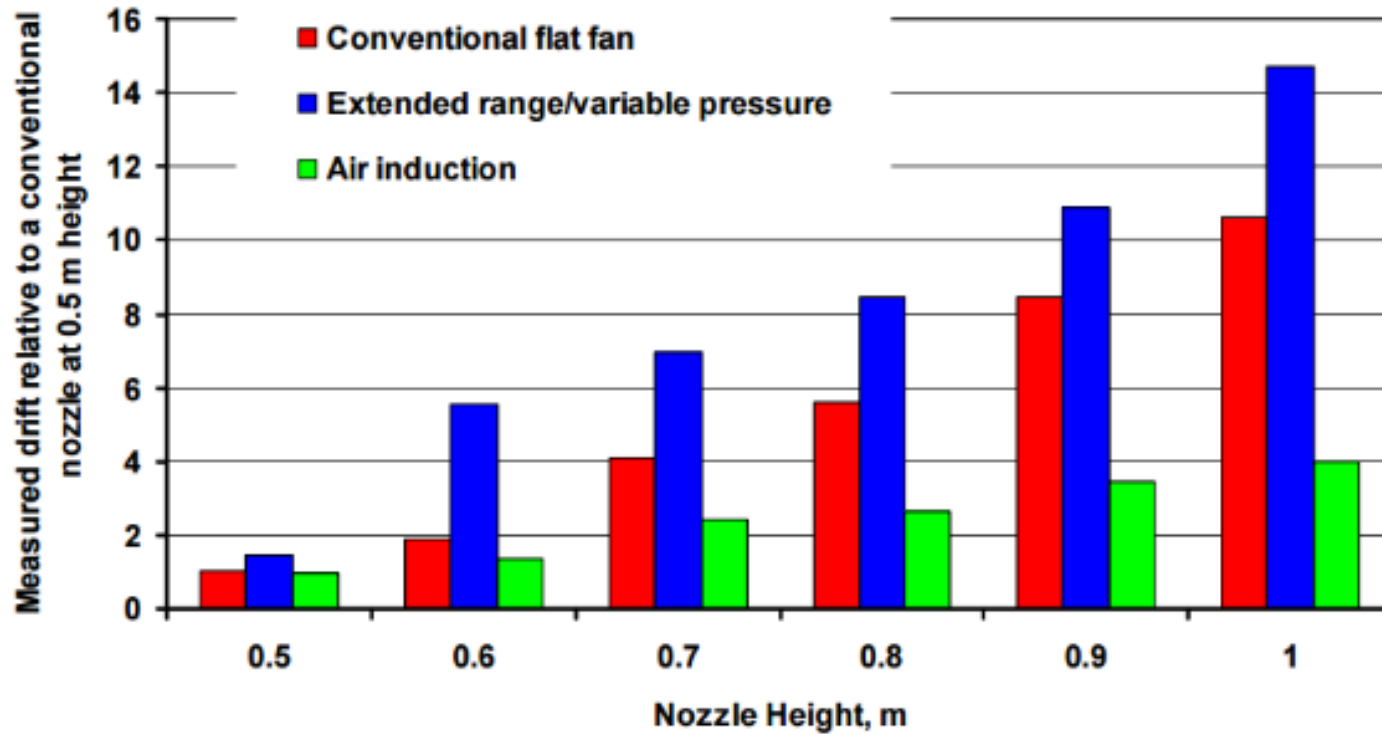


BOOM HEIGHT

Single biggest controllable factor in reducing drift



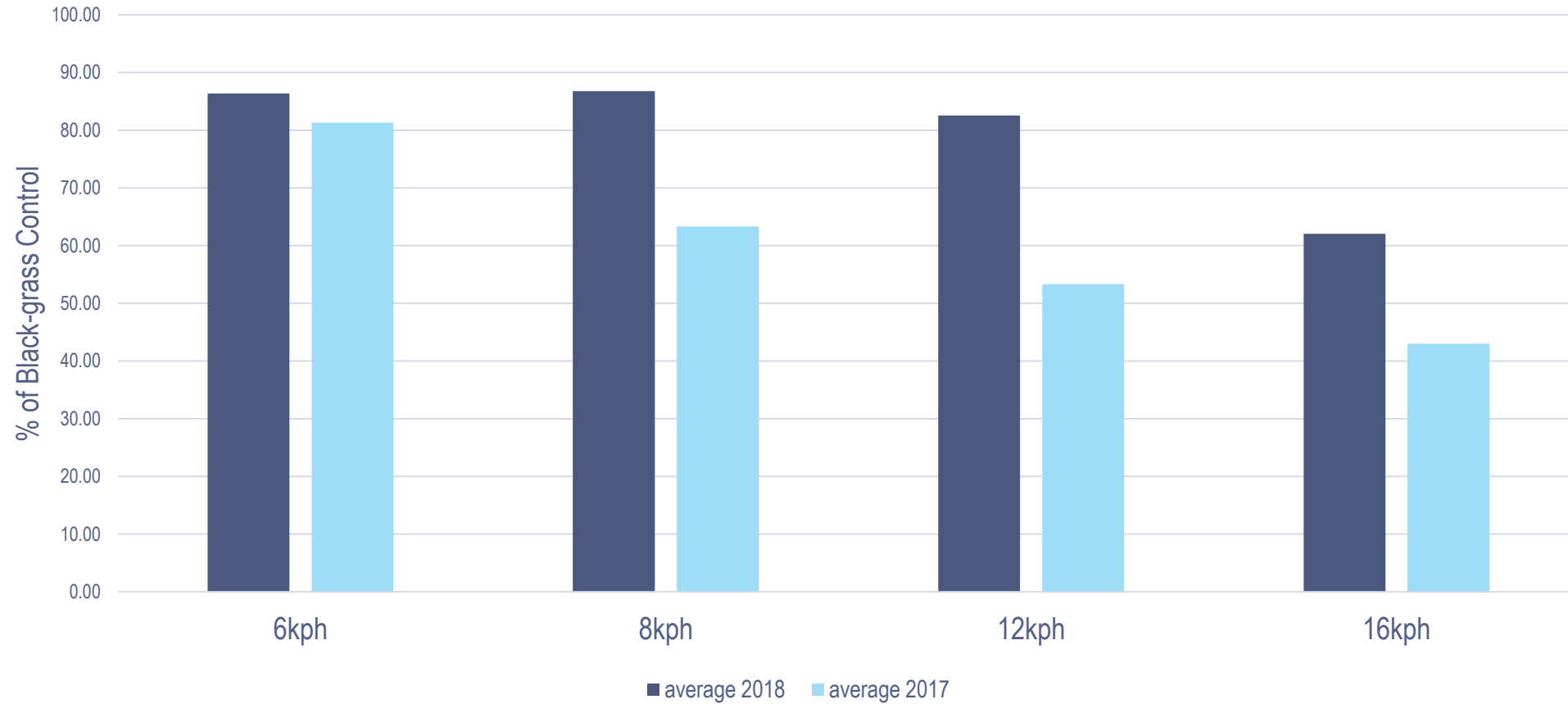
A boom height of 50cm is optimum to minimise drift and achieve best coverage of the target.



Double the boom height up to 10x the drift

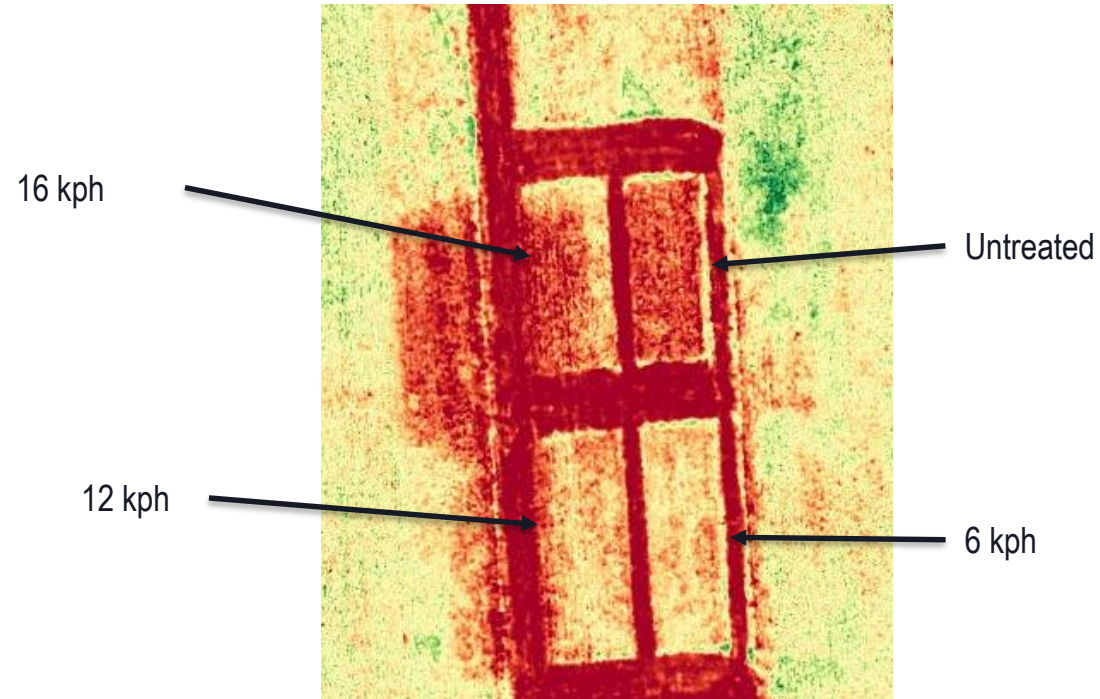
Effects of forward speeds on black-grass control

Increasing forward speed increases drift through greater turbulence behind spray boom





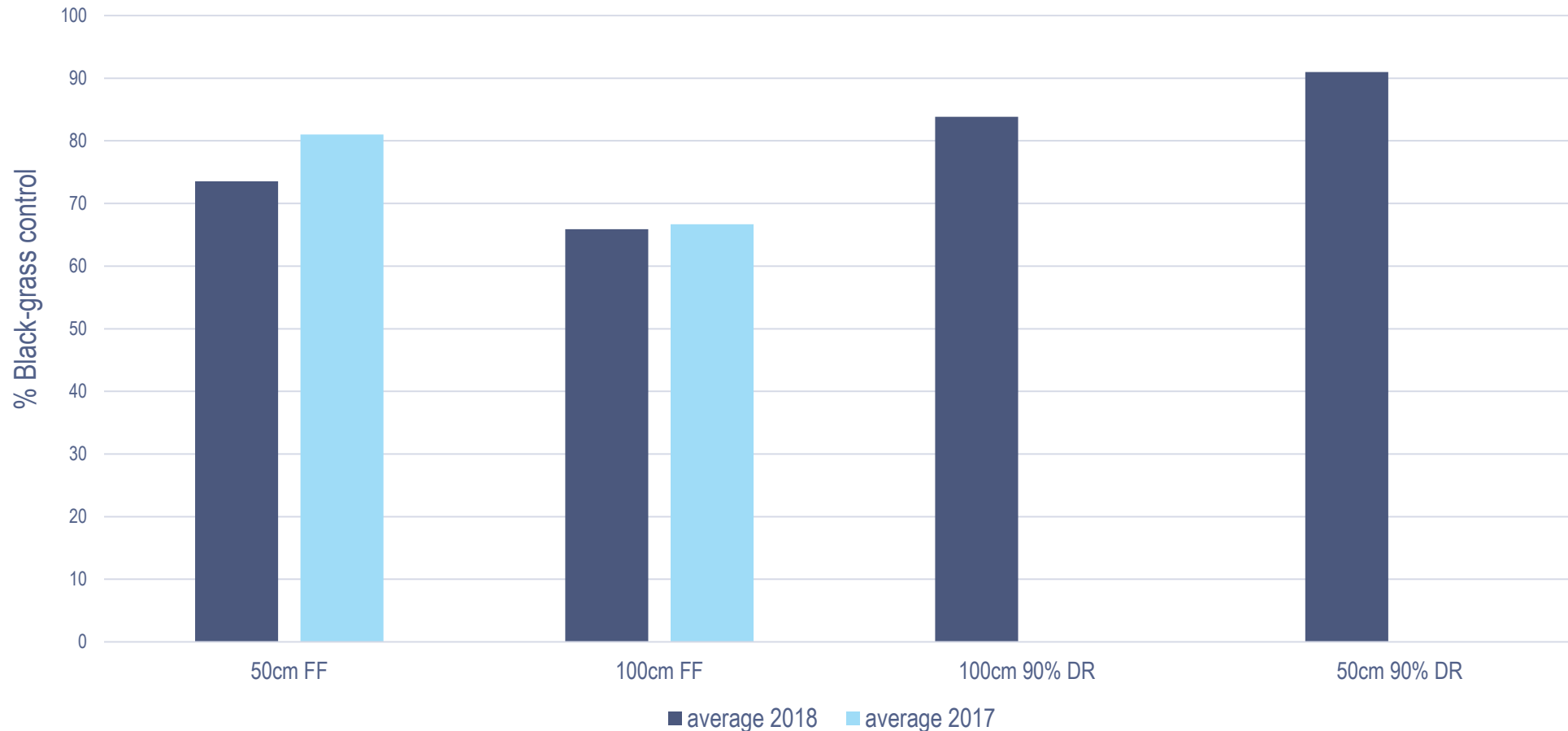
Forward speed - drone scan



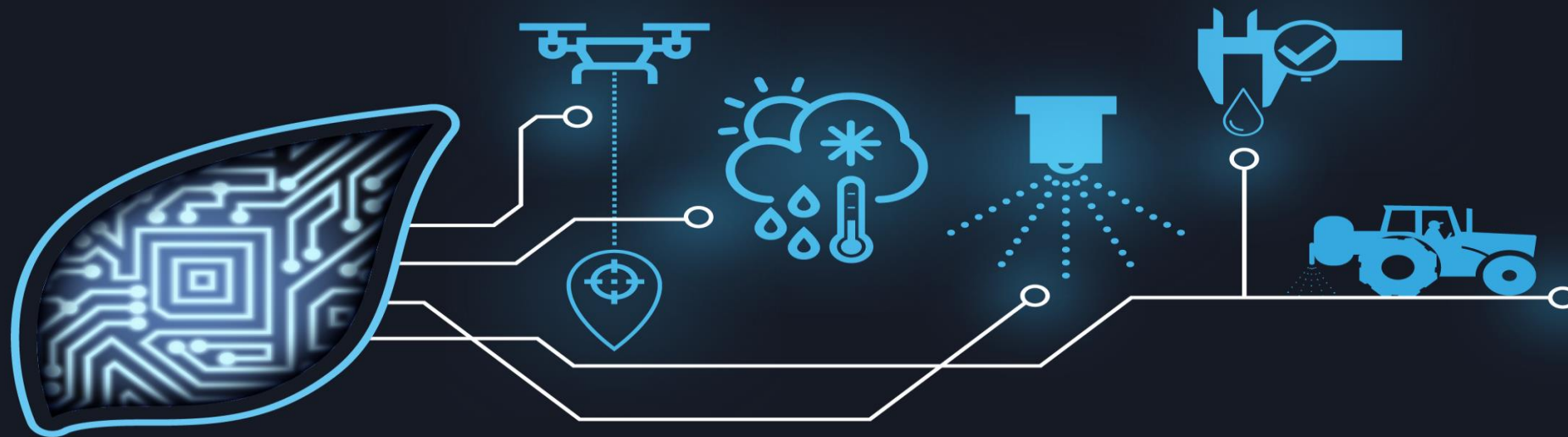
*Note – more red indicates greater black-grass population

Effects of boom height on black-grass control

Increasing boom height from 50 cm to 1 m increases drift by up to 10 times



Larger droplets help compensate for increased boom heights, however 50 cm is the optimum boom height both with 90% DR and flat fans



NEW FARM TECHNOLOGIES

Pre-emergence Application – Water Volumes

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Water volume and coverage

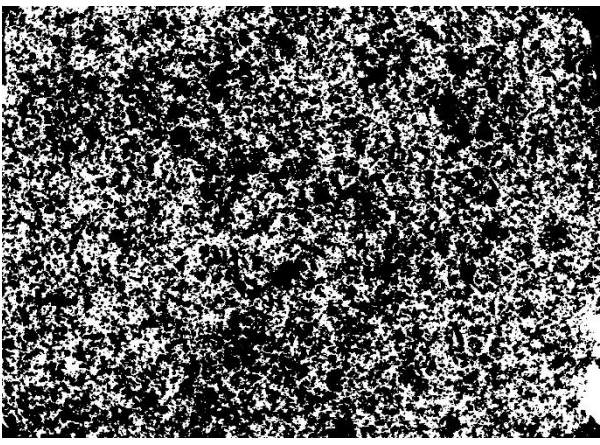
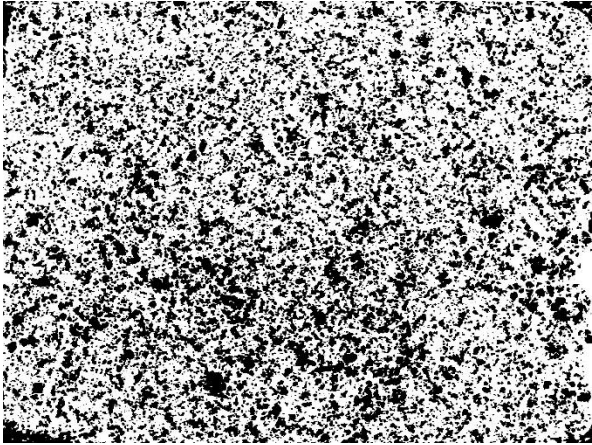
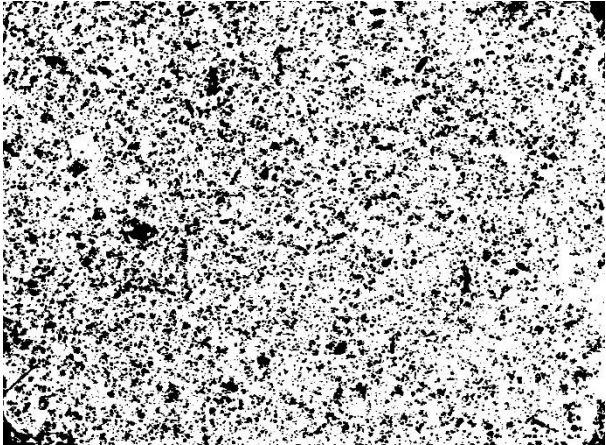


100l/ha

200l/ha

400l/ha

Flat fan

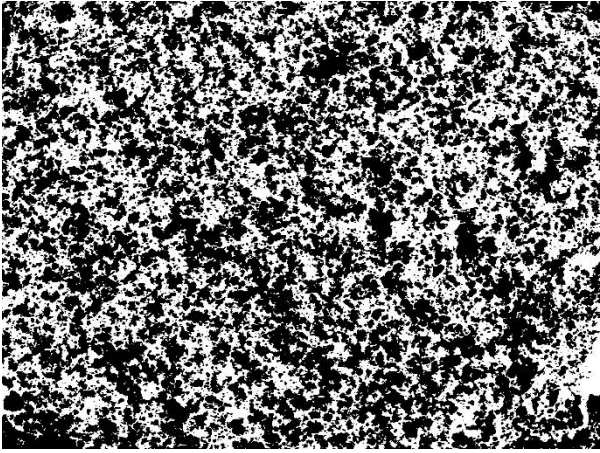
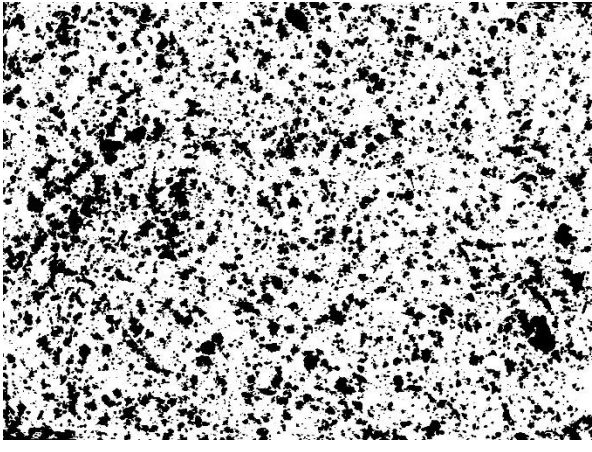
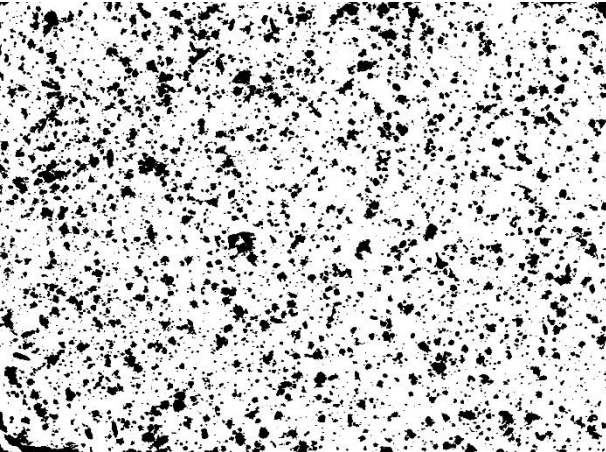


23.1%

36.2%

64.4%

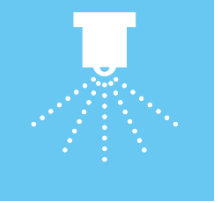
90%
DRT



18.8%

29.2%

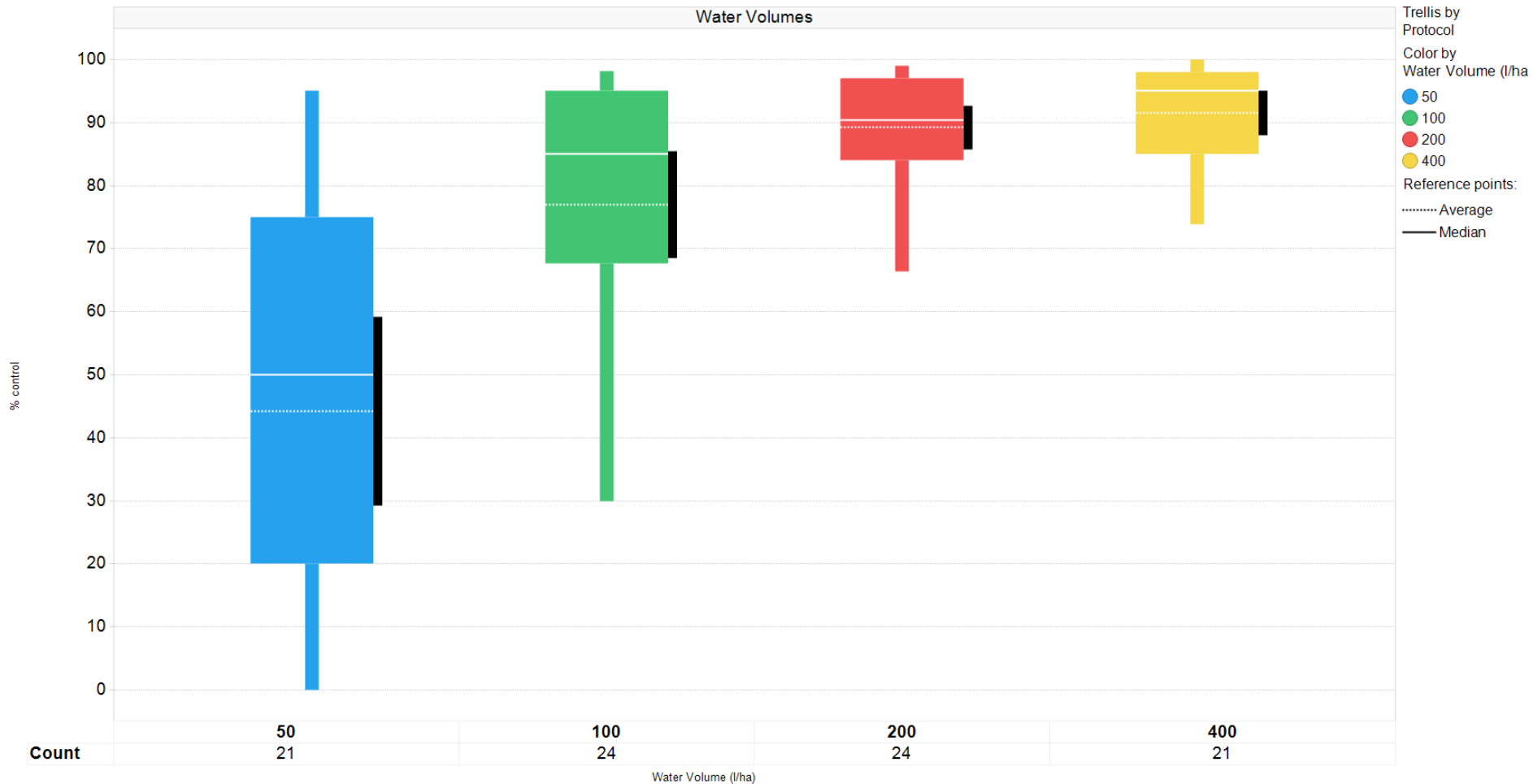
56.4%



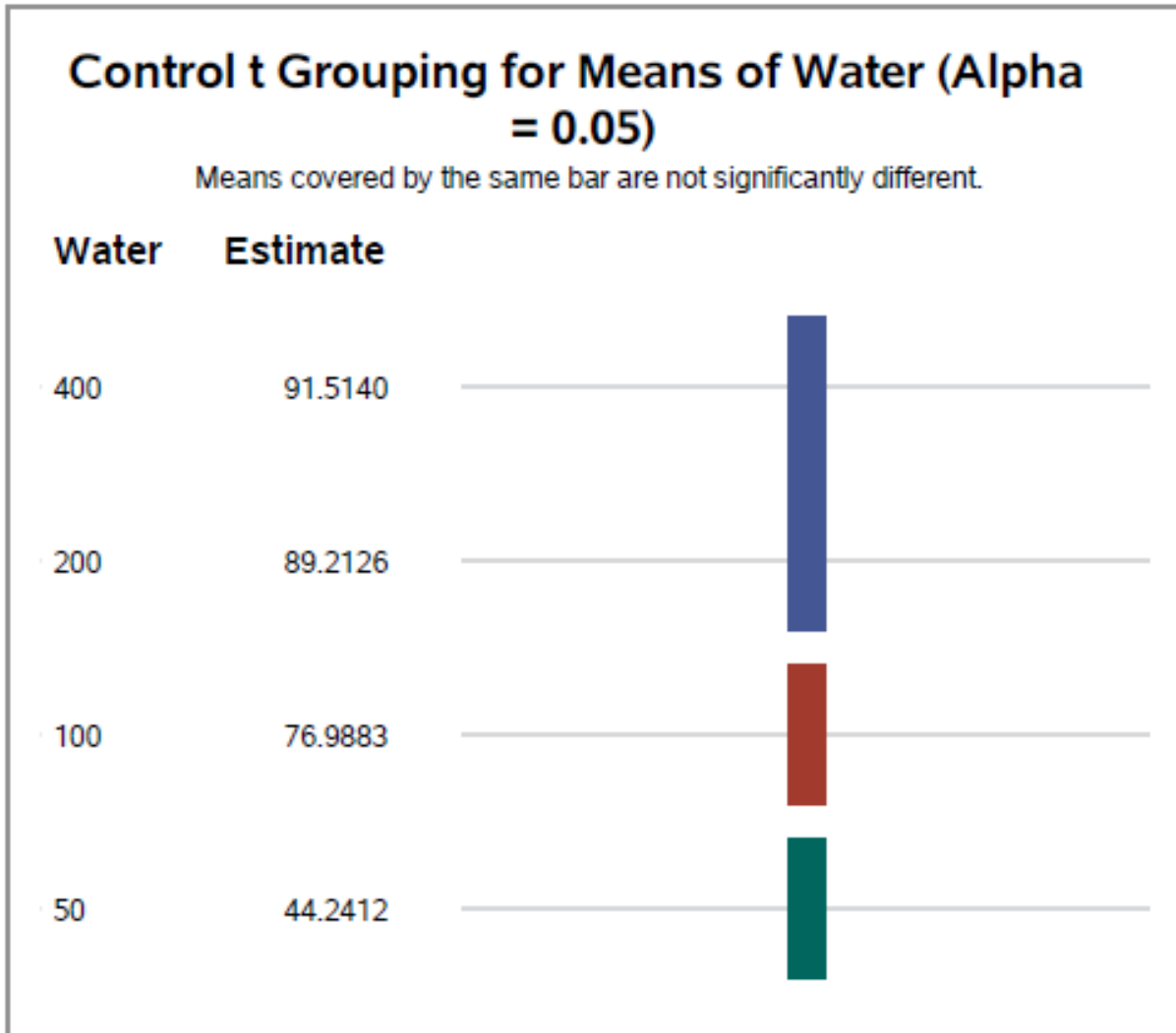
2018 water volumes effect on black grass control across 3 trial sites



Box Plot

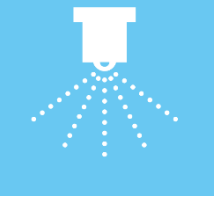


Stats not just trends....

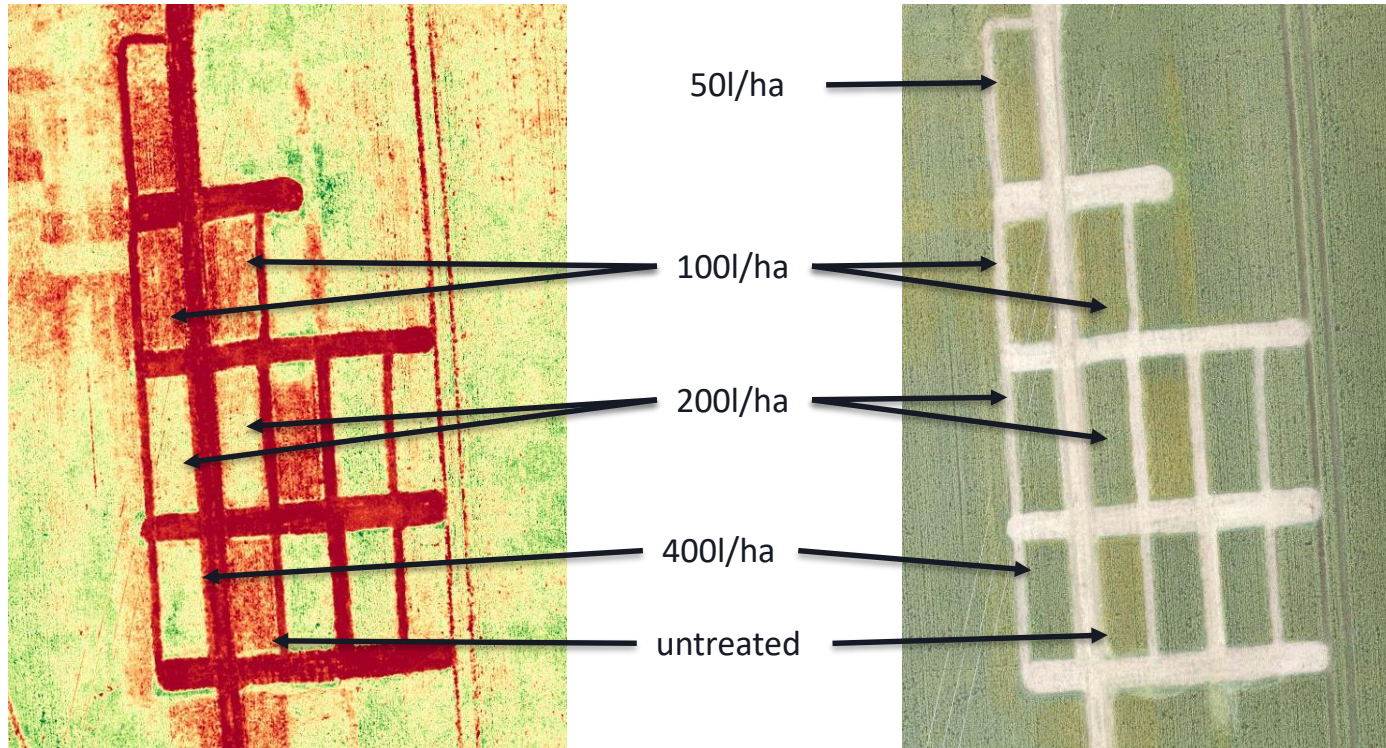


LSD – 10.491%

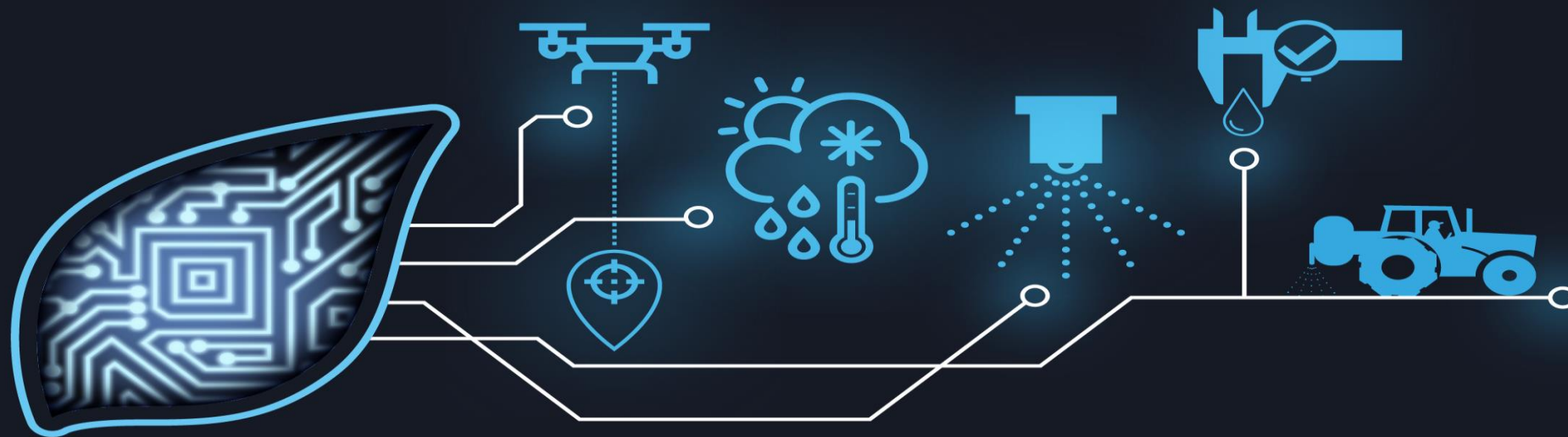
3 years trials work – 6 trials



Water Volumes Drone Scan



Note – more red indicates greater black grass population



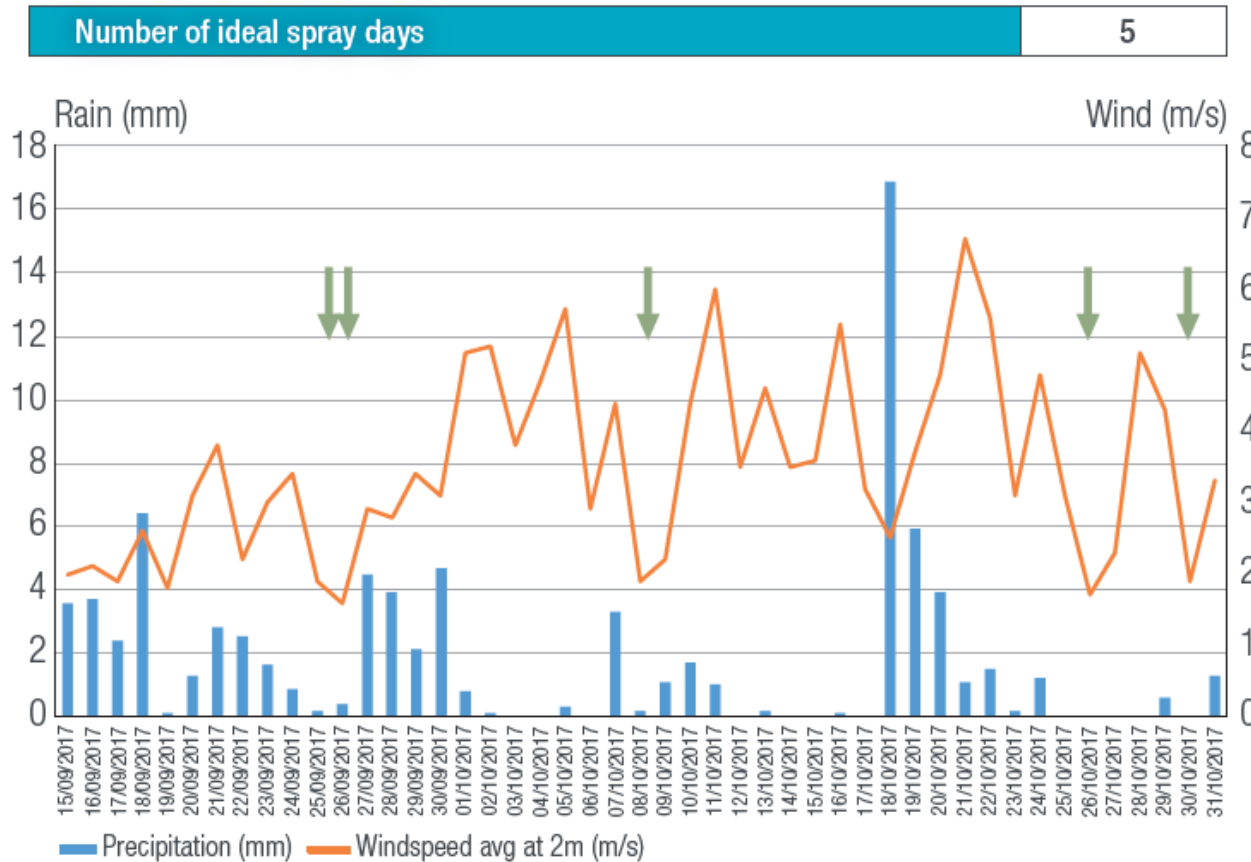
NEW FARM TECHNOLOGIES

Nozzles

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James Thomas
New Farming Technologies Lead

Difficult weather conditions are common at autumn pre-em timing



In a 1.5 month period there were only 5 good spray days at our Barton IC. It is inevitable therefore that pre-emts are sometimes applied poor weather conditions because timing is so important



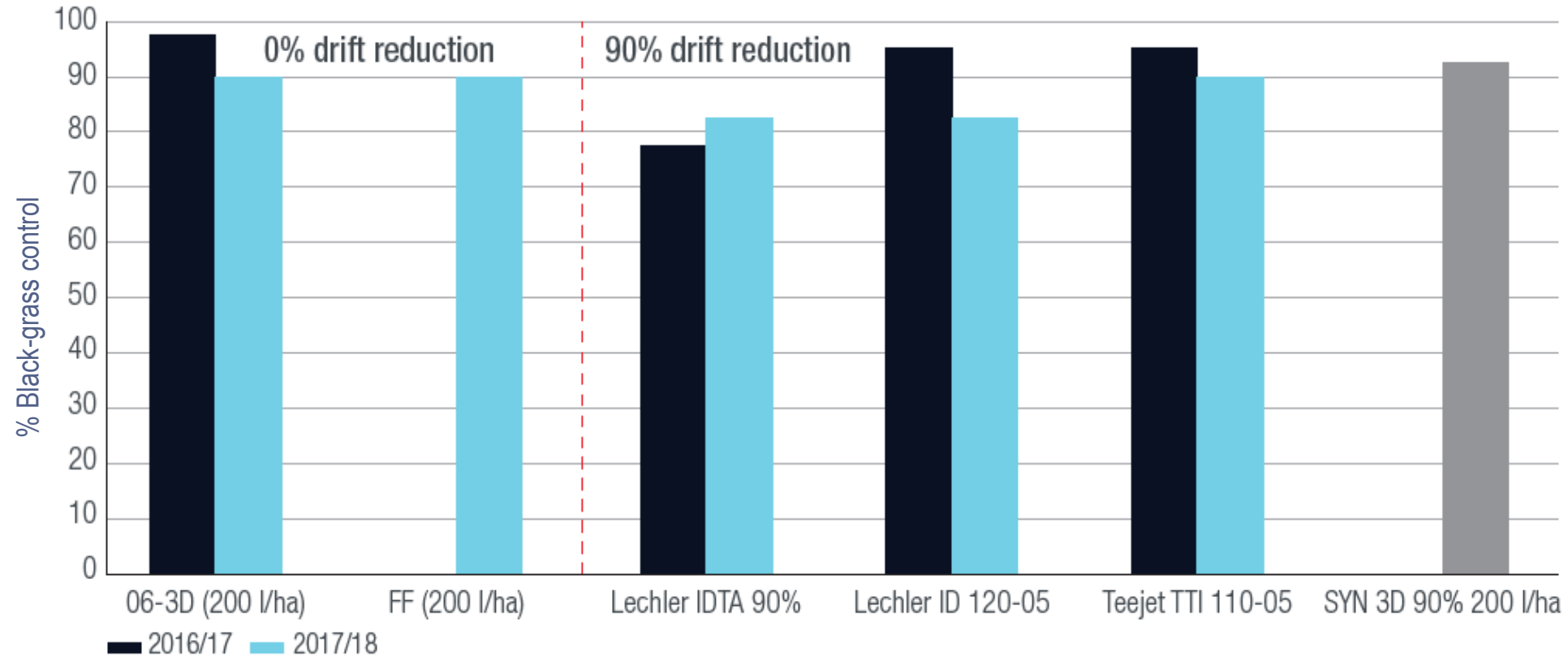
Weather – Wind Speed

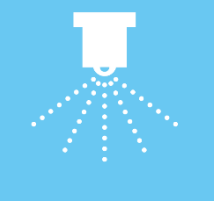
Spraying in high wind speeds with incorrect nozzles choice



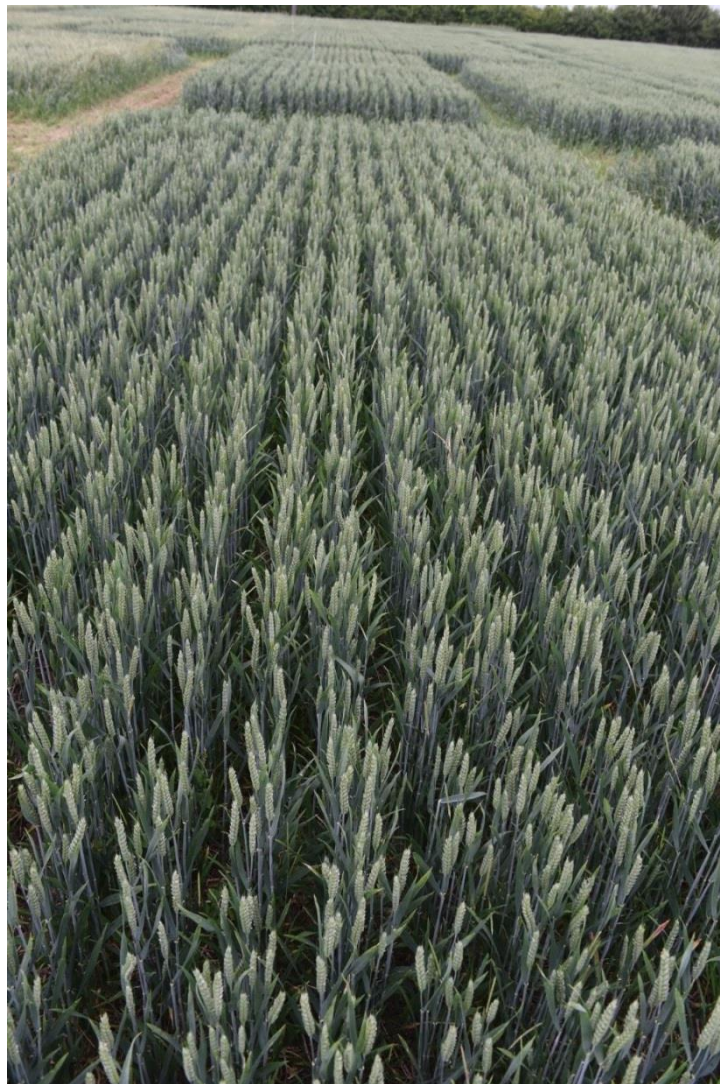
Nozzle choice

90% drift reduction nozzles deliver equivalent
Black-grass control to market standards





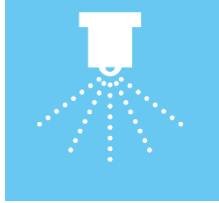
Untreated



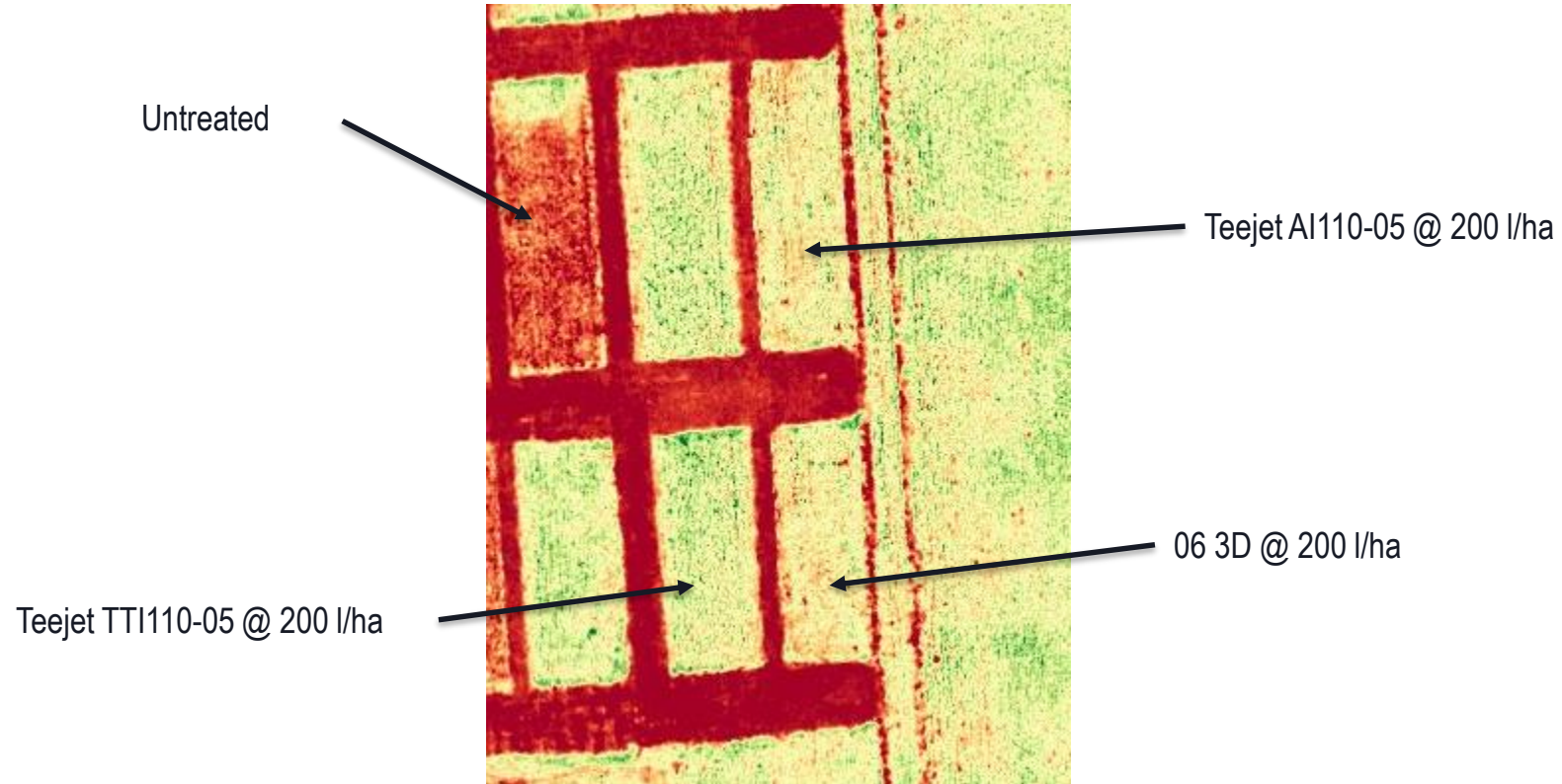
Angled 3D Nozzle – 200 l/ha



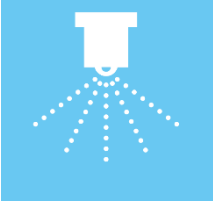
90% Drift Reduction Nozzle
– 200 l/ha



Nozzle choice - drone scan



*Note – more red indicates greater black-grass population

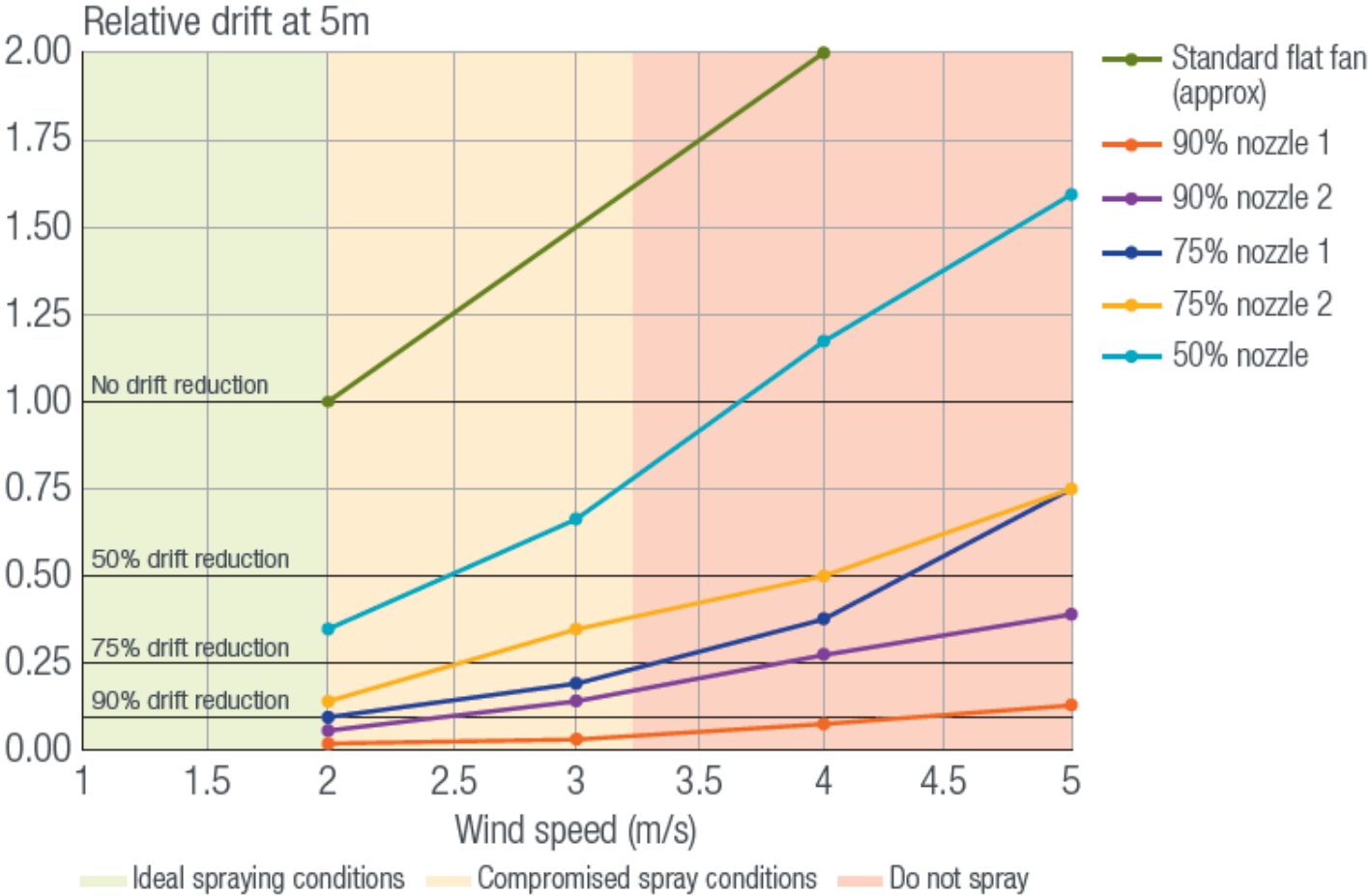


NOZZLES CHOICE

The influence of nozzles on drift reduction




90% drift reduction nozzles minimise the risk of drift



Wind tunnel testing at Silsoe Spray Application Unit demonstrates how some 90% nozzles mitigate the risk of higher wind speeds.

Application on target #LowSlowCovered


Reducing spray drift



WEATHER

Double the wind speed
double the drift


1-2 m/s or 3-6kph



FORWARD SPEED

Increase in turbulence
and boom instability at
faster forward speeds
increase the drift

Speed under 12 kph



BOOM HEIGHT

Double the boom height
10x the drift

50 cm for minimum drift

50 cm for even coverage



NOZZLES

High pressure increase in
drift

Reduce pressure
Coarse to extra coarse
droplet size

200 l/ha