

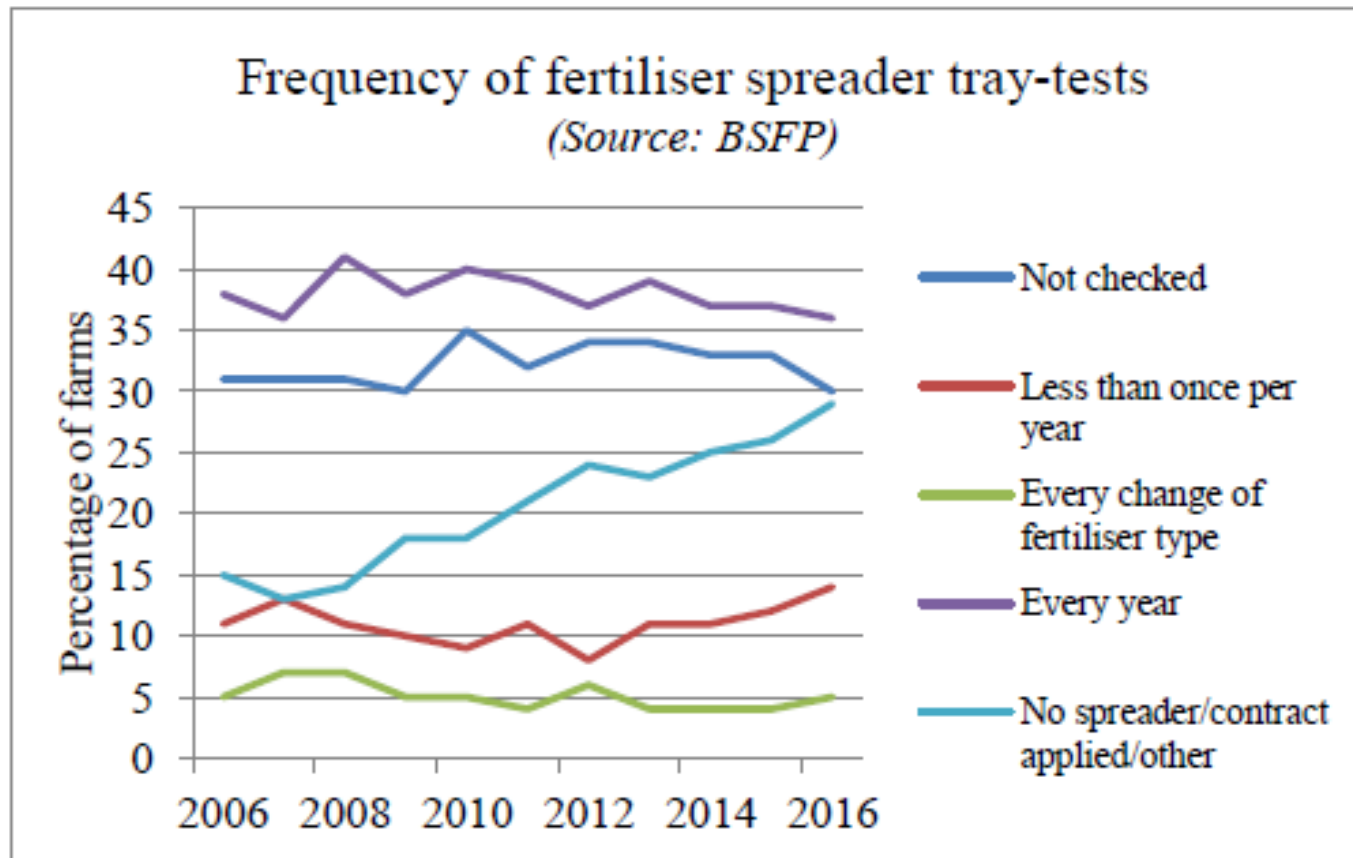
# Fertiliser Spreader Testing



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# Tray Testing of Spreaders



# Why Test?



- Uneven spreading of nitrogen affects crop yield and quality
- Coefficient of Variation (CV) measures the accuracy of the spread pattern
- For fertilisers, a CV of 15% should be attainable in field conditions

# Why Test?



Coefficient of Variation	Rating
< 10%	Excellent
10-15%	Good
15-20%	Poor
> 20%	Unacceptable

# Why Test?



- At current prices, the loss of margin at a CV of 25% (often found before testing) against an achievable CV of 5% is around £20/ha in wheat and winter oilseed rape
- The cost of a professional tray test would be recouped over 12 ha

# Testing at Girrick



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# Prior to the Test



- Provided the following information to the testing company:
  - Address and contact details of the farm
  - Make and model of spreader
  - Width at which the machine needs to be tested at
  - Number of products which require testing through the machine

# Fertiliser Product Testing



Four characteristics that will affect the way fertiliser spreads:

- Shape of material
- Size of material
- Strength of material
- Weight of material

Can't test the shape of the material, but the other three factors can be tested



# Fertiliser Product Testing




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# Fertiliser Product Testing

Alzon was the product tested at Girrick

- Weight a litre tube to get bulk density
- Size of material determined using a grader box
- Strength tester used to determine the strength of the product (10 granules per sample)

Product Data						Grader Box	
Fertiliser	MSP Alzon 40N 10S						
Density (Kg/L)	0.78	Batch No.	N/A				
Strength (Kg/Force)	6	5	8	7	6		Av.
	9	6	9	4	4		6.4
Lumping in Bag	No	Residue on Vanes		No			

# Spreader Checklist



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Checklist	State	Notes
Guards, inc. PTO Guard - complete and correct	Passed	
Security of spreader mounting points	Passed	
Condition of hopper lid/cover	Passed	
Structural condition inc. hopper	Passed	
Grids/screens inside hopper	Passed	
Agitation - intact and working correctly	Passed	
Metering system ON/OFF	Passed	
Hydraulic system free from leaks	Not Fitted	
Drive shafts in good condition, inc. bushes and bearings	Passed	
Gearbox(es) in good conditions	Passed	
Discs in good condition and attached securely and correctly	Passed	
Vanes in good condition and attached securely and correctly	Passed	changed.
Discs and vanes timed correctly	Passed	
Shutter apertures equal both sides	Passed	
Drop on guides complete and correct	Passed	
Headland spreading system intact and working correctly	Passed	
Measure disc speed/PTO speed	Passed	
Hopper capacity	2500	
Border device	Trend	
Hectares per annum	800	
Parts supplied	No	
NSTS Pass or Fail	Pass	

# Tray Test



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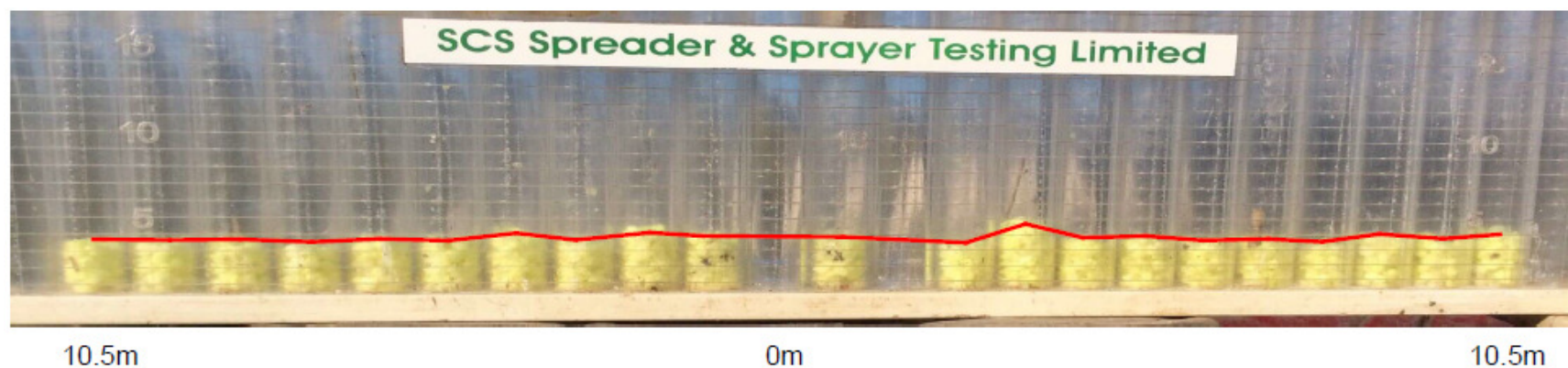
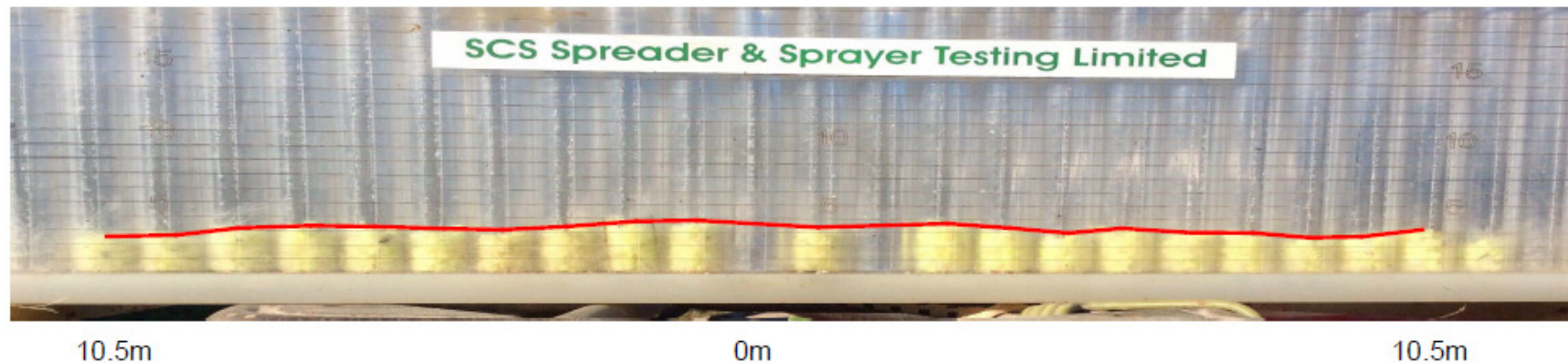


# Tray Test



- Trays are laid out at 1m intervals
- At half way point, where overlap kicks in, you have two touching trays
- Both touching trays emptied into same tube, then trays beyond this are emptied into tubes back towards the centre to simulate another pass

# Tray Test Results



# Tray Test Results



- The CV attained on the first run at Girrick was 11.75% (good)
- This was reduced by 3.17% for the final run, which attained a CV of 8.58% (excellent)
- For straight Nitrogen based products with wheat at £140/t, reducing your CV by 3.17% could save £2.80/ha

# The Bigger Picture



- A properly maintained set up and operated fertiliser spreader used over 100 ha in one year will apply fertiliser worth some £10,000, generating additional crop yield worth around £80,000
- It makes good sense to spend less than £250 to ensure that the spreader is properly set up
- Tests can be organised through the National Spreader Testing Scheme ([www.nsts.org.uk](http://www.nsts.org.uk))
- In practice, most test are carried out by Spreader and Sprayer Testing Ltd (SCS) which offers national coverage
- SCS also offers tray testing kits for those who would prefer to carry out their own tests



# In Summary



- Ideally, every fertiliser spreader should be tray tested at least annually
- Professional tray testing is usually worth it – cost can be recouped over quite a small area of crop
- If you're committed and conscientious, equipment can be bought to do tray testing yourself!