

How to monitor crop development and disease

Strategic Farm Week 2020 Webinar

Brian Barker, Catherine Harries and Teresa Meadows

Housekeeping



REC ●



@AHDB_Cereals
#strategicfarm

Strategic Farm Week 2020

ahdb.org.uk/sfweek2020

BASIS/NRoSO Points

The BASIS logo, with the word 'BASiS' in a green sans-serif font. The 'i' is lowercase and has a yellow dot.

2 points

Name; BASIS Account No; Postcode

The City & Guilds logo, featuring the text 'City & Guilds' in a black sans-serif font with a red lion rampant icon to the right of the ampersand.The NRoSO logo, with 'NRoSO' in a bold green sans-serif font. Below it, the text 'National Register Of Sprayer Operators' is written in a smaller, lighter green font.

Name; NRoSO Member No; Date of Birth;
Postcode

Format



09:15 – 09:35

Brian Barker

EJ Barker and Sons & Strategic Farm East Host

How to monitor crop development



09:35 – 09:50

Catherine Harries

Crop Health and Protection Scientist (Diseases)

How to disease score your crops



09:50 – 10:20

Questions from the floor and discussion



Your host...

Teresa Meadows

*Knowledge Exchange
Manager (East Anglia)*

Session objective



Learn how to **disease score** your crops and **assess crop development** through the season to help inform matching inputs to potential through the season and matching **yield potential**.

Q: What would you like to know by the end of this session?

Have you ever plant counted or disease scored your crop?

- A. Plant counted**
- B. Disease scored**
- C. Both**
- D. None**

How to monitor crop development

Brian Barker, EJ Barker and Sons and Strategic Farm East Host



‘Farm to potential not hope’

How crop monitoring has helped me farm more efficiently.



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Why monitor growth?

- Allows for better justification of input investment
- Gives a routine to field walking at key times
- Gets you down and into the crop
- Helps focus mind into crop development





How do I do it?

Place a 30cm stick/ruler or clipboard along a row.

Count the number of plants along the length.

Repeat in 10 representative areas of the field calculate the average.

Work out the area counted, eg: 30cm x drill coulter width.

Divide this figure into 100cm x 100cm (10,000cm²) to give you a multiplication factor.

Take the average of all counts and multiply by the multiplication factor to give you the plants/m²

Example:

30 cm count length x 20cm (Drill coulter width) = 600cm²

10,000cm² ÷ 600 cm² = 16.67 (Multiplication factor)

18 plants (average number from field) x 16.67 = 300 plants/m²



What do I look for?

| Sample stage | Counts | Guideline Date | Growth Stage | 11t/ha AHDB Benchmark notes |
|---------------------------|-----------------------------|-------------------------------|---------------------------|---|
| Autumn plants established | Total Plants/m ² | Pre 14 th December | | 350 plants/m ² (target population) |
| Post Winter Survival | Total Plants/m ² | 28 th February | | 260 plants/m ² |
| T0 | All Shoots/m ² | 31 st March | GS30 (Ear 1cm) | 940 shoots/m ² |
| T1 | Shoots/m ² | 10 th April | GS31 (First Node) | 900 shoots/m ² , 81kg/ha N, 1.9t/ha Dry matter |
| T2 | Tillers/m ² | 19 th May | GS39 (Flag leaf full out) | 655 fertile tillers/m ² , 189kg/ha N, 6.9t/ha Dry matter. |
| T3 | Ears/m ² | 11 th June | GS59 (Ear Completely out) | 495 fertile ears/m ² , 233kg/ha N, 11.4t/ha Dry matter |
| Post Flowering | Grains per Ear | 29 th July | GS87 (Hard dough) | 19.6t/ha Dry matter |
| Harvest | TGW of sample | ~ | Harvest | 18.4t/ha Total Dry matter, 282kg/ha N |



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How does it work through the year?

Planning:

| | | | | | Planning | | | | | | | |
|-----------------|--------|--------|--------------|---------|------------------------------|--------------------------|-------------------|-------------------------------|------------|-----------------|---------------------------|-------------------|
| Field | 2018 | Est. | Row width cm | Variety | Target Plants/m ² | Actual TGW (Off Combine) | Est. Field Loss % | Starting Estimated Yield t/ha | Drill Date | Seed Rate Kg/ha | Seeds Sown/m ² | Fertiliser placed |
| Name | Colour | Colour | Cr | Variety | plant/m ² | grms | % | t/ha | | Kg/ha | Seeds/m ² | Y/N |
| Rushbottom | WW | DTS | 33 | Siskin | 300 | 49 | 22 | 11.0 | 30/09/2018 | 200 | 408 | No |
| Green Farm | 2WW | DTS | 33 | Shabras | 300 | 45.9 | 22 | 11.0 | 09/10/2018 | 189 | 412 | No |
| Crown | WW | DTS | 33 | Motown | 300 | 46.1 | 22 | 11.0 | 10/10/2018 | 167 | 362 | No |
| Triangle | WW | DTS | 33 | Motown | 300 | 46.1 | 22 | 11.0 | 10/10/2018 | 167 | 362 | No |
| Wyverstone Road | WW | DTS | 33 | Motown | 300 | 46.1 | 22 | 11.0 | 10/10/2018 | 167 | 362 | No |
| AHDB Benchmark | | | 20 | AHDB | 300 | 50 | 20 | 11.0 | Mid Oct | 188 | 376 | No |

5 fields from 2019 harvest at Lodge Farm Westhorpe



Establishment

| Actual Yield 2019 t/ha @ 15%M | Estimated Yield t/ha @ 15%M | Field | 2018 | Est. | Row width cm | Variety | Establishment | | | | | | |
|-------------------------------|-----------------------------|-----------------|--------|--------|--------------|---------|----------------|------------------------|---|---------------|----------------------------|----------------------|-------------------------------------|
| | | | | | | | Emergence Date | 30cm row count Average | Field Established plants/m ² | % Plants Est. | Total Field loss to date % | Estimated Yield t/ha | Theoretical Yield Lost to date T/ha |
| | t/ha | Name | Colour | Colour | Cr | Variety | | | plant/m | %2 | %3 | T/ha3 | T/ha4 |
| 11.54 | 11.2 | Rushbottom | WW | DTS | 33 | Siskin | 13/10/2018 | 31.5 | 318 | 106% | 22% | 11.4 | -0.4 |
| 11.29 | 11.5 | Green Farm | 2WW | DTS | 33 | Shabras | 22/10/2018 | 35.1 | 355 | 118% | 14% | 11.9 | -0.9 |
| 10.36 | 10.3 | Crown | WW | DTS | 33 | Motown | 23/10/2018 | 28.1 | 284 | 95% | 22% | 9.6 | 1.4 |
| 10.82 | 10.4 | Triangle | WW | DTS | 33 | Motown | 23/10/2018 | 28.6 | 289 | 96% | 20% | 9.8 | 1.2 |
| 10.59 | 10.1 | Wyverstone Road | WW | DTS | 33 | Motown | 23/10/2018 | 26.7 | 270 | 90% | 26% | 9.1 | 1.9 |
| | 10.8 | AHDB Benchmark | | | 20 | AHDB | | 30 | 300 | 100% | 20% | 11.0 | 0.0 |

Counts taken around 15 days of planting at full field emergence with one/two leaf showing.

5 fields from 2019 harvest at Lodge Farm Westhorpe

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Construction Phase

| | | | | | | | Post Winter | | | | 8th April Shoot Counts (End of Construction) | | | | | | |
|-------------------------------|-----------------------------|----------------|-----------------|------|--------------|---------|------------------------|-----------------------------|----------------------|-------------------------------------|--|---------------------------|---------------|------------------|----------------------|-------------------------------------|------|
| Actual Yield 2019 t/ha @ 15%M | Estimated Yield t/ha @ 15%M | Field | 2018 | Est. | Row width cm | Variety | 20cm row count Average | Total Shoots/m ² | Estimated Yield t/ha | Theoretical Yield Lost to date T/ha | Shoot Count Date | Average Shoots along 50cm | Shoots per m2 | Shoots per Plant | Estimated Yield t/ha | Theoretical Yield Lost to date T/ha | |
| | t/ha | Name | Colour | Code | Cr | Variety | | plant/m ² | t/ha5 | t/ha6 | | | Shoots | Sh/Pl | T/ha7 | T/ha8 | |
| | 11.54 | 12.1 | Rushbottom | WW | DTS | 33 | Siskin | 68 | 1030 | 14.7 | -3.3 | 12/04/2019 | 144 | 873 | 1 | 11.3 | -0.1 |
| | 11.29 | 11.9 | Green Farm | 2WW | DTS | 33 | Shabras | 60 | 909 | 14.8 | -2.9 | 12/04/2019 | 135 | 818 | 1 | 9.9 | -2.0 |
| | 10.36 | 11.1 | Crown | WW | DTS | 33 | Motown | 69 | 1045 | 13.2 | -3.6 | 12/04/2019 | 147 | 891 | 1 | 10.8 | 1.3 |
| | 10.82 | 11.3 | Triangle | WW | DTS | 33 | Motown | 65.6 | 994 | 15.7 | -5.9 | 12/04/2019 | 120 | 727 | 1 | 8.9 | -0.9 |
| | 10.59 | 11.1 | Wyverstone Road | WW | DTS | 33 | Motown | 71.3 | 1080 | 13.9 | -4.8 | 12/04/2019 | 138 | 836 | 1 | 10.2 | 1.1 |
| | 10.8 | AHDB Benchmark | | | 20 | AHDB | 13.1 | 262 | 9.6 | 1.4 | | 102 | 1020 | 4 | 11.0 | 1.4 | |

Two shoot counts taken early spring, first was difficult with mat of tillers in early March, later count easier with more developed shoots.

5 fields from 2019 harvest at Lodge Farm Westhorpe

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Construction Phase

| | | | | | | | Post Winter | | | | 8th April Shoot Counts (End of Construction) | | | | | | |
|-------------------------------|-----------------------------|----------------|-----------------|------|--------------|---------|------------------------|-----------------------------|----------------------|-------------------------------------|--|---------------------------|---------------|------------------|----------------------|-------------------------------------|------|
| Actual Yield 2019 t/ha @ 15%M | Estimated Yield t/ha @ 15%M | Field | 2018 | Est. | Row width cm | Variety | 20cm row count Average | Total Shoots/m ² | Estimated Yield t/ha | Theoretical Yield Lost to date T/ha | Shoot Count Date | Average Shoots along 50cm | Shoots per m2 | Shoots per Plant | Estimated Yield t/ha | Theoretical Yield Lost to date T/ha | |
| | t/ha | Name | Colour | Code | Cr | Variety | | plant/m ² | t/ha5 | t/ha6 | | | Shoots | Sh/Pl | T/ha7 | T/ha8 | |
| | 11.54 | 12.1 | Rushbottom | WW | DTS | 33 | Siskin | 68 | 1030 | 14.7 | -3.3 | 12/04/2019 | 144 | 873 | 1 | 11.3 | -0.1 |
| | 11.29 | 11.9 | Green Farm | 2WW | DTS | 33 | Shabras | 60 | 909 | 14.8 | -2.9 | 12/04/2019 | 135 | 818 | 1 | 9.9 | -2.0 |
| | 10.36 | 11.1 | Crown | WW | DTS | 33 | Motown | 69 | 1045 | 13.2 | -3.6 | 12/04/2019 | 147 | 891 | 1 | 10.8 | 1.3 |
| | 10.82 | 11.3 | Triangle | WW | DTS | 33 | Motown | 65.6 | 994 | 15.7 | -5.9 | 12/04/2019 | 120 | 727 | 1 | 8.9 | -0.9 |
| | 10.59 | 11.1 | Wyverstone Road | WW | DTS | 33 | Motown | 71.3 | 1080 | 13.9 | -4.8 | 12/04/2019 | 138 | 836 | 1 | 10.2 | 1.1 |
| | 10.8 | AHDB Benchmark | | | 20 | AHDB | 13.1 | 262 | 9.6 | 1.4 | | 102 | 1020 | 4 | 11.0 | 1.4 | |

Two shoot counts taken early spring, first was difficult with mat of tillers in early March, later count easier with more developed shoots.

5 fields from 2019 harvest at Lodge Farm Westhorpe

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Tiller survival

| Actual Yield 2019 t/ha @ 15%M | Estimated Yield t/ha @ 15%M | Field | 2018 | Est. | Row width cm | Variety | Mid April Shoot Counts (T1) | | | | |
|-------------------------------|-----------------------------|-----------------|--------|--------|--------------|---------|-----------------------------|---------------|------------------|----------------------|-------------------------------------|
| | | | | | | | Shoots along 50cm | Shoots per m2 | Shoots per Plant | Estimated Yield t/ha | Theoretical Yield Lost to date T/ha |
| | t/ha | Name | Colour | Colour | Cr | Variety | | T/ha8 | T/ha8 | t/ha11 | T/ha8 |
| 11.54 | 11.6 | Rushbottom | WW | DTS | 33 | Siskin | 120.0 | 727.3 | 2.3 | 9.8 | -1.5 |
| 11.29 | 11.3 | Green Farm | 2WW | DTS | 33 | Shabras | 114.0 | 690.9 | 1.9 | 8.7 | -1.2 |
| 10.36 | 10.9 | Crown | WW | DTS | 33 | Motown | 131.0 | 793.9 | 2.8 | 10.0 | -0.8 |
| 10.82 | 11.1 | Triangle | WW | DTS | 33 | Motown | 132.0 | 800.0 | 2.8 | 10.1 | 1.3 |
| 10.59 | 10.8 | Wyverstone Road | WW | DTS | 33 | Motown | 127.0 | 769.7 | 2.9 | 9.7 | -0.4 |
| | 10.8 | AHDB Benchmark | | | 20 | AHDB | | | | | |

T1 timing roughly when tillers are obvious to see and hold.

5 fields from 2019 harvest at Lodge Farm Westhorpe

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Ear counts

| Actual Yield 2019 t/ha @ 15%M | Estimated Yield t/ha @ 15%M | Field | 2018 | Est. | Row width cm | Variety | Ear Showing | | | | | | | | |
|-------------------------------|-----------------------------|-----------------|--------|------|--------------|---------|--------------------------|--------------------------|-----------------|-----------------|------------------|-------------|----------------|----------------------|-------------------------------------|
| | | | | | | | Major Tillers along 50cm | Minor Tillers along 50cm | Major Tillers % | Minor Tillers % | Total along 50cm | Ears per m2 | Ears per Plant | Estimated Yield t/ha | Theoretical Yield Lost to date T/ha |
| | t/ha | Name | Colour | Code | Cr | Variety | | | %6 | %7 | No.4 | Tillers | Till/pl | t/ha9 | t/ha10 |
| 11.54 | 11.2 | Rushbottom | WW | DTS | 33 | Siskin | 81 | 22 | 79% | 21% | 103 | 624 | 2.0 | 9.0 | -2.3 |
| 11.29 | 10.8 | Green Farm | 2WW | DTS | 33 | Shabras | 61.5 | 61.5 | 50% | 50% | 123 | 745 | 2.1 | 8.3 | -1.7 |
| 10.36 | 10.3 | Crown | WW | DTS | 33 | Motown | 55.5 | 54 | 51% | 49% | 109.5 | 664 | 2.3 | 7.4 | -3.4 |
| 10.82 | 10.6 | Triangle | WW | DTS | 33 | Motown | 62 | 55 | 53% | 47% | 117 | 709 | 2.5 | 8.1 | -0.8 |
| 10.59 | 10.3 | Wyverstone Road | WW | DTS | 33 | Motown | 57 | 56 | 50% | 50% | 113 | 685 | 2.5 | 7.6 | -2.5 |
| | 10.8 | AHDB Benchmark | | | 20 | AHDB | 23.5 | 23.5 | 50% | 50% | 47 | 470 | 2 | 11.3 | 0.3 |

After T2 when all ears have emerged, I separate them into major and minor ears. Then the calculator reflects this from previous season stats that I have done for this. Very helpful when looking at variety differences.

5 fields from 2019 harvest at Lodge Farm Westthorpe

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Grain counts

| Actual Yield 2019 t/ha @ 15%M | Estimated Yield t/ha @ 15%M | Field | 2018 | Est. | Row width cm | Variety | Grains per Ear | | | | |
|-------------------------------|-----------------------------|-----------------|--------|-----------|--------------|---------|------------------------|----------------|--------------------------|----------------------|-------------------------------------|
| | | | | | | | Grains per Ear Average | Tillers per m2 | Actual TGW (Off Combine) | Estimated Yield t/ha | Theoretical Yield Lost to date T/ha |
| | t/ha | Name | Colour | Condition | Gr | Variety | | Tillers | grms | t/ha9 | t/ha10 |
| 11.54 | 11.3 | Rushbottom | WW | DTS | 33 | Siskin | 48.16 | 624 | 49 | 11.8 | 2.0 |
| 11.29 | 10.9 | Green Farm | 2WW | DTS | 33 | Shabras | 43.3 | 745 | 45.9 | 11.9 | 3.1 |
| 10.36 | 10.4 | Crown | WW | DTS | 33 | Motown | 43 | 664 | 46.1 | 10.5 | 0.5 |
| 10.82 | 10.9 | Triangle | WW | DTS | 33 | Motown | 48 | 709 | 46.1 | 12.6 | 2.4 |
| 10.59 | 10.4 | Wyverstone Road | WW | DTS | 33 | Motown | 44.125 | 685 | 46.1 | 11.1 | 1.4 |
| | 10.8 | AHDB Benchmark | | | 20 | AHDB | 23.5 | 470 | 470 | #DIV/0! | #DIV/0! |

Pre harvest when ears are just turning, pick 15 at random and count the grains what are formed.

5 fields from 2019 harvest at Lodge Farm Westhorpe

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TGW off the combine is the puzzle piece

| Actual Yield 2019 t/ha @ 15%M | Estimated Yield t/ha @ 15%M | Field | 2018 | Est. | Row width cm | Variety | Grains per Ear | | | | |
|-------------------------------|-----------------------------|-----------------|------|------|--------------|---------|------------------------|----------------------------|--------------------------|----------------------|-------------------------------------|
| | | | | | | | Grains per Ear Average | Tillers per m ² | Actual TGW (Off Combine) | Estimated Yield t/ha | Theoretical Yield Lost to date T/ha |
| | | | | | | | | Tillers | grms | t/ha9 | t/ha10 |
| 11.54 | 11.3 | Rushbottom | WW | DTS | 33 | Siskin | 48.16 | 624 | 49 | 11.8 | 2.0 |
| 11.29 | 10.9 | Green Farm | 2WW | DTS | 33 | Shabras | 43.3 | 745 | 45.9 | 11.9 | 3.1 |
| 10.36 | 10.4 | Crown | WW | DTS | 33 | Motown | 43 | 664 | 46.1 | 10.5 | 0.5 |
| 10.82 | 10.9 | Triangle | WW | DTS | 33 | Motown | 48 | 709 | 46.1 | 12.6 | 2.4 |
| 10.59 | 10.4 | Wyverstone Road | WW | DTS | 33 | Motown | 44.125 | 685 | 46.1 | 11.1 | 1.4 |
| | 10.8 | AHDB Benchmark | | | 20 | AHDB | 23.5 | 470 | 470 | #DIV/0! | #DIV/0! |

Final yield off combine adjusted to 15% like the Growth Guide is the Estimated and Actual are not to far away from each other! Done this for two years improving my calculation and technique. Anyone can do it!

5 fields from 2019 harvest at Lodge Farm Westhorpe

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Good, average & poor ranking

| Class | Total ha | t/ha | Est. Rank | Est. Theor Yield | T0 Rank | T0 Theor Yield t/ha | Field | ha | Variety |
|---------|----------|------|-----------|------------------|---------|---------------------|-------------------|-------|--------------|
| Good | 82.06 | 12.1 | 4 | 12.5 | 1 | 12.2 | Drive Meadow | 2.42 | Revelation |
| | | | 3 | 12.5 | 2 | 11.9 | Green Farm | 9.19 | Revelation |
| | | | 6 | 11.8 | 3 | 11.9 | Drome | 14.85 | Graham |
| | | | 11 | 10.4 | 4 | 11.6 | Long Thurlow | 12.66 | KWS Siskin |
| | | | 1 | 13.1 | 5 | 11.5 | Barn Field | 34.20 | Seed |
| | | | 10 | 10.4 | 6 | 10.9 | Cartway | 3.89 | Revelation |
| | | | 2 | 12.6 | 7 | 10.8 | Allotments | 4.85 | KWS Siskin |
| Average | 66.58 | | 13 | 10.0 | 8 | 10.4 | Wallys | 8.11 | Graham |
| | | | 9 | 11.2 | 9 | 10.3 | Back Ash | 20.85 | KWS Siskin |
| | | | 7 | 11.4 | 10 | 10.2 | Long Meadow | 12.59 | KWS Siskin |
| | | | 8 | 11.3 | 11 | 10.1 | School | 12.00 | KWS Siskin |
| | | | 5 | 12.4 | 12 | 10.1 | Retter | 13.03 | Revelation |
| Poor | 90.25 | 8.9 | 15 | 9.1 | 13 | 8.6 | Homelodge | 24.89 | Revelation |
| | | | 14 | 9.4 | 14 | 8.5 | Little Guinea Row | 4.82 | Revelation |
| | | | 16 | 8.5 | 15 | 8.2 | Big Lawns | 14.50 | KWS Santiago |
| | | | 12 | 10.0 | 16 | 8.0 | Hills | 15.03 | KWS Santiago |
| | | | 17 | 6.8 | 17 | 7.0 | West Farm | 31.01 | KWS Santiago |

At key input timings you have a much more standardised format to choose input investment taking into account past and current calculations as well as weather conditions.

You can also include scoring for blackgrass levels seen, active disease, BLW, pests and other close observations.



Fields change

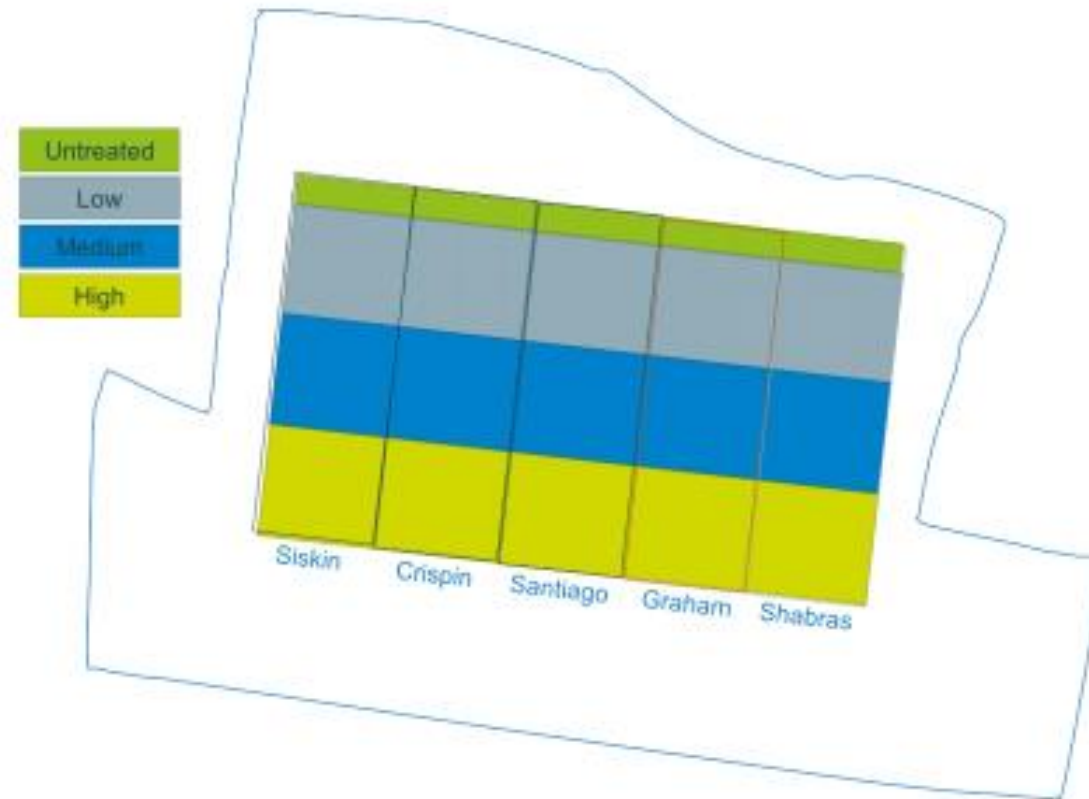
| Class | Total ha | Rank Total | Est. Rank | T0 Rank | T1 Rank | T2 Rank | T3 Rank | Estimated Yield Average of all counts so far | | | Field | ha | Variety |
|--------|----------|------------|-----------|---------|---------|---------|---------|--|------|-----|-------------------|-------|--------------|
| Green | 78.10 | 30 | 4 | 1 | 4 | 9 | 12 | 12.2 | | | Drive Meadow | 2.42 | Revelation |
| | | 15 | 1 | 5 | 3 | 1 | 5 | 11.4 | | | Barn Field | 34.20 | Seed |
| | | 13 | 6 | 3 | 1 | 2 | 1 | 10.9 | | | Drome & Rookery | 14.85 | KWS Siskin |
| | | 36 | 7 | 10 | 9 | 4 | 6 | 10.8 | | | Long Meadow | 12.59 | Graham |
| | | 24 | 2 | 7 | 6 | 5 | 4 | 10.7 | | | Allotments | 4.85 | KWS Siskin |
| | | 27 | 3 | 2 | 5 | 3 | 14 | 10.7 | | | Green Farm | 9.19 | Revelation |
| Yellow | 85.57 | 31 | 11 | 4 | 2 | 7 | 7 | 10.4 | | | Long Thurlow | 12.66 | KWS Siskin |
| | | 42 | 5 | 12 | 8 | 6 | 11 | 10.4 | | | Retter | 13.03 | Revelation |
| | | 35 | 9 | 9 | 7 | 8 | 2 | 10.2 | | | Back Ash | 20.85 | KWS Siskin |
| | | 42 | 8 | 11 | 10 | 10 | 3 | 10.0 | | | School | 12.00 | KWS Siskin |
| | | 53 | 13 | 8 | 11 | 11 | 10 | 9.9 | | | Wallys | 8.11 | Graham |
| | | 63 | 12 | 16 | 13 | 13 | 9 | 9.4 | | | Hills | 15.03 | KWS Santiago |
| | | 57 | 10 | 6 | 12 | 12 | 17 | 9.3 | | | Cartway | 3.89 | Revelation |
| Red | 75.22 | 64 | 14 | 14 | 14 | 14 | 8 | 8.8 | | | Little Guinea Row | 4.82 | Revelation |
| | | 77 | 16 | 15 | 15 | 15 | 16 | 8.7 | | | Big Lawns | 14.50 | KWS Santiago |
| | | 75 | 15 | 13 | 16 | 16 | 15 | 8.5 | | | Homelodge | 24.89 | Revelation |
| | | 81 | 17 | 17 | 17 | 17 | 13 | 7.6 | | | West Farm | 31.01 | KWS Santiago |
| | | | | | | | | Range | 4.6 | 1.5 | | | |
| | | | | | | | | Mean | 10.0 | | | | |

Fields then move up and down the ranking system which helps pick out variety traits and other scenarios.

The traffic light system is separated by dividing the range by three and separating accordingly.



Strategic Farm



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Any questions?



Plant Counts Record Sheet

| Field Name | Date | Counts | | | | | | | | | | Average | Plants/m ² | Seed rate | Establishment (%) |
|------------|------|--------|--|--|--|--|--|--|--|--|--|---------|-----------------------|-----------|-------------------|
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

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Strategic Farm Week – Summer 2020

Disease scoring

Catherine Harries

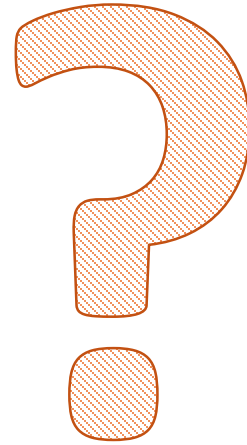


Purpose

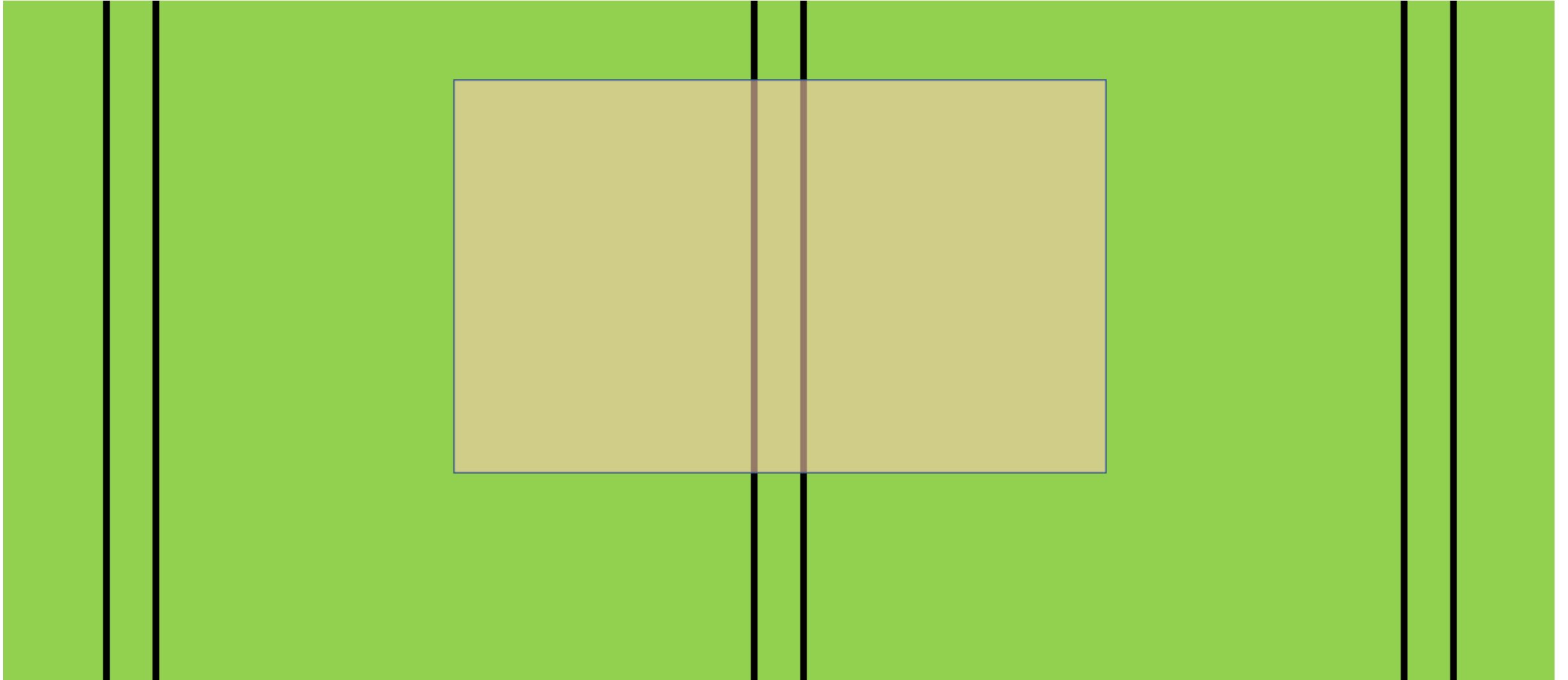
- Why to disease score
- When to disease score
- ID
- How to disease score



WHY BOTHER?



Leave untreated area



When and why



When and why



Credit:
Gary Naylor
Photography

When and why

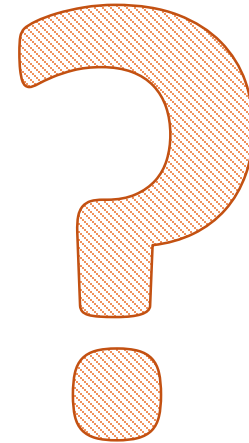


When and why





HOW



Septoria



Yellow rust





Old yellow rust



???



Disease ID

- Pustules = yellow rust
- Picnidia = septoria
- Dead leaf = could be anything → SCORE GREEN LEAF AREA

ahdb wheat disease assessing



Filters ▼



17:47

AHDB Recommended Lists: How to score disease symptoms in wheat

AHDB Cereals & Oilseeds

1 year ago • 701 views

This video has been produced for people who inspect AHDB Recommended List wheat trials for disease. It shows how disease ...

Assessment key

- ***Foliar disease assessment key***

- Examine top 4 leaves.
- Ignore all naturally senescent leaf tissue.
- Include all chlorosis and necrosis attributable to disease.
- Record % infection; use interpolated values (e.g. 3%) if necessary.
- If foci present, record average over the area as a whole.

Assessment key

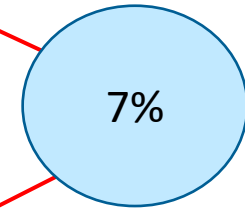


| % infection | Septoria |
|-------------|---|
| 0 | No infection |
| 0.1 | 1 lesion per 10 tiller |
| 1 | 2 small lesions per tiller |
| 5 | Small lesions beginning to form areas of dead tissue across width of leaf |
| 10 | 2 lower leaves – large areas of diseased tissue some covering 1/3 of leaf |
| 25 | Leaves appear ½ infected ½ green |
| 50 | Leaves appear more infected than green |
| 75 | Very little green leaf tissue left |
| 100 | Leaves dead - no green tissue left |



7%

0%



60%

30%





30%









○ - 10-20%

○ - 20-30%

○ - 30-40%

○ - 40-50%



○ - 0-2%

○ - 3-5%

○ - 6-7%

○ - 8-10%



○ - 0-5%

○ - 5-10%

○ - 10-15%

○ - 15-20%

| | |
|---|---------------|
| Field name: | Variety: |
| Recording date: | Growth stage: |
| Date last sprayed with fungicide (if applicable): | |

| | | % septoria | % yellow rust | % brown rust | % mildew | Eyespot (Y/N) | Head blight (Y/N) | % whiteheads | Record any other diseases seen |
|----------------|---------------|------------|---------------|--------------|----------|---------------|-------------------|--------------|--------------------------------|
| Untreated area | Observation 1 | | | | | | | | |
| | Observation 2 | | | | | | | | |
| | Observation 3 | | | | | | | | |
| | Observation 4 | | | | | | | | |
| Treated area 1 | Observation 1 | | | | | | | | |
| | Observation 2 | | | | | | | | |
| | Observation 3 | | | | | | | | |
| | Observation 4 | | | | | | | | |
| Treated area 2 | Observation 1 | | | | | | | | |
| | Observation 2 | | | | | | | | |
| | Observation 3 | | | | | | | | |
| | Observation 4 | | | | | | | | |
| Treated area 3 | Observation 1 | | | | | | | | |
| | Observation 2 | | | | | | | | |
| | Observation 3 | | | | | | | | |
| | Observation 4 | | | | | | | | |
| Treated area 4 | Observation 1 | | | | | | | | |
| | Observation 2 | | | | | | | | |
| | Observation 3 | | | | | | | | |
| | Observation 4 | | | | | | | | |

Thank you

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Questions and Discussion



Resources

- How to measure plant populations and record sheet
- Disease scoring record sheet
- How to disease score wheat video
- AHDB Wheat, Barley and OSR Growth Guides
- AHDB Recommended List
- AHDB Wheat and Barley Disease Management Guide



Plant Counts Record Sheet

| Field Name | Date | Counts | | | | | | | | Average | Plants/m ² | Seed rate | Establishment (%) |
|------------|------|--------|--|--|--|--|--|--|--|---------|-----------------------|-----------|-------------------|
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Strategic Farm Week 2020



Watch Strategic Farm research videos



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Download the 'how to' resources

All at: ahdb.org.uk/sfweek2020

Coming up...

- Regional Monitor Farm webinars
- Recommended List webinars
- AHDB Cereals and Oilseeds monthly webinar

Info and register at: ahdb.org.uk/events

Thank you



REC ●



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