



## Oilseed Yield Enhancement Network Yield Contest Rules and Protocol

### GENERAL

- 1 The Oilseed YEN yield contest is open to any oilseed crop – rapeseed, linseed or sunflowers. The absolute winner will have the highest gross output (seed yield corrected to 40% oil and 9% moisture) with less than 2% admixture. The 'relative' winner will have achieved the highest proportion of the potential gross output.
- 2 There are two classes of entry into the competition: field yields and research trial yields.
- 3 Field yields can be from whole fields or sub-fields but must be from an area of 2 hectares or more. Entries measuring less than 8 ha will not qualify for submission to the Guinness Book of Records.
- 4 Entry to the competition is by return of Registration Form to Yen@adas.co.uk before 15 June, along with payment (or confirmation that site is sponsored by a Corporate Member). Eligible entrants must provide all information requested on the 'Yield Entry' form, along with a 'grab' sample and a combine seed sample, by 15 October.

### YIELD MEASUREMENT

- 5 To be deemed credible, each yield must be determined from a verified area, a verified weight and a verified representative seed sample. Verification requirements for field and research trial yields are described separately below.

#### **Field & Sub-Field Yields**

- 6 Harvest of fields/sub-fields/tramlines must be witnessed by one independent verifier. The verifier must be named on the Yield Entry form, along with their occupation and contact details. The verifier is responsible for witnessing the harvesting, weighing and sampling. They should not be related to the entrant, their employees or employers, and should have no financial or direct business ties to the farm.
- 7 Field or sub-field areas or tramlines must be recorded by precisely marking their main corners on a satellite image or map, obtaining a verifying signature, and submitting this to ADAS. If sub-field areas are used, the positions of their corners in the field must be measured in relation to obvious landmarks (e.g. distance from hedge, gateway, telegraph poles etc.). Ideally length and width of the area should be measured by measuring tape or measuring wheel. Alternatively, corners can be identified on the plan by their GPS locations to within 1 metre (not from a SatNav or mobile phone). Harvest area and seed yield verification may be assisted by providing combine yield monitor printouts or yield maps.
- 8 Weights for field or sub-field entries must be recorded on a weighbridge, and copies of the weighbridge chits sent to ADAS with the Verifier's signature. Yield verification will be assisted by copies of combine yield monitor printouts or yield maps. 'Sold' seed weights from delivery advice notes after the harvest date will only be accepted if it can be verified that the seed from the whole field was kept separate, and if weights are supported by yield monitor data.
- 9 Grain moisture contents should be measured at the time of harvest from the measured area, and results submitted, or a representative grain sample (0.5-1kg) should be bulked from the area and sent in the plastic bag provided to ADAS for determination of moisture content.

#### **Tramline Yields**

- 10 Tramline yields e.g. from tramline trials, must be verified by the entrant and one independent person
- 11 Tramline trial yields may be from a selected number of tramlines but their total area must exceed 2 ha. The area(s) need not have been selected before harvest but grab samples must have been taken before harvest to represent this area, then bulked & submitted for analysis. The treatments do not have to be disclosed to ADAS; they can be anonymised e.g. given as treatment numbers.
- 12 Tramline yields will be calculated as for Field & Sub-Field Yields, by dividing a total weight from a weighbridge by a total area.
- 13 Grain moisture contents should be measured at the time of harvest from the chosen tramlines, and results submitted, or a representative grain sample (0.5-1kg) should be bulked from all submitted tramlines and sent in the plastic bag provided to ADAS for determination of moisture content.

#### **Research Yields**

- 14 Research trial yields must be verified by 2 people who may, or may not, be independent of the entrant organisation
- 15 Research trial yields may be from a selected treatment or treatment combinations from any trial. They must be averaged from at least 3 plots covering a total minimum area of 50m<sup>2</sup>. The plots may be selected before or after harvest but grab samples must be taken from each plot of the selected treatment(s), bulked & submitted for analysis. The trial overall must have a coefficient of variation for seed yield of less than 6%. Yields entered must be from a coherent treatment or treatment combination with replication, they cannot simply be chosen from the highest yielding plots in the trial. An ANOVA must be submitted to ADAS with submitted treatment(s) and coefficient of variation identified. The



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treatments do not have to be disclosed to ADAS; they can be anonymised e.g. given as treatment numbers.

- 16 Research trial plot yields will be calculated from an area including the adjacent path width if the whole width of plot was harvested. The length of each individual plot should be measured to the nearest 10cm. Plot widths should be measured to the nearest 1cm from plot centre to plot centre. The cropped width of the plots should be given to the nearest 1cm (i.e. from outside row to outside row) along with uncropped or path width. Combine cutter bar width should also be given to nearest 1cm. These lengths and widths must be verified at harvest.
- 17 Weights of fresh seed from each trial plot should be recorded using calibrated plot combine weighing equipment. Copies of the latest weight calibration must be provided, and the weights must be signed by both the entrant and a verifier before submission.
- 18 Moisture contents from each plot determined immediately after harvest should be provided. A representative seed sample (0.5-1kg) should be bulked from all plots and sent in the plastic bag provided to ADAS for determination of oil and moisture contents, and admixture.

### DATA REQUIREMENTS

#### **Information required on registration**

- 19 An independent verifier must be nominated with each entry, along with their occupation, mobile number, and email address. The verifier is responsible for witnessing the harvesting, weighing and sampling. They cannot be related to the entrant, their employees or employers, and cannot have financial or direct business ties to the farm.
- 20 The location of the site must be given by Grid reference. Grid References may be found at <http://www.gridreferencefinder.com/> and right clicking on the field being entered. This will be used to obtain met data and to check soils info.
- 21 Good soil texture, depth and stone content estimates are vital to the estimation of yield potentials. See The Fertiliser Manual, Appendix One (copied below) for how to estimate soil textures. Depth should indicate the average limit to rooting and should be assessed by reference to the UK Soil Observatory ([here](#)) and (if uncertain) by digging several holes. Stone content can be assessed by comparing with the diagrams below.

#### **Crop information required**

- 22 Entrants must provide dates of sowing, green bud just visible (GS3,3) first flower open on main raceme, desiccation, pods no longer green, ripeness to harvest and actual harvest.
- 23 Take images at three locations from above the crop looking vertically down, trying to cover as wide an area as possible and include a sheet of A4 paper on the 2-4 leaf stage photos (so a plant population can be determined; see example below).
- 24 A grab sample of the crop must be taken when the crop would normally be desiccated by cutting one plant at ground level (with a hacksaw blade or similar) at eight points throughout the area to be harvested, and posting / sending to ADAS in labelled paper sacks (provided by ADAS). Grab samples from research trials should be bulked from ~3 plants per plot.
- 25 If local rainfall data are not provided, ADAS will obtain rainfall data from a global database.
- 26 Basic agronomic information is requested from all entrants but is not obligatory. Winning entrants will be expected to provide at least some basic information, though product names and rates may be withheld.

#### **ADAS Calculation of Potential Yields**

- 27 For each site a potential yield estimate will be provided after harvest, based on the harvest year's weather.
- 28 Yield potential estimates will be made by ADAS, according to best available information on incident solar radiation, rainfall and soil water-holding capacity.

### AWARDS

- 29 Gold, Silver and Bronze Awards will be made as follows:
  - Absolute Winner: for highest Field (or sub-field) Yield.
  - Absolute Winner: for highest Research trial Yield.
  - Relative Winner: Highest percentage of potential yield for Field (or sub-field).
  - Relative Winner: Highest percentage of potential yield achieved for Research trial (or sub-field).



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- 30 There is no restriction to the number of entries per farm or per entrant.
- 31 However, each farm can only win one award (either gold, silver or bronze) in each category. An entrant can submit entries from more than one farm and can win more than one award (gold, silver or bronze) in a category if these come from different farms.
- 32 If an entry has won the highest yield, it may also win the highest percentage of potential yield.

### **SUMMARY**

#### ***Commitments from entrants***

- Register and pay (if not sponsored by Corporate Member) by 15 June
- Provide contact details and site location
- Provide verifier details
- Provide soil information
- Provide basic crop information: (variety, sowing date, date green bud just visible (GS3,3), date of first flower open on main raceme, date of desiccation, date of pods no longer green, date of ripeness to harvest and date of actual harvest.
- Provide digital photos taken at leaf 2-4 and at stem extension
- Provide grab samples taken before harvest
- Provide verified measures of harvested area
- Provide verified measures of harvested weight
- Provide representative combine seed sample
- If field entry, send signed 'Yield Entry' sheet, plan, weighbridge tickets, digital photos, grab sample and seed sample by 15 Oct
- If trial entry, send signed 'Yield Entry' sheet, copy of calibration, datafile, digital photos, grab and seed sample by 15 October
- Provide 'Agronomy' information (optional for all but obligatory for winners of gold, silver & bronze awards)

#### ***What entrants will receive***

- Access to YEN website and Newsletters
- Entry into Yield competition
- Protocols for crop sampling & yield measurements, with labelled sample bags
- Attendance at autumn conference to receive site-specific yield report, hear competition results & share ideas
- Each site-specific yield report will include:
  - Soil information including available water holding capacity
  - Average potential yield for site
  - Potential yield for this season
  - Verified actual yield
  - Yield Analysis including:
    - Dates of sowing, date green bud just visible (GS3,3), date of first flower open on main raceme, date of desiccation, date of pods no longer green, date of ripeness to harvest and date of actual harvest
    - Total dry matter per plant (g)
    - Seed dry matter per plant (g)
    - Harvest Index
    - Dry matter per seed (mg) & TGW (g)
    - Seeds per pod
    - Pods per m<sup>2</sup>
    - Total crop Biomass (t/ha)
    - Seed N%, Seed protein %
    - N Harvest Index
    - Seed N offtake (kg/ha)
    - Total N uptake (kg/ha)
  - Photos of crop at leaf 2-4, and at stem extension
  - Brief commentary on how the entered crop performed, explaining yield achieved, noting anything exceptional and suggesting how yield may be improved

#### ***What ADAS & partners will do***

- Validate soil description against soil survey information



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- Collate long term weather data for site
- Collate harvest-season weather data for site
- Calculate potential yield using average weather
- Calculate potential yield using harvest season weather
- Send protocols for crop & yield measures
- Send labelled plastic bag for seed sample
- Send labelled paper sack for grab sample
- Advise on verification arrangements
- Determine seed moisture, oil and admixture of seed sample
- Check areas & weights and calculate combine seed yield & gross output
- Process grab samples
- Calculate harvest index, yield components and N uptake
- Collate crop and agronomy information
- Produce brief report for each entry giving yield potentials, yield achieved, crop data collated and analysis of yield
- Identify winners of highest yields and highest percentage of potential yields
- Analyse all data to explain the season's yields in general, to understand how high yields were achieved & suggest how yields may be improved. Present results, findings & awards at November Conference & facilitate sharing of ideas.

Example digital image of the crop at the 2-4 leaf stage taken to cover as wide an area as possible and including a sheet of A4 paper on photos so a plant population can be determined:

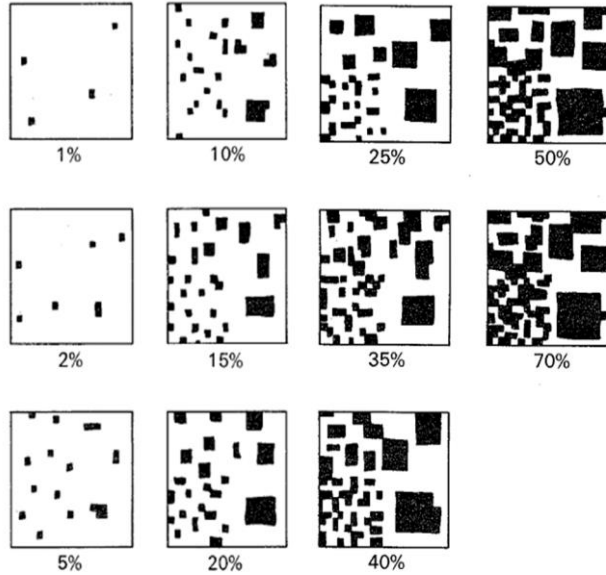


Assessment of stone content:



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Chart for estimating mottles, stones, nodules etc.



Each quarter of any one square has the same area of black

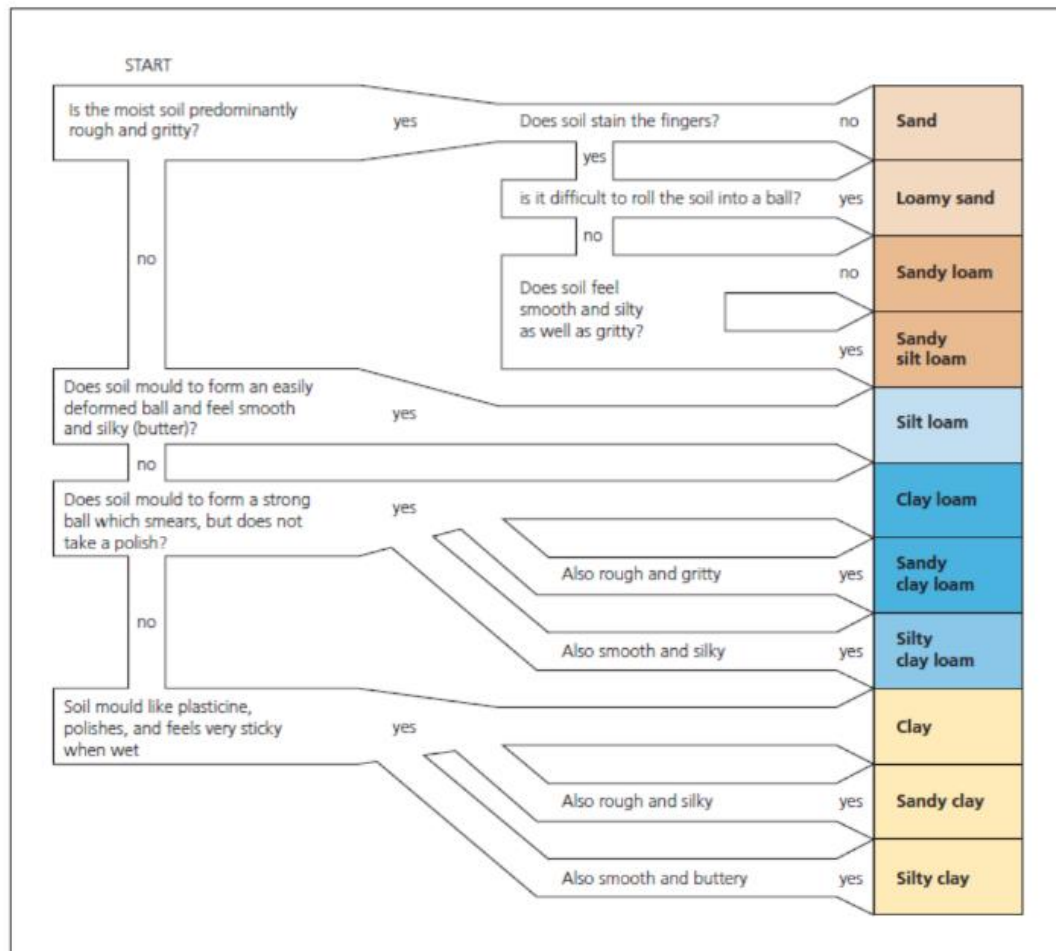


Appendix 1 from The Fertiliser Manual (RB209), Defra 2010.

### Assessment of Soil Texture

Accurate measurement of soil texture requires laboratory analysis, but for practical purposes texture can be assessed by hand using the following method:

Take about a dessert spoonful of soil. If dry, wet up gradually, kneading thoroughly between finger and thumb until soil crumbs are broken down. Enough moisture is needed to hold the soil together and to show its maximum stickiness. Follow the paths in the diagram to get the texture class.



A texture triangular diagram, defining the particle size distribution for each named texture class, is given in Appendix D of *Controlling Soil Erosion (MAFF PB4093)*.