



Bean YEN 2023 “Observations” Guidance

GENERAL INFORMATION

Welcome to Bean YEN 2023, the fifth year of Bean YEN. This document details how to capture the “**Observation**” data in the Bean YEN 2023 at each site visit and accompanies the other guidance documents on taking part in the Bean YEN.

Accompanying documents:

Bean YEN progress sheet: A separate checklist of YEN tasks is available for both spring and winter Bean YEN entries to help people track their entry and any activities throughout the season (<https://yen.adas.co.uk/resources/bean-yen-2023-progress-sheet>). Please remember to note the key crop development dates and other observations. When the online portal is open later in the season, please remember to share this information.

Bean YEN Welcome Pack Guidance: Information on how to take crop and soil samples are sent as part of the Welcome Pack Guidance (<https://yen.adas.co.uk/resources/bean-yen-2023-welcome-pack-uk-entrants>). Reminders of what to sample and when are found in the Bean YEN progress sheet.

YEN data submission portal:

You will be contacted about submitting data for the YEN such as observations, agronomy practices and field history through the YEN website once the data collection platform is ready for use.

Site Visits and Crop Observations

This information allows us to understand how a bean crop develops in different situations, helping us understand constraints to yield. All the information you collect can be returned via the online form system. The site visit dates are listed below (numbered 1 to 5). Ahead of the online form system being ready, you can record notes using the [Bean YEN progress sheet](#). Growth stage information can be found in Appendix 1.

The PGRO Pea and Bean Guide App

PGRO have developed a free agronomy app, which will be useful in the field. It can aid with pest and disease recognition and is capable of recording and submitting reports of pests and diseases. There is also a built in growth stage guide. The app is available for both Android and Apple devices.

1. Full emergence GS 10 (March /April)

- Record the date of full emergence (**GS 10**). If this is missed please record the growth stage on the date you visit.
- Carry out plant counts.
 - In five locations, using a meter stick or quadrat count the number of plants in a 1 m² area. If it's easier, use a 0.25 m² quadrat to count the number of plants and multiply that number by 4 to get the number of plants in 1 square metre. Please record the count in each individual location.
- **Alternatively**, plant counts can be calculated from photographs. Take images at three locations from within the 2ha area entered in the YEN. Take the photo from above the crop looking vertically down, showing as wide an area as possible. It is important to include an A4 piece of paper flat on the ground for scale. See examples in Figure 1. Photos will be able to be uploaded using the online data submission portal.

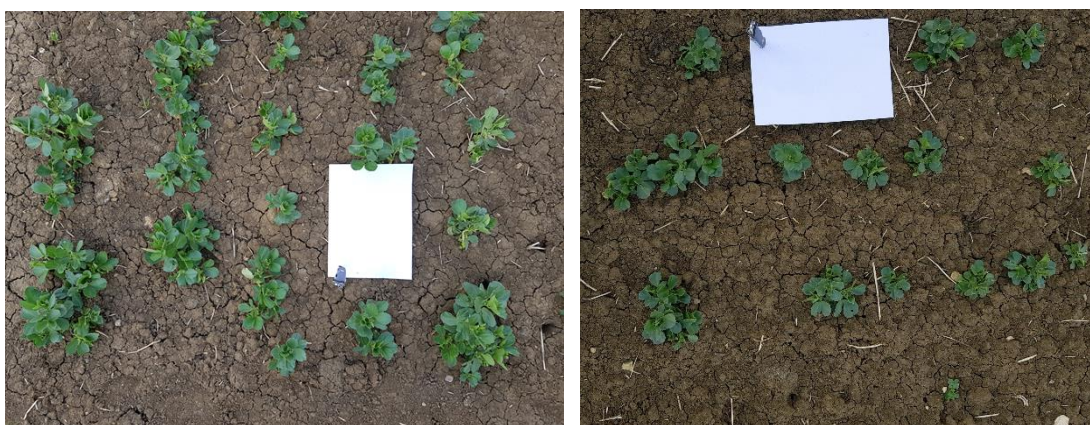


Figure 1. Example photographs for plant population estimate

2. Start of nodulation, Fourth Node (April/May)

- Record date of 4th node - start of nodulation (**GS 34**)
- Collect a representative **leaf tissue sample**, following the method described in the [Bean YEN Welcome Pack Guidance](#).

3. First flower (May/June)

- Record date of 1st flower seen sporadically within the crop (**GS 60**).
- Collect a representative **leaf tissue sample**, following the method described in the [Bean YEN Welcome Pack Guidance](#). If foliar nutrition is to be applied to the crop at flowering, please take the second tissue sample **before** any flowering foliar nutrient sprays are applied.

4. End of flowering

- Record date when crop is out of flower (**GS 69**).


5. Pre-harvest & harvest (July/August)

- Record date when crop is first ripe for harvest, full senescence (**GS 97**).
- Record actual harvest date (**GS 99**).
- Record harvest losses by counting number of beans in an A4 paper sized area at 5 locations directly behind the combine and 5 locations between the swaths (ie where beans would only be present by

shattering before entering combine, not due to losses over the sieves.) Subject to amendment in the harvest pack.

CONTACTS

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Further information can be found at www.yen.adas.co.uk



Phenological growth stages and BBCH-identification keys of faba bean (*Vicia faba* L.)

Faba bean Weber and Bleiholder, 1990; Lancashire et al., 1991

Code Description

Principal growth stage 0: Germination

- 00 Dry seed
- 01 Beginning of seed imbibition
- 03 Seed imbibition complete
- 05 Radicle emerged from seed
- 07 Shoot emerged from seed (plumule apparent)
- 08 Shoot growing towards soil surface
- 09 Emergence: shoot emerges through soil surface

Principal growth stage 1: Leaf development¹

- 10 Pair of scale leaves visible (may be eaten or lost)
- 11 First leaf unfolded
- 12 2 leaves unfolded
- 13 3 leaves unfolded
- 1. Stages continuous till . . .
- 19 9 or more leaves unfolded

Principal growth stage 2: Formation of side shoots

- 20 No side shoots
- 21 Beginning of side shoot development: first side shoot detectable
- 22 2 side shoots detectable
- 23 3 side shoots detectable
- 2. Stages continuous till . . .
- 29 End of side shoot development: 9 or more side shoots detectable

Principal growth stage 3: Stem elongation

- 30 Beginning of stem elongation
- 31 One visibly extended internode²
- 32 2 visibly extended internodes
- 33 3 visibly extended internodes
- 3. Stages continuous till . . .
- 39 9 or more visibly extended internodes

¹ Stem elongation may occur earlier than stage 19; in this case continue with the principal stage 3

² First internode extends from the scale leaf node to the first true leaf node

Principal growth stage 5: Inflorescence emergence

- 50 Flower buds present, still enclosed by leaves
- 51 First flower buds visible outside leaves
- 55 First individual flower buds visible outside leaves but still closed
- 59 First petals visible, many individual flower buds, still closed

Principal growth stage 6: Flowering

- 60 First flowers open
- 61 Flowers open on first raceme
- 63 Flowers open 3 racemes per plant
- 65 Full flowering: flowers open on 5 racemes per plant
- 67 Flowering declining
- 69 End of flowering

Principal growth stage 7: Development of fruit

- 70 First pods have reached final length (“flat pod”)
- 71 10% of pods have reached final length
- 72 20% of pods have reached final length
- 73 30% of pods have reached final length
- 74 40% of pods have reached final length
- 75 50% of pods have reached final length
- 76 60% of pods have reached final length
- 77 70% of pods have reached final length
- 78 80% of pods have reached final length
- 79 Nearly all pods have reached final length

Principal growth stage 8: Ripening

- 80 Beginning of ripening: seed green, filling pod cavity
- 81 10% of pods ripe, seeds dry and hard
- 82 20% of pods ripe, seeds dry and hard
- 83 30% of pods ripe and dark, seeds dry and hard
- 84 40% of pods ripe and dark, seeds dry and hard
- 85 50% of pods ripe and dark, seeds dry and hard
- 86 60% of pods ripe and dark, seeds dry and hard
- 87 70% of pods ripe and dark, seeds dry and hard
- 88 80% of pods ripe and dark, seeds dry and hard
- 89 Fully ripe: nearly all pods dark, seeds dry and hard

Principal growth stage 9: Senescence

- 93 Stems begin to darken
- 95 50% of stems brown or black
- 97 Plant dead and dry
- 99 Harvested product

Faba Bean

