Pea YEN 2023 "Observations" Guidance

GENERAL INFORMATION

Welcome to Pea YEN 2023. This document details how to capture the "**Observation**" data in the Pea YEN 2023 at each site visit and accompanies the other guidance documents on taking part in the Pea YEN.

Accompanying documents:

Pea YEN progress sheet: A separate checklist of YEN tasks is available for Pea YEN entries to help people track their entry and any activities throughout the season (https://yen.adas.co.uk/resources/pea-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.

Pea 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/pea-yen-2023-welcome-pack-uk-entrants). Reminders of what to sample and when are found in the Pea 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 pea crop develops in different situations, helping us understand constraints to yield. All the information you collect can be returned via the online form system and site visit dates are listed below (numbered 1 to 5). Ahead of the online form system being ready , you can record notes using the **Pea 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 at least five locations, using a meter stick or quadrat count the number of plants in a 1 m^2 area. If it's easier, use a 0.25 m^2 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 and including 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 **Pea YEN Welcome Pack Guidance**.

3. First flower and full 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 **Pea 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 (June)

- 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 peas in an A4 paper sized area at 5 locations directly behind the combine and 5 locations between the swaths (ie where peas 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

Appendix 1- Growth stages key

Pea Weber and Bleiholder, 1990; Feller et al. , 1995 b

Phenological growth stages and BBCH-identification keys of pea

(Pisum sativum L.)

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 breaking through seed coat
08	Shoot growing towards soil surface; hypocotyl arch visible
09	Emergence: shoot breaks through soil surface ("cracking stage")
Principal growth stage 1: Leaf development	
10	Pair of scale leaves visible
11	First true leaf (with stipules) unfolded or first tendril developed
12	2 leaves (with stipules) unfolded or 2 tendrils developed
13	3 leaves (with stipules) unfolded or 3 tendrils developed
1….	Stages continuous till . . .
19	9 or more leaves (with stipules) unfolded or 9 or more tendrils developed
Principal growth stage 3: Stem elongation (Main shoot)	
30	Beginning of stem elongation
31	1 visibly extended internode[1]
32	2 visibly extended internodes[1]
33	3 visibly extended internodes[1]
3….	Stages continuous till . . .
39	9 or more visibly extended internodes[1]
Principal growth stage 5: Inflorescence emergence	
51	First flower buds visible outside leaves
55	First separated flower buds visible outside leaves but still closed
59	First petals visible, flowers still closed

‘ The first internode extends from the scale leaf node to the first true leaf node

Principal growth stage 6: Flowering	
60	First flowers open (sporadically within the population)
61	Beginning of flowering: 10% of flowers open
62	20% of flowers open
63	30% of flowers open
64	40% of flowers open
65	Full flowering: 50% of flowers open
67	Flowering declining
69	End of flowering

(Pisum sativum L.)

Code	Description
Principal growth stage 7: Development of fruit	
71	10% of pods have reached typical length; juice exudes if pressed
72	20% of pods have reached typical length; juice exudes if pressed

73 30% of pods have reached typical length;
juice exudes if pressed. Tenderometer value: 80 TE

74 40% of pods have reached typical length;
juice exudes if pressed. Tenderometer value: 95 TE

75 50% of pods have reached typical length;
juice exudes if pressed. Tenderometer value: 105 TE

76 60% of pods have reached typical length;
juice exudes if pressed. Tenderometer value: 115 TE

77 70% of pods have reached typical length.
Tenderometer value: 130 TE

79 Pods have reached typical size (green ripe); peas fully formed

Principal growth stage 8: Ripening of fruit and seed

81 10% of pods ripe, seeds final colour, dry and hard

82 20% of pods ripe, seeds final colour, dry and hard

83 30% of pods ripe, seeds final colour, dry and hard

84 40% of pods ripe, seeds final colour, dry and hard

85 50% of pods ripe, seeds final colour, dry and hard

86 60% of pods ripe, seeds final colour, dry and hard

87 70% of pods ripe, seeds final colour, dry and hard

88 80% of pods ripe, seeds final colour, dry and hard

89 Fully ripe: all pods dry and brown. Seeds dry and hard (dry ripe)

Principal growth stage 9: Senescence

97 Plants dead and dry

99 Harvested product

Phenological growth stages of pea