Yield Enhancement Network

Pea YEN Welcome Pack 2025 UK

Thank you for participating in the Pea YEN 2025.

This guide provides the information you need to complete your 2025 sample submissions and how to carry out the crop observations. The samples are posted to the analytical labs throughout the season, and the crop observation and agronomy data is submitted via the YEN portal. We have included a progress sheet to track sampling and to make notes of the observations throughout the season. We will contact you about submitting data when the online YEN portal opens for the season. For further information or any questions please get in touch at peayen@adas.co.uk .

You will receive a separate Welcome Pack for each YEN entry that you have.

Welcome Pack contents

- □ **Soil Sample:** Sampling instructions on page 2. Collect a representative soil sample of **~1.1 kg** from across the whole field or area to be entered in YEN and
  - Send ~600g to NRM using the labelled sample bag and **BLACK NRM pre-paid postage bag**. Include the enclosed **analysis request form** with your sample and apply the **grey NRM soil analysis label** to this.
  - Send ~500g to PGRO using the two ziplock sample bags, return envelope and **RED** stickers
- □ **Leaf Samples:** At the **start of 4th node - start of nodulation (GS 34)** send your first leaf sample to Lancrop. Send the second leaf sample at **1st flower seen sporadically within the crop (GS 60).** Include the corresponding analysis request form with each sample and complete this with the type of crop entered, the rest of the details on these forms are prepopulated for your entry but please amend if any details are incorrect**.** Labelled sample bags and pre-paid postage bags are provided for these samples. Instructions on how to take tissue samples can be found at the below link:

  https://www.yara.co.uk/siteassets/crop-nutrition/farmers-toolbox/analysis/how-to-take-a-sample-for-soil-or-tissue-analysis.pdf/
- □ **Grab Sample:** Instructions are on page 5. A day or two before harvest, collect **~25 whole plants (please note to collect 25 plants rather than 25 shoots)** from the YEN entry area and send in the **potato sack** provided, with the **WHITE** return address label, to ADAS Gleadthorpe via your local Post Office.
- □ **Return of samples:** The enclosed address labels provide **pre-paid returns** for the **grab sample**; you will not be charged when using these labels. Alternatively, you can arrange for a courier to collect the samples, which should be sent to the address mentioned at the end of this guide, however **you will not be reimbursed** for using courier services.
- □ **Seed Samples:** Instructions on page 6. At harvest, collect a representative sample of seed from all trailer loads from the area entered, fill the seed sample bags provided, and send one bag to each of the two laboratories for analysis, using the appropriate coloured labels and return pre-paid packaging.
  - Use the BLUE labels for Lancrop nutrient analysis (~200-300g)
  - Use the GREEN labels for Askew & Barrett (Pulses) Ltd quality and TSW analysis (~500g)
- □ **Yield Data:** Attach the YELLOW label to your Yield Entry Form (attached at the end of this guide), and record the harvest area, fresh weight, moisture content and harvest losses. Then take photos of (or scan) the completed Yield Entry form, along with your map and weighbridge tickets (if applicable) and upload them at https://www.yen.adas.co.uk/yen-2025-yield-form-submission. If using your mobile to upload the documents, you can scan the QR code on the form to open this link automatically.

SOIL SAMPLE INSTRUCTIONS

The Pea YEN involves assessments for soil nutrition analysis via NRM and also foot rot risk via PGRO. The NRM sampling methodology outlined below can also be used for the foot rot sample and both samples can be collected at the same time and sub-divided.

A soil sample of the field or area to be entered in YEN should ideally be taken before any organic manure or inorganic fertiliser applications have been made. **If it is necessary to sample following an application a minimum period of 3 weeks should be allowed to pass** before doing so and details of any application(s) made provided on the NRM analysis request form.

Please complete details on the NRM form of current and previous cropping and whether previous crop residues have been removed or returned to the soil, if the field has a history of regular organic manure applications, please also detail this**. The more information you provide with your sample the better the analysis NRM will be able to complete** ensuring more reliable, trustworthy and useful results.

Walk a **'W' pattern** across the sample area as in the figure below avoiding any irregular patches such as gateways, headlands, and trees, collect about **25-30 soil cores to 15cm depth** and bulk the cores together.

1. NRM Soil Sample

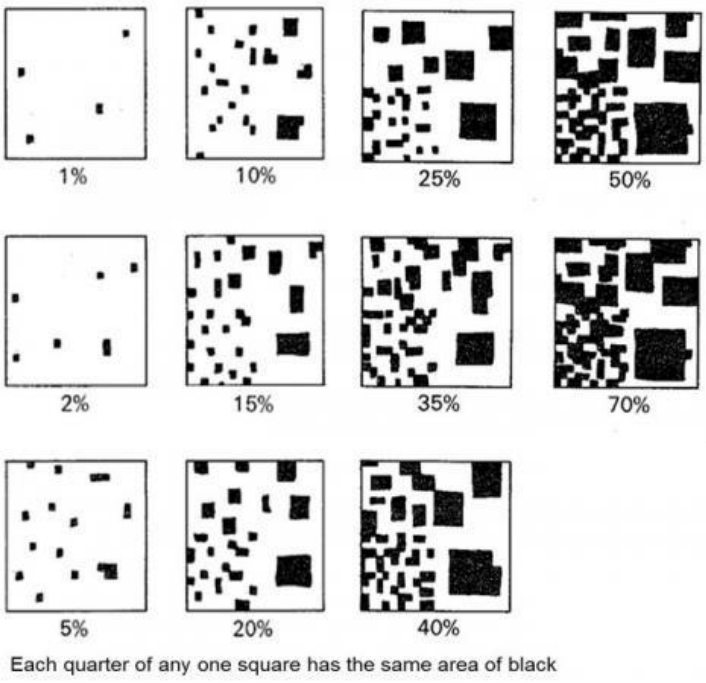
Use the labelled NRM sample bag provided to give a **~600g sample**. Place the soil sample and analysis form with grey sticker attached into the **BLACK NRM return postage bag** and drop it off at your local post office.

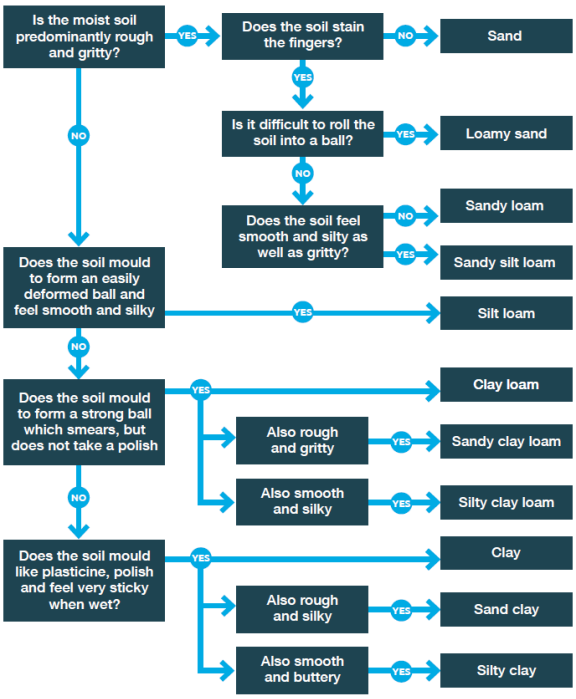
2. PGRO Foot rot risk soil sample

Add around **~500g** soil collected as above into one of the ziplock bags, affix the **RED foot rot kit** Pea YEN entry code sticker to the outside of that bag, seal the bag and then place all of this inside the second sample bag and seal the second bag. Please then use the RED pre-paid self-return sticker and envelope to return the soil sample to PGRO via your local post office.

When taking your soil sample please also **record the texture and approximate % stone content of the topsoil** (guidelines for assessing soil texture by hand and estimating stone content are given below). These details should be provided when completing your field and crop details form online, information about which will be emailed to you separately.

Good soil descriptions are vital in allowing us to estimate soil water holding capacity which along with rainfall data we use to determine available water for your crop, a key component in calculating yield potential.





The results of soil analysis carried on this sample will be included in your annual report. These are also used to calculate various other metrics in the report, including available crop nutrients and efficiency of nutrient uptake.

OBSERVATION VISIT: (GS 10) FULL EMERGENCE (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

OBSERVATION VISIT: (GS 34) 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 below

LEAF TISSUE TESTING INSTRUCTIONS

As part of Pea YEN Lancrop/YARA provide free tissue testing for YEN entrants at the start of 4th node - start of nodulation (GS 34) and at 1st flower seen sporadically within the crop (GS 60).

Include the corresponding analysis request form with each sample and complete this with the type of crop entered, the rest of the details on these forms are prepopulated for your entry but please amend if any details are incorrect.

At each sampling timing:

- Sample and send Monday to Wednesday to avoid the sample being in the post over the weekend.
- Within your YEN area walk up 2 to 4 representative tramlines and sample tissue at regular intervals from between 5 - 20 points along the sampling path.
- **At GS34** at each sampling site select several plants at the same stage of development and cut/break off the top **two nodes (4 leaves) with the stems** until you have about 200g of material. Avoid leaves showing pest, disease or other damage.
- **At GS60** at each sampling site select several plants at the same stage of development and sample the youngest mature compound leaf (see diagram below) until you have about 200g of material. **Take leaves only, not stems.** Avoid leaves showing pest, disease or other damage. 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.

- Diagram of pea plant indicating with the arrow, the youngest mature compound leaf, which is to be sampled for tissue testing **at GS60**

- At both timepoints: mix the leaves thoroughly, if wet blot the leaves dry with a paper towel and place into a sample bag, squeezing out the excess air and sealing.

- Place the sample bag and the order form into a Lancrop/Yara pre-paid envelope and post. Do not put the order form inside the bag with the sample as it may get wet.

OBSERVATION VISIT: (GS60) 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 above.

OBSERVATION VISIT: (GS69) END OF FLOWERING (JUNE)

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

OBSERVATIONS VISIT: (GS97) FULL SENESCENCE

- Record date when crop is first ripe for harvest, full senescence (GS97)
- Take your grab sample as detailed below

GRAB SAMPLE INSTRUCTIONS

The potato sacks and plastic bag enclosed in the Harvest Pack are for use in sending whole-crop 'grab' samples and grain samples to ADAS Gleadthorpe for analysis. These samples are needed as part of your Pea YEN competition entry; they will enable us to produce a yield analysis report which will explain your crop's performance, and allow us to suggest how yields might be improved in the future. It will help ensure trustworthy results if you follow these instructions carefully. Please address any questions to the named contacts below.

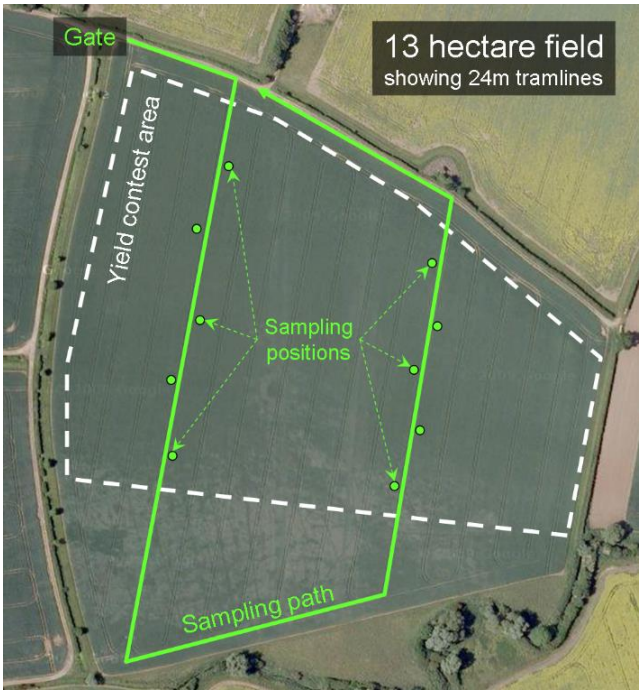
A grab sample of the whole crop, ***including the roots,*** must be taken once the crop has reached harvest maturity, when the crop is in a dry state, ideally a day or two before harvest. If the roots can not be removed from the soil cut the plant where the stem meets the soil.

Go to the field with the two sacks and a serrated blade or secateurs.

- The one representative sample should comprise of 5 sub-samples from 5 points within your yield area totalling exactly 25 plants; we suggest the following sub-sampling procedure, as in the example to the right:
- select two typical tramlines running through the intended area for yield measurement
- estimate the number of paces which will take you the length of the area
- walk a third of this length along the first tramline, then step away from the tramline by 3-4 paces
- without close inspection, randomly select ~5 neighbouring plants and pull them at ground level to extract as much of the roots as possible.
- place the whole plant, top-first into the sack
- repeat for the next 2 points along the first tramline, and then repeat on alternate sides as you walk back along the second tramline, this time selection plants from two locations to collect 25 plants in total.

Grab samples for Research Plot trials

- For research trial yields a grab sample should consist of 7-8 shoots per plot, from a minimum of 3 replicate plots. Put shoots from all replicate plots into the same sack for despatch.



Packing your grab sample

- Place all 25 plants side-by-side, pods-first, into the sacks, and seal the end. Please note that both sacks do not need to be used if you can fit all 25 plants into one.
  If any shoot ends are protruding, fold them over inside the sack so that you can seal the end, with the length being <60 cm. *NB: The final package must be no more than 60cm long.* If the package is longer than this, it may be rejected or 'lost in transit'.
- Attach a **WHITE** pre-paid postal address sticker onto the sack and take it to your local post office/pick up point to be sent to ADAS Gleadthorpe.

What will your grab sample tell you?

Data collected from your grab sample will be fed back in your end of year report. The metrics we derive from your grab sample include:

- Total Crop Biomass
- Harvest Index – the proportion of total biomass that is grain
- Pods per shoot
- Seeds per pod
- Plant height
- Estimated use of available water
- Estimated % solar radiation captured.

AT HARVEST

- At harvest record your yield as per the yield form. This can be via weigh bridge or via a calibrated combine yield mapper.
- Record harvest losses as below
- Take your seed samples as below

HARVEST LOSSES INSTRUCTIONS

Count the number of beans in an A4 paper sized area at 5 locations directly behind the combine, and at 5 locations between swaths (i.e. where beans would only be present by shattering before entering combine, not due to losses over the sieves).

Record the number of beans per area at each location using the provided Yield Entry Form.

SEED SAMPLE INSTRUCTIONS

We request that all Pea YEN Entrants return TWO seed samples at harvest, each sent directly to separate laboratories for analysis.

Collecting your Grain sample

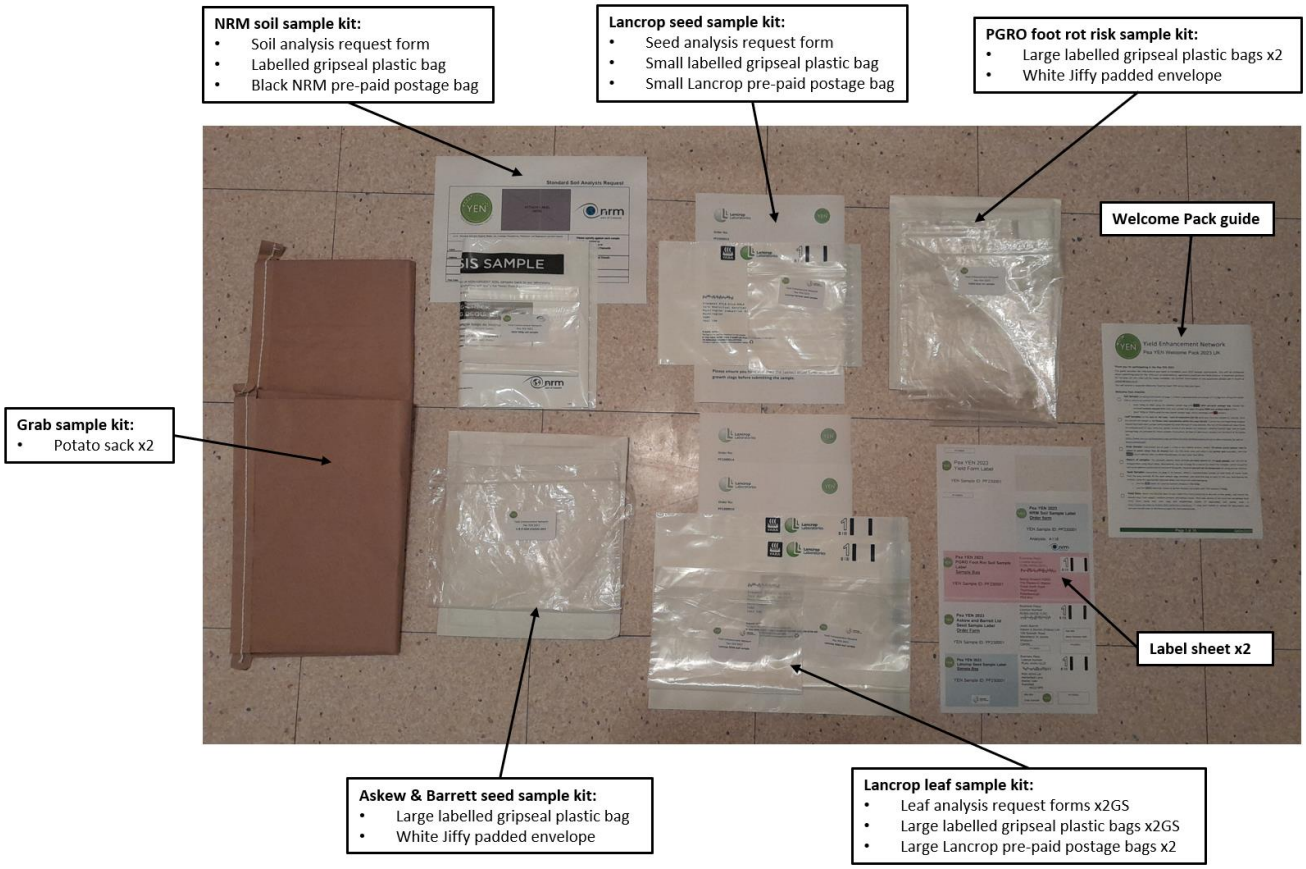
- A sample of ~800g (just under 2 lb) seed should be taken at or just after harvest. Take an appropriate size sub-sample (~200g) from each trailer-load of seed close to the time it is being weighed – for example, straight afterwards, as it is being tipped. The sample should represent the seed being weighed, so it should be taken from several parts of the trailer load and it should not be cleaned, dried or otherwise changed before it is placed in the plastic bag provided.
- Amalgamate and thoroughly mix the sub-samples in a bucket. The composite seed sample should be divided into two sub samples:

1. Lancrop seed Sample ~200-300g
   - Place a 200-300g subsample into the Lancrop seed tissue testing zip lock bag (this should be about half full). A Lancrop order form has been generated with your details on. Check and amend if necessary and then place the Lancrop order form also inside the zip lock bag and seal. Stick the BLUE Lancrop seed sample label on the outside of the sealed bag, and seal the whole thing in the Lancrop self-return pre-paid envelope and return to Lancrop via your local post office.

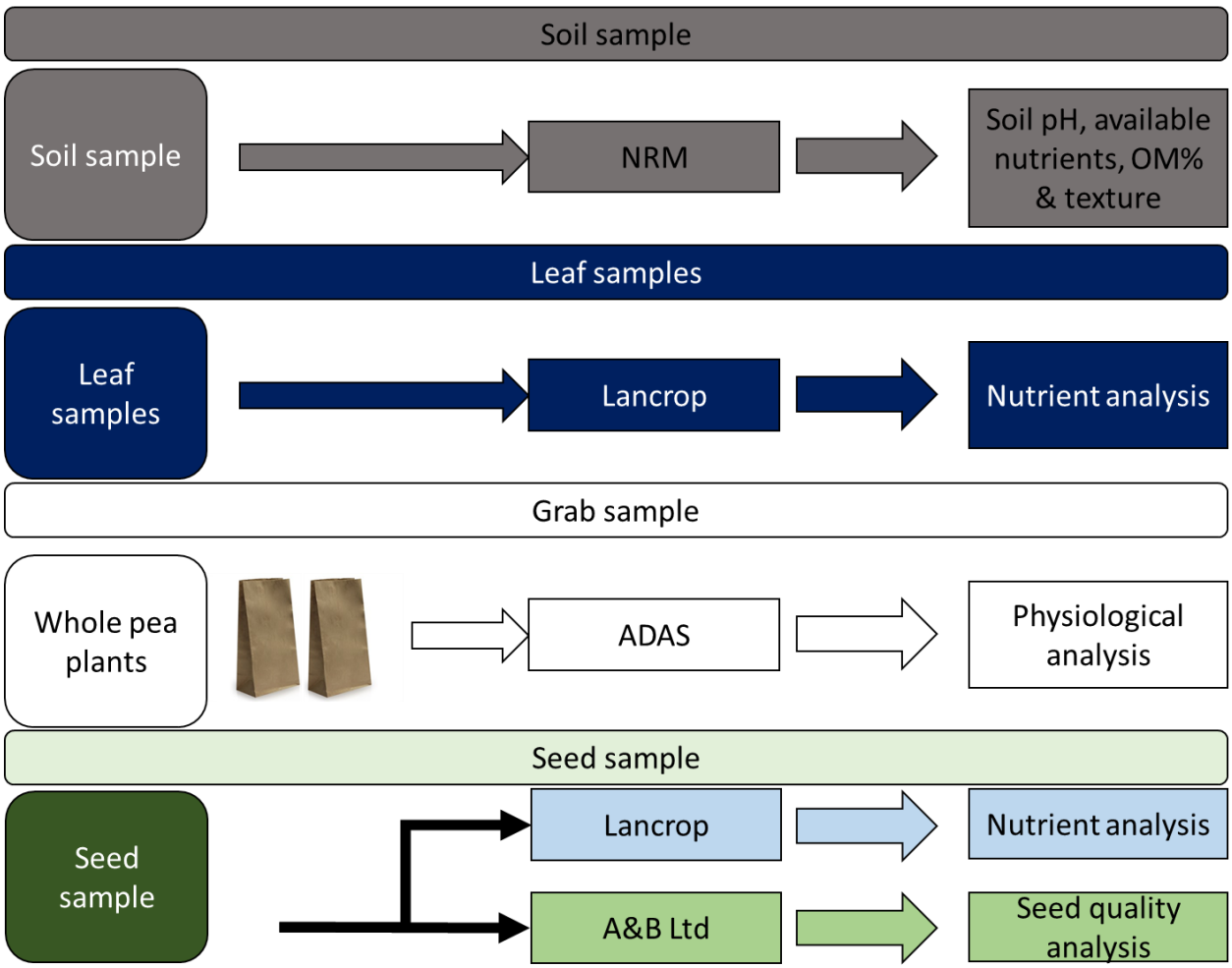
   Nutrient analysis carried out by Lancrop on this sample will be included in your annual report.
2. A&B ltd seed quality sample and TSW (via ADAS) ~500g
   - Place a 500g subsample of seed into the clear plastic bag provided for A&B ltd analysis, attach the GREEN Seed Sample bag label to the sample submission form and place the form in the bag also.
   - PART OF THE A&B Ltd SEED QUALITY ANALYSIS INVOLVES THE CONSUMPTION OF SEED SAMPLES. THE SAMPLE SUBMISSION FORM SHOULD BE COMPLETED AND ANY REASON WHY THE SAMPLE CAN NOT BE CONSUMED HIGHLIGHTED.
   - Once the form is completed and included within the sealed bag, place the sealed seed sample into the grey mail bag also provided, and seal this. If the clear plastic bag is half full, you have provided sufficient seed. Attach the GREEN Seed Sample return address label to the grey mail bag and return to A&B Ltd for analysis via your local post office.

A&B Ltd will carry out seed quality analysis and TSW which will be included in your report. These are also used to calculate various other metrics in the report, including seeds/m^2 at harvest.

WELCOME PACK CONTENT SUMMARY



WELCOME PACK POSTAGE SUMMARY



RETURN ADDRESSES

Lancrop	ADAS Gleadthorpe	NRM	PGRO	Askew and Barrett Ltd
Yara Analytical Services Pocklington Industrial Estate Pocklington York YO42 1DN	FAO Bean YEN ADAS Gleadthorpe Meden Vale Mansfield NG20 9PD	Coopers Bridge Braziers Lane Winkfield Row Bracknell RG42 6NS	PGRO The Research Station Great North Road Thornhaugh Peterborough PE8 6HJ	Askew & Barrett (Pulses) Ltd 108 Smeeth Road Marshland St.James Wisbech Cambs PE14 8JF

If you require additional labels for any samples, please contact yen@adas.co.uk.

Crop samples, Yield data and Online Field Data submission forms must be returned no later than **30 September**

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.

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

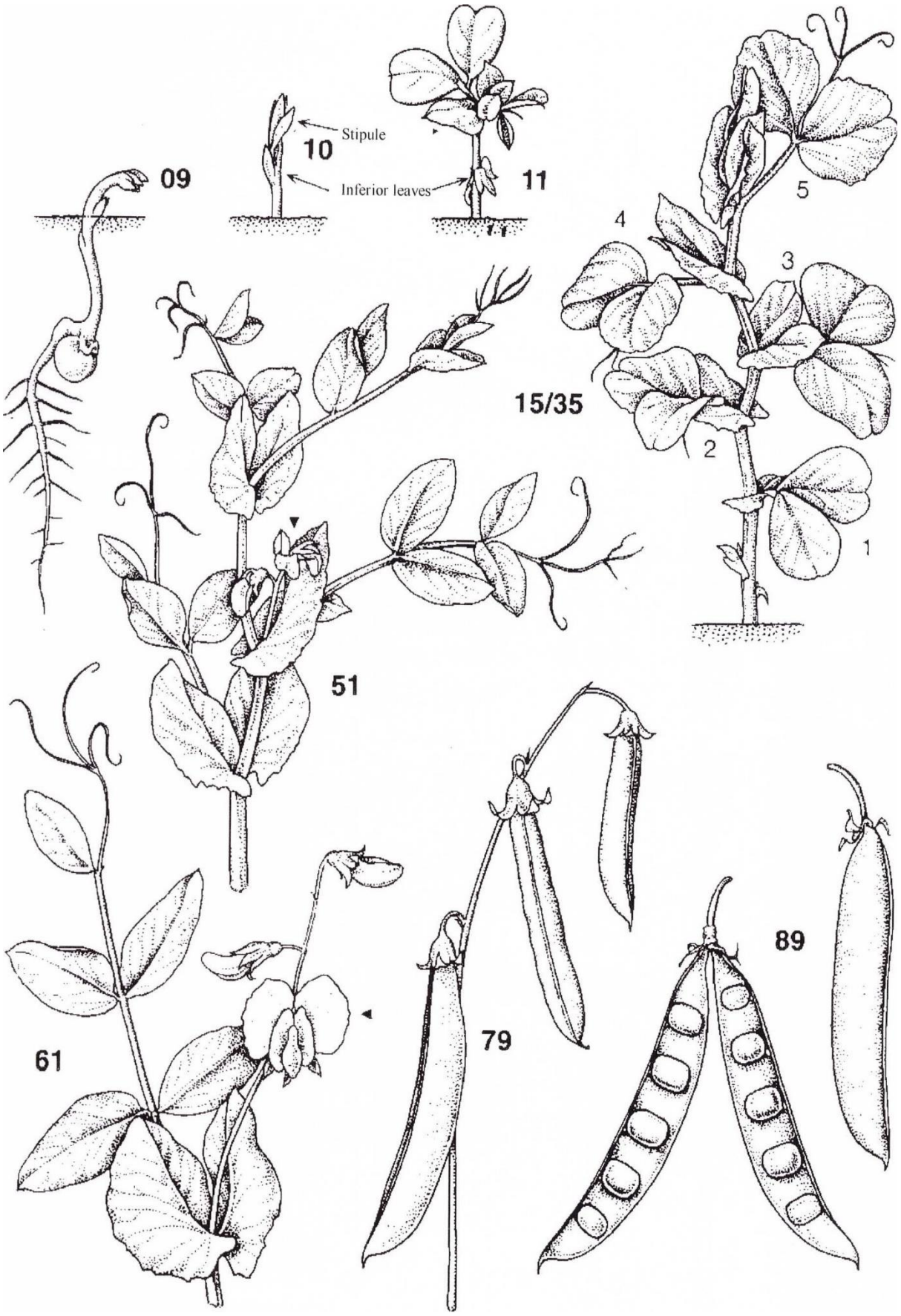
‘ The first internode extends from the scale leaf node to the first true leaf node

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



CONTACTS

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Charlotte White Charlotte.White@adas.co.uk

Or email yen@adas.co.uk for general enquiries. @adasYEN

YEN SPONSORS IN 2025

Pea Yield Enhancement Network 2025

Please complete the below form and upload a copy with weighbridge ticket(s) (if applicable) using the below QR code or online at https://www.yen.adas.co.uk/yen-2025-yield-form-submission**.**

ATTACH YIELD LABEL HERE

Yield Entry Form

Field Name .....

Harvest area (hectares) .....

Fresh seed weight at harvest .....

Average moisture content of seed (%) .....

Briefly describe how you calculated your harvest area:

Location	Peas/A4 area between swaths	Peas/A4 area behind combine
1		
2		
3		
4		
5		

Have you included a weighbridge ticket? YES ☐ NO ☐

Combine Yield Monitor/Map (if available)

Yield from combine yield monitor/map .....

Yield monitor make and type .....

GPS accuracy .....

Date yield monitor was last calibrated .....

Harvest area: I confirm that the description of the harvest area accurately represents the area entered into Pea YEN.

Harvest weight: I confirm that the harvest weight reported relates to seed harvested from the area described.

Seed sample: I confirm that the seed sample in the bags entered in to the Pea YEN contain seed representing all of the crop entered into the Pea YEN.

Name .....

Date .....

Pea Yield Enhancement Network 2025

Part of the A&B Ltd seed quality analysis involves the consumption of seed samples. Please complete the below form and include it in your A&B Ltd seed sample to indicate whether the sample can be consumed.

ATTACH A&B Ltd Seed sample LABEL HERE

A&B Ltd seed sample form

Variety name:……

Was this crop grown for seed?	YES	☐	NO	☐

Has this crop had any applications that make it **not** suitable for human consumption (such as application of emergency approved chemicals etc)?	YES	☐	NO (this sample can be consumed)	☐