

# HMC

## TECHNICAL MEETING 2026



# Agenda

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- **08:30 - Arrival**
- **09:00 – 09:20 - Allen Giles**– Welcome, 2025 Recap
- **09:20 – 09:40 - Allen Giles & Duncan Worth**– 2026 Updates and HMC Grower Payments
- **09:40 – 10:00 - Jamie Symington & Richard Thompson** - HMC Consultative Committee
- **10:00 – 10:30 - PGRO – Dr Becky Howard** - PGRO Pea Bruchid, Virus Management, Non-Legume Crops in Rotations
- **10:30 – 10:45 - BREAK**
- **10:45 – 11:15 - ADAS/Omnia – Ben Hockridge & Oliver Wood** –PEASAT Yield Prediction Service
- **11:15 – 11:45 - HMC - Jack Harris / Allen Giles** - Seed rate trial results / Variety Trials
- **11:45 – 12:00 - Allen Giles** – AOB / Close

# Housekeeping

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- Fire Alarms
- Fire Exits
- Phones
- Toilets

# Allen Giles



# 2025 Recap

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- Harvested 2,574 Tonnes Peas Total – Yields 47% below budget
- 46% under contract tonnages
  
- Harvested 2,686 Tonnes Petits Total – Yields 49% below budget
- 43% below contract volume

## Financially

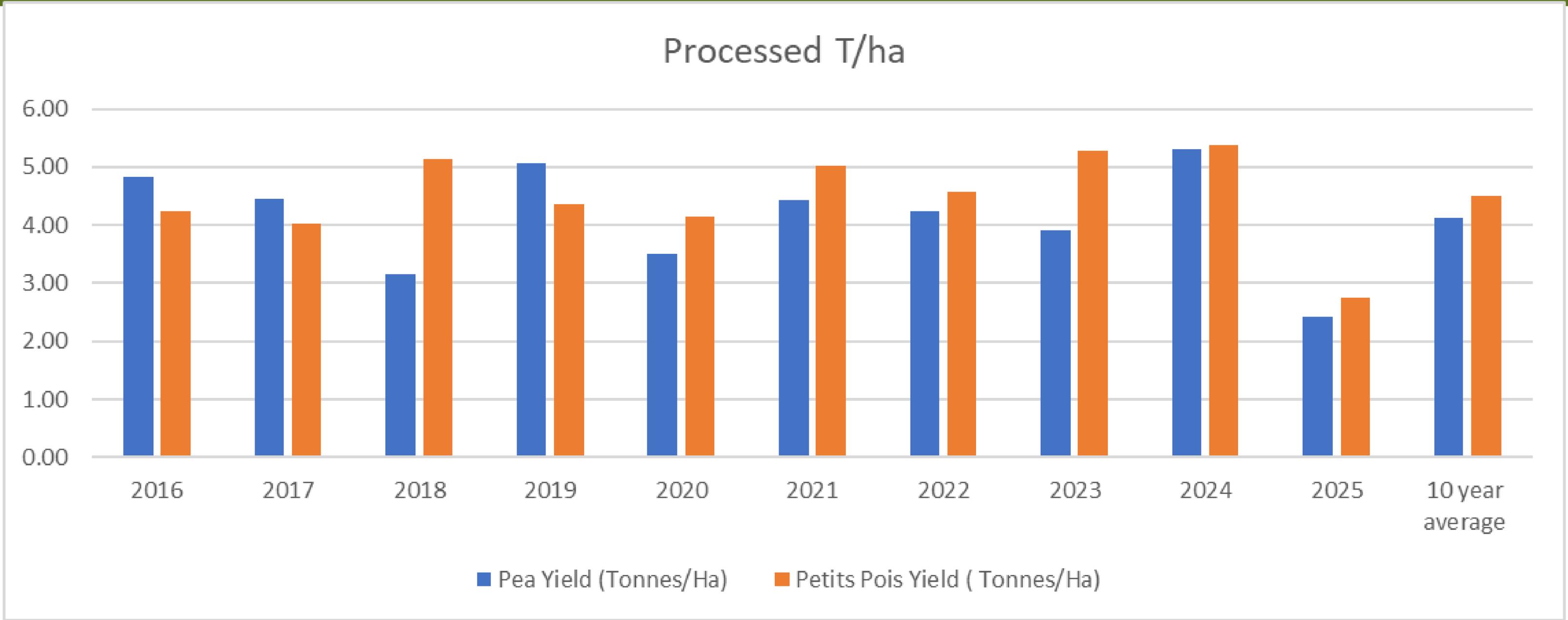
- Princes 29% of contracted volumes
- Greenyard 54% of contracted volumes
  
- 78% A-AA on Petits
- 73% A-AA on Standards

# Bypassed Crop 2025

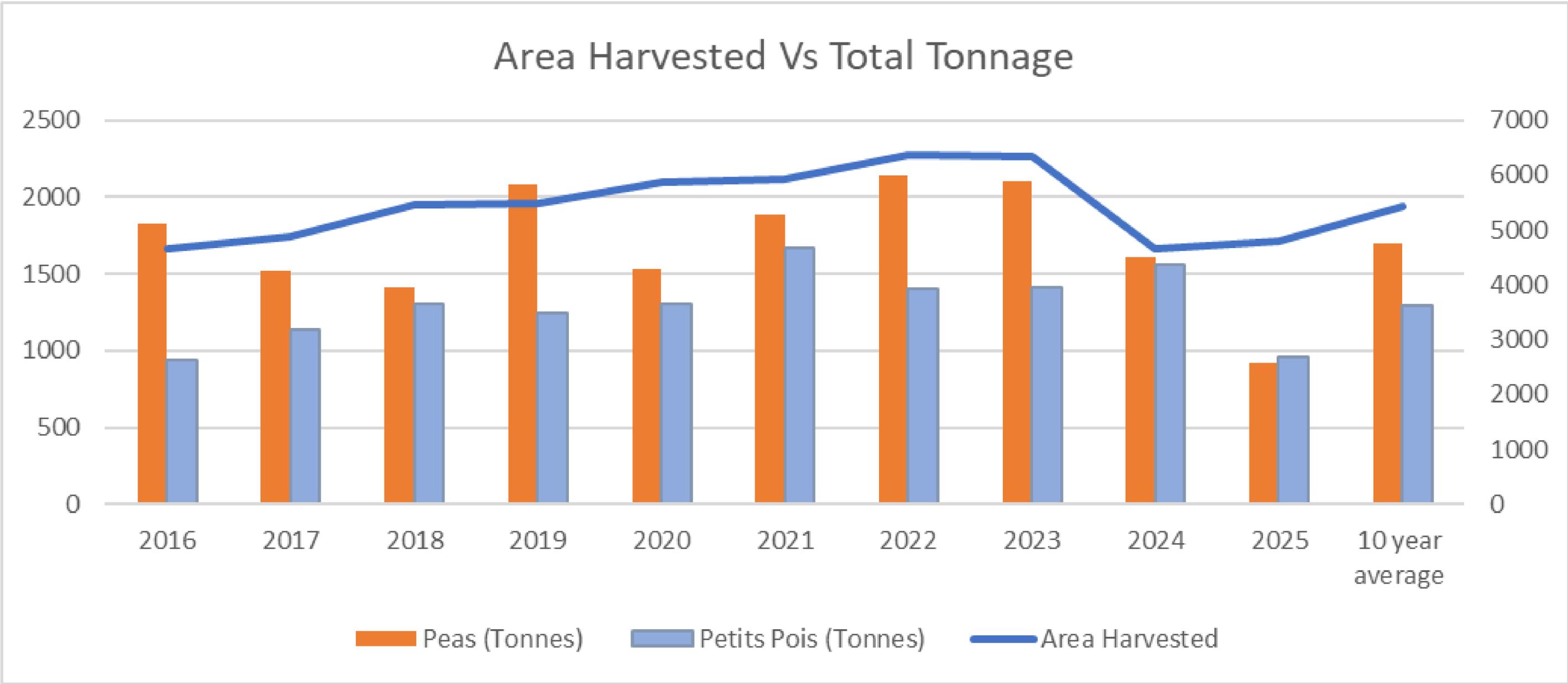
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- Bypass 325ha (16%) Crop
- 27.4 ha high TR, 7.6 ha not harvest clear, 290 ha poor crop and line availability
- Later drilled varieties suffered greatly from aphid pressure causing widespread virus, resulting in stunted plants with small tough pods which proved to be unharvestable.
- Combined 27.4 ha producing 83 tonnes of protein peas
- No seed saved due to high virus pressures

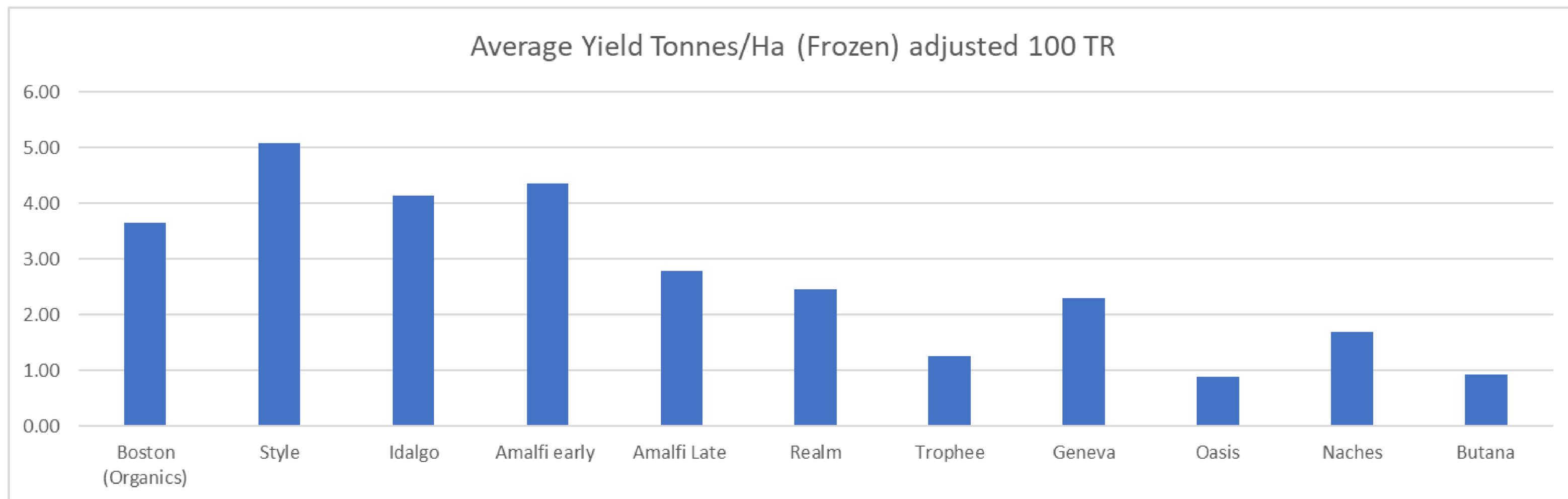
# Processed Yields T/ha



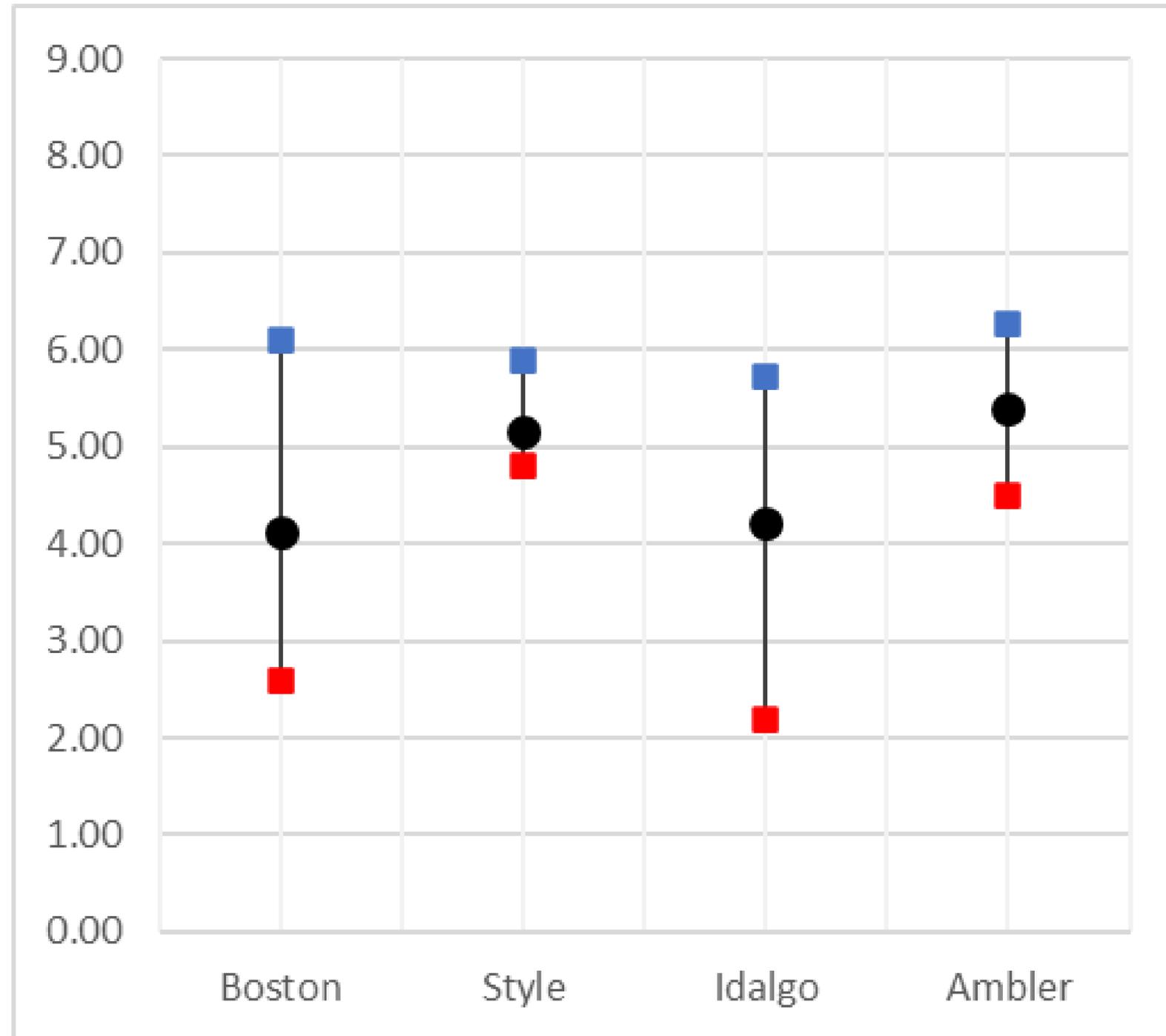
# Processed Yields Tonnes



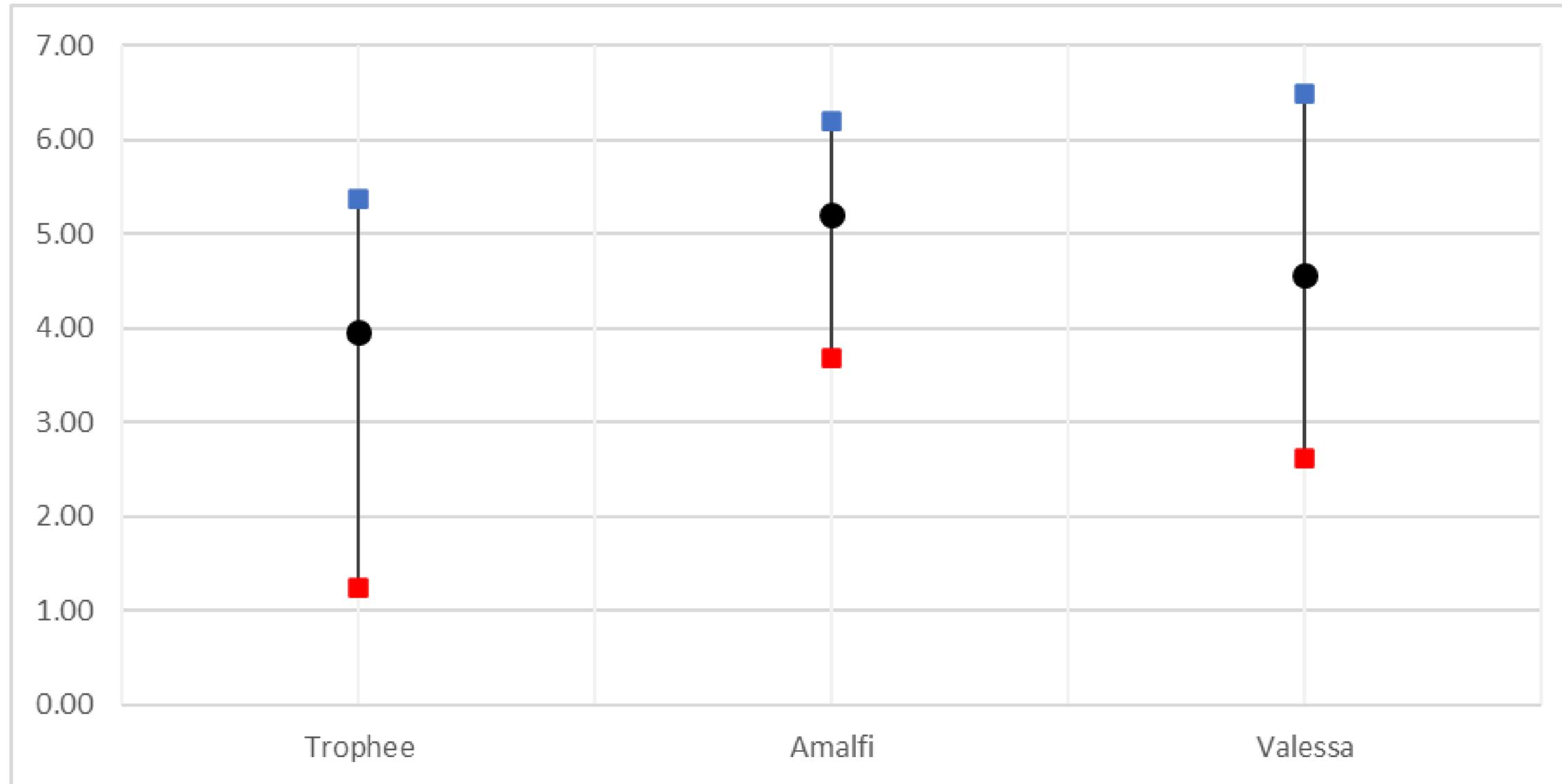
# Variety Yields T/Ha 100 TR (Frozen)



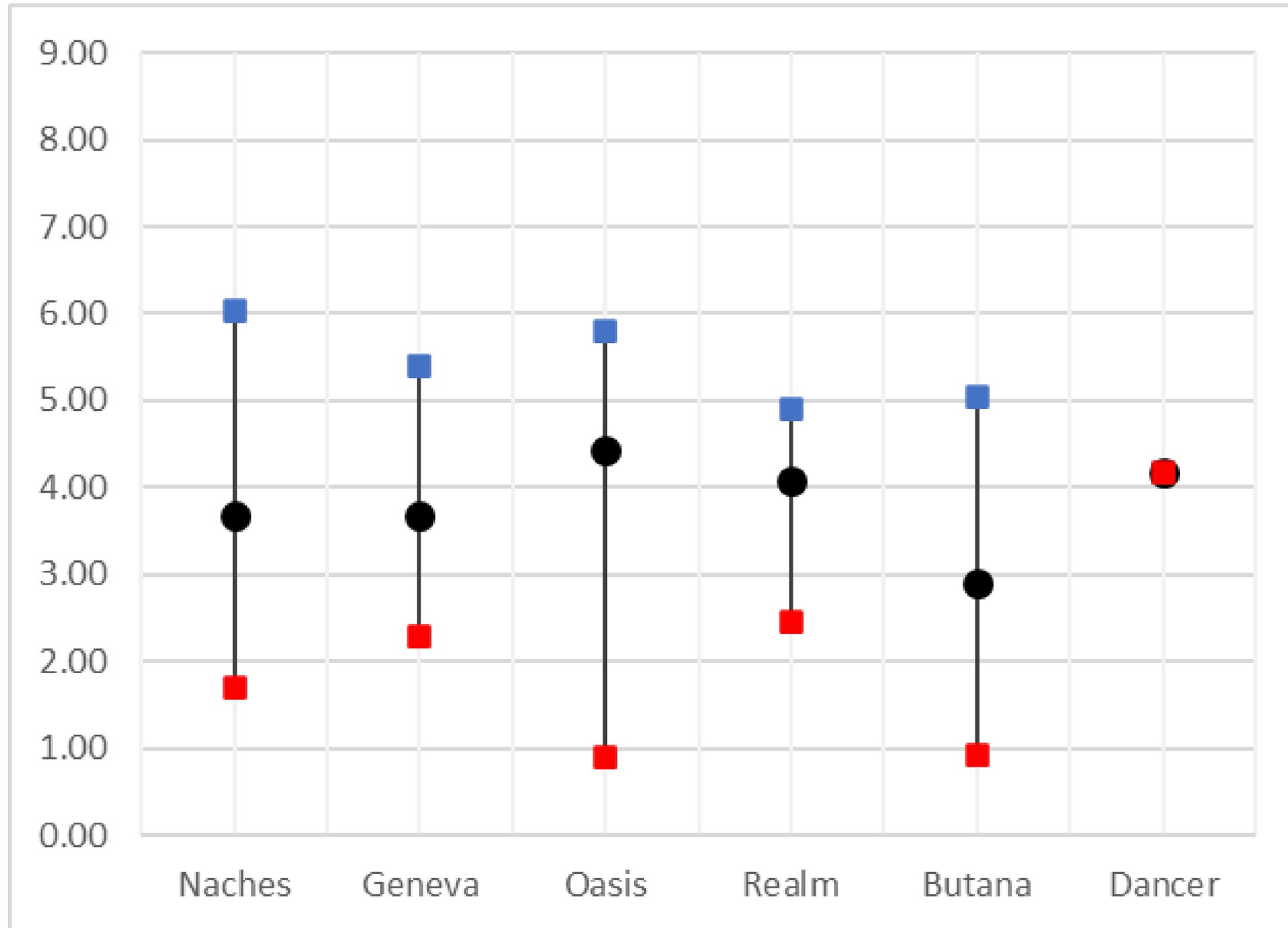
# Variety Yields - Earlyies



# Variety Yields - Petits



# Variety Yields - Standard



# Allen Giles & Duncan Worth

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Frozen Peas  
Market View

**GREENYARD**   
*for a healthier future*

Frozen Peas are worth more than ever, but volumes have stopped growing

**2022**

**£136M**  
98k tonnes

**2023**

**£156M**  
99k tonnes

**2024**

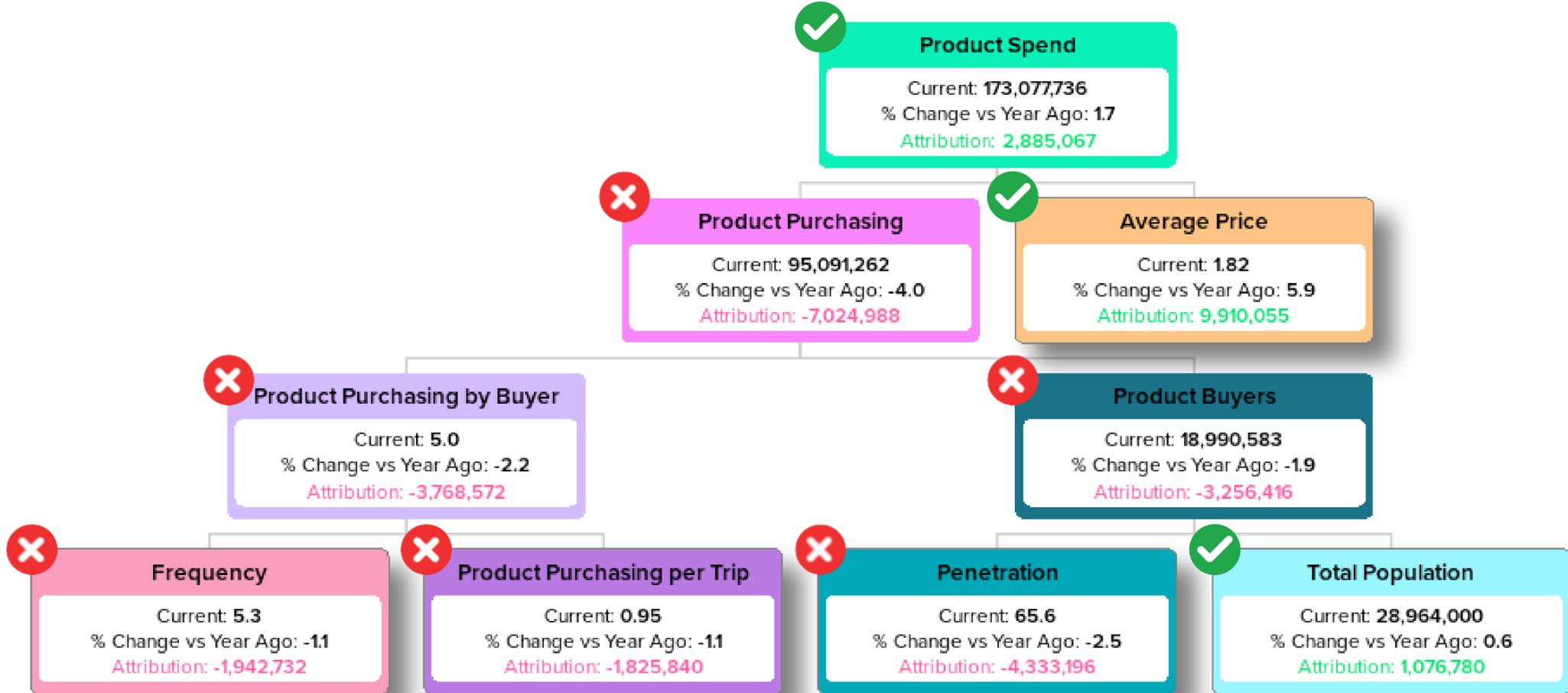
**£170M**  
99k tonnes

**2025**

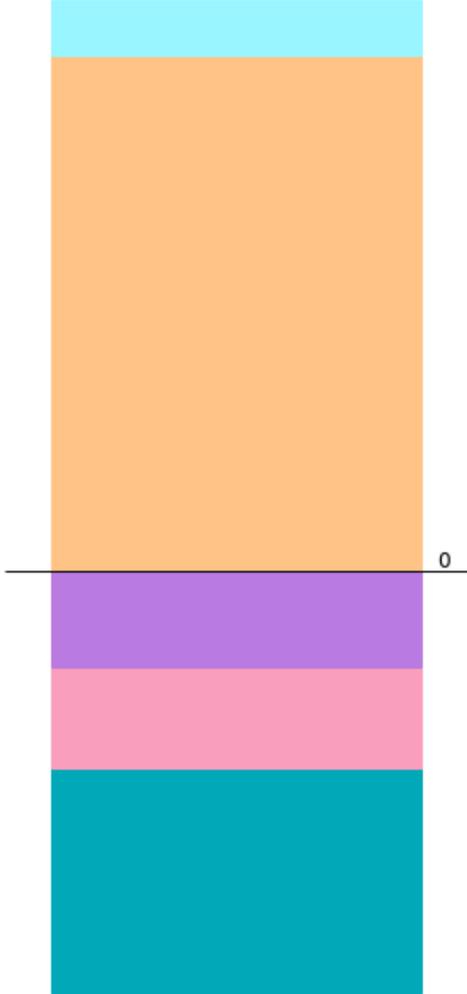
**£173M**  
95k tonnes

**+£37M Spend last 4 years**

# Shoppers are walking away – fewer buyers, smaller baskets and less frequent trips

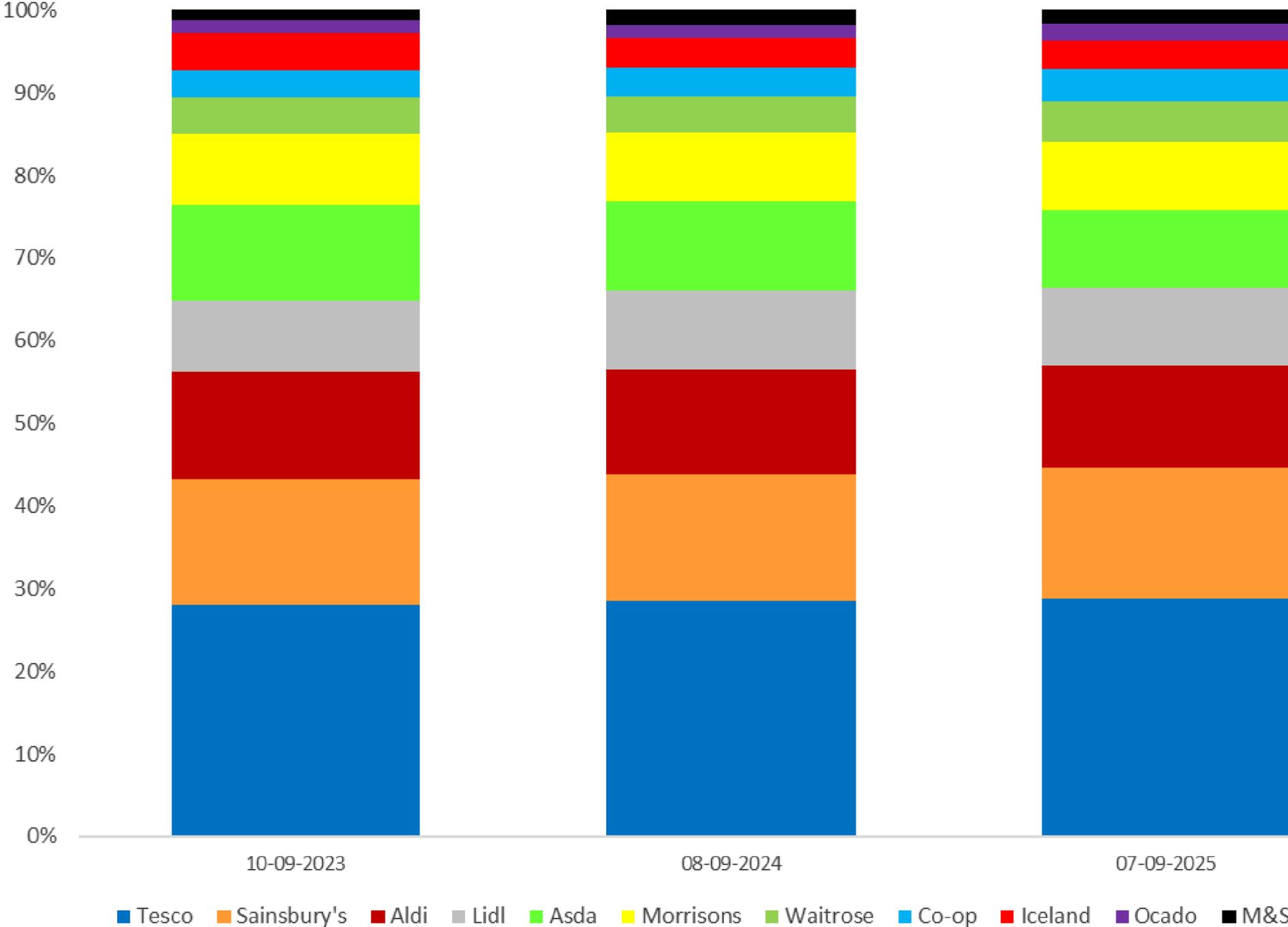


Attribution of Change in Spend

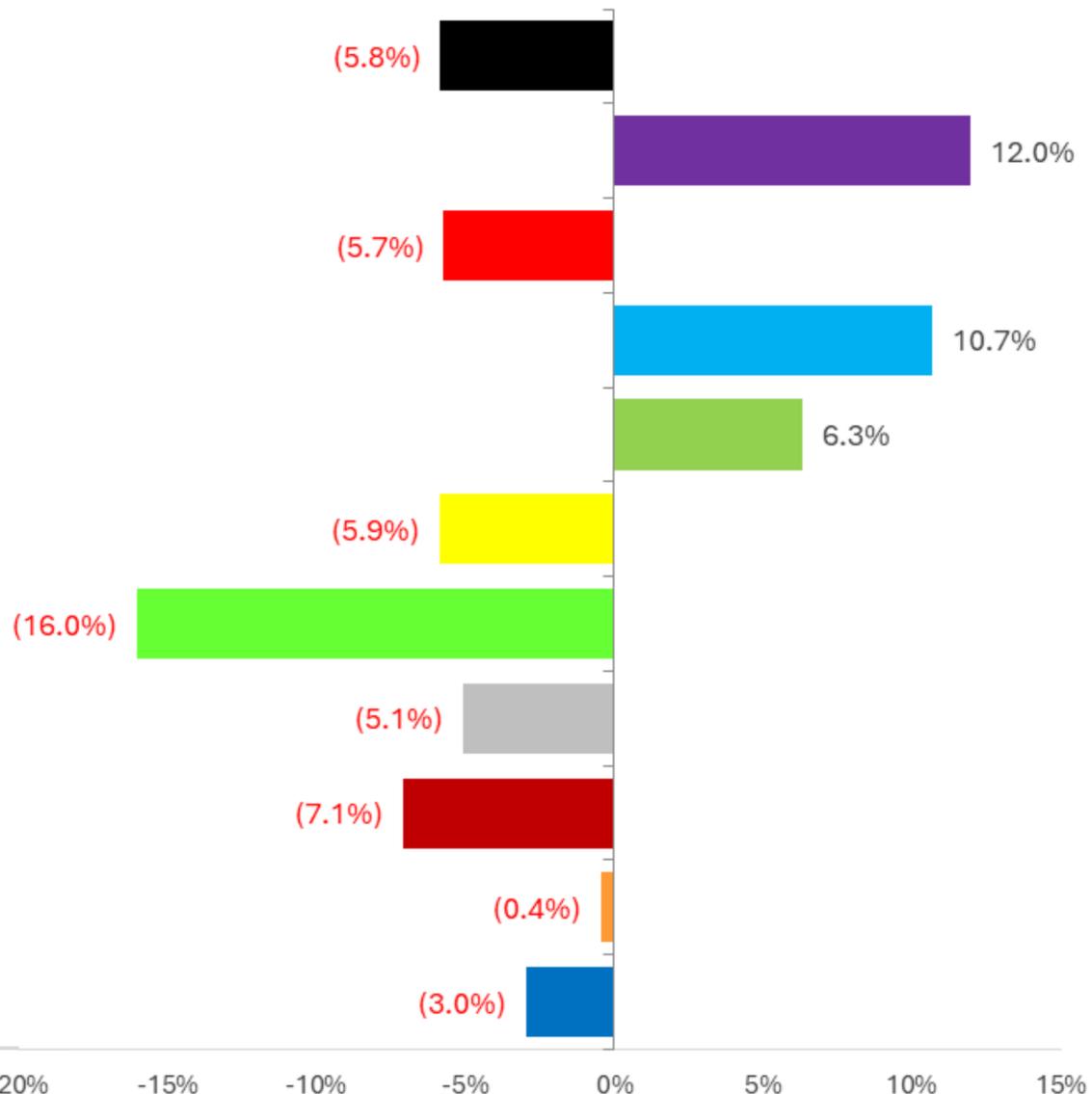


# Category decline is universal across the market

Frozen Peas – Vol %



% Change vs Year Ago – Vol

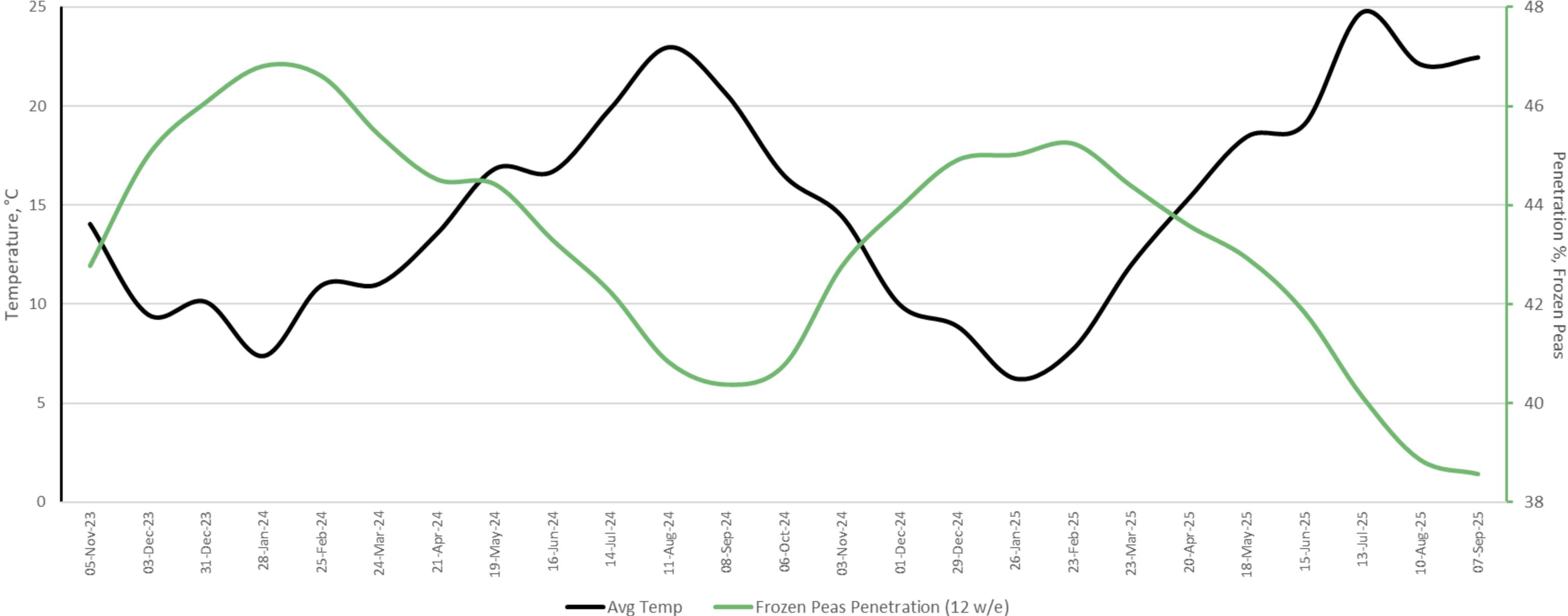


Source: Kantar | Volume Share | Frozen Peas | Total Market | 52 w/e 07-09-2025



# Warmer weather drives sharp drops in Frozen Pea purchasing

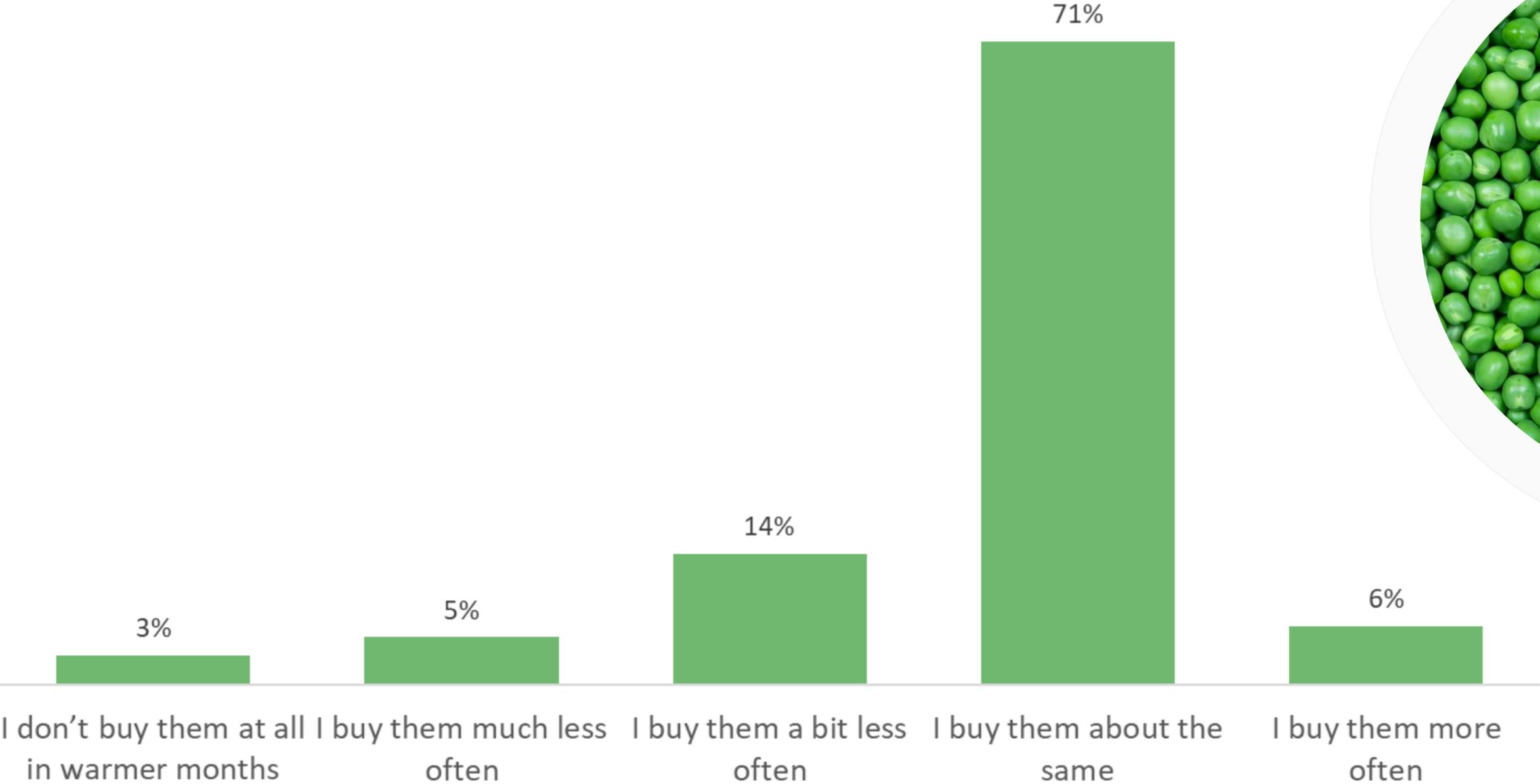
Temperature vs Frozen Peas Penetration



Source: Kantar | Frozen Peas | 12 w/e 07-09-2025 & Average Temperature (4 w/e) (Met Office)



# One in five regular buyers cut back in summer – even loyal shoppers step away



## Summary

- Fewer shoppers, smaller baskets, and less frequent trips are slowing volume
- Value growth is price-led, though a loyal core continues to buy regularly
- Penetration has eased, reflecting broader frozen veg trends
- Seasonal dips, especially in warmer months, highlight clear activation opportunities

## Opportunities

- Highlighting British-grown quality and sustainable packaging can reinforce value
- Seasonal campaigns can extend usage beyond winter staples and drive incremental volume



# Europe – The Competition

	Europe	UK	HMC
TR Target	130 – C Grade	120 – A - B Grade	105 AA – A Grade
Yield/ha – Fresh	8.0	6.75	6
Yield/ha - Frozen	6.4	5.4	4.8
150 Minute	Minimal	Some	80%
Frozen Price/Tonne 2025	<p>AA, A, B Grades UK Price slightly higher (2 – 7%) in UK C Grade Slightly Lower in UK</p> <p>But UK want higher quality, so incentivising for those grades Europe do not want the higher quality pea, therefore pay less money</p>		
<b>Bigger Issue - Threat</b>			
Factory Processing Utilisation	10 Months	6 Months	
Europe Cost of Goods	All Peas Cheaper for Retailer due to Europe Factory Utilisation		

# Europe – The Competition

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- European share of UK market increased 9% over the last 2 years
- Northern European area and cost per tonne decreasing by as much as 10% for 2026 harvest
- Lower cost base but generally poorer quality

## **What do we need to do?**

- We have to protect our provenance, quality with retailer and consumer
- Ensure our customer – Greenyard – Are promoting the higher quality British pea
- Promotion in general?

# Promotion

- Over £110k has been raised from the industry to promote peas this year
- Will it work?
- We need to be showing processors and retailers that we are doing something
- We have committed £5k



# Contracts 2026

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## Greenyard Frozen

- Organics 150 Tonnes (Increase 50T) TR up to 125
- Peas 3000 Tonnes (Decrease 400T) TR up to 115
- Petits Pois 4500 Tonnes (Decrease 300T) TR up to 115
- Prices for 2026 stand on from 2025 and agreed for one year only (Agreed in November, subsequent request for 15% reduction)
  
- **Princes**
  - Peas 1800 Tonnes (Increase of 400T)
  - Petits Pois 200 Tonnes
  - Prices for 2026 are stand on from 2025 and agreed for one year only
  - TR bands changed from 140 and below to 111-135
  
- **AP East Anglia**
  - Peas 500T (New Contract) TR band is 115-125

# Drilling Programme

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- Area 2,200 ha
- Need average yield of 4.66 tonnes / ha to achieve contracts. This is slightly down from last season due to the 10 year average decreasing.
- All growers should have received a copy of the programme.
- No seed issues for 2026. 11 main varieties this year with field trials of 3 varieties.
- Organics to be grown again at Sandringham at the beginning of the programme as that's the only time Greenyard had line space available.
- Earlies in Norfolk followed by petits on the silts.
- Finish on Holbeach/Lutton Marsh

# New Growers - 2026

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Agreserves – Coldham Estate – good quality silt land no recent history of peas possible irrigation available. Approx 125 ha per year available.

# HMC Updates

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- We have purchased a second hand viner from APG. This is a wheeled machine and is 2021 registration.
- Due to discontinuation of 1189 in 2026 and the subsequent replacement currently not fit for purpose we have made the decision to purchase one of the very last 1189's. This will be delivered at the end of 2026.
- We have managed to utilize the last remaining PO funding for the deposit of the 2026 machine.
- This will mean that we will have all wheeled viners from 2026 which will greatly reduce running costs.
- Due to losing the workshop at Sandringham Farms we moved into a new site August 2025
- New site is self contained with office space, workshop and storage for equipment
- Will be changing to smaller podder chains on the viners to help reduce EVM and restricted loads in petits

# Grower Returns

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- **How is the gross distribution to growers calculated?**
  - **Gross Revenue – Costs of running HMC – any Tax – Retained Surplus (Members and Grants)**
- **This is then distilled down to an average return per ha**
- **To even out variety and weather issues, we then run variety pools – same variety, similar soil types, similar timings**
- **All results are adjusted to 100 TR using an approved PGRO correction factor**
- **Your performance (thus returns) are in relation to how the rest of the pool performed.**
  - **You perform better than others in the group, you get a higher return per ha**

# Grower Returns - Sample

## Amalfi Late Drilled

AREA	NET WEIGHT	Av TR	Av Froz %	Peas Wt Useable at Average Frozen WT	RF Correction Factor	Wt Useable at 100 TR	USEABLE 100 TR T/HA	AHU'S at Drilling	% OF AVERAGE YIELD (CALCULATED AT 100 TR)
9.01	21.10	85	81.34	17.16	1.32	22.70	2.52	297	90
9.33	14.74	88	81.34	11.99	1.22	14.62	1.57	297	56
13.99	49.98	97	81.34	40.65	1.04	42.20	3.02	300	108
15.55	76.91	120	81.34	62.56	0.85	53.46	3.44	255	123
16.5	24.49	107	81.34	19.92	0.93	18.59	1.13	361	40
7	10.90	94	81.34	8.87	1.08	9.62	1.37	361	49
7.31	20.63	91	81.34	16.78	1.14	19.18	2.62	373	94
12.89	31.26	89	81.34	25.43	1.19	30.29	2.35	373	84
287.85						805.39	2.80		

# Grower Returns – Payments

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## The Complicated Bit!

- Every 1% difference above or below average yield reduces or increases the payment by £5 per hectare to a maximum of £500/ha
- Any money over the maximum £500 is put back into the whole group returns
- Trial areas will receive 10% above the average rate this is paid in the June payment
- Failed crops that are deemed to be from the growers' actions will receive a maximum payment of £500/ha, this is to include from 2026 crops that are not clear for harvest



# Jamie Symington & Richard Thompson

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# Consultative Committee

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- Comprises of 3 members
- General Manager
- 2 Board Members
- Voluntary Role

# Consultative Committee - Role

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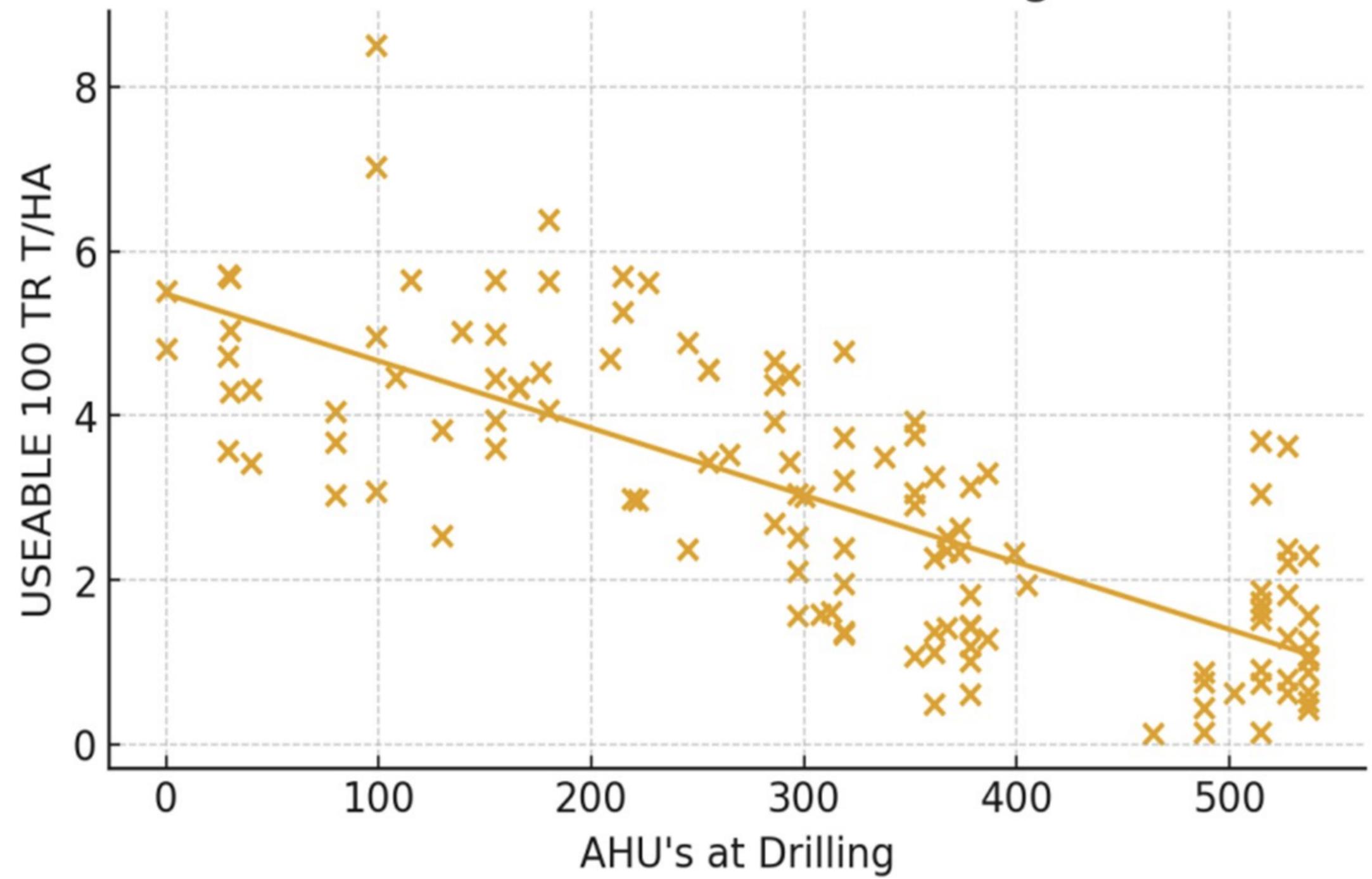
- Meets after harvest and prior to the autumn board meeting to discuss results and make recommendations to the board
- Act on crop concerns generated by the general manager or growers during the season and offer impartial support
- Ensures members are treated fairly, and excellence is rewarded
- Continually review decisions made and adjust where necessary

# Consultative Committee – 2025

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- Looked at different data sets to identify trends to help understand what happened in the 2025 season including;
- Cultivation technique
- Soil type
- Previous Legumes
- Previous Cropping
- Seed batch number
- AHU at drilling – only one that showed any correlation

# Yield vs AHU's at Drilling

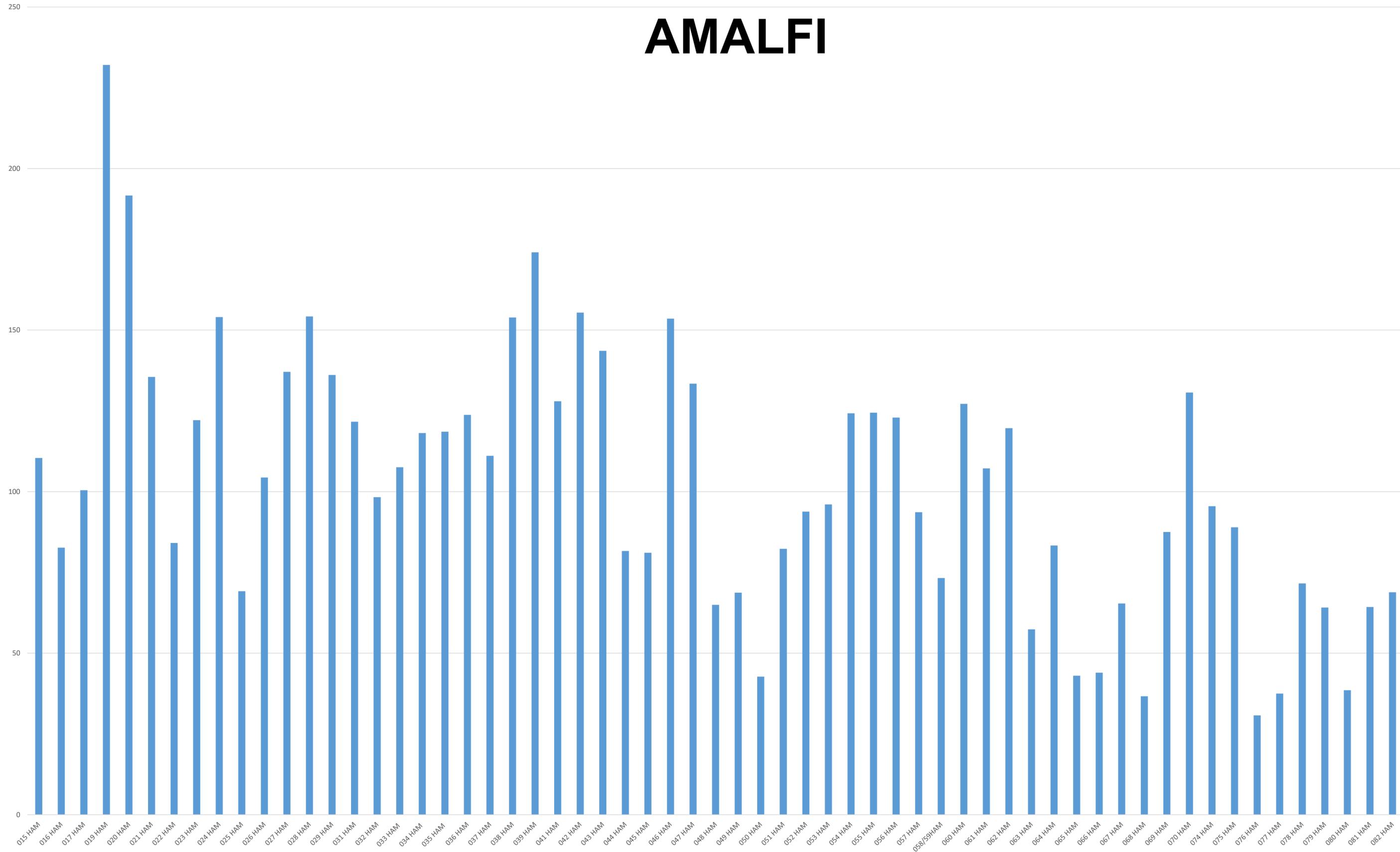


Correlation (AHU vs yield): **-0.76**.

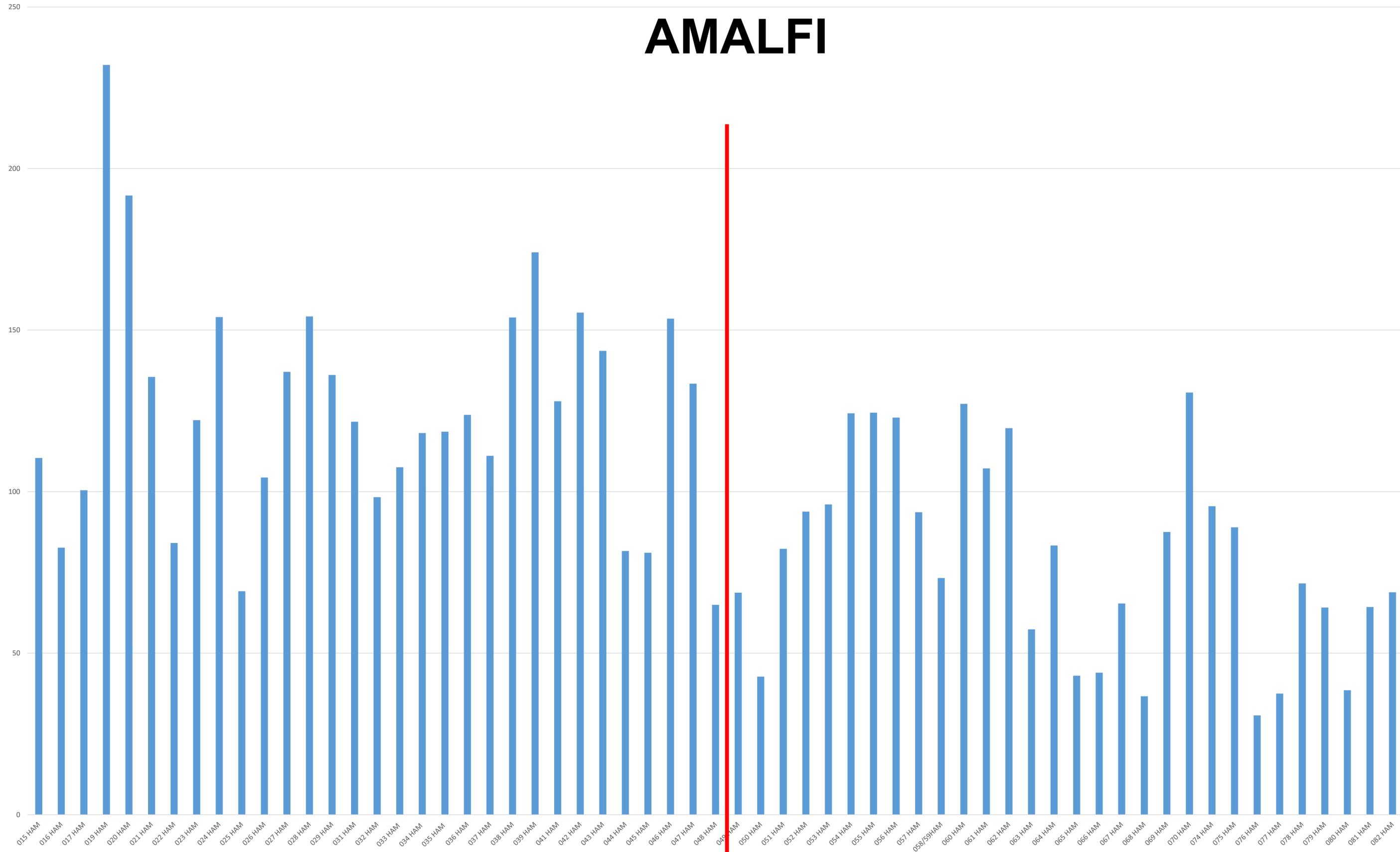


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- After reviewing the AMALFI pool and AHU at drilling data the consultative committee recommendation was to split the AMALFI pool into 2
  - AMALFI drilling period occurred over a long period of time which affected yield
  - It was felt it was a fairer reflection of conditions at drilling for growers to split the pool into 2
  - Pools are not changed unless exceptional circumstances arise.

# AMALFI

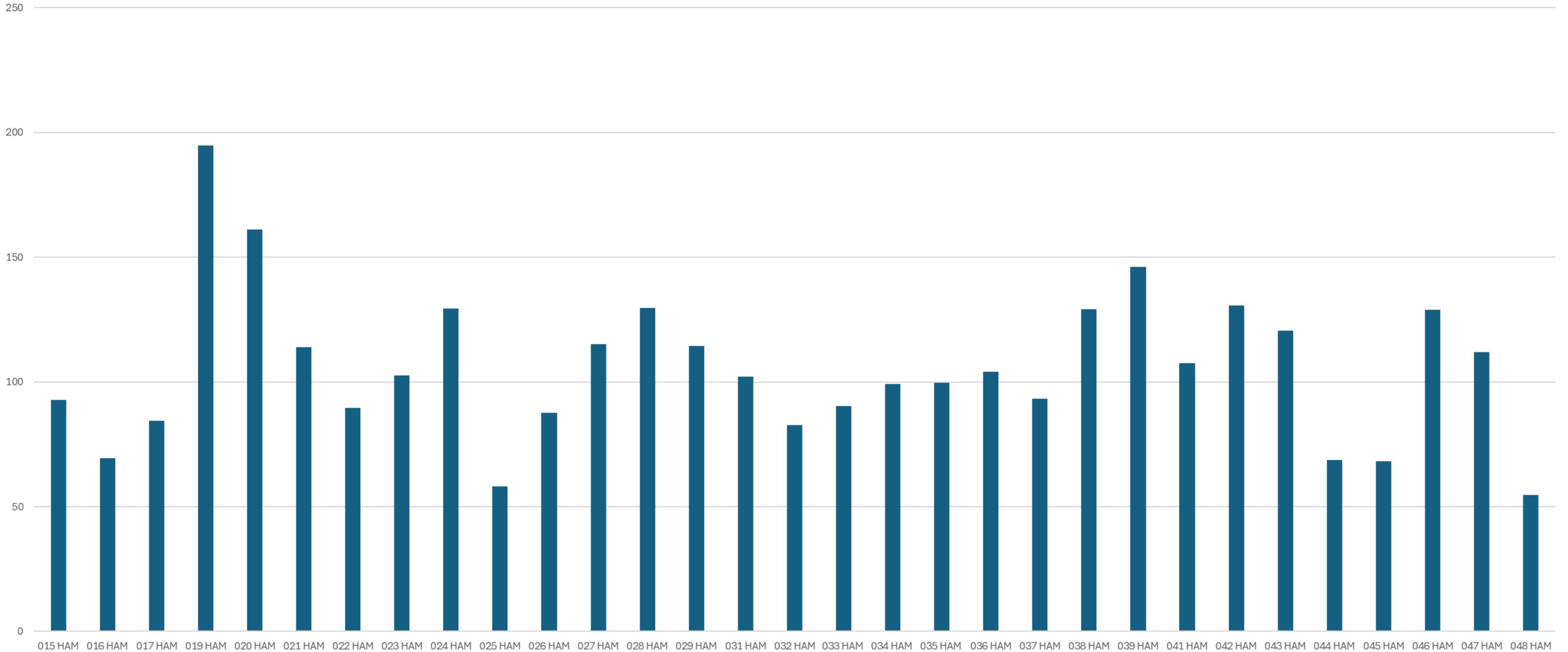


# AMALFI

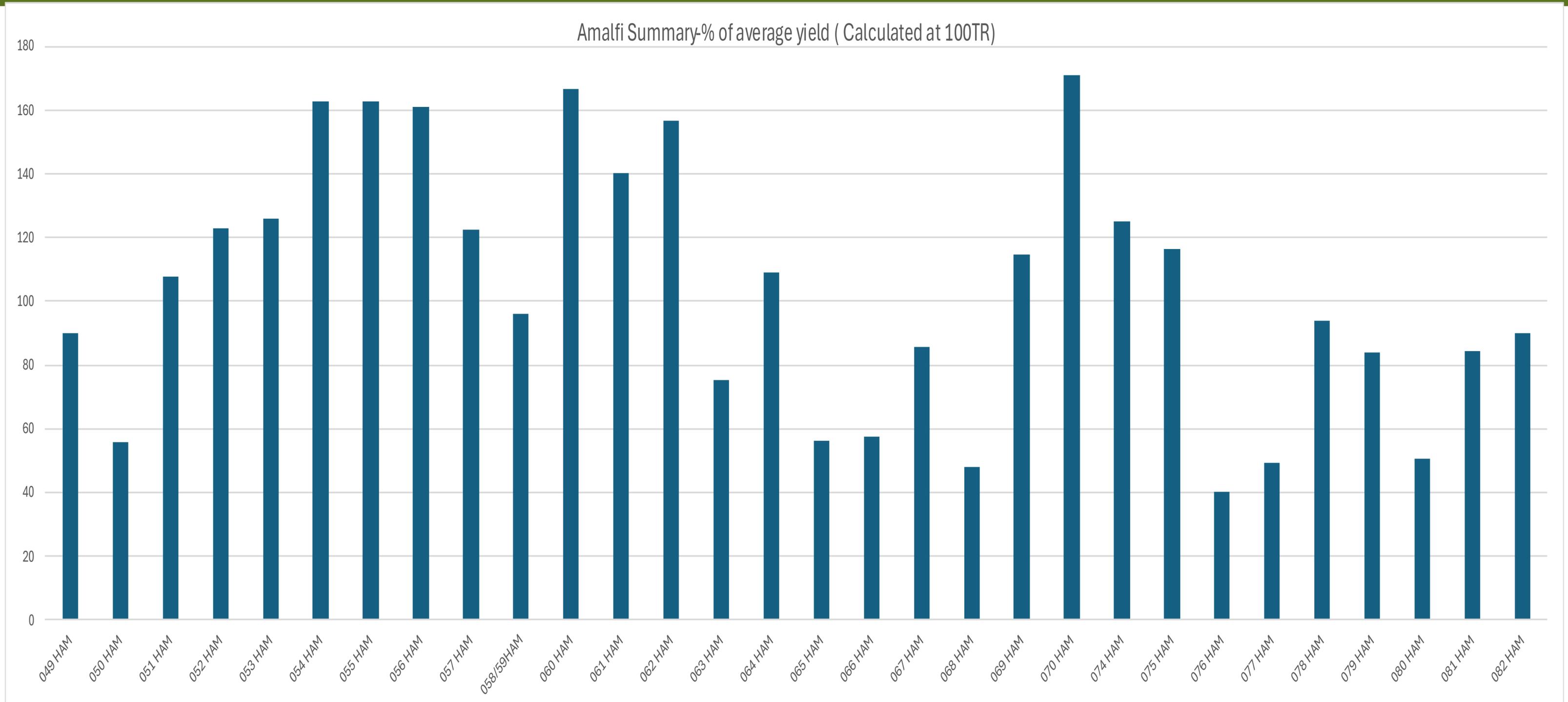


# Amalfi – Early Drilled

Amalfi Summary-% of average yield ( Calculated at 100TR)



# Amalfi – Late Drilled



# Bypass

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- In a normal year bypass can occur because of factory issues or weather etc. This is left to general managers discretion and information of these bypassed fields is discussed with the consultative committee.
- Consultative committee will make recommendations where crop is financially unviable to harvest during the season and will inspect crops if required.

# Bypass – Procedure for failed crop

- Below sets out the process if it's deemed that a grower's actions have had a direct effect on the yield potential of the crop to such an extent that it would be unviable to harvest that field.
- As soon as a potential issue with a field is seen the General Manager will visit the field with the grower to look and discuss the issues and any actions that may help improve the situation. Photos and a report will be compiled of this meeting.
- Subsequent visits throughout the growing season will determine whether its likely if the field will be unable to be harvested. These visits will also be documented with photos and a report.
- If it's felt that it would be unviable to harvest the field, then a final visit by the General Manager and at least one member from the consultative committee will decide if the field is to be harvested. Again, this meeting will be documented, and photos taken.
- If it's decided and agreed that the field will not be harvested, then the grower will receive a maximum payment of £500/ha. Any remaining funds to be distributed amongst the whole group.

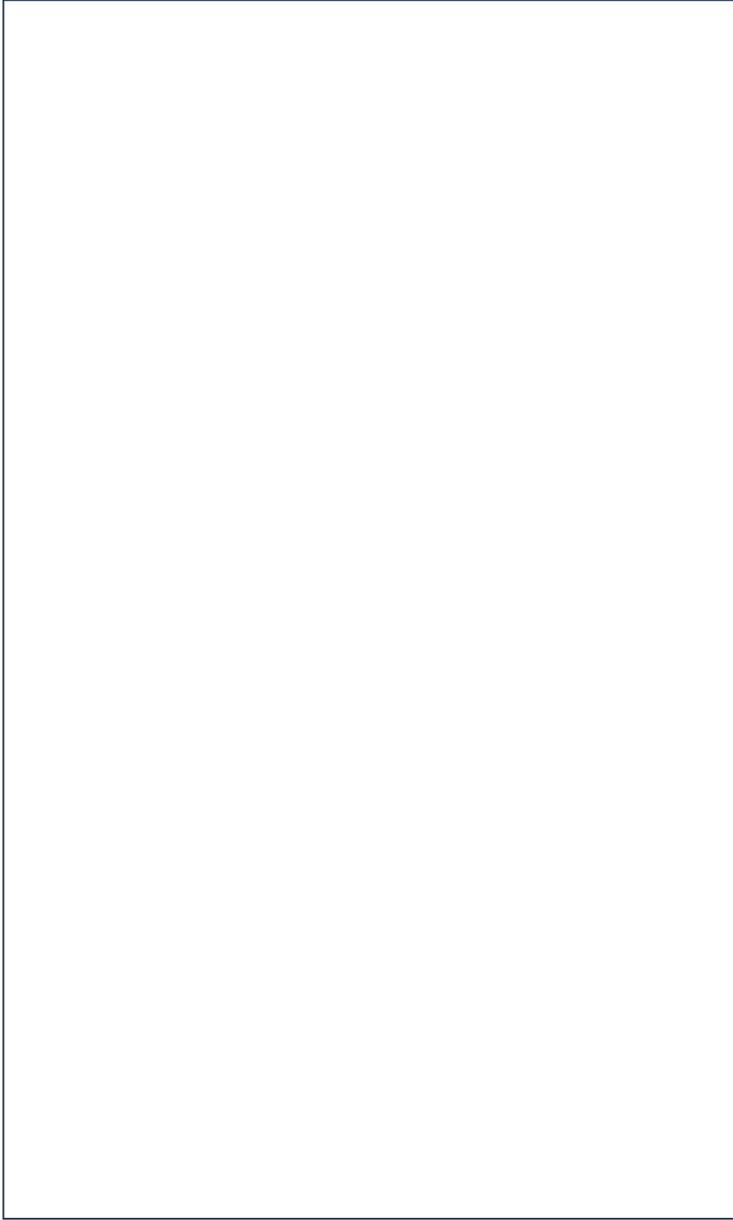
# BYPASSED FIELDS

	GROWER	FIELD NAME	AREA (HA)	FIELD NUMBER / CODE	VARIETY	comments
			10	018 HAM	Amalfi	TR too high left whole field
Part			2.12	021 HAM	Amalfi	Area died off
Part			2.23	022 HAM	Amalfi	TR got too high had to move on
Part			13.24	023 HAM	Amalfi	TR got too high had to move on
			5.7	072 HAM	Amalfi	Grower issue due to not cleared for harvest
			1.9	073 HAM	Amalfi	Grower issue due to not cleared for harvest
			<b>35.19</b>			
			1.81	093 HTR	Trophee	unable to harvest due to poor crop and too much pod in the sample
			11.79	094 HTR	Trophee	unable to harvest due to poor crop and too much pod in the sample
			2.59	095 HTR	Trophee	unable to harvest due to poor crop and too much pod in the sample
			4.8	096 HTR	Trophee	unable to harvest due to poor crop and too much pod in the sample
			3.23	097 HTR	Trophee	unable to harvest due to poor crop and too much pod in the sample
			12	098 HTR	Trophee	unable to harvest due to poor crop and too much pod in the sample
			5.83	099 HTR	Trophee	unable to harvest due to poor crop and too much pod in the sample
			5.19	108 HTR	Trophee	unable to harvest due to poor crop and too much pod in the sample
			7.1	109 HTR	Trophee	unable to harvest due to poor crop and too much pod in the sample
			5.11	110 HTR	Trophee	unable to harvest due to poor crop and too much pod in the sample
			8.71	111 HTR	Trophee	unable to harvest due to poor crop and too much pod in the sample
			16.59	112 HTR	Trophee	unable to harvest due to poor crop and too much pod in the sample
			7.35	113 HTR	Trophee	unable to harvest due to poor crop and too much pod in the sample
			7.89	114 HTR	Trophee	unable to harvest due to poor crop and too much pod in the sample
			12.49	115 HTR	Trophee	unable to harvest due to poor crop and too much pod in the sample
			4.77	116 HTR	Trophee	unable to harvest due to poor crop and too much pod in the sample
			<b>117.25</b>			



# BYPASSED FIELDS

Herbicide  
Variety



6.7	<b>117 HGN</b>	Geneva
6.4	<b>118 HGN</b>	Geneva
<b>13.1</b>		
19.74	<b>126 HOS</b>	Oasis
14.4	<b>132 HOS</b>	Oasis
13.9	<b>133 HOS</b>	Oasis
19.00	<b>134 HOS</b>	Oasis
4.1	<b>135 HOS</b>	Oasis
6.6	<b>136 HOS</b>	Oasis
6.2	<b>137 HOS</b>	Oasis
12.17	<b>142 HOS</b>	Oasis
<b>96.11</b>		
13.39	<b>155 HBT</b>	Butana
11	<b>156 HBT</b>	Butana
19.16	<b>157 HBT</b>	Butana
14.81	<b>158 HBT</b>	Butana
4.95	<b>160 HBT</b>	Butana
<b>63.31</b>		
0.60		
0.06		

**325.62**

poor crop but also no line availability  
poor crop but also no line availability  
  
poor crop but also no line availability  
very poor crop  
poor crop but also no line availability  
  
poor crop but also no line availability  
poor crop but also no line availability  
poor crop but also no line availability  
very poor crop  
very poor crop



## 157 HBT – 19.16ha - Butana

<b>Previous Crop</b>		Mustard	
<b>Years Since Last Legumes</b>		7	
<b>Drill Date</b>		30/05/2025	
<b>Heat Units at Drilling</b>		502	
<b>Cover Crop / Species</b>		N / N/A	
<b>Drill Type</b>		Vaderstad Rapid	
<b>Home Saved Seed</b>		Y	
<b>Seed Lot Number</b>		HMC 24 BUTANA	
<b>Seed Rate / Plant Count</b>		291/Kg/ha / 71 Plants per sq M	
<b>Aphicide / % Rate / Date</b>		Alakazam / 100% / 25/06/2025 Aphox / 90% / 17/07/2025	
<b>Pigeon Control</b>	Y	<b>Line Availability</b>	N
<b>Small Pods</b>	Y	<b>Pods Rubbery</b>	Y
<b>Acceptable Biomass</b>		N	



# 095 HTR – 2.59ha - Trophee

<b>Previous Crop</b>	Spring Barley		
<b>Years Since Last Legumes</b>	25 +		
<b>Drill Date</b>	16/05/2025		
<b>Heat Units at Drilling</b>	378		
<b>Cover Crop / Species</b>	N / N/A		
<b>Drill Type</b>	Vaderstad Rapid		
<b>Home Saved Seed</b>	N		
<b>Seed Lot Number</b>	20166537		
<b>Seed Rate / Plant Count</b>	157/Kg/ha /		
<b>Aphicide / % Rate / Date</b>	Teppeki / 100% / 21/06/2025 Aphox / 50% / 08/07/2025		
<b>Pigeon Control</b>	Y	<b>Line Availability</b>	Y
<b>Small Pods</b>	Y	<b>Pods Rubbery</b>	Y
<b>Acceptable Biomass</b>	N		



# Break



# Becky Howard

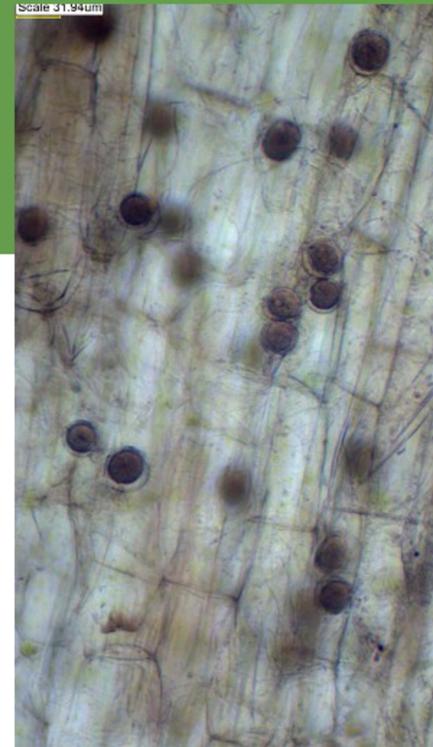




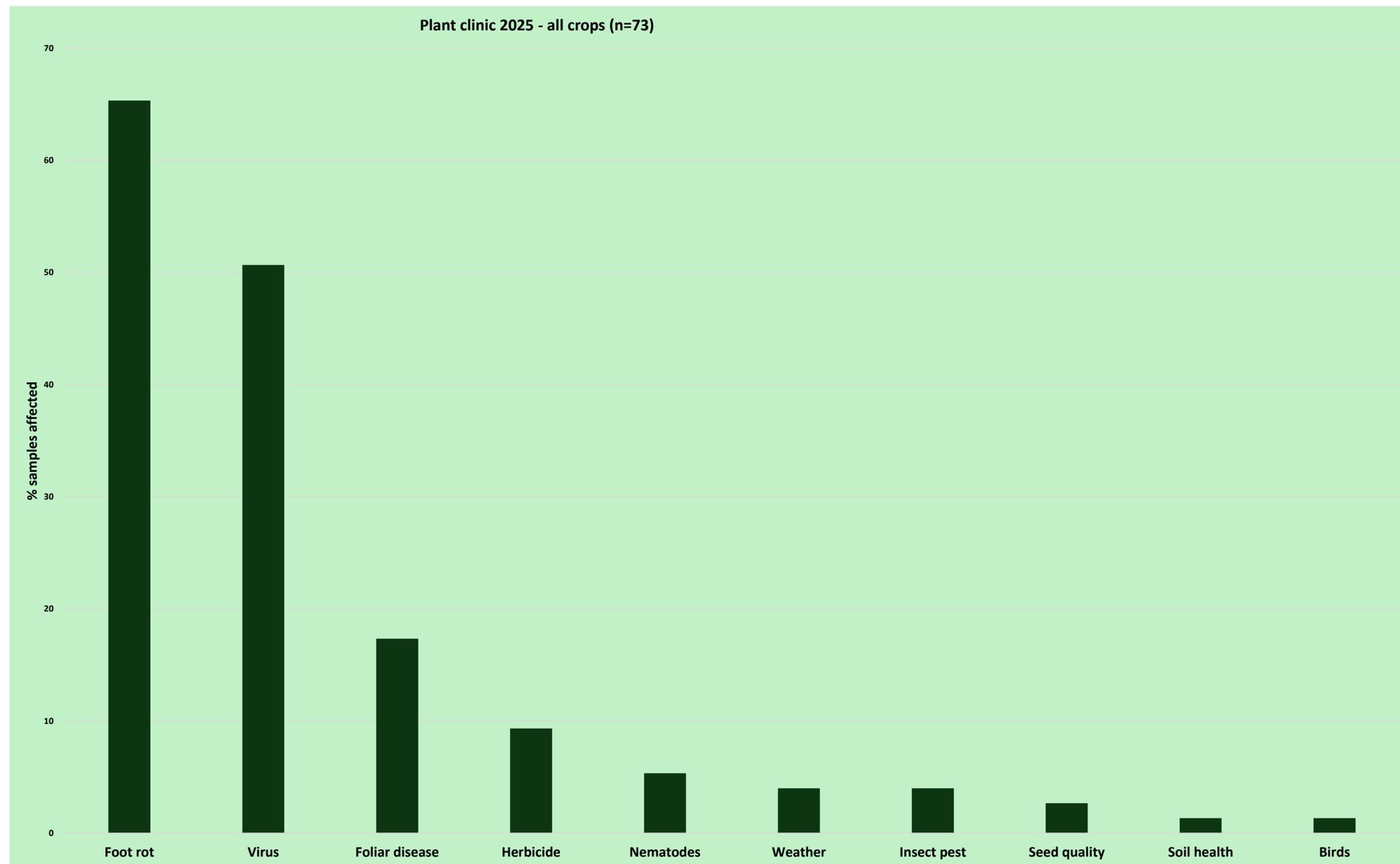
PGRO update  
Becky Howard

# Advisory

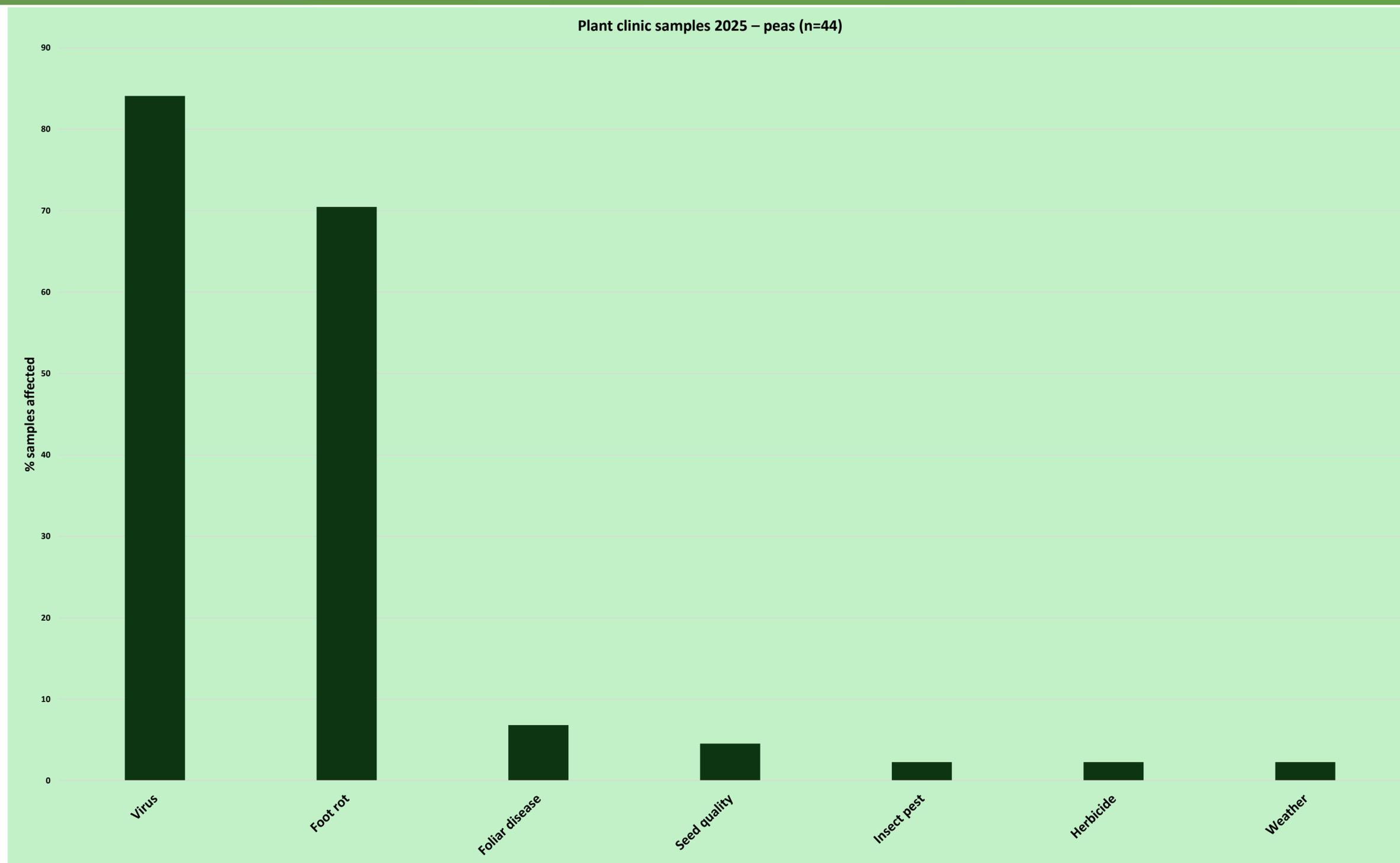
- Plant clinic
- On-farm advice
- Email and telephone advice
- Reporting facility on the PGRO App



# Plant clinic samples 2025



# Plant clinic samples 2025



- Large colonies cause significant feeding damage in peas and beans
- The presence of honeydew leads to the development of disease infections – chocolate spot in beans and botrytis in peas
- **Aphids are virus vectors**



# Key aphid species in peas

- **Pea aphid (*Acyrtosiphon pisum*)**
- Host plants: Moderate host range including peas, field beans, broad beans, vetch, clover and lucerne. Overwinters as eggs or adults on wild legumes
- Is a vector for more than 30 viruses worldwide
- **Black bean aphid (*Aphis fabae*)**
- Host plants include Allium, asparagus, beet, pepper, Chenopodium, thistle, soya, sunflower, legume but mainly affects sugar beet and legume crops. Winter host is the common spindle (eggs) or wild legumes (mobile stages)
- Greater impact from direct feeding than from virus transmission, although it can transmit viruses and spread existing infections from plant to plant
- **Peach potato aphid (*Myzus persicae*)**
- Host plants include potatoes, sugar beet, brassicas, lettuce and legumes. Winter hosts are mainly *Prunus* spp. (eggs) and other crops and herbaceous plants (mobile stages)
- Has been shown to transmit over 100 viruses in about 30 different plant families
- Risk is higher if overwintered brassica crops or other plant hosts are grown in neighbouring fields
- Mild winter conditions may lead to larger and earlier spring migration



Population growth optimal at 16 to 24°C for pea and black bean aphids, and 20 to 25°C for *Myzus persicae*, although *Myzus* can reproduce at lower temperatures.



# Viruses present in peas in the UK

- ***Seed-borne***

- ✓ Pea Seed-borne Mosaic Virus (PSbMV) – seed source, non-persistent transmission by several aphids including pea aphid, black bean aphid, cereal aphids and peach potato aphid
- ✓ Pea Early Browning Virus (PEBV) – semi-persistent transmission in seed and by stubby root nematodes – cannot survive in the absence of nematodes

- ***Aphid-borne***

- ✓ Pea Enation Mosaic Virus (PEMV) – persistent transmission by pea aphid, potato aphid and peach potato aphid
- ✓ Turnip Yellow Virus (TuYV) – persistent transmission by peach-potato aphid and pea aphid
- ✓ Pea Streak Virus (PeSV) – non-persistent transmission by pea aphid
- ✓ Bean Leaf Roll Virus (BLRV) – persistent transmission by pea aphid and peach potato aphid
- ✓ Bean Yellow Mosaic Virus (BYMV) – non-persistent transmission by several aphids including pea aphid, peach potato aphid, potato aphid and black bean aphid
- ✓ Soybean Dwarf Virus (SbDV) – persistent transmission and found more commonly recently

# Pea Enation Mosaic Virus



- Currently one of the most prevalent viruses in peas in the UK
- Leaves develop a mosaic, mottled symptom at the top of the plant and vein clearing can occur. Veins may be ridged
- Newer leaves may be smaller and distorted and older leaves may develop scaly structures (enations)
- In severe infections when virus is transmitted prior to flowering, adventitious shoots develop from the leaf axils, which produce flowers that remain green and do not produce pods
- Pods and peas are malformed
- Plant hosts include field and broad beans, sweet pea, vetch and other wild legumes as winter hosts
- Persistent transmission – possible to mitigate with chemical control



# Pea Seed-borne Mosaic Virus

If the source of infection in a plant is seed, growth is stunted at an early stage

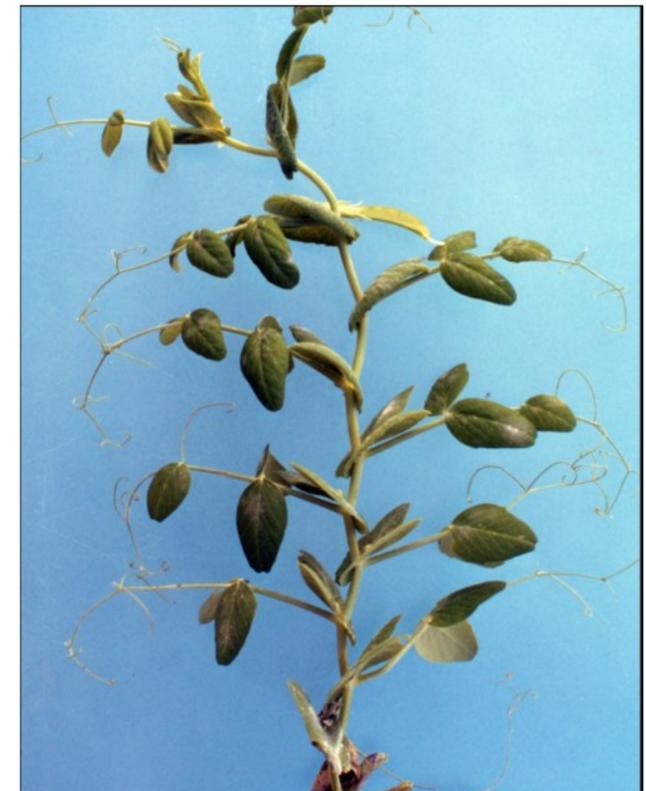
Infection can be aphid transmitted from primary infected plants and this can occur at any growth stage

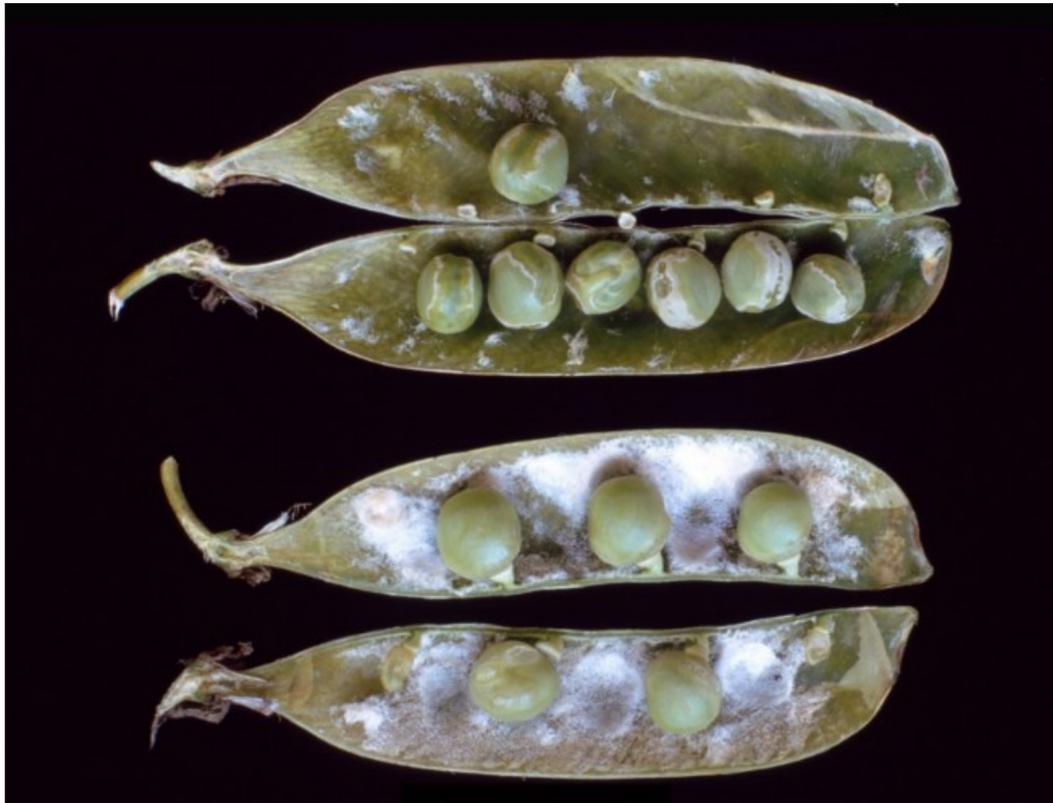


Seeds may be undersized and display blistering or blemishing on the testa – this may resemble tennis ball markings

Leaves are rolled and pale in colour, pods are small and contain few seeds

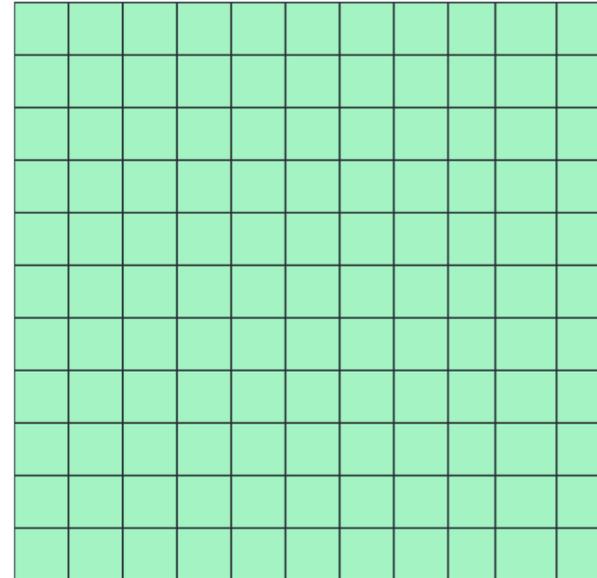
Where virus is transmitted prior to flowering the infection and symptoms are more severe



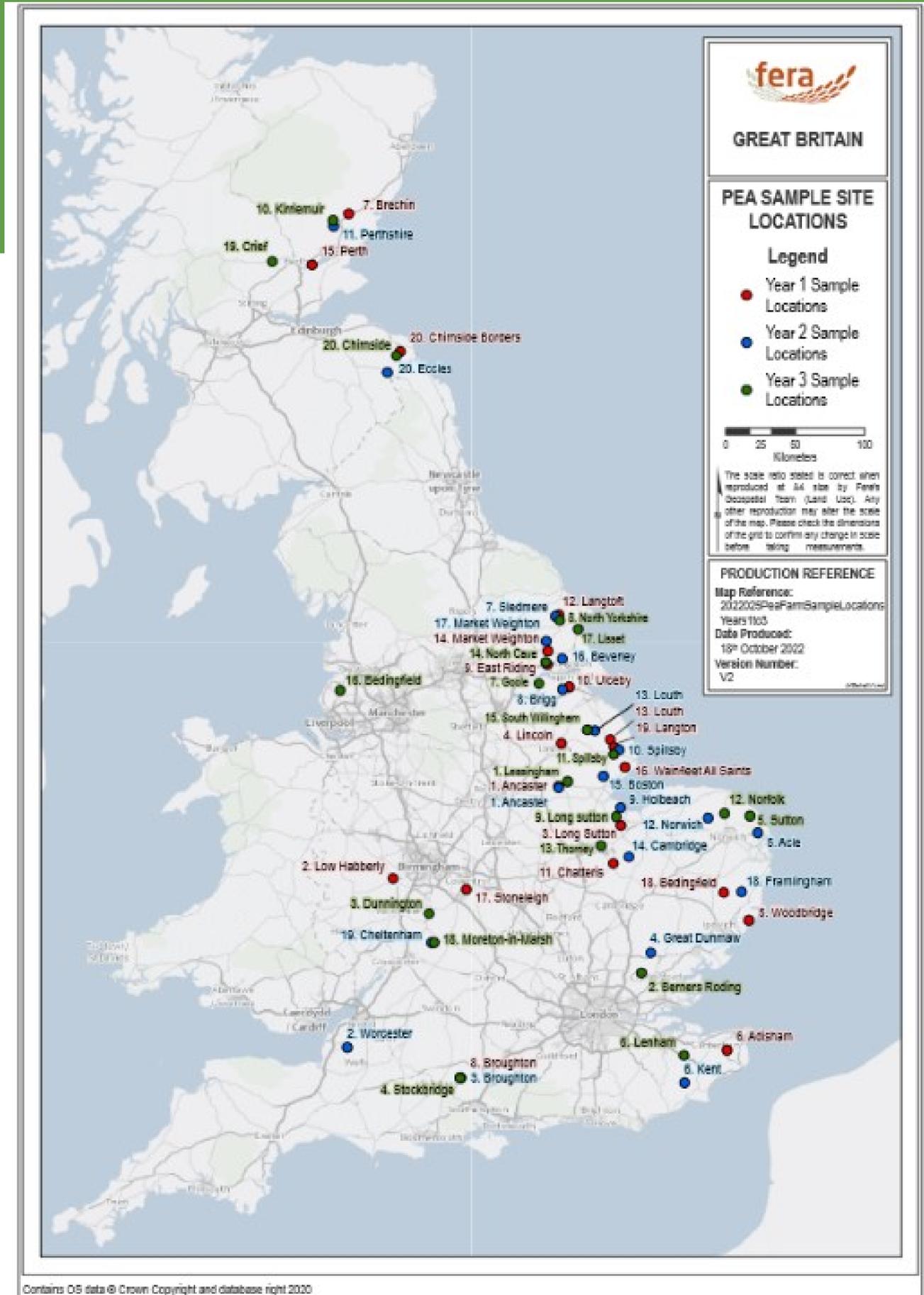


- Reduction of PSbMV transmission is difficult to achieve in the crop with aphicides as the virus is non-persistent, therefore transmitted quickly by pea aphid, black bean aphid and peach potato aphid. It is also thought to be spread by migrating cereal aphids that are probing for a suitable host
- Use of un-infected seed is the principal means to control infection
- Field and broad beans may also be infected and can act as a reservoir of infection if in close proximity to peas

# Virus survey in peas 2019, 2021 and 2022



100m x 100m (1ha) –  
sampled every 10m to give  
121 samples per field and  
left untreated



Map source: Lee Butler  
– Land Usage, Fera  
Science Ltd.



# Turnip yellows virus (TuYV)

- Large host range, including legumes, brassicas, cucurbits etc.
- Persistent transmission by aphids
  - Long acquisition times by aphids, so possible chemical control
- Wide range of aphid vectors
  - Pea aphid
  - Peach-potato aphid
- Not known to be mechanical or seed transmitted.
- Asymptomatic in peas.
- Reported in peas in Australia (virus surveillance, epidemiology and yield reduction studies), Germany (virus surveillance).



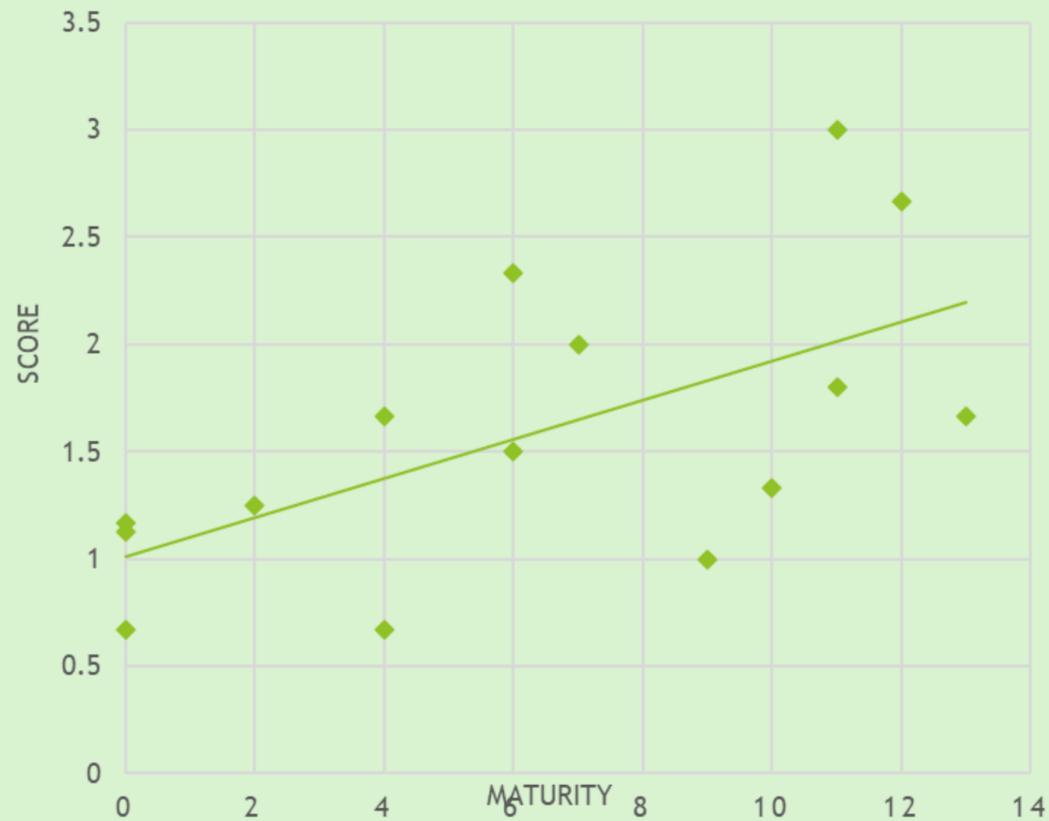
# Other findings

- Soybean dwarf virus (SbDV)
  - Limited host range, legumes
  - First finding in UK
  - Persistent transmission
  - Sporadic findings through the study
- Bean yellow mosaic virus (BYMV)
  - Limited host range, legumes
  - Non-persistent transmission
  - Known to occur in UK
  - Sporadic findings
- Bean leafroll virus (BLRV)
  - Limited host range, legumes
  - Persistent transmission
  - Known to occur in UK
  - Only found in year 3

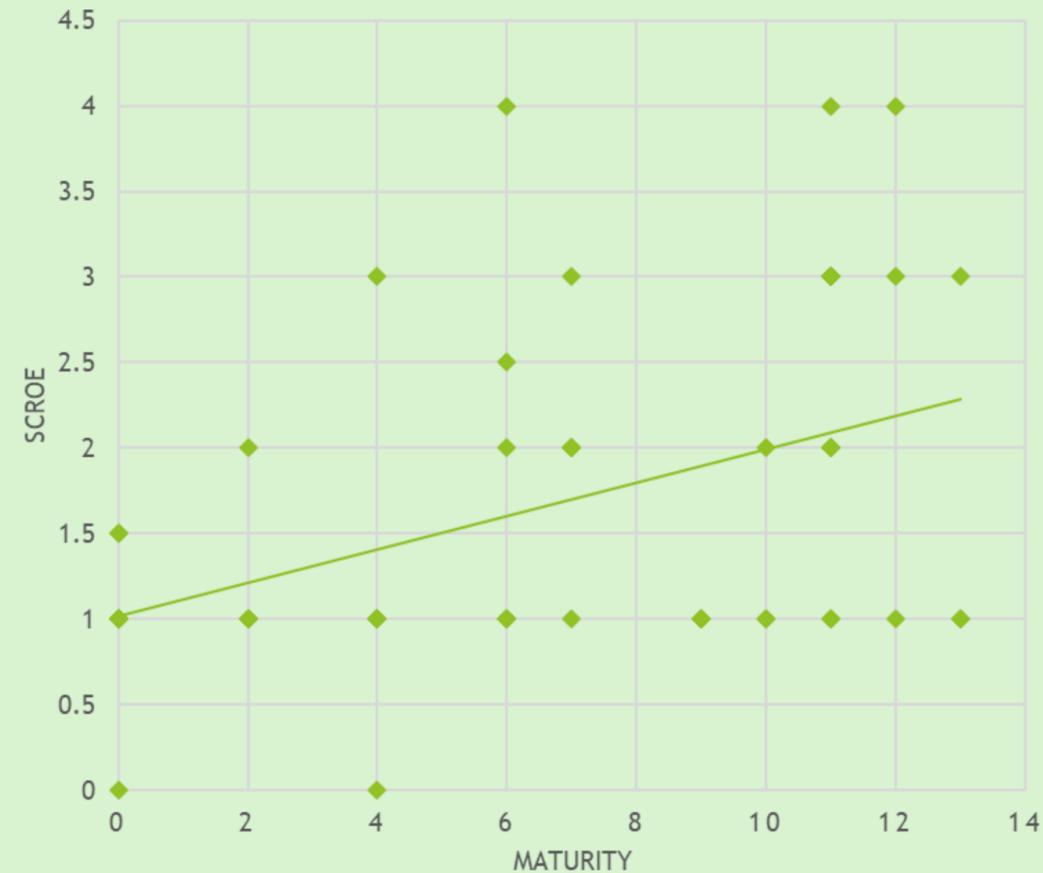


# Vining pea group survey – yield losses 2025

ASSOCIATION WITH MATURITY  
(3+)- AVERAGES



ASSOCIATION WITH MATURITY  
(3+) ALL REPORTS



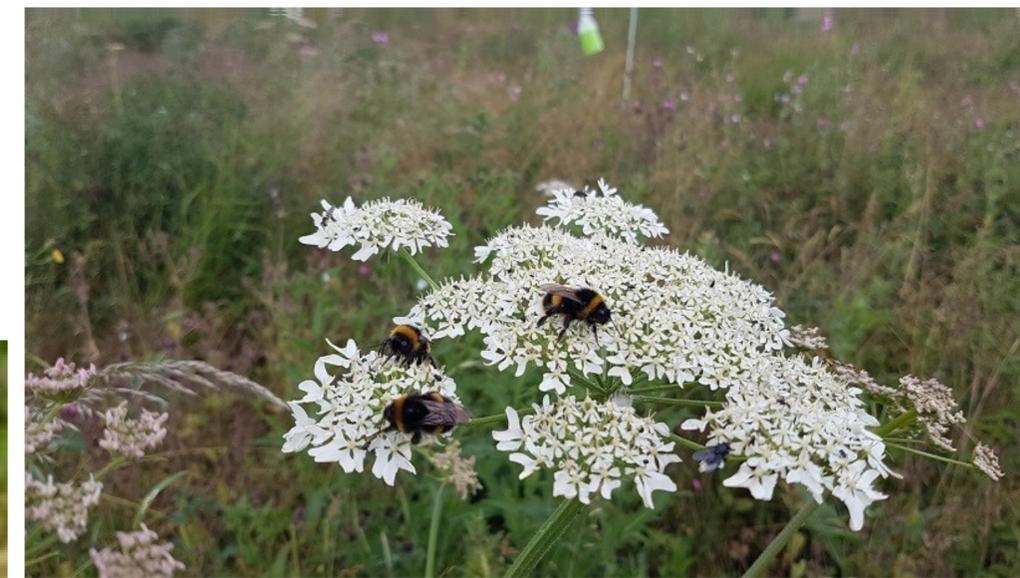
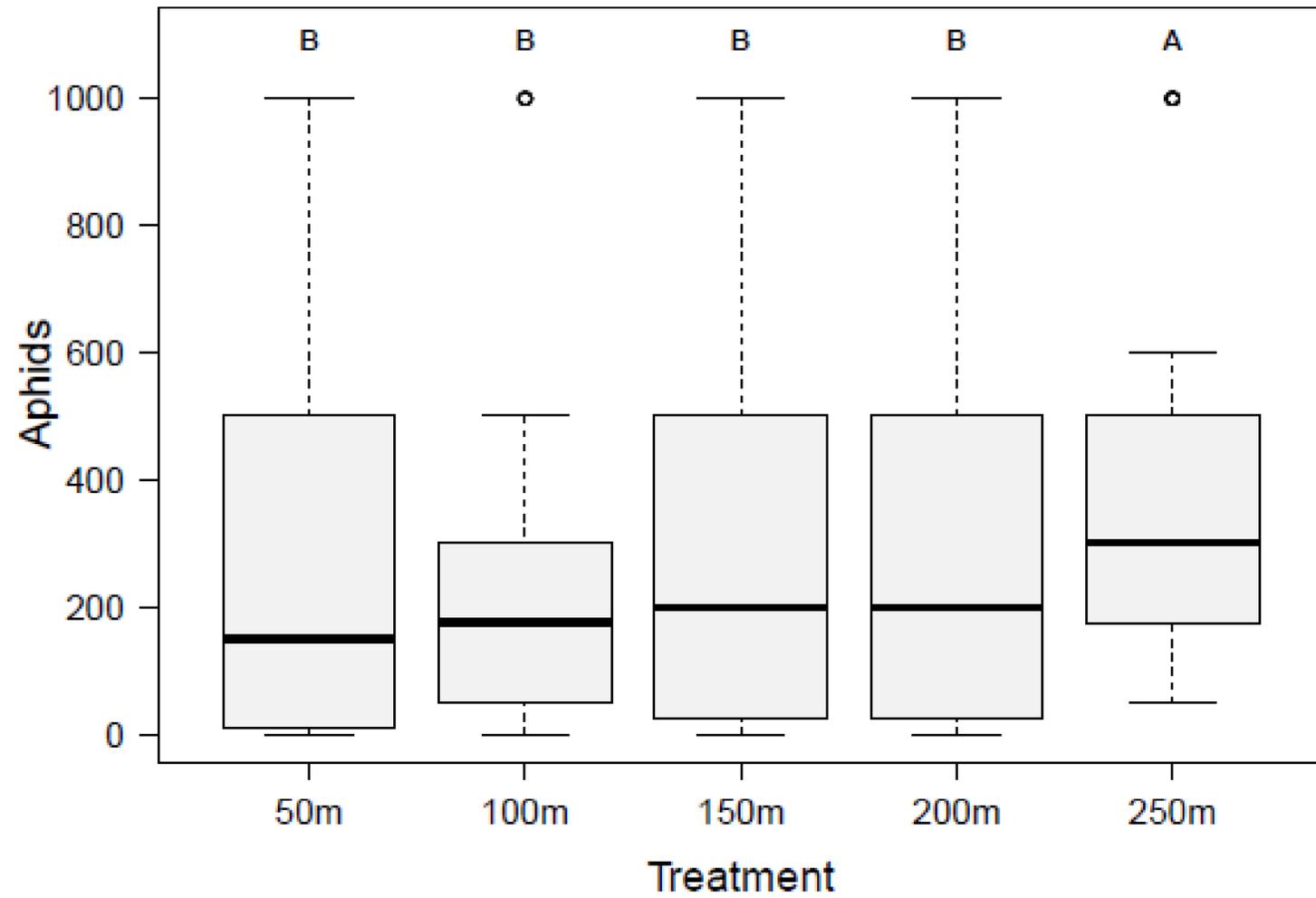
**95% of the samples that were identified with virus infection in the PGRO plant clinic in 2025 came in during July**

**Later sown peas are more at risk**

**Some varieties performed better than others, but this is likely to be related to drilling date**

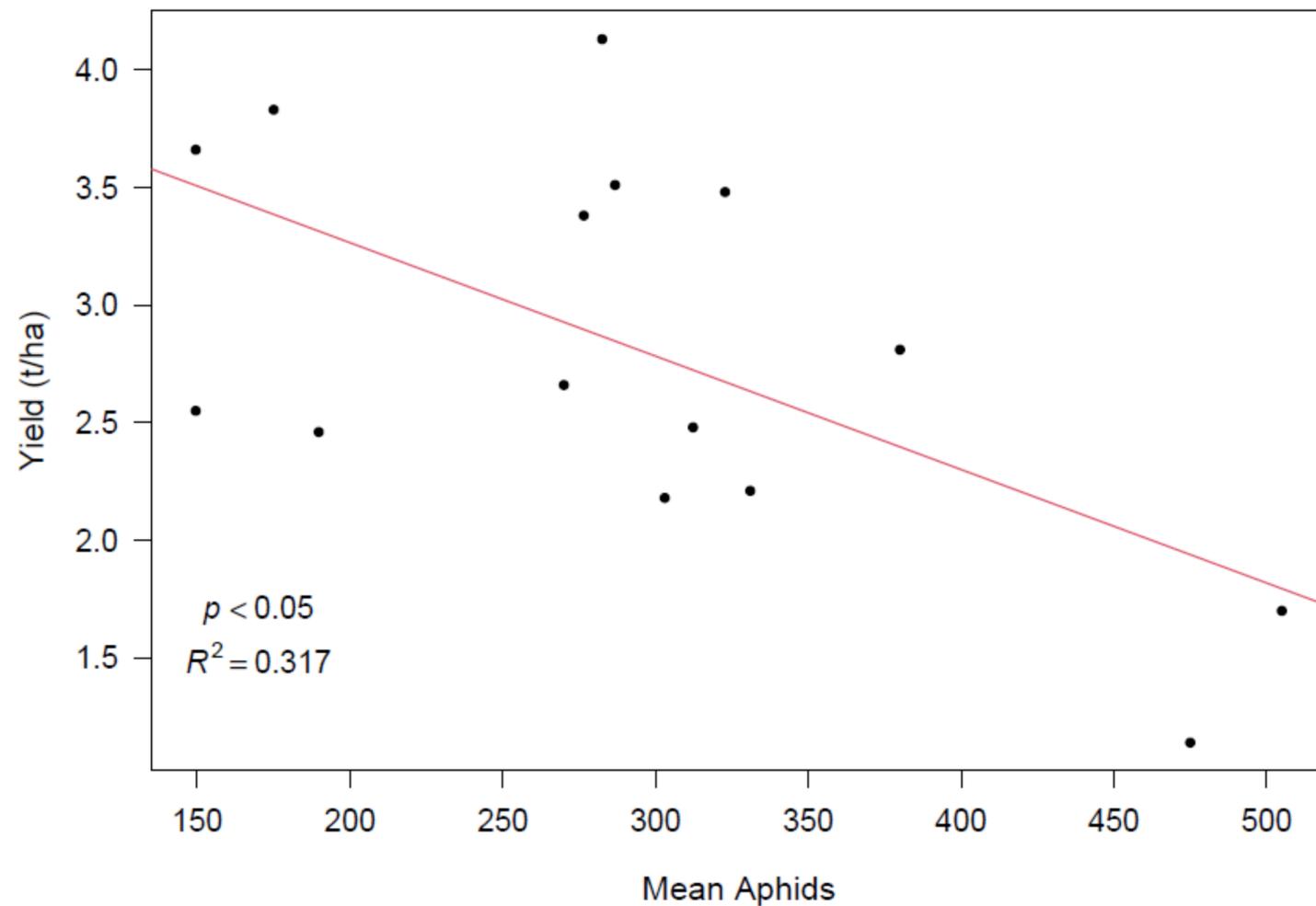
**Location – samples were widespread from English groups but not Scotland**

# Aphids



- Aphid numbers increased slightly with distance away from the mixed trap crop area in 2023.

# Aphids



- Yield correlated with aphid numbers.
- In previous work, pea yields increased, and aphid pressure was reduced, close to perennial flowering margins. [Perennial field margins with combined agronomical and ecological benefits for vegetable rotation schemes | AHDB](#)
- **IPM – Aphids and Viruses | PGRO** - A review of IPM techniques to better manage aphids and viruses in peas and beans.

# Aphids –Chemical control

- **Flonicamid** (various) from two leaf stage and not during flowering (HI 14D)
- **Flupyradifurone** (Sivanto Prime) from two leaf stage to BBCH 79 and not after 13th July (HI 3D for VP's and picking peas and 7D for edible podded peas)
- Acetamiprid (Insyst - EAMU 1285/23) from enclosed bud to BBCH 75 (HI 14D)
- Pirimicarb (Aphox/ Jaspin) from 1st flower bud and between 1st May and 31st August (HI 7D for VP's and picking peas and 3D for edible podded peas)
- **For virus management, crops should be inspected carefully as soon as the Rothamsted Insect Survey shows first flights, and chemical applications made when aphids are present in crops. Do not wait for normal thresholds to be reached.**

# Next steps

- Yield impacts of each virus
- Products and timing, including non-pesticides
- Varietal resistance
- Impact of non-crop areas on farms



- The ADOPT-funded project, with PGRO and growers, will allow better understanding of virus losses
- High Throughput Sequencing will identify all viruses present in crops, including those with no symptoms
- Farm-scale tramline trials will test aphicide programmes and, crucially, application timing across different drilling dates
- Comparing treated and untreated strips, the project will define when control is justified, supporting more precise IPM decisions

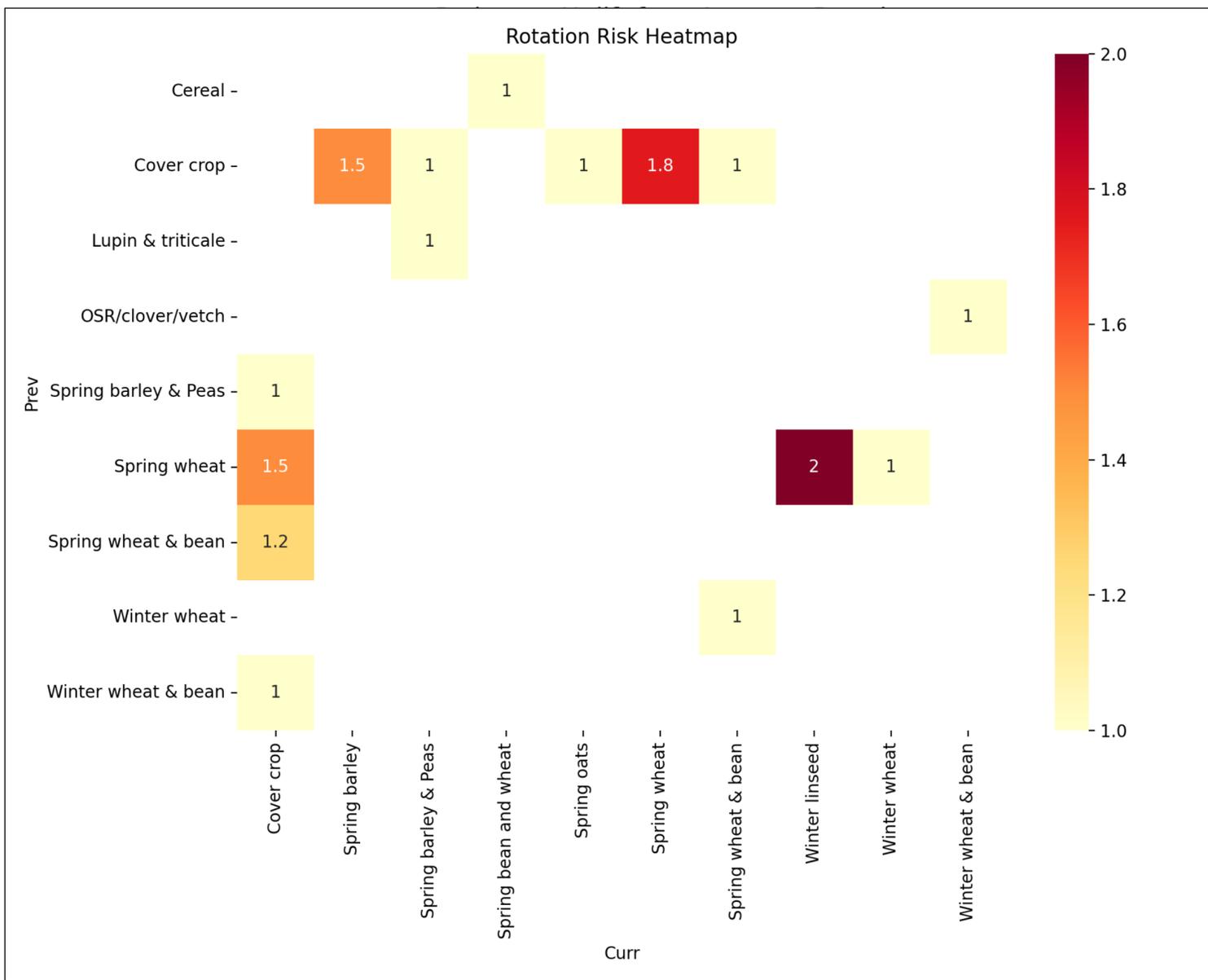


# Proposed Protocol

- 6 sites with 4 being high risk
  - 2 reps per site in the same field

Treatment	T1 (2 leaf pairs)	T2 (Pre-flowering)	T3 (Flowering)
1	Untreated		
2	Teppeki		
3	Teppeki	Sivanto Prime	
4		Sivanto Prime	Aphox
5	Teppeki	Sivanto Prime	Aphox

# Legume rotational farm trials



- 17 farms over two seasons so far
- Legumes do *not* increase **average** pathogen levels in the dataset – mean index is lower when the previous crop contains legumes
- **BUT:**
- Rotation structure matters: Two categories of legume previous crop
  - Short-term legumes (cover crops, pea/bean mixtures)
  - Long-term herbal leys/ fertility leys - these leys are abundant enough in the dataset to overpower the pathogen increases seen after short-term legumes
- **High risk legume sequences still exist**
  - Cover crop → spring cereal (high Aphanomyces and Fusarium spikes)
  - Spring bean and wheat → winter bean and wheat (High Aphanomyces)
- Isolated legume–cereal transitions hit extreme Aphanomyces values
- **Average reduction masks real risk**

# Overcoming challenges using IPM

- **Soil testing** for diseases and nematodes
- **Prevention** – Avoid planting close to other host crops or following host crops – **rotation**
- **Soil preparation** – reduction of compaction
- **Choose resistant varieties** if information is available
- **Seed testing** is essential to prevent spread of seed-borne viruses, nematodes and diseases
- **Avoidance** – If possible, adjust sowing date or location to avoid issues such as foot rot and virus transmission
- **Monitor** pests and diseases. Rothamsted Insect Survey – [Aphid Bulletin | Insect Survey](#), pea moth traps, pea and bean weevil traps, in-field
- **Flowering field margins** to encourage natural enemies
- **Thresholds** for applications and choose the right product



# PEA BRUCHID



## Life-cycle

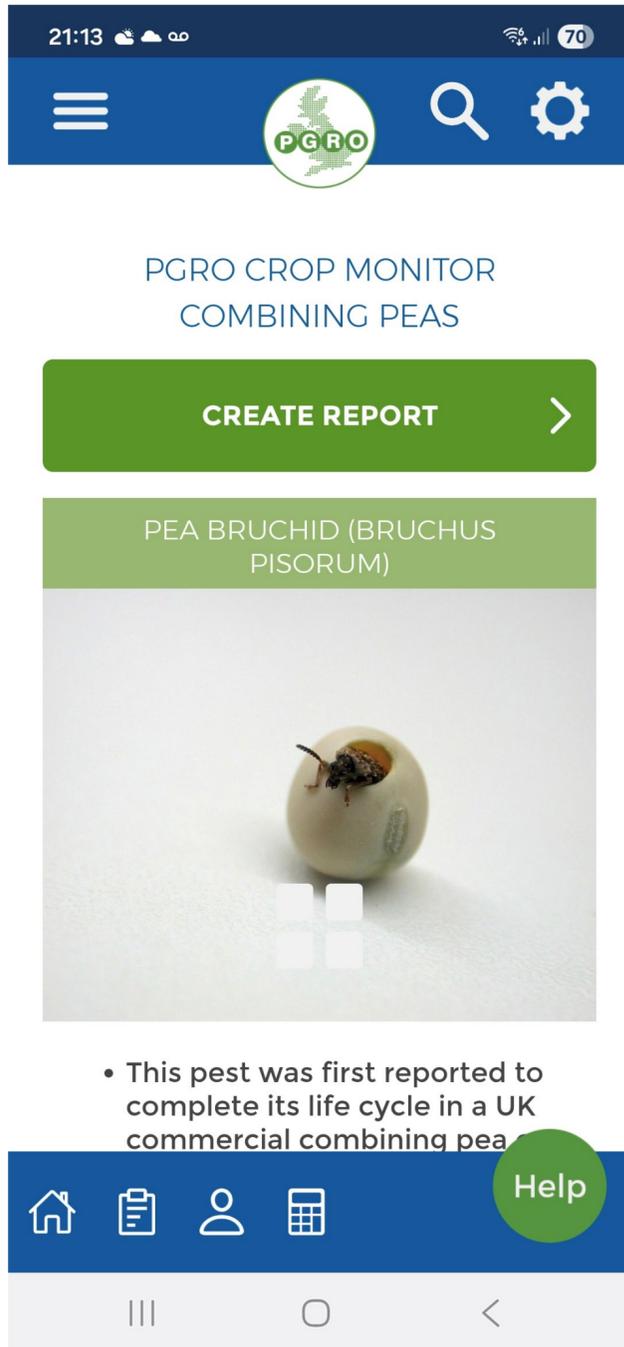


# IDENTIFICATION





# ON FARM ACTIONS



Confirm pest presence

If present report to PGRO Crop Monitor App or [plantclinic@pgro.org](mailto:plantclinic@pgro.org)

Infested seed should not be imported into the UK. If found, seed should be treated to kill insects

Isolate seed/produce to prevent escape

If live insects are present, seed/produce should not be moved except for disinfection

Do not drill seed containing live insects



# PEA SEED IMPORT GUIDANCE

Seed imported into the UK must be free of live insects.

APHA guidance states that if pea bruchid (*Bruchus pisorum*) is found in pea seed, the seed must not be moved within GB, except to:

- Move the seed within, or between, the premises of the professional operator concerned.
- Move the seed for disinfection.
- If present in the crop and you want to use the seed from the crop for further planting, treat the crop or seed to ensure the seed is free of the pest. Fumigate seed or produce. Seek professional advice from a commercial pest control company.

# Chemistry

Products approved in peas that may give some control of pea bruchid:

## Vining peas

- Acetamiprid (Insyst - EAMU 1285/23) from enclosed bud to BBCH 75 (HI 14D). Cut-off date for application is 31st July.
- Cyantraniliprole (Minecto One) post-flowering (HI 3D). Must not be applied during flowering.

# Thank you for listening

- PGRO website for technical information and pesticide lists [www.pgro.org](http://www.pgro.org)
- PGRO Crop Monitor App – go to Google and Apple stores and search PGRO Crop Monitor
- [becky@pgro.org](mailto:becky@pgro.org)
- 01780 781351/ 07972 665604
- Technical reports can be found at [Research Publications | PGRO](#)

# Ben Hockridge





RESPONSIBLE  
SUSTAINABLE  
KNOWLEDGEABLE



# PeaSat

Update 2026

24/02/2026

[www.adas.co.uk](http://www.adas.co.uk)



# The Challenge

- There is a small window of typically 1-2 days when the vining pea crop is fit for harvest.
- Following harvest, the crop must be processed and frozen within 4 hours, or 2.5 hours for the highest quality standards.
- If the vining pea crop cannot be harvested and processed within this time requirement it is 'bypassed' (wasted).
- Convoluted process through which forecasts and information is communicated



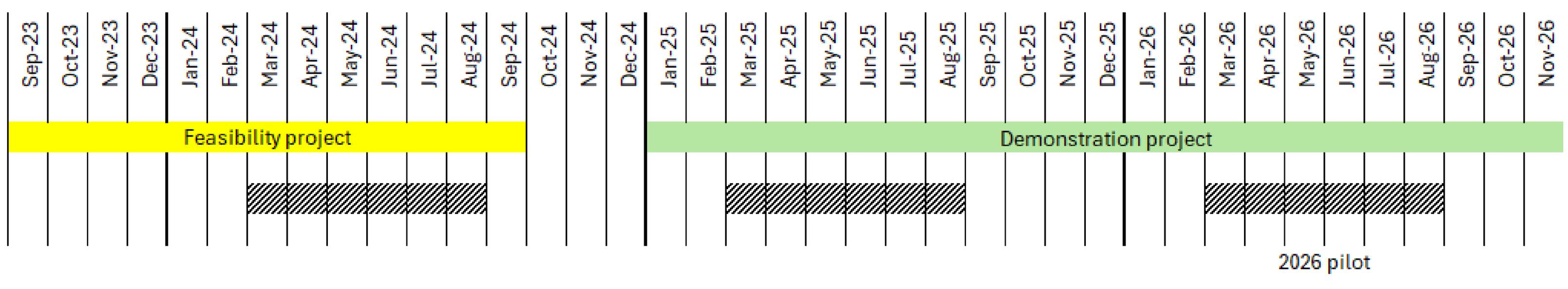
**PeaSat** will provide a web-based yield and harvest date prediction service to growers and processors. This service will allow for processors to better understand potential inputs, manage their processing lines and therefore help to reduce bypass.



Predicting yield



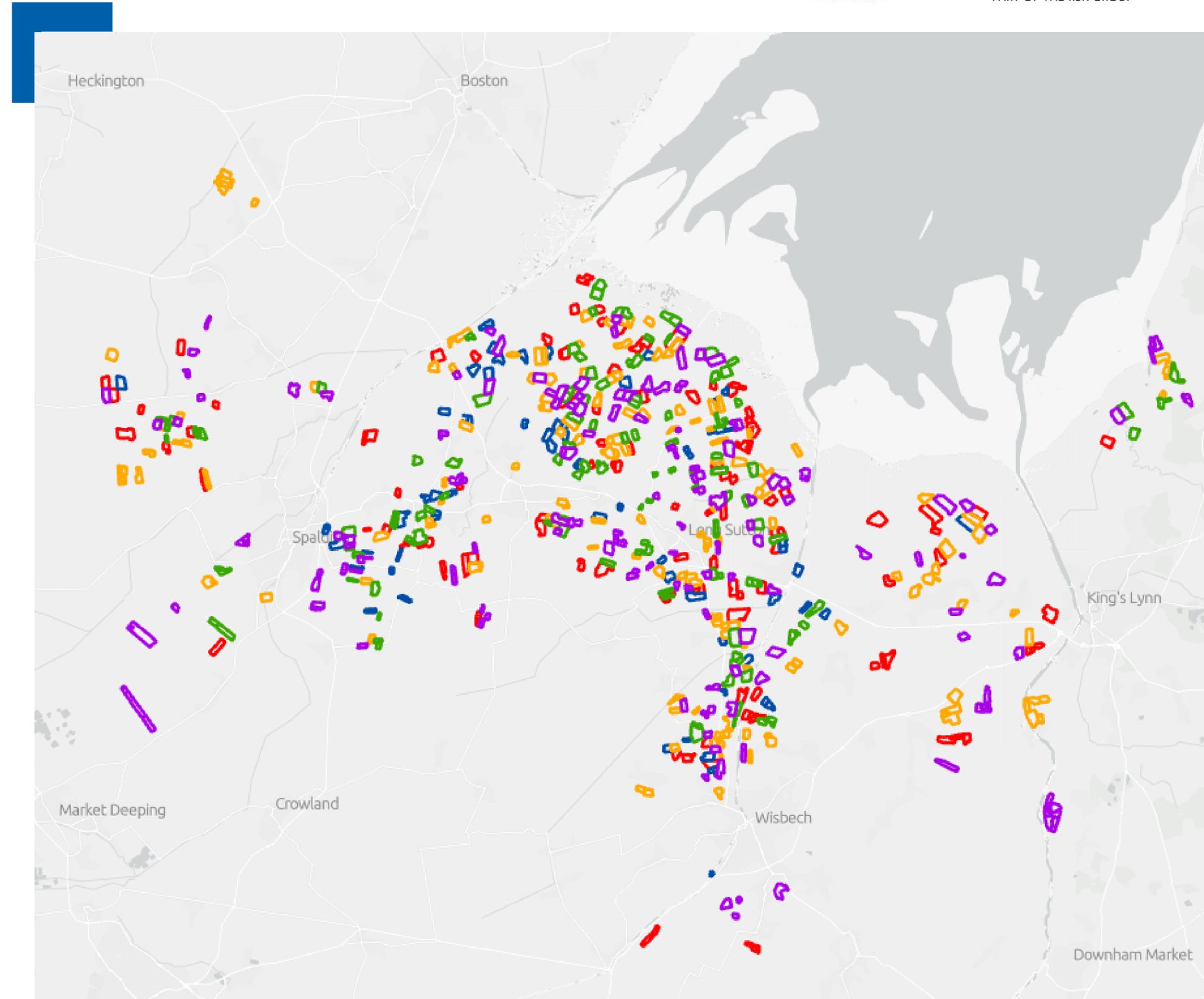
# Timelines



# Building the model



5 years' worth of vining pea yield data was provided by HMC (2019-2023).



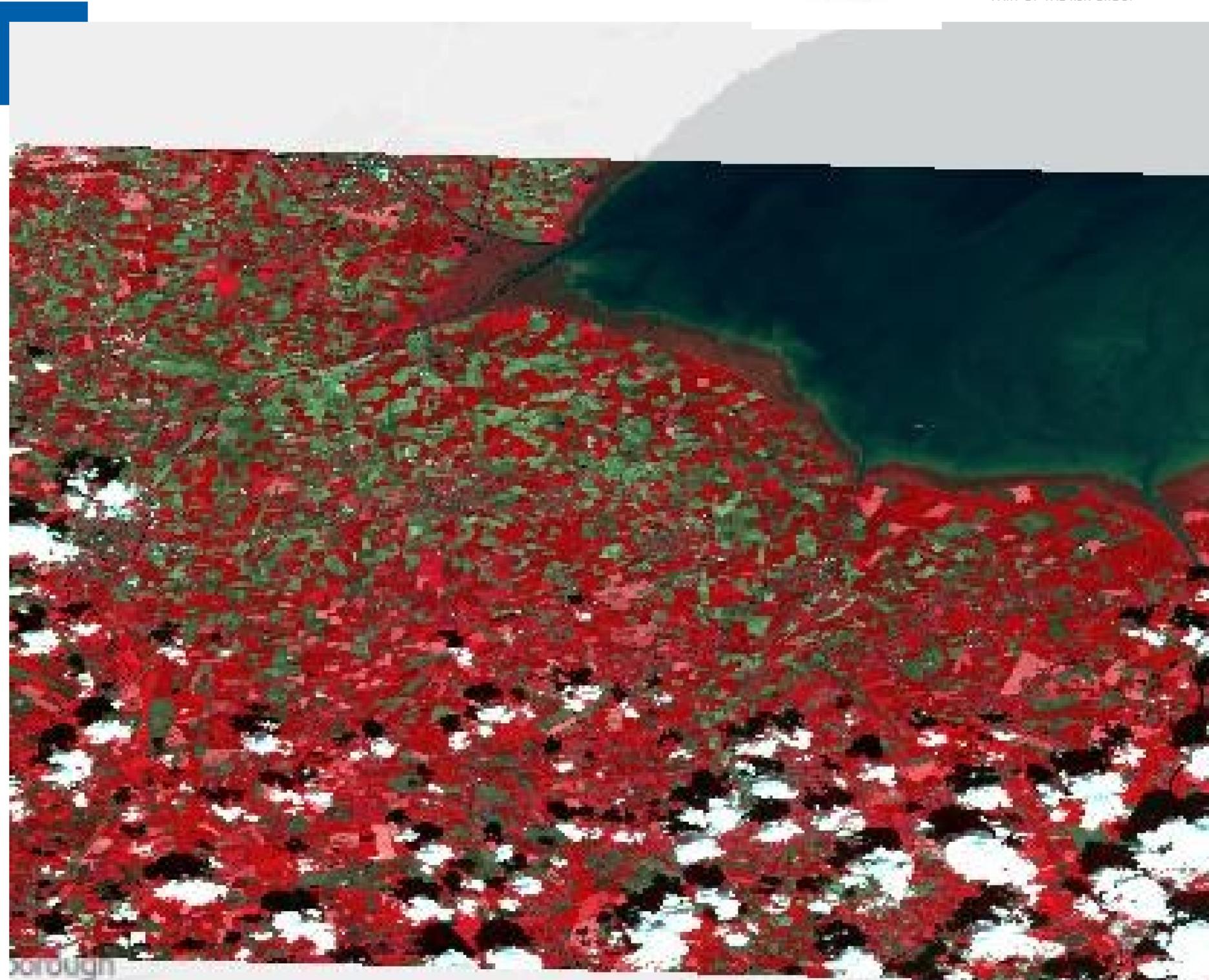
# Building the model



5 years' worth of vining pea yield data was provided by HMC (2019-2023).



Cloud-free (Sentinel-2) satellite imagery was obtained over each growing season for each field and numerous vegetation indices were calculated.



# Building the model



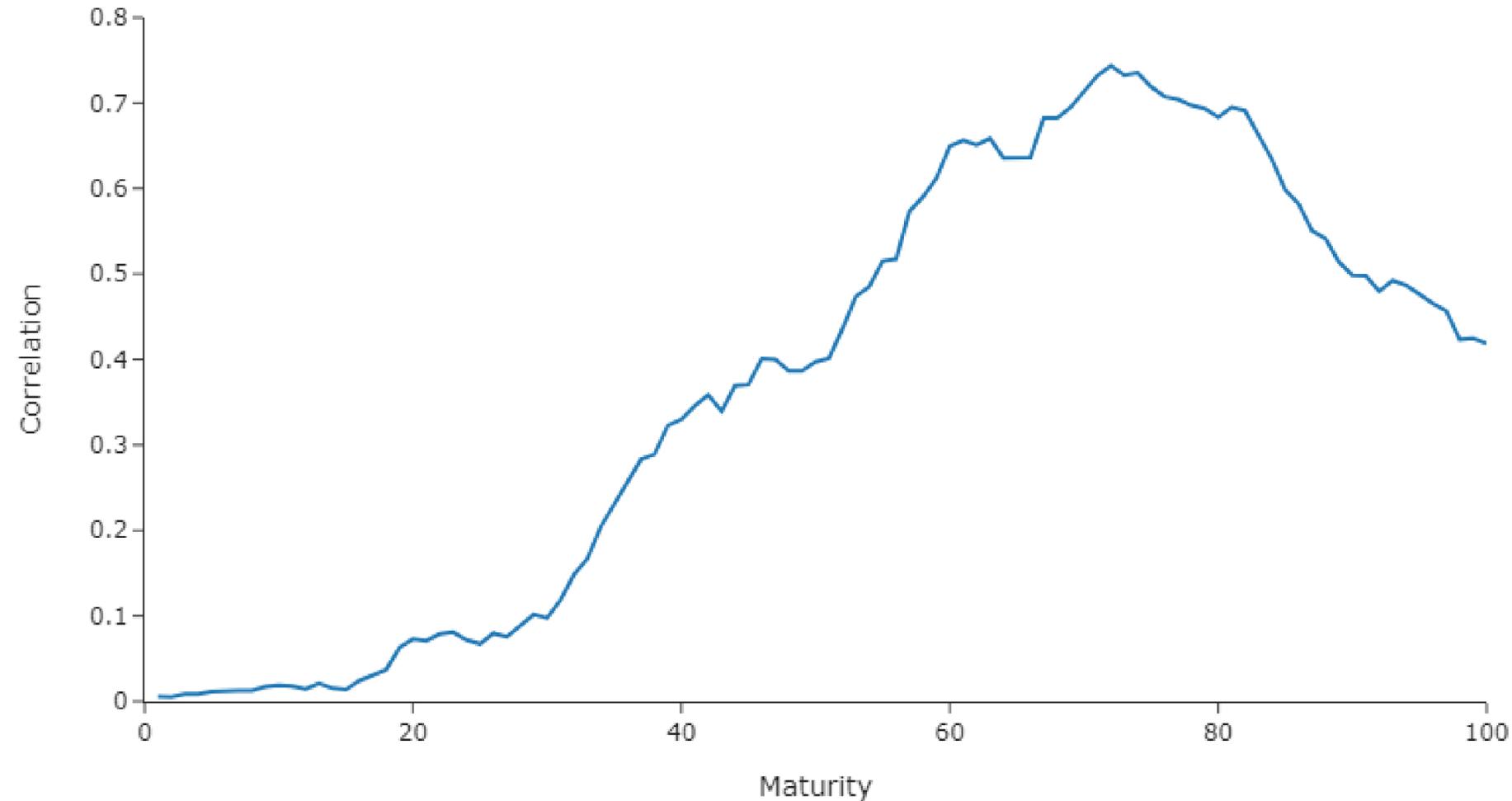
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# Building the model



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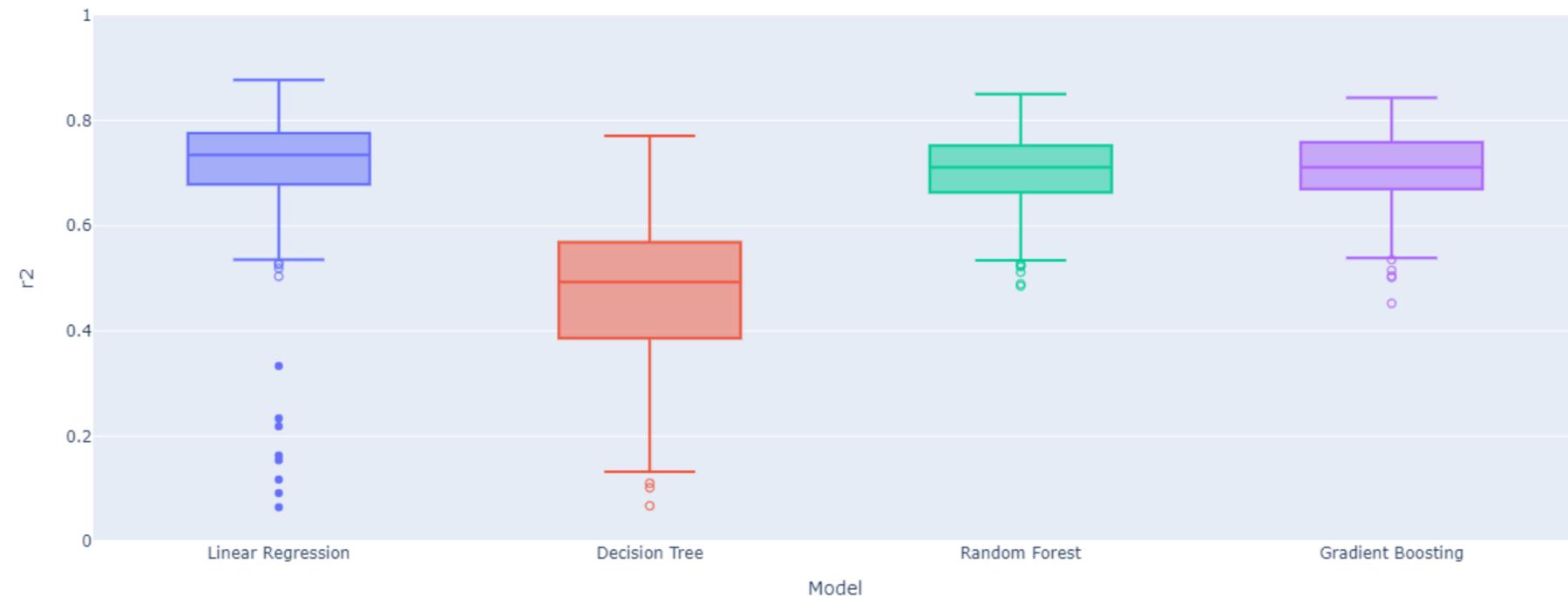
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This data was used to train and test a range of Machine Learning models. 2024 data was used to test the final model.



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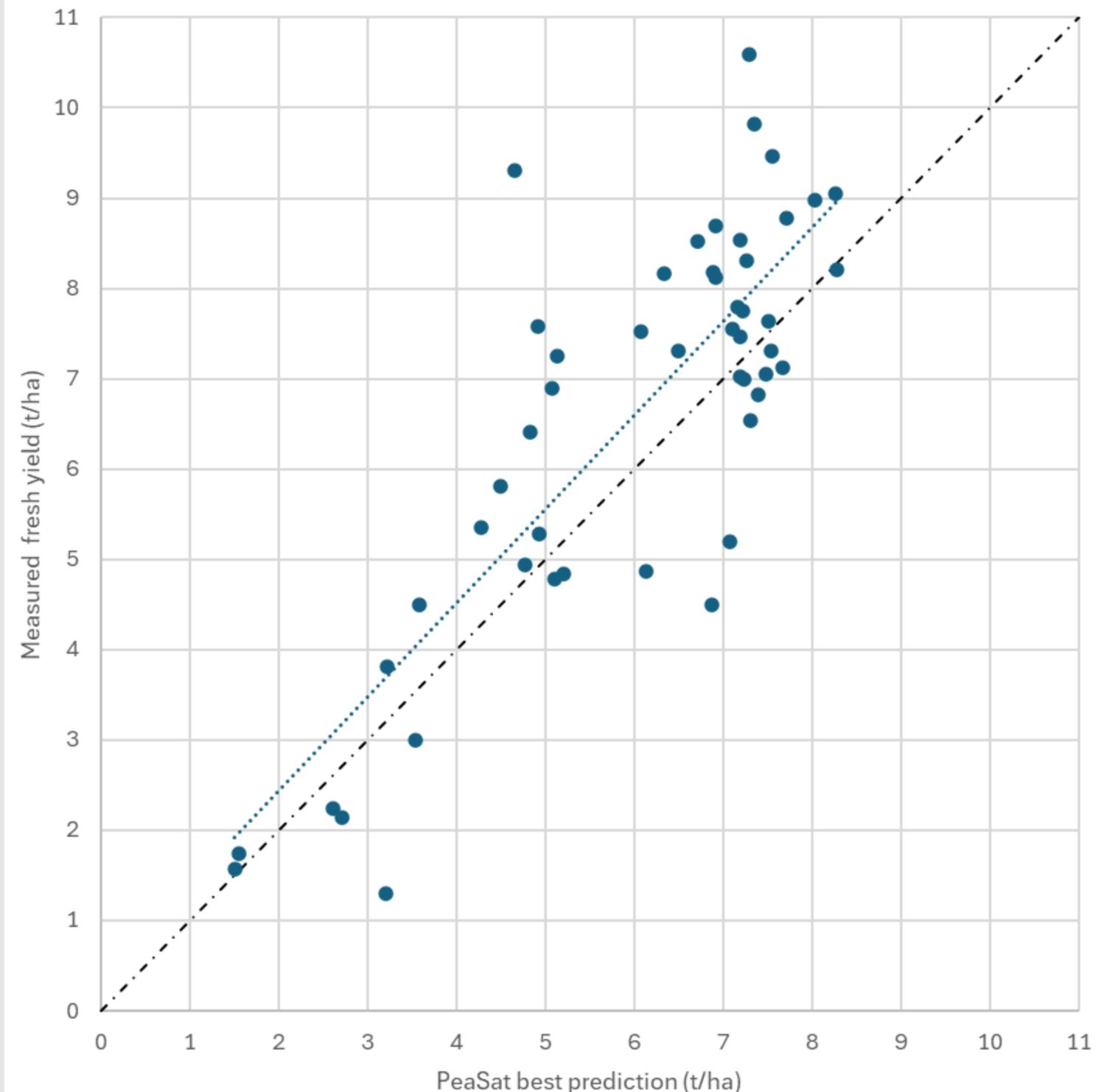
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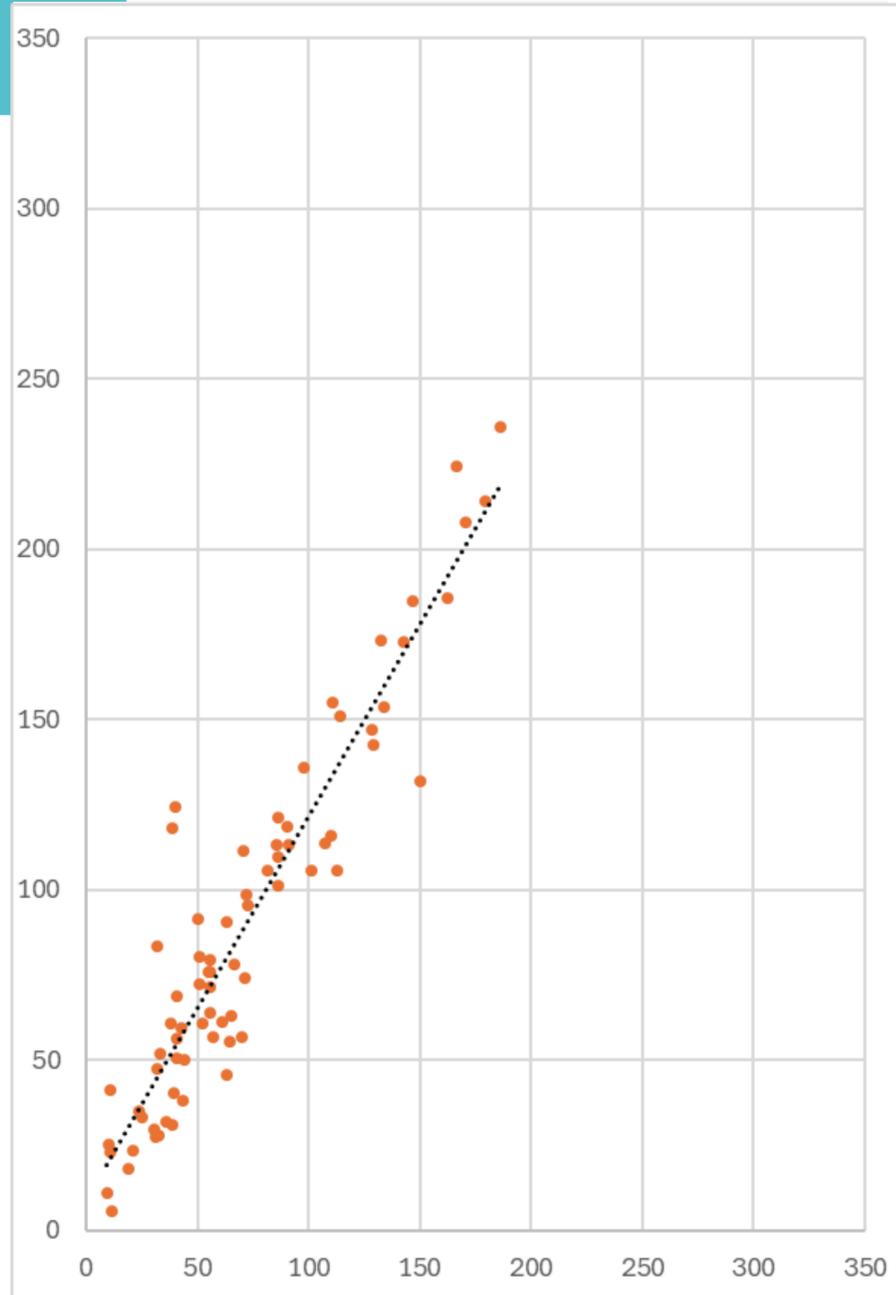
The predicted yield a strong relationship between the predicted yield and measured yield ( $R^2 = 0.71$ )



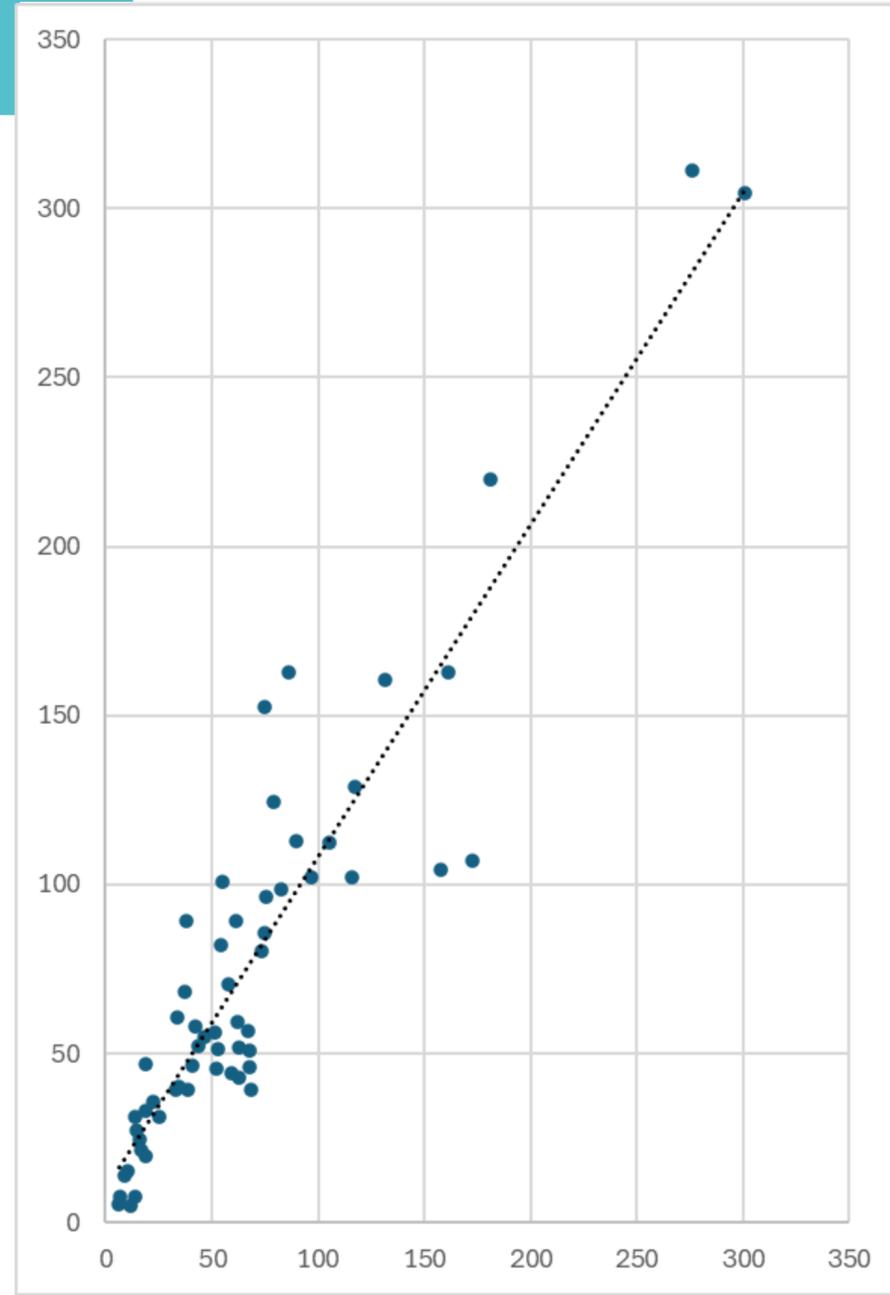
# Model Performance



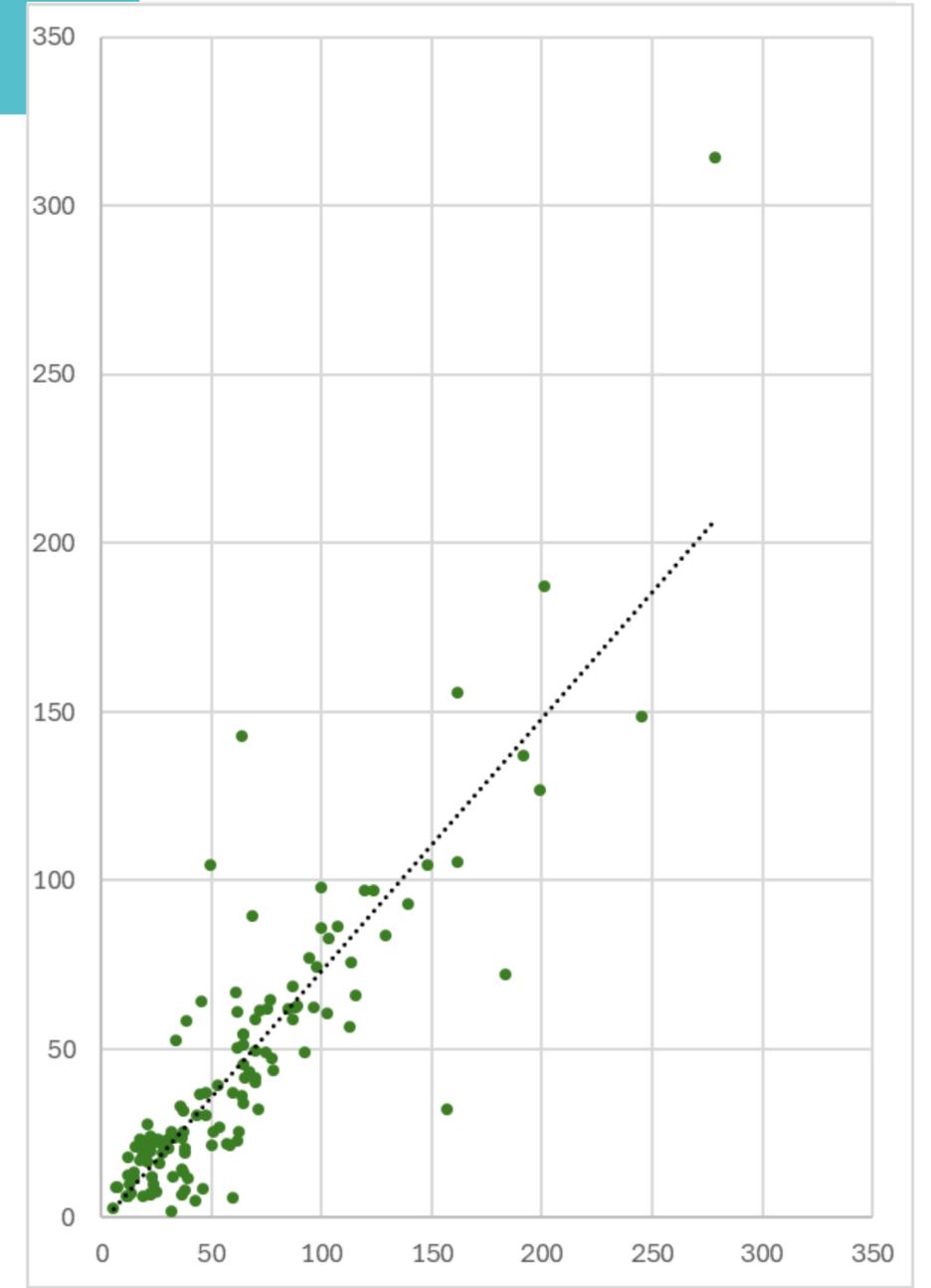
2023



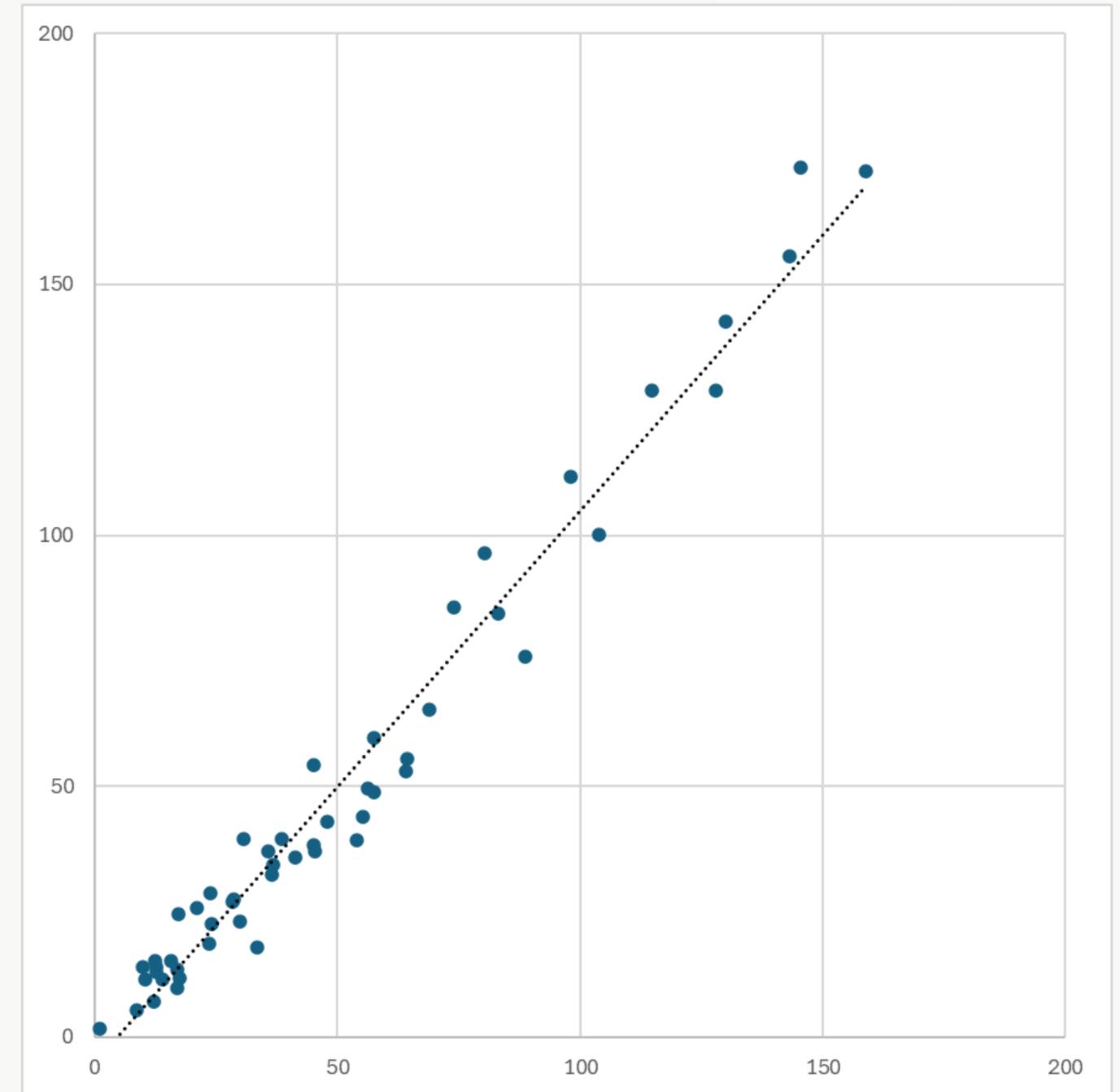
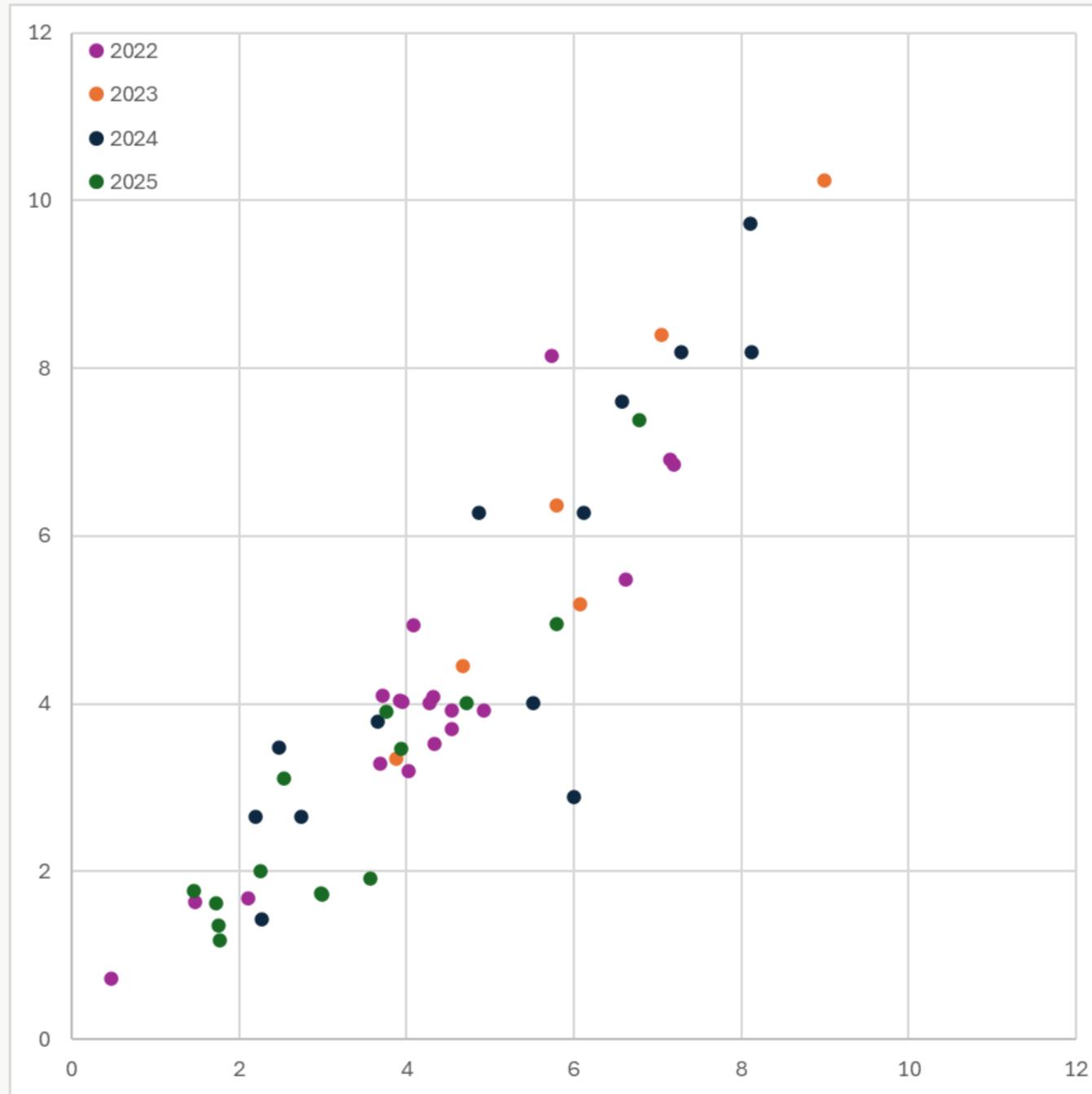
2024



2025



# Model Performance – combined years

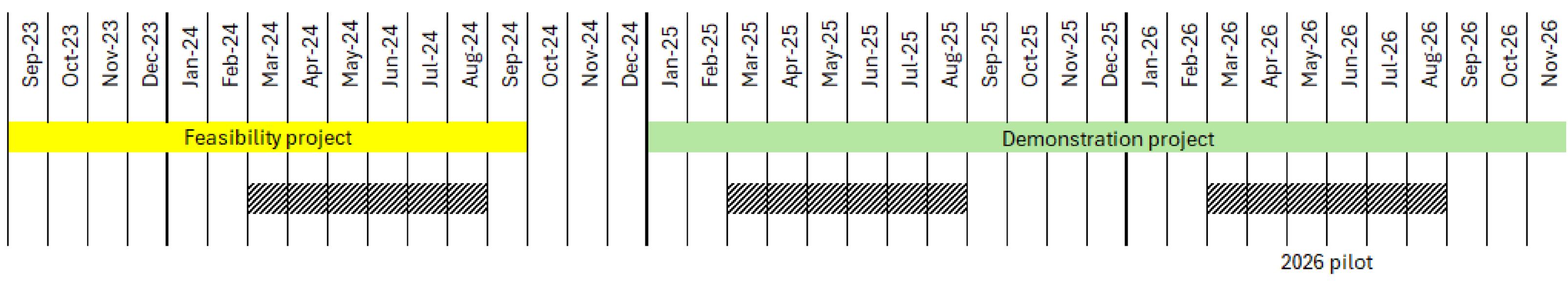


# Benefits Demonstrated

- Reduced bypass
- Reduced field walking and admin time
- Improved communication
- Higher processed volume for processors



# Timelines





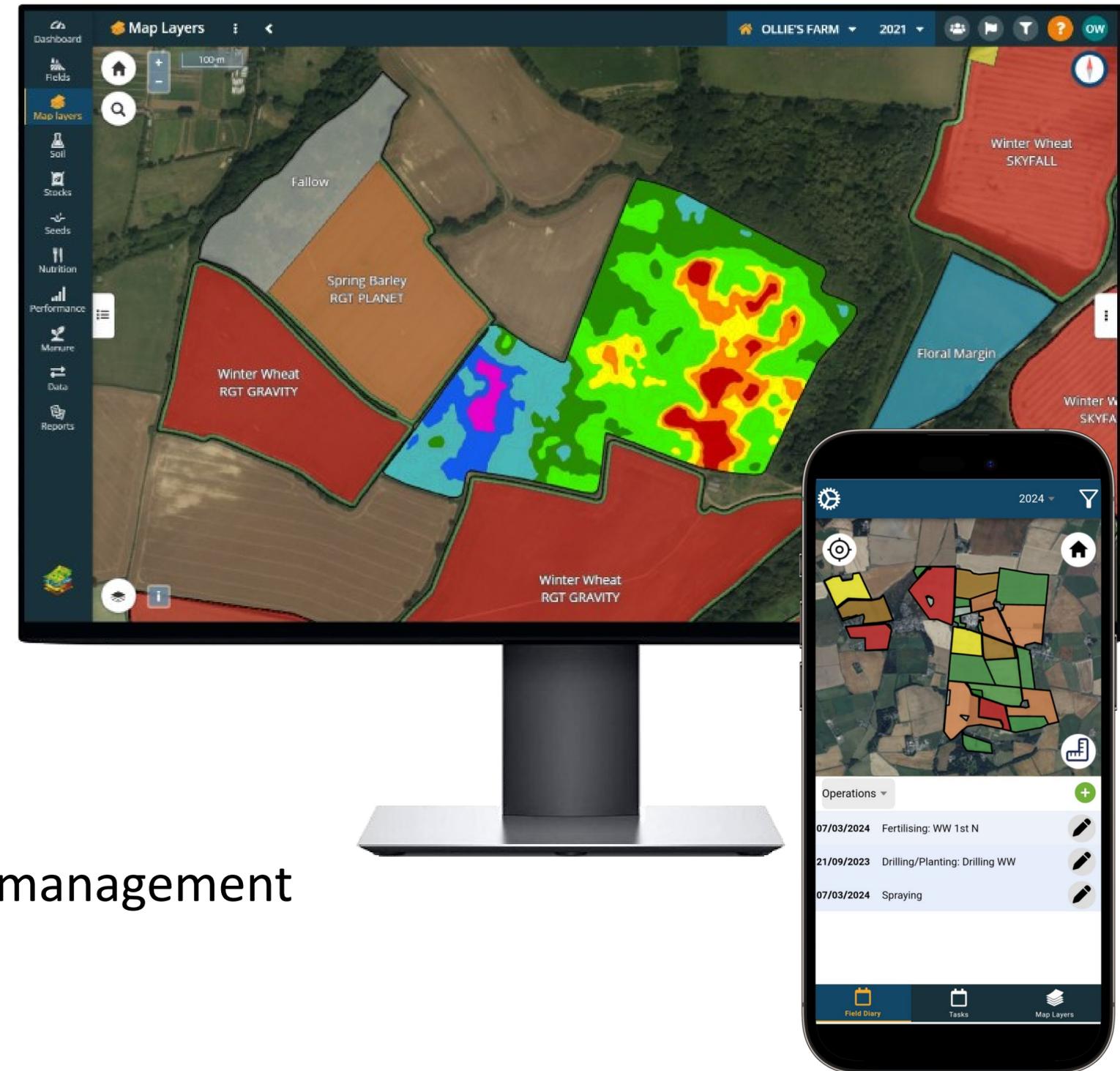
## Omnia PeaSat Overview



# Omnia Platform Overview



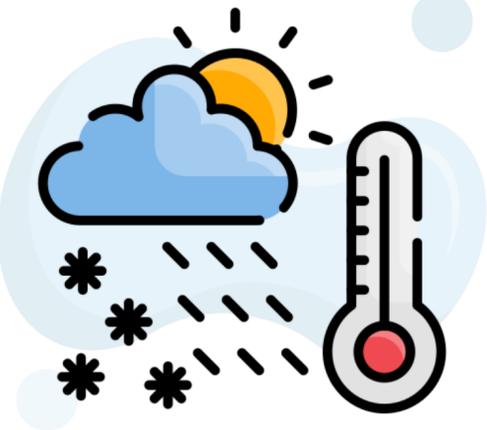
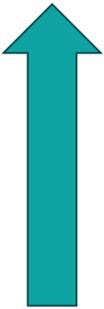
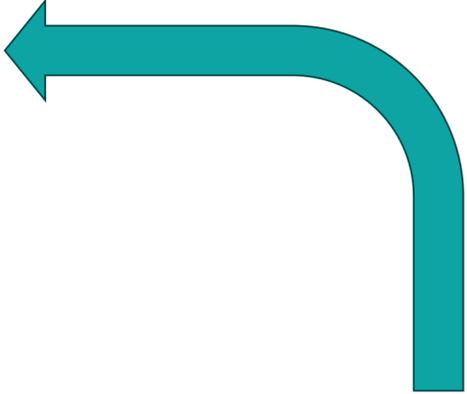
- Developed by H L. Hutchinson Ltd
- Web based farm management system
- Paperless field recording & job management
- Digital crop traceability
- Legislation compliance
- Environmental management functionality
- Software + supporting services
- Data connections to wide range of farm data
- Complete farm financial analysis
- Connecting digital farming to agronomy and farm management



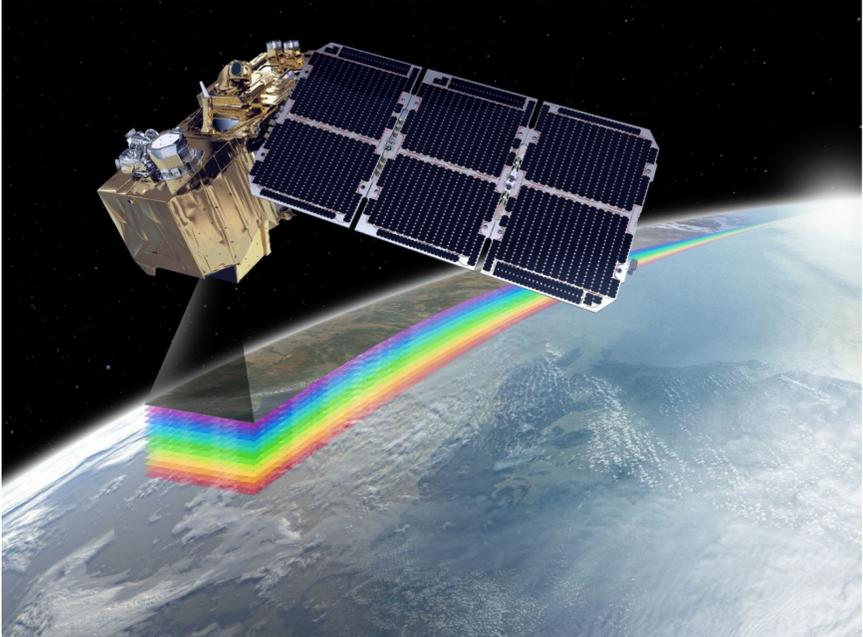
# Service Detail



**HARVEST DATE  
EXPECTED YIELD**



Drilling date  
Variety  
Location



# Harvest Date Prediction



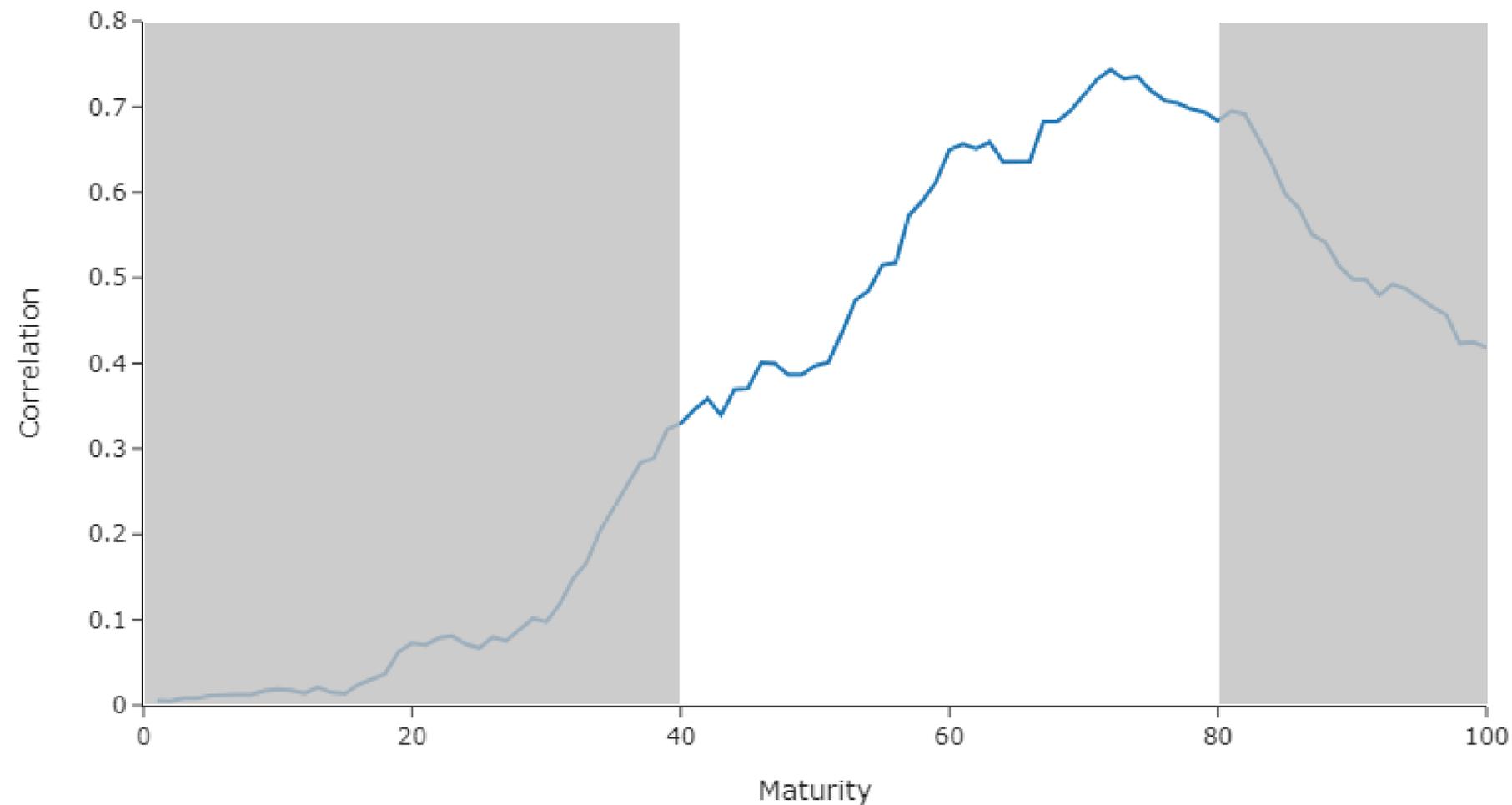
- Farm specific weather data using actual, forecast and 5-year averages
- Field specific harvest date prediction using drilling date and varietal heat unit target
- Daily updates



# Yield Prediction



- Planet SuperDove constellation providing near-daily imagery
- Farm specific actual temperature & solar radiation weather data
- Updated daily between 40%-80% maturity



Crop Variety

All

Farm Information

Field Name

Crop Area (Ha)

Variety

BARN BRECKS BFS

17.30

IDALGO

Drilling Date

15 April 2025

Harvest Date Prediction

Expected Harvest Date

28 June 2025

Yield Prediction

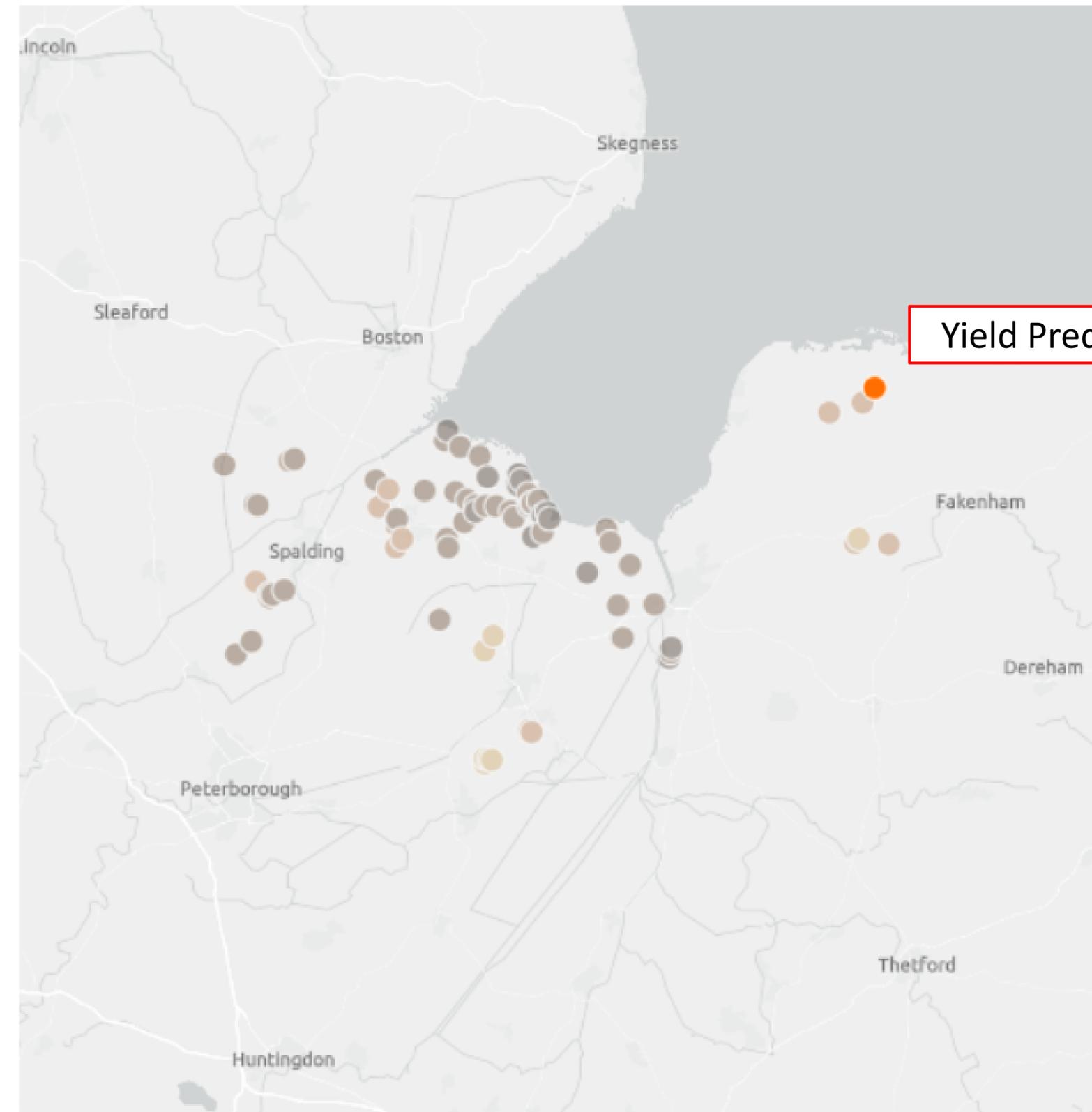
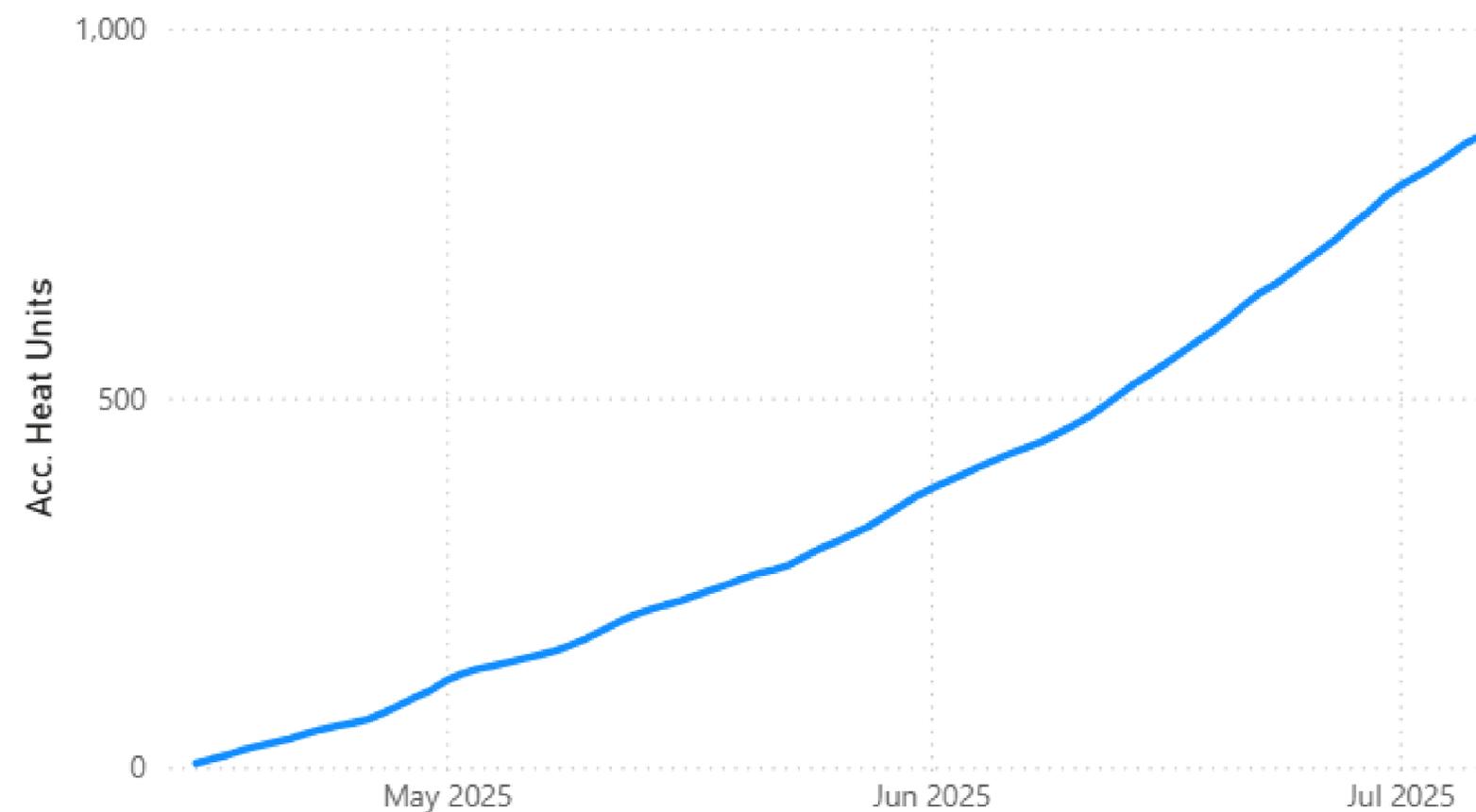
Total Yield (T)

72.68

T/Ha Yield

4.20

% Heat Units



Variety

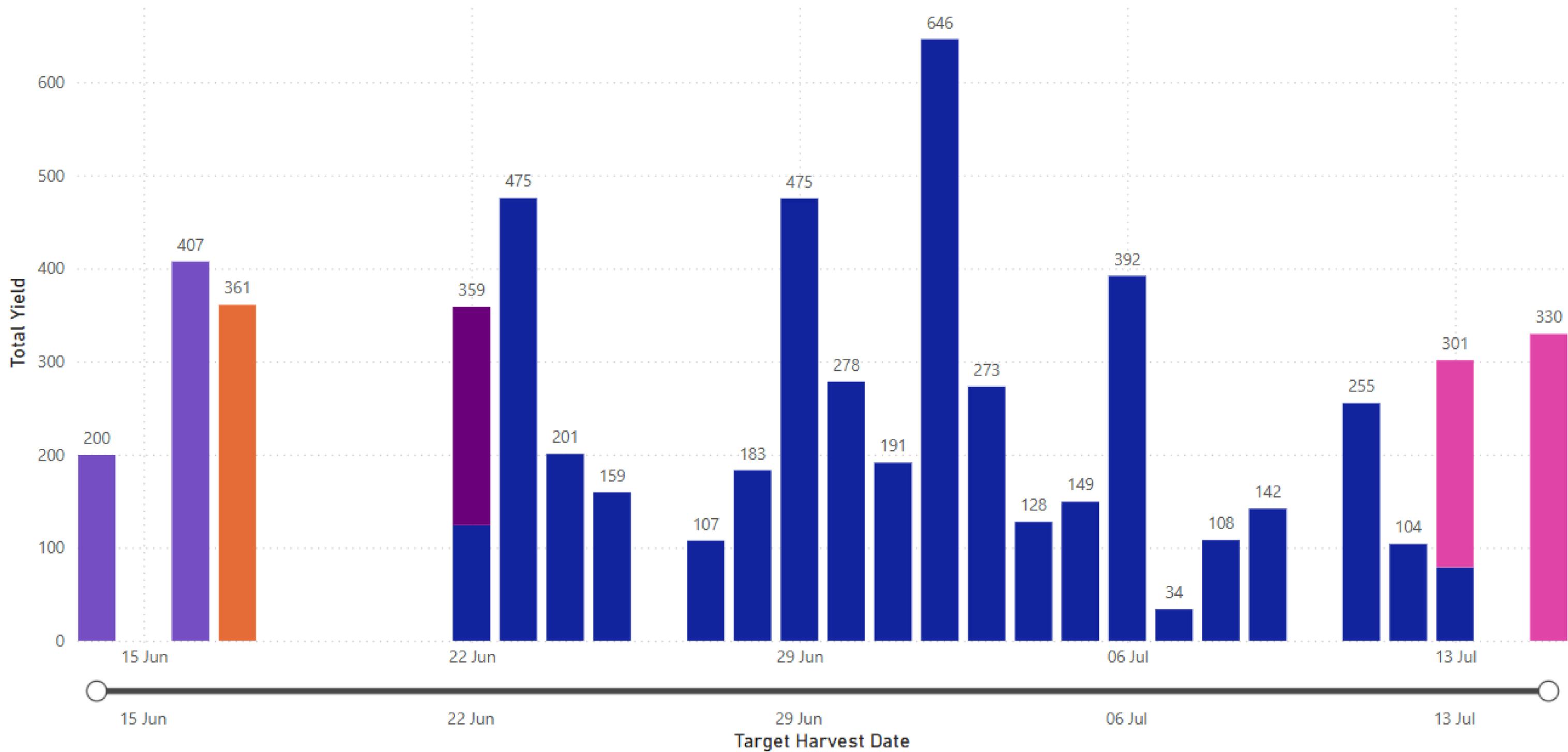
All

Harvest Date

14/06/2025

15/07/2025

Variety ● AMALFI ● BOSTON ● IDALGO ● REALM ● STYLE



# 2026 Rollout



- Looking to roll out the service for the 2026 season
- Providing yield estimates throughout the season
- Processor-level dashboards to understand throughput

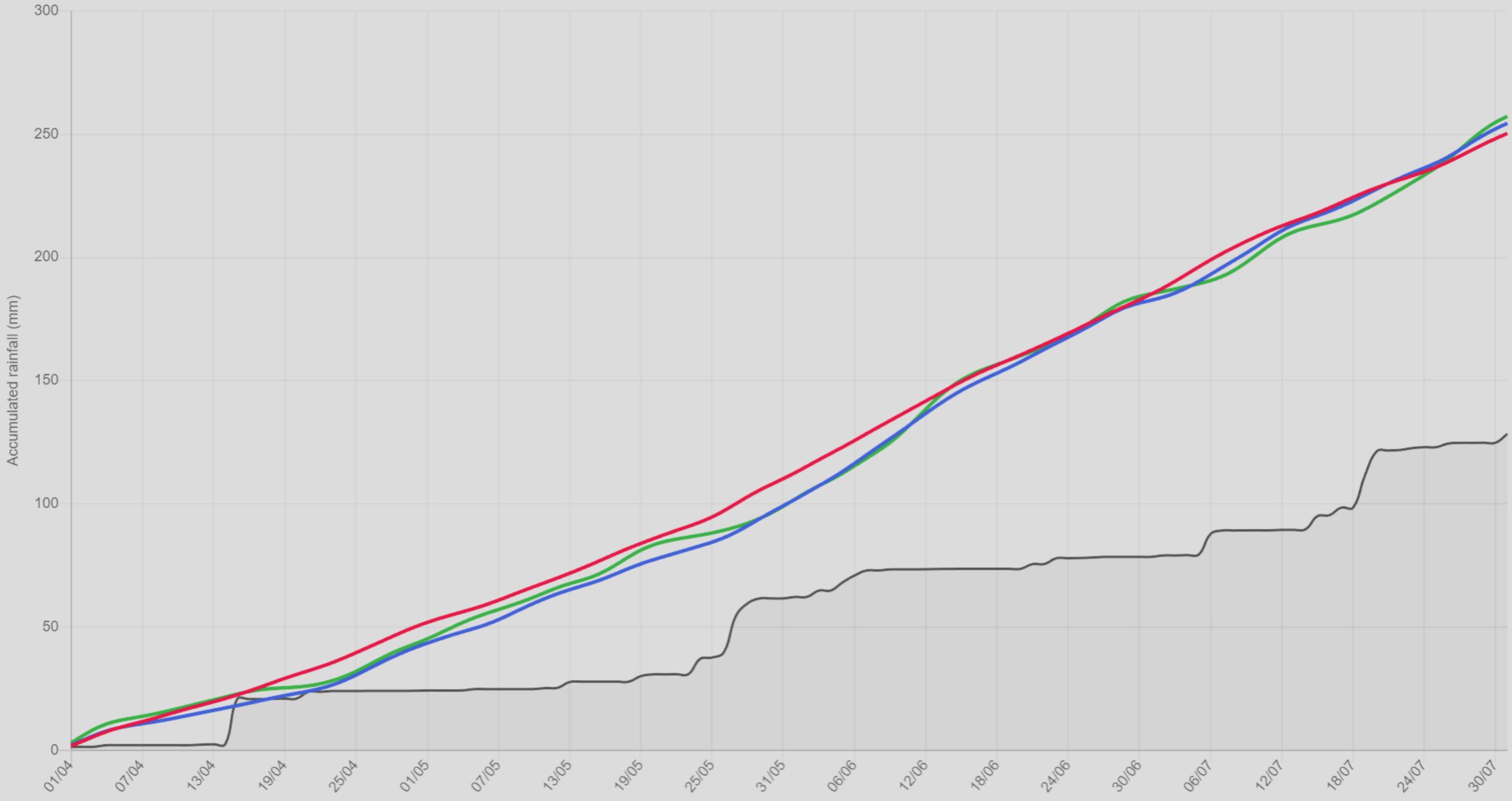
# Jack Harris & Allen Giles



# Seed Rate Trials – Year 3 results

---

- Aim was to see if increasing seed rates would have a benefit on yield
- Does the extra seed cost cover the return?
- 2 trials harvested this year due to tough season



Station  
Holbeach

Data  
Accumulated rainfall

Month/Day  
Day

LAST 12 MONTHS  
2026  
2025

YEAR TO CURRENT MONTH  
04/2025  
07/2025

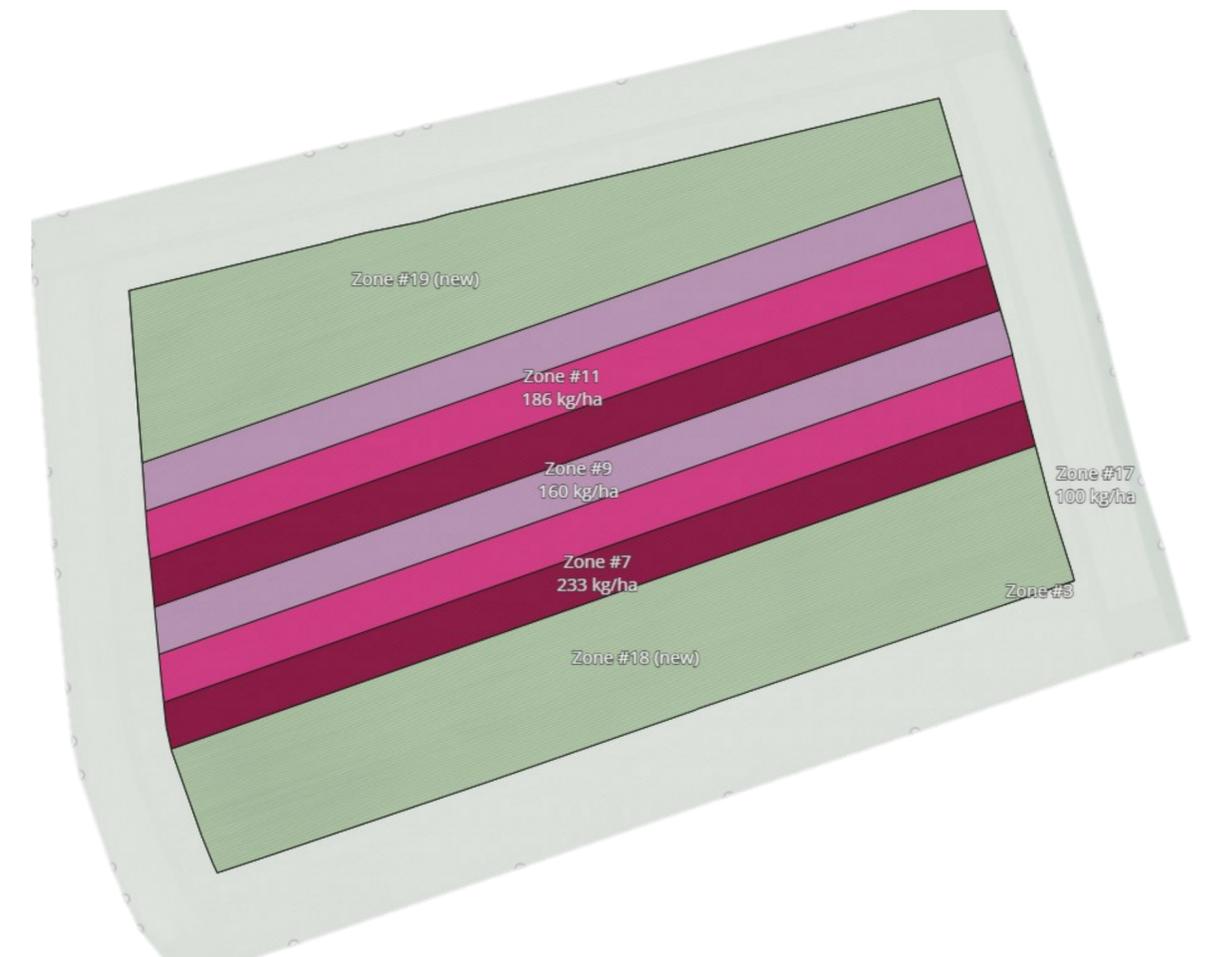
- 30 years
- 10 years
- 5 years
- Actual

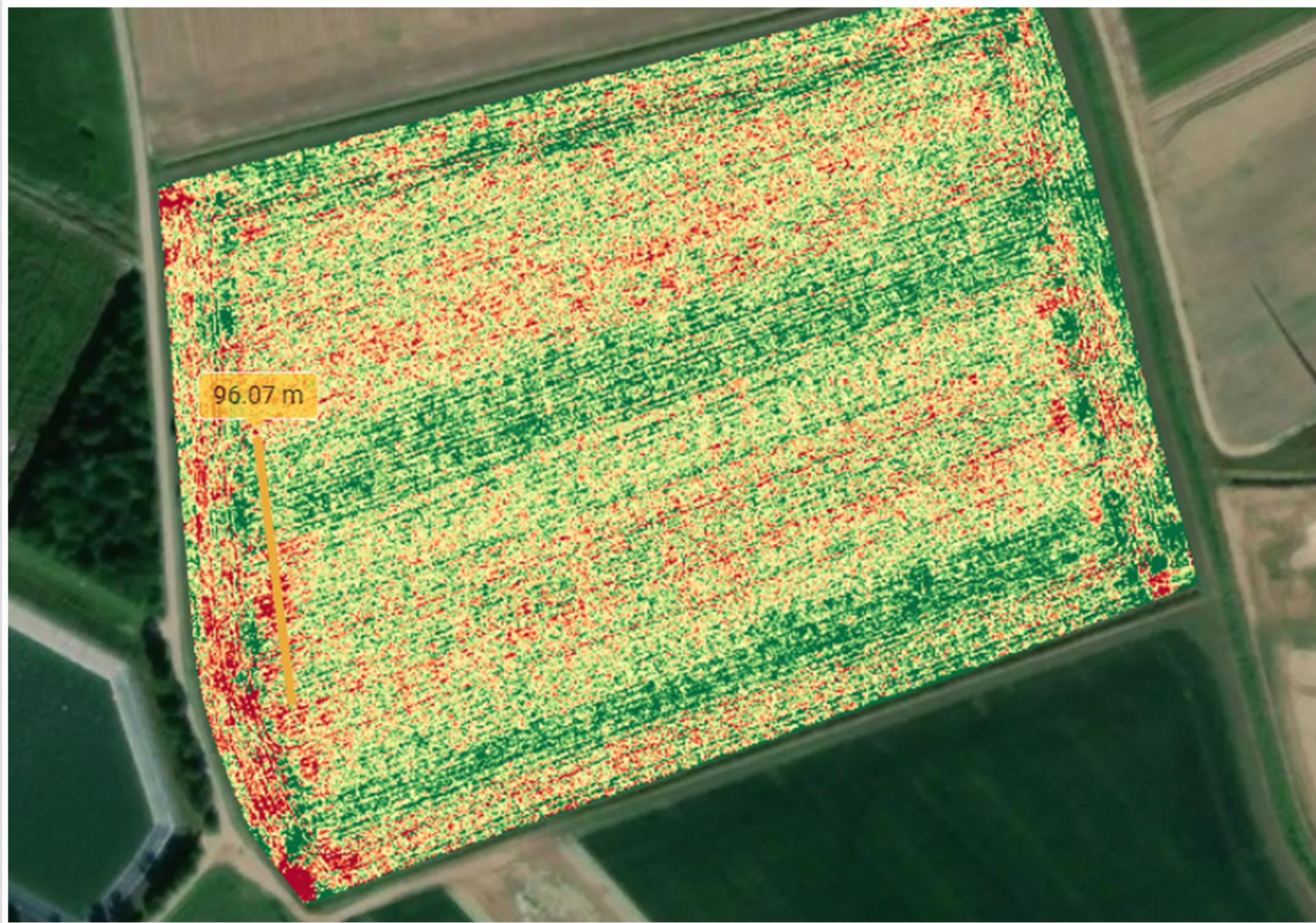
CLOSE

# Worth Farms - Amalfi

- 3 different seed rates / replicated over field

- |                 |             |
|-----------------|-------------|
| • Field rate    | 150 kg/ha   |
| • Increased 25% | 186 kg/ha   |
| • Increased 50% | 223 kg/ha   |
| • Drilled       | 17/04/2025  |
| • Harvested     | 01/07/2025  |
| • Rainfall      | 69mm approx |

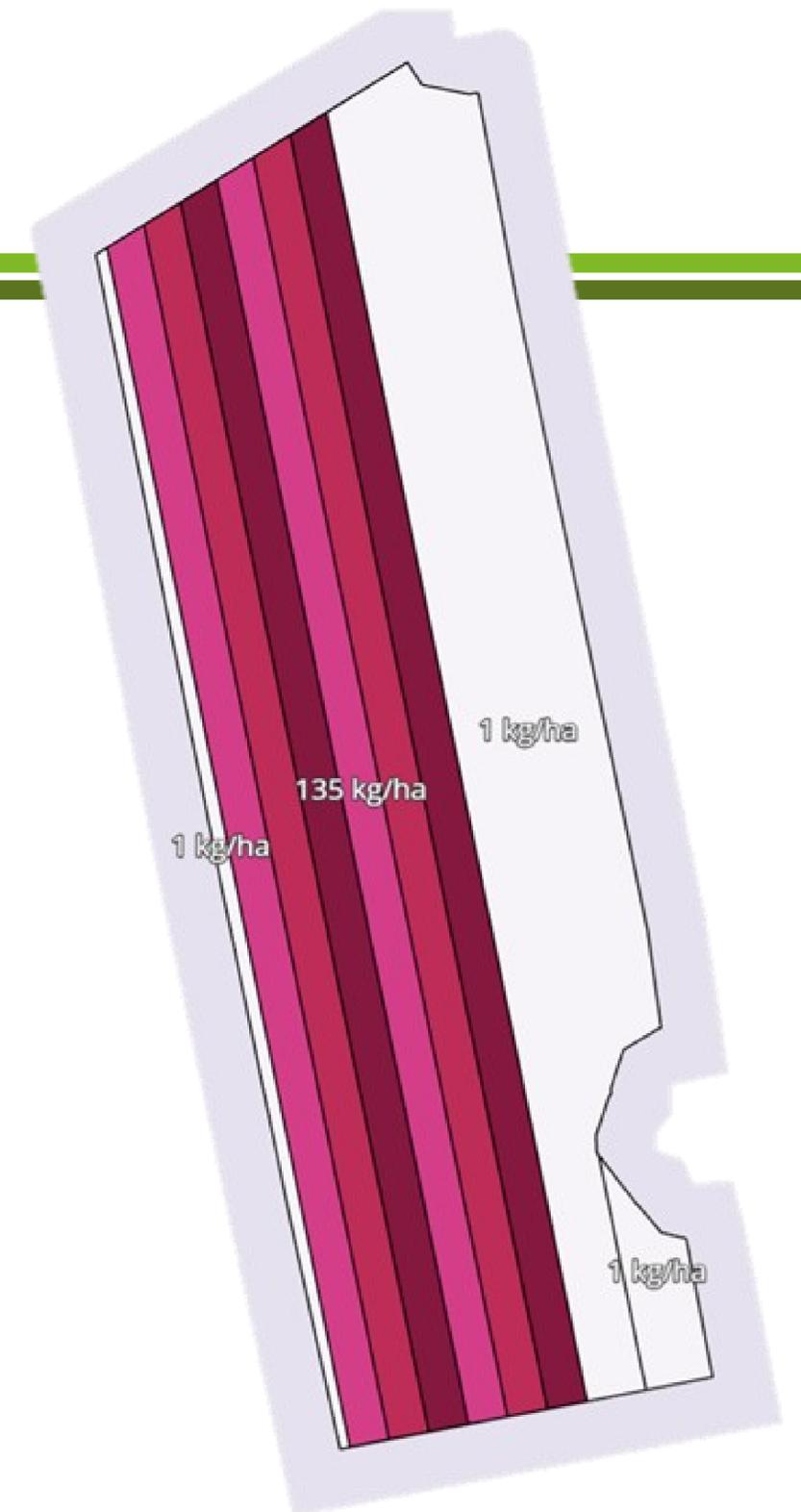


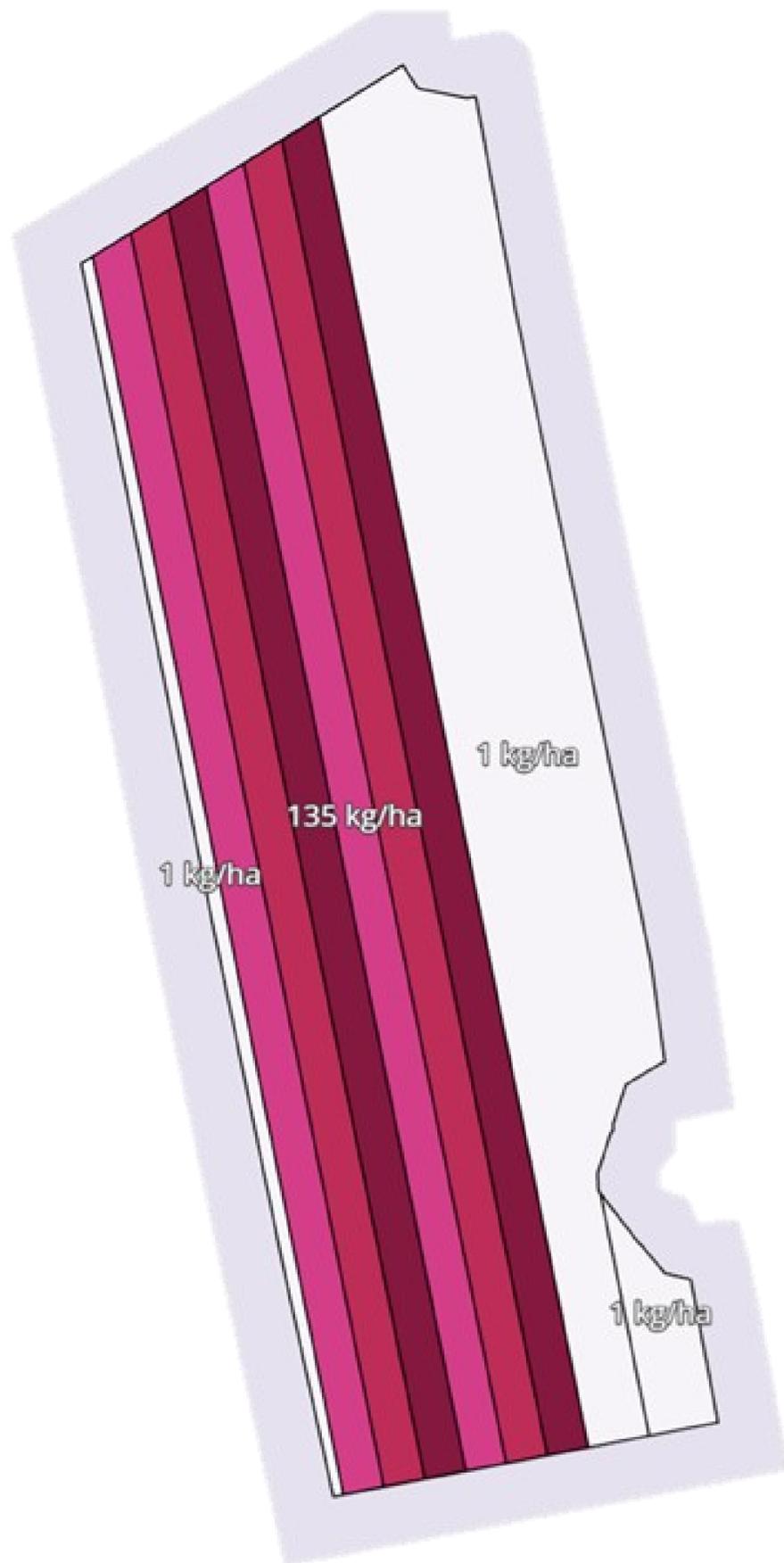


<b>RATE %</b>	<b>Frozen Yield</b>
100	5.9
125	5.69
150	6.26

# HURN - Trophee

- 3 different seed rates / replicated over field
- Field rate 135 kg/ha
- Increased 25% 169 kg/ha
- Increased 50% 203 kg/ha
- Drilled 19/05/2025
- Harvested 17/07/2023
- Rainfall 90mm approx





RATE %	Frozen Yield
100	0.62
125	1.10
150	1.22

## 039 HAM

FARM	RATE KG/HA	UNITS PER HA	RATE AS PERCENTAGE	FRESH YIELD	Trial Yield 100TR	av Froz %	FROZEN YIELD	RETURN FOR THAT FIELD PER TON	RETURN PER HECTARE	SEED COST PER HECTARE	BALANCE	EXTRA INCOME
WORTHS	150	13	100	7.8	7.25	81.34	5.90	£570	£3,363	£388	£2,975	0
WORTHS	186	16.25	125	7.52	6.99	81.34	5.69	£570	£3,242	£481	£2,761	-£214
WORTHS	223	19.5	150	8.27	7.69	81.34	6.26	£570	£3,566	£577	£2,989	£14

## 102 HTR

FARM	RATE KG/HA	UNITS PER HA	RATE AS PERCENTAGE	FRESH YIELD	Trial Yield 100TR	av Froz %	FROZEN YIELD	RETURN FOR THAT FIELD PER TON	RETURN PER HECTARE	SEED COST PER HECTARE	BALANCE	EXTRA INCOME
HURN	136	13	100	0.89	0.77	81.34	0.62	£665	£414	£358	£56	0
HURN	169	16.25	125	1.57	1.35	81.34	1.10	£665	£730	£445	£285	£229
HURN	203	19.5	150	1.75	1.51	81.34	1.22	£665	£814	£534	£280	£224

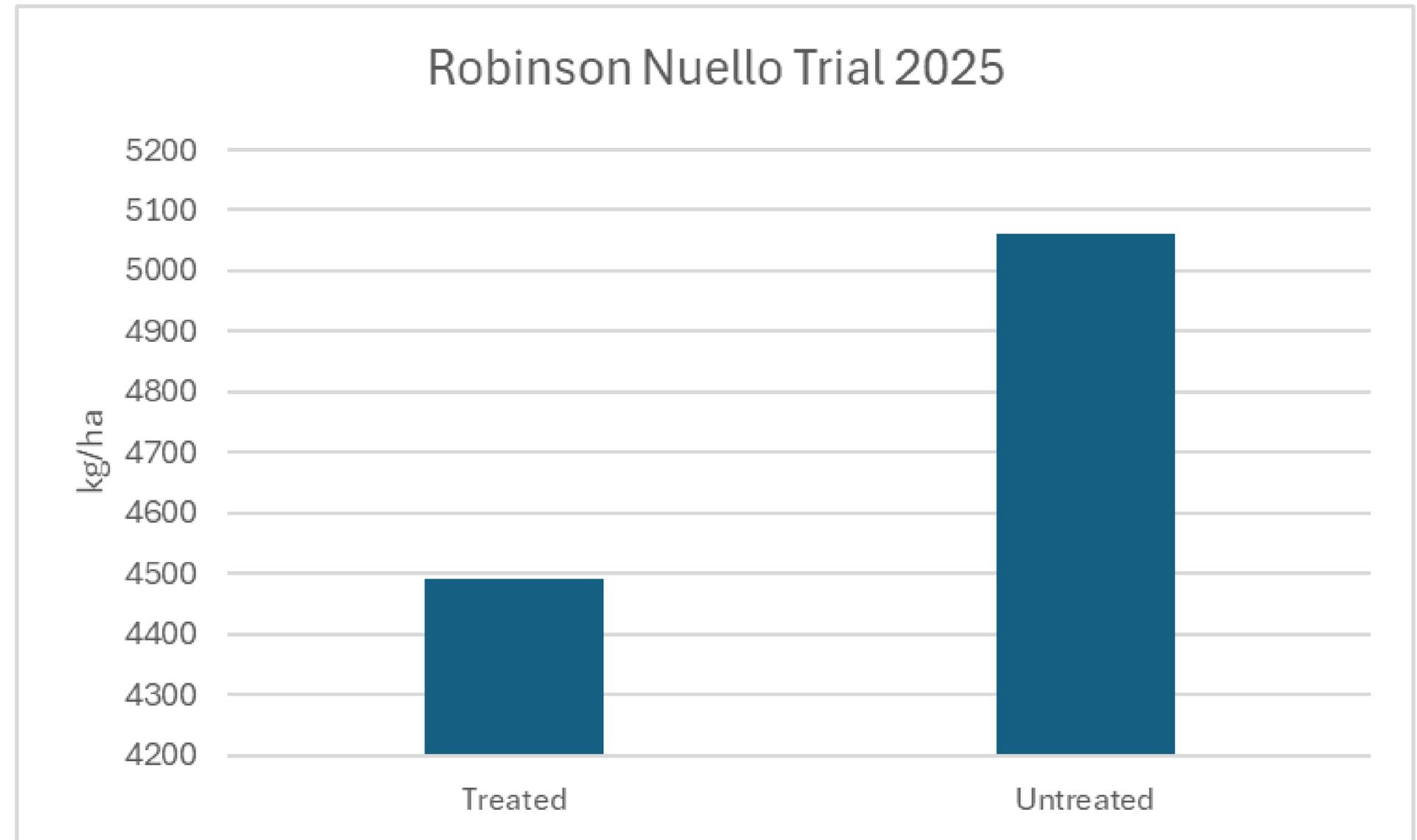
# Other Trials

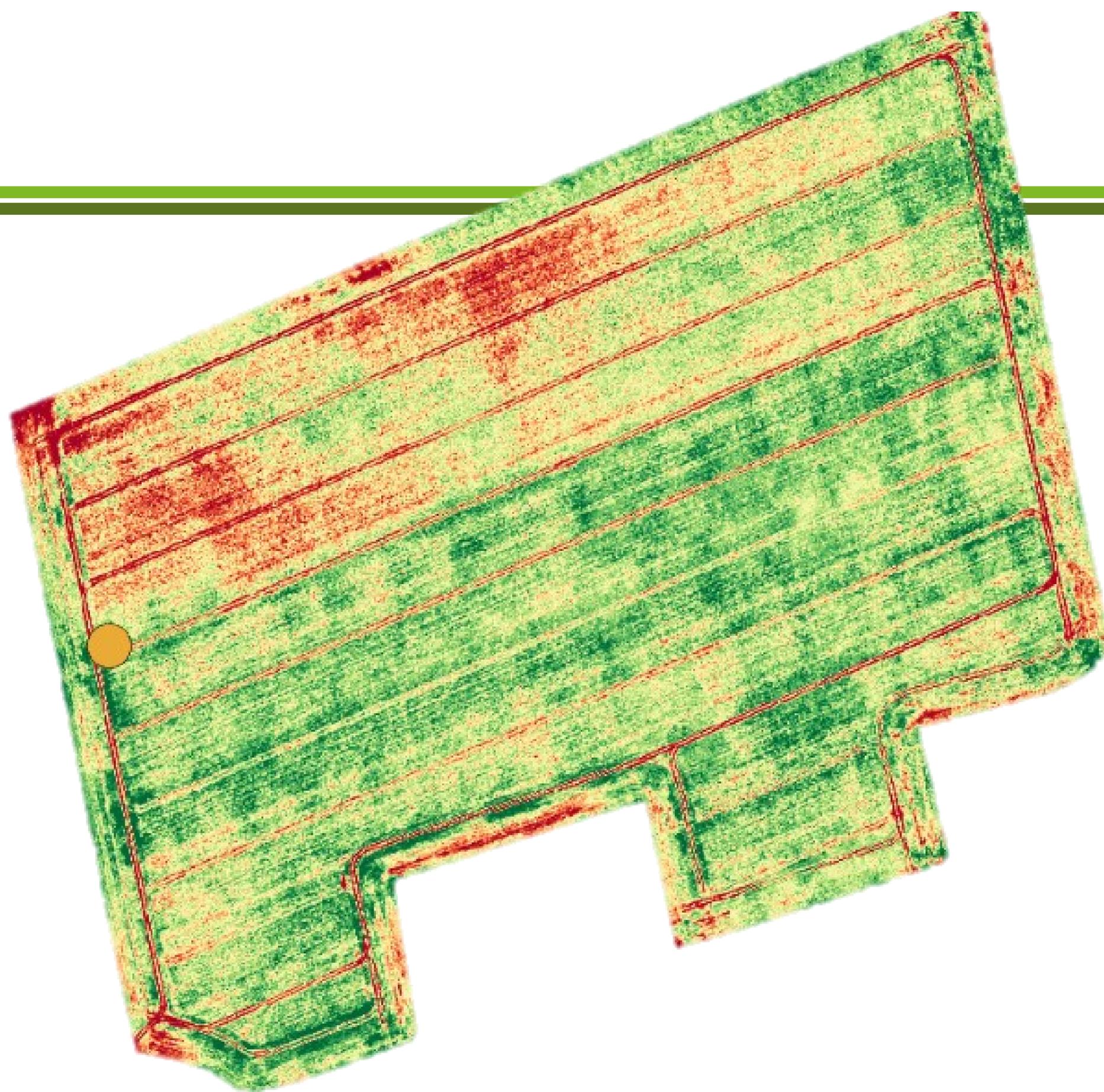
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- This year we also had some other trials happening
- Stimplex from Ilex – Biostimulant – Complex micro nutrients and amino acids
- Yimpact Seed Treatment from Corteva – Cu, Mn, Zn
- Nuello Seed Treatment from Syngenta – N fixing Endophyte bacteria
- Vixeran Biostimulant from Syngenta – Bacteria Azotobacter

# Robinson Trial – Nuello – Not Replicated

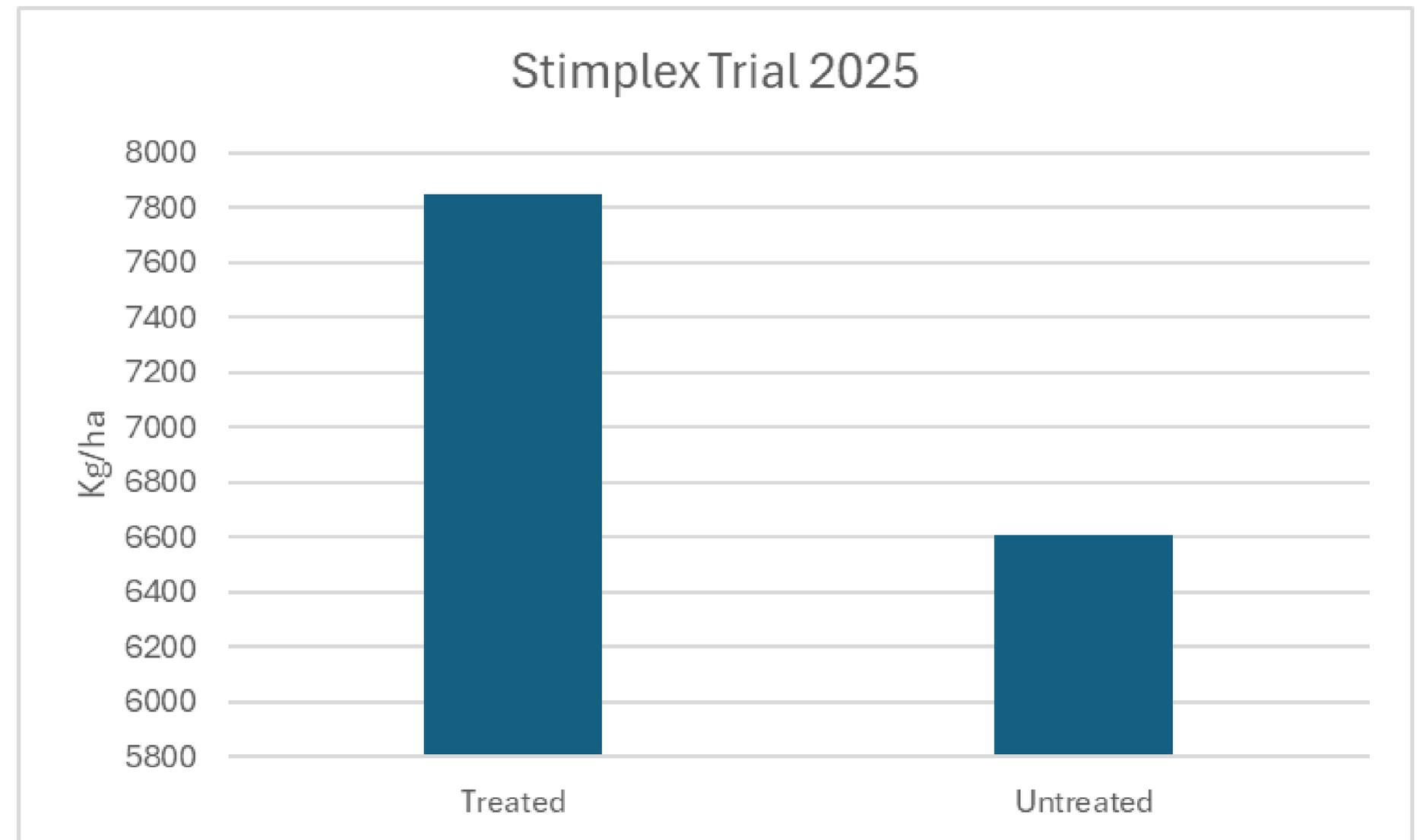
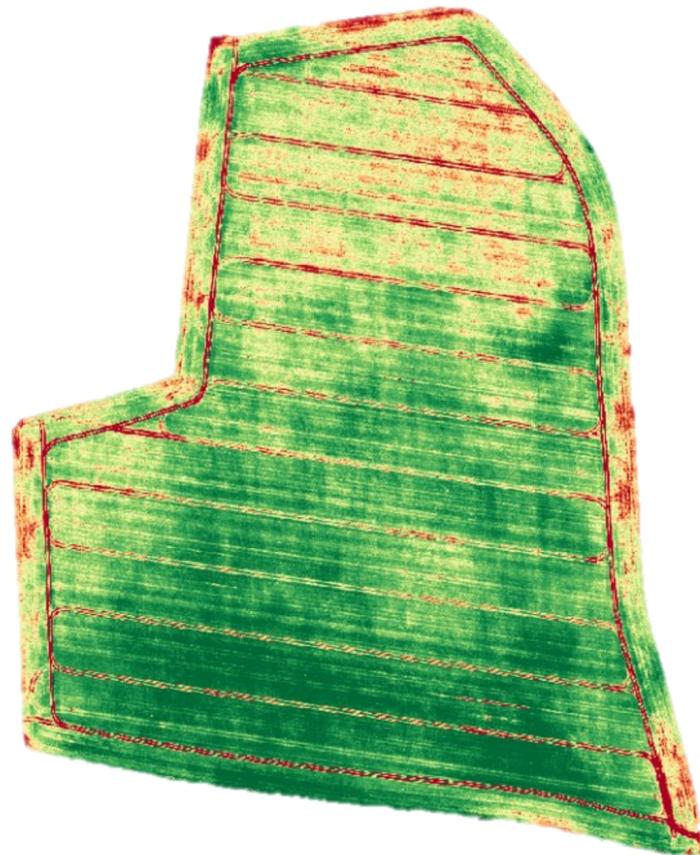
- Nuello
- Treated 4.49 t/ha
- Untreated 5.06 t/ha
  
- Issues with seed
- Trial not viable
- Compensated

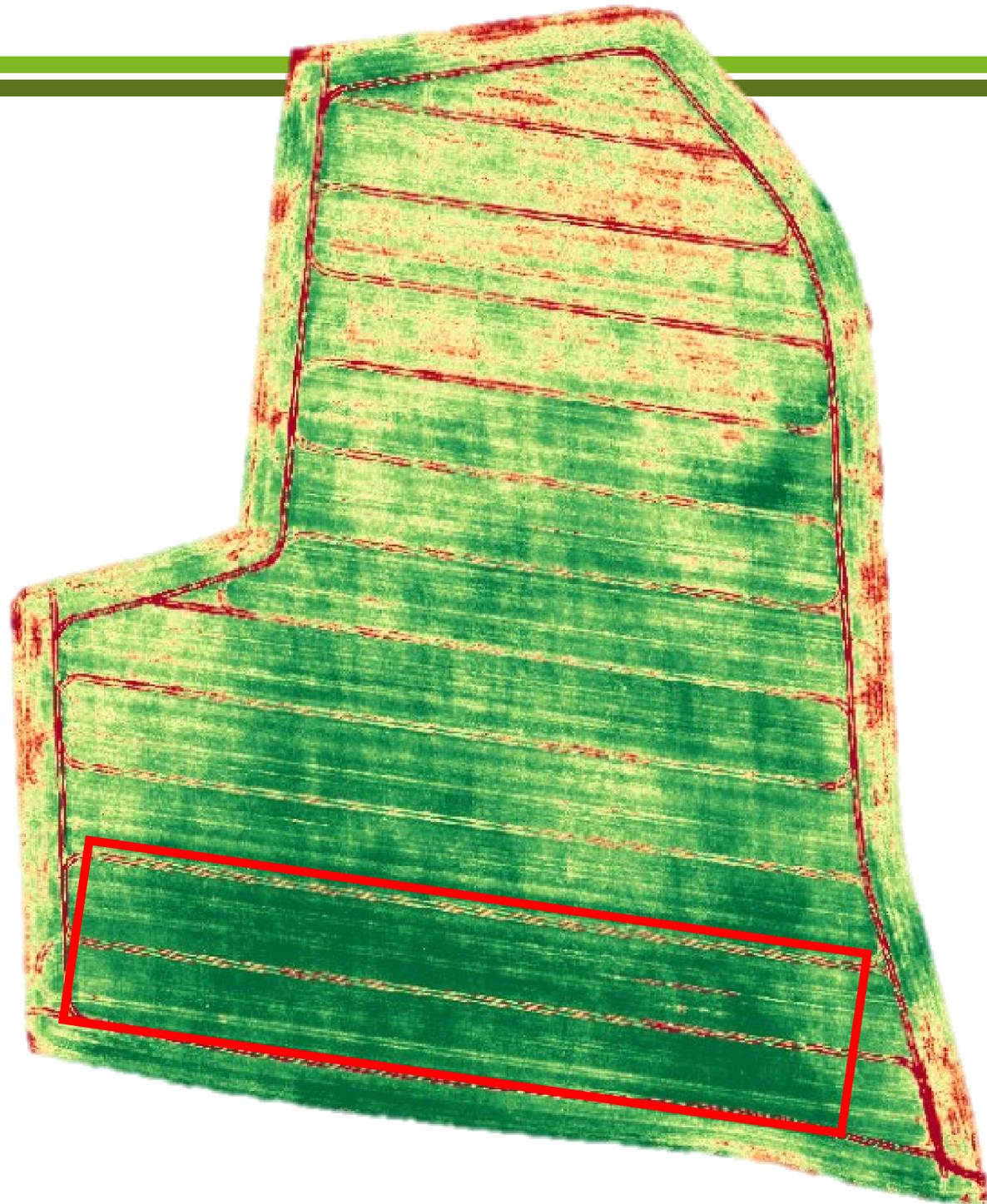




# Robinson Trial – Stimplex – Not Replicated

- Stimplex
- Treated 7.84 t/ha
- Untreated 6.61 t/ha





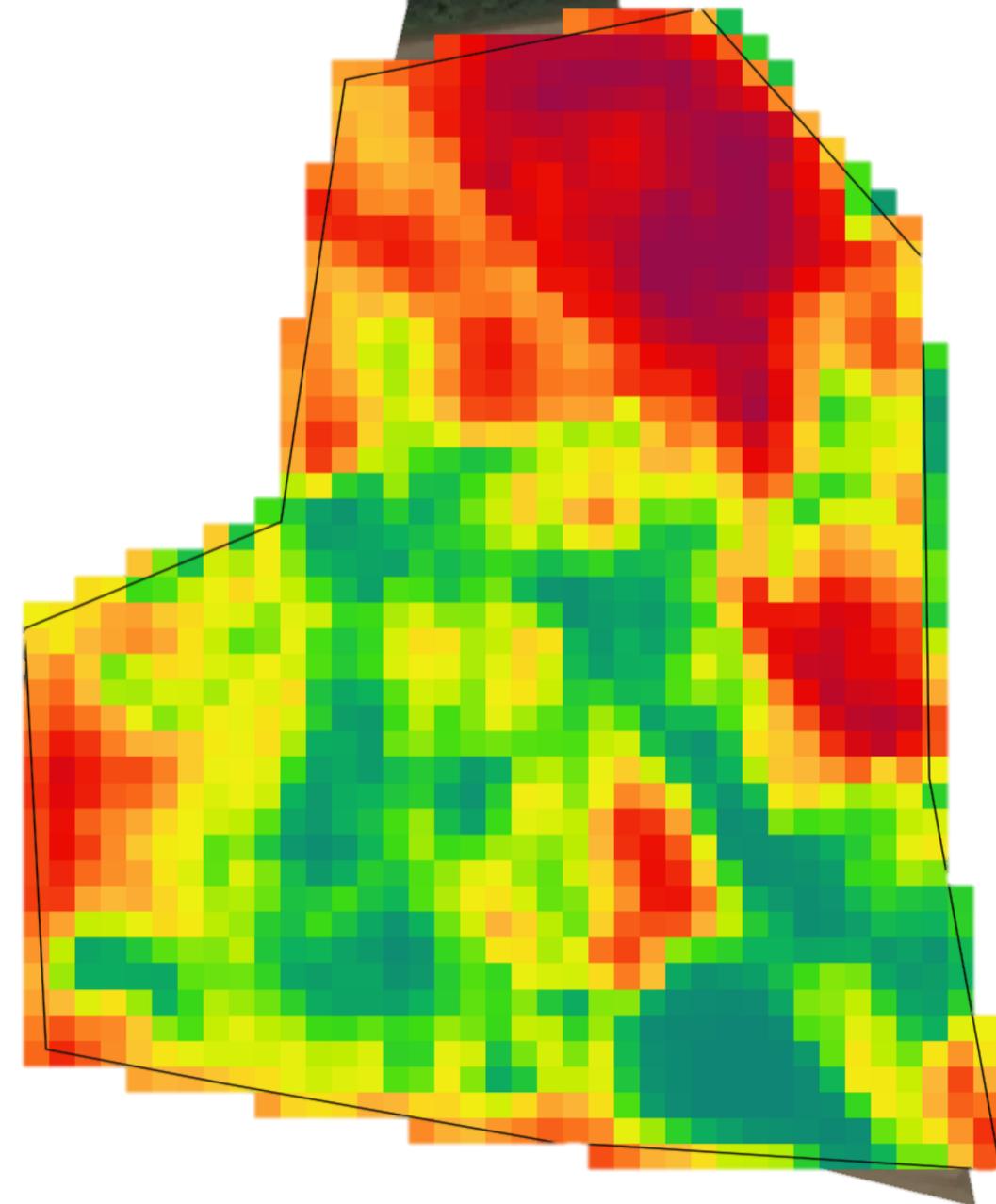
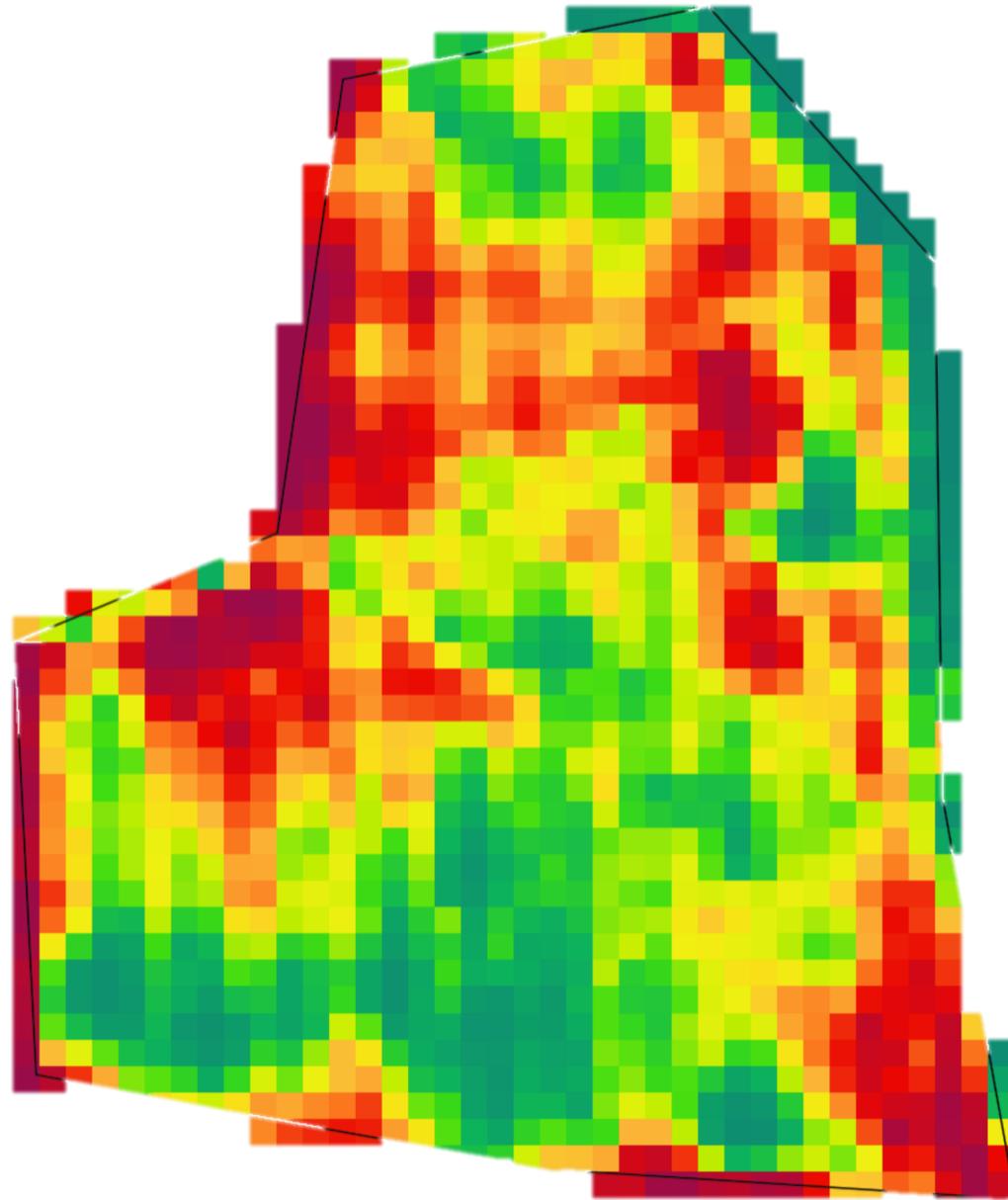
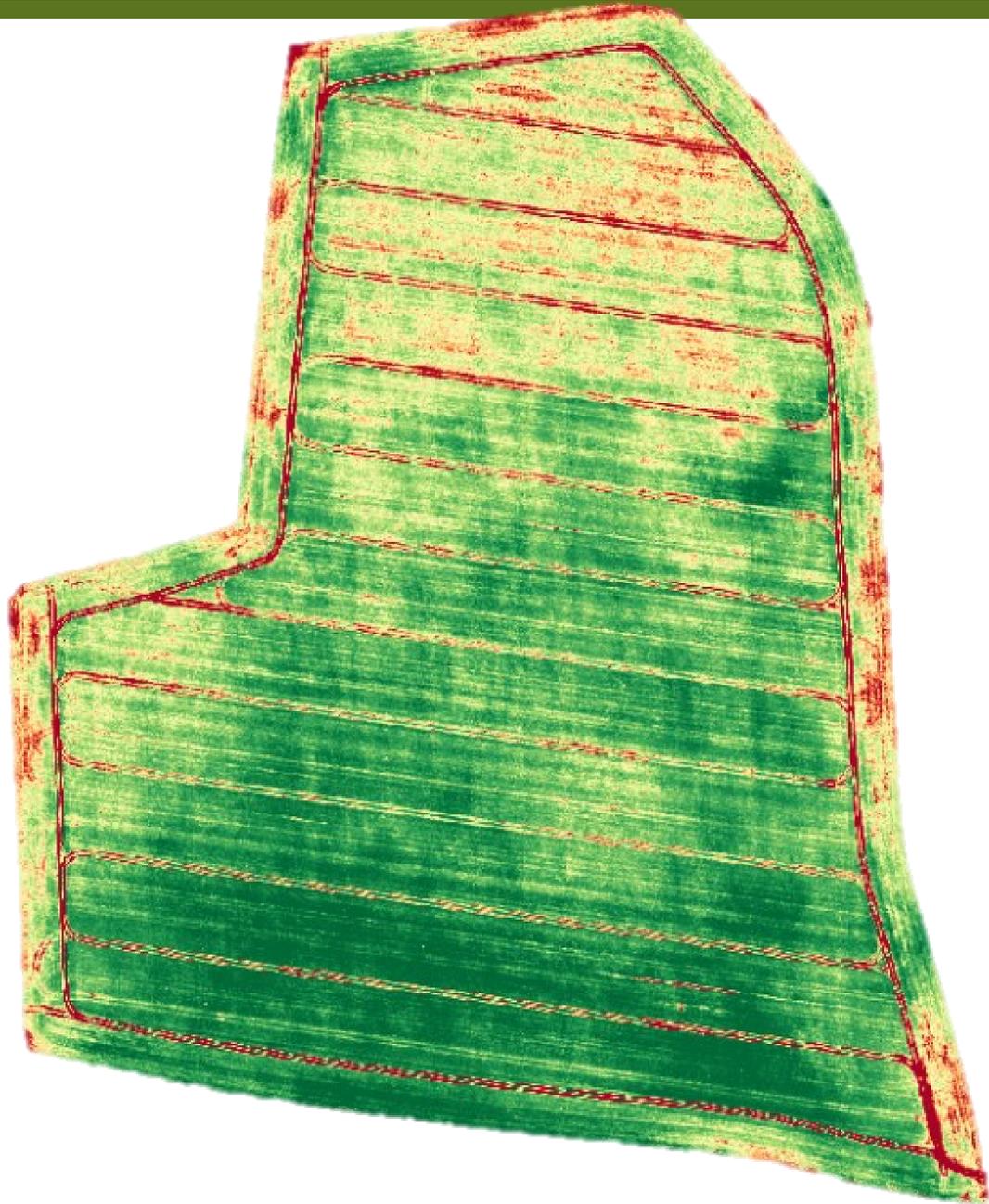
**Application + Product £90/ha based on 3 applications**

**Average price per ton = £584**

**Yield increase 1.23T/ha = £718.32/ha**

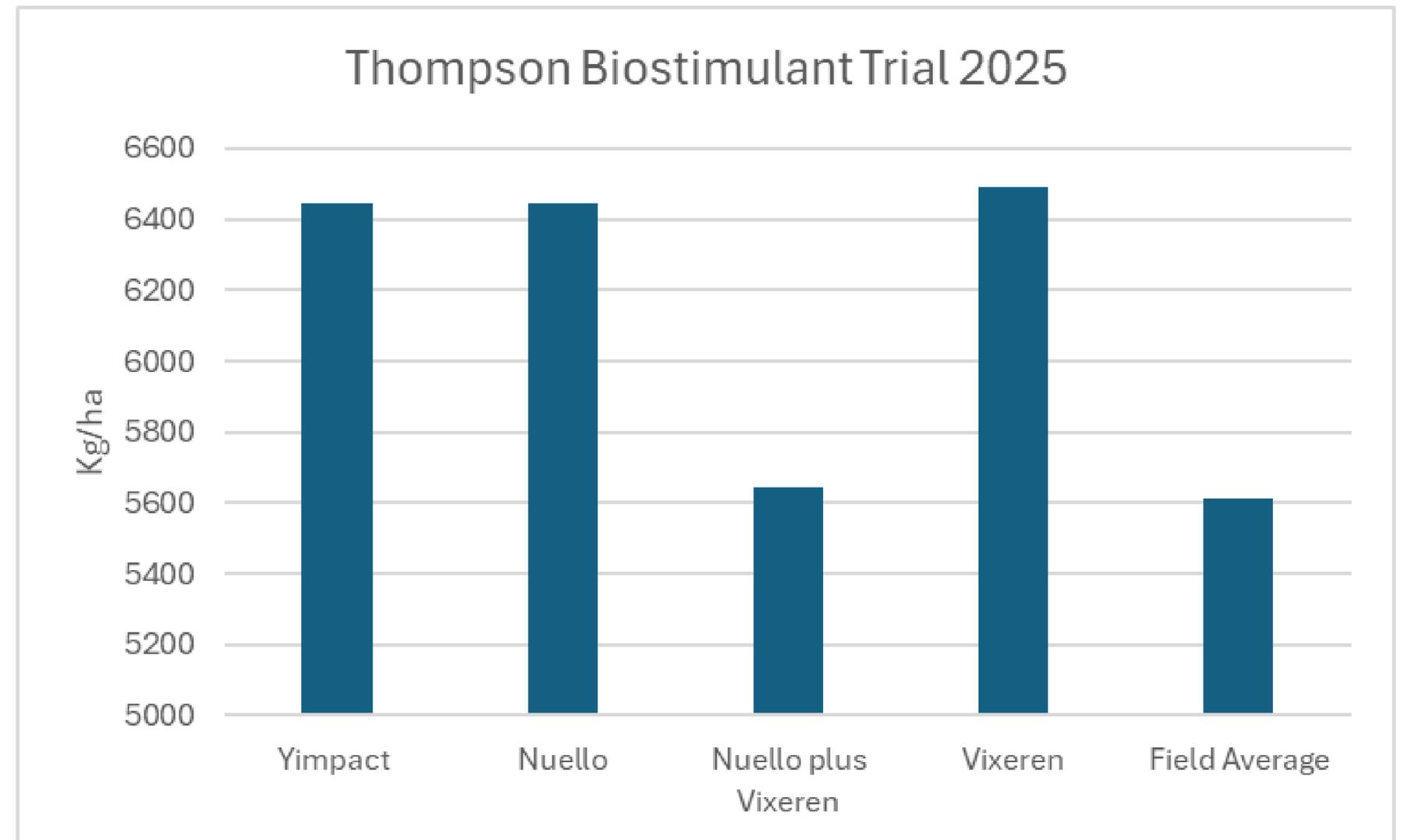
Jun 22, 2023

Jun 22, 2022



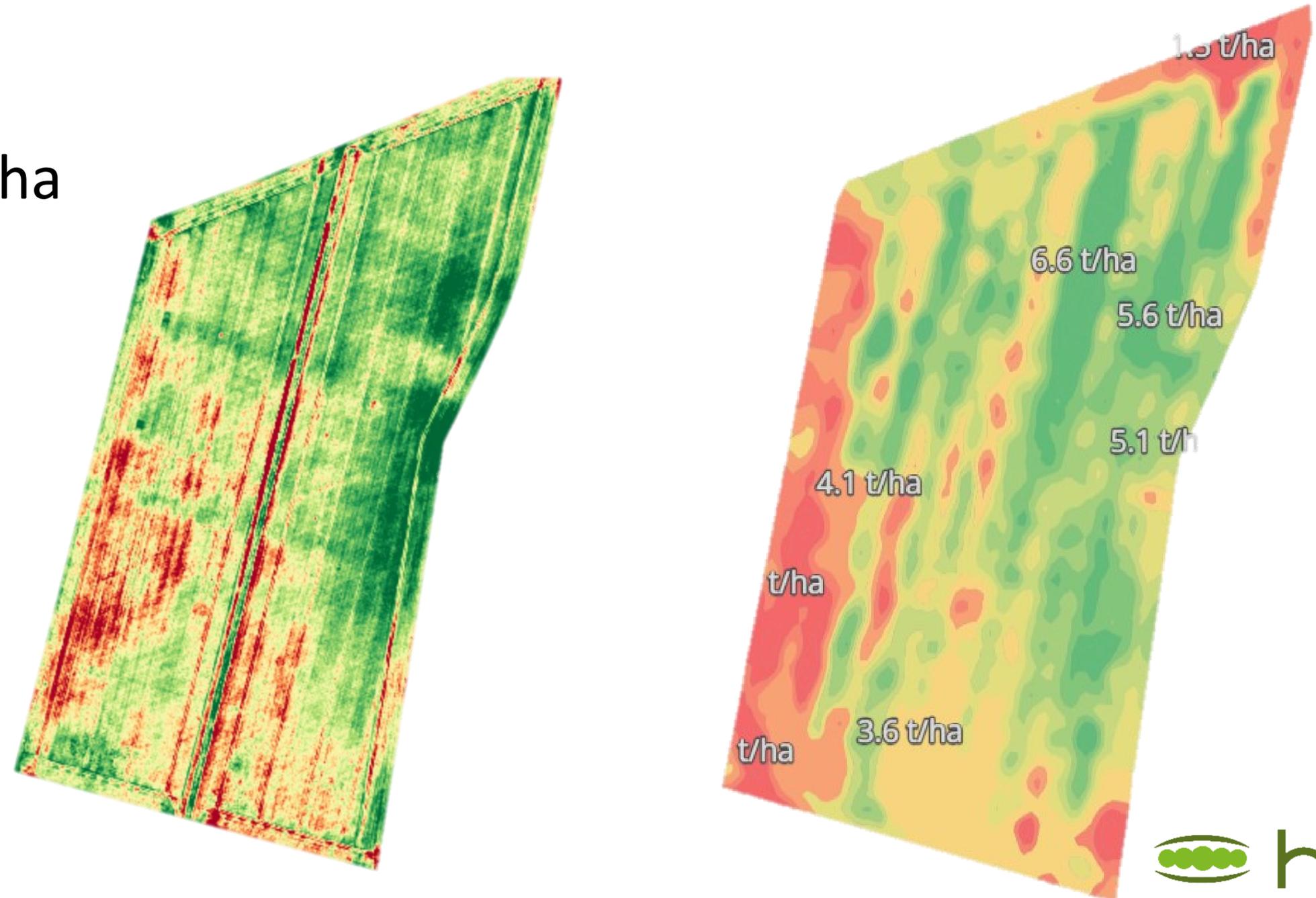
# Thompson Trial – Nuello, Vixeran & Yimpact

- Yimpact – 6.4 t/ha
- Nuello – 6.4 t/ha
- Nuello + Vixeran – 5.64 t/ha
- Vixeran – 6.48 t/ha
- Untreated – 5.6 t/ha



# Sandringham Trial – Vixeran – Not replicated

- Vixeran – 5.3 t/ha
- Untreated – 4.17 t/ha



# Bio stimulant trials

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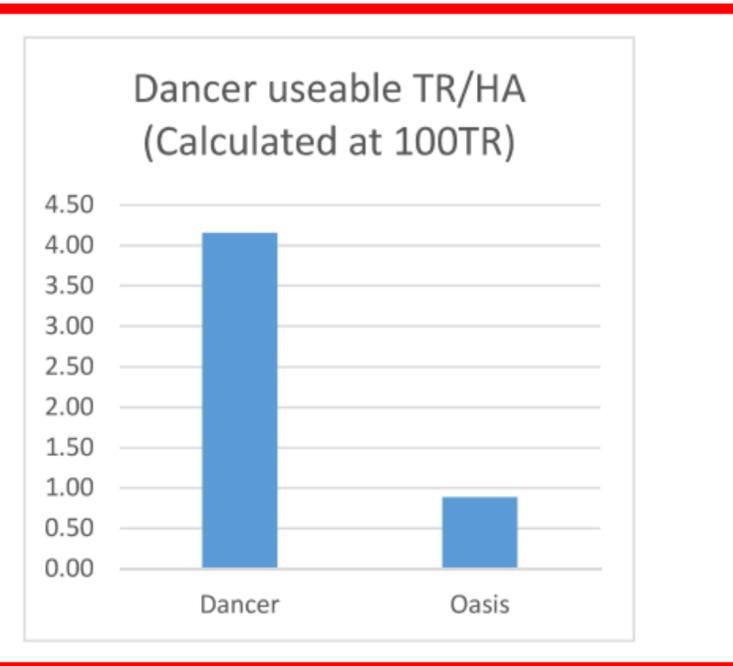
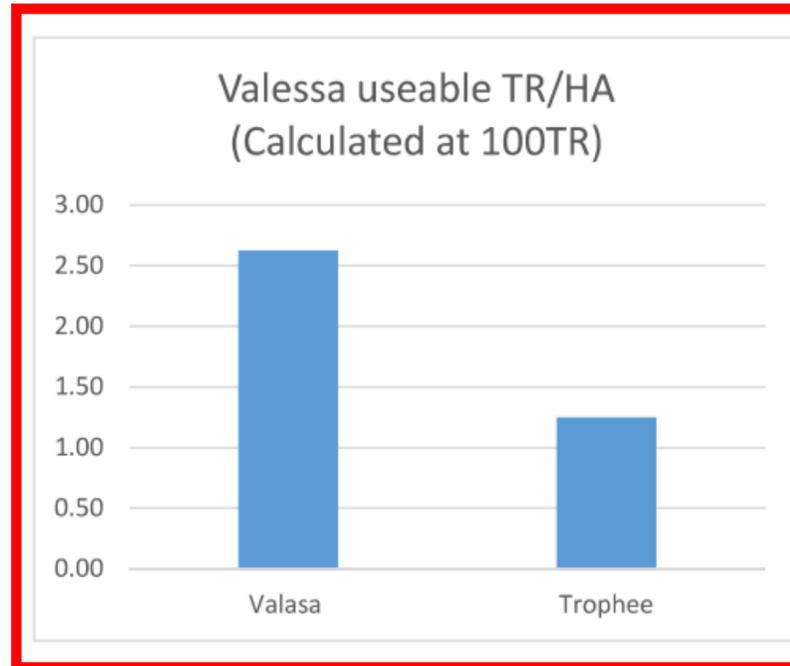
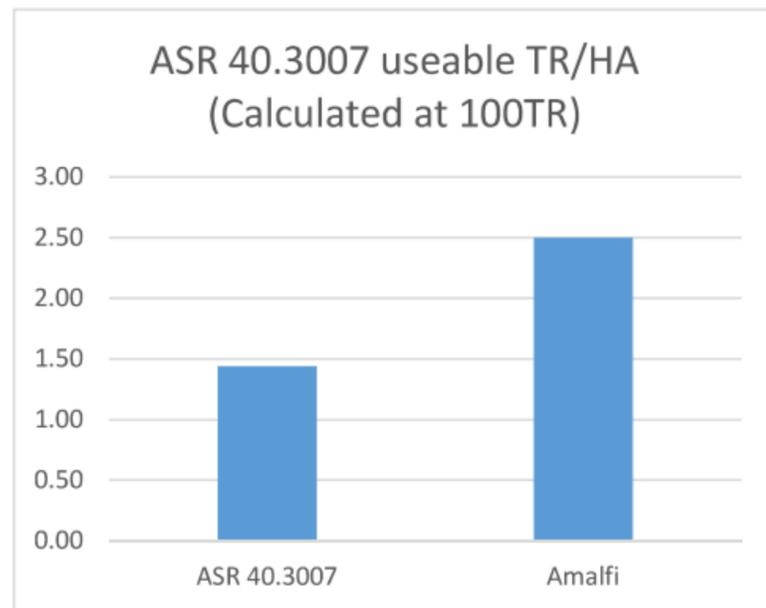
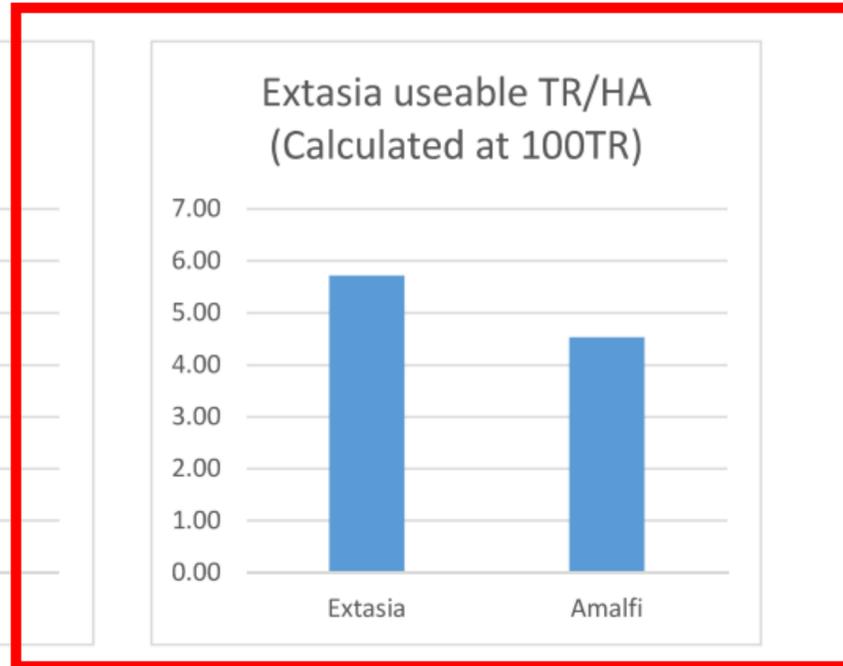
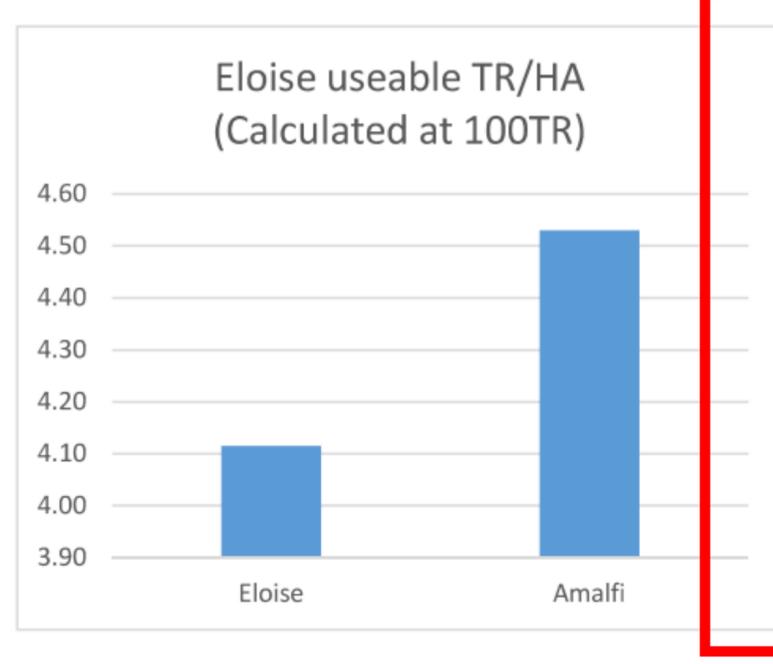
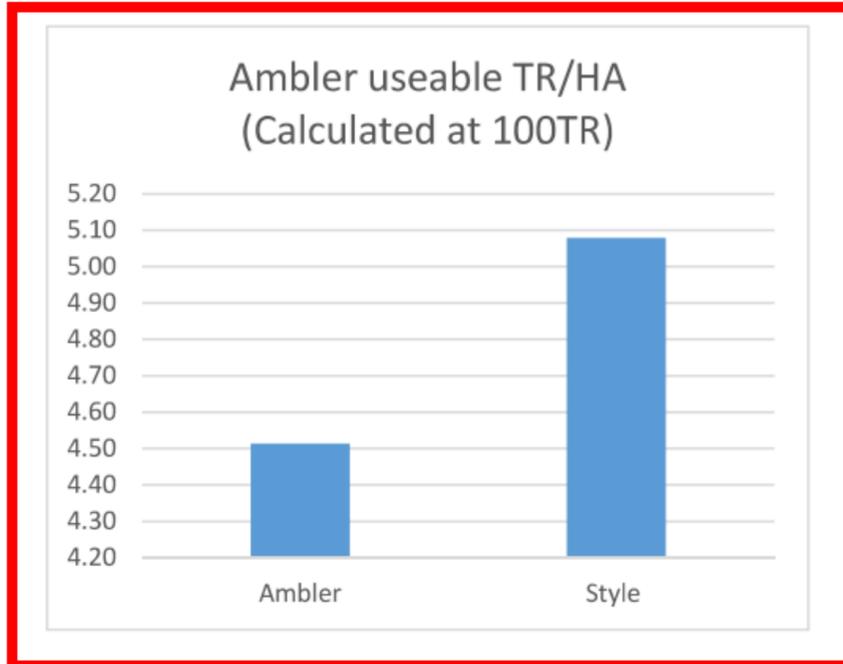
- Trials showed a positive effect on yield.
- 2026 replicate trials over fields
- Will it pay for itself in good years and bad?

# Seed Rate Trials – Average Units

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- Up to 2022 HMC average seed rate was 11 units per ha
- 2023 this increased to 12 units per ha and seed rate trials saw 50% increase gave best results
- 2024 increased base rates again to 13 units per ha and seed rate trials saw 25% seed increase saw best results
- 2025 increased base rates to 14 units per ha. Only 2 trials harvested.
- 2026 will keep at 14 units per hectare
- PGRO and Fen Peas have ADOPT funding to carry out seed rate trials

# Variety Trials Results



# Paul Tech Soil Probes

- Soil Temp
- Soil Moisture
- Soil Nutrients
- Stress Levels



# Paul Tech Soil Probes

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- What useable data can we gather?
- Are Peas providing as much N as we thought?
- Can cover crops provide nutrients for longer?
- Other findings

# Paul Tech Soil Probes

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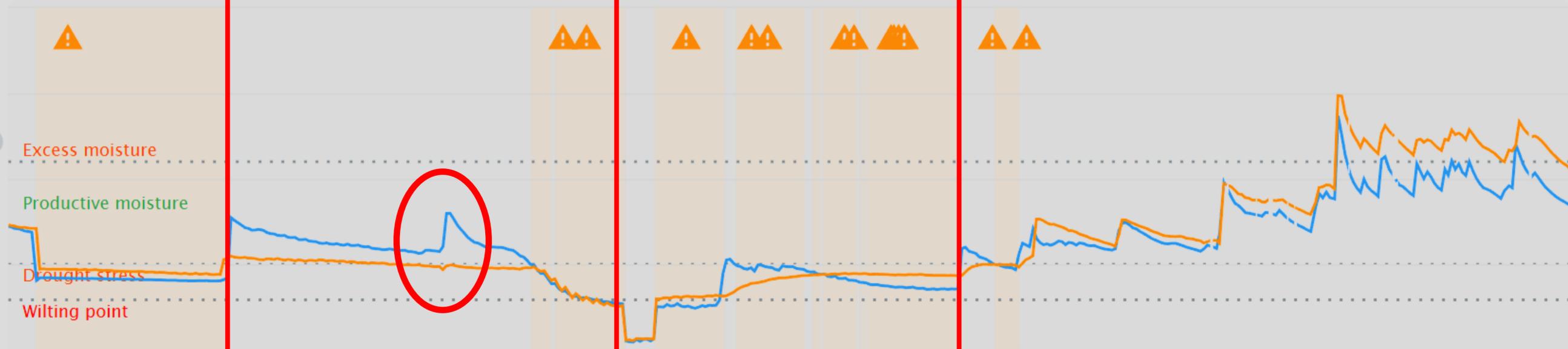
- Rain Data from Omnia
- Satellite Data from CultiWise
- Graph Soil Data from Paul Tech

# Paul Tech Soil Probes

## Soil water i

- Less than 5.8 Wilting point i
- 5.8 - 8 Severe drought stress i
- 8 - 10 Light drought stress i
- 10 - 22 Productive moisture i
- Over 22 Excess moisture i

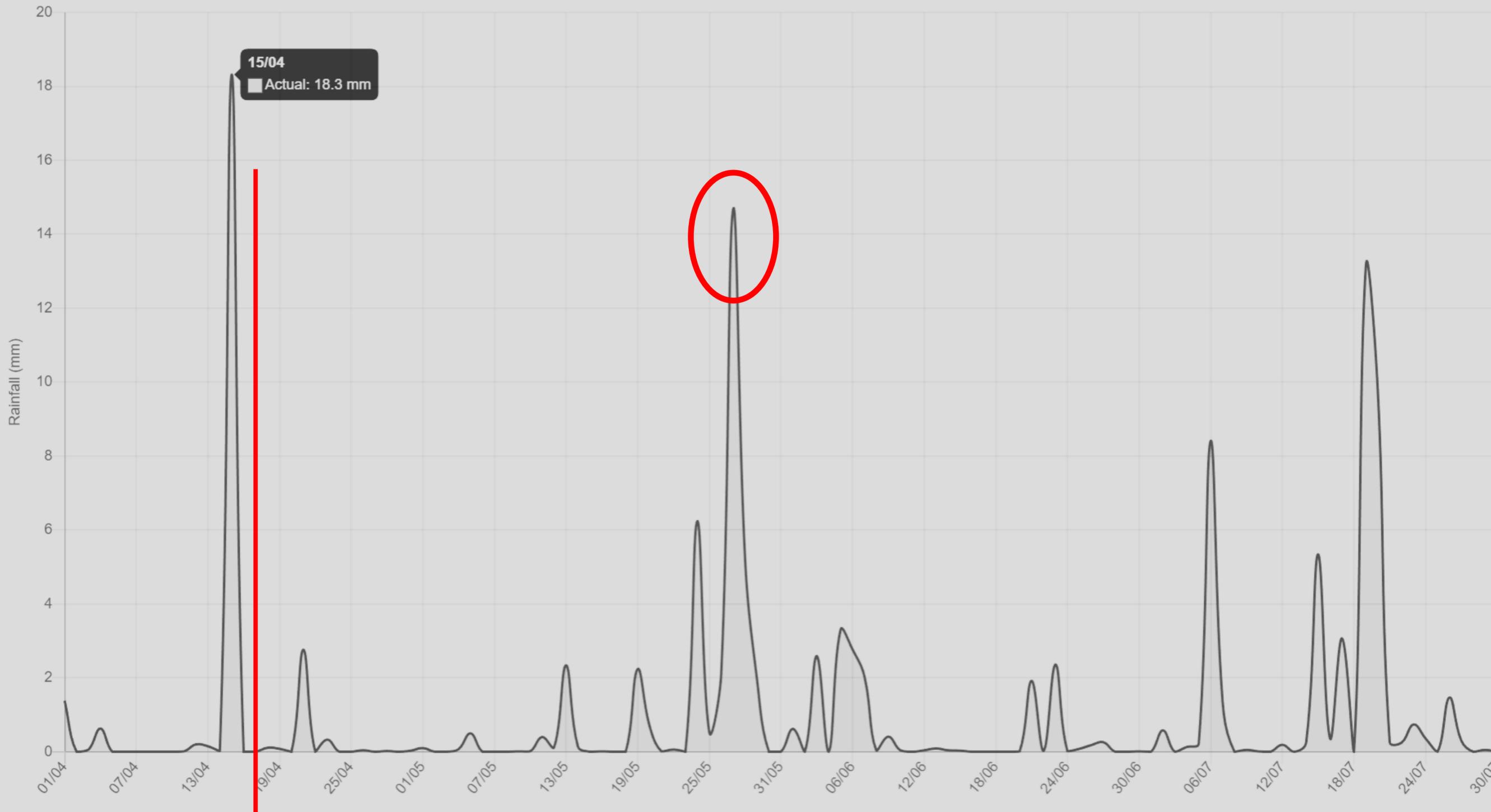
Probe depth:  8 cm  20 cm



Peas Drilled  
17/04/2025

Peas Harvested  
01/07/2025

MOP Applied



Station  
Holbeach

Data  
Rainfall

Month/Day  
Day

LAST 12 MONTHS

2026  
2025

YEAR TO CURRENT MONTH

04/2025 07/2025

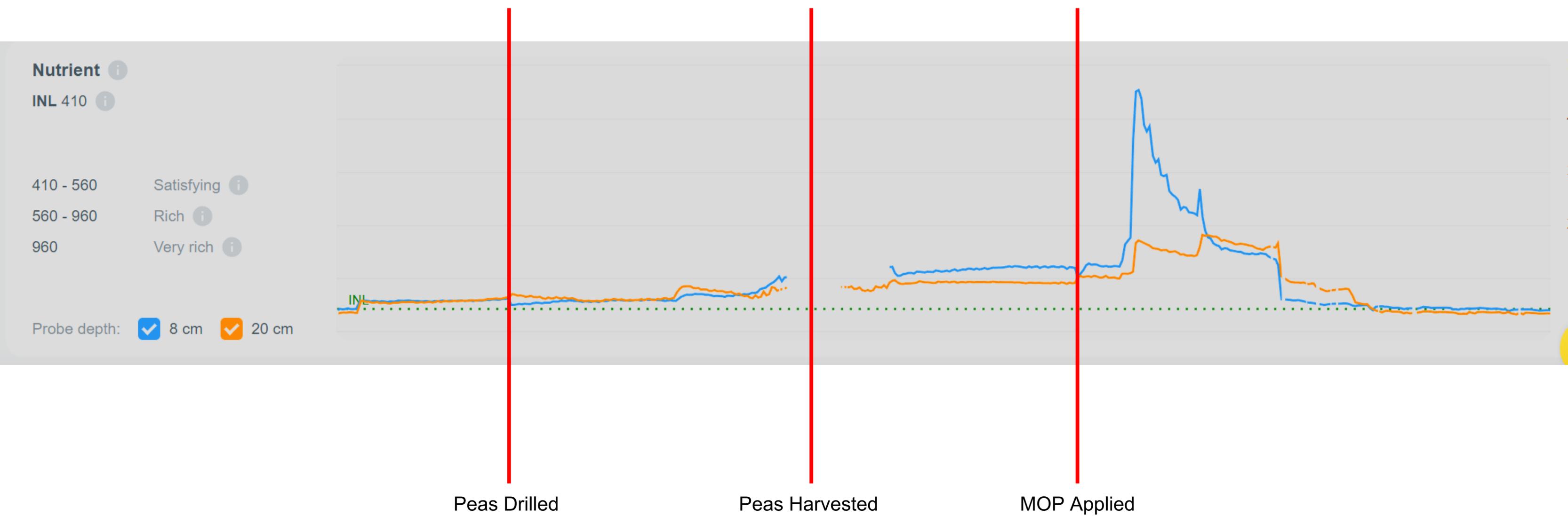
- 30 years
- 10 years
- 5 years
- Actual

Peas Drilled

Peas Harvested

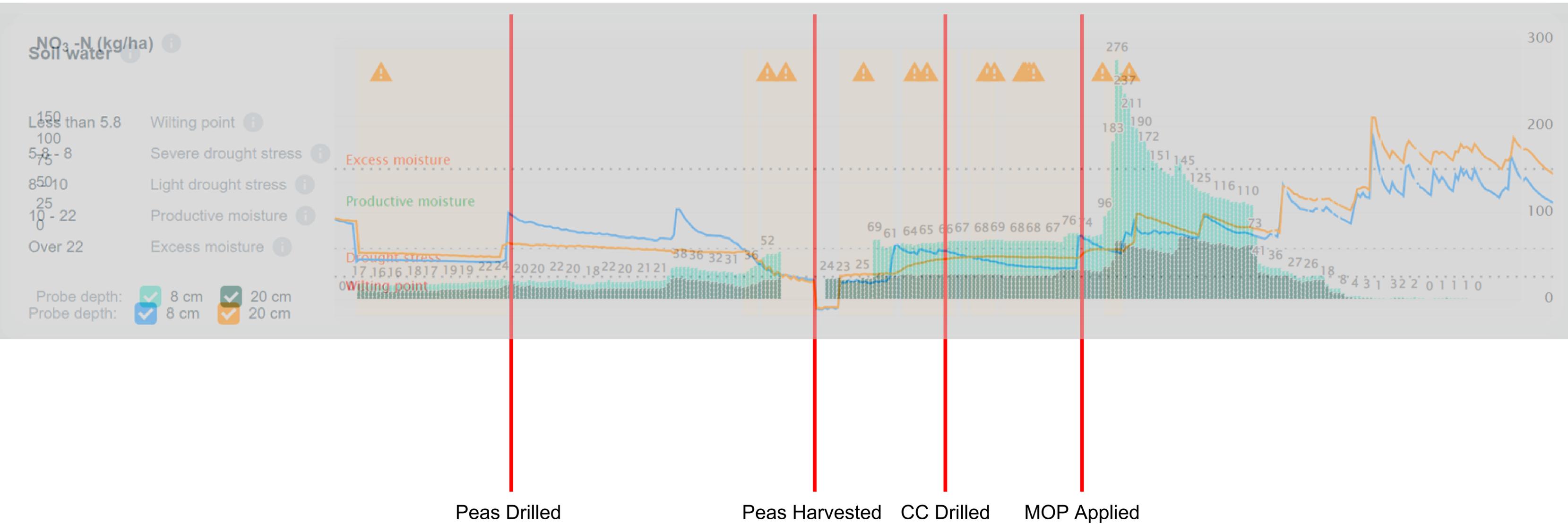
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# Paul Tech Soil Probes



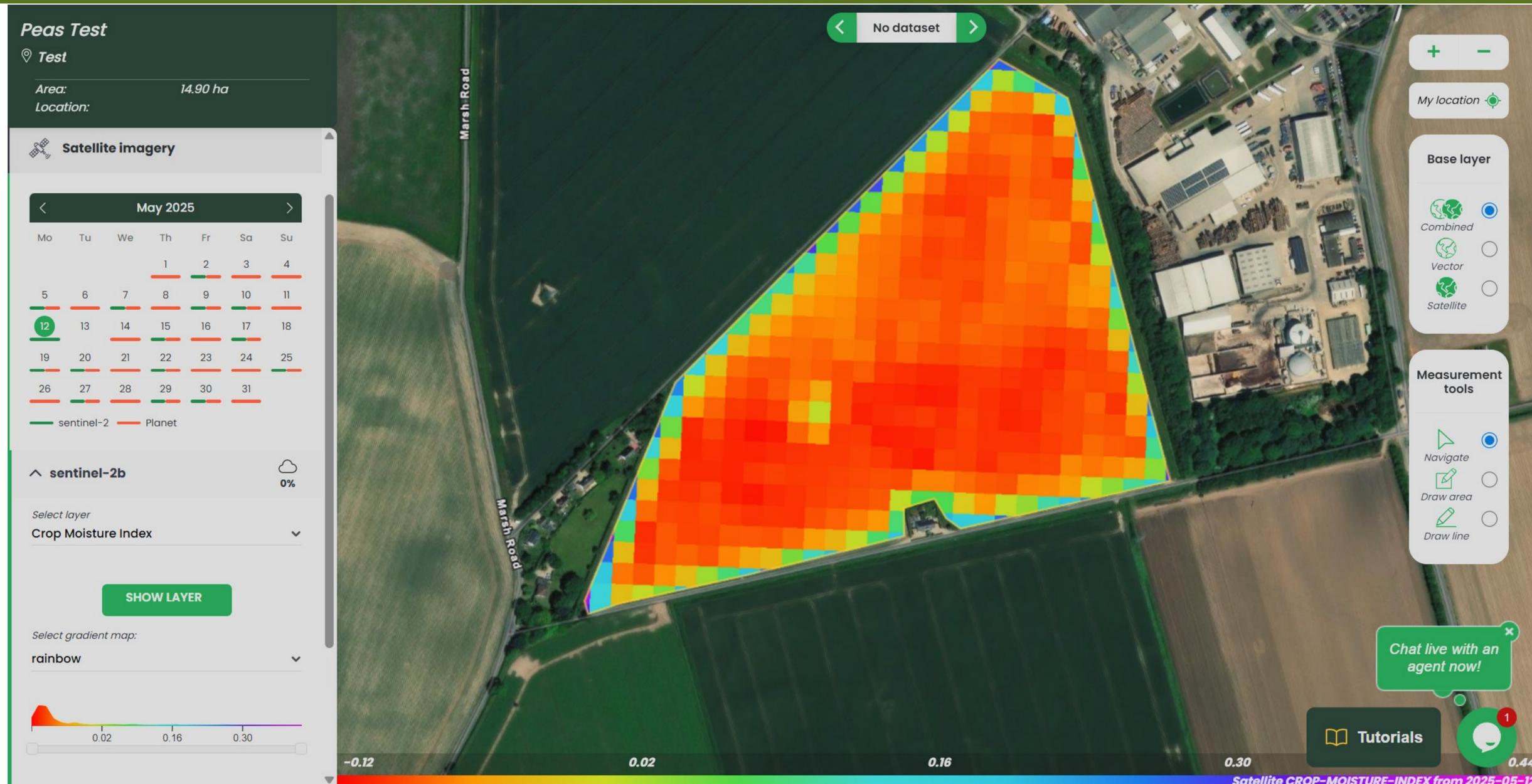
Shows the overall content of nutrients in the soil

# Paul Tech Soil Probes



Shows Nitrate in soil

# Paul Tech Soil Probes – Satellite Imagery Crop Moisture





Station  
Holbeach

Data  
Rainfall

Month/Day  
Day

LAST 12 MONTHS

2026

2025

YEAR TO CURRENT MONTH

04/2025

07/2025

- 30 years
- 10 years
- 5 years
- Actual

First Image

Second Image

CLOSE

# Paul Tech Soil Probes – Satellite Imagery Crop Moisture



# Allen Giles



# Housekeeping

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- Washdown Areas
- Grower field visits
  - High viz
  - Sign in
  - Make yourself known to shift supervisor
- Access to fields – Clear gateways and cut low trees
- Foot rot samples – best in Spring before following year.
- Field information for following season – complete with all back cropping details and new columns for field hazards.

# Back to Basics

- Long Rotation
- Previous Cropping
- Suitable and Best Land
- Cultivations
- Pest Control and Pigeon Control



# Rolling

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- If conditions allow, roll after drilling and before pre-emergence application
- If soil conditions too wet and if heavy rain is forecast, don't roll
- If needed peas can be rolled post emergence when they are 2-4 inches in height
- In some circumstances post emergence rolling is more beneficial than pre-emergence rolling
- Any rolling to be discussed and agreed between HMC and the grower

# 2026 Variety Trials

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## Field scale trials

- Ambler (Early) – grown on silts this year
- Valbona (Mid season standard) – potential full virus resistance
- Contigo ( Standard) – Oasis substitute

## Small scale Petits trials

- New virus-resistant varieties to be confirmed once seed availability has been confirmed

## Chickpeas

- Looking to grow 2ha in Norfolk with support of Robinson Farms and Princes.
- Looking to see the viability of harvesting fresh and canning

Trying to keep as confidential as possible at this time

# AOB

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# Thank You!

