

Intercropping pea and beans to support pea production – lessons learnt from 2024 trials



Sheila Alves
Teagasc Oak Park



Bhadra Parija
Teagasc Oak Park



Ewen Mullins
Teagasc Oak Park

National Tillage Conference 2025

Wednesday, 29th January | Lyrath Hotel, Kilkenny

www.teagasc.ie/tillagecon25

Why the focus on pea?

- Aim to support growing market for plant based ingredients
- Pea flour and protein isolate does have added value potential
- Irish yields of field peas are the highest in EU (~ 4.1t/ha)
- Only c. 650 ha planted *per year*
- Crop considered a high risk, due to yield losses associated with potential for pre-harvest lodging
- Need to mitigate risk of lodging, to increase pea production
- Intercropping has been shown to decrease pea lodging

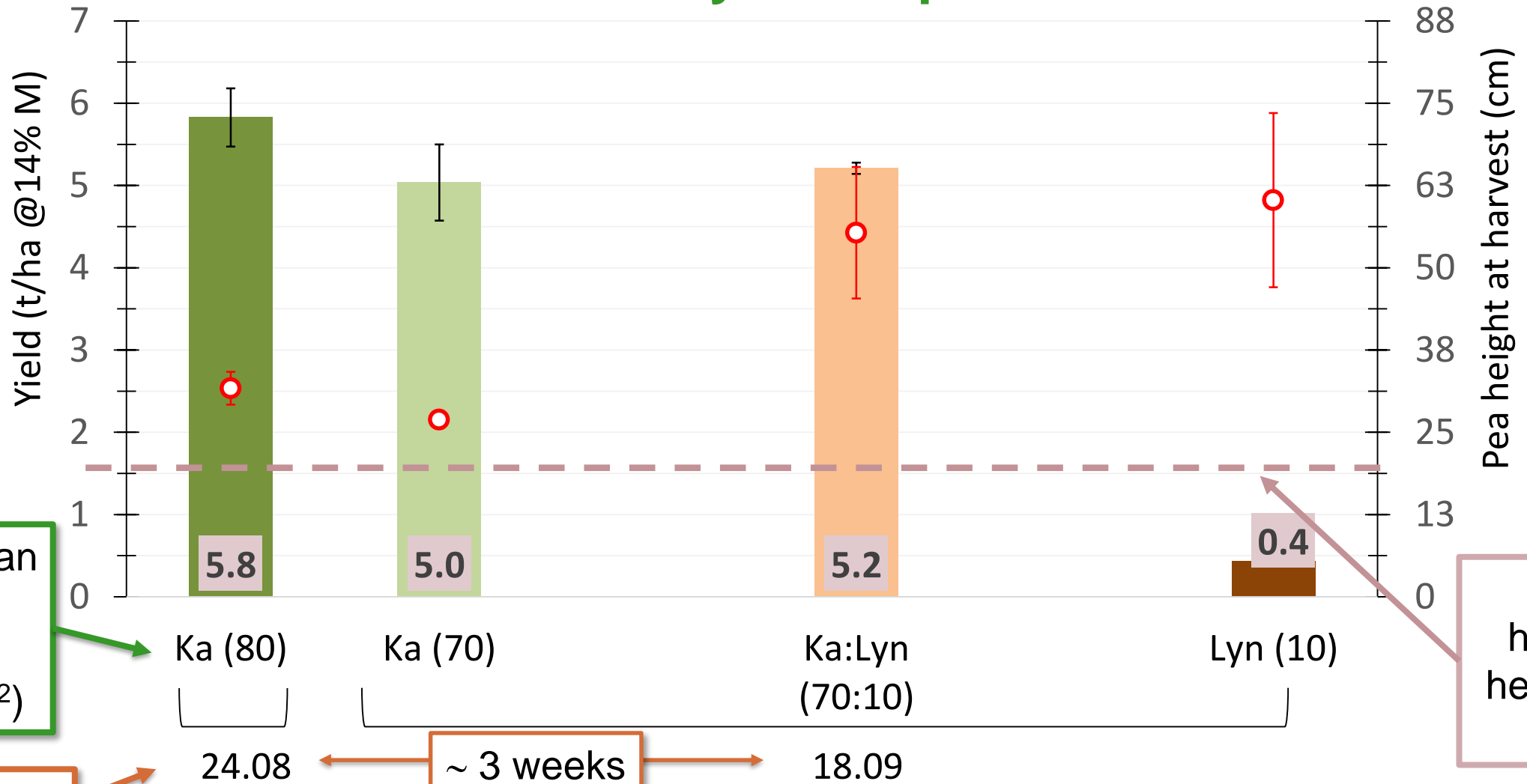
2024 Intercropping season: Oak Park plot trials

- **The plot trials aim to:**
 - Select best varieties: 6 field peas; 5 faba beans
 - Optimise total seed rate (SR) and pea:bean ratio (26 combinations)
- **Case study:**

STD maturity faba bean / SR = 80 seeds/m²

Treatment	Pea: Karioka	Bean: Lynx
Pea only (seeds/ m ²)	80	-
Mixture (seeds/ m ²)	70	10
Pea only (seeds/ m ²)	70	-
Bean only (seeds/ m ²)	-	10

Field pea:faba bean intercropping increases harvest window with low yield impact



Pea / bean variety (SR in seeds/m²)

Ideal harvest height: 20 cm +

Harvest date

Ka = Pea (Karioka)
Lyn = Bean (Lynx)

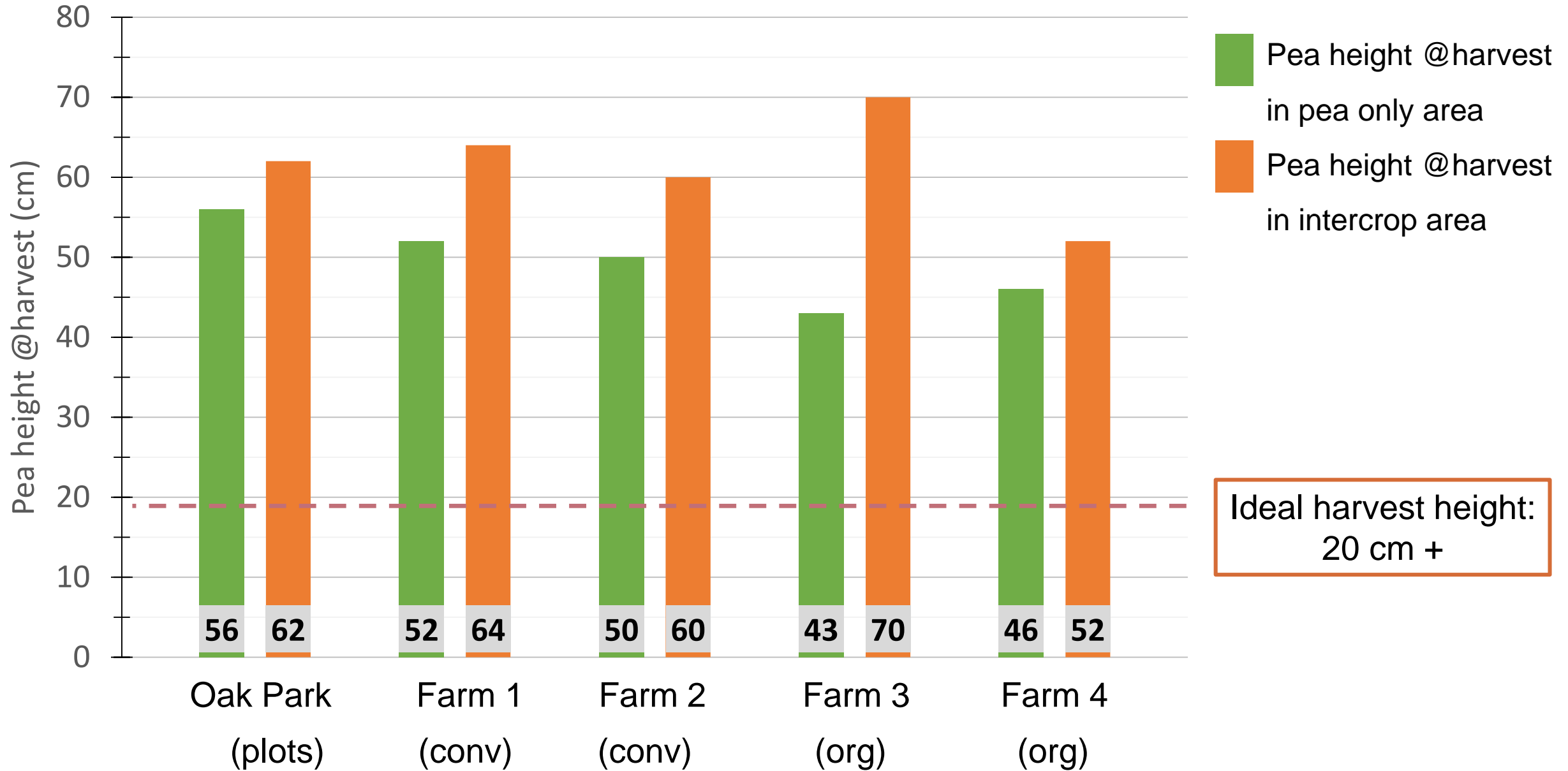
Conclusions from plot trials

- Intercropping increases harvest window (at least 3 weeks) while maintaining yield
- Lodging is decreased by intercropping
- **Total seed rate** can limit performance (80 seeds/m² better?)
- Faba beans with **strong stem(s)** are critical to intercropping (Lynx > Victus ~ Louhi > Vire)
- **Early bean varieties** (Louhi ~ Vire >> Lynx ~ Victus > Bobas) attain maturity at similar time of pea

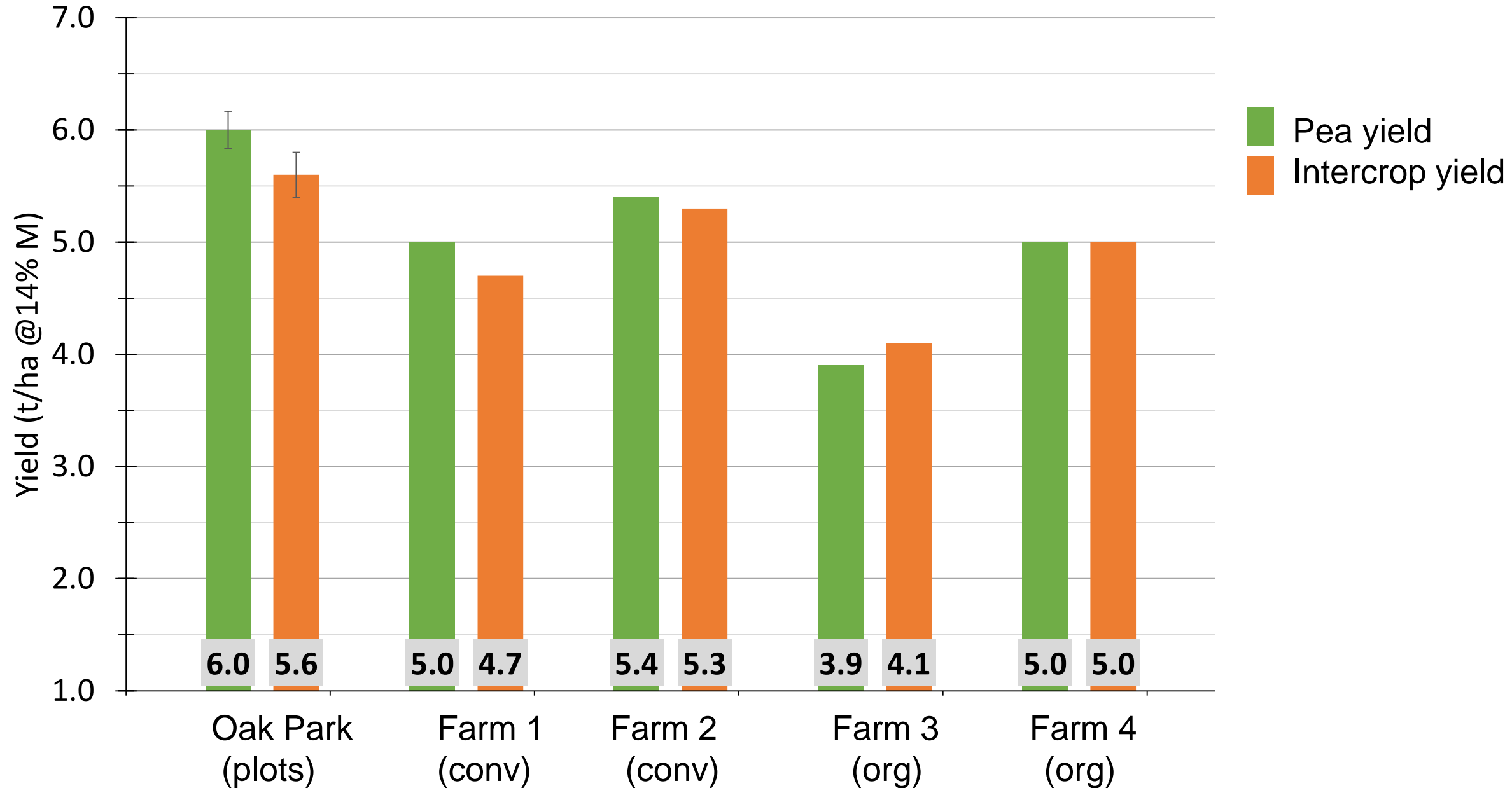
2024 On-farm Intercropping

- Location
 - 6 participating farms: Laois, Tipperary North, Tipperary South, Wicklow (x2) and Cork
- Design
 - 0.5 ha pea (Carrington) seed rate of 80 seeds/m²
 - 0.5 ha intercropped pea:bean (Carrington: Louhi) at seed rate of 100 seeds/m² and ratio 70:30
- Sowing date: April (based on pea crop)
- Harvest date: both areas harvested at the same time

On farm result (height at harvest)



On-farm result (yield)



Intercrop pea:bean – lessons learnt to date ?

- In a ***favourable season***, such as 2024, intercropping decreases pea lodging
- Potential to increase productivity exists but depends on multiple factors (e.g. seed rate, pea:bean ratio, variety choice)
- In an ***unfavourable season***, when pea crop reaches maturity but it is impossible to harvest, intercropping will:
 - Mitigate risk of pea crop lodging
 - Increase harvest window
 - Ensure lower yield losses (compared to pea only crop)