

# Trade-offs of Crop Establishment



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[www.teagasc.ie/tillagecon24](http://www.teagasc.ie/tillagecon24)



# Research Objectives

1. Compare on-farm and controlled trial crop performance
2. Examine economic performance of systems
3. Model soil carbon change over time

## Knockbeg Trial

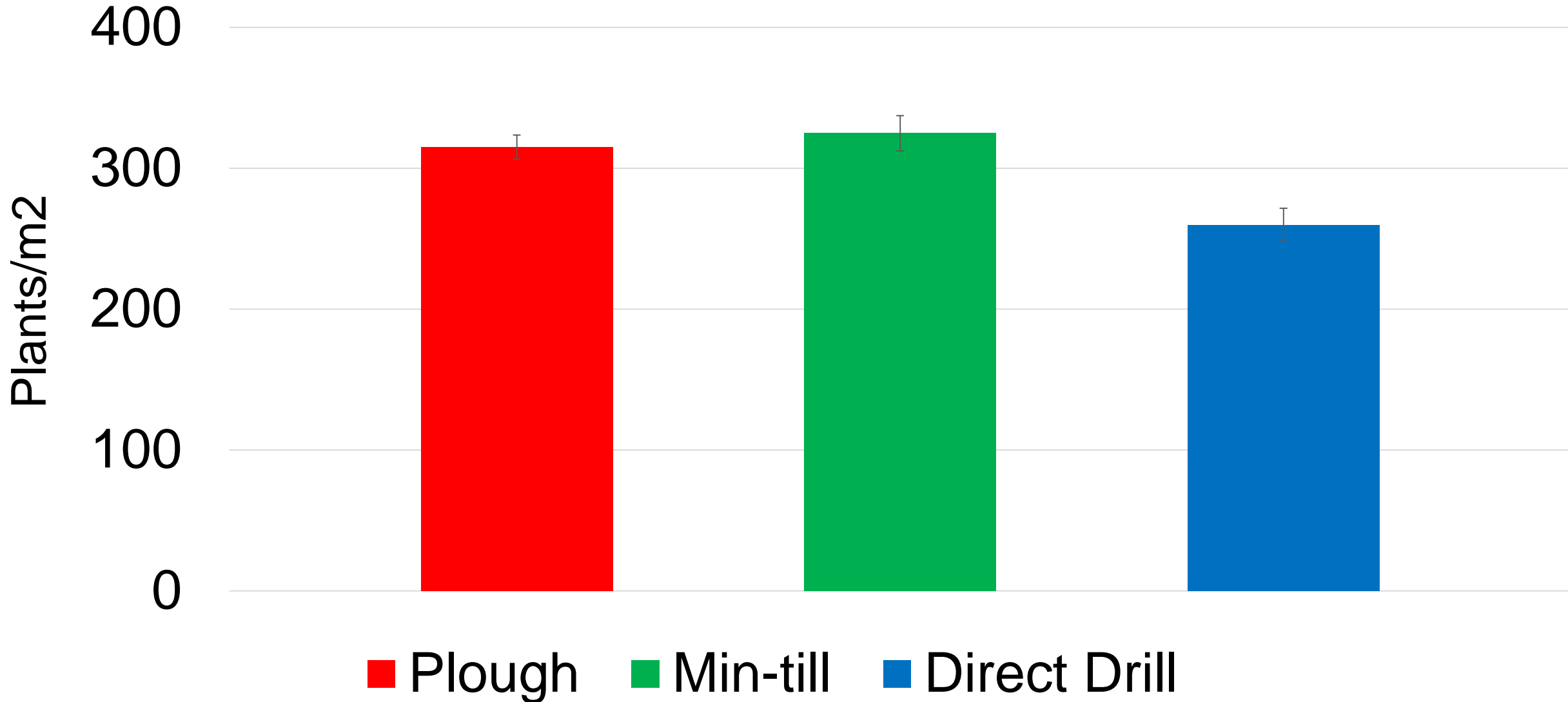
- Large trial: System + Rotation
- First wheat after WOSR
- Inputs & Management identical
- 4 replicates of each treatment
- Comparisons possible

## On-farm Study

- 21 farms (7 plough, min-till & direct drill)
- First wheat after break
- Variations in soils, inputs & management
- No direct comparisons possible

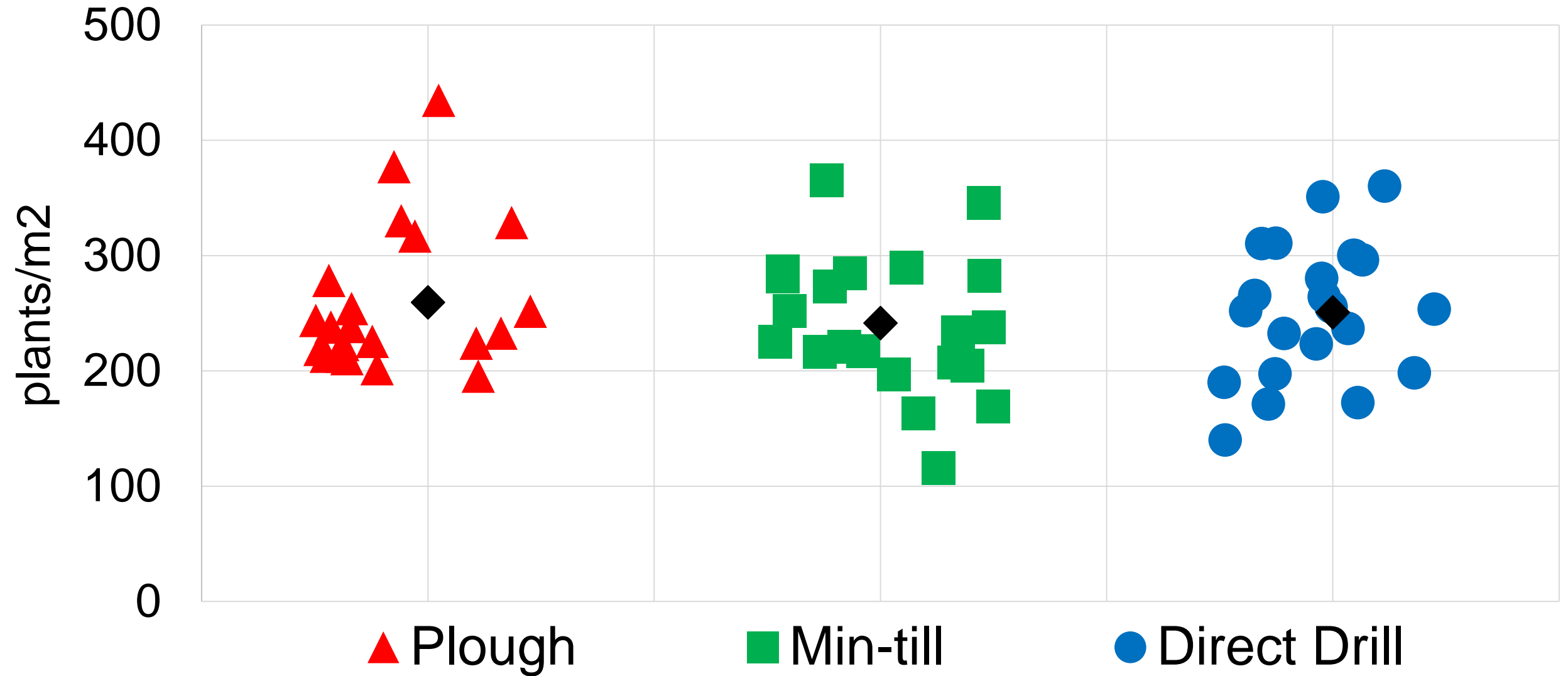
# Knockbeg: Direct drill establishment counts lower

**Establishment Counts (harvest 21, 22 & 23)**



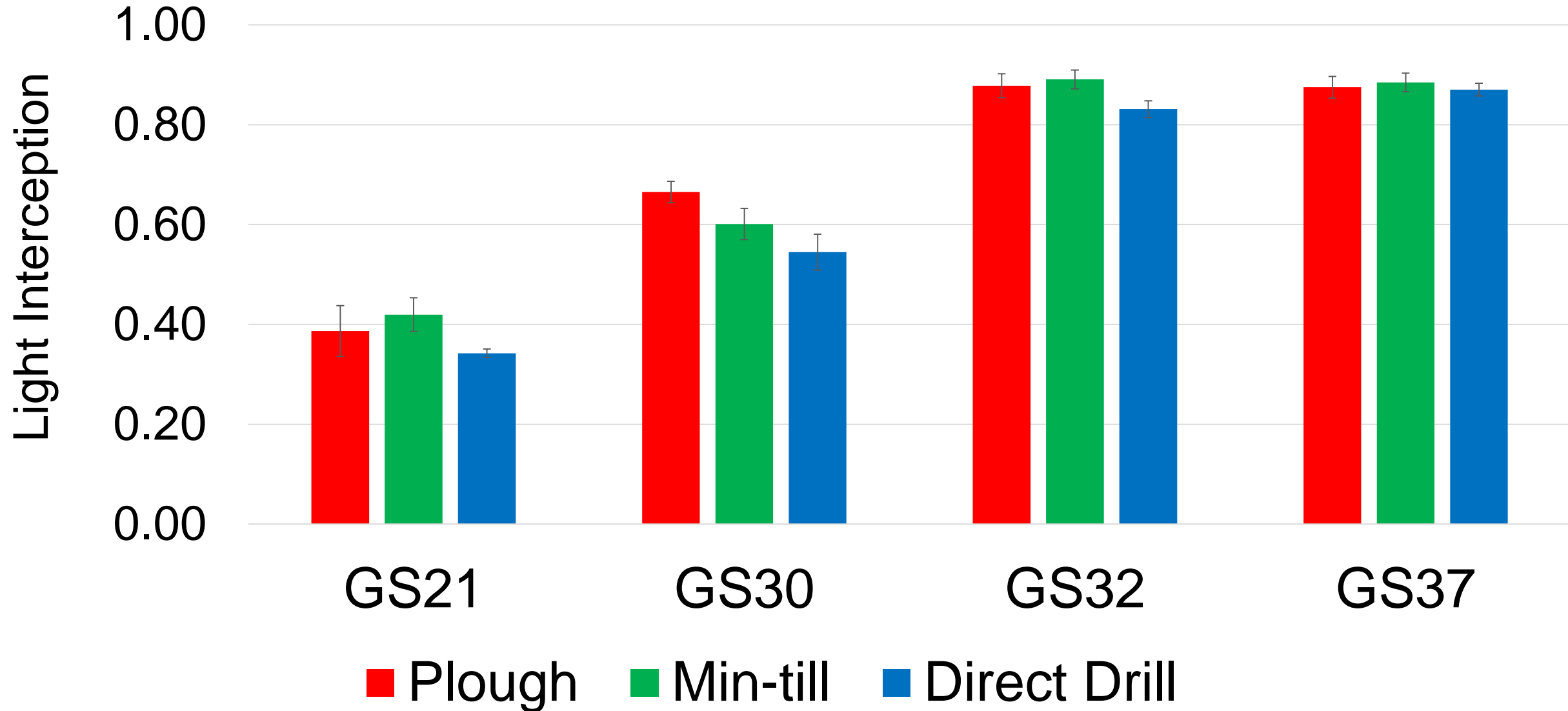
# On-farms: High variability in establishment

On-farm establishment counts (harvest 21, 22 & 23)

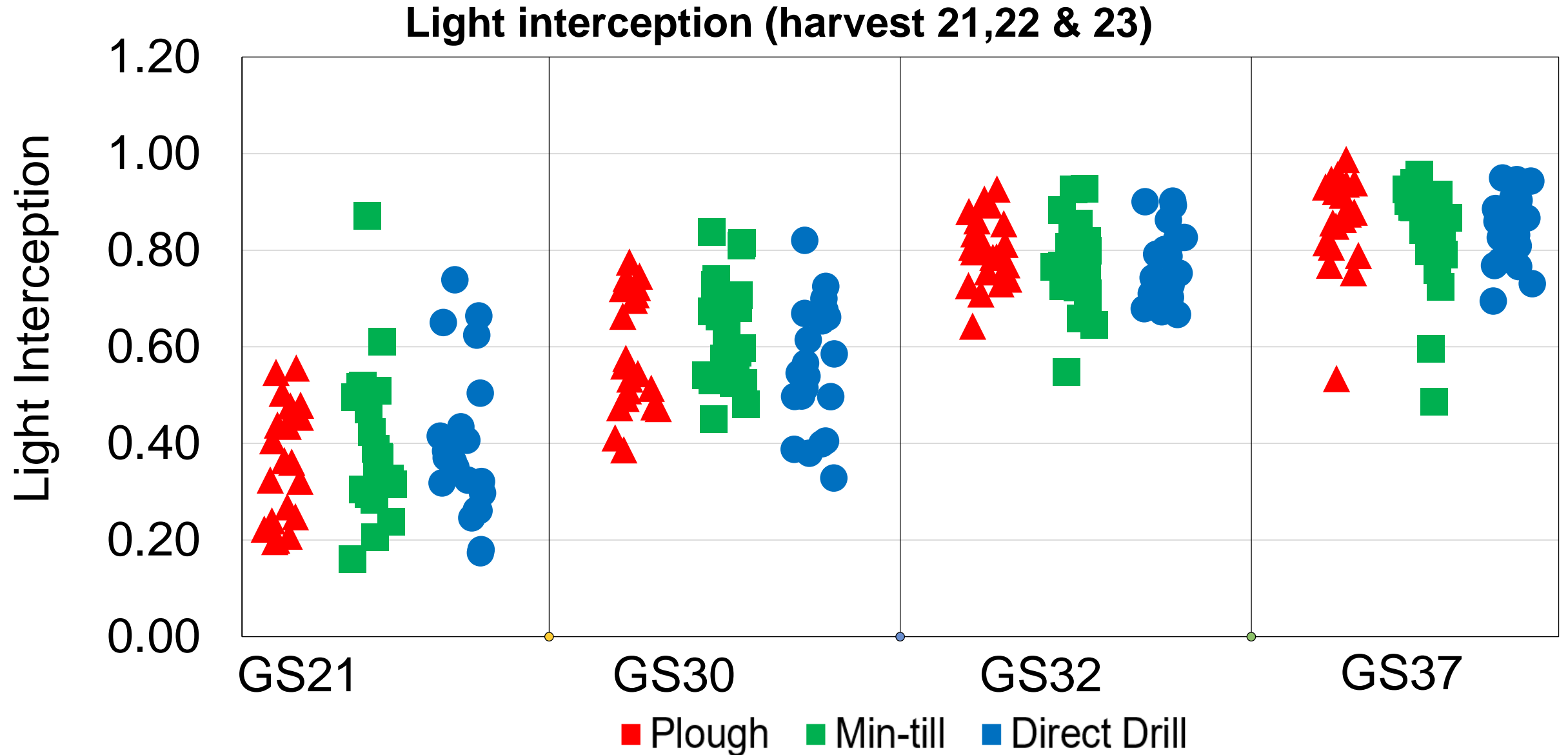


# Knockbeg: Direct drill growth slower but catches up

## Light Interception (harvest 21, 22 & 23)

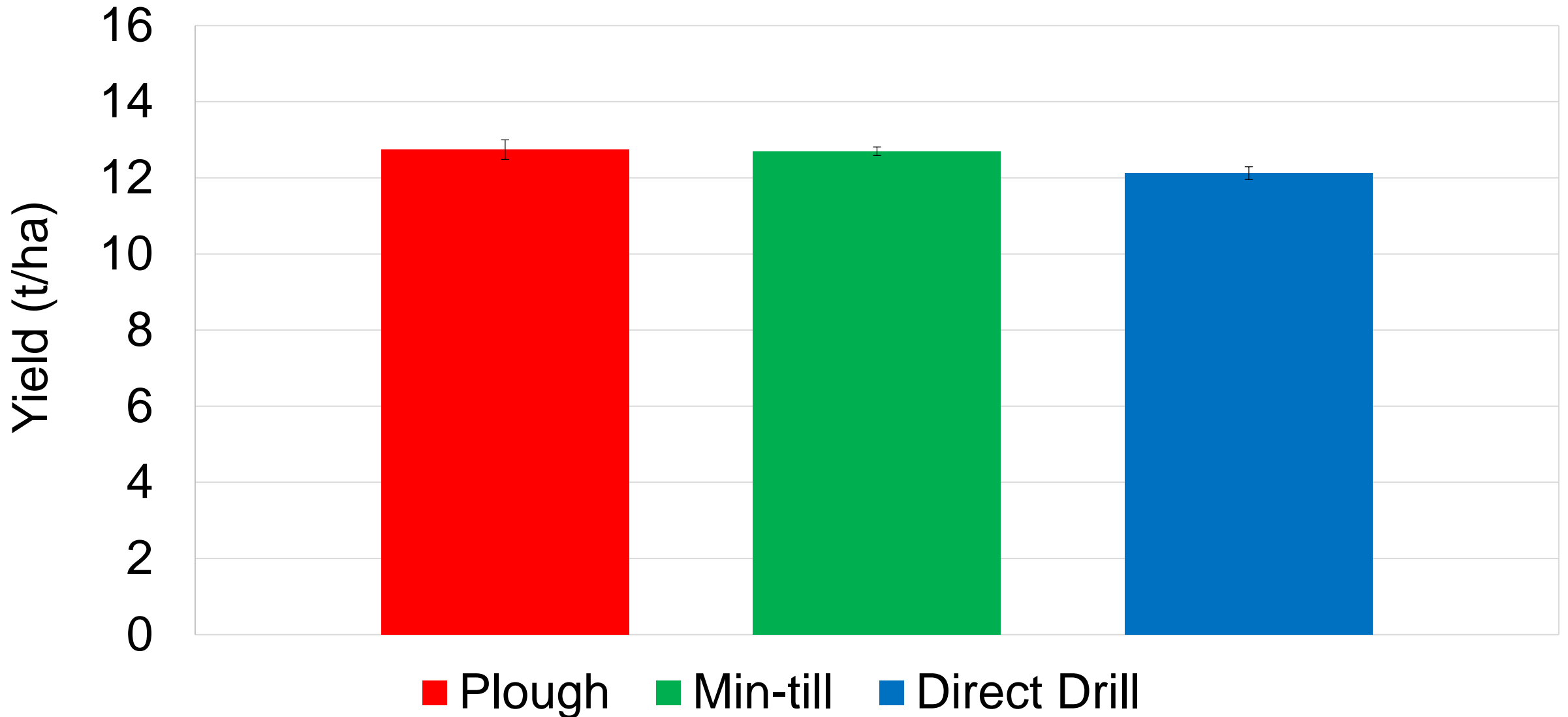


# On-farms: Growth variable within systems but comparable across systems



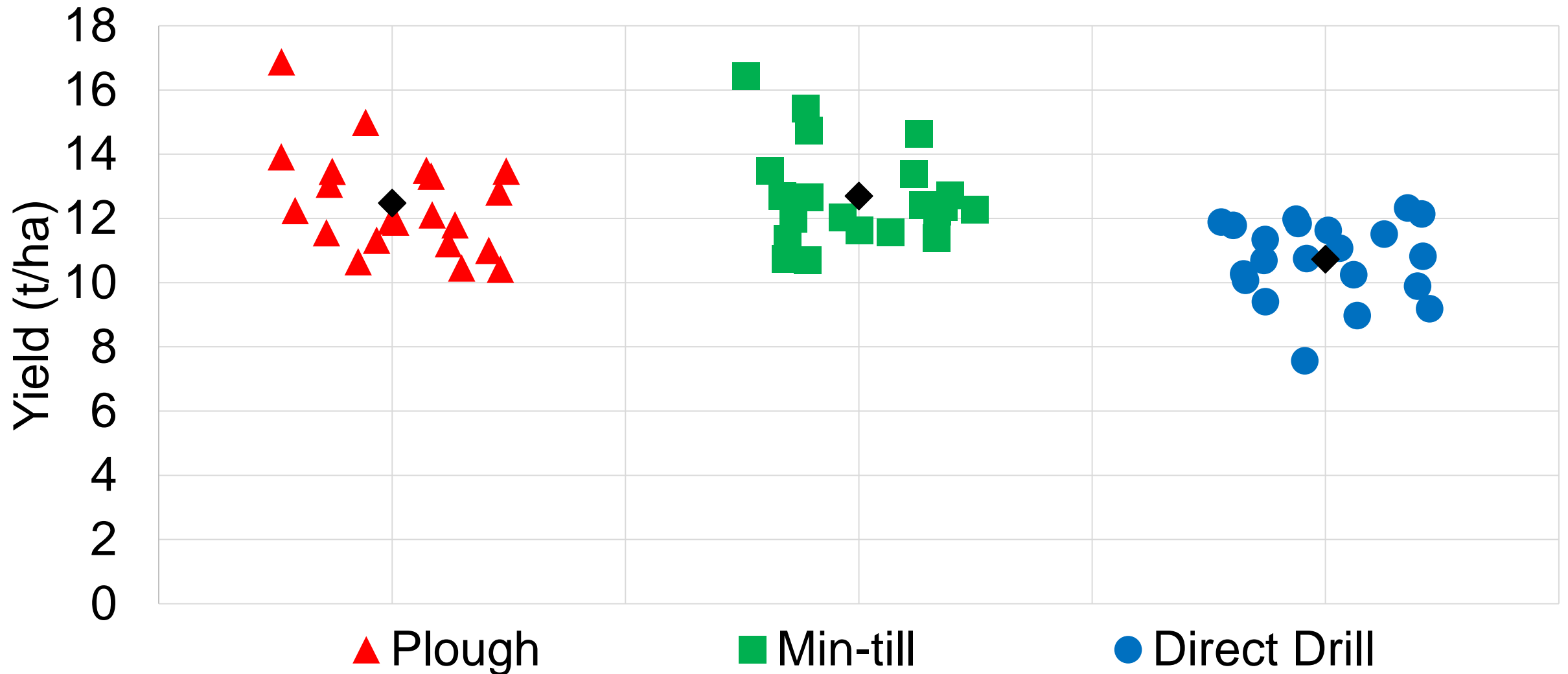
# Knockbeg: No difference in yield across systems

**Yields: replicated trial (harvest 21,22 & 23)**



## On-farms: Mean yield reduction with Direct Drill but ...

## On- farm Yields (harvest 21, 22 & 23)





# Key messages

## Farm studies vs Research Trial?

- **Farm studies** allow range of practices to be quantified but can be challenging to compare the performance of systems.
- **Replicated Research trials** are limited in the number of factors that they can assess, but are essential to compare the performance of systems.

## Establishment Systems

- Different characteristics but similar yield potential.
- Case by case pragmatic approach; match management to system (early sowing, risk of wet autumns and grass weeds pressure, etc...)

# Thanks to all the participating growers!!

## **Supervision**

Dermot Forristal



Professor Kevin McDonnell



## **Support**

### **Trial Management (Teagasc):**

Martin Walsh  
Frank Ryan  
Kevin Murphy

### **Farmer Participation:**

Teagasc Tillage Advisors  
Teagasc Tillage Specialists

## **Project Funding**

Teagasc Internally Funded Project: 0822 (Cultivations and Rotations).

