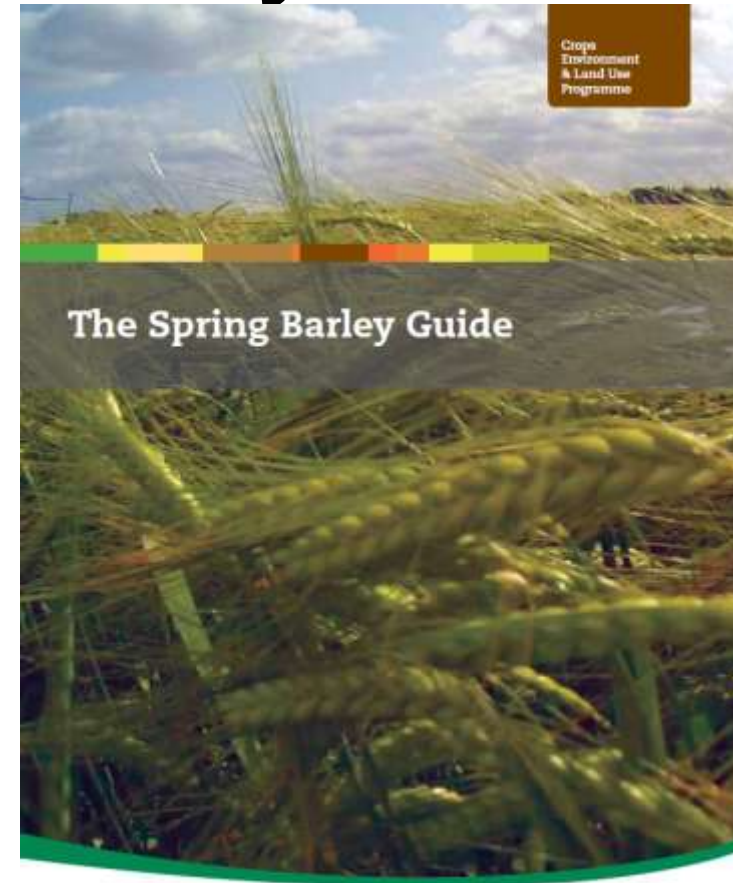


Maximising Spring Barley Yield

John Spink

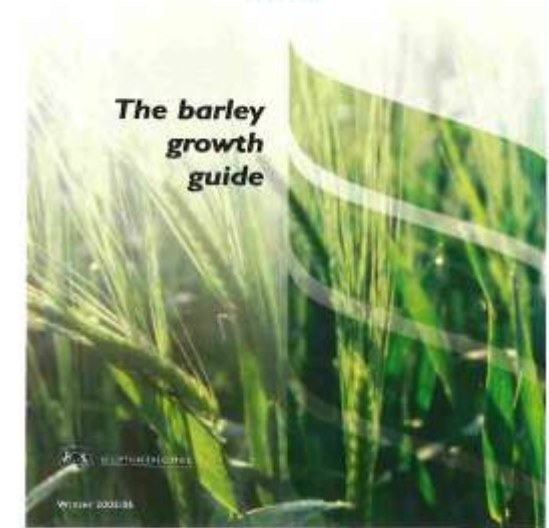
Teagasc

Oak Park Crops Research



The Irish Agriculture and Food Development Authority

Background



- ◆ Over recent years knowledge of winter wheat and barley has increased significantly

BUT

- ◆ Not spring barley
- ◆ Not in Irish Climate

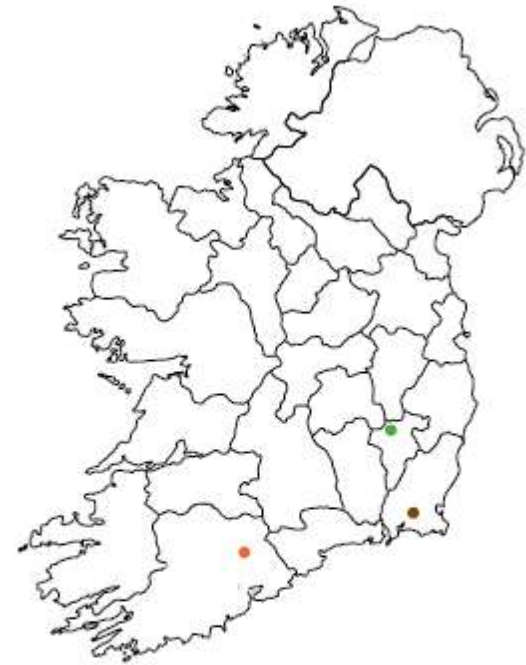


Yield = Grain number x Grain size



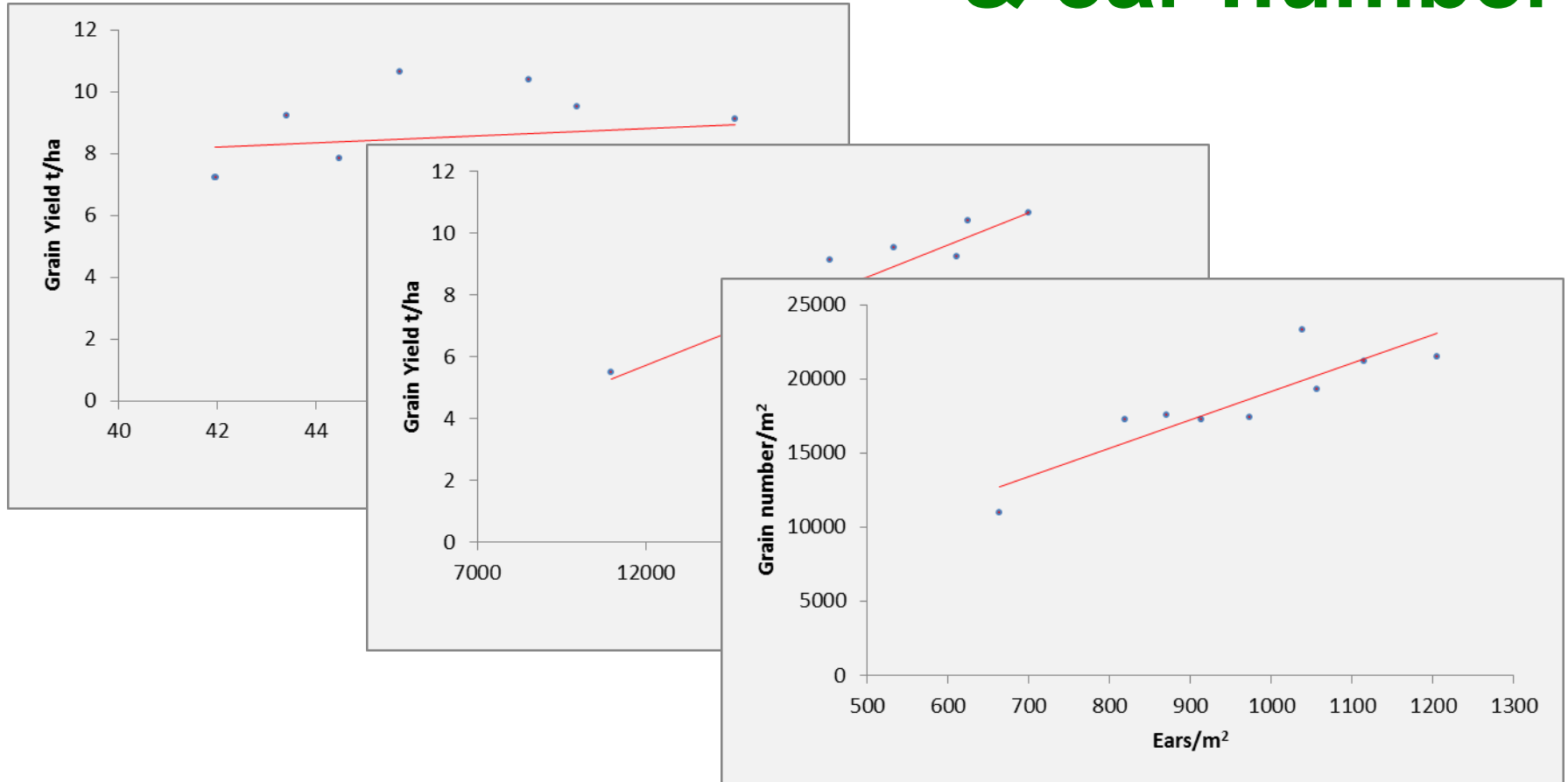
Understanding crop growth and development

- ◆ Based on nine crops grown and monitored 2011-2013
- ◆ Provides a quantitative description of the growth of an average crop
- ◆ Indicates the management required to optimise yield

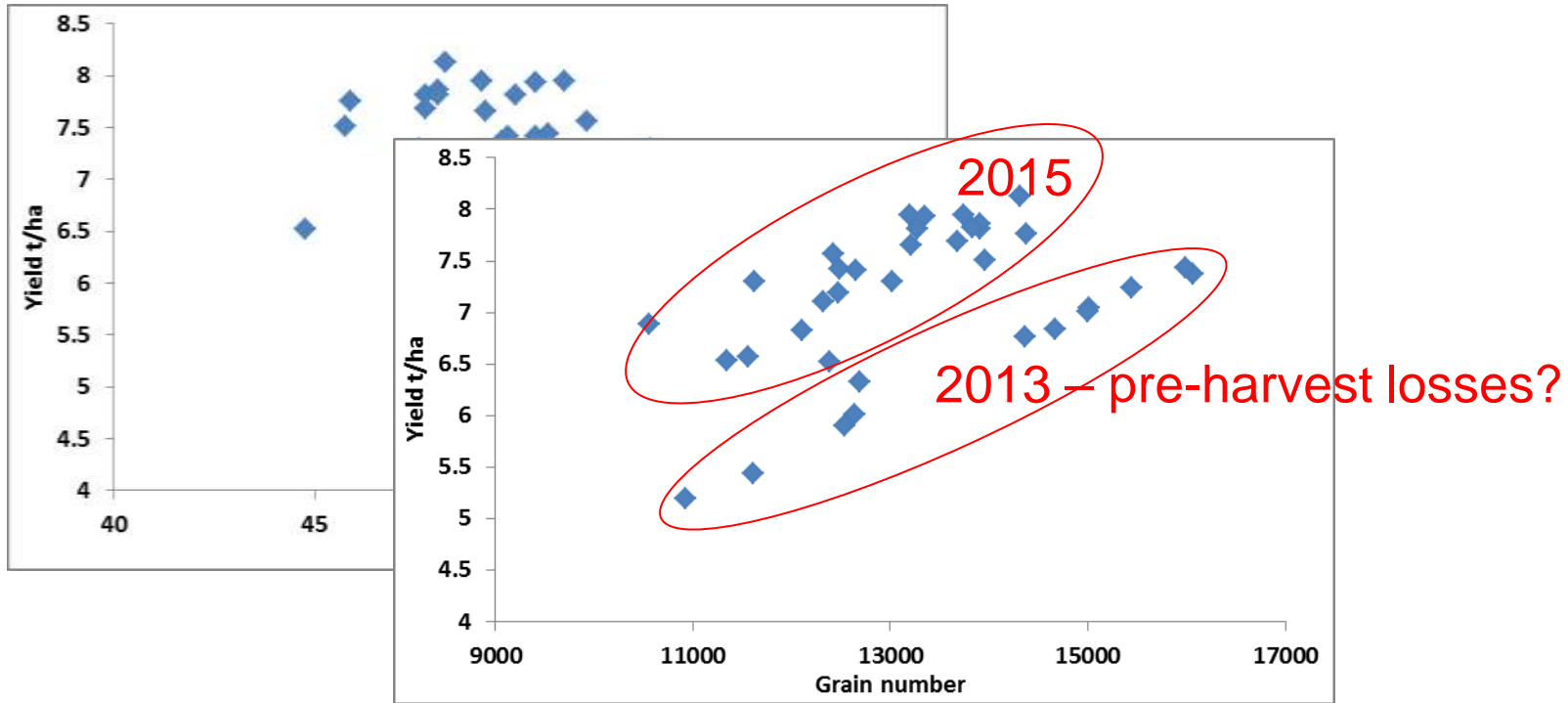


- Carlow Town
- Duncormick, Co. Wexford
- Fermoy, Co. Cork

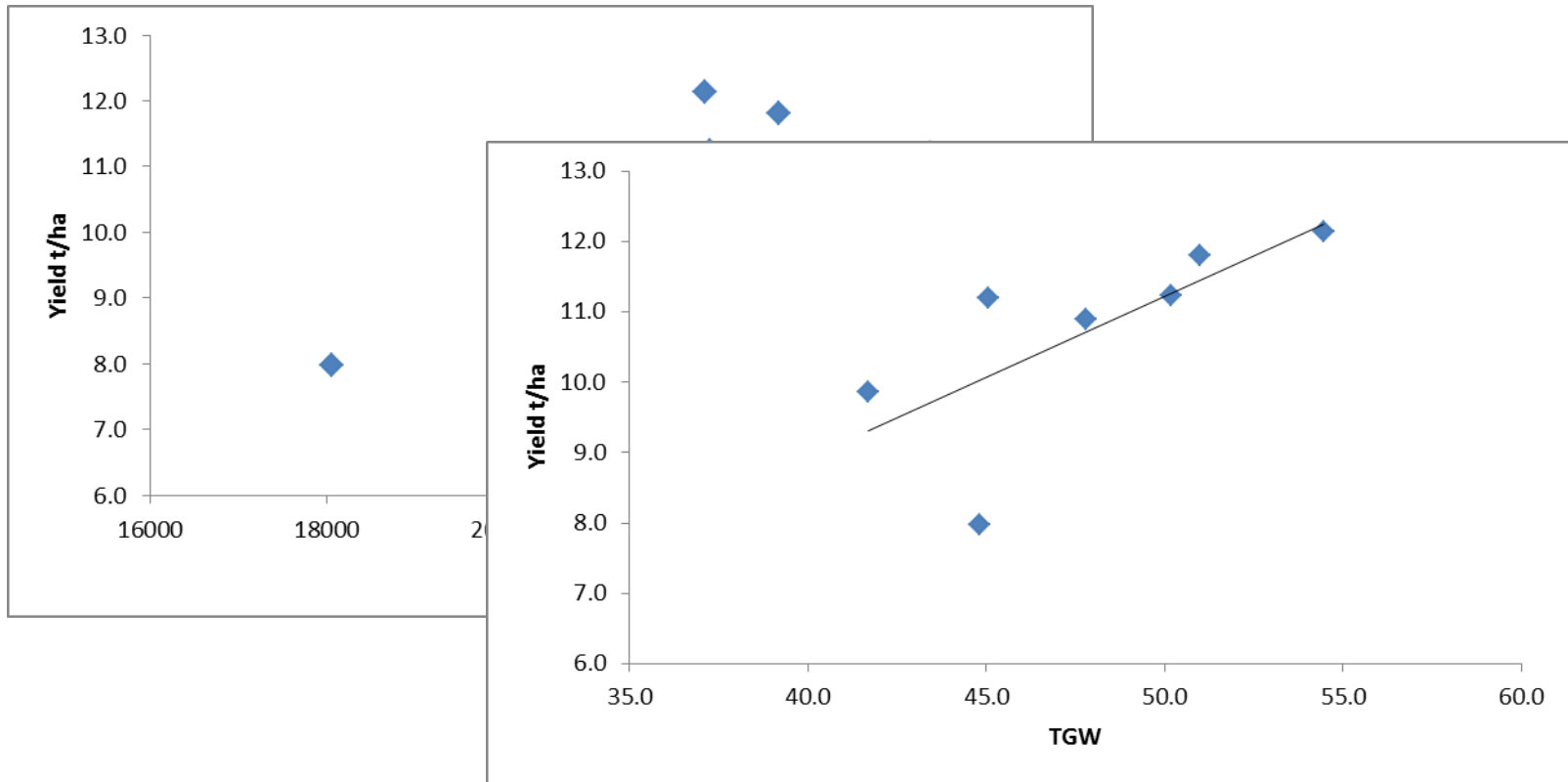
Yield dependant on grain number & ear number



Confirmed by AFBI data 2013 & 2015



Wheat yield more dependant on grain size

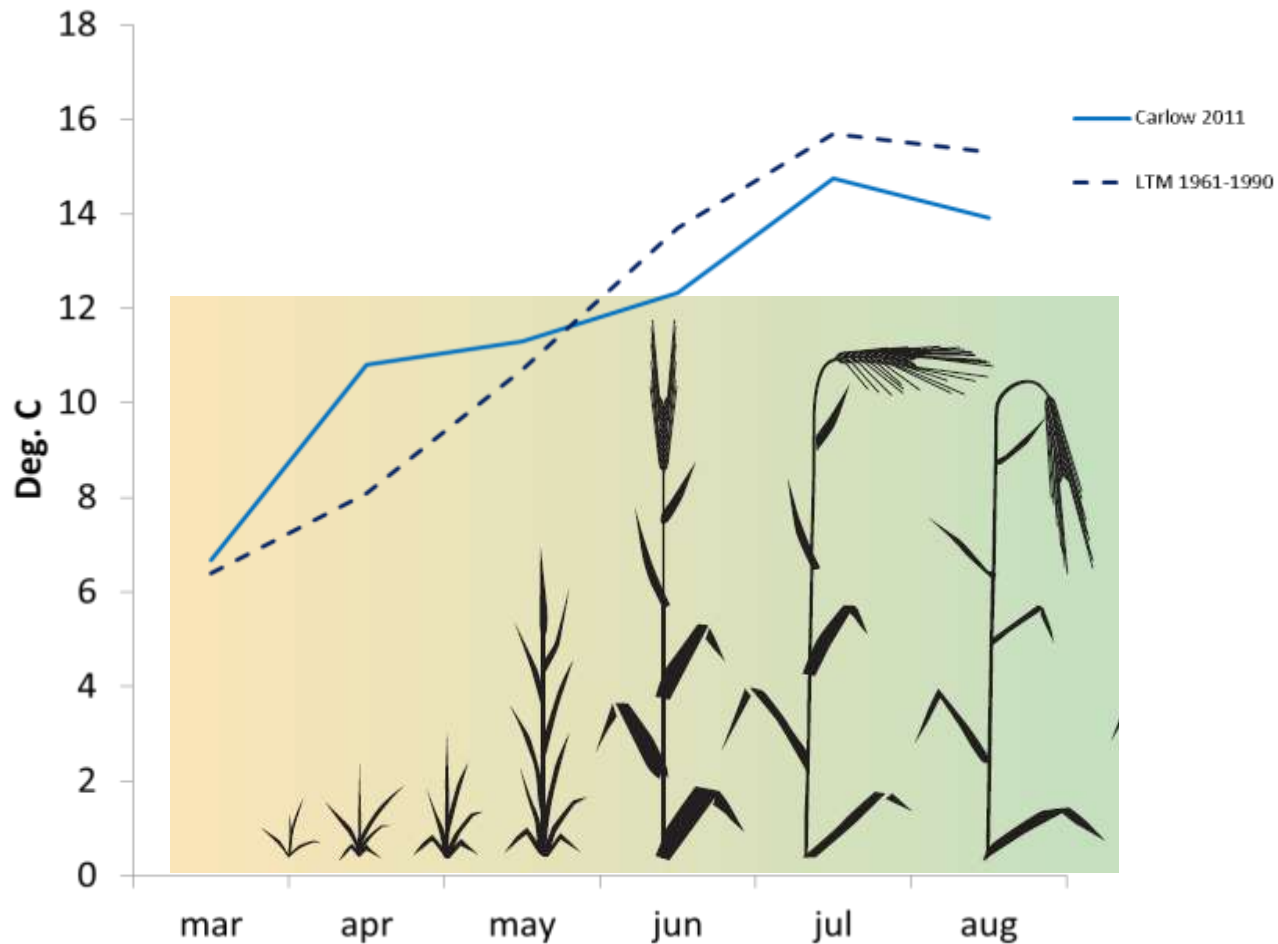


Temperature drives development

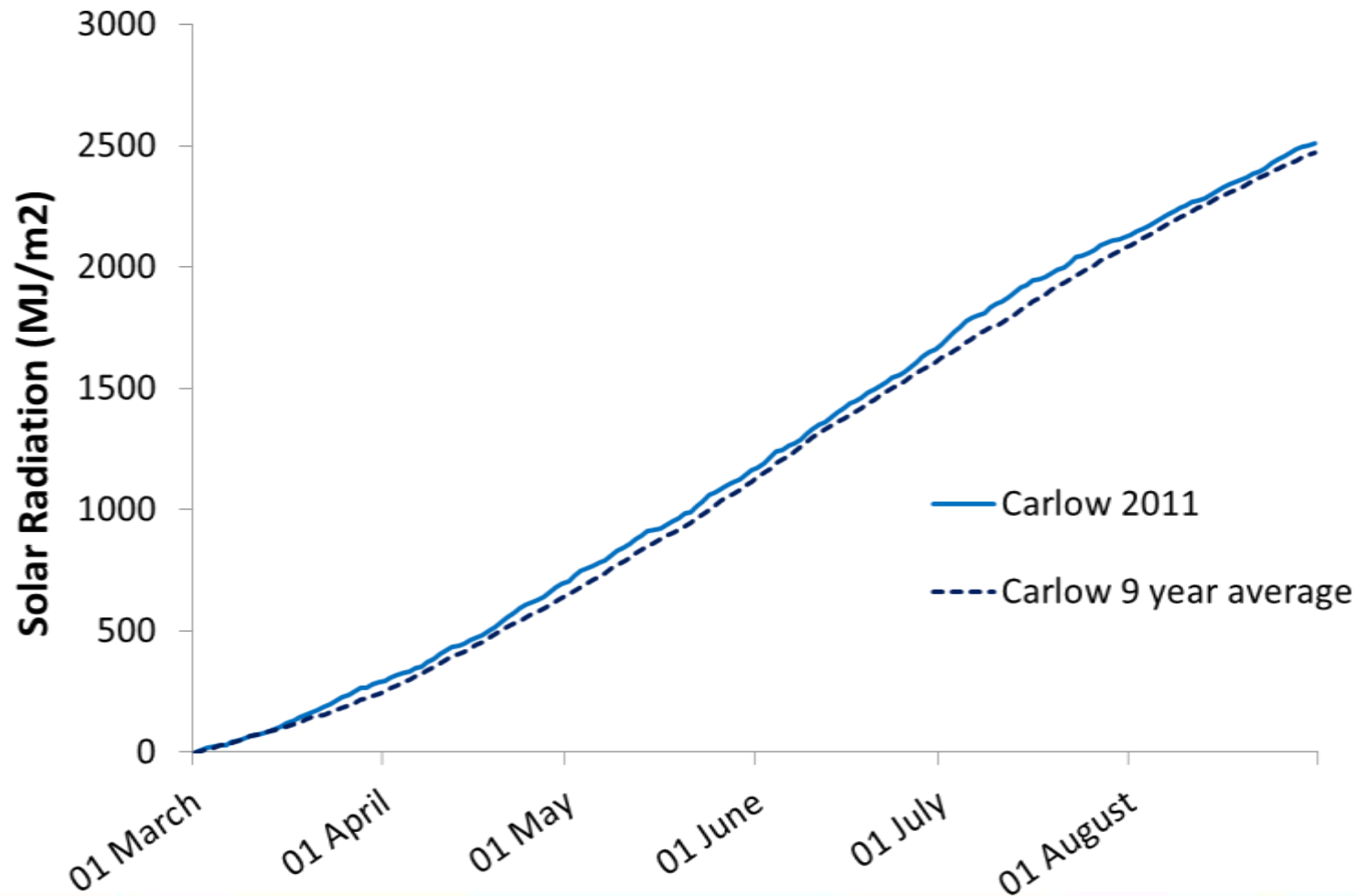


Solar radiation drives growth

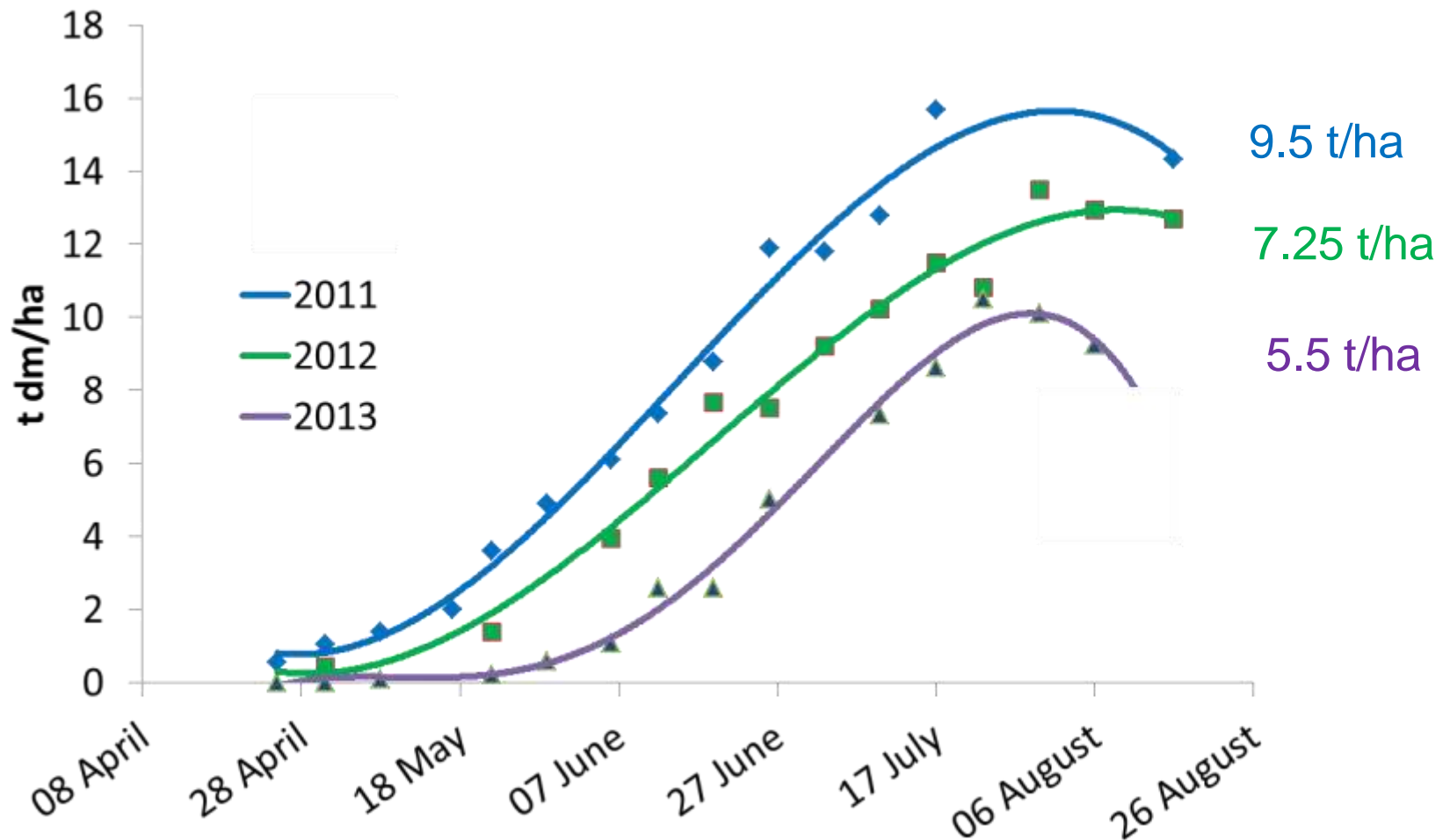
Temperature Carlow 2011



Solar radiation Carlow 2011



Total biomass Carlow



The importance of growth during grain filling



Shading after ear emergence

The importance of growth during grain filling

A 59% reduction in light resulted in:

	Total growth	Yield
2011	-28%	-19.5%
2012	-38%	-19.1%

Path to increasing yield in spring barley

- ◆ Grain number determines yield
- ◆ Crops can fill very high grain numbers
- ◆ Shoot number has the most influence on grain number
- ◆ Early season development crucial for shoot number
- ◆ Optimum shoot number $\approx 1000/\text{m}^2$

Managing for high yields

- ◆ Early season inputs and growth most important
 - ◆ Good plant stand - 350 seeds/m² gives ~1000 shoots/m²
 - ◆ Avoid nutrient stress
 - ◆ Early season disease control
 - ◆ Early weed control
- ◆ Prolonging grain filling unlikely to increase yield

Thanks for listening

All the best for a prosperous 2016