

Previous WGIN Panel discussion topics

2010

Why UK wheat field yields were lagging behind breeders projections

2011

Successful 2nd and 3rd Wheat Crops and the issue of Take-all root disease

2012

Emerging Disease Patterns

Improving the stability of wheat yield and quality

Our panel

Simon Penson

Ed Flatman

Clare Leaman

Keith Norman

Roger Sylvester–Bradley

Simon Edwards

Campden BRI

Limagrain

NIAB

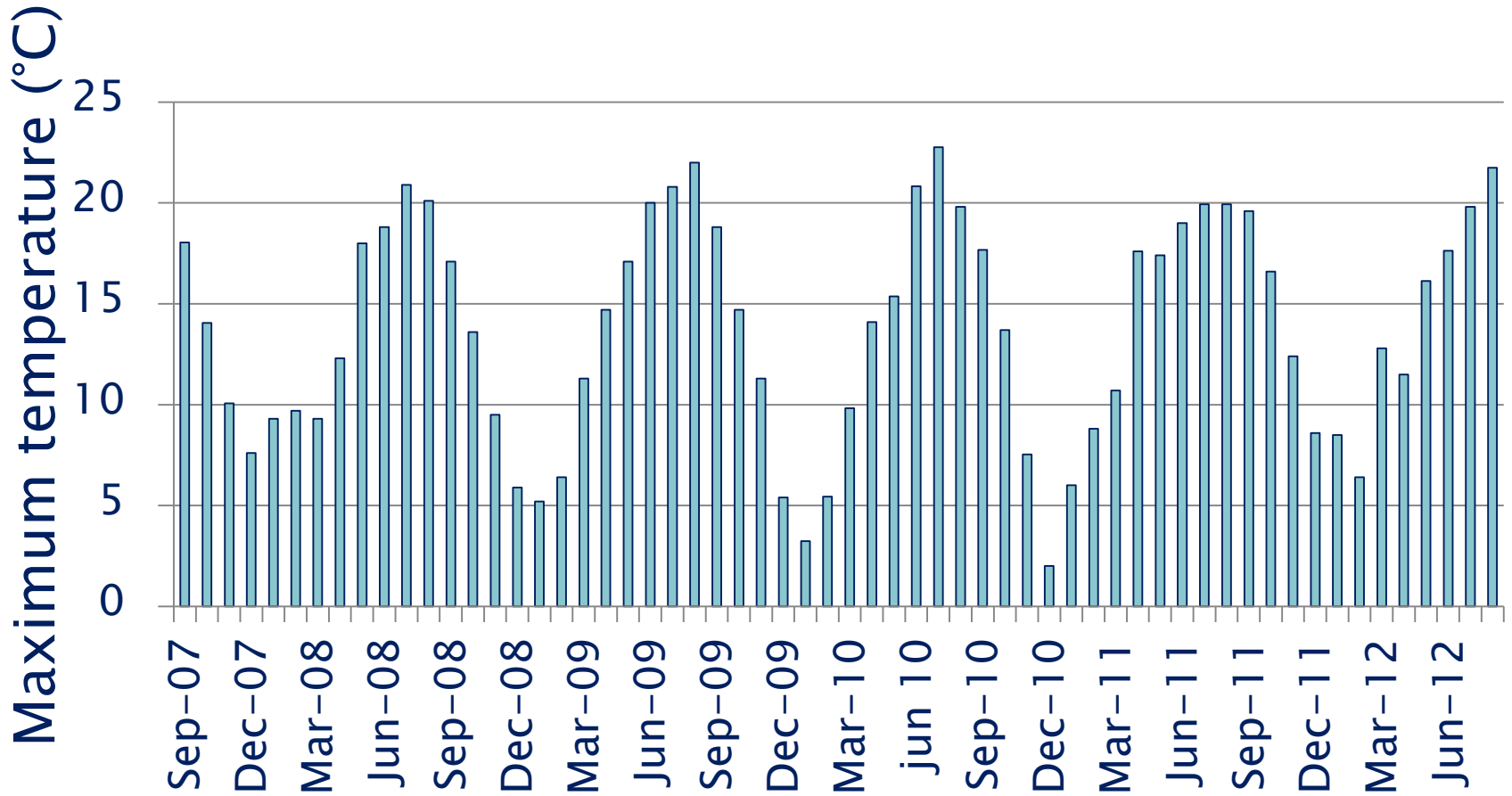
Velcourts

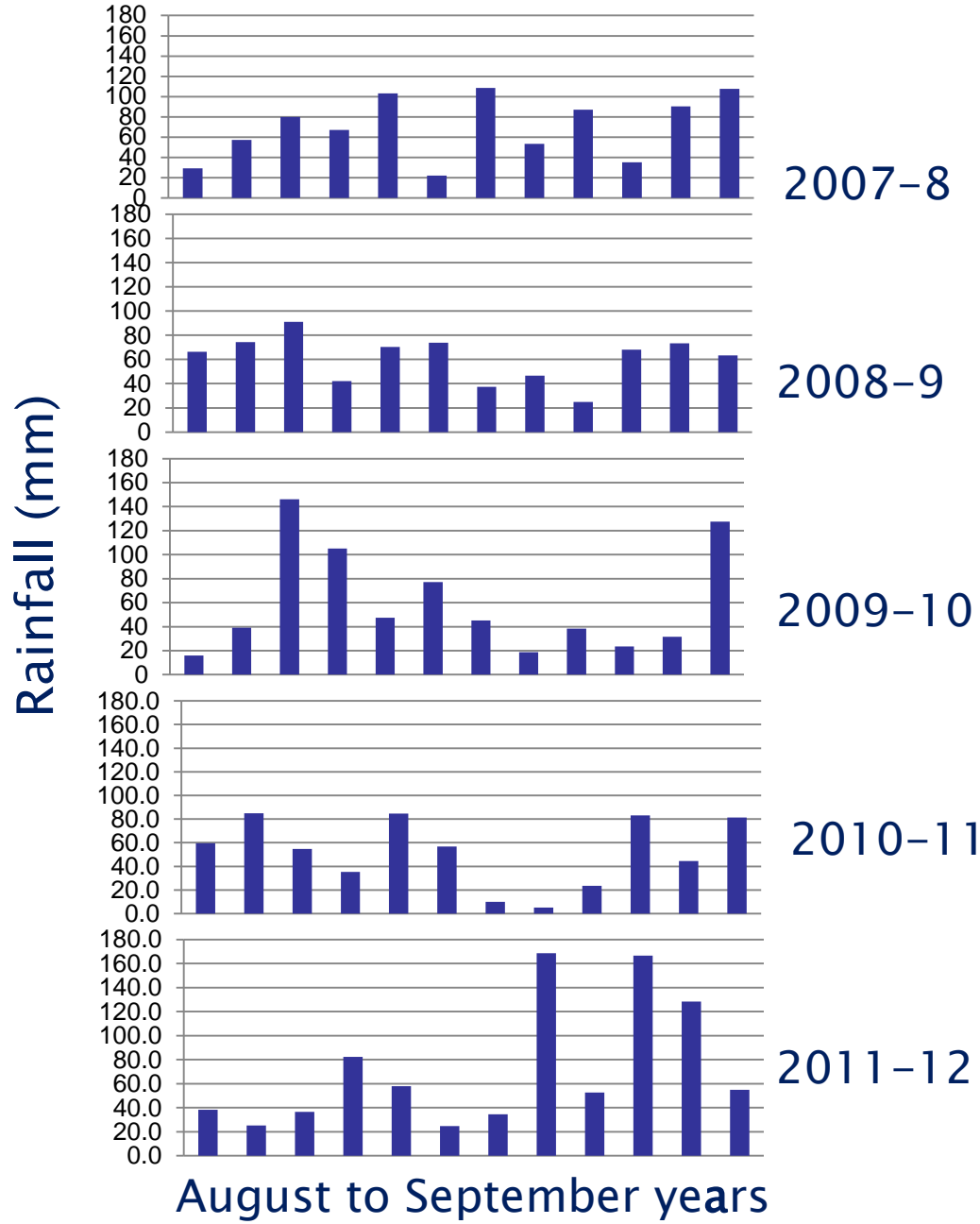
ADAS

Harper Adams

University College

Maximum monthly temperatures (°C) at Rothamsted from Sept 2007 to Aug 2012

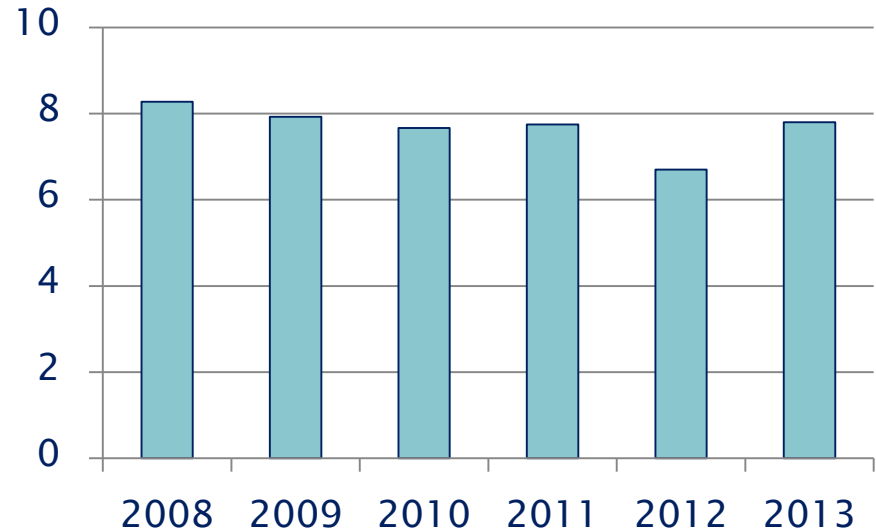
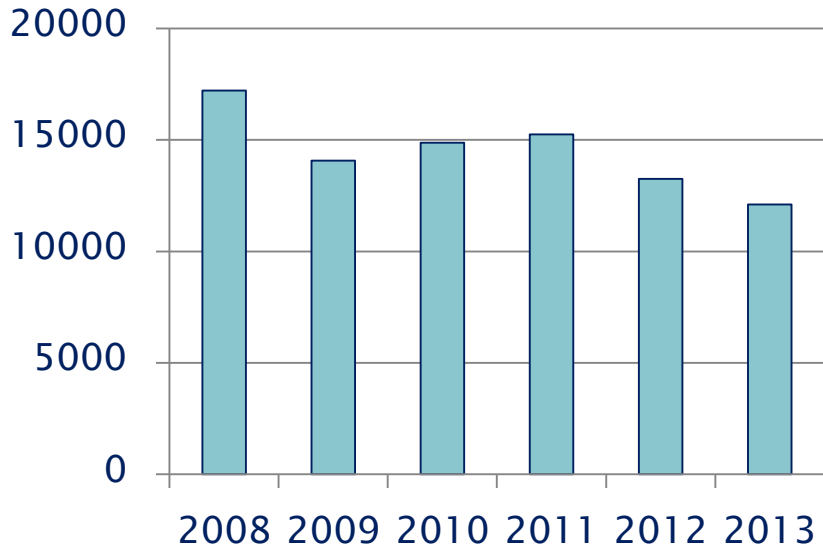




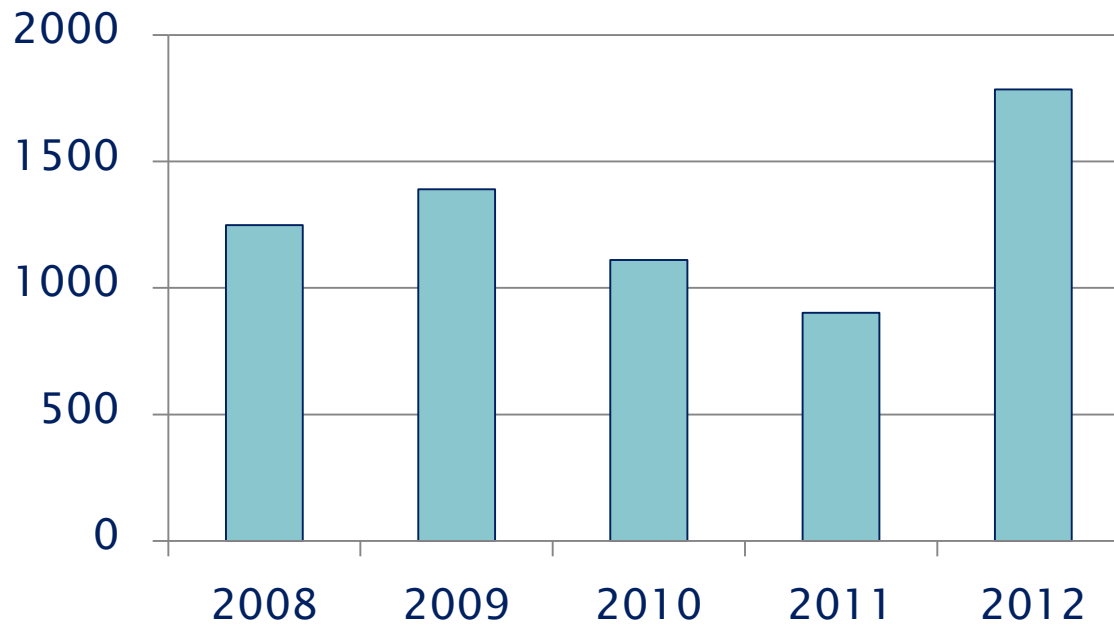
Irregular rainfall pattern is the major effect of climate change in the UK

total monthly precipitation at Rothamsted

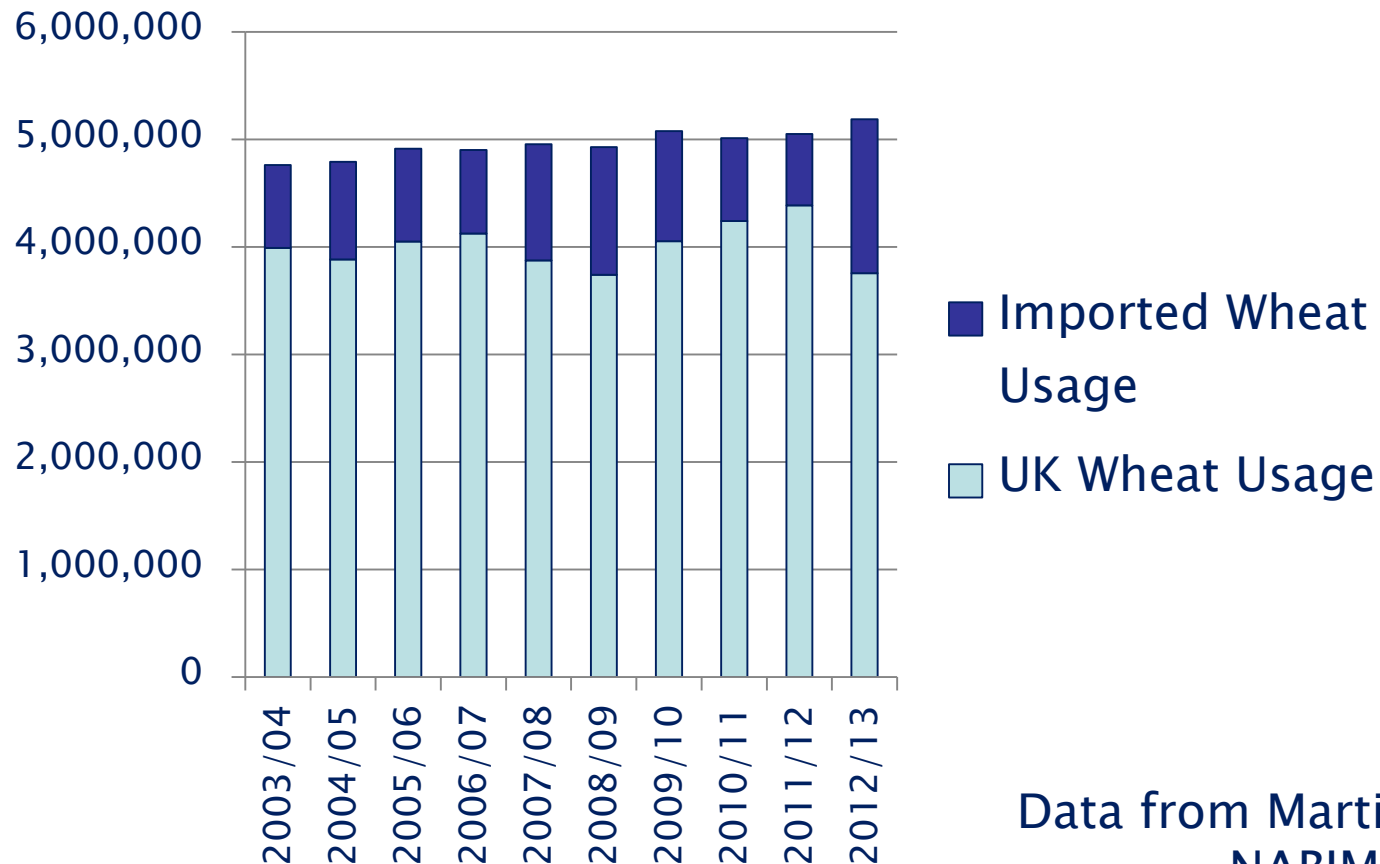
Total production (1 000 tonnes) and yield (tonnes/Ha) of wheat in the UK 2008–2013



Import of wheat into the UK (1 000 tonnes) 2008–2012



Use of home grown wheat in the UK



Data from Martin Savage
NABIM

GB wheat quality in 2013 – *pushes most domestic crop supply concerns to feed wheat*

2012 Final

2013 Final

High Quality Bread Wheat 2012 (Group 1, 76.0 kg/hl Spec Wgt/250 Hagberg/13.0% Protein)

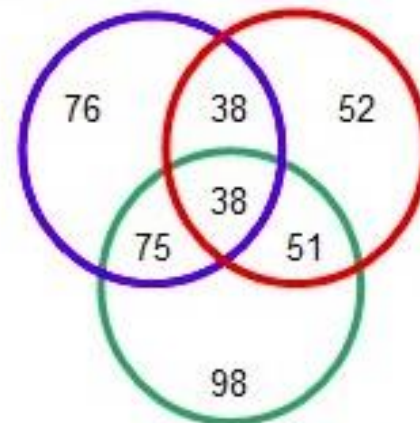
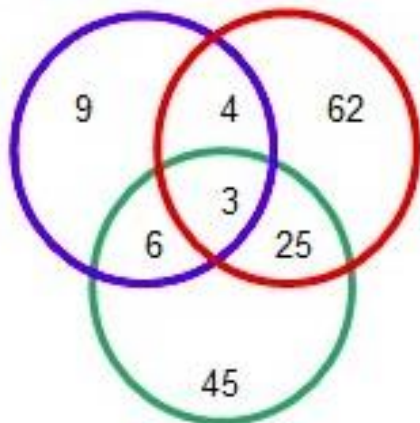
High Quality Bread Wheat 2013 (Group 1, 76.0 kg/hl Spec Wgt/250 Hagberg/13.0% Protein)

Specific weight

Specific weight

Protein

Protein



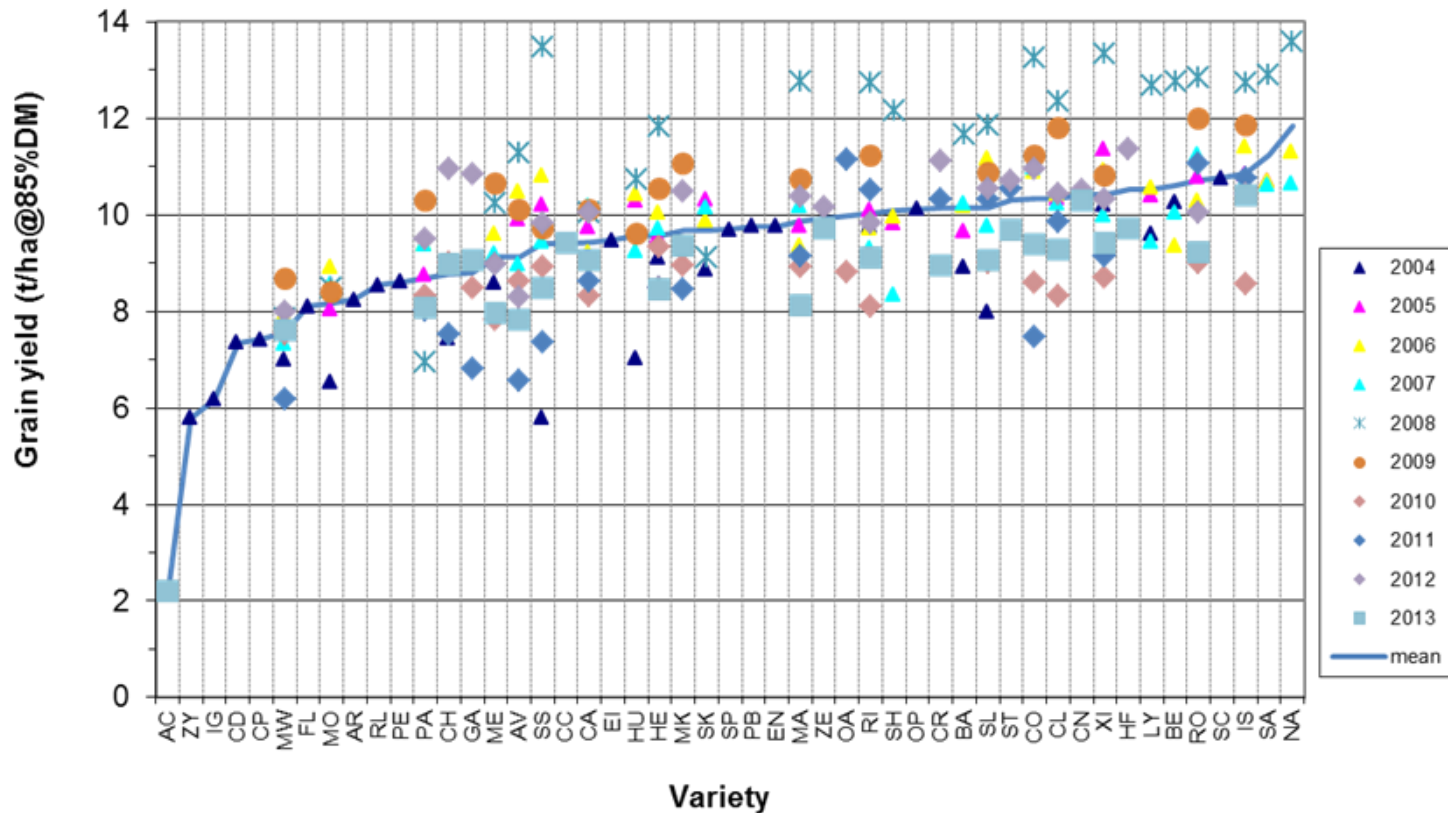
Sample Size: 18088

Sample Size: 17179

Hagberg

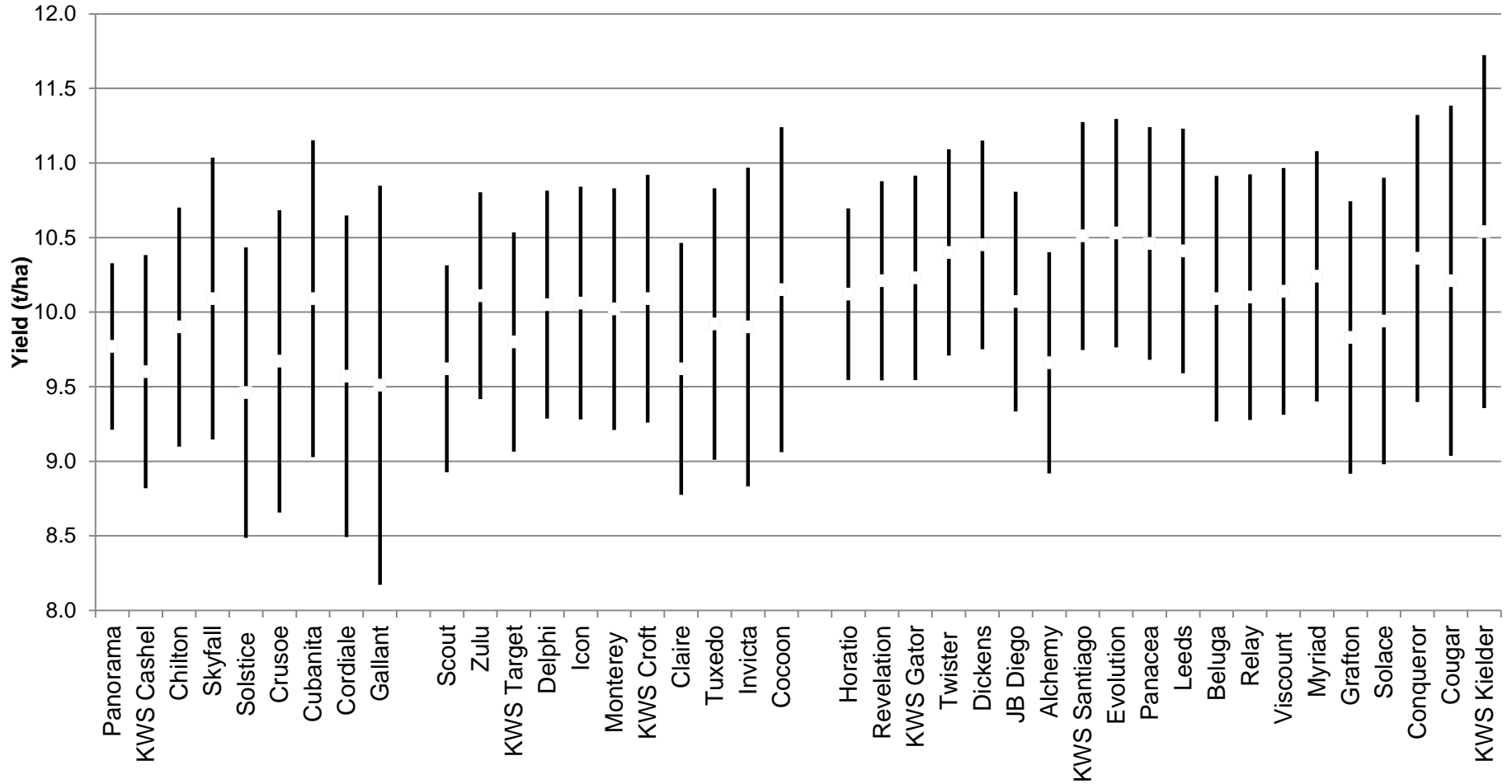
Hagberg

Consistency of yield



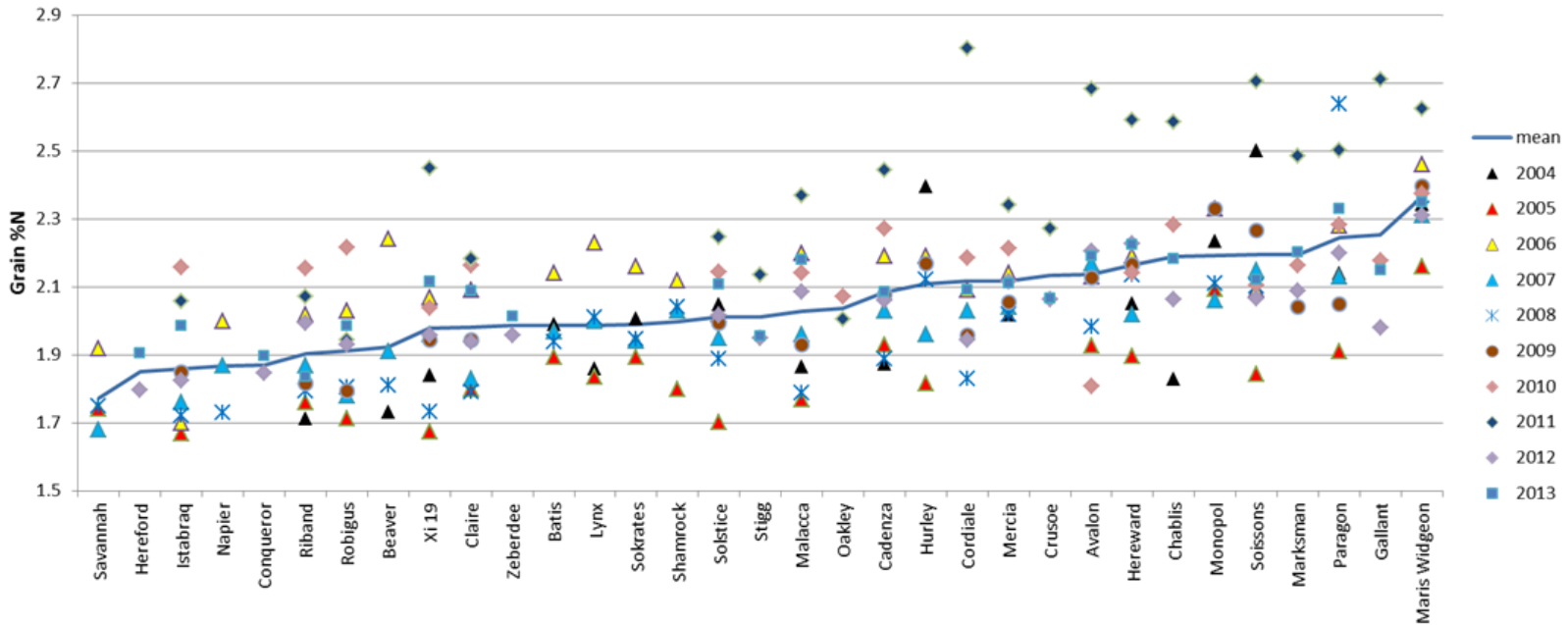
Source: WGIN 2004–2013

Consistency of yield



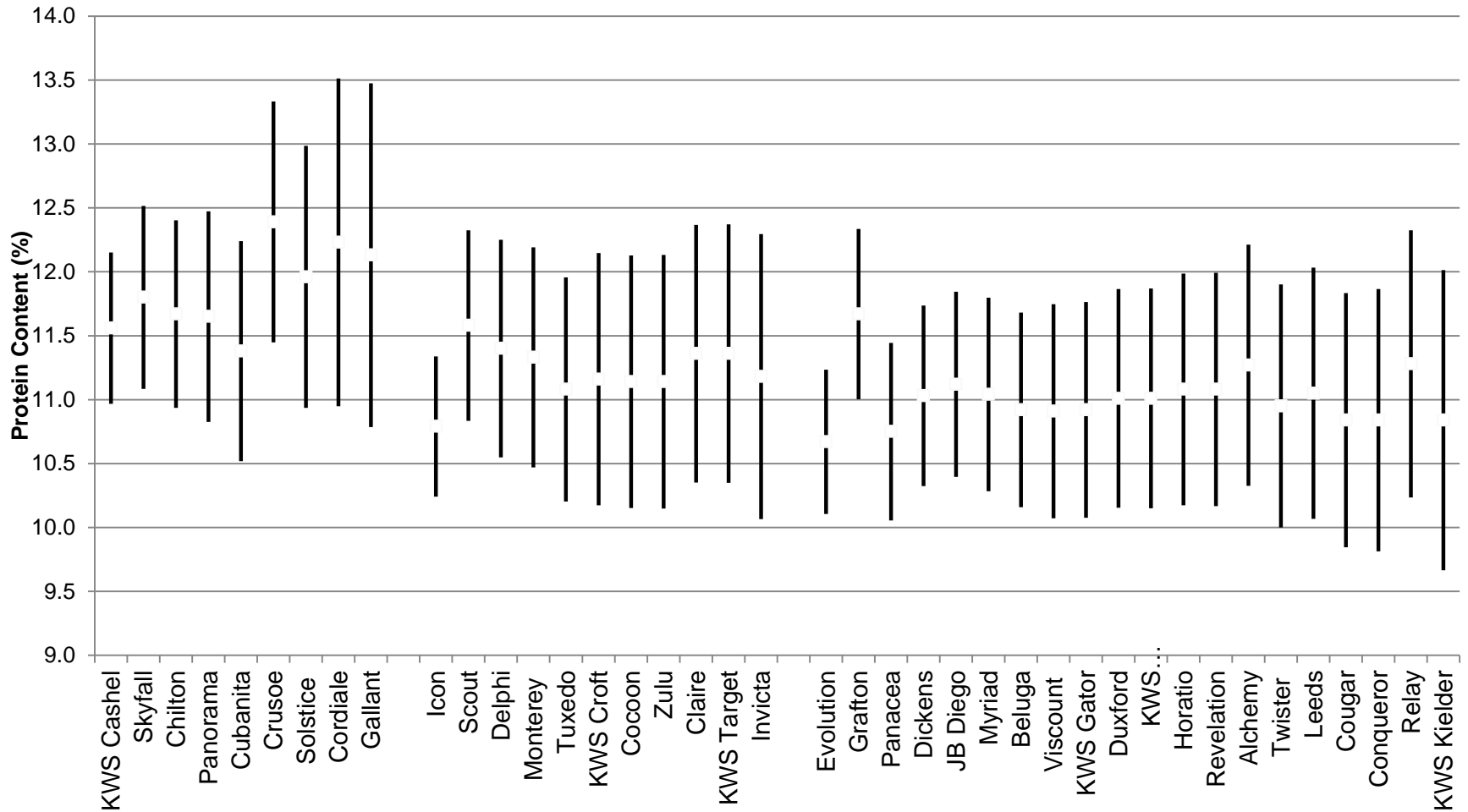
Source: HGCA Recommended List

Consistency of grain N



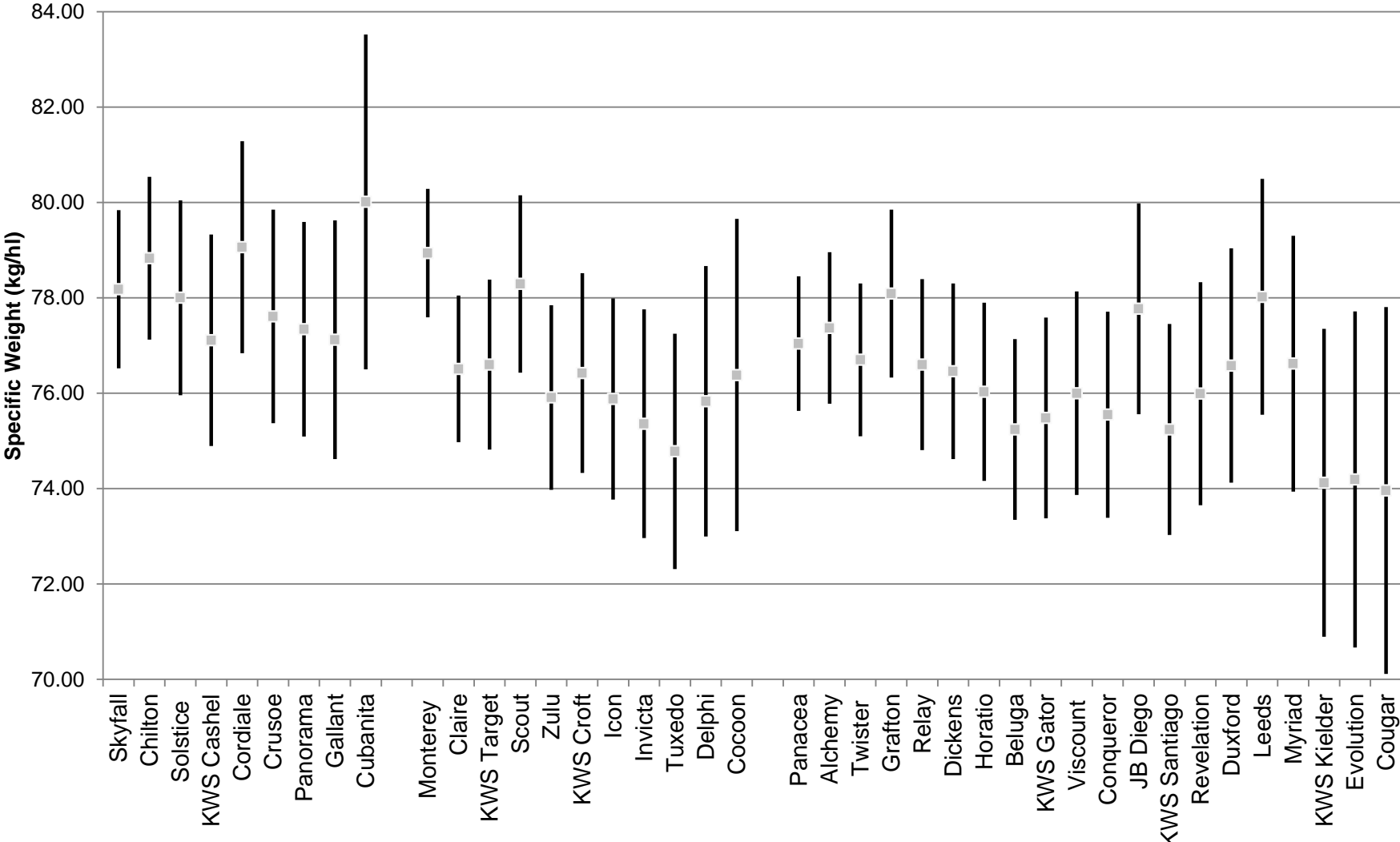
Source: WGIN 2004-2013

Consistency of protein



Source: HGCA Recommended List

Consistency of specific weight



Source: HGCA Recommended List

Questions

1. Is stability of yield a problem– if so how important it is?
2. How do breeders approach yield stability– is it a priority target?
3. How much does grain quality vary from year to year?
4. Is variation in grain quality a problem for millers and bakers: source and cost?
5. How do millers and bakers handle it?
6. Does variation in quality dictate the requirement for high grain protein– could this be reduced if the quality was more stable?
7. Is stability of yield and quality genetically determined? Are some cultivars more stable?

Questions

8. What are the most important 'on farm factors' that affect yield and quality stability?

Soil type and lack of organic matter

- temporary drought
- field compaction

Biotic stress – pesticide resistant – pathogens, pests and weeds

- failed plant resistance genes (e.g. yellow rust)

Abiotic stress – e.g. heat stress at anthesis, lodging, PHS

Inappropriately timed fertilizers to current weather

- delayed uptake

Question

Why are Group One Bread-making varieties lower yielding than Group Four Feed?

Are particular genes responsible – milling texture, grain shape, hagerberg, specific proteins,

or is it simply that after such selection the remaining population is too small to select effectively for grain yield?