



# BBSRC Crop Science Review

All recommendations endorsed by the Council of BBSRC

BBSRC has been /is implementing them

## Recommendation 14

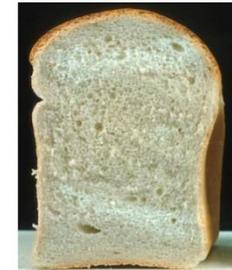
"BBSRC should take the lead to establish a national plant breeding initiative ... that would promote public good breeding by establishing crop genetic improvement programmes with the aim of providing improved germplasm and technology for the development of new varieties".



# A UK Wheat prebreeding programme

## Background

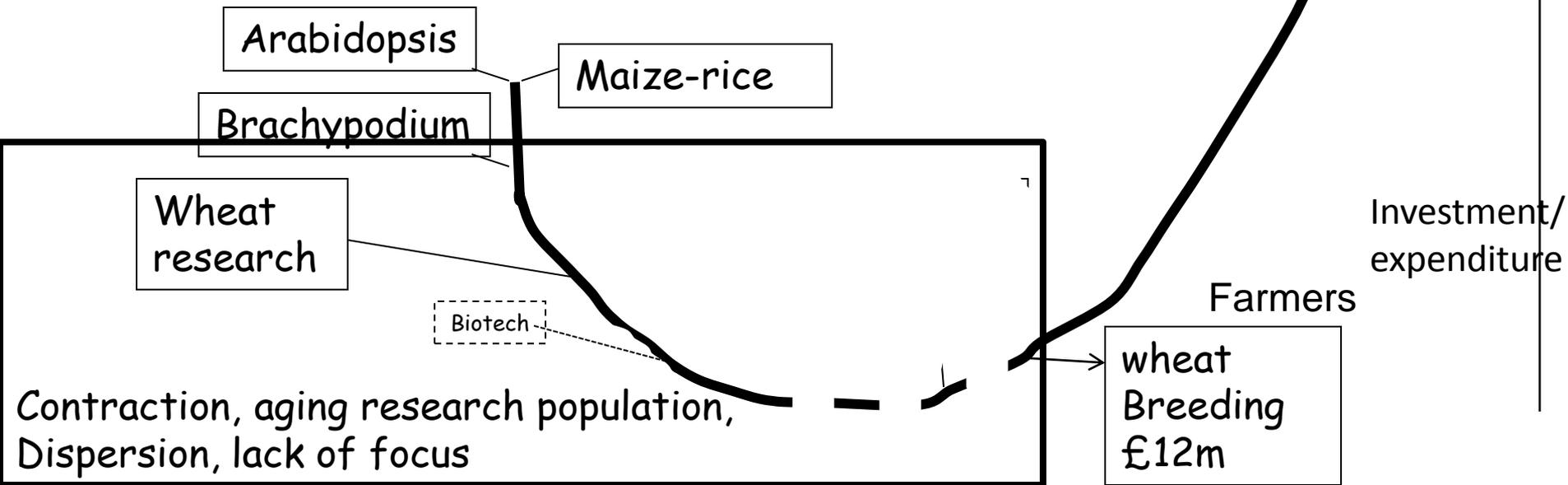
### The wheat pipeline



Food chain

£162Bn

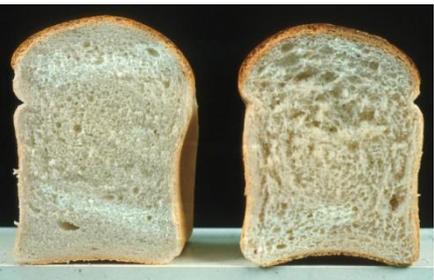
The research to application pipeline (for crop improvement)

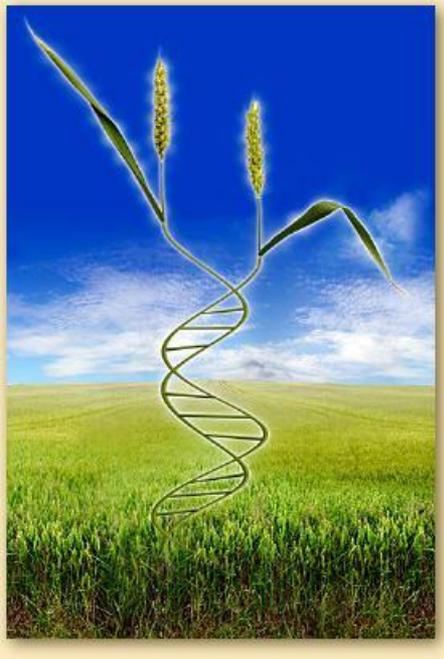


# The genetic basis of many major traits in wheat has recently been dissected

Breadmaking quality, Grain hardness, Protein content, Dwarfing range of developmental traits, Chromosome pairing control for breeding, Flowering time, Vernalisation and a range of resistance genes

Need to dissect the next generation of traits to attract researchers to work on wheat



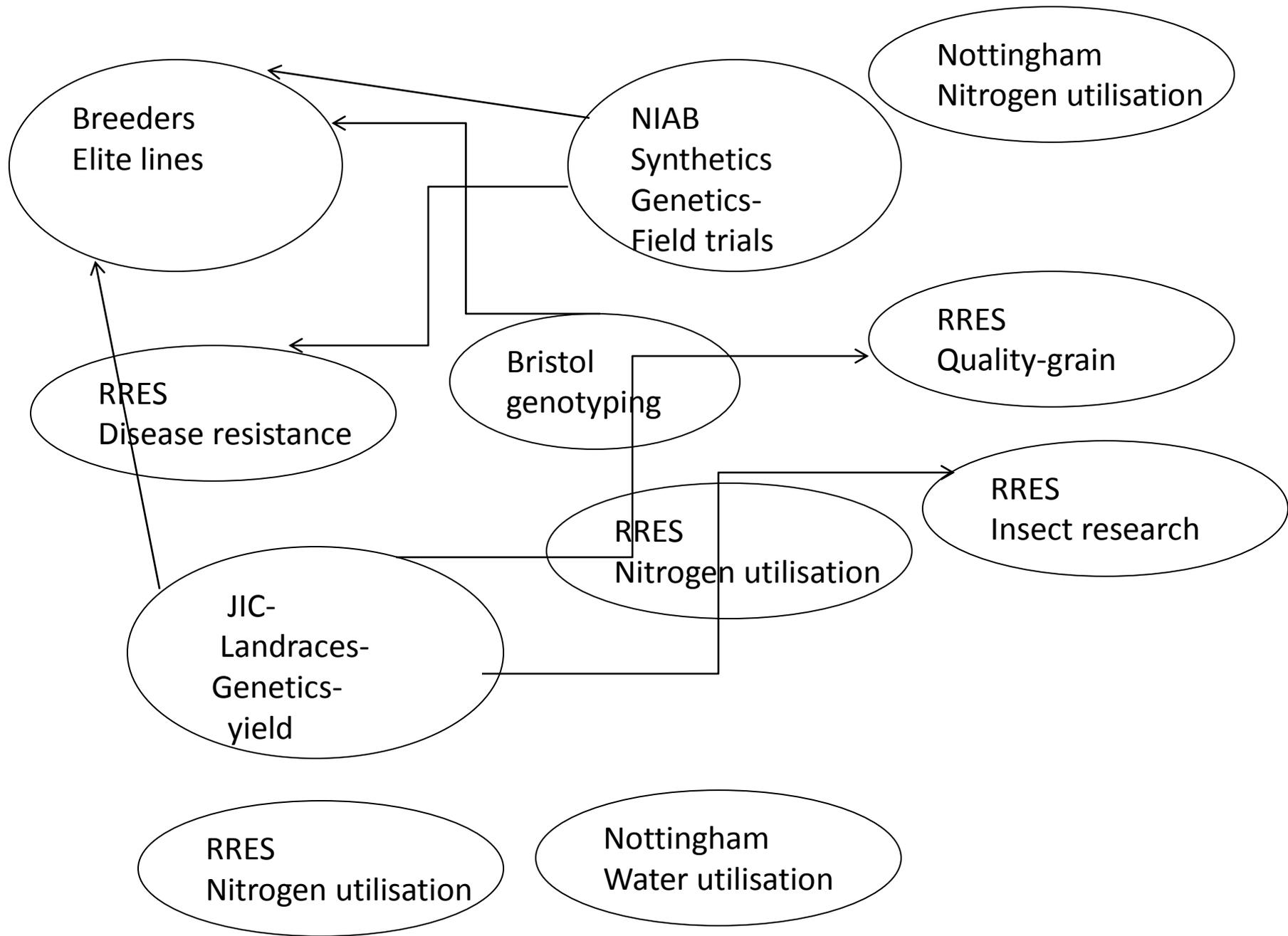


# What do we need?

"The development of wheat prebreeding germplasm characterised for the generation of key traits and the identification of genic markers for selecting these traits "

How is this achieved? There are two basic options:

- (1) Re-establish a wheat prebreeding on one site/institute- all wheat activity would move to it
- (2) Coordinate current wheat activity in a way to re-establish wheat pre-breeding



# a wheat prebreeding programme

Breeders  
Elite lines

John Snape-  
Simon Griffiths  
Landraces-  
JIC

Andy Greenland  
Synthetics  
NIAB

Ian King  
Alien  
Introgression  
IBERS

Genotyping

Bristol-Keith Edwards –genotyping linking with Mike Bevan  
wheat genome sequencing

Phenotyping

Phenotyping

JIC-Cristobal Uauy  
Yield

RRES-Kim H-H  
Disease resistance

RRES-John Pickett  
Insect research

Nottingham +RRES  
Biomass

RRES+ Nottingham  
Nitrogen utilisation

## What does this provide?

- Provides a single coordinated way of generating "wheat prebreeding Germplasm"
- Generates long term populations
- Spreads the risk across the community
- Provides germplasm to recruit the next generation of researchers
  
- Steering group- breeders and academics plus CIMMYT
- My role

# Where are we?

- We have and are applying for 6 years of funding (Committee grant Lola for £9m for 3 years and institutional funding for £9M for a further 3 years until March 2017).
- We should hear formally about the first 3 years of funding soon
- We have heard that we can go to a full proposal on the second half of the funding submitting in April 2011- then hear whether successful at the end of next year

# Most important issue

As with the IGF resources- wheat hexaploid BAC library- etc

All information and material is available FREE OF IP

