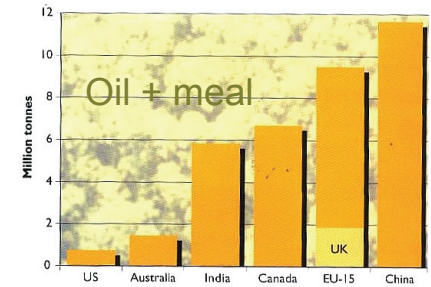
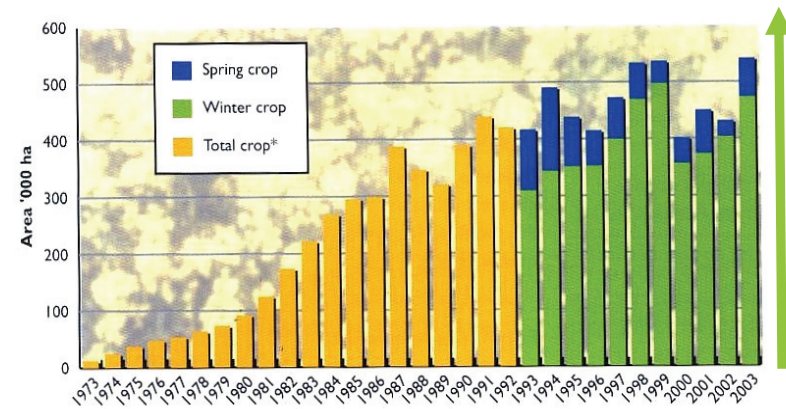


Oilseed Rape

Large potential for improvement

- Increased input use efficiency
- Energy balance (N, C)
- Oil yield and quality (composition)
- Sustainable pest and disease management

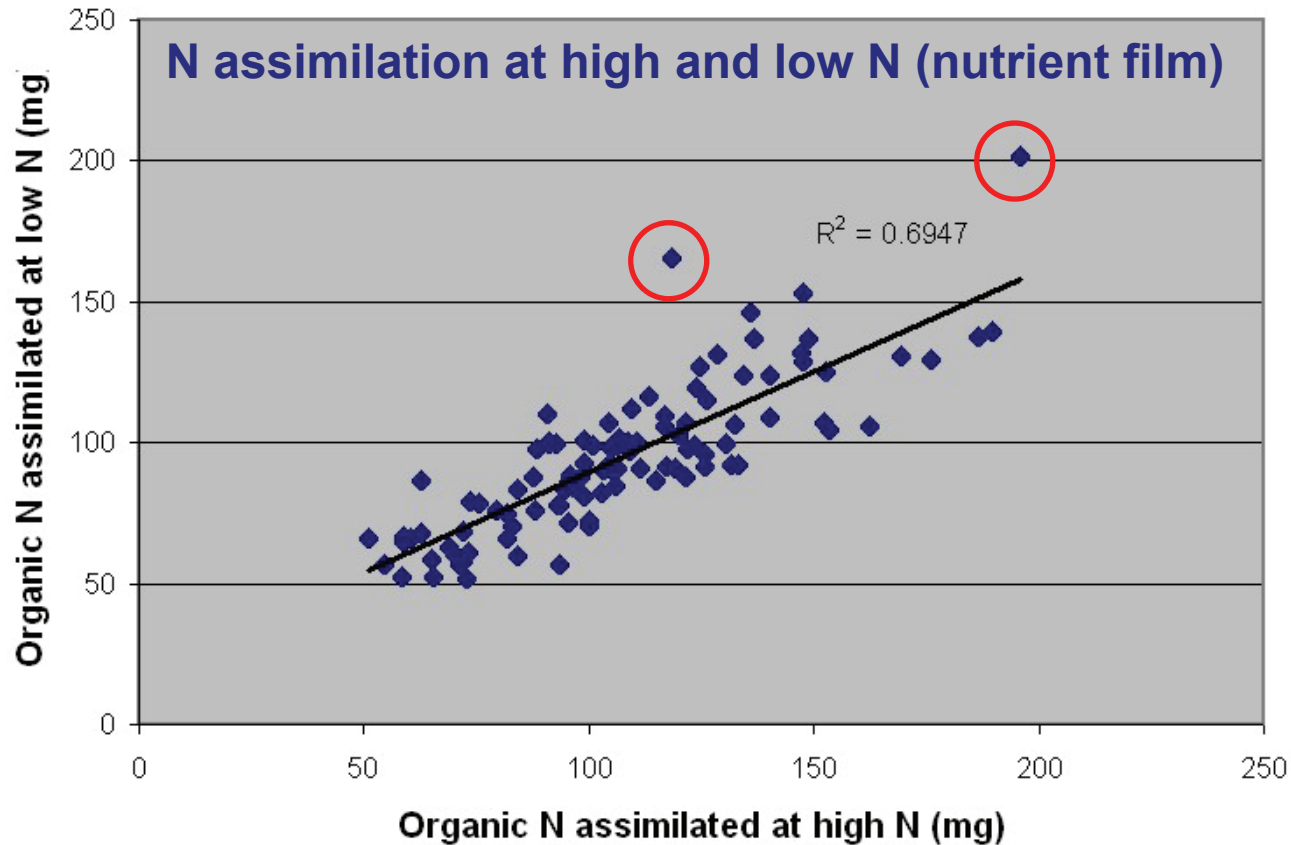




Phase I (2003-8)

- **Engage with Stakeholders**
- **Conduit for basic science to crop improvement**
- **Public domain core resources**
 - **Diversity sets (Plant, Fungal Pathogens)**
 - **Reference mapping population (TNDH + TVSL)**
- **Information sharing**

Trait analysis *BnaDFS* lines

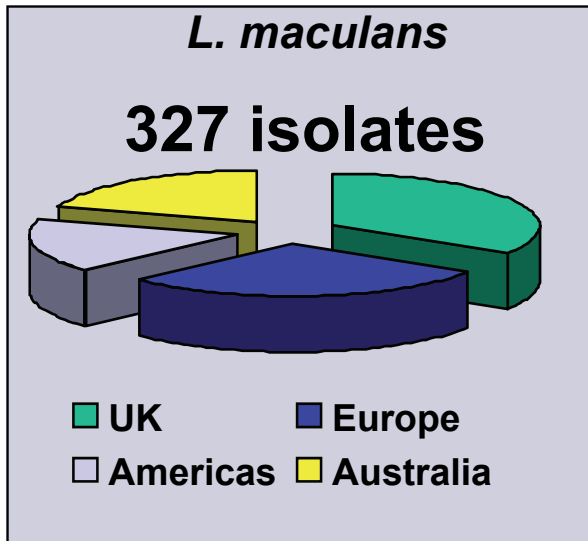


96 lines: *Brassica napus* Diversity Foundation Set (96 lines)

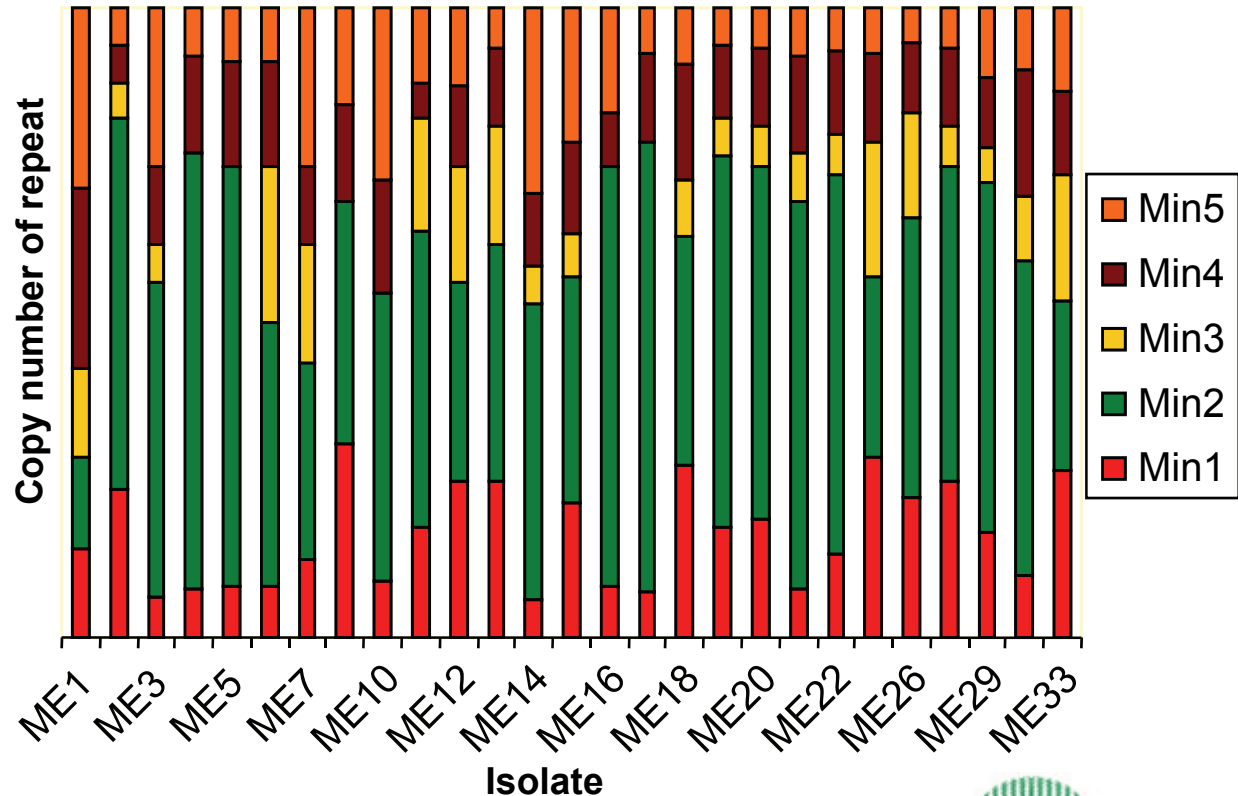
9 lines: NUE LINK project

3 lines: TNDH mapping populations

Global diversity in *L. maculans* fungal pathogen populations



DNA fingerprinting of *L. maculans* using minisatellites



IF0144: OREGIN - Pre-breeding research to support climate change adaptation, and reduction of the environmental footprint of Oilseed rape (2008-13)

1. Maintain and develop OREGIN seed and pathogen **genetic resources**, and enable resolution and introgression of **useful variation**
2. Quantify and characterise **genetic variation for key traits**
3. Delivering the **pre-breeding toolkit**: provision of **integrated information** to maximise utilisation of genetic diversity

Novel genetic variation + Genetic markers/Maps + Information and insights

- locate and identify trait loci and follow alleles during breeding pre-breeding toolkit
- introgress into new varieties

1. Maintain and develop OREGIN genetic resources, to enable resolution and introgression of useful variation

Curation and distribution of **existing resources**

- i. Complete fixing of *B. napus* Diversity Foundation Set
- ii. Bulk seed of BnaDFS lines and fixed lines of BnaDFFS
- iii. Breeder involvement and assessment
- iv. Maintain publicly accessible pathogen diversity collection

Development and distribution of **new resources** to enhance the ability of crop improvement programmes to utilise genetic variation

- i. Identification of likely sources of novel alleles

2009 – establish 5 NEW populations (with breeders)

Increasing the ability to **resolve genetic loci** - map integration of OREGIN resources

- i. Integration of the **TNDH** linkage map with *Brassica* genome

2. Quantify and characterise genetic variation for key traits

Establishing trait variation in the OSR genepool under high and low nitrogen conditions

- Establishment of **field assessment trials** (high vs low **N**)
- Opportunity for trait assessment by network
 - access to field plots and material

2010 + 2011 seasons, at Rothamsted – open access

Providing the **information for pre-breeding**:

data integration + statistical + genetic analysis of trait variation

Characterisation of OSR pathogen resources in relation to host resistance

- Produce sets of **characterised pathogen isolates** : + *more UK isolates*
- Unify R gene nomenclature

3. Delivering the pre-breeding toolkit: provision of integrated information to maximise utilisation of genetic diversity

Data curation and dissemination

- Increase ability to resolve genetic loci and identify marker loci
- Trait data management

Collation of data from **previous and ongoing projects**
prioritised datasets from LINK and other network projects

including:

- WHRI, JIC, RRes datasets (LINK, Defra et al.)
- Variety/disease interaction
- Targets for disease resistance to adapt to climate change

ABOUT

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STAKEHOLDERS

HOME >

General Information

Databases

Datasets

Protocols (SOPs)

Publications

Publicity

Reports

Defra OILSEED RAPE

GENETIC IMPROVEMENT NETWORK

Welcome to OREGIN

Providing a pre-breeding pipeline for sustainability traits into Oilseed Rape cultivars

The Oilseed Rape Genetic Improvement Network (OREGIN) has been successful in achieving initial objectives of providing a focus for the UK Oilseed Rape genetic improvement R&D and stakeholder communities, and a mechanism for prioritising research requirements. **The principal activities of the OREGIN project are the generation, gathering, collation and dissemination of information and genetic resources for the benefit of the stakeholders.** Ongoing discussions amongst the R&D and breeder communities have identified the highest priority requirements in the context of Defra strategic objectives. It is recognised that other trait areas such as pest resistance may be of increasing commercial priority and affect the long-term sustainability of the crop. The components of the OREGIN pre-breeding platform will also provide a foundation for and contribute significantly to other projects of relevance to the overall objectives of achieving improvements in sustainability through crop genetic improvement.

This new site has been divided into the following four sections:

- [About](#) - "What is OREGIN?", project outline, news, contact details and information on the other Defra crop genetic improvement networks
- [Information](#) - Reports, databases, protocols, general information about Oilseed Rape
- [Resources](#) - Genetic diversity for plants and pathogens, experimental materials
- [Stakeholders](#) - Who are the OREGIN stakeholders, details of future and past meetings

OLD Site - The old site is still available [here](#), and still contains the [Pathogen Database](#), until we integrate it with the new site.

OREGIN News:

OREGIN project features at HGCA R&D conference, 23/24 January 2008

"Climate Change" paper published attracts media attention

Presentations given at the Fifth Stakeholder Forum (Wednesday 7 March 2007) now available to download.

site guide

The site is grouped into the following four sections:

ABOUT - for general information about OREGIN, including news items and contacts.

INFORMATION - for more detailed information about OREGIN, including reports and information tools.

RESOURCES - for experimental resources and research related tools

STAKEHOLDERS - for information on the Stakeholders Forum

Please use our interactive dropdown menus, the side menus, or the link tracker to navigate the site.

--see [site-map](#) for overview












Reports

OREGIN project reports

- [Defra project AR0703 \(2003-2007\)](#)  : OREGIN
- [Defra project IF0125 \(2007-2008\)](#)  : OREGIN

Scientific reports

- [FAE1-1 and FAE1-2 sequence diversity survey within the BnaDFFS \(2007\)](#) **WEBPAGE**
 - [Table 1 - FAE1-1 and FAE1-2 sequence survey within the BnaDFFS \(2007\)](#) 
- [Nitrogen Use Efficiency \(2008\)](#) 
- [Nitrogen uptake in diverse *B. napus* germplasm \(2008\)](#) 
 - [Nitrogen uptake data \(2008\)](#) 
- [Sequence variation in *Brassica* Glutamine Synthetase genes \(2008\)](#) 
 - [Summary of *Brassica* GS sequences \(2008\)](#) 
 - [Fig 3 - GS sequence alignment \(2008\)](#) **.TXT**
 - [Fig 4 - GS ORF sequence alignment \(2008\)](#) **.TXT**
 - [Fig 5 - *Arabidopsis* & *Brassica* protein alignment \(2008\)](#) **.TXT**
- [SSR diversity analysis of the BnaDFFS founder lines \(2008\)](#) 
 - [16 SSR markers screened against 186 BnaDFFS founder lines \(=142 alleles total\) \(2008\)](#) 
 - [Figure 1. Scatter plot of the first two principal coordinates \(2008\)](#)
- [Variation in oil/protein content \(2008\)](#) **WEBPAGE**
 - [NIRS seed analysis data \(2007\)](#) 

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Resources

OREGIN has developed a range of experimental resources to underpin oilseed crop improvement. Value is being added through a range of [information resources](#).

Plant Genetic Diversity

- [Brassica napus Diversity Foundation Sets](#)
- [Global genetic resource collections](#)

Plant Genetic Locus Resolution

- [Genetic Mapping overview](#)
- [BnaTNDH reference mapping population](#)
- [BnaTVSL substitution lines](#)
- [Molecular genetic markers](#)

Fungal Pathogen Collections

- [Leptosphaeria maculans](#) (causal organism of phoma stem canker)
- [Pyrenopeziza brassicae](#) (causal organism of light leaf spot)
- [Pathogen collection database](#)

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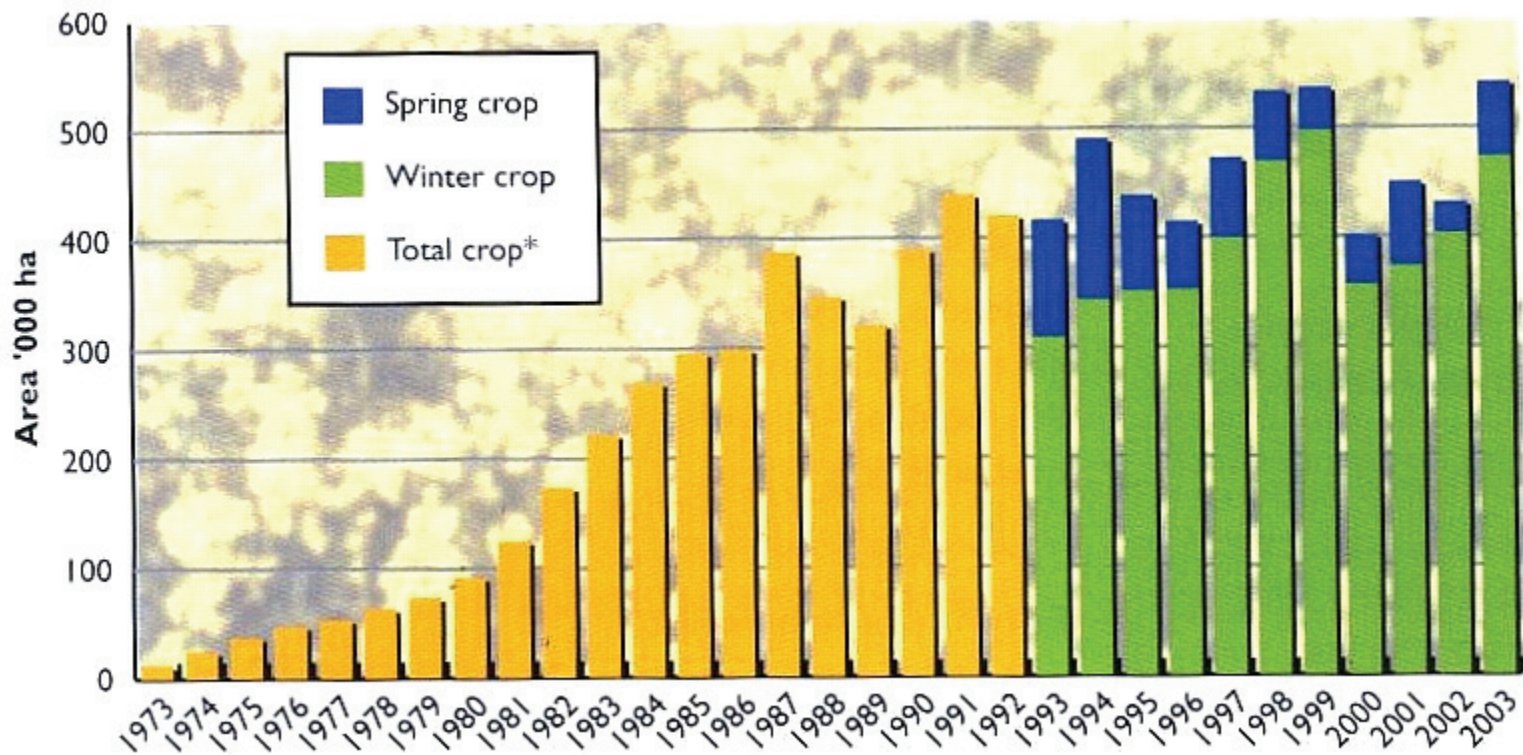
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Ha

1866	651,805
1867	656,059
1868	649,931
1869	653,412
1870	664,381
1871	644,651
1872	612,099
1873	623,354
1874	631,670
1875	634,985
1876	631,775
1877	605,376
1878	593,676
1879	589,948
1880	596,127
1881	598,414
1882	591,997
1887	574,370
1895	551,130
1905	438,543
1915	377,117

Turnips & Swedes, ENGLAND
from Agricultural Returns of Great Britain

