

Projects - Detailed By Project Number

Project Number: 1349 (OS05/01/97)

Title: Improving the establishment of oilseed rape through seed selection / treatment

LINK programme: Sustainable Arable Production through Precision Input Optimisation

Lead Scientist: Dr Gavin Lunn, University of Nottingham

Partners: ADAS Arthur Rickwood,

Start Date: 01 January 1999

End Date: 31 December 2002 **Duration** 48 months

Total Budget: £126,198.00

Overall Aim:

Summary:

Objectives

The potential combinations of seed selection, seed advancement, judicious use of fungicide and insecticide treatment have shown worthwhile increments that in combination provide the potential for significant improvement in the establishment in the range of conditions relevant to the UK crop. This approach to seed improvement will compliment the work undertaken on the physical effects that seedbeds have on seed germination and establishment.

Project Number: 2097

Title: Targeting and choice of spring remedial actions to improve canopy structure and yield in winter oilseed rape

Lead Scientist: Dr Gavin Lunn, University of Nottingham

Partners: ADAS Rosemaund,

Start Date: 01 January 1999 **End Date:** 30 June 2002 **Duration** 42 months

Total Budget: £183,308.00

Objectives

The objectives of the work are to:

- i) Assess the impact that variety choice can have on the attainment of an optimum canopy size.
- ii) Identify the best timing for defoliation or chemical remediation of the crop structure, as well as the rate or combination of chemicals likely to give the best response.
- iii) Produce criteria by which crops likely to produce an excessive canopy can be identified early enough for remedial action to be

Project Number: 2155

Title: Pest and disease management System for Supporting Winter Oilseed Rape Decisions (PASSWORD)

LINK programme: Sustainable Arable Production through Precision Input Optimisation

Lead Scientist: Dr Peter Gladders, ADAS Consulting Ltd

Partners: Central Science Laboratory, Rothamsted Research, Scottish Agricultural College,

Start Date: 01 October 2000 **End Date:** 30 September 2003

Duration 36 months

Total Budget: £118,546.00

Overall Aim:

To construct a decision support system for management of diseases and pests in autumn on winter oilseed rape.

Summary:

The objective of this project is to construct a decision support system for management of diseases on winter oilseed rape. The project will build on work on the epidemiology, forecasting and management of winter oilseed rape diseases and on an existing decision support system for management of winter oilseed rape pests. The disease decision

support system will include components for forecasting, at the start of the growing season, risk of severe epidemics of light leaf spot and stem canker in different regions of the UK. It will be possible to modify these regional risks to obtain risks of severe epidemics and yield loss in individual crops (depending on cultivar, sowing date, previous cropping etc.) and then to update risks during the autumn/winter using information about weather and fungicide use. The disease models will be integrated with the pest decision support system and will be adapted for delivery by several different means (e.g. press releases, Internet). Throughout this project, the system will be tested on a selected range of varieties in England and Scotland. User appraisal will be arranged to ensure that the ultimate product is in a form for easy use by the agricultural industry, despite the complexity of host-pathogen-environment interactions.

Objectives

- 1) To develop regional forecasts of risk for stem canker in England and for light leaf spot in Scotland.
- 2) To develop crop-specific forecasts of risk of stem canker and light leaf spot epidemics.
- 3) To produce a system to guide autumn disease management, integrated with pest management.
- 4) To test disease forecasts and assessments of yield loss in field experiments and through user appraisal.

Project Number: 2198

Title: The prevention of pod shatter in oilseed rape

LINK programme: Sustainable Arable Production through Precision Input Optimisation

Lead Scientist: Dr A Eddie Arthur, John Innes Centre

Partners: CPBTwyford Limited, IACR-Long Ashton,

Start Date: 01 October 1999 **End Date:** 31 March 2003 **Duration**
42 months

Total Budget: £120,000.00

Overall Aim:

To enable the development of pod shatter resistant cultivars of oilseed rape.

Summary:

The proposed study will further develop germplasm previously identified in collaborative programmes involving the John Innes

Centre (JIC), IACR-Long Ashton (LARS) and Silsoe Research Institute (SRI). This work has established the basis for a

commercially directed development project through:

1. the identification of re-synthesised lines of *B.napus* with increased levels of shatter resistance,
2. the establishment of reliable, repeatable tests to accurately assess pod shatter resistance,
3. the identification of individual component traits, in particular, variations in pod morphology, which contribute to shatter resistance.

The existing genetic background of the re-synthesised lines is far removed from that of commercial lines. Nevertheless, this material and the techniques developed offer the opportunity to introduce new genetic variation in pod morphology into commercial lines of oilseed rape. Further work is required to study the causes of improved resistance, to establish the genetic control of the modified pod structure, to map the genes involved and to introgress the genes involved into a commercial background. This work will put in place the breeding materials and tools that breeders require to develop competitive lines showing the yield advantage, harvesting ease and reduced volunteer loads which will all result from superior seed retention in the

Objectives

1. To develop near isogenic lines carrying pod shatter resistance in a commercial background.
2. To define the relationship between the components of the altered pod morphology and

actual pod shatter resistance.

3. To provide understanding of the genetic control of the altered pod morphologies.
4. To develop genetic markers to the major genes for altered pod morphology.
5. To develop quick assays designed to directly identify the altered pod morphologies.
6. To look for, identify and if possible remedy any genetically linked or pleiotropic deleterious phenotype.
7. To verify the stability of the altered pod morphology and the pod shatter resistance under a range of environmental variables.
8. To carry out a study of the biochemical mechanisms underlying the identified morphological variants responsible for improved pod shatter resistance

Project Number: 2325

Title: Green chemicals and biopolymers from Rapeseed Meal with enhanced end user performance

(ENHANCE)

Lead Scientist: Professor N R Price, Central Science Laboratory

Start Date: 01 July 2000 **End Date:** 30 June 2003 **Duration** 36 months

Total Budget: £55,032.00

Overall Aim:

To develop non-feed uses from oilseed components as green chemicals and biopolymers with enhanced end use performances in diverse and versatile markets

Summary:

The proposed project is part of a successful EU bid with 14 other partners. The total project is valued at almost £1million and its

main aim is to assess the properties of the protein component of oilmeal and then to develop non-food uses and markets to add

value to the oilseed crop. The project builds on an earlier EU project to develop new extraction and processing methods which

have been examined at pilot scale industrial level with the help of the industrial partners in the project. The component of the

project that HGCA is being asked to contribute to is the extraction, analysis and determination of properties of the non-storage

Objectives

To evaluate the market and the competitive position of EU oilseed proteins in non-food markets

To improve the quality of industrial rapeseedmeal by developing new oil extraction process

To improve knowledge of the structure-function relationship of the various protein type in rapeseed, as native or modified protein

To develop a protein extraction process adapted to rapeseed meal and the provision of high quality proteins

To develop modification processes to enhance and diversify protein functionality

To evaluate the potential of protein enriched fraction for glues, adhesives, coatings and films

Project Number: 2365

Title: Optimising the use of home grown oilseeds and pulses as protein sources in feed for table chickens

(LS3607)

Lead Scientist: Dr Sue Gordon, ADAS Consulting Ltd

Start Date: 01 June 2001 **End Date:** 31 May 2004 **Duration** 36 months

Total Budget: £74,928.00

Overall Aim:

The overall scientific aim of the work is to identify the maximal and optimal inclusion rates of home grown oilseeds and pulses in

rations for table birds, in terms of their effects on live weight, feed conversion efficiency, mortality, litter quality, bird body condition, manure nutrient contents and gross margins of live weight value minus feed costs. This will enable ingredient constraints in poultry feed formulation packages to be reappraised.

For the oilseed levy payers, the overall aim of the work is to provide increased market opportunities.

Summary:

This project is designed to provide information to HGCA about the technical and financial aspects of the use of home grown oilseeds and pulses in feeds for table chickens. Through a series of replicated feeding studies, it will identify the optimal and maximum inclusion rate of these raw materials in poultry feeds, enabling feed compounders and chicken producers to make informed decisions about diet formulation and content. In particular it will enable them to evaluate home grown oilseeds and pulses as alternatives to imported soya as the major protein source in poultry diets. The project means the HGCA's strategy of supporting research to exploit new market opportunities. As the optimal inclusion of oilseeds and pulses in poultry rations has not been clearly defined, feed industry formulators have traditionally applied very cautious constraints on the upper inclusion rates allowed, and even when price has favoured their inclusion, oilseeds and pulses may be excluded because of arbitrary limits which nutritionists have programmed into feed formulation software. This means that the estimated 600,000 tonne market for dietary crude protein in the UK poultry industry is largely accounted for not by home grown produce, but by imported soya.

Objectives

To identify the best fit model for describing the growth responses of table birds to increasing replacement rates of imported soya

with rapeseed meal, when using both typical and higher than commercial dietary inclusions rates of iodine and vitamin E.

To identify the best fit model for describing the growth responses of table birds to increasing inclusion rates of imported soya

with partially dehulled sunflower meal, field peas, and field beans.

To test the hypothesis that imported soya can be completely substituted with a combination of home grown oilseeds and pulses

calculated to give the best nutrient composition.

To produce 'look-up' tables for calculating the economic optimum inclusion rates of home grown oilseeds and pulses in feeds for table birds.

Project Number: 2369

Title: Investigation into the potential for sulphur metabolism to reduce fungicide inputs for controlling light leaf spot

Lead Scientist: Dr K Walker, Scottish Agricultural College

Start Date: 20 August 2000 **End Date:** 19 August 2003 **Duration** 36 months

Total Budget: £78,495.00

Overall Aim:

To investigate the potential for sulphur metabolism to reduce fungicide inputs for controlling light leaf spot.

Summary:

The objective of this project is to investigate the relationship between levels of cysteine

hydrolysis enzymes and light leaf spot

resistance in different winter oilseed rape varieties and different seed stocks of individual varieties. A light leaf spot susceptible

and resistant variety will be cultivated in the light leaf spot nurseries in Aberdeen under high disease pressure and different

sulphur and fungicide regimes. The varieties will be assessed for light leaf spot and leaves sampled for analysis of levels of

L-cysteine desulphydrase enzyme. Seed will be harvested, re-sown and grown in the absence of light leaf spot control to determine

if seed-borne transmission of the disease exists and whether this is affected by sulphur fertiliser and levels of L-cysteine

desulphydrase. The project will establish the importance of L-cysteine desulphydrase enzyme in terms of light leaf spot resistance

and its evaluation as a method for screening varieties. The use of sulphur fertilisers for induced resistance versus fungicides and

reductions in variable costs will be evaluated. The project will determine the importance of seed transmission of light leaf spot in

oilseed rape and will indicate the consequence of home saving and selection of seed stocks for home saving.

Objectives

1) To determine if light leaf spot is transmitted via the seed

2) To establish the importance of sulphur nutrition as a means of light leaf spot control versus fungicides, with the potential to reduce variable costs

3) To establish the importance of the enzyme L-cysteine desulphydrase in terms of light leaf spot resistance and evaluate it as a quick method for screening varieties which would not require further evaluation.

Project Number: 2449

Title: Effects of genotype and processing technology on the protein quality for ruminants and poultry of

UK rapeseed

Lead Scientist: Dr Angela Moss, ADAS Consulting Ltd

Start Date: 01 April 2002 **End Date:** 31 March 2004 **Duration**
24 months

Total Budget: £70,321.00

Overall Aim:

The overall scientific aim of the work is to identify the effects of genotype and processing on the quality of RSM protein for

ruminants and poultry with a view to optimising its use in the livestock feed industry.

Summary:

This project is designed to provide information to HGCA regarding the factors that affect the protein quality (for ruminants and

poultry) of UK-grown rapeseed meal and with this information it will be possible to improve its nutritional efficiency and increase

utilisation. This study will identify the variation in chemical composition, anti-nutritional factors and protein quality determined

using recognised in vitro techniques for both ruminants and poultry as influenced by genotype, site and processing of rapeseed

meal. Methods of processing (heat and chemical) will be investigated for improving the protein quality for ruminants and poultry

and the most promising processing techniques will be tested in vivo with poultry. This project will complement and provide

information to two recently funded projects HGCA 2324 and HGCA 2365 which will examine

in production studies, the

extensive use of rapeseed products by dairy cows and poultry. The overall benefits from the project will be a better understanding

of the major factors which influence the protein value of oilseed rape and its meal for both ruminants and poultry and how these may be used to increase the inclusion level of oilseed rape meal in livestock diets.

Objectives

1) To quantify the variation in protein quality and quantity within commercially available rapeseed genotypes before and after processing.

2) To quantify the impact of processing and extraction techniques on the protein quality of RSM for ruminants and poultry.

3) To assess the technical and financial implications of improvements in rapeseed protein quality and provide a preliminary

protocol for the production of oilseed rape for the livestock feed market and the levels of inclusion applicable to dairy and poultry table bird producers.

4) To investigate the effect of inclusion rates of rapeseed in a commercial diet, on economic performance, carcase yield and quality

in broiler chickens (using protocols and approaches specified in HGCA Project 2365/DEFRA Project LS3607).

Project Number: 2458

Title: Investigation into the distribution of fungicide resistance to light leaf spot (*pyrenopeziza brassicae*) in

oilseed rape and the development of fungicide strategies to manage it

Lead Scientist: Dr Fiona Burnett, Scottish Agricultural College

Start Date: 01 November 2000 **End Date:** 30 November 2002 **Duration**
25 months

Total Budget: £70,000.00

Overall Aim:

To investigate the occurrence of light leaf spot resistance to triazole fungicides and to determine through the testing of isolates and

through field trials how triazole resistance can be managed so that cost effective light leaf spot control is attainable for the grower

Summary:

The objective of this project is to determine the distribution of triazole resistance to light leaf spot (*Pyrenopeziza brassicae*) in

Scotland and to establish how this problem can be managed in cost effective fungicide programmes. In recent seasons the efficacy

of triazole fungicides for light leaf spot control in oilseed rape has markedly declined in high disease pressure areas. The

distribution of triazole resistance will be determined by isolating the fungus from leaf samples taken from HGCA funded variety

trials and from disease surveys funded by SERAD and MAFF. Field trials will determine the influence of dose and number of

treatments on triazole resistance and will also determine if this resistance can be managed with alternative active ingredients in

mixture or in alternation with the triazoles. Fungicide residues will be measured in field plants throughout the winter to determine

the impact of fungicide dose on subsequent residues in new growth in the spring. The work will provide a direct link between

fungicide residues in a field crop with data from resistance tests in the laboratory. The project will determine cost effective fungicide

programmes to be used in situations where triazole resistance is present in the light leaf spot population.

Objectives

- 1 To establish the distribution of light leaf spot resistance in the UK - it is thought to occur widely in high pressure areas and to be less common where the disease occurs more frequently
- 2 To establish how current fungicide programmes lead to triazole resistance - including the importance of dose rates and number of applications
- 3 To establish alternative fungicide programmes to be used where resistance is detected

Project Number: 2474

Title: Expanding options for agrochemical use in UK soya

Lead Scientist: Dr Sarah Cook, ADAS Consulting Ltd

Start Date: 01 January 2002 **End Date:** 31 March 2004 **Duration** 27 months

Total Budget: £31,479.00

Overall Aim:

To ensure that the absence of legal herbicide options for effective weed control is not a constraint to the uptake and development of the UK soya crop.

Summary:

The aim of this project is to maintain chemical weed, pest and disease control options for growers of UK soya. Without herbicides, the crop will not be a viable option using current technology and the lack of any approved fungicides and insecticide will limit opportunities for cost effective UK production. At present the area sown to soya in the UK is small, approx. 2000 ha were sown in spring 2001, but the area is predicted to expand. Technology for viable and sustainable production systems under UK conditions is limited, but significant at a world scale. Effective control of weeds remains a major limitation to early crop growth and adds considerable risk for growers seeking to maintain margins though reliable yields. Current herbicide options for growers are limited, with several legal uses due to expire in 2002 unless supported by new trials data. The UK pesticide approval system restricts legal options for the grower, as full registration is expensive and rarely justified on new crops grown on a limited hectareage . The off-label system offers one route to the wider legal use of pesticides on crops such as soya, but these approvals also require supporting information from UK trials, together with data from other EU states. This project, with the commercial support of the agro-chemical industry, will undertake trials needed to maintain the Specific Off-Label Approvals (SOLA's) for cycloxydim, bentazone , linuron, vinclozolin/carbendazim, fomesafen and lambda-cyhalothrin, many of which will shortly expire.

Objectives

To maintain legal approval for the use of the currently approved pesticides by

? successfully undertaking field experiments to GLP standards in each of 2 years.

? to collate data from the trials to support herbicide registration.

? to provide soya grain material for residue testing in the GLP compliant laboratories of the agrochemical companies.

Project Number: 2508

Title: Effects of spring timings and rates of application of triazole fungicides on

plant growth regulatory

activity and control of leaf spots and canker of oilseed rape (Brassica

napus)

Lead Scientist: Dr Stephen Rossall, University of Nottingham

Start Date: 01 October 2001 **End Date:** 30 September 2004 **Duration** 36 months

Total Budget: £9,000.00

Overall Aim:

The overall aim is to compare the fungicidal and plant growth-regulating effects of the triazole fungicides Punch C (flusilazole) and

Folicur (tebuconazole) on oilseed rape in glasshouse, controlled environment and field studies to provide decision support

information for spring applications of fungicides/growth regulators in field crops. Contact will be maintained with other relevant

projects and researchers (PASSWORD project and B. Fitt via Andy Selly of DuPont and project 2097/J. Spink via G. Lunn).

Summary:

Phoma leaf spot/canker and light leaf spot are major diseases of oilseed rape. They may cause losses of over 1 t ha⁻¹ in affected

crops, worth over £30 M annually, but can be controlled with autumn and spring applications of triazole fungicides (e.g.

flusilazole, tebuconazole). Some triazoles (e.g. tebuconazole) also have plant growth-regulating properties, which can improve

yield by 0.6 t ha⁻¹. However, losses of 0.4 t ha⁻¹ are possible if growth is stunted too much. Ongoing HGCA research is showing

that the major PGR benefits come from later applications than are needed for disease control (except for Sclerotinia). The greatest

benefits also appear to come from spraying crops with larger canopies (e.g. early sown, at high seed rates). If crops are small, as in

this season, or early disease control is necessary, use of fungicides without PGR activity (e.g. flusilazole) may be beneficial. The

aim of this project is to investigate the relative fungicidal and PGR effects of flusilazole and tebuconazole at different growth

stages in controlled environment and field experiments. This information will be used to support decisions on timing of

application and product choice for disease control and growth regulation in field crops.

Objectives

Controlled environment studies

Pot-grown oilseed rape plants grown in glasshouses will be used to assess the relative fungicidal activity and plant-growth

regulating activities of the triazole fungicides flusilazole (Punch C) and tebuconazole (Folicur), at different rates and timings (plant

development stages), in initial glasshouse experiments. The former has no recognised PGR activity, whereas the latter reduces plant

growth as well as acting as a fungicide. Where appropriate, fungicides may be applied in sequential programmes or as mixtures.

It will be important to control powdery mildew (*Erysiphe crucifearum*), which may be done by applications of quinoxifen at the

seedling stages. A variety relatively susceptible to the diseases of interest (light leaf spot and canker) such as Apex, rated 5 for

both diseases, will be used (NIAB, 2001) in comparison with one with more genetic resistance to both diseases (e.g. Escort, rated 7 for both).

Plants will be sprayed with 4 fungicide doses ($\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, full rate) at second true leaf, eight true leaves (rosette), stem elongation, green-yellow bud and flowering.

Susceptibility to phoma/light leaf spot will be assessed by inoculation of detached discs on cytokinin-amended agar, and leaf scar or wound inoculation of whole plants for the two diseases respectively. Methodologies for inoculating both pathogens have already been developed, but some fine-tuning may be required to optimise the procedures.

Plant growth regulatory effects of the different rates and timing of fungicide will be assessed by comparing morphology of control and treated plants. Standard agronomy assessments will include plant height, stem thickness, leaf number/green area index, pod number and length and numbers of seeds per pod. Samples will be taken for gibberellin analysis, should significant differences be observed. Any effects on root development will be noted and investigated further if detected.

Field work

Sutton Bonington

Indications of the relative fungicidal and PGR activities of the three chemicals in the early CE work will be used to design field trials, in order to decide the particular rates and timings that need to be assessed in the field. A preliminary trial for methodology assessment will be monitored in the 2001/2002 growth season, with more detailed trials taking account of the controlled environment results from the first year in 2002/2003 and 2003/2004 growth seasons.

Combinations of different sowing dates (late August, mid September, late September) and seed rates (60 and 120 seeds m⁻²) will be used to create canopies of various sizes to assess differential responses to fungicide application. Spreading phoma or light leaf-infected rape stubble may be used as a mechanism of promoting infection in particular plots (Sun et al., 2000). Due to the labour-intensive nature of growth analysis from field crops, treatments designed to produce the maximum contrasts will be used.

Standard disease assessment protocols will be used to assess fungal activity at various key crop development stages (possibly using image analysis) in comparison to control plots. The plant-growth regulating activities of the fungicides will be assessed by measurement of parameters such as crop height, stem thickness, crop biomass, green area index and pod numbers from quadrat samples, which previous research (project 2097) has shown are affected by PGR activity of triazoles. If plant growth regulation affects canopy structure, differences in light interception may be measured using ceptometers. Pre-harvest lodging assessments will be taken and hand- and combine-harvest yield recorded. The quantity and quality of oil produced will be monitored.

ADAS Rosemaund

The work at Sutton Bonington will be augmented by parallel studies at ADAS Rosemaund, where the wetter climate may favour

more phoma disease development, commencing in the second year of the PhD programme (2002/2003 season). This work will be dependent on supplementary funding from DuPont. Should increased study of light leaf spot become desirable, a more northerly

Project Number: 2510

Title: Control of Slug Damage in Oilseed Rape by Seed Treatment

–Development and Field Tests

Lead Scientist: Dr Michael Wilson, University of Aberdeen

Start Date: 01 September 2001 **End Date:** 31 August 2002 **Duration**
12 months

Total Budget: £45,345.00

Overall Aim:

To develop and test seed treatments for oilseed rape that can control slug damage as part of an integrated pest management system.

Summary:

This follows on from 2293.

Slugs are serious pests of oilseed rape that eat rape seedlings immediately after emergence, thus reducing plant stand. An HGCA

funded project at the University of Aberdeen has demonstrated that molluscicidal seed coatings are highly effective at protecting

oilseed rape seedlings from slug damage under laboratory conditions. The current project aims to optimise seed treatment

techniques, do laboratory studies on additional promising compounds and test the treated seeds in semi-field and field

site such as ADAS High Mowthorpe in Yorkshire may be used. **Objectives**

1. To compare efficacy of imidacloprid as a seed treatment with methiocarb and metaldehyde.
2. To determine duration of protection given by seed treatments.
3. To develop quantitative analytical methods to monitor metaldehyde uptake by seeds with and without simulated rainfall.
4. To determine efficacy of seed treatments against a broad range of slug pests.
5. To demonstrate efficacy of seed treatments in field and semi-field experiments.

Project Number: 2518

Title: Identifying the factors determining the chlorophyll content of UK rapeseed

Lead Scientist: Dr K Walker, Scottish Agricultural College Commercial LTD

Partners: NIAB,

Start Date: 01 July 2001 **End Date:** 30 June 2002 **Duration**
12 months

Total Budget: £20,597.00

Overall Aim:

To investigate the factors determining the residual chlorophyll content of UK rapeseed in order to advise farmers on ways to minimise the levels.

Summary:

Oilseed crushers and refiners report a trend towards higher residual chlorophyll in UK rapeseed in recent years, compared to that in

seed imported from Europe. This increases the costs of processing the domestic crop and makes importing non-UK rape an

increasingly attractive option. This project will investigate the possible causes of high chlorophyll retention in UK seed. A review

will be conducted of agronomic practices in the UK and the rest of Europe, to identify possible factors that may contribute to the

reported differences in seed chlorophyll content. Seed collected from Recommended List trials

over a range of sites will be analysed

to determine the extent of variation in chlorophyll content between regions, varieties, and variety types. Factors identified in this

part of the study will be tested for their effects on the process of chlorophyll clearing in specific field experiments conducted in the

second and third field season. The work will suggest possible agronomic approaches for producing crops with consistently low seed chlorophyll contents.

Objectives

? To conduct a review to compare oilseed rape agronomy in the UK with that in the other major producing countries of Europe.

? To determine the extent of variation in seed chlorophyll content at harvest associated with site, variety and variety type (conventional versus hybrid).

? To investigate the effects of key agronomic factors on the process of chlorophyll clearing and on the distribution of seed maturity and chlorophyll content within the plant.

Project Number: 2642

Title: Evaluation of root disease of winter oilseed rape in the UK

Lead Scientist: Dr Neal Evans, Rothamsted Research

Partners: Velcourt Ltd,

Start Date: 01 November 2001

End Date: 31 August 2002

Duration

10 months

Total Budget: £7,826.00

Overall Aim:

Determine the causal agent of an oilseed rape root disease and determine how widespread the problem may be within the UK.

Summary:

During the 2000/1 season, as noticed throughout the OSR industry in recent years, significant variability in the senescence of

OSR stems has been observed due to an unknown factor in Velcourt managed fields. These symptoms tend to occur more in the

southern part of the country, ie Kent and Wiltshire. Roots of affected plants appeared blackened and stunted, very similar in

appearance to take all infected roots in cereals. The causal pathogen of any disease was never identified. Significant losses were

observed at harvest in comparison with long rotation / virgin oilseed rape fields close by. The aims of this pilot project are to a)

determine the causal agent of any associated root disease, b) to determine the scale of the problem and c) to begin to identify solutions to address the problem.

The project will start with a pilot study of field sites around the UK. Velcourt will sample up to 10 long rotation (7 or more

years)/virgin rape fields and a similar number of fields with a short rotation (ie less than 5 years). Classical isolation techniques

will be used to ascertain the scale of any disease problem encountered. Depending on the preliminary results, a more detailed

study may be proposed under the SAPPIO LINK programme.

Objectives

1. Locate plants with root disease from selected sites around the UK (Velcourt).
2. Assess infected stems and isolate onto artificial media
3. Characterise causal agent
4. Make recommendations, depending on results

Project Number: 2720

Title: UK Recommended List of Oilseed Varieties 2002- 2005

Lead Scientist: Dr Jim McVittie, CEL

Start Date: 01 July 2002 **End Date:** 30 June 2005 **Duration** 36 months

Total Budget: £677,238.00

Overall Aim:

To continue the programme of variety trials for UK oilseed crops to facilitate publication of the HGCA Recommended and HGCA

Descriptive Lists in December each year.

Summary:

Recommended List trials of winter oilseed rape varieties and Descriptive List trials of minor oilseed crops will be managed by the

HGCA company Crop Evaluation Ltd. Data from this HGCA-funded programme of trials combined with the results of National

List (NL) tests, jointly funded by MAFF and breeders, provide the data for preparation of Recommended Lists and other advisory

publications. The lists are used by all sectors of the trade as the principle source of independent advice for growers, end users, the seed trade and advisors.

Objectives

To manage the oilseeds RL project to maintain the high quality of the work. By the development of detailed protocols for all

aspects of the work and by seeking competitive tenders for most functions, to drive down the cost of the project in real terms through the three year period.

To maintain a full comprehensive programme for winter oilseed rape.

To achieve a better linkage between preliminary National list and BSPB co-ordinated trials on one hand and HGCA funded

recommended list trials on the other. This should give more reliable data to all sectors of the industry without increasing trial costs.

To examine the distribution of oilseed trials so that they continue to mirror the requirements of the industry. For example the area

of winter oilseed rape in Scotland has declined over the last few years so the trials distribution needs to be changed to reflect this.

To continue the publication of lists in December each year

To make all HGCA funded trials data available by way of a web based database and to develop tools to allow growers to

Project Number: 2767

Title: The potential use of UK oilseed rape and rapeseed meal in livestock diets - A review.

Lead Scientist: Dr Angela Moss, ADAS Consulting Ltd

Start Date: 01 August 2002 **End Date:** 31 December 2002 **Duration** 5 months

Total Budget: £10,000.00

Overall Aim:

To undertake a review of the UK literature and research reports to identify ways in which inclusion rates of oilseed rape products in

livestock diets can be increased without detriment to animal productivity or health.

Summary:**Objectives**

To carry out a EU-wide review of published literature relevant to UK-grown oilseed rape and research reports relevant to UK oilseed

rape to:· Identify the genotypes grown in the UK and establish which if any are grown elsewhere so that literature can be

included. Identify the chemical composition, protein quality and anti-nutritive factors of oilseed rape and its meal· clarify the

inclusion rates of WRS and RSM in a range of livestock management systems.· identify seed characteristics likely to effect protein

quality and fatty acid profile· identify processing treatments available to improve the protein quality of oilseed rape and its

products for livestock feed· clarify the impact of processing on inclusion rate· identify processing and feed management

strategies to manipulate protein quality and hence inclusion rate · A cost-benefit analysis would enable the relative merits of

rapeseed and other protein sources to be compared in terms of their effect on the producer's business.