MINISTRY OF AGRICULTURE, FISHERIES AND FOOD

Date project completed:

31/03/1998

Research and Development

Final Project Report

(Not to be used for LINK projects)

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Section 1 : Identification sheet

1. (a) MAFF Project Code: **OF0152**

(b) Project Title: Desk study on the control of weeds in organic arable and horticultural production systems

(c) MAFF Project Officer:

(d) Name and address of contractor:

Postcode

(e) Contractor's Project Officer:

(f) Project start date: 01/01/1998 Project end date: 31/01/1998

(g) Final year costs: **approved** expenditure

actual expenditure

(h) Total project costs / total staff input: **approved** project expenditure

actual project expenditure

***approved** staff input

***actual** staff input

(i) Date report sent to MAFF:

(j) Is there any Intellectual Property arising from this project ?

***staff years of direct science effort**

Section 2 : Scientific objectives / Milestones

2. Please list the scientific objectives as set out in CSG 7 (ROAME B). If necessary these can be expressed in an abbreviated form. Indicate where amendments have been agreed with the MAFF Project Officer, giving the date of amendment.

1. To review the R&D that has been carried / published in both organic and conventional systems that is of relevance to weed control in organic production.

2. To define the current state of the art for weed control in organic farming systems.

3. To identify the priorities and make recommendations for future research.

4. To provide a draft report by 31 March 1998 and an agreed final report by 30 April 1998.

3. List the primary milestones for the final year.

It is the responsibility of the contractor to check fully that ALL primary milestones have been met and to provide a detailed explanation if this has not proved possible

Milestones		Target date	Milestones met?	
Number	Title		in full	on time

If any milestones have not been met in the final year, an explanation should be included in Section 5.

Section 3 : Declaration

4. I declare that the information I have given in this report is correct to the best of my knowledge and belief. I understand that the information contained in this form may be held on a computer system.

Signature _____ Date _____

Name _____

Position in Organistation _____

Section 4 : Executive summary

The Ministry is seeking to encourage an expansion of organic farming with a research programme to provide information of benefit to organic farmers and to policy makers. The lack of a reliable and effective weed control system that does not rely on herbicides, has been highlighted as the major problem in limiting the growth of organic farming in the UK.

Studies have been made that are aimed specifically at developing organic weed control techniques. There has also been work on non-chemical methods for dealing with weeds in conventional systems. Research in weed biology, population dynamics, and competition modelling from conventional systems also provide valuable information for improving weed control strategies. In addition, research into novel and improved methods of plant husbandry, plant breeding, and the application of new technology in guidance systems etc., can also make a contribution to providing better weed control in organic and conventional systems. However, because of the diverse nature of the research it is not easy to assess the current state of the art for weed control in organic farming systems.

The main objective of the present project was to identify and collate the relevant R&D that has been carried out and published on weed control in organic arable and horticultural production systems. The study was also intended to define the current state of the art in non chemical weed control, allowing recommendations to be made for future research work.

Section 5 : Scientific report

The lack of a reliable and effective weed control system that does not rely on herbicides is limiting the growth of organic farming in the UK. The UKROFS survey of organic farming R&D 1993-1996, gave the highest priority to '*Developing viable agricultural weed control strategies through basic studies including weed crop ecology, competitive effects and the weed seedbank, using techniques and/or substances which are approved under UKROFS rules or are likely to be approved if a dossier is presented*'.

Individuals and organisations in the UK and elsewhere, with an interest in organic systems and/or in non-chemical weed control, have been asked to identify important current and recently completed research projects, and recent publications that are relevant to this review. They have also been consulted about priorities for future research in non-chemical weed control. A list of individuals and organisations consulted is given in the appendices of the report. Databases have been used to provide additional information on relevant research projects and scientific publications.

A list has been drawn up of recently completed and on going research projects that have some relevance to weed control in organic systems. The projects have been grouped according to whether studies were made within organic or conventional systems, and further categorised for direct or indirect relevance to non-chemical methods of weed control.

The literature review has concentrated on papers published since 1990 but earlier publications that are of sufficient importance have been included. There is an extensive bibliography of the publications consulted.

The review covers aspects of both direct and indirect strategies for weed management and summarises the important points. In the review, different aspects of organic and conventional studies of direct and indirect weed control are discussed in an attempt to put each aspect into context; it is inevitable that there is some overlap. Current literature shows that studies have been made that are aimed specifically at developing organic weed control techniques. However, organic methods for dealing with weeds should not be seen as completely separate from conventional ones. Nor should weed control be viewed in isolation from other cropping practices. Research to evaluate weed control methods in organic systems is vital, but studies of weed biology, population dynamics, and competition modelling from conventional systems can also provide valuable information. In addition, research into novel and improved methods of plant husbandry, plant breeding, and the application of new technology in guidance systems etc., have the potential to make a significant contribution to providing better weed control in organic systems.

Based on the literature review, the on going projects list and contributions from those individual who wished to express opinions, suggestions are made of the priorities for future research in non-chemical weed control for organic farming systems.

A full report has been provided separately to MAFF.