



**PROJECT REPORT No. 5**

**LOADING OF CEREAL  
INFORMATION FOR  
HERBICIDE SELECTION  
COMPUTER PROGRAMME**

**(HESTA 'HERBICIDE  
SELECTION FOR TACTICAL  
APPLICATIONS' EXPERT  
SYSTEM)**

**1989**

**FREE**

EAST OF SCOTLAND COLLEGE OF AGRICULTURE  
CROP PRODUCTION ADVISORY AND DEVELOPMENT DEPARTMENT

Final report to the Home Grown Cereals Authority on  
project no 0002/1/87, December 1988:

Loading of cereal information for herbicide selection computer programme.

Following the approval of the grant in May 1987, Mr W D Gill was employed on an hourly basis to prepare tables of weed susceptibility to the cereal herbicides and to write "Product Information Pages". The source material was the herbicide manufacturers' labels and use was made of the "Herbex" database maintained by the Scottish Crops Research Institute. The tables were ready for loading by December 1987 and Mrs F Anderson was employed to type them up. Preparation of product information pages proceeded up to April 1988 and Dr D H K Davies edited them as they were prepared.

Meanwhile, outside the grant-funded work, the HESTA (Herbicide Selection for Tactical Applications) software was improved to allow faster operation and to modify the selection so that the least-cost solutions are given greatest prominence. The results are now displayed in tabular form indicating the susceptibility of each of the defined weeds to each of the active ingredients which are short-listed. The operator can browse within the short list and make the final selection or can simply accept the active ingredient rated most highly by the program. The routines for printing out solutions and Product Information Pages have been improved.

The system is unique in that it actually selects active ingredients from the range of those available and also in that it takes account of the stage of growth of both crop and weeds as defined by the user and allows the user to influence the selection by his ranking of the importance of the weed species. The system is very easy to use with advanced screen displays which fully utilise the colour capabilities when available. Nevertheless, it is useable on a monochrome machine. The use of readily-available IBM-compatible PCs means that the system is independent of telephone lines but can be easily updated from a floppy disc.

The information for cereals as now compiled and loaded has information on 260 combinations of rate and active ingredient including proprietary mixtures and many of the commonly used tank mixes. All of the cereal crops are covered including winter and spring barley, oats and wheat as well as rye, triticale and durum wheat. Cereals undersown with grass or grass and clover are also covered. Information, where available, is included on 196 weed species. Where relevant, information on soil type and organic matter content is also included and is taken into account in the selection process.

The availability of Mr Gill, a recently retired crop production advisor with a wide knowledge of herbicide usage, has meant that the information

assembly process has been achieved at considerably lower cost than was envisaged when the application for the grant was made and it was assumed that the assembler would need time to acquaint himself/herself with the problem.

The system, complete with its cereal database was demonstrated at "Cereals 88" on 15 and 16 June at Stoneleigh and at the BCPC conference at Brighton in November 1988 where considerable interest was generated. Agricultural Advisers of the Scottish Agricultural Colleges have access to the system. A leasing policy is being developed to extend facilities to other users and it is anticipated that this will require refinement of the database to suit the needs of individual clients.

N M Fisher  
December 1988

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