

# Development of software to plan conversion to organic production (OrgPlan)

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## ABSTRACT

OrgPlan is a computer programme aimed at farmers and advisors assisting with the planning of an organic conversion. The programme is divided into technical modules, supported by a standard enterprise database, a report builder and an advisory section. Through the farm profile builder, rotation, cropping and livestock planner, conversion scenarios over several years can be developed and are evaluated for technical and financial feasibility by calculating farm gate budgets for key resources (forage energy and key nutrients) and financial reports (cash flow budget and profit and loss account). The poster illustrates the basic functioning of the software as well as the underlying rationale for the scenario evaluation.

*Keywords: organic farming; conversion, farm planning, economics*

## INTRODUCTION

Farmers considering or attempting an organic conversion have to obtain information about organic farming so that they can make an informed decision whether this is the right choice for them. Apart from personal reasons and objectives, deciding whether or not to convert involves assessing the technical feasibility of an organic conversion for the specific holding, and whether or not it would generate an appropriate income for the farmer and his/her family. The government sponsored Organic Conversion Information Service (OCIS) provides access to information about the standard requirements and the certification process, but no financial feasibility assessment of the conversion.

Techniques to plan an organic conversion developed in continental Europe have been used by organic advisors in the UK since the mid 80s, but a large number of farms currently converting do not use conversion planning services. Research in other countries identified time involved and the lack of access to reliable standard data as reasons why farmers do not plan the conversion (Løes, 1992; Vogtmann *et al.*, 1993), both of which are addressed by OrgPlan.

## RESULTS

The software falls into several conceptual parts: Central resources; Scenario planner and Report builder (see Figure 1). The graphical user interfaces for the rotation planner, farm profile, rotation and livestock planner, and scenario builder that allow the user to choose between a number of display options on screen. The

software concept and detailed programming notes form the basis of a technical documentation and the programme itself contains electronic user help.

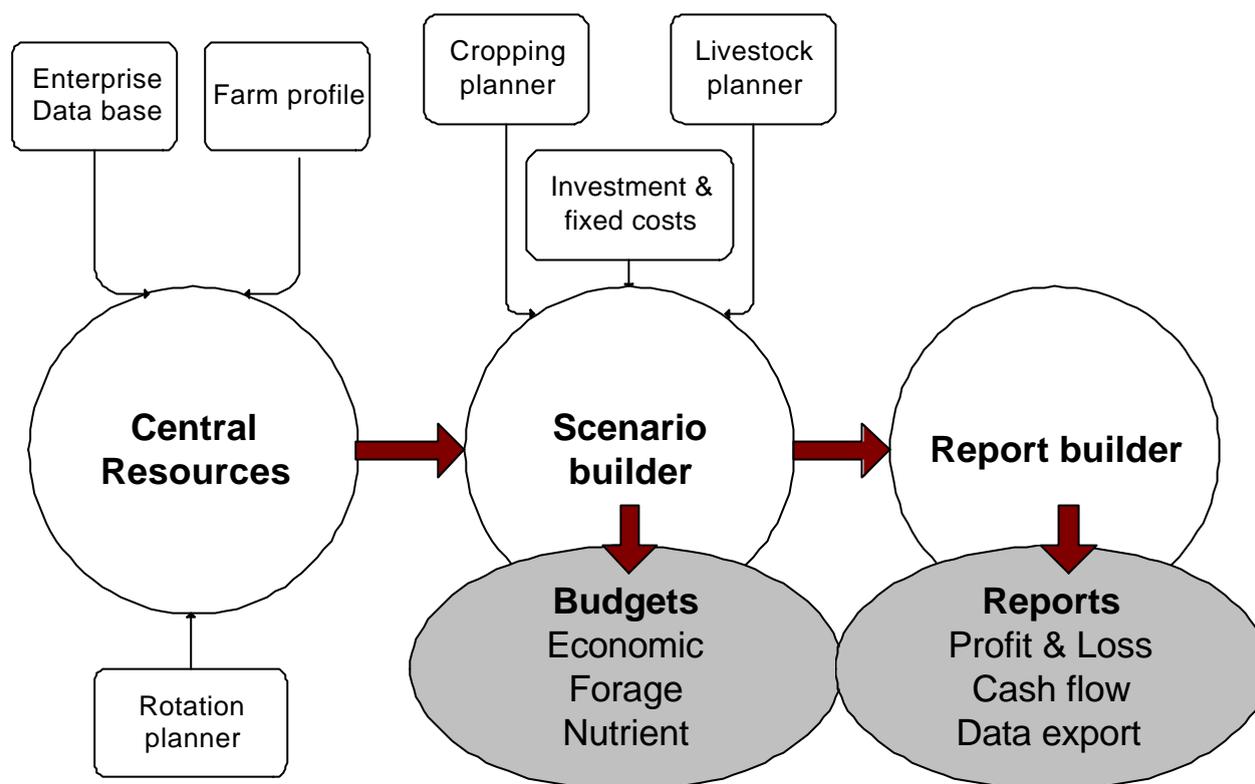


Figure 1 Software elements and structure

The financial budgets follow common practice in whole farm planning and farm management and lead to the calculation of annual cash flow budgets, and a standard profit and loss report for each individual year and a linked report for all years. The programme also provides the facility to plan investments during conversion. Reports can either be printed or exported to a spreadsheet for further calculations.

Feed shortages are a frequent problem of organic conversion identified in previous research (e.g. Haggard and Padel, 1996). The software therefore contains a feed budgets, developed on the basis ME values for forages and concentrates on the supply side, and ME requirements linked to performance of the animal (e.g. milk yield) on the demand side for which daily allowances for ration planning based on (AFRC, 1990) have been converted into annual values.

Nutrient budgets are important in assessing the technical feasibility of an organic rotation for the farm in question, as the use of brought-in organic manures and fertilisers is restricted, and also because certification bodies use them to assess restricted fertiliser inputs. For the development of the software ongoing work on nutrient budgeting was taking into account (Watson and Stockdale, 1999) and a concept how to include the nitrogen fixation based on models by Korsath and Eltun (2000) was developed.

A database structure with linked tables for the storing of the standard data was developed by the principle contractor, to which modifications were made during

the programming of the individual elements. Financial standard data for most organic, in conversion and conventional enterprises are based on input and output data from the Organic Farm Management Handbook, the SAC Farm Management Handbook and other sources (Chadwick, 2000; Lampkin and Measures, 2001).

All UK certification bodies were approached and the Soil Association (SA), UKROFS and IFOAM gave copyright clearance so that electronic versions of their standards have been included. The documents are in HTML format that provides an index and allows cross-references between the different sections and documents. Several sections of the text of the Organic Farm Management Handbook have been included as a technical guide.

## OUTLOOK

Given the difficult financial situation of agriculture in the UK sound financial assessment of the impact of conversion becomes increasingly important and should be standard in any conversion plan, with which the software assists. A pilot version will be available during in Spring 2002. It is envisaged that the standard enterprise data and advisory section will be updated on a regular basis and that additional elements may be added.

## ACKNOWLEDGEMENTS

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## REFERENCES

- AFRC (1990) *Nutritive requirements of ruminant animals: energy*. Agricultural and Food Research Council.; London.
- Chadwick, L. (2000) *The Farm Management Handbook*. SAC The Scottish Agricultural College; Edinburgh.
- Haggar, R. and S. Padel (ed.) (1996) *Conversion to organic milk production*. Technical Review No4, IGER; Aberystwyth.
- Korsaeth, A. and R. Eltun (2000) Nitrogen mass balances in conventional, integrated and ecological cropping systems and the relationship between balance calculations and nitrogen runoff in an 8-year field experiment in Norway. *Agriculture Ecosystems & Environment* **79** (2000), 199-214.
- Lampkin, N. H. and M. Measures (ed.) (2001) *2001 Organic Farm Management Handbook*. Institute of Rural Studies and Elm Farm Research Centre; Aberystwyth and Newbury.
- Løes, A. K. (1992) *Aktuelle Omleggningsproblemer - a Spørreundersøkelse (Actual conversion problems - a survey)*. No 9, Norsk Senter for økologisk Landbruk. Tingvoll.
- Vogtmann, H., B. Freyer and R. Rantzau (1993) Conversion to low external input farming: a survey of 63 mixed farms in West Germany. Paper presented at the 'Agroecology and Conservation issues in temperate and tropical regions', Padua.
- Watson, C. A. and E. A. Stockdale (1999) Whole Farm Nutrient Budgets: What do they tell us? In: *Accounting for Nutrients: a challenge for the grassland farmers in the 21st Century*. (A. J. Corral). British Grassland Society; Malvern, pp 35-40.