

# IOTA

## Institute of Organic Training & Advice

Office tel: 01547 528 546 : Email: [iota@organicadvice.org.uk](mailto:iota@organicadvice.org.uk)

### IOTA Research into Practice

#### A review of organic research and what it means for practical organic farming

##### Advisory tools

###### **Advisory tools for organic farming**

Advisory tools are an invaluable aid for advisers in providing farmers with the necessary information for analysis and planning of all aspects of the farm. The review of Advisory Tools provides access to and a comprehensive list of all the templates, calculators and analytical tools available to organic advisers, covering the environment, business, soils and animal husbandry.

[http://www.organicadvice.org.uk/papers/Res\\_review\\_17\\_peers.doc](http://www.organicadvice.org.uk/papers/Res_review_17_peers.doc)

###### **Nutrient budgeting**

This review identifies the research done on nutrient budgeting and presents the latest input and output data for use in nutrient budgeting on farm to support rotation and soil management decision making. It includes a guide to nutrient budgeting on organic farms.

[http://www.organicadvice.org.uk/papers/Res\\_review\\_19\\_topp.doc](http://www.organicadvice.org.uk/papers/Res_review_19_topp.doc)

##### Arable crops and systems

###### **Cereal variety and population selection**

Cereal breeding over the last half century has resulted in significant improvements in overall production. This review describes variety characteristics suitable for organic conditions, approaches to cereal breeding for organic systems, and finally the scope for the future.

[http://www.organicadvice.org.uk/papers/Res\\_review\\_12\\_jones.doc](http://www.organicadvice.org.uk/papers/Res_review_12_jones.doc)

###### **Combinable protein crop production**

This research topic review summarises research knowledge and observational experience of combinable protein crop production in organic farming systems for the UK. European research on peas, faba beans and lupins is included; considering their role in the rotation, nitrogen fixation, varieties, establishment, weed control, yields, problems experienced and intercropping with cereals.

[http://www.organicadvice.org.uk/papers/Res\\_review\\_7\\_wright.doc](http://www.organicadvice.org.uk/papers/Res_review_7_wright.doc)

###### **Stockless organic arable and horticultural systems: management & sustainability**

Stockless organic farming involves the use of green manures and green waste compost to replace clover leys, livestock and animal manures. This review draws on the research into stockless systems, and addresses the challenges of conversion planning, rotation design, maintaining soil nutrient status, weed control, pest control and economic return.

[http://www.organicadvice.org.uk/papers/Res\\_review\\_10\\_preston.1.doc](http://www.organicadvice.org.uk/papers/Res_review_10_preston.1.doc)

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### Environment

#### **Wildlife and Biodiversity: integration and management of farming and wildlife for their mutual benefit**

This Review looks at a wide range of research, much of it focused on the wildlife impact of organic farming and draws out key practices which can benefit both the wildlife and farm productivity.

[http://www.organicadvice.org.uk/papers/Res\\_review\\_18\\_stocker.doc](http://www.organicadvice.org.uk/papers/Res_review_18_stocker.doc)

#### **Monitoring and management of energy and emissions in agriculture**

This review collates the results of research into energy use and emissions in organic farming and provides advisers with an analysis of the results, access to the data used and a review of the benchmarking methodologies available. The review will inform those working in the development of benchmarking tools and advising farmers on practices to improve their performance.

[http://www.organicadvice.org.uk/papers/Res\\_review\\_6\\_little.doc](http://www.organicadvice.org.uk/papers/Res_review_6_little.doc)

### Food Quality

#### **Strategies for enhancing organic food quality**

Production methods affect the quality of food and it is becoming increasingly important to ensure that in order to meet market expectations organic food achieves high standards of quality in all aspects. This review identifies food quality parameters and draws on research to identify how quality may be influenced in organic farming.

[http://www.organicadvice.org.uk/papers/Res\\_review\\_21\\_stopess.doc](http://www.organicadvice.org.uk/papers/Res_review_21_stopess.doc)

### Forage Management

#### **Grass clover ley species, variety selection and management**

Grass clover leys form the basis of most organic farming systems yet the selection of seed mixtures is often founded on tradition or cost. Based on a review of recent and past research this review provides a wealth of information on grass and legume species and varieties, mixture selection, ley establishment and pasture management.

[http://www.organicadvice.org.uk/papers/Res\\_review\\_13\\_younie.doc](http://www.organicadvice.org.uk/papers/Res_review_13_younie.doc)

#### **The role and management of herbal pastures for animal health, productivity and product quality**

This review seeks to address the role and management of herbal pastures for animal health, productivity and product quality. It involves a review of research and focuses on the use of herbal ley mixtures and varieties and their role in animal health and growth, meat quality, production and yield and climate change issues.

[http://www.organicadvice.org.uk/papers/Res\\_review\\_5\\_burke.doc](http://www.organicadvice.org.uk/papers/Res_review_5_burke.doc)

#### **The role and management of whole-crop forage for organic ruminants**

Whole-crop forage plays an invaluable role in supporting the productivity and health of ruminants. This comprehensive review of over 60 references and research projects

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provides an analysis of the key issues concerning cereal and pulse species and variety selection, mixtures, management, quality and use in organic farming systems.  
[http://www.organicadvice.org.uk/papers/Res\\_review\\_11\\_powell.doc](http://www.organicadvice.org.uk/papers/Res_review_11_powell.doc)

### Horticultural crops

#### **Organic plant raising**

This review identifies the research on propagation composts and plant raising and suggests ways in which organic propagation can move towards less reliance on peat, address the problems of nutrient supply and considers alternative methods of plant raising.

[http://www.organicadvice.org.uk/papers/Res\\_review\\_20\\_lennartson.doc](http://www.organicadvice.org.uk/papers/Res_review_20_lennartson.doc)

### Livestock

#### **Dairy cow breeding for organic farming**

Organic farming requires that in the choice of breeds or strains, account must be taken of the capacity of animals to adapt to local conditions, their vitality, and their resistance to disease. In addition, breeds or strains of animals shall be selected to avoid specific diseases or health problems associated with some breeds or strains used in intensive production. This review considers the research into organic dairy cow breeds and breeding, it discusses the need for a specific organic approach to breeding and cross breeding and makes some clear recommendations for selection priorities.

[http://www.organicadvice.org.uk/papers/Res\\_review\\_14\\_roderick.doc](http://www.organicadvice.org.uk/papers/Res_review_14_roderick.doc)

#### **Dairy Cow Nutrition in organic farming**

This review pulls together the results of over 40 research projects and brings us up to date with the latest in thinking on dairy cow nutrition, incorporates the findings of a wide range of organic trials and draws some clear recommendations on appropriate strategies for forage type and management, supplementary feeding, ration formulation and farming systems. It raises important issues around sustainability versus optimum production and highlights future research priorities.

[http://www.organicadvice.org.uk/papers/Res\\_review\\_1a\\_tame.doc](http://www.organicadvice.org.uk/papers/Res_review_1a_tame.doc)

**Trace element and vitamin management in organic ruminant livestock nutrition** This review collates and summarises the organic research into trace elements and vitamins in organic ruminant livestock. It covers the role of trace elements and vitamins in animal health, their requirements (where known), and the extent and effect on health of known trace element and vitamin deficiencies. It also considers strategies for improving the level of trace elements available to ruminant livestock in forages as well as the role of supplements in various forms in treating established deficiencies.

[http://www.organicadvice.org.uk/papers/Res\\_review\\_4\\_tame2.doc](http://www.organicadvice.org.uk/papers/Res_review_4_tame2.doc)

#### **Poultry nutrition and rations in organic farming**

The scope of the review is to consider recent sources of information relating to the feeding of organic laying hens, broilers and turkeys. In particular it reviews all the research commissioned by Defra together with other UK and European work and collates the

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results of that work in the light of commercial experience, providing advisers with a summary of the key recommendations.

[http://www.organicadvice.org.uk/papers/Res\\_review\\_8\\_dinnage.doc](http://www.organicadvice.org.uk/papers/Res_review_8_dinnage.doc)

### Soil and nutrient management

#### **Compost: the effect on nutrients, soil health and crop quantity and plant health**

Compost is considered by many to be the holy grail of organic farming and growing. This review looks at the research and explores how compost varies according to the ingredients and the way it is made. It studies the evidence for compost improving plant health, quality and promoting disease resistance and summarises the situations in which compost is most useful.

[http://www.organicadvice.org.uk/papers/Res\\_review\\_3a\\_hitchings.doc](http://www.organicadvice.org.uk/papers/Res_review_3a_hitchings.doc)

#### **Role, analysis and management of soil life and organic matter in soil health, crop nutrition and productivity**

The concept of a "living soil" in which biological activity makes nutrients available to plants and fixes nitrogen is central to organic farming. This Review considers the research into the complex role of soil life and looks at the analytical techniques and management strategies which are available to us in the organic management of soils.

[http://www.organicadvice.org.uk/papers/Res\\_review\\_16\\_soils.doc](http://www.organicadvice.org.uk/papers/Res_review_16_soils.doc)

#### **Laboratory mineral soil analysis and soil mineral management in organic farming**

The supply of nutrients to plants is dependent on the complex relationship between soil mineral levels, soil structure and type and biological activity. This review looks at the soil analysis techniques available to organic farmers and the supply and availability of nutrients to plants through the use of mineral additions and soil management.

[http://www.organicadvice.org.uk/papers/Res\\_review\\_15\\_soils.doc](http://www.organicadvice.org.uk/papers/Res_review_15_soils.doc)

#### **Nitrogen Supply and Management in Organic Farming**

Optimising the management and supply of nitrogen to crops remains one of the greatest challenges for organic producers. This Research Review covers a large number of research projects and summarises key aspects of nitrogen accumulation, management and utilisation through the use of legumes, catch crops, manures, cultivations and soil management.

[http://www.organicadvice.org.uk/papers/Res\\_Review\\_2a\\_briggs.doc](http://www.organicadvice.org.uk/papers/Res_Review_2a_briggs.doc)

### Tillage

#### **Non-inversion organic arable cropping**

"Non-Inversion Tillage" (NI) involves any cultivation system which does not seek to substantially invert the soil profile. For the purposes of this review, literature that refers to minimum, conservation and reduced tillage and also direct drilling techniques have been consulted. The review identifies the likely benefits and possible challenges inherent in moving away from inversion tillage and points towards some very successful commercial experience of NI.

[http://www.organicadvice.org.uk/papers/Res\\_review\\_9\\_trump.doc](http://www.organicadvice.org.uk/papers/Res_review_9_trump.doc)

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The Research Reviews were undertaken by the Institute of Organic Training and Advice (IOTA) through the Defra funded PACA Res project. Further information about IOTA, the project and additional reviews as they become available may be found on the IOTA website [www.organicadvice.org.uk](http://www.organicadvice.org.uk)

30.5.2008

Mark Measures

[mark@organicadvice.org.uk](mailto:mark@organicadvice.org.uk)

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