FOREWORD

Teagasc 2000 - *A Strategy for Teagasc's Services to the Food and Agricultural Industry in Ireland* was published in July, 1998. Teagasc 2000 sets out the future direction of the Strategic Programmes that will be delivered by the Research, Advisory and Education & Training Services over the coming years.

This Statement of Strategy updates the strategies and plans set out in Teagasc 2000 for the emerging challenges facing the Irish agriculture and food industries in the early 21st century.

The Statement of Strategy covers the remaining five year period of the current National Development Plan, 2000-2006. It also complies with the requirement for a three year strategy statement set out in the Public Sector Management Act, 1997.

The Statement of Strategy consists of the following components:

Component
Mission and Long-Term Objectives
Mission Statement
External environment assessment
Long term objectives and desired outcomes
Current state assessment
Statement of Strategic Processes:
Research Programmes
Advisory Programmes
Education and Training Programmes
Statement of Key Business Process Priorities:
Human Resource Development Plans

1. MISSION

1.1 Mission Statement

The mission statement of Teagasc is:

To provide the innovation and technology transfer necessary for the sustainable development of agriculture, the food processing industry and rural communities through integrated research, advisory and education & training programmes.

1.2 Strategic Imperatives

This statement of strategy recognises five strategic platforms which are fundamental to the successful implementation of Teagasc's mission and achievement of its long-term objectives:

- **Research and Advisory Services geared to competitive farming, rural viability, environmental protection and food innovation.**
- **Nationally accredited agriculture and food industry education and training programmes, with progression to third level.**
- **An agri-food biotechnology capability, especially in animal reproduction, disease resistance, grass breeding and food safety.**
- **Continued strengthening of our culture of performance measurement.**
- **Top priority to attracting and retaining the best professionals through a human resources action plan.**

2. EXTERNAL ENVIRONMENT

2.1 Developments since Teagasc 2000

The Statement of Strategy takes into account major developments in our external environment since the publication of Teagasc 2000 in July 1998. At national level, the main changes are reflected in the following documents:

- **National Development Plan 2000 – 2006**
- **Government and Department of Agriculture, Food and Rural Development policy statements and national reports (Appendix 1)**
- **Technology Foresight Initiative (1999)**
- **Report of the Comptroller and Auditor General (C&AG) on Performance Measurement in Teagasc (1999)**
- **Programme for Prosperity and Fairness**

2.2 External Challenges to Irish Agriculture

The main drivers of change in agriculture and the food industries on a global, regional and national basis are presented in Figure 2.1

In terms of the global challenges facing the Irish agriculture and food sector, this Statement of Strategy specifically recognises the following fundamental issues which must be successfully addressed in the coming years:

- **Further reform of the EU Common Agricultural Policy (CAP) allied to EU enlargement; and**
- **The outcome of negotiations under the World Trade Organisation (WTO) which are expected to result in more liberal world trade and much greater globalisation of markets.**
- **An increasing need to strike the optimum balance between the price competitiveness of agriculture and the food industries and society's concerns in relation to food safety and quality, the environment and animal diseases and welfare; and**

- **The strategic importance of developments in agri-food biotechnology to Ireland because of the predominance of this sector within the economy.**

Figure 2.1 Drivers of Change in Agriculture and the Food Industries

World Developments

- World population will grow possibly to 7.5 billion by 2015, attended by a corresponding increase in the demand for food products.
- Growth in world agricultural production (1.8% per annum) will be slower than in the recent past, but will still exceed the projected rise in the world population.
- World free trade in agricultural products could be substantially achieved by 2015, subject to increased agreement on trans-border disease controls.
- Consumption of livestock products will grow, particularly in developing countries.
- Production of cereals for use as animal feed will increase.
- Food sales in developed countries will grow in value, but not appreciably in volume.
- More developing countries may evolve from being net agricultural exporters to becoming net importers of agricultural products.
- In predicting continuing long-term economic growth, particularly in Asia and Latin America, cognisance must be taken of the likelihood of regional and short-term fluctuations.

European Developments

- Enlargement of the European Union.
- Demands for assured food safety and protection of the environment, concerns in relation to animal diseases and welfare, will be enshrined in legislation posing growing constraints on food producers and processors.
- The extent to which the EU accepts biotechnology, in particular genetically modified crops and animals, is uncertain.
- Incomes will grow to a greater extent than the demand for food and will be attended by increased demands for environmental goods.
- Ageing populations and an increasing interest in the health attributes of food, will lead to a growing market for functional foods.
- Changing family circumstances will have a significant impact on farming practices and systems.
- Consumer preferences, habits and lifestyles will lead to a much more dynamic consumer market for convenience foods and niche products.
- Fresh produce will be available from worldwide sources.
- Through the more widespread use of information technology, the market intelligence available to food companies and retailers will enable them to target individual consumers. A substantial proportion of consumers will shop for food and other products on the Internet, leading to the creation of a global market.

The Future for Irish Agriculture and Food Industries

In the immediate years ahead, the Irish agriculture and food industries will be operating in an environment characterised by:

- A sustained focus on international competitiveness;
- More liberal world trade, with much reduced protection from global competition;
- Reduced dependence on price supports for agricultural products;
- Declining family farm income: increased production costs; lower product prices;
- Greater concentration of retail purchasing and increased corporate alliances between suppliers and manufacturers;
- Rapidly changing life-styles and growing leisure demands, combined with reduced labour availability and larger farms;
- Substantially greater requirements in relation to assured food safety and consistent quality, protection of the environment and animal diseases and welfare;
- Accelerated innovations in food production and products;
- Increased application of information technology and biotechnology.

2.3 Stakeholder Networks

Teagasc has a wide range of stakeholders, including our clients, consumers and the many organisations which make an important contribution to the agriculture and food industries in Ireland. Implementation of the Strategic Programmes outlined in this document is therefore undertaken in collaboration with a wide range of stakeholder organisations, including:

- **Department of Agriculture, Food & Rural Development and other government departments;**
- **Regional Assemblies and County Development Boards**
- **Forfas, Forbairt, Irish Dairy Board, Bord Bia and Bord Glas;**
- **Universities and Institutes of Technology;**
- **Food Safety Authority of Ireland;**
- **Environment Protection Agency;**
- **FAS, CERT, the VECs and other vocational education providers;**
- **National Qualifications Authority of Ireland;**
- **Food Agency Cooperation Council;**
- **Inter-Departmental Group on Modern Biotechnology.**

This Statement of Strategy is informed by our ongoing communication and co-operation with our stakeholders.

2.4 External Consultative Forum

The determination of the effectiveness of our programmes depends, to a significant extent, on the feedback we receive from our clients. The primary end-users of both the results of our research and the variety of services that we provide have an opportunity to influence the future direction of our Strategic Programmes through a Consultative Forum. The Forum is also designed to ensure that our clients are kept fully informed of the content of our strategic programmes and of the outcomes sought and achieved.

The Consultative Forum comprises the following two strands:

- **Annual meetings with each of the farming/rural organisations; and**

- **Sectoral Advisory Committees representative of the farming organisations, the food industries and public**

bodies established in the following areas: Dairy Production, Dairy Processing, Beef Production, Food Processing, Sheep Production, Tillage Crops, Horticulture, Organic Production, Environment, Agri-Food Economics and Education & Training.

Teagasc is committed to providing a high standard of service to all of its customers. We will continue to review the scope for enhancing the quality of our service and to identify and respond to the changing needs of our customers

2.5 International Contacts

Teagasc also has an international network of contacts which provides early access to international advances in science and technology. The network is facilitated through the EU Framework Programmes, and a number of bilateral agreements with research, advisory and education & training organisations in Europe, the US and New Zealand.

Our assessment of the desired future state and the determination of our strategic goals and objectives is informed by our assessment of global developments which we monitor through ongoing contact with our international networks. The development of the European Research Area (ERA) will provide further stimulus to the international dimension of our programmes.

3. LONG-TERM OBJECTIVES

3.1 Future Structure of Agriculture and the Food Industries in Ireland

In response to the pressures highlighted in the analysis of the external environment, the pace of structural changes in the sector is accelerating. While the number of farms and food processors will be significantly reduced, the scale of individual operating units will be substantially expanded. It is projected that by 2015, and possibly earlier, the agricultural and food industries in Ireland may comprise:

- **20,000 commercial full-time farmers, involving possibly 13,000 dairy producers, each producing in the region of 100,000 gallons of milk per annum;**
- **30,000-40,000 part-time drystock producers, deriving a significant portion of their income from farming;**
- **Upwards of 20,000-30,000 farmers obtaining most of their income from off-farm employment;**
- **A small number of Irish-based multinational food companies;**
- **No more than two major dairy companies and less than four or five export slaughtering companies;**
- **100 small and medium-sized food companies supplying niche markets for prepared and semi-prepared consumer foods.**

3.2 Client base

The productive farming sector is expected to be divided between a core of full-time farmers and a larger number of part-time drystock producers. The overall size of the productive farming sector is of paramount importance to Ireland if it is to sustain an internationally competitive agricultural sector in the next decade.

These two groups of farmers will be the main users of our Research, Advisory and Education & Training Services.

Teagasc will continue to work to further develop the quality of services to our clients, whether at the level of individuals, organisations, industry and government departments.

3.3 Direction of Future Work

Our long-term objectives are directed towards providing the scientific and technological capabilities necessary for:

- **Development of the human resources required in agriculture, the food industries and rural development to realise their full potential;**

- **Further development and more extensive applications of sustainable grass-based milk, beef and sheep production systems, and also low-cost crops and pig production systems.**

- **Provision to national and international policy makers of policy analysis and projections in relation to agriculture, the food industries and analysis of adjustment processes in rural areas.**

- **Research and development to the stage of manufacture, of innovative food products of assured safety and consistent quality and food ingredients with improved functional attributes.**

3.4 Desired Outcomes

The determination of our effectiveness as an organisation will be based on the extent to which the collective outputs of our strategic programmes achieve the desired outcomes implicit in our long-term objectives. We will work, in close co-operation, with the Department of Agriculture, Food and Rural Development, other Government Departments and agencies in pursuit of these objectives.

Teagasc is positioned as an innovative knowledge based organisation, serving the interests of rural and urban citizens by providing services which have a national benefit. Because of the national importance to Ireland of agriculture and the food industries and the need for public investment to protect Ireland's status in these areas on the world stage, it is necessary to have an organisation which adds value and provides leadership to these public good sectors.

4. ASSESSMENT OF CURRENT STATE

4.1 Organisational Capabilities

Teagasc is uniquely positioned to ensure the rapid transfer of research and innovation to agriculture, the food industries and rural communities. This is achieved by having significant capabilities in research, advisory and education & training services, within a single organisation.

Through the strategic deployment of the funding provided under the National Development Plan (2000-2006), these services are being re-directed to address the formidable array of challenges facing agriculture, the food industries and rural communities.

In this section, our long-term objectives are discussed in the wider terms of the specific priorities around which performance measurement benchmarks may be set.

4.2 Areas of Current Need

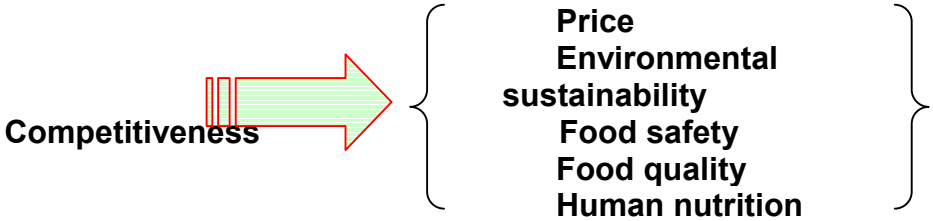
Bearing in mind our mission and long-term objectives, we have identified the need to strengthen core competencies in the following key areas:

- Agri-Food Competitiveness
- Competitive Agriculture
- Sustainable Agriculture
- Rural Viability
- Food Innovation & Safety
- Biotechnology
- Agri-Food Economics
- Education & Training
- Information Technology

4.2.1 Agri-Food Competitiveness

A sea change is taking place in the conventional understanding of competitiveness. In the past it related largely to price competitiveness. However, in response to growing society/consumer concerns, it has become a multi-dimensional concept as illustrated in Figure 4.1.

Figure 4.1: Changing dimensions of competitiveness



Welfare of animals
Ethics of
Biotechnology

The major challenge for Teagasc is to achieve the *optimum balance* between the economic dictates of the agricultural and food industries and consumers' growing concerns in relation to the industrialisation of food production. Indeed, the absolute need to strike this difficult balance is a key imperative for the continued development of, and investment in Teagasc and other public institutions engaged in agri-food research and the proper dissemination of the research outcomes. The uncertain future role of GM products is a prevailing strategic issue facing the agriculture and food sectors in the medium term (See 4.2.6)

4.2.2 Competitive Agriculture

Teagasc aims to raise the profitability of some 20,000 full-time commercial farmer clients through the effective application of improved grass-based livestock and crop production technologies. A Technology and Business Advisory Service will be put in place so that continuous improvements deriving from agricultural research can be disseminated from our research centres to the farm advisors and the client farmers. In addition, we are strengthening our strategic research capabilities in animal reproduction, animal diseases and stress, grass breeding and systems modelling and also upgrading the expertise of advisors in utilising financial planning.

4.2.3 Sustainable Agriculture

Our integrated Research, Advisory and Analytical Services are needed to provide the capability to support Irish agriculture in maintaining its competitiveness. This is achieved by optimising the use of animal manures, fertilisers and other agro-chemicals, while at the same time achieving greater environmental sustainability in terms of improved water quality and food safety.

To ensure that Teagasc consolidates its capability in sustainable agriculture, a major thrust of our research and advisory programmes is directed to the further development and application of farming systems that are both economically and environmentally sustainable, with a

high priority being given to nutrient management planning. Furthermore, we plan to extend our research, education & training and advisory services into the areas of environmental modelling and organic farming.

Increasing statutory requirements in areas such as mandatory nutrient management planning and action programmes in nitrate vulnerable zones will pose difficult management problems for many farmers, requiring the ongoing support of Teagasc services.

4.2.4 Rural Viability

We are putting in place a Rural Viability Advisory Service geared to sustaining rural populations by raising the capacity of some 21,000 farm families to generate additional income both on and off-farm, including farm forestry, organic farming and alternative enterprises.

To achieve this aim, we will upgrade the socio-economic and facilitation skills of advisers. We are also strengthening our research capability in developing models for use in projecting the future structures of rural areas and the impact of policy, demographic and other changes.

4.2.5 Food Innovation and Safety

Since 1995 Teagasc has built a strong strategic capability in food research and development. Currently we have identified a need to underpin the growth of a consumer oriented added-value food processing sector capable of competing in the global market. This will be achieved by strengthening the scientific and technological base of the innovative capability in cheese, food ingredients, meats and prepared consumer foods. A prime objective is the further development of the knowledge base and expertise required to ensure that the highest standards of food safety and quality are consistently achieved in these products. The innovation management and technology development services provided by the two food centres will be strengthened to ensure the maximum uptake of research by food companies.

4.2.6 Biotechnology

There are two major benefits to Ireland of having a public research programme in agri-food biotechnology: (i) to ensure that society can rely on well-researched and impartial information on the benefits and implications of

this technology and (ii) use of molecular biology research techniques to increase our knowledge of the fundamental biology of animals, plants and beneficial or pathogenic organisms.

Our organisation is in a prime position to address the growing concerns of society/consumers in relation to the uncertainties associated with this rapidly developing technology. Teagasc, together with the universities, can play a major role in building public confidence in the use of biotechnological advances. The challenges posed by the potential contribution of biotechnology to the productive farming sector, set against publicly perceived prevailing uncertainties over its impact, underscore the continuing need for credible public research institutions, such as Teagasc. Our concerns and interest in biotechnology are strongly endorsed in the *Report of the Interdepartmental Group on Modern Biotechnology (2000).* The report states that "an exclusive reliance on studies carried out by biotechnology companies is not desirable and will not foster public confidence. We recommend that independent generic research (i.e. not limited to any particular product) be conducted in this country". The report also points out that "biotechnology is of particular strategic importance to Ireland because of the structure of our industry and the predominance of agriculture within the economy".

It is also necessary to strengthen our research capabilities in biotechnology. This will help to ensure our research programmes are scientifically relevant internationally and are developing new innovations and knowledge to underpin the flow of new ideas into our applied R&D programmes in order to maintain their continued innovativeness. Thus, Teagasc will expand involvement in - novel techniques in molecular biology, molecular genetics, gene expression and protein identification so that they become core technologies in the organisation's Strategic Research Programmes in Agriculture and Food Processing.

4.2.7 Agri-Food Economics

There is a need for continued work developing and projecting the policy implications arising from EU enlargement, the phasing out of milk quotas, decoupling of direct payments from production and the consequences of trade liberalisation resulting from the WTO negotiations - as well as developments in environmental policies. Teagasc, in collaboration with the universities and the Department of Agriculture, Food and Rural Development,

has developed a projection model of the agri-food industries in Ireland. The model is being used to advise on policy options best suited to Ireland's agriculture and food industries.

4.2.8 Education & Training

Teagasc is the main provider of nationally accredited courses for young farmers entering agriculture. The education and training programmes we provide to young people embarking upon careers in agriculture, horticulture, forestry and horses have been benchmarked to the best international standards and nationally accredited, thereby providing the opportunity for progression to third-level qualifications. We aim to develop the competencies and skills required by those currently engaged in farming and food processing. Priority is now being given in our strategic plan to developing nationally accredited courses for adult farmers and the food industries.

4.2.9 Consultancy Projects

With the proposed expansion of the EU, there is a clear demand from applicant countries for assistance with the process of preparation for adjustment to the new requirements in the agricultural sector. Ireland's experience and standing in this area creates opportunities for consultancy assignments, often supported by EU funding. Teagasc has a valuable resource of highly experienced staff, and will establish a Development Unit to participate in such projects on a cost recovery basis and having regard to staff availability.

4.2.10 Information Technology

Developments in Information Technology will offer major opportunities to increase the efficiency of internal Teagasc operations and also to further improve the delivery of services to farmers. The ongoing upgrade of new financial systems will be completed. New systems for improved management of services for client farmers and for information management are under consideration. The potential for increased synergy in delivery of Teagasc services, arising from advances by the Department of Agriculture, Food and Rural Development in the computerisation of its own systems, will be actively addressed.

5. TEAGASC STRATEGIC PROGRAMMES

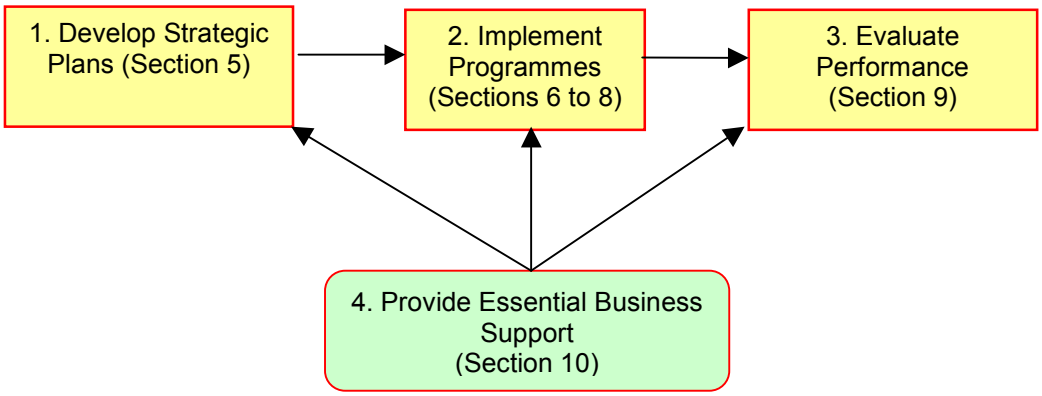
The development and implementation of strategy has been embedded in the management practices and processes applied by Teagasc since its establishment.

This section introduces the description of our strategies at programme level, by providing an overview of the strategic processes employed, and an introduction to our programme management and evaluation system.

5.1 Strategic Processes

A simplified representation of the highest level of strategic processes in Teagasc is shown in Figure 5.1.

Figure 5.1 Teagasc Strategic Processes



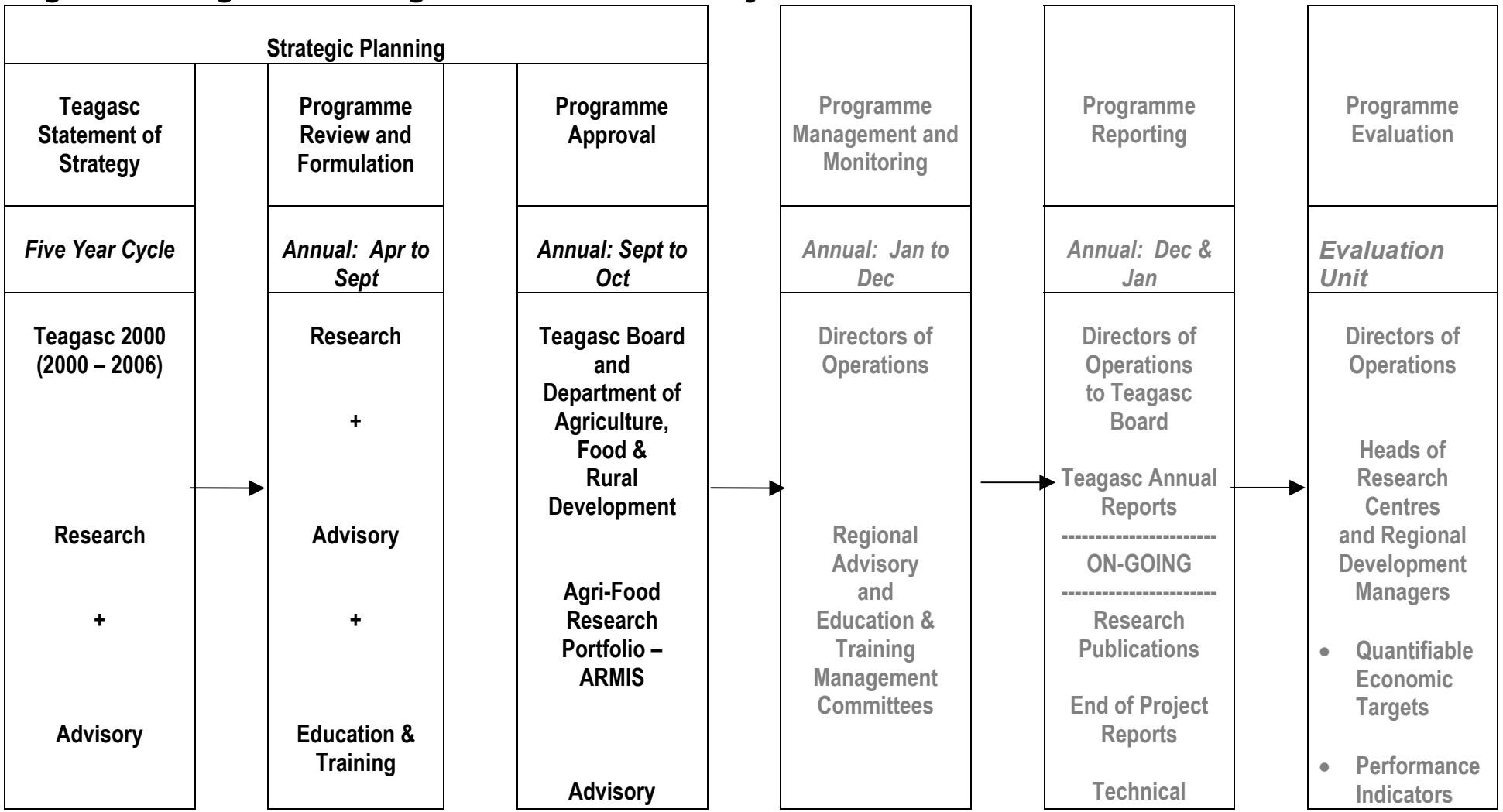
The strategic planning process integrates and aligns the 5 year cycle for reaffirmation of strategy and the annual business planning cycle for each programme.

Implementation of the programmes is actively managed through the programme management and evaluation system (See Figure 5.2), which runs on an annual basis. The specific statement of strategy for each programme is set out in Sections 6 to 8.

The Strategic Research, Advisory and Education & Training Programmes are reviewed annually. Based on the priorities set out in Teagasc 2000, the programmes for the upcoming year are formulated. This process is co-ordinated by the research, advisory and education & training departments at National Office and culminates in a series of meetings involving senior management, heads of research

centres/departments, county & college managers and specialists.

Figure 5.2: Programme Management and Evaluation System




+
Education & Training Services
Programmes
+
Education & Training Programmes
Agri & Food Research Management Committees
Digests
Technical Press Articles
Inventory of Achievements
External Evaluations

Programme review and formulation is undertaken between March and September, following which programme approval is obtained, firstly from the Board of Teagasc and then from the Department of Agriculture, Food and Rural Development. Evaluation at programme level is an integral part of the system. This is outlined in Section 9.

Separate business plans are prepared for the key business support areas. The Human Resource Action Plan is a key strategic platform for Teagasc in this statement of strategy. This is described in Section 10.

5.2 The Programmes

The formulation of the Strategic Programmes is the product of an extensive consultative process involving more than 300 representatives from all sectors of agriculture, the food industries and rural communities. These included farming organisations, the agri-business and food processing sectors, government departments, state agencies, universities, development organisations and individual farmers.

The delivery of programmes is currently organised around three operating *services* based on areas considered fundamental to the successful implementation of the organisation's Mission and long-term objectives. These are:

- **Research Services, geared to competitive farming, rural viability, environmental protection and food innovation.**
- **Advisory Services, geared to improving competitiveness and sustainability**
- **Education and training services geared to the needs of agriculture and the food industries and programmes that are nationally accredited to facilitate progression to third level.**

Our present organisation structure is designed to ensure a close alignment of the fundamental areas of activity with the long-term objectives of the organisation (see Figure 5.3).

Table 5.3: Long-Term Objectives: Strategic Programmes Matrix

	Long Term Objectives			
Strategic	Develop	Develop and	Policy	Develop

Programmes	human resources in agriculture, food safety & rural development	apply improved & more competitive production systems	analysis & advice	innovative food products
Research Services		•	•	•
Advisory Services	•	•		
Education & Training Services	•			

5.3 Approach to performance measurement

From the outset, Teagasc integrated performance measurement at programme level into its management processes. Performance indicators are applied to all three programmes. A variety of evaluation techniques are used to assess the performance of our research activities, including output measures and qualitative case studies of impact achieved.

Favourable comments on our approach to programme evaluation have been received from the report of the Comptroller and Auditor General and from the Departmental Expenditure Review Report. A positive external report has also been received from the Public Policy Group of the London School of Economics.

In response to the findings of these reports, we have commenced the further development of our evaluation processes. We are also seeking to expand our effectiveness evaluation activities through the development of a fully resourced evaluation unit.

6. RESEARCH SERVICES PROGRAMME

6.1 Key Goals

The goals of the Research Services Programme are to provide the scientific, technological and analytical capabilities required in:

Research Area	Key Goals
Agriculture:	To support internationally competitive and environmentally sustainable farm production.
Food Processing:	To enable the highest standards of consumer safety, food quality and nutrition to be consistently achieved in existing and new food products.
Biotechnology:	To evaluate the risks associated with new GM crops and to produce new fundamental knowledge to increase the efficiency of production of livestock, crops and innovative food products.
Rural Economics:	To develop and project the impact of policy and markets on agriculture and the food industries and analyse the dynamics of economic and structural changes in rural areas.

To provide the critical mass necessary to attain these goals, the formation of consortia with universities and institutes of technology is being actively pursued.

6.2 Key Objectives of Research Programmes

The three Strategic Research Programmes in (1) Agriculture, (2) Food Processing and (3) Rural Economics, together with the associated Technical Services are detailed on the following pages.

The key objectives of the research programmes are presented in Table 6.1. The associated sub-programmes are described in terms of priority areas and the nature of our response to these priorities in terms of actions. These are set out in Tables 6.2 to 6.4.

Table 6.1: Key Objectives of Research Programmes

Competitive and Sustainable Agriculture Research Programme
Objective: to develop livestock and crop production systems that are designed to reduce production costs and produce food products of assured safety and consistent quality while ensuring protection of the rural environment and improved animal welfare.
Food Processing Research Programme
Objective: to support the attainment of the highest standards of safety, quality and nutrition in food products and provide the necessary scientific and technological enabling capacity to develop new food products and ingredients.
Rural Economics Research Programme
Objective: to develop and project the impact of policies and other changes on the agriculture and food industries and rural areas; assess changes in the market demand for food products and analyse adjustment processes in rural areas.
Technical Services
Objective: to provide the technological, analytical and related capabilities required by farmers and food companies to produce innovative food products of assured safety and consistent quality.

Table 6.2: Competitive and Sustainable Agriculture Programme

Priority	Response
Sub-programme 1 Grassland – Dairy, Beef and Sheep	
Improve grassland management systems to enable efficiency and sustainability of grass-based production.	Develop low cost grass-based production systems (incl. organic production) for milk, beef and lamb production.
Sub-programme 2 Animal Nutrition and Supplementary Feeding	
Formulate least cost feeding regimes for farm animals.	Develop nutritional regimes for the efficient production of consistent quality milk, beef, sheep and pig meats.
Sub-programme 3 Animal Breeding and Reproduction	
Improve the reproductive efficiency of farm animals, in particular high yielding cows. To identify the most suitable breeds and/or genotypes for different feed and management systems.	Use advances in biotechnology to establish a better understanding of reproductive physiology and to identify genetic markers to improve animal breeding, disease resistance, growth efficiency, and the quality of meat and milk products.
Sub-programme 4 Animal Health and Welfare	
Promote positive herd health and welfare.	Develop objective methods of welfare assessment. Understand the physiology of and ameliorate stress in animals. Use advances in biotechnology to develop new diagnostic tests for animal diseases.
Sub-programme 5 Tillage Crops and Horticulture	
To increase the competitiveness of tillage crops, mushroom, vegetables and nursery stock production (incl. organic production) and ensure the quality and safety of the final produce.	Improve growing conditions and management systems and species diversity Use advances in biotechnology to; develop new diagnostic tests for plant diseases; identify

Assess both the agronomic performance and environmental risks of growing genetically modified crops under Irish conditions. with particular regard to increased efficiency.	genetic markers to improve plant breeding, disease resistance and growth efficiency in grasses, white clover and potatoes. Develop improved crop production systems (including organic production).
Sub-programme 6 Rural Environment	
Agricultural systems that are both economically and environmentally sustainable.	Optimise the usage of manures and fertilisers and minimise the impact of agriculture on water resources, vegetation, soil and air quality. Develop systems for the efficient production of trees suitable for farm forestry, including broadleaf forestry systems integrated with other farming enterprises.

Table 6.3: Food Processing Research Programme

Priority	Response
Sub-programme 1 Food Safety	
Ensure the microbiological and chemical safety of Irish food products.	Develop preventative measures to ensure the microbiological and chemical safety of Irish food products. Develop natural anti-microbial agents for use in animal production and food manufacture.
Sub-programme 2 Cheese, Fermented and Other Dairy Products	
Improve consistency, flavour, texture, functionality and yield of cheese, fermented and other dairy products.	Develop process technologies for new and improved cheese varieties. Harness advances in biotechnology to develop improved food cultures and novel enzymes that will enhance the quality and safety of food products.
Sub-programme 3 Food Ingredients	
Improve the functional and nutritional attributes of ingredients	Identify the compositional and processing determinants of the functionality of food ingredients. Develop technologies which improve the functional and nutritional attributes of ingredients
Sub-programme 4 Meat Products	
Improve the texture, flavour, colour, safety and nutritional aspects of beef, lamb and pig meat.	Develop technologies for the efficient production of fresh meat products of consistent quality, and convenience meat products that are both wholesome and nutritious.
Sub-programme 5 Prepared Consumer Foods	
Identify the major factors which determine the quality of prepared food products.	Evaluate processes and functional ingredients for the improvement of existing products and the development of new products. Develop core competencies in flour and colloid technology.

Sub-programme 6	**Nutrition**
Enhance the nutritional value of food products	Develop new technologies to enhance the nutritional value of food. Support product development and marketing strategies that are better informed of diet-health relationships.

Table 6.4: The Rural Economic Research Programme

Priority	Response
Sub-programme 1	**Agri-Food Economics**
Analyse the competitiveness of the agri-food sector.	Develop and project the impact of policy developments on agriculture and the food industries, and on the economic performance of farm enterprises and assess their implications.
Sub-programme 2	**Rural Development**
Provide the strategic knowledge base to support the continued viability of rural areas. Quantify the factors which influence the establishment and viability of alternative enterprises and employment opportunities in rural areas.	*Develop models to project the future structure of rural areas, including the impact of policy, demographic and other changes.*
Sub-programme 3	**Market Studies**
To determine the demand for specific foods in different export markets.	Investigate the influences that are forming consumer attitudes to guide innovation and new product development in food companies and in the research institutions.
Sub-programme 4	**Economic Services**
Introduction of	Provide national and international

comprehensive interactive databases in agriculture, food and rural development.	agencies with up-to-date statistics, analysis and consultancy services on agri-food economics and rural development.

Table 6.5: Technical Services Programme

Priority	Response
Sub-programme 1 Technology Development Services	
Produce innovative food products of assured safety and consistent quality . Support the development of small and medium-scale food enterprises through technology development and transfer.	Assist the implementation of effective food safety assurance systems, both on farms and in food companies. Raise the innovative capacity of the major food companies. Contract research and consultancy services.
Sub-programme 2 Analytical and Diagnostic Services	
Provide accredited food industry education and training courses.	Develop and provide nationally accredited food industry education and training courses. Provide analytical and consultancy services to farmers, agri-businesses and other public and private clients.

6.3 Approach to Performance Measurement

6.3.1 Measuring Outputs

The programme management and evaluation system includes the monitoring of performance through regular consideration of output indicators. The primary indicators, common to the majority of research areas, are:

- **Number of research projects successfully completed.**
- **Quantity and quality of scientific publications and reports.**
- **Number of end of project reports.**
- **Numbers of open days, training courses, workshops and symposia.**
- **Contribution to public advice and debate.**
- **Patents.**
- **Innovation outputs of near market potential.**
  - **Applications trials/pilot plant validations successfully completed.**
  - **Product/process innovations tendered to industry.**
  - **Amount of industry commissioned research and consultancy.**
  - **Uptake of research as measured by follow-on commercial contract activity.**
  - **Products in market test by industry.**

6.3.2 Evaluating Outcomes

Teagasc is progressively developing quantifable economic targets, together with performance indicators, for its research sub-programmes, starting with seven case studies, summarised below, where such performance measurements may be more easily developed and monitored. It should be noted that the performance measures set for the case studies are research objectives and indicators. Transmission of research outcomes to end users is the function of the Advisory and Consultancy Services.

Specific figures for quantifiable economic targets and performance indicators will be presented in the business plans for the relevant operational units in Research, Advisory and Education/Training Services.

Table 6.6 Details of Case Studies

Case Studies	Programme	Economic Impact Parameters	Performance Impact Parameters
1.Milk Production	*Competitive and Sustainable Agriculture*	Common costs of producing milk in the Moorepark spring calving herd.	Moorepark Research Herd: Reproduction efficiency Culling rate Grazed grass content of diet Fertiliser usage
2.Suckler Beef Production	*Competitive and Sustainable Agriculture*	Carcass value in the Grange herd. Output value of the Irish suckler herd.	Grange Research Herd: Continental genetic make-up Output per suckler cow Grazed grass content of diet Fertiliser usage
3.Tillage Crops Production	Competitive and Sustainable Agriculture	Unit costs of cereal production in the Oak Park experimental production systems. Current production costs of cereals.	Oak Park Crop Systems: Pesticide usage in cereals *Fertilizer* usage Chemical residue levels in crops and myotoxins in cereals
4.Rural Environment	*Competitive and Sustainable Agriculture*	Phosphorus fertiliser -usage on grassland Nitrogen fertiliser on grassland	Fertiliser use in animal production Guidelines on nutrient management Gaseous emissions from agriculture
5. Cheese	*Food*	Cheese flavour:	Project technical

Case Studies	Programme	Economic Impact Parameters	Performance Impact Parameters
Manufacture	*Processing*	new and improved cheese varieties Efficiency: improvements in composition and yield of cheese.	deliverables Yield improvement achieved Cheese flavour improvement New cheese varieties Products/processes submitted and taken up by industry
6. Food Ingredients	*Food Processing*	Technologies for novel proteinates which carry a premium. New whey protein technologies which can yield a premium.	Project technical deliverables Enhanced value of proteinate of whey products Specialised milk powders Products/processes submitted and taken up by industry
7. Mechanical Grading of Beef Carcasses	*Food Processing*	Development of an objective payment system for cattle based on mechanical grading of carcasses.	Adoption of the system

7. ADVISORY SERVICES PROGRAMME

7.1 Advisory Service Goals

Teagasc's Advisory goal is to provide farmer clients with the technological, business and related capabilities required for:

- **Improved Competitiveness: To promote the adoption of low cost technologies and improved business practices. The programme focuses in particular on the full-time and more commercial farmer clients and is delivered by the Technology and Business Service**

- **Rural Viability and Diversification: To assist less intensive and smaller farmer clients whose businesses are under pressure to improve the viability of their farms: to undertake diversification and to exploit opportunities for additional income generation, both on and off the farm. This programme is delivered by the Rural Viability Service**

- **Sustainable Farming: To minimise the environmental impacts of agricultural practices, with particular attention to improving fertilizer use, achieving better waste management and protecting important natural habitats. This programme is relevant to all farmer clients.**

- **Food Safety and Quality: To ensure that farmers have the knowledge, skills and technology to meet the new standards of food safety and quality assurance. The programme is available to all farmer clients, in particular those participating in industry-led quality assurance schemes.**

To deliver these four strategic programmes, Teagasc is reorganising service delivery around two advisory services, each targeted on different sectors of the farming population. These are the:

Technology and Business Service for 20,000 full-time and more commercial farmer clients.

Rural Viability Service for 21,000 less intensive and smaller farmer clients, both part-time and full-time.

7.2 Key Objectives of Advisory Service

Through the Technology and Business Service we can contribute to improving competitiveness by promoting the adoption of low cost technologies and improved business practices on full-time more commercial farms. The Rural Viability Service will deliver the Opportunities for Farm Families Programme to the increasing number of part-time and transitional farmers who need support in decision making regarding changes in their farming system, succession planning, off-farm employment opportunities and a wide range of financial support and services available to them. Direct payment, REPS and other schemes make a critical contribution to farm viability and the advisory service will continue to assist farmers in this context. The Strategic Programme Objectives are set out in Table 7.1

Table 7.1 :Advisory Service Programme Objectives

Priority	Response
Improved Competitiveness Programme	
Promote the adoption of low cost technologies and improved business practices on 20,000 farms.	Use the Technology and Business Service to advise full-time and more commercial farmer clients of low cost technologies and improved business practices. Concentrate on dairying, suckler beef, sheep, tillage, horticulture and pig farming.
Rural Viability and Diversification Programme	
Improve the future viability of less intensive and small scale farm families. Assist 21,000 farm families whose viability is under threat.	Use the Opportunities for Family Farms Programme to provide support in decision making to improve efficiency of the farming system. Provide planning and training to farm families pursuing development opportunities. Build the capacity of the farm households to achieve and sustain a viable income from both on-farm and off-farm activities. Promote farm diversification through farm forestry, organic

	farming and other alternative enterprises.
Sustainable Farming Programme	
Promote sustainable farming programmes which minimise the environmental impacts of agricultural practices	To plan and service 26,000 farmers in Rural Environmental Programme. Provide nutrient management plans for 4,000 commercial farmers. Provide Natural Heritage plans
Food Safety and Quality Programme	
Ensuring farmers have the knowledge, skills and technology to meet the required standards of food safety (Dept. of Agricultural, Food Safety Authority and National Food Safety Authority).	Develop and deliver food safety training modules for adult farmers. Integrate food safety into all advisory activities including group meetings, seminars and farm visits.

7.3 Approach to Performance Measurement

7.3.1 Measuring Outputs

The following indicators, which are common to most advisory areas, are used to determine the performance of the programmes.

- **Number of paying clients**
- **Number of farmers participating in discussion groups, seminars and farm walks**
- **Number of joint Teagasc/Industry Programmes**
- **Number of profit monitors completed**
- **Comparison of trends in common costs recorded in the National Farm Survey with those of profit monitor farms**
- **Advisory contact as measured by the National Farm Survey.**

7.3.2 Evaluating Outcomes

In addition to these output indicators, quantifiable outcome benchmarks have been identified for five case studies as set out in Table 7.2.

Table 7.2 Outcome Benchmarks

Case Studies	Benchmarks	Baseline	Potential Targets (5 years to 2006)
1. Dairying	Common costs and milk protein content.	Current profitability levels	Clients: 15,000; Profitability: increased by € 60 million
2. Suckler Beef	Common costs of suckler beef production and proportion of suckler progeny suitable for EU markets.	Current costs and grades	Clients: 12,000; Profitability: increased by €50 million
3. Tillage	Grain production yields and costs.	Current yield per annum, cost per tonne and profitability per hectare	Clients: 3000; Profitability: increased by €20million
4. Horticulture	Mushrooms: mushroom yield per tonne of compost.	Current yield per tonne and price	Clients: 320; Profitability: increased by €7 million
5. Sustainable Farming	Teagasc REPS client base and the number of clients with nutrient management plans.	Current client base	REPS clients: 26,000 Clients with Nutrient management plans: 4,000

Similar performance measures will be progressively developed for other advisory areas. Where such measures cannot be readily developed because of the nature of the advisory programmes, as for example, the Opportunities for Family Farms Programme alternative means of measuring impact will be developed. More detailed targets and measurements are set out in the business plans for each programme.

8. EDUCATION AND TRAINING SERVICES PROGRAMME

8.1 Education and Training Service Objectives

The development of the human resources required in agriculture, the food industries and rural development is one of the long-term objectives of Teagasc. To achieve this, our strategy is intended to focus on education and training needs of four target groups

1. **Future commercial farmers**
2. **Future full and part-time farmers**
3. **Adult farmers**
4. **Food industry personnel**

8.2 Education and Training Strategy

The Education and Training Services are giving priority to the delivery of the four strategic programmes outlined below.

8.2.1 Third Level Education Programme

(National Certificate in Agriculture and National Diploma in Horticulture)

These higher education programmes are the recommended courses for future commercial farmers. They are particularly relevant to those embarking upon careers in dairying, tillage and horticulture. The combination of academic education and practical training provided, opens up wider career opportunities for graduates. These education programmes have been accredited by the Higher Education & Training Awards Council. They are jointly provided by Teagasc and Institutes of Technology and allow for advancement into university.

8.2.2 Vocational Training Programme

(Certificates in Agriculture, Horticulture, Forestry and Horses)

Full-Time Course. With the strong emphasis on livestock and crop husbandry, combined with basic training in farm business management, these courses are specially designed to meet the needs of school leavers who do not wish to pursue the higher education programmes outlined above. Students have the opportunity of transferring to the National Certificate in Agriculture or the National Diploma

in Horticulture through the Higher Education Links Scheme.

Part-Time Course. To meet the needs of the growing number of young people taking over part-time farms who already have off-farm jobs, a further education and training programme is available for mature students (over 23 years of age). Courses are provided at night, weekends and during annual holiday periods.

8.2.3 Adult Farmers Training Programme

To meet the growing demands for continuous education and training a structured approach is required to the provision of adult farmer training. This will involve the development of nationally validated courses in farming technologies, financial management, environmental protection, food safety and quality, information technology and off-farm income generating opportunities.

8.2.4 Food Industry Training Programme

There is a long-standing need to develop nationally accredited food industry training programmes. This need is greatly enhanced by the new science-based food safety systems which are becoming mandatory throughout the entire food chain from farming to processing to retailing. Thus, a primary objective of the food industry training programme will be to inculcate a food safety culture at all levels in the agri-food industry.

Table 8.1 Education and Training - Goals

Priority	Response
Third Level Education	
Enrol 200 – 250 young people annually who are embarking on careers in commercial agriculture and ensure that upwards of 160 – 180 of these qualify. Open up wider career opportunities and advancement into university	Provide nationally accredited training in agriculture and horticulture. Joint education programmes delivered by Teagasc and Institutes of Technology.

for graduates.	
Vocational Training	
Enrol upwards of 500 young people taking over the operations of both full-time and part-time farm enterprises and ensure that over 400 of these qualify. Meet the needs of school leavers who do not wish to pursue the higher education now but who may wish to in the future. Meet the needs of the growing number of young people taking over *part-time* farms who already have off-farm jobs.	Provide nationally accredited training with strong emphasis on livestock and crop husbandry, combined with basic training in farm business management and sustainable agricultural practices. Provide the opportunity of transferring to further training through schemes such as the Higher Education Links Scheme, FAS training etc. Provide courses at night, weekends and during annual holiday periods. Ensure the vocational education and training programme is available for mature students.
Adult and Continuing Education	
Develop accredited short courses for upwards of 8,000 adult farmers to meet the growing demands for continuous education and training.	Develop nationally accredited courses in farming technologies, financial management, environmental protection, food safety and quality, information technology and off-farm income generating opportunities for the farm family.
Food Industries Training	
Meet the training needs of 3000 food industries managers, supervisors and trainers and food operatives. Equip farm and food industries with the skills necessary to ensure that the food safety standards which are becoming mandatory throughout the entire food chain from farming to	Develop nationally accredited training courses. Food industries training programme will inculcate a food safety culture at all levels in the agri-food industries.

processing to retailing are met.

8.3 Approach to Performance Measurement

In the uncertain economic climate prevailing in the agriculture and food sector, it is difficult to project with any degree of certainty, the participation rates in the education & training programmes. This is especially true of the higher education programmes which constitute a new departure in agricultural education in Ireland.

Current recruitment numbers, together with the projections to 2011 contained in the ESRI Review of the Future Number and Status of Agricultural Training Colleges (commissioned by Teagasc in 2000) indicate that something in the region of 850 young people may enrol annually in these programmes in the immediate years ahead.

Based on these projections, the following indicative enrolment qualification and training targets are used to determine the performance of the new third level education and vocational training programmes. In addition to the courses mentioned below, a further range of courses in areas such as forestry, pigs, horses and organic farming is also available.

Table 8.2A: Indicative Enrolment Targets (Activity)

	2001	2002	2003	2004	2005	2006
National Certificate in Agriculture	90	120	120	140	150	150
National Diploma in Horticulture	75	90	100	110	100	110
Vocational Certificate in	590	540	530	490	470	450
Vocational Certificate in	65	60	50	40	40	40
Adult and Continuing	7000	8000	8000	8000	8000	8000

Table 8.2B: Indicative Qualifying Targets (Outputs)

Qualifying Targets	2003	2004	2005	2006

National Certificate in Agriculture	70	90	90	100
National Diploma in Horticulture	-	60	70	80
Vocational Certificate in Agriculture	440	400	400	375
Vocational Certificate in Horticulture	50	45	40	35

Additional measures are being put in place to quantify the impact of the programmes. An evaluation in 1999 indicated a benefit to cost ratio of 3.85 for our education & training programmes Assuming that the annual expenditure of €20 million in these programmes is maintained and allowing for a projected drop in future enrolments to about 70% of the levels in recent years, the indicative benefit to Irish agriculture is anticipated to be in the region of €40 million to €45 million per annum.

Table 8.2 C: Food Sector Training (Outputs)

Training Targets	2002	2003	2004	2005	2006
Personnel Trained	2700	2750	2950	3050	3200

9. PROGRAMME MANAGEMENT AND EVALUATION

Programme evaluation is an essential strategic activity, which provides the foundation for discharging our accountability for the proper use of the public funds which underpin our activities. Effectiveness evaluation is also used as a core assessment of the quality of our work and to confirm its continuing relevance to our mission and long-term objectives.

Teagasc adopts a comprehensive approach to performance measurement at output and outcome levels, as is indicated by the measurement frameworks described in the Statement of Strategy. This Section describes the performance management and monitoring, performance reporting and performance evaluation elements of the programme management and evaluation system (See Figure 9.1).

Business plans are being developed at each management unit, translating organisational goals and objectives into more detailed work programmes with the objectives and actions necessary for their achievement.

9.1 Programme Management and Monitoring

The Directors of Operations and their line managers are primarily responsible for ensuring the effective delivery of the agreed programmes within approved budgets and in future, in accordance with business plans. Progress in implementing the programmes is monitored at monthly regional management meetings held by the Directors of Operations with their line managers.

The Advisory Services and Education & Training Services Programmes are implemented through a county/college management structure. The Research Services Programmes are implemented through a centre/department management structure. Further to this, the Director of Research holds meetings of the Directors of Operations (Research) and Heads of Centres on a regular basis to review progress.

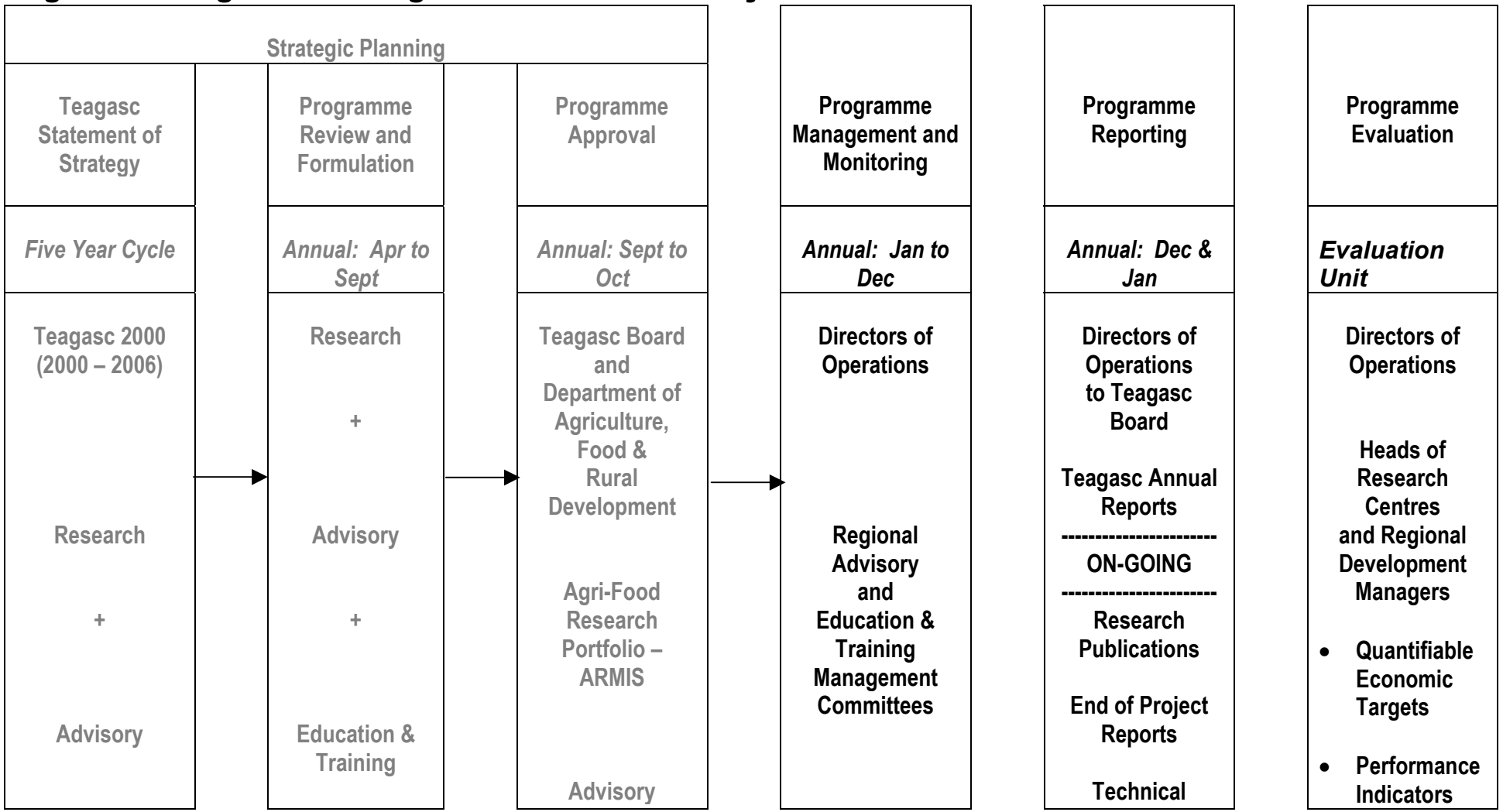
9.2 Performance Reporting

The Directors of Operations report to the Board of Teagasc in January of each year detailing the outcomes of the previous year's programmes. These reports are then used

to prepare the Annual Report. The important outputs of the programme are highlighted in the annual publication entitled *Teagasc Review.*

End of Project Reports are published in respect of all completed multi-annual research projects. These are an important conduit for the transfer of technology to the Advisory Services and Education & Training Services Programmes. Specialist advisers prepare a series of Technical Digests from the End of Project Reports. These are used for Advisory Services and are available to farmers and other end users.

Figure 9.1: Programme Management and Evaluation System




+
Education & Training Services
Programmes
+
Education & Training Programmes
Agri & Food Research Management Committees
Digests
Technical Press Articles
Inventory of Achievements
External Evaluations

9.3 Programme Evaluation

Effectiveness evaluation requires an elaborate assessment framework which directly links outcome measures, indicators and assessment criteria to programme objectives, articulated in a format which facilitates evaluation. Our benchmark approach, as described in Sections 6 to 8, identifies the quantifiable economic targets and performance indicators, which are relevant for the evaluation of programme outcomes.

Impact evaluation of programmes/sub-programmes is a core responsibility of Heads of Research Centres and the Regional Managers in order to ensure that a culture of performance measurement is inculcated into the organisation and becomes an inherent dimension of the Programme Management and Evaluation System.

An Evaluation Unit is being established to oversee the design and conduct of the Performance Measurement System and to develop a cyclical plan for the systematic evaluation of the impact of the Strategic Programmes. The Evaluation Unit will also develop procedures to measure the output and impact of those aspects of the services where, because of the nature of the activity, it is particularly difficult to measure performance. Important examples of this are Rural Economics Research and the Rural Viability and Diversification Advisory Programme.

In evaluating the impact of the organisation's services, the following determinants of the organisation's programmes and their impact are taken into account:

- **A primary national role of Teagasc is the continued development of the broad spectrum of enabling scientific, technological and econometric capabilities required to support the international competitiveness of the agriculture and food industries and the continued viability of rural areas. Important indicators of success in this regard are the quality and relevance of the research output as measured by publications in international journals. A systematic programme of peer reviews of research areas is being undertaken by panels involving experts of international standing from Ireland and other countries. The uptake by industry and society of research outcomes must also be quantified by monitoring the effectiveness of technology transfer.**

- **A growing proportion of the organisation's research funding, especially in food (currently about half), is derived from national and international competitive bidding systems or directly through industry through research contracts or levies. The projects that receive such funding are selected by broadly based committees with strong user representation, both from industry and public agencies. In these circumstances, some research programmes/ sub-programmes have become the joint responsibility of Teagasc itself and the funding organisations.**

- **The research performance measures set are mainly research targets and indicators. Transmission of research outcomes to end-users is the function of the Advisory and Training Services.**

- **A set of quantified performance targets to project and measure changes over a definite period, as a result of the work of the Advisory Services, is being progressively put in place. Immediate attention is being given to the Technology and Business Service. Five sub-programmes with baselines and outcome benchmarks are outlined in Fig. 7.3. In putting forward such targets and indicators, it should be noted that the final outcome of current disease crises will have an overriding impact on the future size, structure and performance of the livestock sector and, hence, the attainment of the economic targets.**

- **The difficulties inherent in projecting the economic impact of the education and training programmes provided by the universities, Institutes of Technology and VECs are further compounded in the case of Teagasc by the long time lag between when a young person completes her/his training and takes over the ownership of the home farm – often ten or more years. The projected decline in farm incomes, relative to other sectors, is of paramount importance in determining the number of young people who will avail of Teagasc's new education and training programmes.**

10. STRENGTHENING OUR HUMAN RESOURCES

Teagasc is a knowledge intensive organisation. Our success is determined by the expertise, innovative capacity, drive and determination of our professional and technical staff to generate new knowledge through research and to effectively transfer this to end-users through the Advisory, Education & Training and Technical Services.

We will put in place a Human Resources Development Plan to ensure that we are in a position to address the current and anticipated needs of agriculture, the food industries and rural communities. It will be continuously updated and comprised of the following elements:

- **An assessment the current human resource needs of the organisation**
- **A staff development and mobility plan**
- **A recruitment strategy to attract and retain staff**

The implementation and success of the Human Resources Action Plan requires input and co-operation from the organisation's management and staff and the Department of Agriculture, Food and Rural Development.

An organisational culture will be fostered by corporate management, characterised by greater collective responsibility, combined with a management approach which is open, committed to ensuring effective internal communication and which acknowledges the contribution of staff to the success of the organisation.

10.1 Current Human Resource Needs

To meet our long-term objectives, as stated in chapter 3, it is imperative that we strengthen and support our most important assets, our human resources. To ensure that we maintain excellent staff morale we will promote an open, transparent, flexible and inclusive working environment which is sensitive to different equality interests. This will initially involve an assessment of the current status of the human resource of the organisation in order to determine the gaps which must be filled so that we can effectively and efficiently deliver our programmes.

A series of reviews/studies will be undertaken in consultation with staff. These will involve, where necessary, commissioned studies to provide a well-

informed basis for progressively addressing gaps in the knowledge base of the organisation. A number of priority areas have already been identified as follows:

- ***Education and Training*: Establish the number of teachers and education officers with the necessary range of specialisations required to deliver the new higher education and vocational training programmes and the proposed nationally accredited adult farmer and food industries' training courses.**

- ***Technicians:* Establish the future role and specialisations of research technicians and the total number and allocation of technicians required.**

- ***Administrative and Clerical Staff:* Establish the role and optimum allocation of staff required to support the extended range of services being provided.**

- ***Staff Mobility:* Determine the potential for, and feasibility of, senior research staff delivering modules of the third-level education programmes, becoming Technology Transfer Officers or progressing to research management posts.**

- ***Teagasc Farms:* Undertake an efficiency audit of college and research farms and establish the potential for more effective utilisation of available resources.**

- ***Management:* Review management numbers relative to other comparable public sector organisations.**

Organisational Priority Appointments

It is essential that Teagasc maintains an appropriate balance between its various components. Changing needs require an ongoing re-assessment of structures and the allocation of resources, especially staff, both between operational areas and also to essential support categories. Obviously, it is essential that all of these are subject to the same search for operational efficiencies so that the overall utilisation of Teagasc resources is optimised. Staff levels in a number of essential functions must be strengthened, including Information Technology, Impact Evaluation, Personnel and Finance Departments, Freedom of Information, Buildings and the Strategic Development function. Up to ten vacancies arising in areas across the

organisation will be used to fill such priority posts as a matter of urgency.

Research Priority Appointments

Priority will be given to building critical mass, especially in animal reproduction, animal diseases and welfare, and systems modelling, in making future appointments in agricultural research. Four permanent posts will be transferred from research in agriculture to food processing so as to help address the imbalance in the proportion of contract to permanent staff in food research.

10.2 Staff Development and Mobility Priorities

In order to maintain and enhance our capacity to deliver our strategies, it is essential that Teagasc provides for the necessary knowledge and skills required for each role through appropriate training support. In-service and external training in the following areas have been identified as fundamental for the implementation of the strategies:

- ***Advisory Services:*** **skills in farm business planning, rural socio-economics, information-technology, environmental protection, food science and animal disease and welfare.**

- ***Education & Training Services*****: skills in the specialisations required to deliver the new higher education and vocational training programmes, including pedagogics.**

- ***Research Services:*** **Improve technical skills in molecular biology, modelling and IT.**

- ***Management Training*****: courses on programme delivery, evaluation and performance measurement and managing change.**

In addition to the provision of well focused in-service training courses and the up-skilling of current staff, we will strive to create an organisational dynamic whereby

1. **Career change is anticipated and managed**

An organisational dynamic is being progressively developed in relation to career management and mobility. In addition to the Staff Development Programme, formalised procedures to assist individual staff to anticipate and plan

for career changes within the organisation will be put in place. On completion of an appropriate career interval, staff will be provided with the opportunity to undertake the training necessary for productive employment in other key positions within the organisation. Staff interested in progressing to management posts will be given the opportunity to undertake the necessary training.

A basic requirement for the further development of such an organisational dynamic is a Computerised Personnel System, including a Staff Directory, which will be published on the Teagasc Intranet.

2. Synergies between Research, Advisory and Education & Training services are strengthened

The interface between research and advice/training is an important area for Teagasc and it is essential that there is a smooth transfer of technology and information between these services. For example, advisory specialists already participate in the planning of research programmes and some research staff are engaged in extension work in co-operation with the advisory services. Further opportunities for co-operation, possibly including staff exchanges, will be sought to facilitate senior research staff who have the knowledge and experience to make effective conduits for the transfer of the technologies - which they themselves and their colleagues have developed - to the advisory, education and training services.

While remaining in the Research Services, Technology Transfer Officers would undertake projects jointly agreed by senior management in the Advisory and Research Services. Staff interested in becoming Technology Transfer Officers would receive the appropriate training.

Arrangements will be put place to encourage research and technician staff to deliver specialised modules of the higher education and other courses. Some may progress to become lecturers on either a part-time or full-time basis.

10.3 Recruitment and Retention of Staff

Teagasc must attract highly qualified staff in order to provide the much-increased innovative capability required by the agricultural and food industries.

New appointments are required to underpin and strengthen the current skill and knowledge base of the organisation. In particular, we need to recruit a number of self-starters with the expertise and experience to drive the Strategic Research Programmes, especially biotechnology. Providing the appropriate work environment for the retention of staff within the organisation is also key to further development of our strategic capabilities and attainment of our long-term goals.

***Contract Research Staff*:**

Currently, approximately 60% of research staff in the two food research centres are employed on contracts of 3-5 years duration. This arises because Teagasc staff levels are subject to statutory control, and approval for additional staff is given on a self-financing basis for specific research projects on a case by case basis. Such posts are approved for a fixed period, which depends on the duration of the research to be undertaken. Permanent posts are available only when existing members of the permanent staff retire or resign. While the availability of such contract appointments has been a very positive factor in recent years and has enabled a significant expansion of the Food Programme to take place, it is important to recognise that this high reliance on short-term appointments creates serious difficulties in the medium and long term. Retention of skilled staff to support new core technologies becomes problematic in the absence of career progression, and the management of programmes where there is an excessive ratio of contract to permanent research staff becomes extremely difficult.

For these reasons, Teagasc will explore with the Department of Agriculture, Food and Rural Development the possibility of increasing the proportion of permanent posts in this area.

10.4 Performance Management and Development System

Teagasc views the Performance Management and Development System (PMDS) required under the Programme for Prosperity and Fairness as an important opportunity to improve the organisation's performance at individual, team and corporate levels and to develop more effective mechanisms for mutually beneficial interactions between management and unions. The assessment of performance of senior staff will help in creating more open

and inclusive management practices and will strengthen the quality of the working environment.

PMDS is expected to provide greater clarity in the role definition of each individual member of staff and will make the crucial links between individual performance and organisational performance. It will provide staff with an opportunity to provide an input into job targets and how performance is to be assessed and should improve vertical and horizontal communication on performance issues. PMDS is also expected to shift the emphasis and investment in personnel development towards the strengthening of competencies in areas of personal and interpersonal effectiveness which are fundamental to achieving superior performance.

10.5 External Recruitment Factors

There are four external factors which Teagasc needs to address in conjunction with the relevant government departments.

- **The organisation needs to be in a position to offer starting salaries on recruitment which are fully competitive with other public sector bodies and provide incremental credit for relevant experience. To high calibre staff, in the rapidly developing technologies, permanent appointments at Principal Research Officer level are required and, in certain circumstances, Senior Principal Research Officer level. In exceptional circumstances, the organisation needs to be in a position to offer remuneration and conditions comparable to those now being provided by a number of university departments for strategic research projects funded by Science Foundation Ireland. Approval of the Department of Agriculture, Food & Rural Development is required for such a strategic recruitment strategy.**

- **Having regard to the rapid pace of developments in biotechnology, together with the fact that it has become a lynchpin of future developments in the biological sciences, priority appointments in biotechnology are required. Skills in the use of molecular biology techniques will increasingly be a requirement for many research appointments in Teagasc.**

- **Over the next three years very few retirement vacancies are expected to arise in the Research Services. This, combined with the necessity to operate within the agreed staff establishment numbers, means that opportunities to make urgently needed appointments in the area of Strategic Research are severely limited. The organisation needs to bring forward a minimum of ten research vacancies arising from retirements post-2003. These would be used to attract the high calibre self-starters required to drive the new Strategic Research Programme, especially in such areas as biotechnology, modelling, genetics, food ethics, information technology, etc.**

- **"Back-up research, advice and training in agriculture and related rural development areas" is one of the nine strategic areas prioritised in the CAP Rural Development Plan. The approval of the Department of Agriculture, Food and Rural Development is required to recruit a number of contract staff with the socio-economic and facilitation skills necessary to gear the *Rural Viability Service* to address the major adjustment processes already underway in rural Ireland**

11. APPENDIX 1: EXTERNAL REFERENCES

The following Government and Department of Agriculture, Food & Rural Development policy statements, together with other national reports, informed the development of Teagasc's strategic programmes:

The National Development Plan 2000 – 2006, Stationary Office (2000).

Agri-Food 2010, Department of Agriculture, Food and Rural Development (2000).

Technology Foresight Ireland, Forfás (1999).

Report of the Task Force on Agricultural Education and Training, Department of Agriculture, Food and Rural Development (2000).

Report of the Advisory Committee on the Role of Rural Women in Agriculture, Department of Agriculture, Food and Rural Development (2000).

Review of Future Number and Status of Agricultural Training Colleges undertaken by Professor K Kennedy, Economic and Social Research Institute (2000).

Report of the Inter-Departmental Group on Modern Biotechnology, Department of Enterprise, Trade and Employment (2000).

Agri-Food Biotechnology – Research Priority – A Joint Teagasc and the Universities Report (2000).

Performance Measurement in Teagasc – report (No. 30) on the Evaluation of Effectiveness undertaken by the Comptroller and Auditor General (1999).