

TEAGASC Today's farm

MAY-JUNE 2012 VOLUME 23 NUMBER 3

Advice on business, production, environment, and countryside issues



BTAP BEGINS 14

- Silage: Are you ambitious enough? 10
- Sexed Semen 24
- Planning flagleaf fungicides 26
- The battle with blight 30
- Fabulous Food Works 34
- A rose by any other name 36
- And more.....



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4 & 6 Upcoming events

8 & 9 Etc pages

Silage

10 Are you ambitious enough?

Drystock

14 The benefits of BTAP

16 A man with a plan

18 Dynamic sheep groups in Donegal

Dairying

20 The Cinderella investment

22 Dairy cow fertility

24 Sexed semen

Tillage

26 Planning flagleaf fungicides

30 The battle with blight never ends

Environment

33 More effective use of nitrogen

Business

34 Food Works: encouraging new export focused food ideas

Forestry

38 A multi-purpose forest

Scent and sensibility

36 A rose by any other name: the most highly scented plants



Cover caption | There are hundreds of Beef Technology Adoption Programme (BTAP) groups like this one at Gort, Co Galway, facilitated by Teagasc adviser Vivian Silke. The aim of the Department of Agriculture, Food and the Marine programme is to boost production and profitability on beef farms.

Today's Farm is a bi-monthly publication produced in a joint venture between Teagasc and the Agricultural Trust, publishers of the *Irish Farmers Journal* and *The Irish Field*.

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COMMENT

Food Works



Mark Moore
Editor,
Today's Farm

At first glimpse the Food Works initiative, which brings together Teagasc, Bord Bia and Enterprise Ireland, may seem remote from the day to day concerns of the busy farmer. The aim is to identify a small number of food companies/entrepreneurs with potential to grow into substantial export-led companies.

An insight into the thinking process behind successful food enterprises will benefit any farmer (see pages 34 to 35). Whether selling sucklers or smoothies, butter or barley, it's all about identifying and meeting customer needs.

Delivering raw material for quality brands is always likely to be more profitable than supplying commodity markets, so all producers have a vested interest in the success of initiatives like Food Works.

Food Works

Ar chéad fhéachaint bheadh cuma air go bhfuil tionscnamh Foodworks, a thugann Teagasc, Bord Bia agus Fiontraíocht Éireann le chéile, cianda ó ábhair inné laethúla an fheirmeora gnóthach. An aidhm atá leis ná líon beag fiontraithe/cuideachtaí bia a aithint a bhfuil an cumas acu fás ina gcuideachtaí suntasacha bunaithe ar onnmhairiú. Rachaidh léargas ar an bpróiseas smaointeoireachta laistiar d'fhiontair bhia rathúla chun leasa aon fheirmeora ar bith (féach lch 34-35). Is cuma cibé an bhfuiltear ag díol bó dúil nó caoineog, ime nó eorna... baineann sé ar fad le riachtanais an chustaiméara a aithint agus freastal orthu dá réir. Is iondúil de ghnáth go mbíonn níos mó brabúis i gceist le hamhábharr a sheachadadh do bhrandaí cáilíochta ná mar a bhíonn i gceist le margáí tráchtarraí ionas go bhfuil leas dílsithe ag táirgeoirí uile i rathúlacht na dtionscnamh ar nós Food Works.

upcoming events

TEAGASC FOOD TECHNOLOGY EXPO

➔ Aviva Stadium, 10 May

The Teagasc compendium of food technologies will be launched on 10 May in the Aviva stadium by the Taoiseach Enda Kenny TD. The technologies will be presented at an industry breakfast for food industry chief executives and key stakeholders. This will be followed by an exhibition and demonstration of Teagasc research and technologies available for Irish food companies.

TEAGASC CROP BETTER FARM OPEN DAYS 2012

The Crops Better Farms, situated in Cork, Wexford and Meath, have been part of the programme for the last three years. All farms excel in the business and physical organisation on their farm, resulting in highly efficient farms.

All farms are achieving high yields and have managed to reduce costs of production per tonne over the past year. For example, the Cork farm produced spring barley at €113/t in 2011.

All farms are hosting trials from Oak Park, including fungicide trials, nitrogen trials, P and K trials, weed control, etc, all of which are very relevant to farmers in each region. Trials and growing techniques of winter wheat, winter barley, spring barley and oilseed rape will be discussed during the open days and will make essential viewing for all farmers in the region. All are welcome. Put the date in your diary now.

➔ **19 June:** John and Denis Crowley, Mallow, Co Cork.

➔ **21 June:** George and Ken Williamson, Duncormick, Co Wexford.

➔ **26 June:** Joe and Colum O Donoghue, Stamullen, Co Meath
The open days will run from 2pm to 6pm.

SHEEP 2012, MELLOWS CAMPUS, ATHENRY, CO GALWAY

➔ Saturday, 30 June

'SHEEP 2012' is a major sheep event which is being held at Teagasc Mellows Campus, Athenry, Co Galway on Saturday, 30 June at 10am.

The 'SHEEP 2012' Programme includes:

- ➔ Sheep seminars/workshops.
- ➔ National sheep breed competitions and displays.

• Continued on page 6



Pictured at the launch of the Irish Farm Managers Association conference were: Tony Pettit, head of Curriculum Dev & Standards Unit, Teagasc speaker; Professor Gerry Boyle, director, Teagasc speaker; Jim Treacy, chairman, IFMA; John Fitzgerald, IFMA secretary and John O'Brien, Host Farmers Representative, session chairman.

Irish Farm Managers Association (IFMA) conference, Horse & Jockey Hotel, Horse & Jockey, Thurles, Co Tipperary, Wednesday 9 May. Practical farm management training - key to achieving 2020 Food Harvest targets

PROGRAMME

10.00am	Registration: tea/coffee served
10.45am	Official opening: Jerry Twomey, president, IFMA
11.00am	Chair: Pat Dillon, Head of Animal & Grassland & Innovation Research Centre, Teagasc, Moorepark
	<i>Food Harvest 2020 Targets - The Potential</i>
	— Jim Woulfe, Chief Executive Officer, Dairygold
	— Paul Nolan, Group Development Manager, Dawn Meats
	— Tom Kelly, Director, Knowledge Transfer Directorate, Teagasc
12.30pm	LUNCH
1.45pm	<i>Food Harvest 2020 - Releasing the Potential</i>
	— Chair: Jim Treacy, Chairman, IFMA
	<i>Role for Farm Partnerships/Joint Ventures</i>
	— Ben Roche, Farm Structures Specialist, Teagasc
	— Noel Collins, Economic and Planning Division, DAFM
	<i>Equity/Management arrangement</i>
	— Tommy O'Riordan, farm manager
	<i>Summary of joint ventures in Australia</i>
	— Zich Zichy-Woinarski, Consultant, Australia
3.15pm	<i>Food Harvest 2020 - Releasing the Potential</i>
	— Chair: John O'Brien, Chairman Master Farmers Central Committee
	<i>Training and Career Paths for Farm Managers</i>
	1) Professional Farm Managers Programme
	— Tony Pettit, Head, Curriculum Dev Standards, Teagasc
	2) Example Career Paths/Cases
	— Aidan O'Leary, Farm Manager
	— Kevin Commins, Farm Manager
4.30pm	Close of Conference - Professor Gerry Boyle, Director, Teagasc

Conference fee (including morning tea/coffee and lunch) - €20
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upcoming events



An open day will take place at the Greenfield farm in Kilkenny on Thursday, 21 June.

• From page 4

- Range of commercial exhibits.
- Sheep dog trials and training demos.
- Bord Bia cookery demos.
- Fencing demos.

A number of seminars/workshops will run throughout the day, involving Teagasc, UCD, Sheep Ireland, Bord Bia, the Regional Veterinary Laboratories and the Department of Agriculture, Food and the Marine, as well as invited guest speakers.

Topics will include:-

- Animal health with current topical issues.
- Grassland management.
- Sheep breeding.
- Marketing and market prospects for lamb.
- Complying with regulations.
- Health and safety.
- Guided visits to newly established research/demonstration farm.

GREENFIELD KILKENNY OPEN DAY

➤ Thursday, 21 June, 10.30am

As the Greenfield farm in Kilkenny enters its third year in milk production, clear messages are emerging. Farmers can hear and ask questions about these messages at a major national open day on the farm on Thursday, 21 June starting at 10.30am.

Farmers will hear about the principles of producing milk in a post quota scenario. Those involved with the farm will explain costs of production, profit the farm is making after repaying loans, cost of producing milk and farm development costs. Infrastructure on the farm, outsourcing heifer rearing, machinery contracting, as well as the key roles played by staff, will also be discussed.

Greenfield is the only farm in Ireland with a complete set monocultures (single grass varieties) and clover growing in all paddocks for the

last three years. Soil fertility will also be addressed.

Farmers will have the opportunity to walk among the cows, hear about production and performance, and discuss the herd's fertility performance.

IN BRIEF

- Hear and speak to the farm staff.
- Listen to lessons learned.
- Hear what is making money and what is not.
- See the paddocks and hear about performance of single grass varieties.
- Observe the herd as it nears the end of the breeding season.

At 2pm on Thursday, 21 June, there will be a **special forum** at the farm, involving the key stakeholders in the project.

Visitors will be able to hear and participate in the discussion on the challenges and successes to date and discuss any issues related to expansion in milk production.

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Means testing of third level maintenance grants

Teagasc is to introduce means testing of maintenance grants for first year students attending its seven agricultural and horticultural colleges from the beginning of the coming academic year, i.e. those starting in autumn 2012. Means testing will apply to all college students after next year. The new maintenance grant system will replace the traditional system where all students were automatically offered residential accommodation at colleges.

Students who meet the means-testing criteria will be paid a maintenance grant similar to the VEC rate of grant. The current rate of grant is €111.42 per week for non-adjacent students (more than 45km from home to college) and €44.64 per week for adjacent students. The overall rate for the year will depend on the duration of the particular programme being undertaken.

With the grant money, students can decide to pay for residential accommodation at the college, use it for alternative accommodation or spend it on commuting from home, thus giving the student the freedom to choose.

Under the means testing system, the threshold for the maintenance grant will be a total household income of €41,110. This threshold will vary, depending on the number of dependent children in the household. Other criteria will be taken into account including the dependency status of the applicant, as well as their citizenship status.

An application form will be included with the offer of a college place. Queries should be directed to the relevant college principal.

Due to the retirement of a number of staff at colleges, Teagasc has had to outsource catering at a number of colleges. This will now mean that students can also use their grant to purchase their meals at the college or make their own arrangements as they see fit.

All of these changes bring our colleges more into line with the broader higher education system and represent a fundamental shift in the traditional agricultural education model in this country.

PROBIOTIC

Influencing factor in brain fatty acid composition

Designer probiotic bacteria have the potential to alter brain fatty acid composition, according to new research published in the prestigious *American Journal of Clinical Nutrition*.

The research, carried out by Dr Rebecca Wall, Dr Catherine Stanton (*pictured*) and their colleagues at the Alimentary Pharmabiotic Centre in Teagasc Moorepark Food Research Centre and University College Cork, demonstrated that mice fed with *Bifidobacterium breve* had altered brain fatty acids and gut microbiota.

"The finding that bacteria in our gut influence brain fatty acid composition opens up new possibilities for the use of probiotic foods in the promotion of human health and mental wellbeing," said Catherine Stanton, senior author on the publication and principal investigator at the Science Foundation Ireland funded Alimentary Pharmabiotic Centre, at Teagasc.



Teagasc to sub-contract REPS work

Teagasc will start sub-contracting client REPS support in some parts of the country from the middle of this year. A 40% reduction in adviser numbers due to retirements and non-recruitment of staff due to the Croke Park agreement means advisers are no longer able to deliver the full range of services for clients without the help of sub-contractors.

Teagasc will ensure that clients will not lose out and will not be disadvantaged by this change. Farmers dealing with sub-contractors will continue to be clients of Teagasc, the cost of REPS support packages will remain unchanged and Teagasc will take responsibility for quality control of all REPS work.

Only work on REPS records and

plan amendments will be sub-contracted. Other work such as SFP, discussion groups and farm visits will continue to be carried out by Teagasc advisers.

Clients selected to be serviced by sub-contractors will be notified in advance. As happens currently, client consultations with sub-contractors will take place on farm or in an office. For audits/cross compliance checks, Teagasc advisers will continue to assist clients as at present.

The REPS4 programme runs until 2014. It is important that farmers keep records up to date each year as per the conditions of the scheme to avoid penalties and to ensure farming is carried out to the highest environmental standards.

BACTERIA



Course launched for future dairy farm managers

Teagasc is finalising details of a new education course for future dairy farm managers. The course is being developed in response to recommendations on dairy training in the Food Harvest 2020 programme.

The new course will be of interest to those interested in a career in commercial dairy farming, managing their own farm, or working as a dairy enterprise manager. Details will be announced in the coming weeks and will be available on the Teagasc Education website.

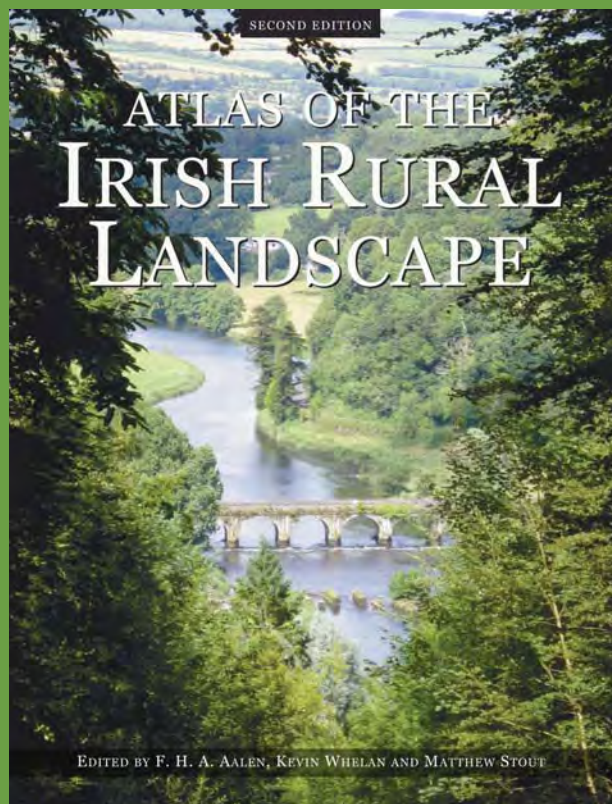
BOOK REVIEW

ATLAS OF THE IRISH RURAL LANDSCAPE
 Edited by FHA Aalen, Kevin Wheelan and Matthew Stout
 (Cork University Press, 2011)

Given its ambitious title, this is a satisfying hefty tome of over 400 pages, substantially rewritten since the first edition appeared 15 years ago. Over that time, there have been significant changes in the country's landscape (one of the many new chapters is 'Celtic Tiger housing') as well as advances in knowledge and research methods of the various disciplines – geography, archaeology, history, cartography – that provide the inspiration and content for this substantial book. There are over 500 maps but, with ones showing the locations of handball alleys, thatched roofs in eastern Ireland, landfill sites or the composition of field boundaries across the country, this is not an atlas of the kind that will be familiar from geography lessons in school. The ample text is not written in academese and covers obvious topics like fields, bogs and woodlands as well as micro topics in a chapter like 'The Joy of Small Things'. Regional case studies cover Wicklow, Tory Island, the Aughris headland, Nore Valley and an Irish settlement in Newfoundland.

— Sean Sheehan

• Atlas of the Irish Rural Landscape, available in good bookshops, costs €45 from the website The Book Depository (www.bookdepository.co.uk) and this includes postage to the Republic of Ireland.



Silage making

Are you ambitious enough?

New research suggests that ultra high digestibility is possible in grass silage, writes Padraig O'Kiely, Teagasc Animal and Grassland Research and Innovation Programme, Grange

Research at Grange has long shown that if silage is perfectly preserved, animal performance is virtually the same on the silage as it would be on the grass from which it was made. So, if we harvest grass of very high digestibility, we should be able to achieve very high performance.

Recent research from Norway suggests that we have not been ambitious enough in terms of the quality of silage we have targeted and, consequently, the possible animal performance it can deliver.

The Norwegian cows were offered excellently preserved silage made from a Timothy/meadow fescue/red clover sward. These silages ranged in DMD from a 'low' of 69% all the way up to 79.4%; the results in *Table 2* indicate that silage of almost 80% DMD could support excellent animal performance when supplemented with a moderate input of concentrates.

Considerably more concentrates were required to achieve these milk yields when silage of lower (but nevertheless still high) DMD was used. This clearly shows the high feed value potential of silage where the three quality attributes of digestibility, preservation and stability in air are excellent.

There is a wide range in silage quality on Irish farms. As expected, the level of quality achieved has a

major effect on the cost of the silage and the performance of the animals being fed. The fact that some farmers consistently make excellent quality silage proves that the outcome is a matter of skill and judgement rather than luck.

As mentioned, there are three separate aspects to silage quality: digestibility, preservation and stability in air.

Digestibility

The digestibility of any feed is the percentage of what is eaten that does not pass out in the dung. Wheat grain

and wheat straw typically have dry matter digestibility (DMD) values of about 85% and 45%, respectively. Most of the nutrients in wheat grain are available to cattle and sheep but most of the potential nutrients in wheat straw are passed out in the dung. The DMD is most frequently used as an index of the feed value of forages, ranging from high values for grazed grass (78% to 82%) and even leafy silage (74% to 76%), to progressively lower values for stemmy silage (60% to 65%), hay (55% to 60%) and eventually straw (40% to 55%).

• **Continued on page 12**

Table 1: Silage dry matter (DM) digestibility (DMD) and corresponding intakes and growth rates by finishing beef cattle (consuming no concentrates)

Silage DMD %	75	67	60
Silage DM intake (kg/day)	9.0	8.0	7.0
Carcase gain (kg/day)	0.51	0.33	0.15
Feed conversion efficiency (kg carcase/tonne silage DM eaten)	56.8	41.3	21.8

Source: Teagasc, Grange

Table 2: Energy-corrected milk yields (kg/cow/day) with super-silages plus different rates of concentrate supplementation

First cut silage	Concentrates (kg/cow/day)				
	0	4	8	12	16
Very early (DMD 79.4%)	23.4	29.1	32.8	31.0	
Early (DMD 75.6%)		27.1	29.3	28.8	
Intermediate (DMD 69%)		24.9	27.3	30.1	28.7

Source: Randby et al. (2012) - Norway



Cattle and sheep typically eat more of high digestibility forages, and they extract more nutrients from each kilogram of feed dry matter (DM) consumed. Animals grow faster and produce more milk than with lower digestibility forages. This is illustrated in *Table 1*, which summarises research undertaken with beef cattle at Grange where well preserved silages of different DMD were compared.

It's clear that high digestibility silage must be fed to livestock when high rates of performance are required from housed animals.

By contrast, much lower rates of performance during the winter are appropriate for other animals, such as dry, spring-calving beef cows, and they should be offered silages of medium digestibility (e.g. 66% to 68% DMD). The latter can also be more cost-effective with this type of animal because the higher yielding, later harvested, stemmy crop has a reduced cost of production per tonne of DM.

Consequently, there is not one digestibility that is ideal for all cattle or sheep – the optimal digestibility for silage differs depending on the animal performance needed.

Silages of high digestibility are produced from highly digestible grass crops that have a high content of leaf, relatively little stem or seed heads, low content of dead herbage, and low content of docks and other poorly digestible plants.

Preservation

Silage preservation is a fermentation process that takes place under air-free conditions. If a silage is perfectly preserved, then it has retained the nutritive value of the grass that was ensiled. In contrast, if it is badly preserved, then its feed value has declined during the silage-making process, with the result that cattle and sheep will eat less and perform lower. Thus, the aim must be to ensure that all silages are well preserved.

The grass crops that are easiest to preserve:

- Have a high content of sugar
- Are harvested when dry (this may result from wilting)
- Did not have excess nitrogen (N) applied within the six weeks prior to harvest, and
- Had slurry applied to a bare stubble.

Silage preservation can be judged by its general appearance and particularly its smell. More objective measures of quality include pH, ammonia-N, lactic acid and butyric acid values.

Stability in air

Successful silage preservation re-

5 tips for good silage

• **Plan** – silage can be a complicated and expensive feed to produce, so you need a plan. Decide on the fields to harvest, the amount and timing of fertilizer and slurry to spread, the approximate harvest date, and the contractor to use, and have the silos and effluent collection system ready.

Retain flexibility wherever feasible. In the longer term, consider replacing deteriorated old pastures with new reseeded of perennial ryegrass.

• **Target high yields** – it is important to harvest high yields of grass to spread the production cost over a large tonnage. Soil tests should be used to identify the optimal rates of P, K and lime required, and activities such as fertilizer and slurry spreading, rolling and harvesting should avoid causing soil compaction. Remove grazing livestock from the silage fields in time and apply the permitted rate of N fertilizer to promote high yields.

• **Graze tight** – if a high digestibility silage is required, then prevent the accumulation of dead herbage in the crop by grazing to approximately a five centimetre stubble height prior to closing the fields, and then harvest at the appropriate growth stage of the crop.

• **Work fast** – fast filling and perfect sealing from air are vital for good preservation, and this holds true whether conventional silage or bales are being used. Harvesting a clean (free of any contamination from soil or manure), dry, crop greatly enhances preservation.

• **Minimise exposure to air** – minimise the length of time that silage is exposed to air during feedout. This means that the feed face in the silo should not be too wide, that silage is removed at a reasonably fast rate, and that the face is kept even and tidy.

quires that the grass is stored under air-free conditions in a sealed silo or wrapped bale. However, when the silo or wrapped bale are opened at feedout, the face of the silage in the silo or the silage in the trough or in the unwrapped bale are exposed to air and can heat and go mouldy. If this happens there can be a quick and serious loss of feed value which results in reduced intake, poorer performance and sometimes ill-health.

Heating or mould in silage are more likely where:

- Wilting or silo-filling were slow
- Covering and sealing of the silo (or bale) was slow or the plastic film was damaged
- Removal of silage from the feedface is slow or rough, or
- Feedout is during mild or warm weather.

The aim must be to prevent any heating or visible mould from being present at feedout, and management practices need to ensure this outcome.

Protein content

People are occasionally concerned about low protein content in some silages. The crude protein content of grass silage ranges from 8% to 25% of the DM, although typical values are 11% to 13%.

Three of the major factors affecting crude protein values are:

• **Species** – clover has a higher protein content than grass, so clover-rich swards can easily be 15% to 18% crude protein.

• **Nitrogen input and timing** – increasing inputs of inorganic N fertilizer or slurry increase the protein content of grass, particularly in the first weeks after being applied to grassland.

• **Growth stage at harvest** – leaf has a higher protein content than stem, so leafy crops of grass have high protein contents. Thus, for example, silage made from autumn-harvested leafy grass can be up to 25% crude protein.

The apparent reduction in the protein content of silage on many farms during the past decade likely reflects a lower input of N fertilizer and the harvesting of fewer light-yielding leafy crops. In most cases, the lower protein content of silage will not pose a problem since energy rather than protein is usually the main limiting 'nutrient' in silage for ruminants.

KEY POINTS

- Always aim to make the best quality silage you can from the grass you are cutting.
- All animals will not justify ultra high quality silage but new research suggests that very high quality silage can be made and can help to reduce the concentrate requirements of high performance animals.



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This Galway Beef Technology Adoption Programme group reflects the national picture. Mark Moore reports

As each farmer saunters forward, Vivian Silke strides up, issues a warm greeting and, with mock formality, firmly presses a stickyback name badge on his jacket. Those already present relish the look of surprise on the face of each newcomer. With first names clearly visible, talk flows more easily at the first meeting of the Gort-Kinvara Beef Technology Adoption Programme (BTAP) group.

Many of the farmers present have known each other since they were 'gosoons' but for those from more distant townlands, the name tags are a Godsend. A little humour breaks the ice, ensuring that the group will 'bond' more quickly. The group know they will be together for five to six meetings each year in the three-year BTAP programme.

There are estimated to be over 300 BTAP groups across the country, total-

ling about 7,000 farmers, though the administration of membership is still being worked on by the Department of Agriculture Food and the Marine (DAFM) which is funding BTAP.

Vivian Silke and other Teagasc advisers will facilitate the great majority of BTAP groups with members paying a top-up on their advisory contract.

Members who complete all the requirements of BTAP membership receive a payment of circa €1,000 from the Department; the final figure will depend on the total number of participants in BTAP. "It's nice that there is a financial incentive but the real benefit is what you can potentially learn in the group," said John Moran.

Vinnie Keane said: "You'll always pick up something. I didn't realise how straightforward it was to get samples done for rumen fluke; I learned that from the meeting today. There was also a really good discussion on fertilizer strategies and everyone was quite open about the approach they are taking."

Each member will take a turn hosting a meeting. "You can't beat having

a group of farmers and an adviser on the farm," said Ken Carr after the meeting. "It's clear from our discussions today that we haven't been grazing tight enough." Like the majority of the members, Ken is a part-time farmer and has an electrical sales and installation business in Gort.

Ken's passion for his stock and his eagerness to make the most from his 30 suckler cows is clear. He has invested in winter accommodation for the stock in recent years and said the terms and conditions associated with the BTAP scheme will certainly help him raise output.

As part of the first meeting, Vivian Silke, who is based in Athenry, outlined the choices members must make. "There's a menu of options," he said. "Farmers must complete two tasks from a menu of eight options per year including the completion of the Teagasc E-Profit Monitor, which is mandatory in either Year 1 or Year 2 of the programme."

Options

- Provide certified on-farm weights of cattle to the ICBF



get going

- Increase the genetic merit of the herd by using AI or a five star stock bull, participating in Gene Ireland or improving the maternal traits of your replacement heifers
- Complete a whole farm soil analysis
- Reseed a minimum of 10% of your net owned and leased grassland
- Complete a herd health plan with a veterinary surgeon (vets are likely to charge a fee for this work)
- Register all calf births online. Maintain the DAFM herd register online and apply for Single Farm Payment online.
- Put a rotational grazing system in place with a minimum of six grazing divisions per grazing group with each division having its own water supply.

“The key areas we will be focusing on during the group meetings are grassland management, calving interval and calves sold per cow,” said Vivian Silke.

“The herd size in the group ranges from 30 to about 80 cows, with calving intervals averaging 406 days and calves per cow per year averaging 0.81. The group is very typical of the national picture.”



MAIN PICTURE: Grassland management is a key topic for the Gort/Kinvara discussion group.
ABOVE: Vivian Silke facilitates the group.
BELOW: Vinnie Keane and Anthony Connolly discuss BTAP options.
BELOW, RIGHT: Ken Carr, chairman of the group, hosted the first meeting.



Typically, group members have Limousin X Simmental cows with some Salers, Charolais and Parthenaise.

Vivian Silke said that 365 days for a calving interval and 0.92 for calves per cow are realistic targets. “We know they can be achieved in the Gort/Kinvara area because there are members in the group who are already hitting these targets. Achieving these goals will greatly improve margins.”

HerdPlus

A key aim of the BTAP initiative is to encourage farmers to increasingly record the performance and genetic merit of their animals.

“Membership of HerdPlus is obligatory,” said Vivian Silke, “HerdPlus is most beneficial when you are using AI rather than a stock bull.” Currently, only five of the members use AI, with the others relying on a stock bull.

Vivian Silke believes that as the benefits of using higher merit bulls becomes clear through Herd-Plus, more members will use AI.

“Heat detection is not easy when you have off-farm commitments but I reckon that as farmers in BTAP see

the huge progress that can be made by using AI, more of them will use it, more of the time.”

Completing a Profit Monitor is a ‘must’ under BTAP.

Many farmers nationally simply don’t have a detailed analysis of whether or not their system is making money.

“There is a social element to meetings,” said Vivian Silke, “and it’s important that they are enjoyable, with participation by everyone present. Enhancing margins is the objective and an individual farm plan charting planned progress is also a requirement of BTAP. That will benefit members and the country as a whole.”

Facilitators are obliged to collect signatures as proof of attendance; where a substitute attends, that person will sign their own name. Attendance sheets are scanned and returned to the DAFM.

Gerry O’Grady said he likes the discussion group format.

“It’s very useful for things that you wouldn’t be sure of; you can see how others tackled the problem,” he concludes.

A man with a plan

'A goal without a plan is just a wish'



Tom Coll
Teagasc Business
& Technology adviser,
Mohill, Co Leitrim

There are lots of sayings describing how essential it is to have a plan if you wish to succeed at just about anything. Farming is no different. A key requirement of the Beef Technology Adoption Programme (BTAP) is that those taking part complete a three-year plan for their farm. A three-year plan is also central to the Teagasc/*Irish Farmers Journal* BETTER farm programme.

Goals

The BTAP plan must address where the farmer is now in terms of the business, what the main goals are for the farm business, and how these goals will be achieved. The plan should also define what the farmer does well and what can be improved.

Making the plan work is an effective driver of farm profit. Take Marty Lenehan, for example. Marty farms at Liggan, Ballinful, Co Sligo, and is a Teagasc/*Irish Farmers Journal* BETTER farmer.

"We increased our gross margin from €140/ha to €540/ha over three years by following a plan we had put in place at the start of the programme," he said. Marty's margin improvement is down to better perfor-

mance not simply an improvement in market conditions.

Trevor Boland farms 36.0 adjusted ha with his father, Joe, at Bunafedia, Dromard, also in Co Sligo. Trevor is currently studying for a FETAC level 6 accredited certificate in farming holders' course at the Teagasc office in Ballymote. The course takes up a day per week over one year.

Trevor is a member of the Enniscrone suckler discussion group which was formed in 2011 by a group of young, progressive farmers who have now joined BTAP. Currently, he has 26 suckler cows and traditionally purchased weanling heifers in October/November for sale the following September.

"The herd consists of 15 autumn calvers calving August/September/October and 11 spring calvers, calving December to April," said Trevor. "The current calving spread is over eight months. Based on the ICBF beef calving report, the calving interval for the herd is 389 days with 0.83 calves per cow per year. We use AI exclusively on the farm."

The average age of heifers calving in 2011 was two years and nine months. There is no rotational grazing system in place at the moment.

Pasture quality is relatively poor with a small percentage of the grazing sward made up of perennial ryegrass. Recent soil analysis shows that the farm, as a whole, is deficient in phosphorus and lime. Cows do not generally go to grass until mid-April.



Trevor Boland farms 36.0 adjusted ha with his father, Joe, at Bunafedia, Dromard, also in Co Sligo.

BTAP PROGRAMME

Stock/Breeding

"My aim is to increase cow numbers to 42, calving from August to October," said Trevor Boland.

"I prefer autumn over spring calving. Heifers will calve at two years old from within the herd, with a maternal sire used to breed replacements, either Limousin or Simmental, from my best breeding cows.

"I will continue to use 100% AI with all stock inseminated while indoors. Belgian Blue and Charolais will be used as terminal AI sires to breed weanlings for sale, with the emphasis on ease of calving.

"Calves will have access to paddocks adjacent to the farmyard from housing, which will aid the use of AI and help to break the maternal bond, improving cow fertility. There are currently 26 cows and 13 in-calf replacement heifers on the farm some of which were purchased as maidens and subsequently AI'd; the remainder are home bred. Eight replacement heifers will be retained each year for breeding and calving at two years of age."



TREVOR BOLAND'S THREE-YEAR PLAN

Grassland

"I see grassland management as the main weakness in my farming system," said Trevor.

"As stocking rate increases, I'll need to place greater emphasis on grassland and grazing management. The plan is to divide the bigger fields and increase paddock numbers. A 20-acre field, normally set-stocked, will be divided into four paddocks, using one strand of electric wire.

"Paddocks will be closed off in rotation from early October each year to facilitate earlier turnout of stock in the spring. Five to six acres will be reseeded annually to improve sward quality on the poorest swards.

"With a proper paddock system and better soil fertility, sward composition should improve over the whole farm.

"Silage ground will be closed in early April after grazing and cut in late May to improve silage quality. Making good quality silage is an essential component of reducing costs in an autumn calving system.

Financial

"Gross margin for the farm in 2011 was €199/ha. Gross output was low at €774/ha. Variable costs were high at €575/ha, which equates to 74% of total output. Increasing cow numbers to 42 by 2014 should increase gross output to €1,100/ha. "Compact calving over three months, August, September and October, producing 0.9 calves per cow per year and selling calves at 10 months of age in excess of 400kg, on average, will increase gross output and reduce labour."

Grassland management

Through better grassland management, costs can be reduced to 55%, or even less, of gross output, which will leave a target gross margin figure of €500 per ha in 2014.

Trevor will work mainly with the facilities he has in place with no major capital investment in buildings.

The need for additional calf creep areas and calving boxes may have to be addressed in 2014.

KEY FACTORS

The key factors to increase gross margin and reduce labour on the Boland farm as highlighted in the three-year plan:

- Increase cow numbers and overall stocking rate from 1.39 livestock units/ha to 1.7 livestock units/ha
- Achieve the target of 0.9 calves per cow per year in a compact calving system, calving Aug/Sept/Oct
- Produce quality weanlings with good weight for age
- Calve heifers at two years of age to reduce replacement costs
- Establish a rotational grazing system with a view to improved grassland management
- Improved silage quality by reseed-ing paddocks
- Pay particular attention to variable costs to reduce from 74% to 55% or a lower percentage of gross output by 2014.



GROUP BENEFITS

The East Donegal Lamb Producer Group is nearly 25 years old and continues to deliver considerable benefits to members. It is one of two lamb producer groups operating in Donegal; the other is the Inishowen Lamb Producer Group. John J. Cannon, Teagasc Business and Technology Sheep Adviser, Donegal, reports

In the 1980s, sheep numbers were rising and reached almost four million ewes nationally. East Donegal matched the national trend, though sheep had traditionally been secondary in this strong tillage area. Individual farmers had limited 'marketing power' and were getting poor prices due to the increased supply.

Matt Marren, the Teagasc Tillage Adviser for east Donegal, decided to do something about this and called together a small group of farmers. His aims were to:

- Sell lambs collectively – increasing bargaining power
- Improve lamb quality – getting a larger proportion of lambs into conformation classes U/R and fat class 3
- Link price with quality and thereby reward good farming practice.

These farmers met a number of times on the farms of David Glenn and Bertie Peoples from Carrigans and decided to establish the East Donegal Lamb Producer Group. Subsequently, a public meeting was held to recruit members from the wider farming community. "Matt Marren drew up a constitution and rules of operation, which proved to be important

when some 'teething issues' arose," said Bertie Peoples. "With Matt's guidance we established a self-governing group with a membership fee, an elected chairman and treasurer, and an initial committee of five."

Heather Peoples agreed to act as secretary and co-ordinator/administrator, a position she stills holds today. In 1988/'89 a total of 9,178 lambs were sold to Carrigans Meat factory. The following year 10,673 lambs were sold to WD Meats in Coleraine. From the beginning, the committee have imposed strict rules on cleanliness and stock presentation. With good feedback, the members were soon managing to get most of their lambs to top grade.

The group soon built up a reputation for the quality of their animals which made sheep factories keen to buy their lambs, even in times of oversupply. "We hold an annual general meeting every June/July," said Edward Carbery, another group member and former chairman. "The previous year's operation is reviewed, elections for the various offices are held and the 'Deal' negotiated for the coming year discussed." The 'Deal' – which

members vote on – includes the bonus added to the quoted price each week. All members are encouraged to attend the AGM and contribute. A free draw for approximately 20 prizes offers attendees a fun incentive to turn up.

Members must complete a membership renewal form and pay their €30 fee at the AGM. During the 1990s the membership increased steadily to over 200 with the throughput of lambs reaching 31,281 in 1988/'89.

For the present year, 2011/'12, the group will sell about 33,000 lambs/hoggets to ICM Navan, a factory with whom they have done quite a bit of business since 1988.

How does the group operate?

Group members weigh their lambs weekly and phone Heather Peoples with the number of lambs 'ready' each Saturday. "These lambs are

Table 1: Ewe numbers for some selected years
Number of breeding ewes ('000)

	1978	1988	1992	2010
Donegal	161	392	497	256
Ireland	1,583	3,107	5,197	2,201

Source: CSO and DAFM



TOP: Teagasc adviser John J Cannon
CENTRE: Michael Duffy, chairman, East Donegal Lamb Producer Group
ABOVE: Heather Peoples, group secretary/co-ordinator

collected by lorry on the following Monday at a number of pick-up points from 7am onwards and reach their destination by noon to be slaughtered that day," said Heather.

The lorry can transport 400 lambs. Numbers in excess of this are normally sent on a Tuesday or Thursday. The group sends two loads per week during June, July, January and February, with three to four loads per week from mid-August until December.

Many of the members have off-farm sources of income so time is at a premium. Marketing lambs via a producer group is very time efficient, with little or no working time being lost. "The rapid feedback and benchmarking of one's performance against that of neighbours' is a very valuable educational tool," said Michael Duffy, the current chairman. "The structure ensures that every member can be confident that the animals on the kill sheet are definitely his/her own lambs. This may not always be the case if one uses other avenues to market."

In addition, the group receives weekly online an excel file of all their lambs killed during that week (show-

ing weights, grades, etc). This helps to maintain overall quality and identify potential issues at an early stage.

In the initial years two members travelled to the factory to sort the lambs into their farmer lots as they disembarked. This operation is now done by the haulier, James McCallion. In 2010, the group made a major push to promote the Bord Bia Quality Assured (QA) mark to members and more than 80% of the lambs are now 'quality assured', which attracts a 5c/kg bonus.

In addition to lamb marketing, the group also facilitates the sale of cull ewes. Currently, 1,200 per year are being sold. In recent years the group has begun 'group buying' diesel and heating oil products.

Every Monday six local oil companies are contacted and the company with the best quote is given the members' orders for that week. This service has proved to be very popular. In recent years the use of group texting has made communication quick and efficient.

A strong bond has developed between group members. In addition to occasional social events such as a

barbecue (in aid of charity), the group held a well attended 20-year anniversary dinner dance. All members are keenly awaiting the group's 25th anniversary in 2013.

The future

The sheep industry is in a confident mood at present, unlike the situation that existed four to five years ago. The group is anxious to continue to supply a quality product that meets market demands.

"We're hoping that increased use of EID will reduce the paperwork and associated time involved with the present dispatch system and ensure more accurate feedback to members on individual lamb performance," said Michael Duffy from Kerrykeel, who is the group's current (and eight) chairman. He said the group is also keen that sheep farmers make better use of grass to increase stocking rate and get more of the lamb crop sold off grass in the months of July to September. "The average flock size in Donegal is 77 ewes, which gives very little negotiating power to any individual farmer," said Michael. "Membership of a well-run group is a must."

dairying

Calf rearing facilities

The Cinderella investment

*Funds are always limited so farmers should prioritise investments which ease the workload during the peak months, according to **Seamus Lordan**, B&T Dairy Advisory, Macroom, and **John Maher**, Dairy Specialist, Teagasc Animal and Grassland Research and Innovation Programme*

Many dairy farmers plan to expand their dairy enterprise over the next 10 years. It is vital, therefore, that funds available for investment are directed to areas which can help to reduce the workload at peak times.

While investment in areas such as reseeding and field infrastructure will always make sense, other choices are not so clearcut. Rather than buying machinery, for example, producers may be better off investing in calving and calf rearing facilities and leaving machinery jobs to contractors.

Liam Leahy and his brother, John, along with Liam's wife, Mary, and their two sons, Bill and Dara, farm near Crookstown, Co Cork. They currently milk 80 cows and rear all the replacements. This year the Leahys have 55 maiden heifers (EBI €160) and 60 calves. Replacement stock sales are an important part of the Leahy's dairy farm enterprise.

Over the last few years, the family have carried out quite a lot of devel-

opment and investment on their farm. This included:

- Reseeding
- Field infrastructure
- Cow accommodation and slurry storage
- Silage pit upgrade
- Milk quota.

The farm has grown from 40 cows in 2002 to 110 in 2012. Investment in stock through AI has always been very important to the Leahy family and the current EBI of the herd is €120, which puts it in the top 10% of herds nationally.

"As stock numbers grew, we began to realise that we needed to invest in calving and calf-rearing facilities," said Liam.

Last autumn, Liam and his fellow discussion group members* travelled to other dairy farms in north Cork to assess how farmers in this area dealt with handling large numbers of cows, calving and calf rearing facilities. These farms had been through several years of growth.

Liam Leahy and his brother, John, farm near Crookstown, Co Cork.



"As a result of the trip we realised that things had to change on our farms," said Liam. "Calving facilities were simply inadequate. We didn't have enough calving boxes on our farm."

There were just two and a loose straw area which acted as a 'maternity ward'.

This area had to be cleaned out by hand. Calf rearing facilities were also antiquated. These facilities were in an old, converted stone-built cow byre and while they needed to be cleaned out regularly, this also had to be done manually.

Having consulted family, Teagasc adviser Seamus Lordan, and some discussion group members, a plan was drawn up to build a new shed to accommodate both calving and calf rearing facilities. In designing these facilities, their objective was to:

- Knit-in any new structure with the existing shed
- Have spacious pens that were easily cleaned
- Allow easy access to pasture for calves
- Enhance calf health by having larger pens and better ventilation.

Their initial priority was to erect the four-bay shed and then assess the plan 'on the ground' to maximise the efficiency of the building.

After examining all the options for the internal design, they decided to





have four calving boxes on one side and all five calf pens on the opposite side, adjacent to the existing shed. This enabled them to keep all the calves on one side.

“Our feeling was to have longer and narrower pens so as to keep the straw bedding to the rear of the pen while feeding the animals at the front,” said Liam. “This would ensure that the calf bed didn’t get soiled as quickly.”

The pens are roughly 15 ft x 26 ft and they can accommodate 17 six-week-old calves to a pen. From the five pens, they have three doors which allow access to a three-acre sheltered paddock. Exits are located on both the south west and the north west side of the shed.

Having completed the first season with their new shed, they are delighted with the outcome. The workload has been reduced substantially and their calves have gone out earlier and are, consequently, healthier.

“Improvement is always an ongoing process,” said Liam.

“For example, next year we may subdivide one pen to accommodate baby calves more efficiently.”

*Liam is a member of the Crookstown Dairy Discussion group who won the EBI Discussion Group Competition in 2009. The Leahy farm hosted the National EBI Discussion Group Completion Open Day in September 2010.



Having completed the first season with their new shed, they are delighted with the outcome. The workload has been reduced substantially and their calves have gone out earlier and are, consequently, healthier.

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Fertility

No easy solutions

International conference highlights multifactorial nature of fertility problems in dairy cows.

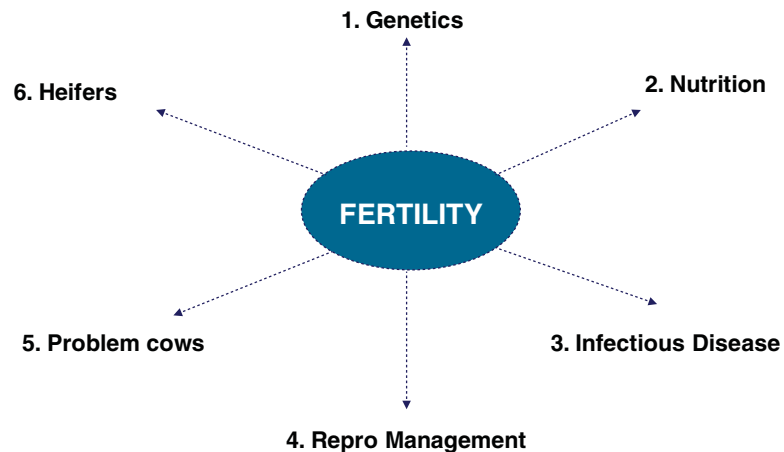


Figure 1. Multifactorial nature of suboptimal dairy cow fertility.

The Moorepark Fertility Conference and Veterinary Workshops were held on 11 and 12 April. Presentations on a broad range of topics were given by international speakers Professor Jock MacMillan, Australia, Dr Scott McDougall, New Zealand, and Dr. Torstein Steine, Norway, as well as speakers from Teagasc, Animal Health Ireland and some of our leading dairy farmers.

It was apparent that the causes of poor herd fertility are multifactorial (Figure 1). For any herd, the first step is to critically examine the herd records to identify the main factors that are currently limiting herd

reproductive performance, outline a plan to deal with these specific issues, implement changes and then continually review performance.

The key issues highlighted as being vitally important by all three farmers speaking at the conference were genetics, heifer rearing and cow body condition score (BCS). It is vital that the bulls used to generate replacements will create inherently fertile cows. Management of heifers must focus on achieving target weights from weaning to first breeding, and management of cows must focus on achieving target BCS during lactation and the dry period. In addition,

herd health status and vaccination programmes, mineral supplementation and heat detection efficiency were identified as important factors influencing herd fertility.

Nationally, Irish dairy herds currently have a median calving date of 9 March (source: ICBF), and economic modelling indicates that this should be around 15 February. The big question for farmers now is: 'how do we pull back calving date?'

Jock MacMillan outlined some results from the InCalf Project, an industry-funded Australian study. The most significant factor affecting measures of reproductive performance



Speakers at the Teagasc Dairy Fertility Conference in Cork (from left): Jack Kennedy, Irish Farmers Journal, Jock MacMillan, University of Melbourne, Australia, Stephen Butler, Teagasc, Moorepark, and Scott McDougall, Cognosco, New Zealand.

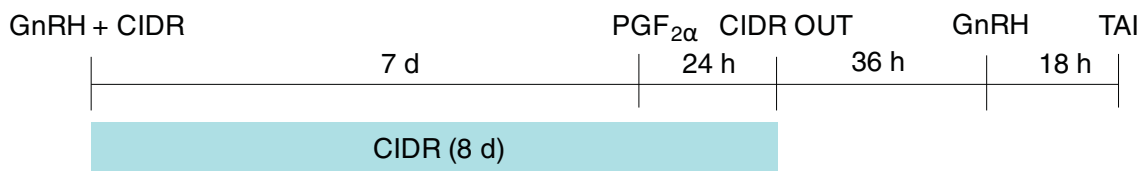


Figure 2: Fixed-time AI protocol suitable for use on anoestrous cows. A CIDR is inserted for eight days, with an injection of GnRH at the time of CIDR insertion and an injection of PGF_{2α} 24 hours before CIDR removal. Thirty six hours after CIDR removal, cows are administered a second injection of GnRH (after PM milking) allowing timed AI (TAI) 16 to 20 hours later (after the AM milking).

was the interval from calving to mating start date (i.e., the first day of the AI programme). This indicates that 'a herd's calving pattern is a major factor influencing subsequent reproductive performance'; compact calving patterns 'beget' compact conception patterns. This clearly underlines the importance of getting heifers and cows pregnant as quickly as possible after mating start date.

2012 Breeding Season: Non-cycling cows

At this time of the year, most dairy farmers have just started breeding or are just about to start breeding. It is critical that submission rate is maximised during this time.

In seasonal calving systems, all cows are eligible for AI if they are observed displaying heat, regardless of days in milk. What about the cows that are anoestrous (not cycling) at the start of the breeding season? Ideally, these can be identified from pre-breeding heat detection results and should be treated to get them bred as soon as possible after mating start date.

Presentations from Scott McDougall and Stephen Butler indicated that acceptable fertility performance can be achieved with anoestrous cows when they receive fixed-timed AI after a synchronisation protocol that includes supplemental progesterone. A suitable synchronisation protocol is illustrated in *Figure 2*. Cows should be at least 32 days calved before starting this treatment.

Synchronisation for heifers

Well-bred heifers, if managed to calve early, have the potential to significantly improve herd calving pattern. Synchronisation should be utilised as a management tool to maximise the number of heifers that become pregnant as quickly as possible after mating start date. The most popular

and cost-effective synchronisation protocols for heifers involve intramuscular injections of prostaglandin (e.g., Lutalyse, Estrumate, Enzoprost etc.). Prostaglandin synchronisation protocols work very well for heifers that have started cycling, but will not work in non-cycling heifers.

The following protocol works well:

- Apply heat detection aids to all heifers and inseminate following observation of heat during the first six days of the breeding season. Many farmers have identified the 'scratch card' (e.g. Estroprotect, ScratchE) or 'mount detector' (e.g., Heat Seeker, Bulling Beacon, CheckMate) heat detection aids as

particularly useful for heifers.

- All heifers not inseminated in the first six days receive a prostaglandin injection on Day 7, and are inseminated following observation of oestrus in the next three to five days.

- Heifers that failed to come into heat following the first injection of prostaglandin receive a second injection 11 to 14 days later.

- The remaining heifers are again inseminated at a standing heat, or receive fixed time AI at 72 and 96 hours after the second injection.

This generally results in submission rates close to 100% and conception rates to first service of 70%.



The first step is to critically examine the herd records to identify the main factors that are currently limiting herd reproductive performance

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dairying

Heifer or bull? Your call

Sexed semen is coming closer to commercial reality, write Mark Moore, editor, Today's Farm, and Stephen Butler and Ian Hutchinson Animal and Grassland Innovation Programme, Moorepark

I've often wondered why it is that cows have equal numbers of male and female calves. Apparently, from the point of view of natural selection and evolution, this is the optimum model for the species. Though it's not ideal for dairy farmers.

Commercially available sexed semen offers farmers the opportunity to choose the sex of the calf, which would obviously be hugely beneficial within a breeding strategy.

Dairy farmers currently decide how many replacements they need for their herd and serve an appropriate number of cows with dairy genetics. Roughly five straws are currently used per heifer that will enter the herd.

Male dairy calves, with limited potential as beef animals, are an inevitable by-product. With sexed semen, dairy farmers could potentially produce a heifer from almost every cow in the herd – sexed semen is about 90% accurate. As well as reducing the number of male dairy calves, this would allow rapid expansion of milk production if required.

Alternatively, farmers could use dairy genetics with sexed semen on relatively few cows – the best – secure in the knowledge that they will produce about 90% daughters. The remainder of the dairy herd could be served with semen from beef bulls.

Beef suckler farmers using AI could benefit from sexed semen by opting for a higher proportion of male calves. Additional benefits to both beef and dairy farmers could include improved bio-security; herd size can be increased rapidly without buying in live animals.

So how close is the practical use of sexed semen? "Fluorescence-Activated Cell Sorting is able to separate male and female sperm, based on the fact that female producing sperm



The most rapid growth in the national herd would result from the use of fresh sexed semen rather than frozen-thawed sexed semen or frozen-thawed conventional semen.

has slightly more DNA," said Dr Ian Hutchinson, a post-doctoral fellow at Teagasc Moorepark. "This process is approximately 90% accurate."

Challenges

While this sounds like an excellent result, there's a catch, or indeed, several. The process of sorting the sperm is slow and many sperm are lost or damaged. As a result, only two million sperm are typically included in a sexed semen straw (versus 20 million for a conventional straw).

Sexed semen is consequently costly (€18 more per straw) and conception rates are lower than for conventional straws, partly due to the lower number of sperm present, and partly due to sperm damage during the sorting process.

"Sexed semen is mainly used on maiden heifers because maiden heifers are inherently more fertile," said Dr Stephen Butler, also at Moorepark. "Fresh sexed semen has also been examined in New Zealand and a much smaller reduction in conception rate was observed compared with frozen sexed semen."

The Teagasc researchers are developing computer models to predict the economic impact of using sexed

semen in heifers and lactating cows on Irish dairy farms. Their work suggests that the most rapid growth in the national herd would result from the use of fresh sexed semen rather than frozen-thawed sexed semen or frozen-thawed conventional semen.

"The potential increase in availability of replacement heifers could be vital if we are to expand cow numbers in order to achieve the 50% increase in milk output targeted in Food Harvest 2020, the Department of Agriculture, Food and the Marine's strategy for Irish agriculture," concluded Stephen Butler.



The potential increase in availability of replacement heifers could be vital if we are to expand cow numbers in order to achieve the 50% increase in milk output targeted in Food Harvest 2020

TEAGASC DAIRY MANUAL

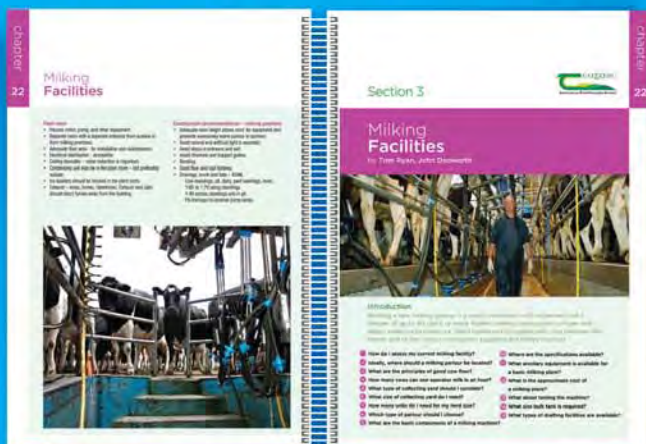
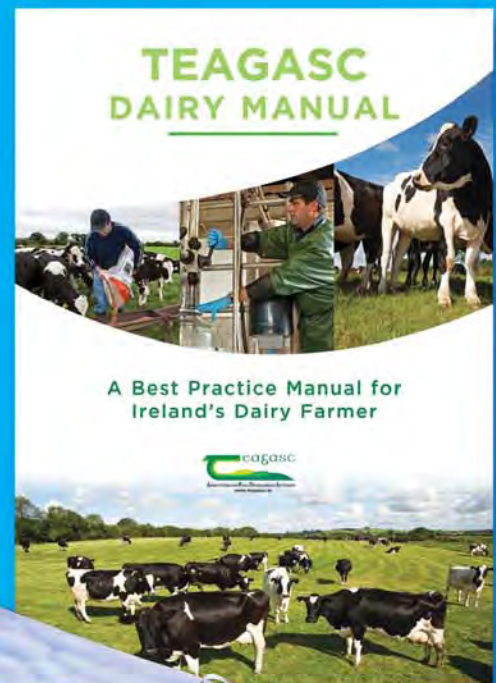
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The information within each chapter is built on feedback from farmers and is laid out as Questions and Answers, How-to's, Key Performance Indicators, Key risks, etc. making the Manual extremely easy to read and use. The Manual will be of particular interest to anyone planning to expand over coming years.

A must for anyone with an interest in dairy farming the 310-page Manual is produced using tear-proof, water-proof paper for real world conditions.



The Teagasc Dairy Manual is available at Teagasc offices for €50.
For a limited time Teagasc clients can purchase copies for €25.

Mid-season fungicides

Michael Hennessy

Teagasc Crops, Environment and Land Use Programme

Almost all winter and spring crops were planted into excellent seed beds which has resulted in full crops from ditch to ditch (no wet spots), and leaves crops in a very similar place to last year in terms of crop potential and expected yield. A good lift in grain prices since last November has further increased the potential return from crops.

Early crop management is designed to maximise the potential grains per square metre, with later crop management focused on filling these grains. Seed spacing, nutrition (N, P & K, etc) and, in some cases, plant growth regulators, can help to develop tiller numbers and optimise the number of potential grain sites.

Fungicides can be used to prevent tiller loss by controlling disease at early crop development (this happened in winter barley in 2011) but, generally, fungicides are used to maintain green leaf area and maximise grain fill.

At the time of writing the weather is relatively cold and wet with disease building up in all winter crops. Initially, the season threatened to be unusually early, as crop development was going to force growers to apply fungicides earlier than normal.

The cold conditions in April brought growth into line and the main fungicide (T1) applications on winter wheat and the second fungicide (T2) applications on winter barley and oats were applied at the normal timing. This should enable the correct timing of the application of the next fungicide to these crops.

There are many products that can be used at each spray application timing and due to the sheer number this article will not be able to mention all available products.

Winter wheat: The yield contribution of the flag leaf in wheat is around 40% compared with a lower contribution from leaf 2 (25%) and leaf 3 (10%). Therefore, the potential return from a T2 fungicide application is greater than any other timing.

The target disease at the flag leaf timing (T2) is Septoria. The product choice and rate of fungicide at the T2 timing will be dictated by the level of active Septoria, interval since the last fungicide and the prevailing weather in the previous seven to 10 days before application.

There are a number of possible sce-



Table 1: Options for the T2 fungicide in winter wheat

Septoria Risk	Rate per hectare		
	Low Disease Risk	Normal Disease Risk	Very Curative/high disease level
Product choice		Adexar 1.4-1.6 L/ha	Adexar 1.6-1.8 L
	Aviator 1.0 L	Aviator 1.0 L	Aviator 1.25L
	Seguris 0.8-1.0 L	Seguris 1.0L	
	Venture Extra 1.25-1.5L	Venture Extra 1.25-1.5L	
	Caldron 2.0- 2.25 L	Caldron 2.0-2.5L	
	Gleam 2.0- 2.25 L	Gleam 2.5 L	Gleam 3.0 L

Note: Chlorothalonil (Bravo) at 1.0 L/ha should be added to all T2 fungicides.

narios as to the levels of disease fungicide choice/rate, etc, but, broadly speaking, they will fall into one of three categories: very curative/high disease level (existing or unseen Septoria needs to be controlled and also a high level of protection needed); normal disease risk (some curative action needed but mostly protection action required), and low disease risk (mainly protectant action).

The rates of products in *Table 1* reflect their curative action, but the reason some of the product rates don't change from normal risk to low risk is that these products cannot go below

a critical rate to give persistence for a number of weeks.

Yield results from trials show triazoles plus SDHI fungicides (Adexar, Aviator, Seguris, Venture extra, Caldron) will improve yields in wheat over using triazole fungicides alone.

The final application (T3) will again consist of a triazole mix products (Caramba, Folicur, Gleam, Prosaro, etc.). These products will give some protection from fusarium (50% control is regarded as good control). The addition of a strobilurin (Amistar, F500, etc.) may be justified in high yielding situations.

for cereal crops

Table 2: Spring barley – suggested fungicide programmes

Timing	Disease	Products (litres per ha)
T1 GS 30-31	Low Disease pressure	Triazole (Proline, Rubric, Punch C etc) @ ½ rate +/- Corbel ~ ½ rate (mildew) Or Stereo 1.25 L/ Tocata 1.0 L
T1 GS 25-30 Apply early if disease is visible during tillering	High Disease pressure	Rhyncho: Use high rates of prothioconazole (~150 g ai/ha) Net Blotch: Use higher rates of triazoles above and include a ½ rate strobilurin Proline 0.5 L, Strand 0.8 L, Punch C 0.6 L, Stereo 1.5 L + (Modem, Amistar, Galileo) @ ½ rate (see also T2 for pre-formulated options)
T2 Flag Leaf to awns visible (GS 37-49)	Normal disease levels + Mildew	Chlorothalonil 1.0 L + (Adexar, Barley Pack, Bontima, Cauldron, Siltra,) Or Chlorothalonil 1.0 L + Triazole (Proline, Strand, Punch C etc) @ ½ - ¾ rate + Strobilurin (Amistar, Galileo, Modem) @ ½ rate (Pre-formulated mixtures of the above and other actives are widely available e.g. Acanto Prima, Amistar Opti, Credo, Fandango, Lumen, Jenton etc. see appendix 11) + 0.3-0.5 L Corbel/Tern/Winger

Spring barley: Last year yields of spring barley returned to levels which we all knew were possible, as many growers achieved these yields in 2004. Nobody can take credit for the weather but growers can take credit for setting up crops so that, given the right weather conditions, they can fulfil their potential.

Generally, spring barley requires two fungicide applications to keep disease at bay. Varieties with good disease resistance (Rhyncho/Net blotch) such as Quench, Propino or SY Taberna, can be managed using two reduced rates at both fungicide timings. Higher rates may be needed, depending on the season, of Snakebite for Rhyncho and Azalea and Cocktail for Net Blotch at an early stage.

The first fungicide can be applied from mid to late tillering but it's generally applied before the first node detectable stage. Half rates are generally sufficient. Products like Proline (prothioconazole), Punch C, Lyric, Stereo, etc, will all do an excellent job at this stage.

Where Rhyncho is a problem early, use Proline at a higher rate (60%+ rate of prothioconazole), as it has the best curative activity on Rhyncho of the products mentioned. Likewise, where Net Blotch is a problem, use higher rates of Proline and the addition of strobilurins (Modem, Galileo, etc) may also be justified.

The second fungicide application (T2) will coincide with the awns visible stage. Triazoles form the cornerstone of disease control at the T2 timing with products containing

prothioconazole featuring strongly. Product choices include Siltra, Bontima, Barley Pack, Fandango, etc. Other alternatives can be used,

such as Venture Extra, Allegro Plus, or triazoles (Proline, Strand, etc.), plus strobilurin mixes (Amistar Opti, Credo, etc).



Fungicides can be used to prevent tiller loss by controlling disease at early crop development but, generally, fungicides are used to maintain green leaf area and maximise grain fill

Also see page 28

TOP 5 RANGE

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tillage

ON YOUR BIKE!

Crop quadding – an alternative way to walking crops for two neighbours

Two tillage farmers from south Wicklow recently engaged the services of local Teagasc adviser Martin Bourke to walk their crops and give them a comprehensive crop agronomy service.

Alan Kidd and Peter Doyle farm 110ha each just outside Shillelagh. To look at every hectare in more detail and in a time saving fashion, Martin uses Alan's quad bike to drive around his and Peter's crops with frequent stops for a close inspection. Then, all three sit down to discuss recommendations, based on Martin's observations.

Both farmers get on extremely well. They enjoy examining and teasing out the various options that Martin puts to them. They freely exchange and share information which ensures a healthy debate on all matters discussed. Their enthusiasm makes Martin's job all the more rewarding.

Alan's tillage enterprise consists of a mix of winter and spring cereals, winter oilseed rape and some fodder beet.

He also does a significant amount of contract sowing, spraying and combining for local farmers.

Peter's crop mix is made up of winter cereals and winter oilseed rape. Both men only grow winter wheat as a first wheat following a break of oats, oilseed rape or beet.

Net profit per tonne

Their latest task is to examine machinery costs for their farms in detail. Using a new Teagasc computer program for calculating machinery costs on tillage farms, they plan to get a more accurate picture of their own costs. In addition, both men are anxious to know the net price per tonne of grain produced. Hence a Teagasc Profit Monitor will be completed for both farms.

Managing disease in winter wheat

One major Teagasc concern this year was that the Triazole group of chem-



Teagasc adviser Martin Bourke with Alan Kidd and Peter Doyle, who farm just outside Shillelagh, Co Wicklow.

istry should be applied responsibly on winter wheat to protect this valuable chemical group against the build-up of Septoria resistance.

Both men have followed the Teagasc guidelines, by only applying a contact (Chlorothalonil) at T0.

They also resisted the temptation to apply their T1 too early, which would have led to an unnecessary four-spray programme. Instead, a strong, robust T1 (Cauldron 1.5 l/ha, Gleam 1.5 l/ha and Bravo 1.0 l/ha) was applied when the third last leaf was fully unfolded.

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TM

BLIGHT

Why the battle never abates

Late blight's ability to evolve and adapt makes it a formidable adversary for Irish potato growers, write Drs Denis Griffin, Steven Kildea, Dan Milbourne and Ewen Mullins (pictured), Teagasc Crops, Environment & Land Use Programme



Controlling *Phytophthora infestans* (late blight) in potatoes is an ever-evolving struggle. Irish farmers spend up to €5 million annually on fungicides to help tip the balance in favour of the potato plant. But with images of blitzed potato fields and the constant rain clouds from the 2008 and 2009 seasons still etched in the memories of growers, preventing blight from getting any sort of a foothold in crops remains the top priority for growers through the 2012 season.

New threat

In 2008, the arrival and spread in Ireland of the A2 blight strain, dubbed 'Blue 13', represented a new chapter in the battle against blight. This strain possesses increased aggressiveness and phenylamide resistance (without the associated 'fitness' penalties our resistant blight populations had shown) and when combined with periods of constant rain during late July and early August, required that control measures be adapted and quickly.

While reduced spray intervals and effective chemistries generally responded well when needed, the 2008 season marked a substantial change in blight awareness. It was clear that the need to prevent blight from getting a foothold in crops had become even more essential, and where it did get established (which was inevitable in places due to inability to get spraying), programmes needed to take account of this, with choice of fungicide of utmost importance.

Blue 13

The industry experienced another extremely difficult season in 2009, while 2010 and 2011 proved relatively low blight pressure years due to drier summers. During this same period,

though, blight populations have undergone further change. In 2009 the swing towards a 'Blue 13' dominated population continued, with over 50% of collected isolates identified as Blue 13 strains. In 2011 this has changed, with the older A1 strains appearing to once again dominate collections.

Regardless of what blight strains we have in the country, the most basic of control measures always remain the same. Although it is almost impossible to prevent late blight from emerging from somewhere (whether it be dumps, gardens, grounds keepers or commercial crops) during the summer months, limiting these initial sources will delay the onset of epidemics. Regular inspection of commercial crops is also a must. For the moment, irrespective of where late blight originates, crops must be protected using fungicides.

Breeding our way to blight resistance

Since late blight first arrived on our shores, potato breeders have been trying to breed for blight-resistant varieties. Late blight and the potato evolved together in South America and many wild relatives of potato found in these regions exhibit high levels of resistance to the disease.

Not surprisingly, potato breeders have focused on transferring these wild genes (R genes) by conventional crossing into cultivated varieties. For example, resistance genes from the wild species *Solanum demissum* were commonly bred into varieties in the 1950s and 1960s.

One of the first commercial varieties released was Pentland Dell which was bred in Scotland and had three wild potato genes from *S. demissum*. Initially, varieties with these R genes were totally immune to blight. Within three years of the commercialisation

of the varieties, the blight fungus had adapted and broken down these resistance sources.

What was supposed to be a 'resistant' variety, turned out to be susceptible due to late blight's ability to adapt.

The ability of late blight disease to adapt to a new challenge, in this case the wild R genes, has become known as the 'boom and bust cycle', where the potato and late blight disease are engaged in an arms race with the host adapting to new resistance genes introduced by breeders. In total, 11 genes were identified for *Solanum demissum* and most have since broken down to the late blight fungus.

Durable resistance

After these initial disappointments, breeders focused on trying to breed varieties with more durable resistance that was not based on major genes. Several well known potato varieties like Cara have high levels of this type of resistance which does not confer outright immunity but, instead, exhibits strong partial resistance. This 'field' resistance was always thought to be durable and in many cases was linked to late maturing varieties.

However, the arrival of the Blue 13 strain of late blight disease has heralded the decrease of resistance ratings for many varieties such as Lady Balfour, Setanta and Stirling that were previously deemed to be highly field resistant. While the Blue 13 genotype is more aggressive than older strains of blight, the most commonly grown varieties in Ireland, such as Rooster and Kerrs Pink, have both retained their blight resistance rating (5 and 4 on a 1-9 scale, respectively) and have not shown a decrease in resistance.

• Continued next page

While the Blue 13 genotype is more aggressive than older strains of blight, the most commonly grown varieties in Ireland, such as Rooster and Kerrs Pink, have both retained their blight resistance rating and have not shown a decrease in resistance.



tillage

The variety Sarpò Mira continues to exhibit high levels of resistance and it is now thought to possess a combination of both field and R gene resistance.

New strategies

In light of the challenges posed to the sector by the newer strains of late blight disease and EU legislation designed to curb the type and amount of fungicides growers can apply, conventional potato breeders are re-examining the strategy of employing resistance genes against late blight disease.

Several new species of wild potato such as *Solanum bulbocastanum* and *Solanum venturii* have been screened and shown to contain new blight resistance genes. These are the same genes that are being used in some GM varieties but significantly, non-GM technologies, such as Marker Aided Selection (MAS), can now be used to significantly speed up the breeding process and allow the 'stacking' of multiple resistance genes in conventional varieties.

International research suggests these genes will be more durable than the original *S. demissum* genes that broke down so spectacularly in the past. In addition, by decoding the genome of the potato and the late blight organism, it is now possible for scientists and breeders to predict favourable combinations of these genes which could be stacked in new varieties to enhance the durability of resistance.

The GM question

On 27 February last, Teagasc lodged an application with the Environmental Protection Agency for a licence to field study a potato variety (var. Desiree) that has been genetically modified to resist potato late blight disease.

This GM potato line has been equipped with a potato gene, taken from a wild potato species (*S. venturii*) that can be found growing in central and South America, which is where the potato and blight disease originates.

This point is critical; unlike in Ireland, where potato and late blight have only known each other since the 1800s, the potato genes taken from wild, weedy potato species that inhabit central and South America have 'experienced' late blight for hundreds of millions of years and, as a result, are well adapted to dealing with the disease.

That is why researchers have focused on several wild potato species, as they display durable resistance to late blight disease. It is this level of robustness that has incentivised researchers to transfer these genes



into commercially important potato varieties

Potentially fewer fungicides.

In the presence of this wild potato gene, the GM potato line has demonstrated robust resistance to late blight disease in studies completed in the Netherlands and in Belgium. In light of the current levels of fungicide used to exert control over late blight disease, the agronomic benefits of the GM variety are apparent. However, it is not enough to simply accept this without also investigating the potential cost.

For example, what will be the impact of growing this GM variety on levels of soil biodiversity, such as fungi, bacteria and earthworms, compared with a conventional potato system? Critically, what will be the response of the late blight organism itself when it is faced with a potato variety with such strong blight resistance?

The proposed study is part of a larger, publicly funded EU project focused on assessing and monitoring the impact of certain GM crops on the agri-environment. Termed 'AMIGA', this project contains 22 partners across 15 EU countries.

In this project, it is also planned that the same GM potato work be completed by partners in the Netherlands and Finland, so that standardised protocols can be established for quantifying the environmental impact of a GM potato variety across several European regions. This is important to determine if recorded effects are

region specific or if they are indifferent to where potatoes are planted.

The proposed study is not about supporting GM; if we were pro-GM, we wouldn't be doing the study. On the contrary, if the EPA grants Teagasc a licence to complete the studies, it is our intention to conduct the research as planned and the research results will be made publicly available.

The cultivation of GM potato in this study is not the 'thin end of the wedge' and will not expedite the commercialisation of GM potatoes in Ireland. Quite the opposite; our GM research programme has no links with industry and this project, like its predecessors, is focused on providing transparent research-led information to Irish farmers and the public at large.



Our GM research programme has no links with industry and this project, like its predecessors, is focused on providing transparent research-led information to Irish farmers and the public at large

Study indicates more effective use of nitrogen

Andy Boland, Elena Mihailescu & James Humphreys
Teagasc Crops, Environment and Land Use Programme

Part of the research in the Dairyman Project is an investigation of farmgate nitrogen balances and nitrogen use efficiency on Irish dairy farms following the implementation of the Nitrates Regulations.

Results are compared with similar previous studies. Twenty one dairy farms, located in the south and east of Ireland, were surveyed monthly in 2010 as part of the Dairyman Project. The nitrogen imports (chemical fertilizer and purchased concentrates, silage and livestock) and N exports (milk, livestock and silage sales) passing through the farm gate were quantified.

Nitrogen in milk exported from farms was calculated from milk protein. Nitrogen exported in livestock leaving the farms was calculated by using standard values for liveweight of the different categories of livestock sold.

All N imports and N exports were expressed relative to the utilised agricultural area. The farmgate N surplus is the difference between N imports and N exports, whereas N use efficiency was calculated as the ratio of N exports to N imports, expressed as a percentage.

The mean stocking density in the current study was equivalent to 183kg/ha of organic N. Dairy livestock comprised 72% of total livestock on farms. The greatest source of N imported to farms was chemical fertilizer N (206kg/ha) followed by the N imports in concentrates (45kg/ha). The rest of the N inputs were accounted for by silage, bedding material, and livestock to a much lesser extent.

Milk sold accounted for the highest N exports off farms (61kg N/ha). The remainder of the N output



consisted of livestock (calves, cull cows, heifers) sold off farms. Overall, the farmgate N surplus of imports minus exports was 196kg/ha. N use efficiency averaged 28%

Comparison

The mean stocking density (organic N) in the current study was 183kg/ha compared with 202kg/ha for a similar study between 2003 and 2006 and 190kg/ha for an earlier similar study in 1997. There was a clear trend

for dairy cows to make up a higher proportion of the livestock on farms in recent years compared with the earlier studies. Dairy farmers in the current study were more specialised in dairy production than in the earlier studies. This is in line with the national trend towards increased specialisation on dairy farms.

The mean N surplus in the present study (196kg/ha) was substantially lower than the previous studies: 244kg/ha between 2003 and 2006 and 304kg/ha in 1997, with a clear trend for decreasing N surpluses over time. This can be partly attributed to the implementation of the Nitrates Regulations although it is likely that the substantial increase in the cost of fertilizer N since 1997 has had a major impact on fertilizer N use on these farms.

Likewise, N use efficiency in the current study (28%) was substantially higher than between 2003 and 2006 (20%) and in 1997 (17%).

TOP TIPS

- Match fertilizer use to stocking rate
- Maximise use of slurry to replace fertilizer
- Use white clover to replace fertilizer N
- Soil sample to monitor P and K levels and lime requirement
- Make best use of grass measurement



Creating food entrepreneurs

The Food Works initiative aims to help create Irish global food entrepreneurs. There are significant potential benefits for farmers, consumers and taxpayers

Mark Moore,
Editor, Today's farm

Ireland is a substantial net exporter of the food we grow and process and we have an enviable reputation on world markets. However, we cannot stand still, and established food brands occasionally cease to produce their product in Ireland for a variety of reasons, often related to cost or access to markets.

Consequently, we need to maintain a pipeline of food entrepreneurs and new food products being manufactured in Ireland. Other sectors, such as computer gaming and software, are ahead of food in new business start-ups. Understandably, the government would like to see more food and drink products emerge.

Three State agencies, Teagasc, Bord Bia and Enterprise Ireland, have teamed up in an initiative called Food Works (www.foodworksireland.ie) which aims to assist individuals and food companies to generate and develop ideas and ultimately produce new food products – particularly for export markets.

“The really great thing about Food Works is that you have the three key State agencies in one room,” said Svetlana O’Farrell who, with her husband, has established a company called Killaloe Food Products. Svetlana feels that the Food Works programme ‘will offer great opportunities to food companies by providing an integrated approach to new prod-

“ The success of initiatives such as Food Works is vital for farmers and producers who need good brands which will take their high quality output and deliver it in a thousand different forms to consumers worldwide.

uct development and commercialisation’.

Complementary expertise

The three agencies possess complementary expertise. Enterprise Ireland can assist new businesses to develop plans and strategies essential in any company but especially so for businesses aiming to achieve a substantial share of export markets.

Bord Bia has superb expertise in identifying the major trends which are driving consumer behaviour as well as providing detailed analysis of international markets and market niches.

Teagasc is the partner who can support entrepreneurs with the science and technology in every aspect of producing a new food product from its two food research centres in Ashtown, Dublin, and Moorepark in Cork.

How it works

The three partners are currently providing a series of detailed seminars to existing and potential food entrepreneurs. “The approach is to encourage people to take an idea or the germ of an idea and to develop it carefully and systematically as a business,” said Pat Daly, Head of Food Industry Development at Teagasc. The programme was launched by Ministers Simon Coveney and Sean Sherlock in March of this year and so far the interest has been tremendous. An initial series of free meetings in Athlone, Meath and Cork was attended by about 250 food entrepreneurs.

Speaking at the initial meeting, Michael Carey, chairman of Bord Bia, encouraged those with ideas to aim high. “You should be confident and ambitious,” he said. “Don’t aim too low. Be confident, not cocky. Most successful entrepreneurs have an incredibly strong belief that they will succeed. Your idea might seem crazy but you should make it happen.”

He added: “Use every single network and connection that you have. Irish food entrepreneurs will likely help you if asked. All of the agencies in-



involved – Bord Bia, Enterprise Ireland and Teagasc – are very good at helping entrepreneurs. But, be warned, while the potential rewards are great, the journey is a rollercoaster, and you will experience many highs and lows along the way.”

About half of those who attended the initial evenings continued through to the next stage of Food Works. Here the emphasis was on ‘What is desirable to consumers? What is viable in the marketplace? What is possible with technology?’

There is a strong emphasis on establishing the businesses on a sound basis. There are examples of Irish companies who have taken good ideas



At the launch of the Food Works initiative were Mary Ann O'Brien, food entrepreneur and founder of Lily O'Brien Chocolates (centre) and (clockwise from left): Prof Gerry Boyle, Director, Teagasc, Aidan Cotter, chief executive, Bord Bia, Minister for Agriculture, Food and the Marine Simon Coveney, Frank Ryan, chief executive, Enterprise Ireland, and Minister for Research & Innovation Sean Sherlock.

and gone into production and because they didn't have a good business strategy from early on, the business under-achieved. Also, sometimes entrepreneurs will even go into production without being sure that consumers are willing to pay the price needed for the product, explained Jenny Melia of Enterprise Ireland.

"Any business idea must be matched to the needs of the customer and there are a number of trends which are shaping those needs," said Grace Binchy of Bord Bia.

"A deepening desire for good value and the ability to access luxury items at everyday prices are just two of those."

She added: "It is vital to understand how your product is tapping into those trends. Any product is far more likely to succeed if it is well matched to the trends which are most important for the target audience."

Ultimately, any product must be superior and consistently so. "We work with over 300 food companies and we have been involved in the technical aspects of hundreds of food products," said food technologist Eddie O'Neil from Teagasc. "Confidentiality on individual products is paramount and, as an organisation, we can help with just about any technical aspect of food production and storage," he added.

As the Food Works programme pro-

gresses, a dozen or so ideas are likely to crystallise into solid businesses, with the potential to generate many millions of euro in overseas sales.

Relevance for farmers

While there are many examples of farmers who have taken a food idea and made a highly successful business from it, most farmers will not be setting up large export focused food companies. Nonetheless, the success of initiatives such as Food Works is vital for farmers and producers who need good brands which will take their high quality output and deliver it in a thousand different forms to consumers worldwide.

A ROSI

by any other name

Plants in a garden are valued for their many and varied characteristics – colour, form, seasonal interest and change, but one of the most attractive and pleasing characteristics of some plants is their fragrance, writes Linda Murphy, Teagasc Education Programme, National Botanic Gardens

Scented plants will always add an extra dimension to a garden. Bringing pleasure, memories and past associations a scent can transport you instantaneously to another time and place.

From a botanical point of view scent is a very serious business as it is an important attractant for pollinating insects. In many species, the pale or insignificantly coloured flowers are the most fragrant, whereas brightly coloured petals, especially red, attract pollinators by sight and do not need to waste precious energy producing a strong scent as well.

Shelter

There are many ways to heighten the enjoyment of fragrance in the garden, the key one being shelter from prevailing winds. Any open space which is protected from cold winds, whether with a vegetative or built structure, will provide the perfect setting for a collection of scented flowering plants.

Planting in raised beds or troughs will also allow closer enjoyment of fragrant plants, particularly if placed close to an entrance/exit point where they can be enjoyed regularly. If you are lucky enough to have stone wall in your garden, then the radiated heat from the brickwork or stone work will enhance evening scent and help prolong the period of enjoyment.

The key to good garden design is to choose plants that will provide visual interest throughout the year with species that fruit and flower in different seasons. With this in mind

I have chosen a selection of some of the most popular fragrant plants which will see you enjoy fragrance in your garden from early spring to late summer.

Scent

In spring it is hard to beat the genus *Viburnum* for ease of cultivation and the attractive often scented flowers. Two varieties which are highly fragrant are *Viburnum x burkwoodii* and *Viburnum carlesii*. *Viburnum x burkwoodii* is a semi-evergreen shrub clothed with clusters of fragrant white flowers that emerge from pink buds from late winter to late spring. It grows in sun or partial shade and although it will benefit from a well drained humus rich soil, it will grow in almost any soil. A few sprigs of this shrub brought into the house with perhaps some daffodils will perfume a room for many days in early spring.

In addition, because it tends to have long slender branches, it makes an ideal shrub for growing on a wall and will spread 3x4 metres in a relatively short time, covering the wall with masses of fragrant blossoms for two to three months in spring and early summer. Once it is well established – apart from an annual prune after flowering (early summer) – it is maintenance free.

For small gardens, *Viburnum carlesii* is a much more compact rounded shrub with clusters of very fragrant white flowers from April to May. It is more suited to a flower border but is equally highly scented. If your



garden has some shady areas with moist soil, then *Convallaria majalis* (Lily of the Valley) is a very easy and beautiful plant to establish where clusters of tiny white bells add charm and fragrance to every early summer garden setting. It thrives in shade, spreading rapidly to create carpets of emerald foliage. It is excellent under trees, in north-facing borders and banks, in the shade of shrubs and in moist spots. It should be planted 4" to 5" apart. It is easy to establish and requires little care.

It is difficult to consider fragrance in the garden without referring to the wonderful combination of roses

E



Rosa 'Graham Thomas' – voted the World's Favourite Rose.

and lavenders for summer fragrance. Grown separately or together, both species can provide a wealth of sweet summer scent in the garden.

There is a mesmerising selection of roses available in garden centres and it can be daunting to make choices as to what is best for your garden. I like to grow roses bred by David Austin Roses as they are generally disease free, have a natural shrubby growth and provide rich and varied fragrances over a long period of time.

Two of particular note are Rosa 'Gertrude Jekyll' and Rosa 'Graham Thomas'. Rosa 'Gertrude Jekyll' flowers start as perfect little scrolled buds

and soon open into the most beautiful, large, rosette-shaped flowers of rich glowing pink. The growth is upright and vigorous and in every way reliable.

The most outstanding characteristic of this lovely rose is its beautiful and perfectly-balanced 'Old Rose' scent. This is often described as being the quintessential old rose fragrance. This rose is named after the famous garden designer Gertrude Jekyll who has had a profound effect on the style of English gardens to the present day. Rosa 'Gertrude Jekyll' can also be grown as a climber against a wall and will reach a height of about 6ft to 8ft.

World favourite

Rosa 'Graham Thomas' has been voted the World's Favourite Rose by the World Federation of Rose Societies at the 2009 World Rose Convention in Vancouver. It has cupped flowers of medium size, their colour being

an unusually rich and pure yellow. The growth is upright but bushy and extremely vigorous, with shiny, pale green, disease-resistant leaves.

Irish garden centres have great selections of lavenders available at the moment and now is the perfect time for planting. *Lavandula angustifolia* is the most popular variety and it will flower right through the summer, with soft loose habit most suitable for the 'wilder' looking border.

Cultivars such as *Lavandula* 'Hidcote' or *Lavandula* 'Munstead' have a much more compact habit and are suitable for pathways or for edging a flower border.

These two cultivars flower for six to eight weeks with intense blue fragrant flowers.

By planting even just a few fragrant plants in your garden, you will be greatly rewarded with perfume throughout the year.

Multiple benefits from farm forest



Rockfield Walkways, a recreational farm forest in Co Laois, benefits the farmer and the wider community, writes Liam Kelly, Teagasc Forest Development Officer, Mullingar

When Michael Deevy and his family at Cashel, Ballyroan, Co Laois, were considering afforestation in 2008, they also had recreational use in mind. Michael, who operates a 20-hectare drystock farm, subsequently developed an 8.1ha plantation under the Forestry Environmental Protection Scheme (FEPS).

Design

“Together with John O’Connell, consultant forester with Glensack Tree Services, we put a lot of thought into designing this new woodland,” said Michael. “I firmly believe that it is important as an owner to be involved with the design of a forest, especially when recreational use is part of it.”

The site is relatively flat, with gentle slopes on the upland mineral land, and lower areas containing mainly peaty soil. This allowed for a mix of species which added greatly to the appeal of the scheme.

Using the Areas of Biodiversity Enhancement (ABE) to good effect, Michael and John laid out a 1,700-me-



ABOVE: Rockview Walkways can be found along the Ballyroan – Stradbally road, or can be viewed on www.rockviewwalkways.com

MAIN PICTURE: A group visit Rockview Walkways; Michael Deevy is on the far right of the picture.

tre circuitous path which meanders around the site and links the areas of biodiversity.

Timber production is the prime aim, of course, and the site will produce fine crops of ash, oak and Norway spruce. Each species was planted in large blocks where site conditions best suited them. “We also planted rowan, hazel, holly, birch, crab apple and Scots pine singly or in groups to add to the diversity and beauty of the site,” said Michael.

Special needs

Michael, who is chairman of ‘Laois Friends’, a voluntary group set up in 2000 to help provide social and recreational opportunities for people with special needs and their families, said: “We will all have special needs at

some stage of our lives. With the help of the HSE, local community groups and a Leader grant of 75% funding from Laois Partnership, we were able to make the site more suitable for people with special needs.”

He added: “In 2010, the path system was finished with a hard core surface. Picnic tables and benches were installed, wooden bridges were erected and a small car park was developed and ‘Rockview Walkways’ was established. The site is wheelchair accessible.”

Rockview Walkways, which is run by Laois Friends, was officially opened in August 2010. Since then a sensory garden and horticultural area have been developed on an additional 0.6ha plot and an old farm shed is being converted into a visitor centre. “I am grateful to all involved for helping with fund raising and the Forest Service for facilitating it,” said Michael. “This site is now open and free to the public.”

Conclusion

This is an ideal example of how the FEPS scheme can be used to maximum effect. The site is a tremendous asset to Co Laois and other charity groups are looking at the model and considering how similar ventures may be pursued.

The forest is a credit to Michael and his family as this unique project required a lot of vision, enthusiasm and persistence.



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