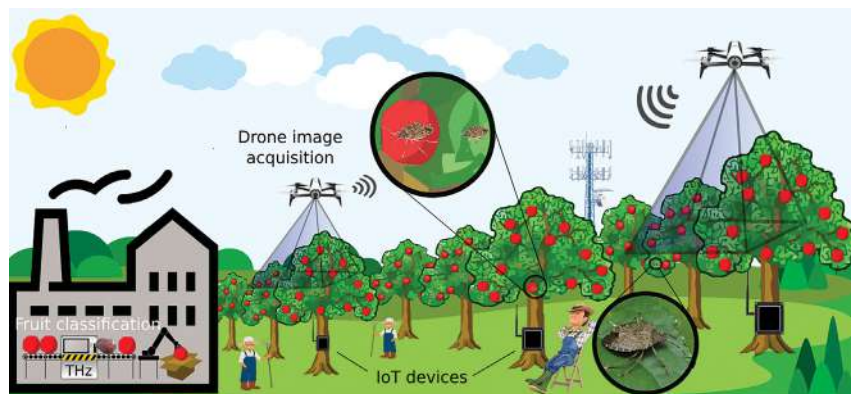




AUTOMATED MONITORING OF INSECT PESTS

Monitoring for insects and insect damage is time consuming and, while an important part of IPM programmes, it is a task that needs to be simplified and automated. A new EU ERA-NET project, HALY ID, funded by the Department of Agriculture, Food and the Marine and Teagasc, and involving Teagasc and the Tyndall Institute in Cork, looks to simplify and automate this process. The project will seek to utilise machine learning to develop artificial intelligence solutions to monitor for pests and to utilise technologies such as unmanned aerial vehicles and static cameras to conduct pest monitoring and to report directly to growers on pest populations and crop damage. Initially, the project will focus on *Halyomorpha halys*, the Brown Marmorated Stink Bug,



which is an invasive Asiatic shield bug pest of fruit trees, vegetables and amenity trees in Europe. It was recently recorded in the UK. The Irish component of the project will focus on two prominent insect pests, Spotted Wing Drosophila and Carrot Root Fly,

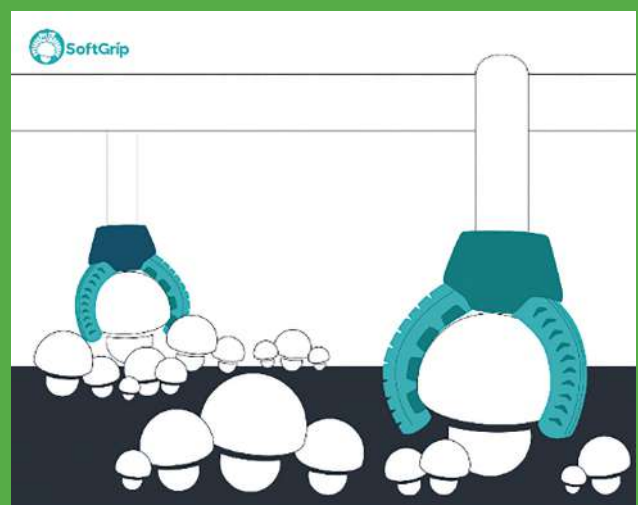
as model pests to test and develop the technology. If successful, it will serve as a model for the development of automated pest monitoring systems. For further information, please contact Dr Michael Gaffney, Michael.Gaffney@Teagasc.ie. *

GRIPPING MUSHROOM RESEARCH

Teagasc has started an exciting research project called SoftGrip. This is a three year, EU-funded project that could revolutionise the harvesting of mushrooms, addressing the severe labour shortage issues facing the sector. The project aims to develop a soft robotic 'gripper' designed specifically for harvesting delicate produce. The gripper would be integrated with end-to-end picking automation systems for mushrooms and wider applications to harvesting other delicate produce is envisaged.

The gripper will 'learn' how to harvest mushrooms by imitating the harvesting process performed by human harvesters. Novel, 'intelligent' materials will be developed for the surfaces of the gripper that are food-safe, self-repairable and recyclable so they are more environmentally sustainable. Engineers and scientists from five countries are involved and Teagasc's role is to ensure that all elements of SoftGrip are compatible with current mushroom growing systems. Over 80% of Irish mushrooms are exported to the fresh market in Britain where the demand is for high quality, blemish-free mushrooms. Robot grippers which have been developed to date tend to leave pressure marks on the mushroom which is unacceptable in the demanding

British market. In due course, the SoftGrip prototype will be demonstrated on Teagasc's mushroom research unit. For more information contact Dr. Helen Grogan - helen.grogan@teagasc.ie. *



LETTUCE PRODUCTION

Supporting decision making on agricultural input reduction

Researcher Dr. Lael Walsh at Teagasc, Ashtown is working with Universities of Warwick and Sussex on a project to support decision making on agricultural input reduction. They are looking for participants from the lettuce growing and research communities in Ireland and the UK for an online workshop on 19th and 20th April 10am-2pm. Interested participants are invited to register using the link: <http://bit.ly/FoodLossWorkshop>

Food loss and waste are associated with greenhouse gas emissions and negative impacts to natural resources. The promotion of responsible food production which limits agricultural inputs, harnesses ecosystem services and reduces crop losses, aligns with the United Nations' Sustainable

Development Goals (SDGs), particularly goal 12 "Responsible Consumption and Production, as well as circular economy principles and the EU Green Deal objectives to address the challenges of sustainable food systems.

This workshop is part of an STFC (Science and Technology Facilities Council) Food Network+ funded project to develop a data-based decision support model for growers seeking strategies to reduce agricultural inputs while minimising food loss. Field-grown head lettuce is being used as the exemplar crop in the development of this proof-of-concept tool.

Participants (experts) will be given training in a structured expert judgement protocol and then asked

to give private, individual estimates of food loss under a variety of scenarios. The estimates from each of the experts will be anonymised and presented back to the group for a facilitated discussion. Estimates may be revised through a second round of private, individual estimates. Estimates will then be aggregated and averaged to provide data for the decision support model. The model will become available as a web-based tool. The project team includes Dr. Lael Walsh at Teagasc, Dr. Martine Barons and Dr. Linda Nichols at University of Warwick and Edward Salakpi at University of Sussex

For more information contact Dr. Lael Walsh at Teagasc - Lael.walsh@teagasc.ie or visit www.teagasc.ie/events. *



THE INTERNATIONAL YEAR OF FRUIT AND VEGETABLES 2021



INTERNATIONAL YEAR OF
FRUITS AND VEGETABLES
2021

The United Nations' Food and Agriculture Organisation has declared 2021 as the International Year of Fruit and Vegetables. The aim is to raise awareness and share good practices on the contribution of fruit and vegetables to healthy diets and sustainable lifestyles, while drawing attention to the importance of reducing loss and waste of fruit and vegetables. The HSE's Healthy Eating Guidelines food pyramid now suggests that we should aspire to seven servings of fruit or vegetables

per day, highlighting the importance of plant based foods in our diet. Ireland produces a broad range of fruit and vegetables, in the field and under protection of polythene or glass structures. Some of the main vegetables include carrots, parsnips, lettuce, tomatoes and a range of brassicas such as cabbage, broccoli, cauliflower and swedes. The primary fruits produced include strawberries, raspberries, blackberries and both culinary and eating apples. The farm gate value of the commercial fruit and vegetable sector in Ireland is over €350 million but many people have also taken to their back garden or community allotments to grow their own fruit and vegetables, particularly during the recent Covid-19 lockdowns. The Teagasc publications 'A Guide to Vegetable Growing' and 'Greenhouse Salad Crops - A Guide for Home Gardeners' are excellent resources for anyone 'growing their own'.

A Guide to Vegetable Growing, Stephen Alexander - bit.ly/VegGrowingGuide

Greenhouse Salad Crops - A Guide for Home Gardeners, Leo Finn and Michael Gaffney - bit.ly/GreenhouseSaladsit. *

TEAGASC NEW APPOINTMENT

Teagasc recently appointed Ester Ferrari as Technician in the Horticulture Development Department in Ashtown Dublin. She will be working alongside the other technicians in the Horticulture Department, providing technical assistance and supporting field and laboratory based research. Ester completed her MSc in Agricultural Sciences at the University of Turin, Italy in 2010 and since then has been working as a laboratory and field technician, strengthening her experience and skills during her previous roles in Italy, Ireland and Scotland. During her career, Ester has worked on many different research projects focused on agriculture, and has developed

a particular interest in studying the application of effective and sustainable pest control methods in tillage and horticultural crops.





NEW STRAWBERRY VARIETY TRIAL BEGINS ON SEVERAL SOFT FRUIT FARMS

A new strawberry variety trial has begun on several soft fruit farms across Ireland. The trial is run in association with the Italian soft fruit plant propagators Mazzoni and Salvi-Vivai (also known as CIV). The trial will grow a number of 'June bearing' varieties in a range of protective structures including glasshouses, walk in tunnels and Spanish tunnels. The main aim is to see how the different strawberry

varieties perform in these structures and in different parts of the country. All of the varieties will be grown in either peat or coco peat (coir) substrates. With the help of Teagasc the growers will record the fruit weights and the fruit quality from the individual trial. The trials will include the growth of both early and mid-season varieties; 'Joly', 'Sibilla', 'Lycia', 'Annely' and 'CIV 725'. The industry is always looking

for new strawberry varieties that can complement the existing ones being grown and could potentially fill the existing gaps in production throughout the long season. Jim Kearns of Kearns Soft Fruit Farm near Enniscorthy, in Co.Wexford commented, "I am delighted about taking part in the trial as we are always on the lookout for new strawberry varieties to extend our fruit season". *

SOFT FRUIT PRODUCTION FACTSHEETS TO SUPPORT NEW ENTRANTS

Teagasc have recently developed three new factsheets aimed at new entrants to Ireland's growing soft fruit industry. The industry is growing at a high rate of about 10 per cent per annum. Strawberries are the most important soft fruit crop grown, making up about 85% of the total berries grown in Ireland. There is

potential for new entrants into the soft fruit market, particularly for those with an entrepreneurial flair who are willing to develop a market share. The factsheets cover three soft fruit crops; strawberries, raspberries and blueberries. The factsheets are a short introduction to the modern production of high-quality berries with an emphasis

on sustainable cultivation methods. The use of protective cropping, the markets available and the yields and returns for each crop are outlined. The fact sheets are available at bit.ly/Fruit-Production. If you would like more information please feel free to contact our soft fruit adviser Dr Eamonn Kehoe - eamonn.kehoe@teagasc.ie. *



HORTICULTURE PEAT STAKEHOLDER WORKING GROUP

The cessation of peat harvesting from bogs over 30 hectares in 2020 has left a dwindling supply of Irish peat, specifically growing media. Peat is used extensively as a major component in growing media and mushroom casing owing to a number of significant attributes which, in combination, have provided the basis of modern soil-less plant and food production systems. The National Parks and Wildlife Service (NPWS) began a consultation process in late 2019 reviewing the use of peat in horticulture. Teagasc Horticulture Development Department among other interested parties made technical submissions during this consultation process. In January of this year, the horticulture and growing media sectors made an address to a meeting of the Oireachtas Agriculture Committee. There was broad support across the House to find solutions for the sectors.

Dr Munoo Prasad was recently appointed by the Minister for Heritage and Electoral Reform, Malcolm Noonan T.D., as chairperson of the working group established to examine the issues identified during the Review on the Use of Peat Moss in the Horticultural Industry. The Chairperson will chair

meetings of the working group and issue recommendations to the Minister arising from its deliberations. Teagasc, represented by Dermot Callaghan on the working group, looks forward to working with the chairperson and stakeholders in developing solutions for all sectors.

THE CHALLENGE

While some in-roads have been made on peat alternatives for the retail market, the search for alternatives that have the potential to match peat-based growing media and mushroom casing for the professional horticulture sector has not yielded viable alternatives. If functional peat alternatives are found through research, the factors of the economic cost and the environmental performance of the materials, previously overlooked in the research, will need to be thoroughly investigated in parallel. Equal weight should be given to these media selection criteria in the future. If alternatives are identified, moving to these alternatives should offer more environmentally sustainable options when compared to peat-based growing media and casing.



GROWERS HAVE BEGUN SMALL SCALE TRIALS OF VARIOUS GROWING MEDIA MIXES; HERE LAVENDER IS GROWING IN, LEFT TO RIGHT, 100% PEAT, 20% REDUCED PEAT AND 40% REDUCED PEAT GROWING MEDIA.

KILDALTON COLLEGE EMBRACES BOTANIC GARDEN STUDENTS FOR ONLINE MODULES

Last year saw unprecedented changes in education, in the way classes are delivered, how lecturers and students interact and courses assessed. As is frequently the case, challenges can bring opportunities to do things differently. This has been the case for students' studying the Waterford Institute of Technology Bachelor of Science in Horticulture in the Botanic Gardens Dublin Campus. The move to the virtual classroom for delivery of lectures, has created an opportunity for students' to study modules delivered by Kildalton College lecturers, as part of their degree which were not available at the Botanic Gardens. This has created an opportunity for students from both colleges to meet, interact and learn from each other. The two cohorts have joined for two modules; Landscape Design Advanced delivered by Laura Cassin and Garden Centre Operations, taught by Fred Townsend, both Kildalton College lecturers.

According to Grainne McMahon, Assistant Principal, Kildalton College 'We want to produce graduates who are mindful and take a problem solving approach to issues impacting Irish horticultural businesses.' Students are examining how garden centres can adapt to deal with the changes due to COVID. According to Fred Townsend, Lecturer Kildalton College 'It has been challenging lecturing students whom we have never met in person, but it has been a very positive experience.' In the Landscape Design Advanced module, students are engaging in a project with a real estate investment firm in the development of a sustainable park as part of a new urban quarter. According to Laura Cassin, Lecturer, Kildalton College; 'this has been a fantastic experience for both the students and the company. Students are getting the opportunity to work on a real life situation project and the company gets to work with a diverse group of students who are bringing new ideas to the project.'