



01. Destaques INIAV
02. Eventos Científicos INIAV
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## 01. Destaques INIAV

Projeto Healthy Soils @Torres Vedras foi lançado no dia 1 de agosto



No passado dia 1 de agosto decorreu, no auditório do Polo de Inovação de Dois Portos do Instituto Nacional de Investigação Agrária e Veterinária (INIAV), a sessão de lançamento do projeto Healthy Soils @Torres Vedras. Esta sessão teve como finalidade apresentar detalhadamente o projeto e o plano de trabalhos para o período de 12 meses previsto para a execução do mesmo, visando, também, um primeiro encontro entre as partes interessadas do projeto.

Fonte: [INIAV](#), [Câmara Municipal de Torres Vedras](#), [TORRES VEDRAS WEB](#), [Greensavers](#), [Tinta Fresca](#), [País ao Minuto](#), [Vida Rural](#),

[Alvorada](#), [RTVON](#), [Indústria e Ambiente](#), [Agriterra](#), [welectric.pt](#), [New in Oeste](#)

Boletim Técnico n.º 1/2024 - "O ácaro-de-Lewis, *Eotetranychus lewisi* (McGregor, 1943), em Portugal"



A Unidade Estratégica Investigação e Serviços de Sistemas Agrários e Florestais e Sanidade Vegetal, do INIAV, disponibiliza o Boletim Técnico n.º 1/2024, sobre o tema "O ácaro-de-Lewis, *Eotetranychus lewisi* (McGregor, 1943), em Portugal".

Fonte: [INIAV](#)

## 29ª Informação do GT Estenfiliose 2024



### Informação do GT Estenfiliose

Encontra-se disponível a 29ª Informação do GT Estenfiliose de 7 de agosto de 2024.

Fonte: [INIAV](#)

Encontra-se disponível a 32ª Informação do GT Estenfiliose de 28 de agosto de 2024.

Fonte: [INIAV](#)

## 33ª Informação do GT Estenfiliose 2024



### Informação do GT Estenfiliose

Encontra-se disponível a 33ª Informação do GT Estenfiliose de 4 de setembro de 2024.

Fonte: [INIAV](#)

## 30ª Informação do GT Estenfiliose 2024



### Informação do GT Estenfiliose

Encontra-se disponível a 30ª Informação do GT Estenfiliose de 14 de agosto de 2024.

Fonte: [INIAV](#)

## 34ª Informação do GT Estenfiliose 2024



### Informação do GT Estenfiliose

Encontra-se disponível a 34ª Informação do GT Estenfiliose de 11 de setembro de 2024.

Fonte: [INIAV](#)

## 31ª Informação do GT Estenfiliose 2024



### Informação do GT Estenfiliose

Encontra-se disponível a 31ª Informação do GT Estenfiliose de 22 de agosto de 2024.

Fonte: [INIAV](#)

## 35ª Informação do GT Estenfiliose 2024



### Informação do GT Estenfiliose

Encontra-se disponível a 35ª Informação do GT Estenfiliose de 18 de setembro de 2024.

Fonte: [INIAV](#)

## 32ª Informação do GT Estenfiliose 2024



### Informação do GT Estenfiliose

O ITQB NOVA é o coordenador local de um novo Centro de Detecção de Doenças Infeciosas



O projeto envolve, além do ITQB NOVA e da Câmara Municipal de Oeiras, várias outras instituições, como o Instituto Nacional de Investigação Agrária e Veterinária (INIAV, IP), o IHMT NOVA, a STAB VIDA, a P-BIO – Associação Portuguesa de Bioindústria, a CCDR Lisboa e Vale do Tejo, e o Agrupamento de Escolas de Paço de Arcos. visa especificamente a questão do coelho-bravo.

Fonte: [Oeiras Valley](https://oeirasvalley.pt), [Oeiras.pt](https://oeiras.pt)

INIAV reafirma seu papel como uma instituição de referência no setor do leite e derivados



No contexto do Projeto PRR CASEUS, o Laboratório de Leite e Lacticínios da Unidade de Tecnologia e Inovação (UTI) do Polo de Inovação de Oeiras do INIAV adquiriu recentemente o analisador de leite FOSS MilkoScan Mars. Este equipamento permite a análise de proteína, gordura, lactose, sólidos totais, sólidos não gordos e o índice crioscópico em leites (nata e soro) de vaca, ovelha, cabra, entre outras espécies.

Fonte: [INIAV](https://iniav.pt), [TecnoAlimentar](https://tecnofuturo.pt)

CryoStore Mid-term Meeting and Annual Meeting 2024



Participants of the CryoStore Annual Meeting 2024. From left (top picture): Oleksandra Hubenia (LUH). From left (bottom picture): Paulina Pyrek (NMBU), Olaf (dog), Maxime Reverchon (SYSAAF), Lucie Gavin-Plagne (IMV Technologies), Catherine Labbé (INRAE), Birgit Glasmacher (LUH), Silje Modahl Johanson (NMBU), **Filipa Ferreira (INIAV)**, Marie Saint-Dizier (INRAE), Annemieke Rattink (WUR), Ian Mayer (NMBU), **Rosa Lino Neto Pereira (INIAV)**, Anette Krogenæs (NMBU), Birgitta Stolze (LLS Rowiak)

Fonte: [cryostoreproject](https://cryostoreproject.com)

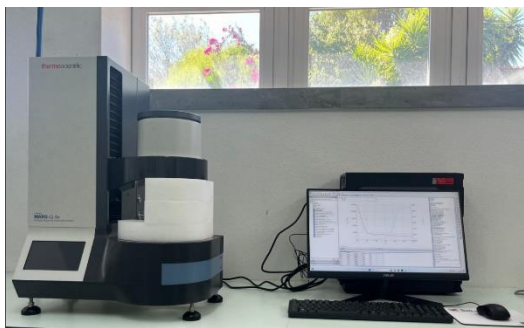
Documento Técnico "Melhoramento Genético de Arroz em Portugal"



O programa de melhoramento genético do arroz em Portugal é conduzido pelo INIAV e pelo Cotarroz, em colaboração com a DRAP Centro. Esta estreita colaboração e sinergia entre a instituição de investigação do Ministério da Agricultura e Pescas, o Centro de Competências do Arroz, organizações de produtores e a indústria é essencial para alinhar os objetivos do melhoramento genético do arroz com as necessidades reais deste setor.

Fonte: [INIAV](https://iniav.pt), [Cotarroz](https://cotarroz.com), [Agromanual](https://agromanual.com)

O INIAV consolida sua posição como referência no desenvolvimento de novos produtos agroalimentares



No âmbito do projeto PRR SPIN – Sustainable ProteIN, a Unidade de Tecnologia e Inovação (UTI) do Polo de Inovação de Oeiras do INIAV, IP, ampliou sua capacidade analítica para a caracterização das propriedades reológicas dos alimentos com a aquisição de um reómetro HAAKE MARS iQ Air.

Fonte: [INIAV, Agrozapp](#)

Geoparque Oeste lança a primeira Rede Regional de Estações de Borboletas Noturnas



A rede conta já com um grupo alargado de parceiros, nomeadamente os municípios que integram o território do Geoparque Oeste, bem como os dois municípios parceiros, o INIAV - Instituto Nacional de Investigação Agrária e Veterinária, I. P, a Associação dos Amigos do Planalto das Cesaredas, a Rede Portuguesa de Estações

de Borboletas Nocturnas de âmbito nacional e a Syngenta Portugal.

Fonte: [Município da Lourinhã](#), [Tinta Fresca](#), [Jornal das Caldas](#), [Green Savers](#), [Alvorada](#)

Dia de Campo do InovMilho (2024)



O Centro Nacional de Competências das Culturas do Milho e Sorgo “InovMilho” levou a cabo mais um dos seus já tradicionais Dias de Campo, na Estação Experimental António Teixeira, em Coruche (INIAV/Anpromis).

Fonte: [INIAV, Voz do Campo](#)

Ser ou não ser regenerativo, eis a questão que o primeiro Regenerative Wine Fest convida a discutir



Luís Serrano Mira e Renato Neves, da Herdade das Servas, Mário de Carvalho, professor aposentado da Universidade de Évora, Georgete Félix, do Instituto Nacional de Investigação Agrária e Veterinária (INIAV), Sérgio Nicolau (Família Nicolau), Miguel Soares (Covela), Nelson Martins (Reynolds), Miguel Queimado (Vale dos Ares), Francisco Pessoa (Adega Mayor) e João Raposeira (Tapada dos Coelhoos) serão os oradores.

Fonte: [Público](#)

## Cursos Técnicos Superiores Profissionais (TESP) na área agroalimentar - Alcobaça



Foi criado em Alcobaça, um consórcio inovador para o funcionamento de Cursos Técnicos Superiores Profissionais (TESP) na área agroalimentar. Este projeto resulta da colaboração entre a Escola Superior Agrária do Instituto Politécnico de Santarém, o Município de Alcobaça, a Universidade de Coimbra, a EPADRC (Escola Profissional Agrícola e de Desenvolvimento Rural de Cister) e o INIAV (Instituto Nacional de Investigação Agrária e Veterinária).

Fonte: [INIAV](#), [Câmara Municipal de Alcobaça](#), [Notícias do Sorraia](#), [CISTER FM](#), [Universidade de Coimbra](#), [Mais Ribatejo](#), [RTVON](#), [Rede Regional](#), [Região de Rio Maior](#), [Correio do Ribatejo](#), [Mais Educativa](#), [Tinta Fresca](#), [Instituto Politécnico de Santarém](#), [Jornal O Almeirinese](#), [Human Resources](#), [Jornal de Leiria](#), [Região de Cister](#)

## Visita ao Pólo de Inovação de Braga do INIAV no enquadramento do Encontro Nacional de Ciência Viva



Decorreu no passado dia 18 de setembro no Pólo de Inovação de Braga do INIAV - Banco Português de Germoplasma Vegetal uma visita enquadrada no Encontro Nacional de Ciência Viva.

Fonte: [INIAV](#)

## Protocolo para Projeto Planeta Leite assinado em Santarém



Participaram na assinatura do protocolo José Oliveira Marques, presidente da Lactogal; Emídio Gomes, reitor da Universidade de

Trás-os-Montes e Alto Douro; Idalino Leão, presidente da Agros; Vítor Santos, administrador da Proleite; Mário Nogueira, administrador da Lacticoop; João Pedro Silva, da Lactogal; Olga Moreira, investigadora do INIAV; e Romão Braz, presidente da Associação Portuguesa dos Industriais de Alimentos Compostos para Animais e do FeedInov Colab.

Fonte: [O Mirante](#)

## Webinar “Variedades de Oliveira Portuguesas”



Irá decorrer no próximo dia 16 de outubro, pelas 10h30, em sessão Zoom, o webinar “Variedades de Oliveira Portuguesas”.

O evento é uma organização do CEPAAL (Centro de Estudos e Promoção do Azeite do Alentejo), cofinanciado por fundos comunitários e nacionais através do PDR2020.

Participação do investigador do INIAV, António Manuel Cordeiro.

Fonte: [INIAV](#), [Voz do Campo](#), [Agricultura e Mar](#), [O Atual](#)

## ReSEED – Rescuing seed’s heritage

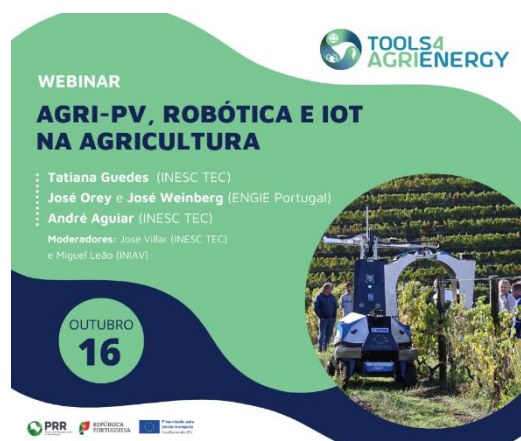


O Polo de Inovação de Braga do INIAV, nos dias 18, 19 e 20 de setembro, foi convidado pelo ReSEED – Rescuing seed’s heritage em participar num workshop realizado no Mosteiro Tibães em Braga.

O workshop foi organizado pela historiadoras Dulce Freire e Anabela Ramos.

Fonte: [INIAV](#)

## CoLAB ForestWISE: Mais de cinco anos de inovação nos domínios da Floresta e do Fogo, Voz do Campo



No âmbito da iniciativa Tools4AgriEnergy, o INESC TEC, em conjunto com o INIAV - Instituto Nacional de Investigação Agrária e Veterinária, vai dinamizar cinco módulos de formação online, cada um com cerca de 1 hora de duração.

Fonte: [INIAV](#), [Vida Rural](#)

## 02. Eventos Científicos INIAV

### Palestra "Effects of microplastics on soil quality and health"

Data: 01/10/2024

Local: Auditorium: ITQB NOVA, Oeiras

Comissão organizadora: Adélia Varela, Ana Cristina Ramos, Filipe Pedra, Joana Antunes, M. Lurdes Inácio, Pablo Pereira, Paula Fareleira, Pedro Oliveira, Margarida Oliveira, Corina Carranca



### Workshop do Projeto CASEUS

Data: 04/10/2024

Local: Escola Superior Agrária de Beja

Participação do investigador do INIAV, Nuno Alvarenga na mesa redonda.



PRR REPÚBLICA PORTUGUESA Financiado pela União Europeia

Projeto PRR-C05-I03-I-000249 CASEUS - Combined use of renewable energy sources to improve energy efficiency in cheeseSE industry

**Workshop**  
**INOVAÇÃO TECNOLÓGICA NA PRODUÇÃO DE QUEIJOS TRADICIONAIS**

**4 DE OUTUBRO / 14H30**  
Audifórum Fernando Covas Lima / Escola Superior Agrária de Beja

**PROGRAMA**

- Sessão de boas-vindas (Maria João Carvalho-IP Beja e José Guilherme-APS)
- Apresentação do projeto CASEUS (João Isaac de Sa)
- Desenvolvimento do programa de cálculo para simulação energética de queijarias sustentáveis (Tiago Teixeira - ISEL)
- Avaliação de emissões de carbono e energia numa câmara de cura experimental (João Santos-IP Beja)
- Aplicação de mecânica dos fluidos computacional em queijarias (João Garcia- ISEL)

Coffee break

-Mesa redonda (Nuno Alvarenga-INIAV, João Santiago-ID Santiago, Luis Pinto de Andrade-IP Castelo Branco, Santiago Ruiz-Moyano-UEX, José Guilherme-APS, Tiago Teixeira-Hiperfiro)

-Visita ao protótipo de queijaria com utilização de energias renováveis

Organização: Associação de Produtores de Queijo Serpa  
Apoio: Instituto Politécnico de Beja

### Projeto "Caracterização e Melhoramento de Fruteiras Tradicionais" FRUIT MED. - PDR 2020-784-42678

Data: 11/10/2024

Local: Centro de Experimentação Agrária de Tavira – CEAT

O evento conta com a participação de Fernanda Simões e Rui Maia de Sousa (INIAV)



### **PROJETO "CARACTERIZAÇÃO E MELHORAMENTO DE FRUTEIRAS TRADICIONAIS" - FRUIT MED.**

PDR 2020-784-42678

- Síntese do trabalho desenvolvido e principais conclusões -

11 de outubro de 2024

09h30min

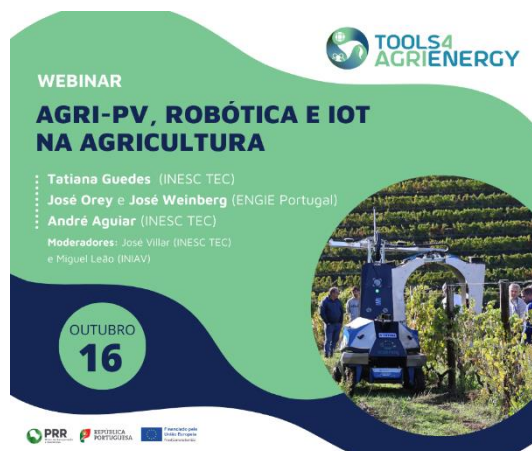
Centro de Experimentação  
Agrária de Tavira - CEAT

## [WEBINARS a caminho | Transição Energética Sustentável na Agricultura \(16.10.2024\)](#)

Data: 16/10/2024

Local: ONLINE

Evento organizado pelo INESC TEC, em conjunto com o INIAV



## [Webinar “Variedades de Oliveira Portuguesas”](#)

Data: 16/10/2024

Local: ONLINE

Participação do investigador do INIAV, António Manuel Cordeiro.



## [16.ª Reunião Anual PortFIR - 17 e 18 outubro 2024](#)

Data: 17 e 18/10/2024

Local: Auditório do INSA, Lisboa & ZOOM + YouTube

Participação do INIAV, na mesa redonda com o tema "Como produzir conhecimento sobre sustentabilidade e regeneração de forma colaborativa?"





[Palestra "Utilização de farinha desengordurada e de óleo de BSF \(Black Soldier Fly – Hermetia Illucens\) na dieta de leitões na fase de recria"](#)

Data: 18/10/2024

Local: Polo de Inovação da Fonte Boa

Organização INIAV

6<sup>as</sup> com Ciência - Polo de Inovação da Fonte Boa 



UTILIZAÇÃO DE FARINHA DESENGORDURADA E DE ÓLEO DE BSF (BLACK SOLDIER FLY - HERMETIA ILLUCENS) NA DIETA DE LEITÕES NA FASE DE RECRIA

18 outubro  
11.30h

MSc Mara Parreiras

INSCRIÇÕES:  
news.fonteboa@iniav.pt

[X Simpósio Nacional de Olivicultura](#)

Data: 23 a 25/10/2024

Local: Instituto Politécnico de Bragança (IPB)

Ana Cristina Ramos (INIAV) na Comissão Organizadora e António Cordeiro (INIAV) e Isabel Calha (INIAV) na Comissão Científica



[Conferência - Alterações Climáticas: que desafios se nos colocam nas próximas décadas?](#)

Data: 24/10/2024

Local: Sociedade de Geografia de Lisboa

Participação do Presidente do INIAV, Nuno Canada na Sessão de Abertura.



Centro Nacional de Competências para as Alterações Climáticas do Sector Agroflorestal

ALTERAÇÕES CLIMÁTICAS 24 OUT'24

Que desafios se nos colocam nas próximas décadas?

SOCIEDADE DE GEOGRAFIA DE LISBOA (Sala Portugal)

2020

## [The 5th International Electronic Conference on Foods - The Future of Technology, Sustainability, and Nutrition in the Food Domain](#)

Data: 28 a 30/10/2024

Local: ONLINE

Participation of Elsa M. Gonçalves (INIAV).



## [X CONGRESSO NACIONAL DE REGA E DRENAGEM](#)

Data: 13 a 15/11/2024

Local: Montebelo Mosteiro de Alcobaça  
Historic Hotel

Participação de Paulo Brito da Luz (INIAV) no Conselho Científico.  
Coorganização do INIAV.



## [Conferência - Alterações Climáticas: que desafios se nos colocam nas próximas décadas?](#)

Data: 14 e 15/11/2024

Local: Cantanhede

Comissão organizadora: Ana Cristina Ramos (INIAV) e Maria Lurdes Inácio (INIAV). Comissão científica: Jorge Cunha (INIAV), José Silvestre (INIAV), Jorge Sofia (INIAV)



**VITIVINO 2024**  
III Simpósio de Viticultura  
& V Colóquio Vitivinícola





## I Congresso InsectERA

Data: 23/10/2024

Local: Estoril

### I Congresso **InsectERA** **OS INSETOS COMO FERRAMENTA DE SUSTENTABILIDADE**

23 de outubro de 2024 | Estoril

[WWW.INSECTERA.PT/CONGRESSO2024](http://WWW.INSECTERA.PT/CONGRESSO2024)



## V CONGRESSO IBÉRICO DA DEHESA E DO MONTADO

Data: 29 e 30/10/2024

Local: Évora



## 11 th Internati onal Symposium on Recent Advances in Food Analysis

Data: 05 a 08/11/2024

Local: Praga - República Checa



## [XXIV ZOOTEC: Congresso Nacional de Zootecnia](#)

Data: 07 a 09/11/2024

Local: ESPAÇO AGROS - Póvoa de Varzim



## [IV Congresso Luso – Espanhol da Pecuária Extensiva – Caminhos para a Sustentabilidade e Renovação Geracional](#)

Data: 14 e 15/11/2024

Local: Ourique



## [Microbiologia 2024](#)

Data: 25 a 27/11/2024

Local: ONLINE









Fertirrigation in grafted Pinus pinea L. trees: denser crowns but no effect on cone production or masting cycles

Fonte: Forest Ecology and Management

Autor/Autores: Alexandra Cristina Correia (INIAV), Ana Farinha, João E.P. Silva, Alexandra Nunes, Nuno Conceição, Maria da Encarnação Marcelo (INIAV), Alexandre Sarmiento, Margarida Tomé, João Soares, Luis Fontes



Fertirrigation in grafted Pinus pinea L. trees: denser crowns but no effect on cone production or masting cycles

Alexandra Cristina Correia, Ana Farinha, João E.P. Silva, Alexandra Nunes, Nuno Conceição, Maria da Encarnação Marcelo, Alexandre Sarmiento, Margarida Tomé, João Soares, Luis Fontes

Abstract: Fertirrigation in grafted Pinus pinea L. trees resulted in denser crowns but no effect on cone production or masting cycles.



Genetic and Phenotypic Evaluation of European Maize Landraces as a Tool for Conservation and Valorization of Agrobiodiversity

Coautora: Ana Maria Barata (INIAV)

Abstract: Genetic and phenotypic evaluation of European maize landraces as a tool for conservation and valorization of agrobiodiversity.

Simple Summary: Maize is one of the major crops of the world for food, feed, and industrial uses. It originated in Central America and was first introduced into Europe at the end of the 15th century.

DOI: 10.3390/biology13101904

Genetic and Phenotypic Evaluation of European Maize Landraces as a Tool for Conservation and Valorization of Agrobiodiversity

Fonte: Biology

Coautora: Ana Maria Barata (INIAV)

Comparative Analysis of Maize Physico-Chemical Parameters and Mycotoxin Levels in Dual Environments

Fonte: Toxins

Autor/Autores: Bruna Carbas (INIAV), Sílvia Barros (INIAV), Andreia Freitas, Ana Sanches Silva (INIAV) and Carla Brites (INIAV)



Comparative Analysis of Maize Physico-Chemical Parameters and Mycotoxin Levels in Dual Environments

Bruna Carbas, Sílvia Barros, Andreia Freitas, Ana Sanches Silva and Carla Brites

Abstract: Maize (Zea mays L.) stands in a vital staple food globally, holding significant nutritional and economic value. However, its susceptibility to mycotoxin contamination under stressful environmental conditions poses a considerable concern.

Keywords: Zea mays L.; nutritional parameters; fumonisin; deoxynivalenol

DOI: 10.3390/toxins16100602

## Assessing the Impact of Brackish Water on Soil Salinization with Time-Lapse Inversion of Electromagnetic Induction Data

Fonte: Land

Autor/Autores: Lorenzo De Carlo (INIAV) and Mohammad Farzaman (INIAV)

**Assessing the Impact of Brackish Water on Soil Salinization with Time-Lapse Inversion of Electromagnetic Induction Data**  
Lorenzo De Carlo<sup>1,2</sup> and Mohammad Farzaman<sup>1,3</sup>

**Abstract:** Over the last decade, electromagnetic induction (EMI) measurements have been increasingly used for investigating soil salinization caused by the rise of brackish or saline water as an irrigation source. EMI measurements proved to be a good method for providing spatial information on the investigated soil because of the correlation between the output geophysical parameters (i.e., the electrical conductivity) and soil moisture and salinity. In addition, their non-invasive nature and their capability to collect a high amount of data over broad areas and at a relatively short time makes these measurement attractive for monitoring flow and transport dynamics, which are otherwise unfeasible with conventional measurements. In an experimental field, EMI measurements were validated using the ground masses of moisture and salinity with three different irrigation treatments. For each data set, several inversion runs were performed in order to illustrate changes in soil salinization associated with soil salinity. A ground truth map, composed of ground truth soil salinization and soil brackish water, was used for validating the soil salinization and soil brackish water. A clear soil response in terms of an increase in electrical conductivity (EC) in the upper soil layer confirmed the validity of the geophysical tool to predict soil salinization trends.

**Keywords:** soil salinization; apparent electrical conductivity; electromagnetic induction; geophysics; inversion

**1. Introduction**  
Soil salinization has become one of the major environmental and socioeconomic issues globally, and this is expected to be exacerbated further by projected climate change. Salinity is one of the major soil threats that reduce soil fertility and affect crop production because it can decrease plant growth and water quality, leading to lower crop yields and degraded water supplies [1–3]. Soil salinization increases when the over-exploitation of groundwater to sustain crops leads to pumping from brackish or saline aquifers, which can lead to saltwater intrusion. In addition, treated wastewater, increasingly used in water-scarce environments to make climate change, can have a significant salt concentration, depending on the treatment strategy. In such conditions, it is crucial to develop soil monitoring systems that are able to capture spatial and temporal dynamics with a high degree of accuracy.

Remote sensing is used for agricultural purposes and is divided into a few sparse points at an area that may be more precisely defined by the literature, it is essential to collect over a large number of soil samples and during the electrical conductivity of a saturated soil (EC<sub>s</sub>), which is the most useful and reliable measure of soil salinity. In the last decade, apparent electrical conductivity (EC<sub>a</sub>) has been increasingly used for investigating soil properties. EC<sub>a</sub> is a measure of the EC<sub>s</sub> derived from a variety of the soil and is influenced by various factors, such as soil porosity, the composition of

**Evaluation of Simultaneous Growth of Escherichia coli O157:H7, Salmonella spp., and Listeria monocytogenes in Ground Beef Samples in Different Growth Media**  
José Mário Sousa<sup>1,2</sup>, Ana Barbosa<sup>1,3</sup>, Daniela Araújo<sup>1,4,5</sup>, Joana Castro<sup>1,6</sup>, Nuno Filipe Azevedo<sup>1,7</sup>, Laura Cerqueira<sup>1,8</sup> and Carina Almeida<sup>1,9</sup>

**Abstract:** Current multiple approaches for the simultaneous detection of pathogens in food have been developed in recent years but the use of a single, common medium remains a problem. In this study, an enrichment broth (i.e., non-selective media, tryptic soy broth (TSB)) was used to detect E. coli O157:H7, Salmonella spp., and L. monocytogenes in ground beef (GB) samples. The simultaneous detection of all three pathogens in TSB was evaluated for the simultaneous detection of all three pathogens. Different ground beef (GB) samples were cultured in the simultaneous media to be used for the detection methods. Different ground beef (GB) samples were cultured in the simultaneous media to be used for the detection methods. Different ground beef (GB) samples were cultured in the simultaneous media to be used for the detection methods.

**Keywords:** Escherichia coli; Salmonella; Listeria monocytogenes; ground beef; simultaneous media; enrichment broth

**1. Introduction**  
Foodborne diseases represent an important cause of morbidity and mortality that have a negative impact on public health, the economy, and society worldwide [1]. Food-borne pathogens are responsible for the 1% of nearly 40 million cases of foodborne illness each year, which result in 128,000 hospitalizations and 3000 deaths [2]. Pathogenic microorganisms such as *Escherichia coli*, *Salmonella* spp., *Listeria monocytogenes*, *Shiga toxin-producing Escherichia coli* (STEC) O157:H7, *Campylobacter* spp., *Yersinia* spp., and *Shigella* spp. are considered to be the major bacterial foodborne pathogens [3]. From these, *E. coli* O157:H7, *Salmonella* spp., and

## Evaluation of Simultaneous Growth of Escherichia coli O157:H7, Salmonella spp., and Listeria monocytogenes in Ground Beef Samples in Different Growth Media

Fonte: Foods

Autor/Autores: José Mário Sousa, Ana Barbosa, Daniela Araújo (INIAV), Joana Castro (INIAV), Nuno Filipe Azevedo, Laura Cerqueira and Carina Almeida (INIAV)

## Revising the role of belowground fungi in pentachlorophenol pollution management: insights from Tunisian cork oak forests

Fonte: Silva Lusitana

Autor/Autores: Adélia Varela (INIAV) and Cristina Silva Pereira (ITQB)

**Revising the role of belowground fungi in pentachlorophenol pollution management: insights from Tunisian cork oak forests**  
Adélia Varela<sup>1</sup>, Cristina Silva Pereira<sup>2</sup>

**Abstract:** This summarizes the doctoral thesis "Belowground fungi as key microorganisms in forest soils vulnerable to pentachlorophenol pollution: a microbiological characterization of forest soils". The PhD thesis was awarded by ITQB INIAVA in March 2024. It comprises a revision of the major issues, objectives, methodology and results, as well as a few possible recommendations for future work on bioremediation of halogenated aromatic pollutants. The working hypothesis of the thesis proposed that under Tunisian cork oak forests, soil is naturally contaminated with pentachlorophenol (PCP), a persistent organic pollutant (POP). This hypothesis is based on frequent reports of soil contamination with pentachlorophenol (PCP), which is likely formed through microbial conversion of PCP. Furthermore, PCP was considered a suitable model for investigating the role of soil mycorrhizae in pollution management due to its ability to travel long distances in the atmosphere, partition (readily) into the soil layer, and moderate abiotic reactivity. Besides its bio-remediation capacity, fungi, fungi play a key role in colonizing soil in cork oak forests. These concepts have been



## Sap Flow Analyzer: A tool to standardize sap flow estimation and scaling to whole-tree water use using the HFD method

Fonte: Methods Ecol. Evol.

Autor/Autores: Marie-Christin Wimmer<sup>1</sup>, Nadezhda Nadezhkina<sup>2</sup>, Hannah Bowen<sup>3</sup>, Susana Alvarado-Barrientos<sup>4</sup>, Teresa David<sup>5</sup>, Gabriela Fontenla-Razzetto<sup>6</sup>, Britt Kniesel<sup>6</sup>, Holger Lange<sup>6</sup>, Roman Mathias Link<sup>6</sup>, Yang Liu<sup>7</sup>, Jorge López-Portillo<sup>8</sup>, Clara Pinto<sup>9,10</sup>, Junbin Zhao<sup>11</sup>, Alejandra G. Vovides<sup>12</sup>

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**APPLICATION**

**Sap Flow Analyzer: A tool to standardize sap flow estimation and scaling to whole-tree water use using the HFD method**

Marie-Christin Wimmer<sup>1</sup> | Nadezhda Nadezhkina<sup>2</sup> | Hannah Bowen<sup>3</sup> | Susana Alvarado-Barrientos<sup>4</sup> | Teresa David<sup>5</sup> | Gabriela Fontenla-Razzetto<sup>6</sup> | Britt Kniesel<sup>6</sup> | Holger Lange<sup>6</sup> | Roman Mathias Link<sup>6</sup> | Yang Liu<sup>7</sup> | Jorge López-Portillo<sup>8</sup> | Clara Pinto<sup>9,10</sup> | Junbin Zhao<sup>11</sup> | Alejandra G. Vovides<sup>12</sup>

**Abstract**  
1. Sap flow measurements are fundamental to understanding water use in trees and crucial for predicting climate change effects on forest function. Gaining knowledge from such measurements requires empirical calibration and scaling methods to translate measurements recorded by the user into tree water use. Here, we developed a user-friendly open-source application, the Sap Flow Analyzer (SFA), which estimates sap flow rates and tree water use from the heat field deformation (HFD) measurements.  
2. The SFA incorporates four key features to ensure maximum accuracy and reproducibility of sap flow estimates: diagrams to assess data patterns visually, regression models implemented to increase accuracy when estimating HFD from HFD parameters, three approaches to upscale sap flow rates to whole-tree water use and visualization of the heat parameters' uncertainty. Testers participating were given three use-cases and assigned data processing tasks using the SFA User guide, from estimating sapwood depth to scaling up sap flow rates to whole-tree water use to assess the reproducibility and applicability of the SFA.  
3. Participant results were remarkably consistent and independent of local background in using the SFA, R, or H-D method. The results showed lower variability for high flow HFD, mean 10% vs. 30%. It indicates the approach worked better on data where the primary source of variability, which in turn was highly caused by the user's chosen scaling method.

**Keywords:** climate change, forest function, sap flow, water use

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Methods Ecol. Evol. 2024, 15, e16111

**plants** | **MDPI**

**Soil and Foliar Zinc Biofortification of Triticale (*x Triticosecale*) under Mediterranean Conditions: Effects on Forage Yield and Quality**

Carlos García-Latorre<sup>1,2</sup>, María Dolores Reynolds-Marzal<sup>1</sup>, Saúl De La Peña-Lastra<sup>1,3</sup>, Nuno Pinheiro<sup>4</sup> and María José Poblaciones<sup>1,4\*</sup>

**Abstract:** Zinc (Zn) deficiency represents a significant global concern, affecting both plant and human health, particularly in regions with Zn-deficient soils. Agronomic biofortification strategies, such as the application of Zn fertilizers, offer a cost-effective approach to increase Zn levels in crops. This study aimed to assess the efficacy of soil and foliar Zn biofortification, applied as an organic solution of Zn, on forage yield (ZnF), Zn concentration in forage (ZnFC), gross organic matter (GOM) content, organic matter digestibility, and relative forage value and nutrient accumulation. Soil treatments consisted in the application of 0, 10, 20, 40, 80, 160, or 320 kg Zn/ha at the beginning of the forage campaign to assess the residual effect on the second year. In contrast, the foliar treatment consisted of two applications of 0.5 kg Zn/ha (0.25% Zn) per campaign, one at the beginning of harvesting and the other at the appearance of the first node. The foliar application increased the Zn content of the forage by 40–60% levels, while the soil application resulted in a 30% increase in forage yield and the other at the appearance of the first node. The foliar application increased the Zn content of the forage by 40–60% levels, while the soil application resulted in a 30% increase in forage yield and the other at the appearance of the first node. The foliar application increased the Zn content of the forage by 40–60% levels, while the soil application resulted in a 30% increase in forage yield and the other at the appearance of the first node. The foliar application increased the Zn content of the forage by 40–60% levels, while the soil application resulted in a 30% increase in forage yield and the other at the appearance of the first node.

**Keywords:** agronomic biofortification; zinc; organic; residual; variability; forage production; biofortification

**1. Introduction**  
In recent decades, agriculture has primarily focused on increasing food production to meet the demands of a growing population. This focus has led to the intensive use of high-yielding crop varieties, intensive cultivation methods, and the application of macro-nutrients. In addition, which contributes to the depletion of essential micro-nutrients, such as zinc (Zn), copper (Cu), and iron (Fe), in agricultural soils [1]. Moreover, the depletion of micro-nutrients in soil can lead to nutrient deficiencies in crops, reducing their quality and potentially affecting human health [2]. Studies have shown a strong negative correlation between Zn deficiency in soil and Zn deficiency in crops, and a positive correlation between Zn deficiency in soil and Zn deficiency in crops [3]. Zn plays a critical role as a micronutrient in plant growth and development, especially in the development of various metabolic processes, including carbohydrate and protein metabolism [4]. Zn deficiency in plants can lead to stunted growth, chlorosis, spikier

## Soil and Foliar Zinc Biofortification of Triticale (*x Triticosecale*) under Mediterranean Conditions: Effects on Forage Yield and Quality

Fonte: Plants

Autor/Autores: Carlos García-Latorre, María Dolores Reynolds-Marzal, Saúl De La Peña-Lastra, Nuno Pinheiro (INIAV) and María José Poblaciones

## Dual transcriptomic analysis reveals early induced Castanea defense-related genes and Phytophthora cinnamomi effectors

Fonte: Frontiers in Plant Science

Autor/Autores: Patrícia Fernandes, Diana Pimentel, Ricardo S. Ramiro, Maria do Céu Silva, Pedro Fevereiro, Rita Lourenço Costa (INIAV)

**Frontiers** | Frontiers in Plant Science

**Dual transcriptomic analysis reveals early induced Castanea defense-related genes and Phytophthora cinnamomi effectors**

Patrícia Fernandes<sup>1</sup>, Diana Pimentel<sup>2</sup>, Ricardo S. Ramiro<sup>3</sup>, Maria do Céu Silva<sup>4</sup>, Pedro Fevereiro<sup>5</sup> and Rita Lourenço Costa<sup>1\*</sup>

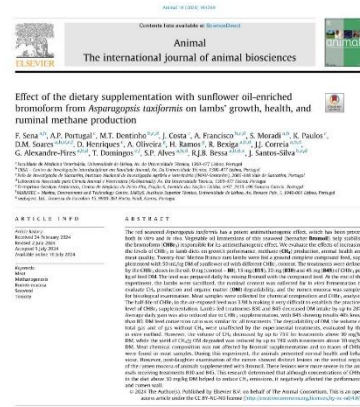
**Abstract**  
Phytophthora cinnamomi (Pc) devastates forest species worldwide, causing significant ecological and economic impacts. The fungus causes a latent infection in susceptible to the nonperennial crop species, where the latent infection (Castanea cryptica and Castanea vesicaria) can remain for years before becoming active in response to environmental changes, such as drought, frost, or other stressors. The molecular mechanisms underlying the defense response to Pc infection are still unclear. In this study, we performed a dual transcriptomic analysis of Pc infection in C. sativa and C. vesicaria to identify early induced defense-related genes and Pc effectors. The results show that Pc infection induces a rapid and strong defense response in both species, with early induced genes related to the salicylic acid (SA) pathway and jasmonic acid (JA) pathway. The results also show that Pc infection induces a rapid and strong defense response in both species, with early induced genes related to the SA pathway and JA pathway. The results also show that Pc infection induces a rapid and strong defense response in both species, with early induced genes related to the SA pathway and JA pathway.

**Keywords:** Castanea, Phytophthora cinnamomi, defense, transcriptomics, effectors

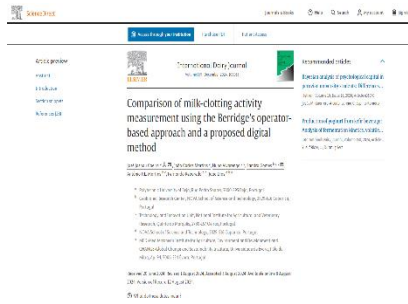
## Effect of the dietary supplementation with sunflower oil-enriched bromoform from *Asparagopsis taxiformis* on lambs' growth, health, and ruminal methane production

Fonte: Animal

Autor/Autores: F Sena, A P Portugal (INIAV), M T Dentinho (INIAV), J Costa (INIAV), A Francisco (INIAV), S Moradi, K Paulos (INIAV), D M Soares, D Henriques (INIAV), A Oliveira, H Ramos, R Bexiga, J J Correia, G Alexandre-Pires, T Domingos, S P Alves, R J B Bessa, J Santos-Silva (INIAV)



**Implications**  
The microalgae *Asparagopsis taxiformis* is a promising nutritional supplement to reduce methane emissions by ruminants. Supple-



## Comparison of milk-clotting activity measurement using the Berridge's operator-based approach and a proposed digital method (acesso restrito)

Fonte: International Dairy Journal

Autor/Autores: José Jasnau Caeiro, João Carlos Martins, Nuno Alvarenga (INIAV), Sandra Gomes (INIAV), António P.L. Martins (INIAV), Fernando Reboredo, João Dias

## Foliar Spraying with ZnSO4 or ZnO of *Vitis vinifera* cv. Syrah Increases the Synthesis of Photoassimilates and Favors Winemaking

Fonte: Plants

Coautores (INIAV): Paula Scotti-Campos, Isabel P. Pais, José N. Semedo



Plant 2024, 13, 1822. <https://doi.org/10.3390/pl13101822> <https://www.mdpi.com/journal/plants>

## Spectral data augmentation for leaf nutrient uptake quantification

Fonte: Biosystems Engineering

Autor/Autores: R.C. Martins, C. Queirós, F.M. Silva, F. Santos, T.G. Barroso, R. Tosin, M. Cunha, M. Leão (INIAV), M. Damásio (INIAV), P. Martins (INIAV), J. Silvestre (INIAV)



## Nematicidal Activity of Volatiles against the Rice Root-Knot Nematode and Environmental Safety in Comparison to Traditional Nematicides

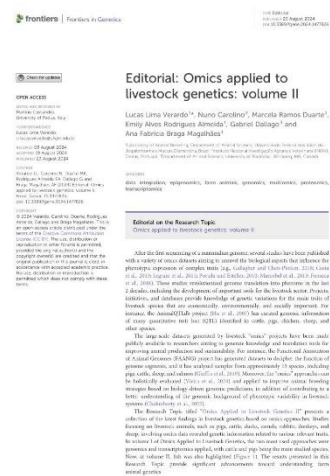
Fonte: Plants

Autor/Autores: Jorge M. S. Faria (INIAV), Leidy Rusinque (INIAV) and Maria L. Inácio (INIAV)

## Editorial: Omics applied to livestock genetics: volume II

Fonte: Front. Genet.

Autor/Autores: Lucas Lima Verardo, Nuno Carolino (INIAV), Marcela Ramos Duarte, Emily Alves Rodrigues Almeida, Gabriel Dallago and Ana Fabrícia Braga Magalhães



## Exploring the Potential of Anthocyanin-Based Edible Coatings in Confectionery—Temperature Stability, pH, and Biocapacity

Fonte: Foods

Autor/Autores: Carmo Serrano (INIAV), Beatriz Lamas, M. Conceição Oliveira and Maria Paula Duarte



### Exploring the Potential of Anthocyanin-Based Edible Coatings in Confectionery—Temperature Stability, pH, and Biocapacity

Carmo Serrano<sup>1,2,3,4,5,6,7</sup>, Beatriz Lamas<sup>3,4</sup>, M. Conceição Oliveira<sup>3,4</sup> and Maria Paula Duarte<sup>1</sup>

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**Abstract:** This study aims to develop purple-colored polymeric coatings using natural anthocyanins and dextrose/xylooligosaccharide (DX) as carriers for application to chocolate almonds. The objective is to enhance stability and sensory characteristics through preserving and extending shelf-life, reducing the appearance and durability of the almonds to avoid health-concerning consumers and eggs with similar diameter. First, materials like natural polyols (sorbitol, polyols, black currant, and sorbitol) were employed to obtain the desired purple hue. Anthocyanins and DX were extracted from the mixture using water extraction and ethanol-aided extraction of different pH values. High performance liquid chromatography (HPLC) was used to identify the compounds in the extracts. The highest antioxidant capacities, as measured by the DPPH and FRAP methods, were observed for higher sorbitol polyols. Second, the coatings were prepared by immersion, using either individual or both components and a plasticizer. The degradation kinetics of the coatings were studied by incubating almonds with anthocyanins and DX in a solution. The results showed that the coatings were stable for 120 days, with significant stability during the high and low pH conditions. The lowest color variation was observed with sorbitol. Sweet potato polyols exhibited low color variations in storage periods, with color and texture that were the most acceptable. Finally, highlighting that potential as a more stable and suitable alternative for chocolate purple almonds, particularly those of the traditional storage period. The study represents meaningful progress in the confectionery industry while aligning with consumer preferences for healthier and environmentally friendly products.

**Keywords:** anthocyanins; edible coatings; antioxidants; temperature stability; biocapacity

**1. Introduction**  
The confectionery industry continually seeks innovative approaches to find exciting new products that can compete with sweet, indulgent, indulging products and expand their marketing consumer demands for healthier options [1]. Another strategy to the food industry is to replace food additives by natural colors from plants and using natural food ingredients with coloring properties. These strategies allow the processed vegetable products to achieve clean label solutions, maintaining food color, quality, and safety. Due to these changes, the food industry continues to explore synthetic dyes such as Brilliant

Foods 2024, 11, 2048. <https://doi.org/10.3390/foods11102048> <https://www.mdpi.com/journal/foods>

Phytoparasitica 2024, 52(4), 23-36  
<https://doi.org/10.1007/s12603-024-04117-0>

### RESEARCH

## Empoasca fabalis DeLong (Hemiptera: Cicadellidae) in European sweet potatoes: records, leaf damage, and Auchenorrhyncha insights

Dora Aguiar-Pombo<sup>1</sup>, Conceição Boavida<sup>1</sup>, Teresa Valdiviesso<sup>1</sup>, Cândida S. Trindade<sup>1</sup>, Elaine Backus<sup>2</sup> and Célia Mateus<sup>1</sup>

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**Abstract:** The recent surge in sweet potato (*Solanum tuberosum*) cultivation in Europe prompted an investigation into associated entomofauna, within Portugal's southwestern region, known for its long-standing sweet potato production. This study aimed to assess entomofauna associated with this culture. Insect sampling was conducted by leaf and sweep net across three regional sites during 2018 and 2019 revealing the presence of *Empoasca fabalis*. Morphological examination of sweet potato leaves affected by *E. fabalis* feeding revealed significant damage, including

the emergence of whitish spots (termed "stipples") and subsequent necrotic spots. Cooperative analysis between infested and uninfested control leaves revealed significant damage, involving mealybugs cell content degradation and cellular disruption. This study primarily acts as a trigger on sweet potatoes, mainly targeting insecticide trials with limited consumption of sweetener tissue. The transient behaviour and wide host range of *E. fabalis* pose a threat to sweet potato cultivation. These findings emphasize the need for monitoring to address the potential impact of *E. fabalis* on Europe's agricultural ecosystem and native vegetation. In addition, six other Auchenorrhyncha species were identified during this study, including four species of plant diseases: *Empoasca fabalis*, *Pantoclis alvina*, *Acanthosoma glabre*, *Leptocorixa concolor*, together with *Empoasca fabalis* and *E. fabalis*. These results emphasize the importance of monitoring these insects in sweet potato cultivation.

**Supplementary Information:** The online version contains supplementary material available at <https://doi.org/10.1007/s12603-024-04117-0>.

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Published online: 21 July 2024

**Keywords:** Leafhopper; Cicadellomorpha; (Homoptera); Empoasca fabalis; Mealybug; Solanum tuberosum; Feeding behaviour

**Introduction**  
Sweet potato, (*Solanum tuberosum* L.) Lam., belongs to the Convolvaceae family which comprises

## Empoasca fabalis DeLong (Hemiptera: Cicadellidae) in European sweet potatoes: records, leaf damage, and Auchenorrhyncha insights

Fonte: Phytoparasitica

Autor/Autores: Dora Aguiar-Pombo, Conceição Boavida (INIAV), Teresa Valdiviesso (INIAV), Cândida S. Trindade (INIAV), Elaine Backus & Célia Mateus (INIAV)

## Mycotoxins in Portuguese Agricultural Maize Fields and Dairy Farms

Fonte: Toxins

Autor/Autores: Marta Leite (INIAV), Andreia Freitas (INIAV), Jorge Barbosa and Fernando Ramos



### Mycotoxins in Portuguese Agricultural Maize Fields and Dairy Farms

Marta Leite<sup>1,2,3,4,5</sup>, Andreia Freitas<sup>1,2,3,4</sup>, Jorge Barbosa<sup>2,3,4</sup> and Fernando Ramos<sup>1,2,3,4,5</sup>

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**Abstract:** Fungal and mycotoxin control is a primary step in the food chain to ensure maintaining the maximum quality of animal feed. The control of fungal and mycotoxin levels of the essential products in a good farm is a primary step in the food chain to ensure maintaining the maximum quality of animal feed. The control of fungal and mycotoxin levels of the essential products in a good farm is a primary step in the food chain to ensure maintaining the maximum quality of animal feed. The control of fungal and mycotoxin levels of the essential products in a good farm is a primary step in the food chain to ensure maintaining the maximum quality of animal feed.

**Key Contribution:** This work offers an initial insight into a multidisciplinary approach that considers both pre- and post-harvest contamination systems in the maize value chain, in response to the increasing frequency of mycotoxins and emerging mycotoxins.

**1. Introduction**  
Maize (*Zea mays* L.) is a highly valuable agricultural and industrial product in worldwide food supplies. It is prone to being colonized by mycotoxigenic fungi, causing economic contamination by mycotoxins. This has severe negative impacts for farmers and livestock, workers due to direct human exposure, production profitability, animal health, and product safety [1]. Mycotoxins are toxic secondary metabolites that cause major damage to human health and food safety [2]. Fungal contamination of maize is a major concern in the production cycle and storage [3]. Fungal contamination of maize is a major concern in the production cycle and storage [3]. Fungal contamination of maize is a major concern in the production cycle and storage [3].

**Actual data** are often a combination of several food raw materials, mainly composed of maize stover and composite flour. Other ingredients, such as animal by-products, are also

Toxins 2024, 16, 1048. <https://doi.org/10.3390/toxins16101048> <https://www.mdpi.com/journal/toxins>

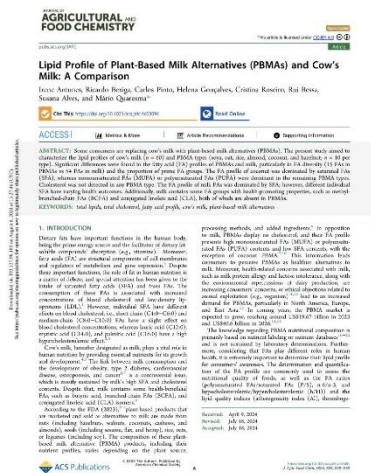




## Fire4CAST – a new integrative epidemiological forecasting model for the accurate prediction of infection risk and effective control of fire blight in Pyrus orchards

Fonte: Journal of Plant Pathology

Autor/Autores: Daniel McGuire (INIAV), Francisco Pinto, Telma Costa, Joana Cruz (INIAV), Rui Sousa (INIAV), Miguel Leão de Sousa (INIAV), Carmo Martins, Margarida Gama-Carvalho, Ana Tenreiro, Rogério Tenreiro & Leonor Cruz (INIAV)



## Lipid Profile of Plant-Based Milk Alternatives (PBMA) and Cow's Milk: A Comparison

Fonte: Journal of Agricultural and Food Chemistry

Autor/Autores: Irene Antunes, Ricardo Bexiga, Carlos Pinto, Helena Gonçalves (INIAV), Cristina Roseiro (INIAV), Rui Bessa, Susana Alves, Mário Quaresma