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European Chestnut Network

by A.R.E.F.L.H

THE EUROPEAN CHESTNUT SECTOR: AN ECONOMIC, SOCIAL AND ENVIRONMENTAL ASSET FOR EUROPE

4th December 2019

European Parliament

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The programme

19.00 - 19.10	Opening words by MEP **Pina Picierno**, Committee of Agriculture and Rural Development, European Parliament
19.10 - 19.15	Few words by **Jean-Louis Moulon**, AREFLH Vice-President
19.15 - 19.20	Introduction by **José Laranjo**, EuroCastanea Coordinator
19.20 - 19.30	"Approaches and analyses of the chestnut production and market in Europe and worldwide" by **Jacques Dasque**, EuroCastanea
19.30 - 19.45	"Economic opportunities of the chestnut sector under the fruit and vegetable CMO" by **Luc Berlottier**, DG AGRI, European Commission
19.45 - 19.55	"The agro-industry and its needs for more chestnut surfaces in Europe" by **Bertrand Guérin**, EuroCastanea
19.55 - 20.10	"The limitations and expectations of research and innovation in the European chestnut sector" by **Santiago Pereira**, Univ. Of Santiago Compostela and **Fiorella Villani**, Italy's National Research Council
20.10 - 20.25	Debate
20.25 - 20.30	Closing words by MEP **Isabel Carvalhais** and **Álvaro Amaro**, Committee Agriculture and Rural Development, European Parliament
20.30	Chestnut tasting

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Jacques Dasque - EuroCastanea

LE LIVRE BLANC DE LA CHÂTAIGNE EUROPÉENNE

The European Chestnut White Paper is available online

Le livre blanc est disponible en ligne

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Les chiffres clés de la châtaigne en Europe :

- 212.000 tonnes dont 150.000 tonnes pour l'UE
- 180.000 hectares dont 110.000 ha pour l' UE
- 90.000 producteurs dont 65.000 pour l' UE
- Une production mondiale estimée à 2.250.000 tonnes

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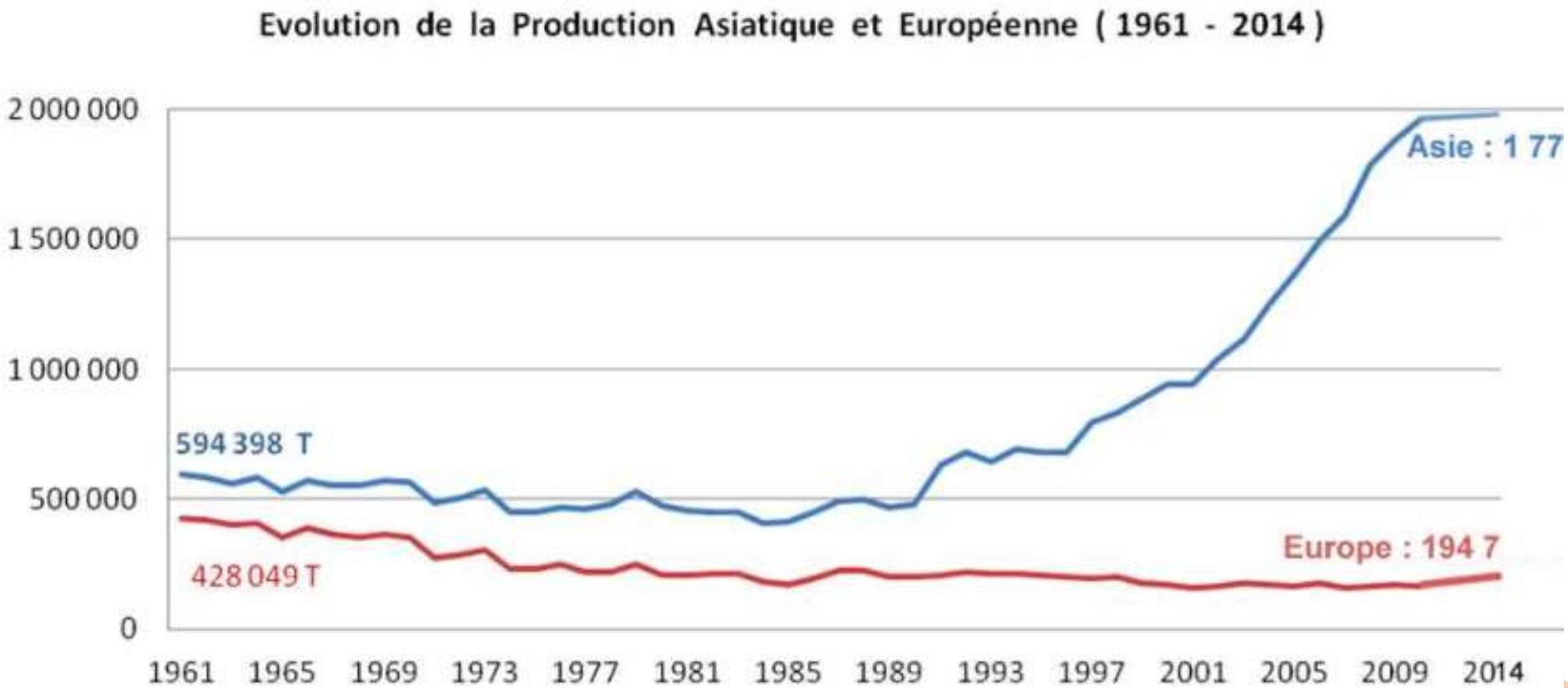
Source : FAO



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Les pays producteurs

Productions dans les différents pays du monde 2011-17 (tonnes)							
Source FAO							
Pays	2011	2012	2013	2014	2015	2016	2017
Asie	1 788 188	1 804 894	1 816 594	1 773 923	1 752 888	1 986 402	2 023 723
Chine	1 693 502	1 709 649	1 719 410	1 683 815	1 668 895	1 903 939	1 939 719
Corée du Nord	11 000	12 000	12 000	12 156	12 100	12 363	12 540
Japon	19 100	20 900	21 000	21 400	16 300	16 500	18 700
Corée du Sud	64 586	62 345	64 184	56 552	55 593	53 600	52 764
Amérique du Sud							
Chili	500	920	1 100	1 100	1 066	3 040	2 583
Europe	186 659	196 041	200 159	194 720	204 642	203 562	212 301
Turquie	60 270	57 881	60 019	63 762	63 750	64 750	62 904
Italie	56 853	59 764	55 086	51 959	51 601	52 240	52 356
Portugal	18 271	19 130	24 739	18 465	27 618	26 780	29 875
Espagne	16 900	15 300	17 200	16 136	16 413	16 178	15 623
Grèce	21 500	28 700	27 800	28 440	30 049	28 280	36 000
France	7 036	8 676	9 200	8 668	7 943	8 642	8 406
Albanie	5 200	5 800	5 451	6 590	6 600	6 040	6 226
Hongrie	256	330	270	300	265	239	511
Pologne	373	460	394	400	403	413	400

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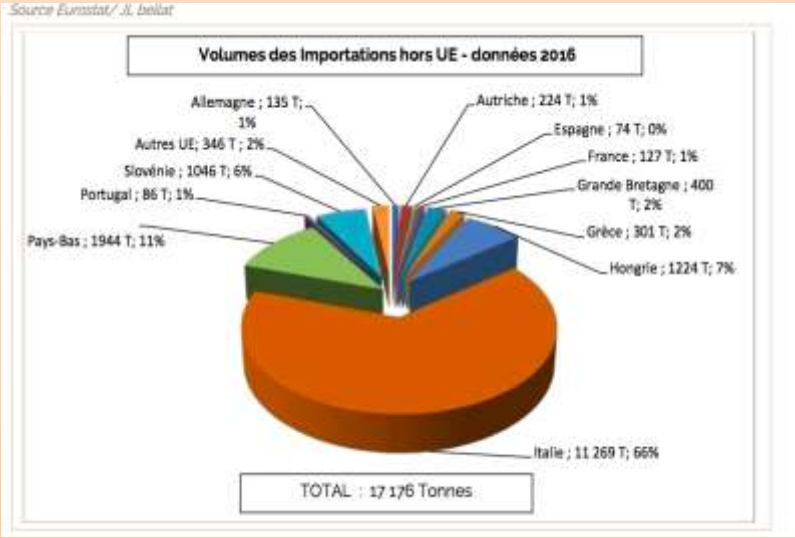
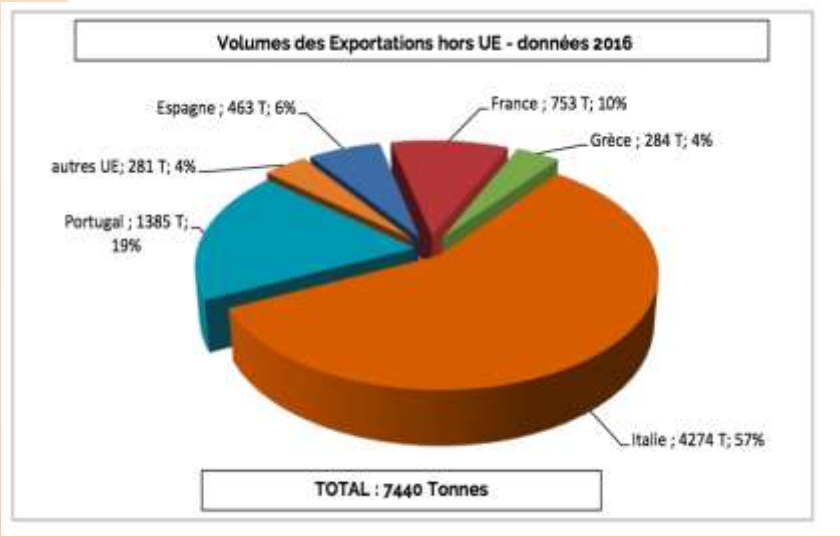
• Le Commerce extérieur: les importations augmentent

.

- **En 2016 Les pays européens importent 17.176 tonnes** de châtaignes en provenance de pays extracommunautaires pour 33,81 millions d'euros (7300 tonnes importées en 2001/ 10,05 millions d'euros.





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- Un Commerce intracommunautaire intense

Au sein de l'UE, **les pays européens échangent entre eux des volumes de l'ordre de 70 000 T** pour 190 millions d'euros. **Les importations italiennes** sont les plus importantes et se font surtout avec l'Espagne (12 662 T), le Portugal (9 275 T) et la Grèce (3118 T).

Au 2ème rang , **la France** importe 13 500 T en provenance de l'Espagne (4790 T), du Portugal (3 800 T) et de l'Italie (2 900 T) mais aussi hors UE (312 T

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Une consommation en frais qui baisse en même temps que la production

- Les raisons :
- **Fruit traditionnel** qui servait d'aliment de base des populations rurales
- **Ponctuelle à l'automne en fruit frais** et en fruit transformé, marrons glacés, marrons en conserve (dinde aux marrons) pour les fêtes de Noël.
- **Dualité du produit** : aliment simple et produit festif de luxe.
- **Produit difficile à préparer, à l'état frais,** par le consommateur. Il faut enlever les 2 peaux pour pouvoir le cuisiner.

Une transformation à fort potentiel

- **Plus de la moitié de la production européenne de châtaignes cultivée et récoltée est actuellement destinée à la transformation industrielle et artisanale avec une production d'environ 68 500 tonnes de châtaignes élaborées**.
  La production industrielle a pris, depuis ces dernières années, beaucoup plus d'importance car elle apporte de **nouvelles possibilités de consommation** pour la châtaigne, dans un monde de consommation urbaine à la recherche de produits naturels et sains, mais aussi faciles à consommer.
- **La France et l'Italie sont les leaders** de cette transformation de confisage.

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Les atouts

- **Un marché non satisfait en volume,** qui doit faire appel à des fruits d'importation hors UE pour être approvisionné (Turquie, Chine, Corée)
- **Des prix consommateurs qui peuvent permettre de rémunérer les différents acteurs** de la filière (producteurs, metteurs en marché, transformateurs).
- Une augmentation régulière des ventes de produits transformés.
- **Une industrie de la transformation dynamique** (première transformation et produits frais) : Italie, France, Espagne, Portugal

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Une gamme très variée de produits à base de châtaignes pour des recettes salées ou sucrées :

- **la châtaigne fraîche** : un plaisir d'automne et d'hiver, à manger grillée ou cuite à l'eau (purée,
- **La châtaigne entière** en accompagnement de plats, etc.).
  les produits secs : farine, châtaigne entière sèche, brisures (à utiliser comme le riz), pâtes, etc.
- l**es boissons** : sirops, liqueurs, bières, etc.
  les soupes, terrines et autres charcuteries à la châtaigne, etc.
- **Des conditionnements variés** : fraîche, en conserve, surgelée, sous vide, etc.

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- **Un réel atout santé** : un aliment sans gluten.
- **Des caractéristiques diététiques favorables** :
  Haute valeur énergétique (180 Kcal pour 100g). Par ailleurs ses sucres présentent l'intérêt de libérer progressivement leur énergie (idéale pour les sportifs et la résistance à l'effort).
- **Equilibré** : Ses protéines accompagnées d'un laitage, donnent un équilibre alimentaire parfait.
- **Des minéraux** : généreux en potassium et magnésium qui aident à lutter contre le stress et la fatigue , bien pourvue en calcium, fer et oligo-éléments.
- **Des vitamines** : L'apport en vitamines C de 100 g de châtaignes est équivalent à 100 g de citron. Des acides gras insaturés favorables à la prévention des maladies cardio-vasculaires.

1- EUROCASTANEA : UNE STRATEGIE POUR LA RELANCE EUROPEENNE EN ACTION

Axe 1 : Enrayer le déclin de la châtaigneraie européenne

La priorité: se donner les moyens d'inverser rapidement la tendance au déclin de la production européenne , et de retrouver la production des années 2000, soit **160.000 tonnes**, par des programmes de plantations et rénovation forts, volontaristes et coordonnés entre les pays d'EUROCASTANEA

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Axe 2 : améliorer l’état sanitaire des vergers

- **Pour assurer une production de fruits de qualité**
- **La production européenne est fortement handicapée par la persistance de maladies cryptogamiques, bactériennes et par des parasites pour lesquels aucune méthode de lutte efficace existe à ce jour.**
  Défi majeur pour l’ensemble de la châtaigneraie fruitière européenne :
- **Lutter contre les maladies** et **parasites et en particulier :**
- **Le cynips du châtaignier:** lutte biologique avec introduction de Torymus sinensis,

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Axe 2 : améliorer l’état sanitaire des vergers

Lutter contre les pourritures et les vers des fruits

- Objectif : limiter les pertes liées aux fruits véreux (carpocapse, balanin) ou touchés par la pourriture, (en particulier le Gnomoniopsis Castanea) qui peuvent représenter 30 à 40 % de la production certaines années
- **La maladie de l’encre** (Phytophthora) qui est à l’origine de nombreuses mortalités d’arbres et est en recrudescence

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Axe 3 : créer de la valeur ajoutée

- **Objectif : Innover, rechercher de nouveaux produits, de nouveaux packaging éco-compatibles**
- Développer la gamme des produits de transformation fermière et industrielle
- L'observation des marchés asiatiques montre, à l'évidence, que la gamme des produits transformés peut être très large et comporte des produits à haute valeur ajoutée tant pour le producteur que pour le transformateur. **La marge de progrès par l'innovation est très grande.** Elle passe par :
  - les innovations produits et packaging
  - les investissements matériels et immatériels
  - la formation

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Objectif : Faire consommer la châtaigne sous toutes ses formes

Communiquer auprès des distributeurs et des consommateurs

Deux axes principaux de communication peuvent être envisagés :

- **Valoriser le fruit**. La fonction principale d'une châtaigneraie cultivée est de produire des châtaignes destinées à l'alimentation. La châtaigne européenne dispose d'atouts remarquables. Une politique de communication adaptée doit faire les mettre en valeur auprès des consommateurs et des professionnels de l'agroalimentaire.
-
- **Valoriser la châtaigneraie fruitière et son impact socio-économique** dans des territoires ruraux fragiles : actions d'information et de sensibilisation sur le caractère patrimonial des châtaigneraies, sa valorisation touristique, son impact positif pour la biodiversité,

QUELQUES CONCLUSIONS

La châtaigne :

- **possède** de **nombreux atouts** (naturel, bon pour une alimentation saine et équilibrée,
- avec une **gamme trés large d'utilisations** en cuisine et pour le grignotage),
- contribue trés positivement à la **lutte contre le réchauffement climatique**.
- est **essentielle à l'activité humaine et économique** de nombreux territoires ruraux.

Toutefois, pour **retrouver son potentiel** et sa place sur la scène mondiale,elle doit :

- parvenir à maitriser les maladies et ravageurs qui handicapent et obèrent ses récoltes et retrouver une dynamique de plantation.
- construire une **politique de communication forte et continue** auprès des consommateurs et des distributeurs pour **s'enraciner durablement** dans les nouveaux modes de consommation.

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The European Chestnut White Paper is available online

Le livre blanc est disponible en ligne

Merci de votre attention

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by A.R.E.F.L.H

Bertrand Guérin

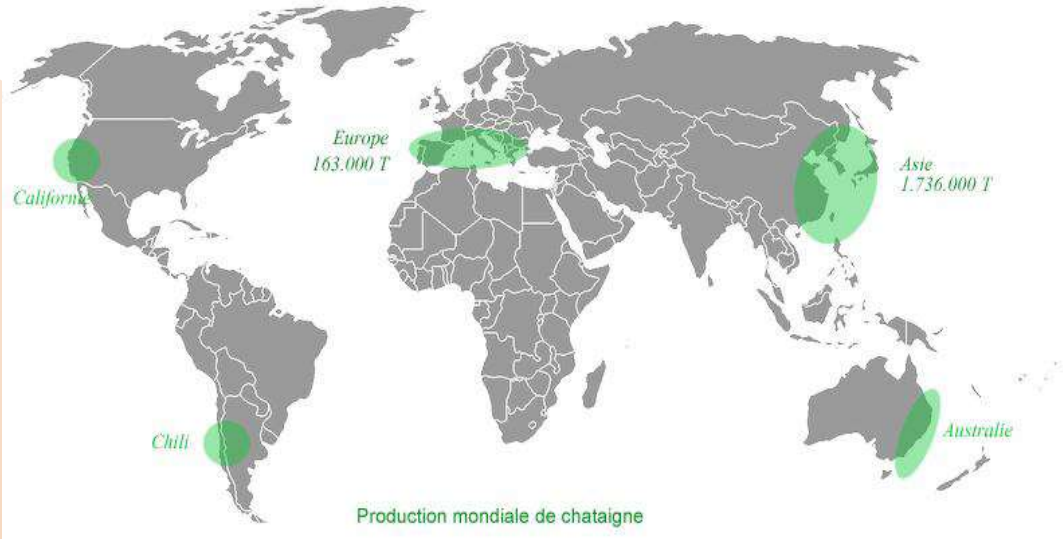
EuroCastanea

La production Européenne de châtaigne, un atout économique social et environnemental pour l'Europe

La situation actuelle

Espagne

France



Portugal

Italie

Turquie

Chili

Chine

Corée du Sud

Japon

Asie et Europe

Volumes exprimés en tonnes		Source : FAOSTAT	
Asie	**1 736 500**	**Europe**	**169 417**
Chine	1 620 000	Turquie	59 171
Corée du Sud	82 300	Italie	42 700
Japon	23 500	Portugal	22 400
Corée du Nord	10 700	Espagne	18 600
		Grèce	11 000
		France	9 536
		Albanie	5 500
		Hongrie	280
		Pologne	230

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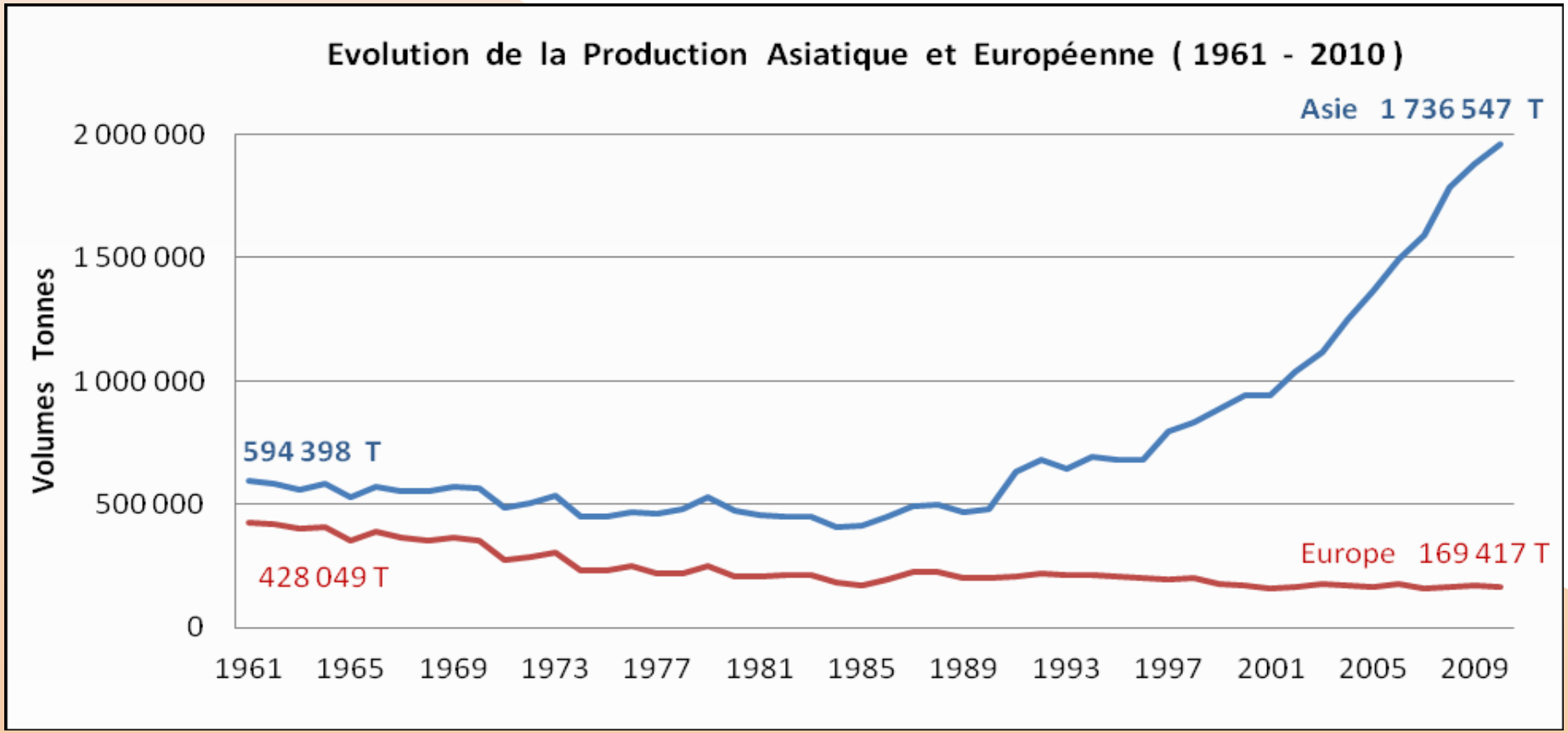
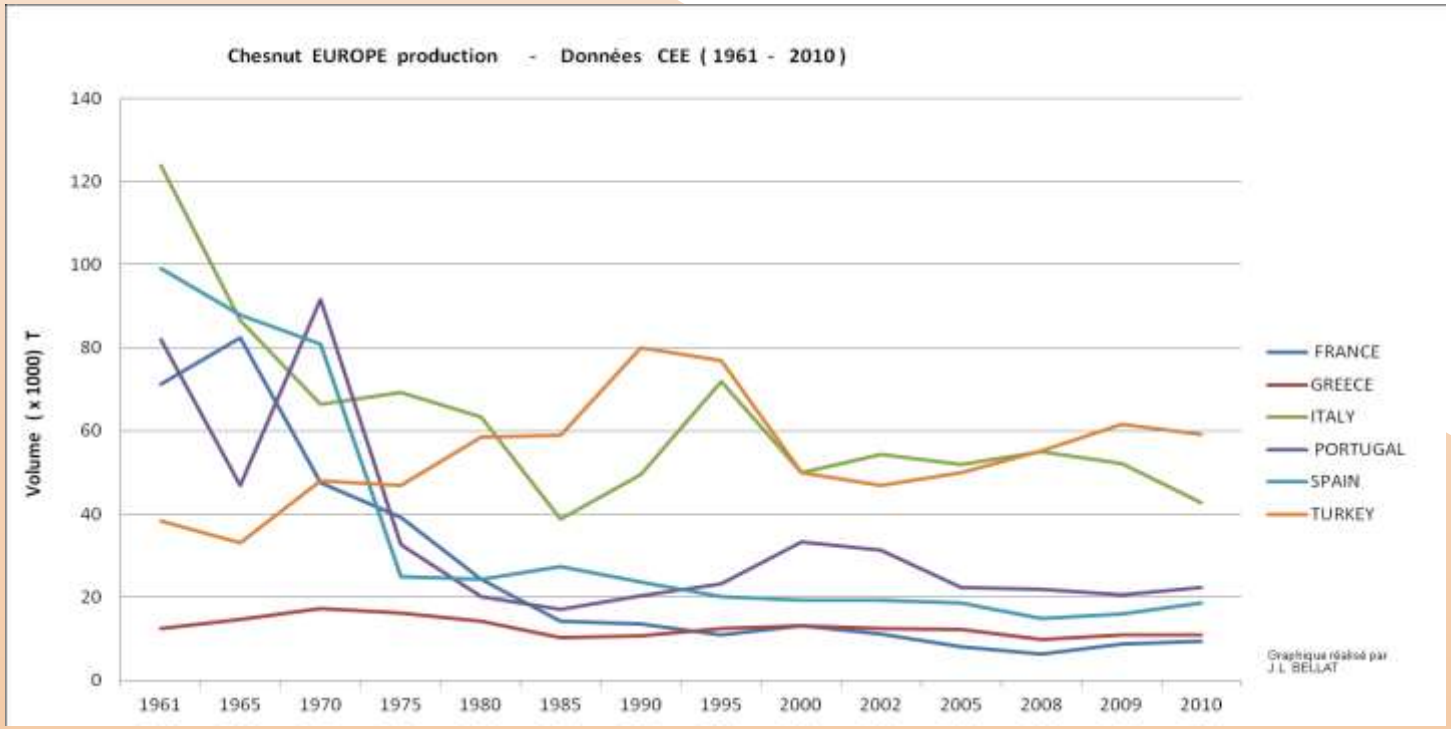
Evolution de la production mondiale



En Europe…

Milliers de tonnes	1961	1980	2010
UE	388	146	104
Total Europe	427	205	169



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Vers la disparition de la production Européenne?

- La production Européenne a été **divisée par 4 en 50 ans**
- Malgré un ralentissement depuis 10 ans **on perd encore 2 400 tonnes par an.**
- A ce rythme là **il n'y aura plus de production en Europe dans 40 ans**!
  - **1961--- 388 000 tonnes**
  - **2010--- 104 000 tonnes**
  - **2030 --- 56 000 tonnes ?**
- **2050 --- ???**

Remplacée par la production CHINOISE?

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Pourquoi?

- **Châtaigneraies anciennes: + de 100 ans**
- **Situation de montagne: forts handicaps**
- **Economie familiale, récolte manuelle**
- **Déprise agricole et exode rural**
- **Maladies: phytophtora, chancre, cynips…**
- **Changement climatique...**

INVERSER LA TENDANCE…

- **<u>Préserver la vielle châtaigneraie</u>: élagage, restructuration, récolte mécanisée…**

Nous le faisons déjà: ça ne suffira pas…

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CRÉER UN VERGER NOUVEAU

Planter, planter, planter !!!

- Variétés traditionnelles

- Variétés hybrides

- **Plusieurs régions Européennes sont engagées**:

Portugal: Longal, Judia, Marténia…

Sud Ouest France: Marigoule, Bouche de Bétizac

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En images

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Quelles surfaces planter
Pour assurer le maintien des volumes actuels ?

Rendement / ha	0,5 tonne	1 tonne	2 tonnes
- 2 400 tonnes /an	5 000 hectares	2 500 hectares	1 200 hectares

Un challenge : retrouver la production de l'an 2000, 130 000 tonnes à l'horizon 2050

40 000 hectares en 10 ans: France, Italie, Espagne, Portugal

Que faut il faire pour relancer la production?

Conditions économiques et politiques

1 - <u>Des prix rémunérateurs pour les producteurs</u>:

- on les a aujourd'hui sur le frais, partiellement sur le transformé

2 - <u>Faire reconnaître le châtaignier comme une production arboricole rémunératrice</u>

- auprès des producteurs et des prescripteurs et trouver de nouveaux producteurs

- trouver de nouvelles formes d'organisation de la production (Organisations de Producteurs, contrats production / transformateurs

3 - <u>Identifier la production des régions Européennes</u>

- AOP, IGP + Communiquer sur le produit

4 - <u>Mobiliser des soutiens publics Européens et Nationaux</u>

- PAC

- Aides à la rénovation et plantation

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Conditions techniques

1 – <u>Mécaniser la récolte et le travail au verger</u>

2 – <u>Diffuser les techniques modernes de production</u>:
taille, fertilisation, irrigation …

3- <u>Poursuivre la recherche technique et la partager entre les pays</u>
création variétale
maladies: phytophtora, endothia, cynips,carpocapse, balanin, pourritures
conduite du verger, porte greffe résistant à l'encre et à la sécheresse adapté aux variétés sativa

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Il faudra surtout une forte volonté professionnelle et politique pour sauver la production Européenne

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THE EUROPEAN CHESTNUT SECTOR: AN ECONOMIC, SOCIAL AND ENVIRONMENTAL ASSET FOR EUROPE

Fiorella Villani - Santiago Lorenzo Pereira

National Research Council, Italy - University of Santiago de Compostela, Spain

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The limitations and expectations of research and innovation in the European chestnut sector

Past EU financed Chestnut Project (2000 -2004)

CASCADE

Securing gene conservation, adaptive and breeding potential of a model multipurpose tree species (*Castanea sativa*) in a dynamic environment

EU Environment Project
No. EVK2-CT-1999-00006

Programme:	**Energy, Environment and Sustainable Development**
Key Action:	**Global Change, Climate and Biodiversity**
Thematic Priority:	**Assessing and Preserving Biodiversity**
EC OFFICERS:	Martin Sharman Karin Zaunberger

11 PARTNERS - 6 COUNTRIES (Italy, Greece, Spain, UK, France, Sweden)

1. **IAS** - Fiorella Villani – F.Villani@ias.tr.cnr.it
2. **UTUSCIA** – Andrea Vannini - vannini@unitus.it
3. **SLU** – Gösta Eriksson – Gosta.Eriksson@sgen.slu.se
4. **HRI** – Karen Russell - Karen.Russell@hri.ac.uk
5. **DCAUNITO** – Roberto Botta – botta@agraria.unito.it
6. **UNEW** – Guy Garrod – Guy.Garrod@newcastle.ac.uk
7. **CNRS 13E CEFE** – Francois Romane romane@cefe.cnrs-mop.fr
8. **INRA** – Cecil Robin robin@bordeaux.inra.fr
9. **CIFL** – Josefa Fernandez Lopez - fina@inia.es
10. **AUTH** – Phil Aravanoupoulos - aravanop@for.auth.gr
11. **NAGREF** – Stephanos Diamandis - diamandi@fri.gr

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CASCADE

BIOTA cluster: 23 projects

Aims

- **Assess and predict the impact of major drivers of biodiversity**
- **Develop tools, such as biodiversity indicators, to promote the conservation and sustainable use of biodiversity**
- **Seek to identify and resolve conflicts between society, economy and biodiversity**
- **Support the conservation of biodiversity by creating databases on the taxonomy, biology and ecology of Europe's plants and animals**

EU Contact point: **Karin Zaunberger Scientific Officer, Biodiversity and Ecosystems**
Karin.Zaunberger@cec.eu.int

Website coordinator: **Juliette Joung, Centre for Ecology and Hydrology**
j.young@ceh.ac.uk

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CASCADE

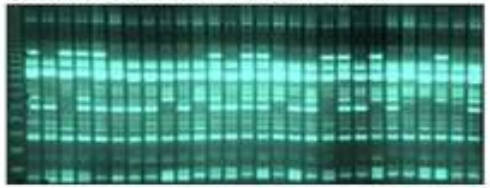
Securing gene conservation, adaptive and breeding potential of a model multipurpose tree species (Castanea sativa) in a changing environment

EU Environment Project
EVK2-CT-1999-00006

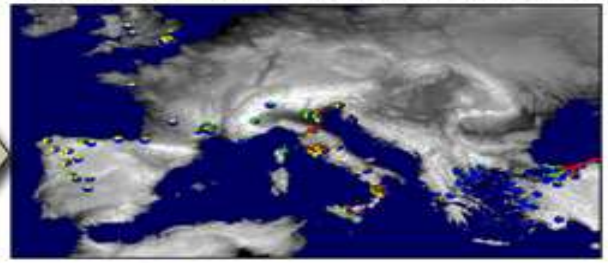
CASCADE is a multidisciplinary research project aimed to integrate information from several research fields to devise long-term optimized strategies for the conservation of chestnut genetic resources.

Molecular Genetic Analysis

Molecular markers allow genetic profiles of single individuals, seeds or even pollen grains to be determined with high accuracy. Presence of rare bands/variants in the profiles allow conservation priority to be formulated. Comparison of profiles between seeds and adults may allow paternity of seeds to be attributed. Associations of profiles with ecological performances may lead to pick out genomic regions influencing the traits.



Long-Term Strategies for Conservation of Genetic Resources



Detailed information on the availability of chestnut resources will help in defining conservation priorities and optimal exploitation of extant breeding stocks.

Pathology Studies

Material sampled from the various populations will be inoculated with strains of *Phytophthora* in controlled conditions and assessed for response. In addition mature trees showing field resistance will be identified. The data will be used to clarify the genetics of resistance and to promising sources.

Adaptive Traits Analysis

Drought resistance of chestnut seedlings will be evaluated by applying different temperature and watering regimes, simulating the upcoming conditions under regional scenarios of climate change.

Auto-Ecology, Management and Cost-Benefit Analysis

Present and future dynamics of chestnut ecosystems will be inferred from studies on ecology and management (and their relationships with environmental conditions and local market demands), ecological background information of chestnut distribution area, typology of both environmental conditions (climatic, edaphic) and management types (including silviculture), annual rings growth analysis.

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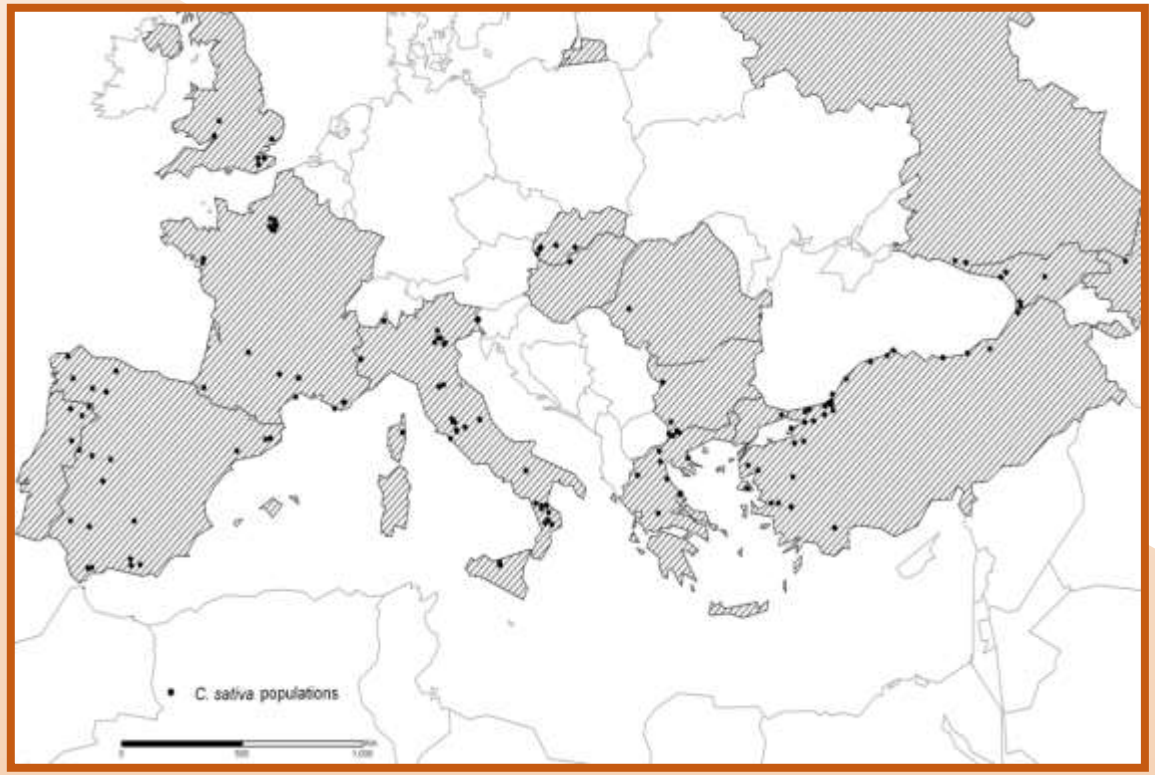

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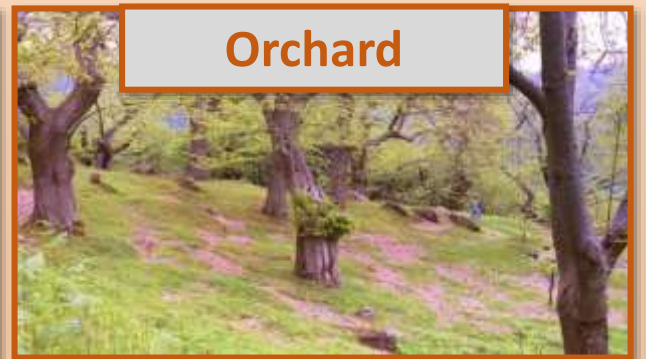
Study sites across chestnut distribution range

Different environment and management



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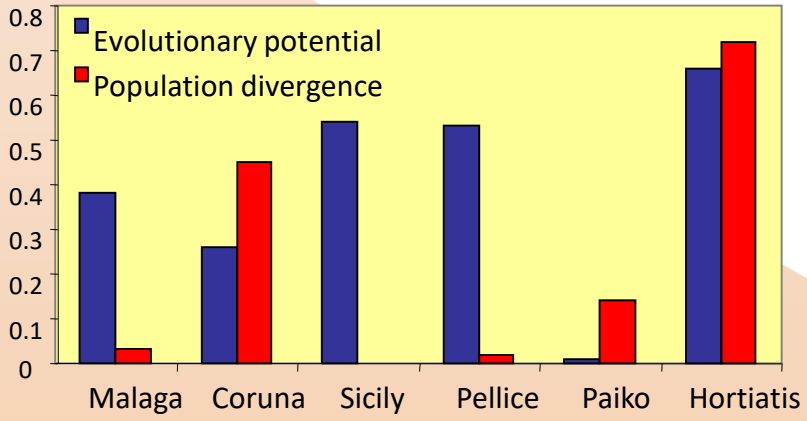
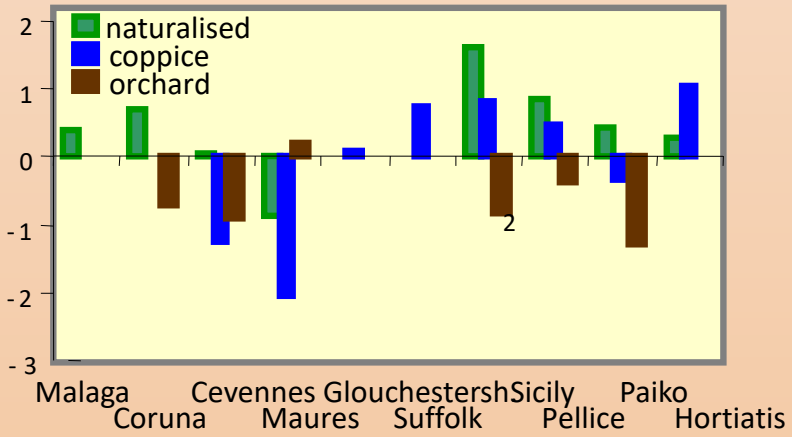
Gene conservation values for each site

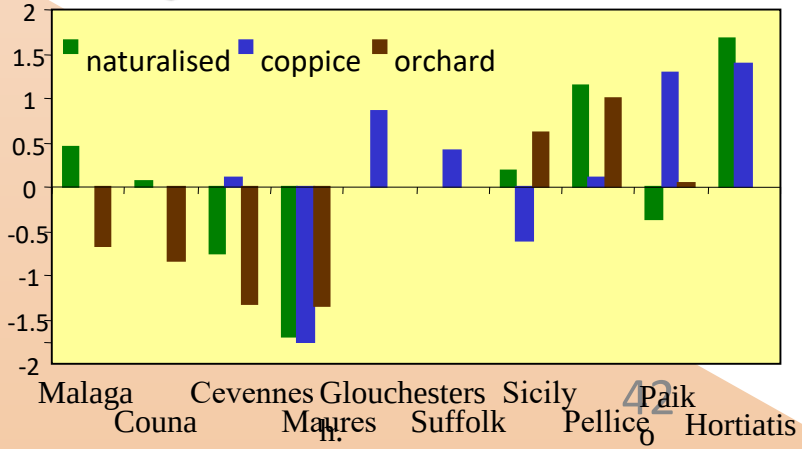
Adaptive conservation value



Neutral genetic conservation value



Pathogen tolerance conservation value



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Network of conservation units

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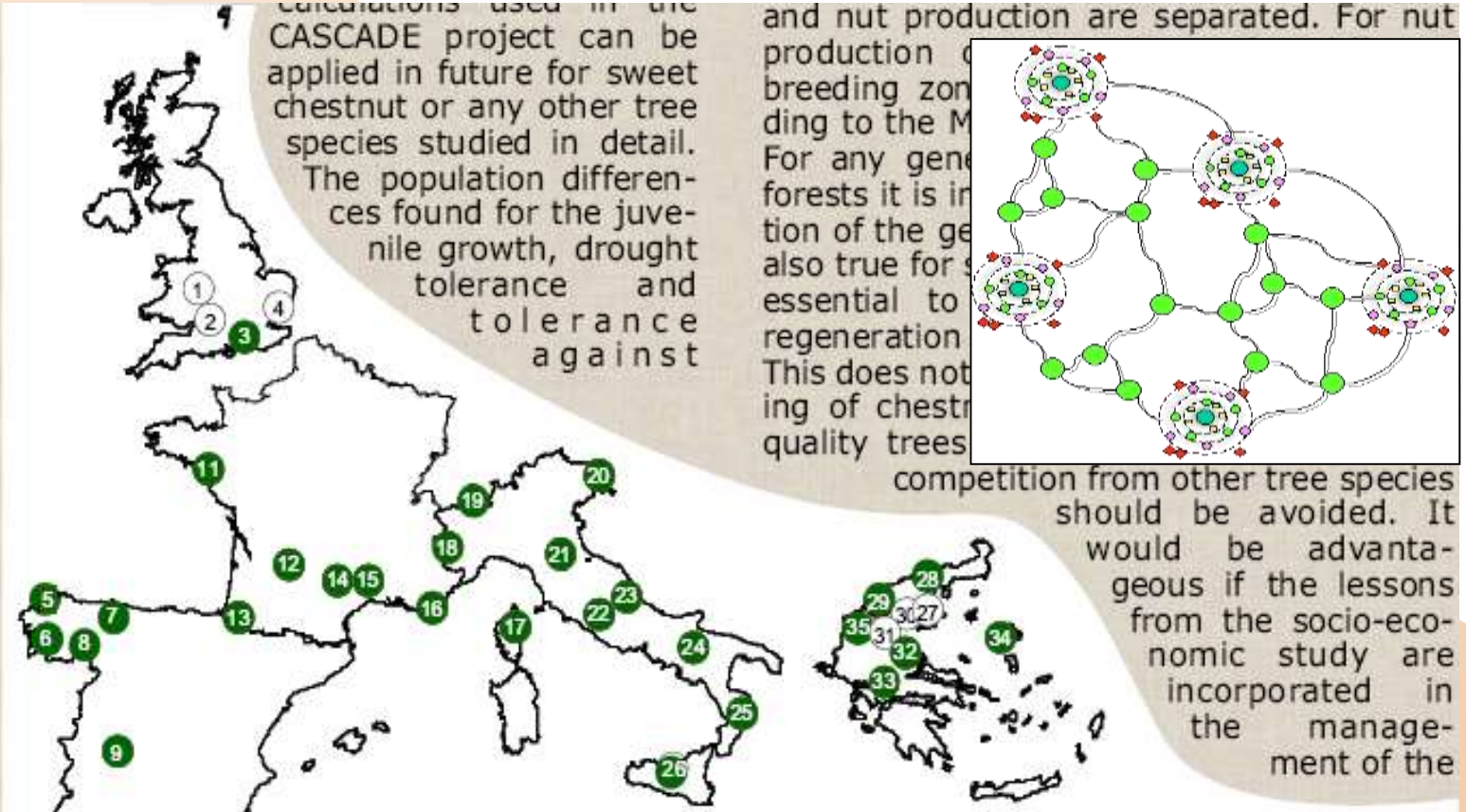

Figure 21. The suggested network of gene resource populations for sweet chestnut in the countries involved in the CASCADE project (green circles).

The limitations and expectations of research and innovation in the European chestnut sector

Gosta Eriksson

Castanea Recent Genetic Research

http://plantbio.vbsg.slu.se/webb/Breeding_chestnut.pdf

expectations of research and innovation in the European chestnut sector

EU funded Chestnut Research Progress after 2004

- ✓ Rejections of EU proposals on chestnut
- ✓ Steps back on chestnut research compared to USA, China and Japan
- ✓ Reduced impact of chestnut vs. other species

The limits and expectations of research and innovation in the European chestnut sector

EUROCASTANEA
European Chestnut Network

EUROPEAN COMMISSION
RESEARCH DIRECTORATE-GENERAL

Directorate E - Biotechnologies, Agriculture, Food - Horizontal aspects and coordination

Brussels, 12/09/2007
E.1/2007/D/523724

To:

Santiago Pereira Lorenzo
Universidade de Santiago de Compostela
Escola Politecnica Superior
Pazo de San Xerome, Praza do Obradoiro s/n
15782 Santiago de Compostela
Spain (ES)

7th Framework Programme – acknowledgement of receipt of proposal

Dear co-ordinator

Thank you for submitting your proposal MULTITREE
Genetic systems in a model multipurpose tree species, agronomic and adaptive traits

under the call FP7-KBBE-2007-2A
which has been recorded as having arrived on 10/09/2007 19:22:19
Your proposal has been given the following reference number:

Proposal reference number: **FP7- 222730-1**

What was behind our proposal?:
CASCADE (2000 – 2004)

eurocastanea@areflh.org
www.eurocastanea.org

The limits and expectations of research and innovation in the European chestnut sector

Proposal full title: **Genetic systems in a multipurpose tree species model for the improvement of forestry, agronomic and adaptive traits**

Proposal acronym: **MULTITREE**

Type of funding scheme: Collaborative Project **Large-scale integrating project**

Work programme topics addressed: KBBE-2007-1-1-03

This project aims at defining the molecular basis of genetic systems emphasizing crop improvement and innovative practices for sustainable forestry using a multipurpose species that combines forestry and fruit aptitudes. An experienced multidisciplinary team will carry out the research using different molecular approaches.

TOPICS: **FORESTRY AND AGRONOMICAL GENES OF INTEREST AND QTLS, PEST AND DISEASES, ASSOCIATION, GENETIC LINKAGE, STRUCTURAL GENOMICS, TRANSCRITOME, MATING SYSTEM, SELF-INCOMPATIBILITY, PLOIDY, HETEROSIS**

Name of the coordinating person: SANTIAGO PEREIRA-LORENZO

List of participants:

Participant no. *	Participant organisation name	Country
1. Santiago Pereira Lorenzo (Coordinator)	USC	SPAIN
2. Roberto Botta	UNIVERSITY OF TORINO (UT)	ITALY
3. Fiorella Villani	CNR	ITALY
4. Rita Costa and Salomé País	INRB and ICAT	PORTUGAL
5. José Gomes-Laranjo	UTAD	PORTUGAL
6. Phil Aravanopoulos	ARISTOTLE UNIVERSITY OF THESSALONIKI (AUTh)	GREECE
7. Cecile Robin and Teresa Barreneche	INRA	FRANCE
8. Antonio Ballester	CSIC	SPAIN

2007. REJECTED

The limits and expectations of research and innovation in the European chestnut sector

Workshop **Chestnut (*Castanea sativa*): a multipurpose European tree**

Brussels on September 30th, 2010.

Speakers and Co-Authors:

Welcome speech: ON. Herbert DORFMANN (Member of the European Parliament)

Welcome speech: Papuna KHACHIDZE (Chairman of Forest Department, Minister of Environment Protection and Natural Resources of Georgia)

1) "*Castanea sativa*: the European Tree" (Marco *CONEDERA; Patrik KREBS)*

2) "Multifunctionality of European Chestnut Trees" (Ioan Vasile *ABRUDAN; Francesco FERRINI; Elvio BELLINI)*

3) "Pathogens and Parasites of Chestnut in Europe" (Stephanos *DIAMANDIS*, *Alberto ALMA*, *Giovanni VANNACCI)*

4) "Sustainable Orchards/Chestnut Forests Management" (Lorenzo *SANTIAGO PEREIRA*, *Werner MAURER, Volker BOUFFIER, Ernst SEGATZ)*

5) "Enhancement of the Chestnut Fruit Production and Exploitation" (Armindo Aires Afonso *MARTINS*)

6) "Enhancement of Timber Production"*(Jean LEMAIRE*, *Marco TOGNI, Marco FIORAVANTI)*

7) "Economic Aspects and Effects of *Castanea sativa* in Europe: the Current Situation and its Potentiality" (Luciano *TRENTINI*, *Stefano SANTARELLI*)

8) "Chestnut Fruits: Nutritional Value and New Products" (Laura *DI RENZO*, *Alessia BIANCHI, Antonio DE LORENZO*)

12.30: Buffet with chestnut-based products

The limits and expectations of research and innovation in the European chestnut sector

GRCHESTNUT

Consortium: 18 partners from 11 countries

Spain, Italy, UK, France, Portugal, Switzerland, Greece, Turkey, Morocco, Syria and and Georgia

Proposal: submitted at the **EU Work programme,** firstly on **2014** (invited to be completed at 2nd stage) and again on **2015**.

REJECTED

The limits and expectations of research and innovation in the European chestnut sector

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GRCHESTNUT

SAMPLING AND EVALUATION OF CHESTNUT DIVERSITY

Step 1 *In situ* (2400 local cultivars and giant trees, 24 hotspots) and *ex situ* GENETIC RESOURCES COLLECTIONS

Conedera and Krebs, Chestnut in Fruit Breeding, 2012

Step 2 ANALYSIS:
1. With existing markers (SSR, EST-SSR) and newly developed markers, sequencing, transcrpitome
2. Heritage and production systems
3. Community genetics

SOCIO-ECNOMICAL ASPECTS AND DISSEMINATION

Step 3 4. SOCIO-ECONOMICAL EVALUATION to chestnuts: stakeholders, food chain and networks

5. Measures to span from research to demonstration and dissemination

Development of (environmentally and economically) sustainable production schemes

Enhance local varieties and breeds with improved production systems

GRCHESTNUT Database sustainability beyond the project

The limits and expectations of research and innovation in the European chestnut sector

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European Chestnut Network

EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR AGRICULTURE AND RURAL DEVELOPMENT

Directorate H – General aspects of rural development and research
H.5 Research and Innovation

Brussels, - 8 MAI 2014
agri.ddg3.h5(2014) 1540404

Subject: Initial information on the outcome of the evaluation of Stage 1 proposals
Invitation to submit a full proposal for Stage 2
H2020 Societal Challenge 2 – Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy - H2020-SFS-7A-2014
633510-1 - GRCHESTNUT

Dear Mr Pereira-Lorenzo,

The Commission services with the help of independent experts have recently evaluated the proposals submitted in the context of the Stage 1 of the above-mentioned call. This included the proposal 633510-1 - GRCHESTNUT, for which you are the coordinator.

Horizon 2020

Call: H2020-SFS-2014-2

Topic: SFS-07a-2014

Type of action: RIA

Proposal number: SEP-210130491

Proposal acronym: GRCHESTNUT

The limits and expectations of research and innovation in the European chestnut sector

Subject: Initial information about the outcome of the evaluation of proposals
H2020 - H2020-SFS-2014-2
633510 - GRCHESTNUT

Dear **SANTIAGO PEREIRA-LORENZO**,

We are pleased to inform you that your aforementioned proposal has been favourably evaluated by the Agency. However, on the basis of the evaluation, the proposal's position in the resulting ranked lists of proposals and given the budgetary limits, the Agency services are not currently in a position to proceed with the preparation of a Grant Agreement on your proposal.

You could be invited for grant agreement preparation, in the event that another proposal with a higher ranking fails to complete the requirements for a grant agreement, or that additional funding becomes available beyond initial projections. You would then be contacted again and invited for grant agreement preparation.

You will find the Evaluation Summary Report (ESR) for your proposal together with this letter in the "***My Area***" section of the Research ***Participant Portal***. The ESR reflects the comments of the evaluators.

Finally, rejected at 2nd stage

The limits and expectations of research and innovation in the European chestnut sector

Latest proposals submitted

PRIMA

- Chestnut genetic resources and breeding for adaptation to climate change. 2018

REJECTED

- Chestnut genetic resources and breeding for a sustainable production in a traditional agricultural system. 2019

REJECTED

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The limitations and expectations of research and innovation in the European chestnut sector

Thematic groups	Group Members	
Climate change	**51 Researchers**	10 Countries: CH, GR, HU, IT, PT, SP, SK, RO, UK,AZ
	8 Professionals	4 Countries: FR, GR, PT, SP.
Ink Disease	**15 Researchers**	5 Countries: IT, FR, SP, PT, HU
	3 Professionals	2 Countries: FR, PT
Pest Disease	**16 Researchers**	9 Countries: RO, PT, IT, HU, SK, FR, SP, UK, GR
	4 Professionals	3 Countries: SP, PT,HU
Fungi Disease	**9 Professionals**	1 Country: FR, PT
	11 Researchers	5 Countries: IT, PT, FR, SW, HU
Blight Disease	**10 Professionals**	3 Countries PT, HU, SP
	10 Researchers	5 Countries FR, PT, RO, HU, SP
Food (created 2019)	**7 Professionals**	3 Countries
	14 Researchers	3 Countries IT, SP, PT

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The limitations and expectations of research and innovation in the European chestnut sector

Thematic groups

1. Climate change

2. Diseases

2.1	**Fungi**	Ink disease
		Chestnut Blight
		Nut rot
2.2	**Insects**	Gall wasp
		Tortrix moths

3.Food safety/Nutritional quality

Scientists and **Professionals** from **12 Countries**

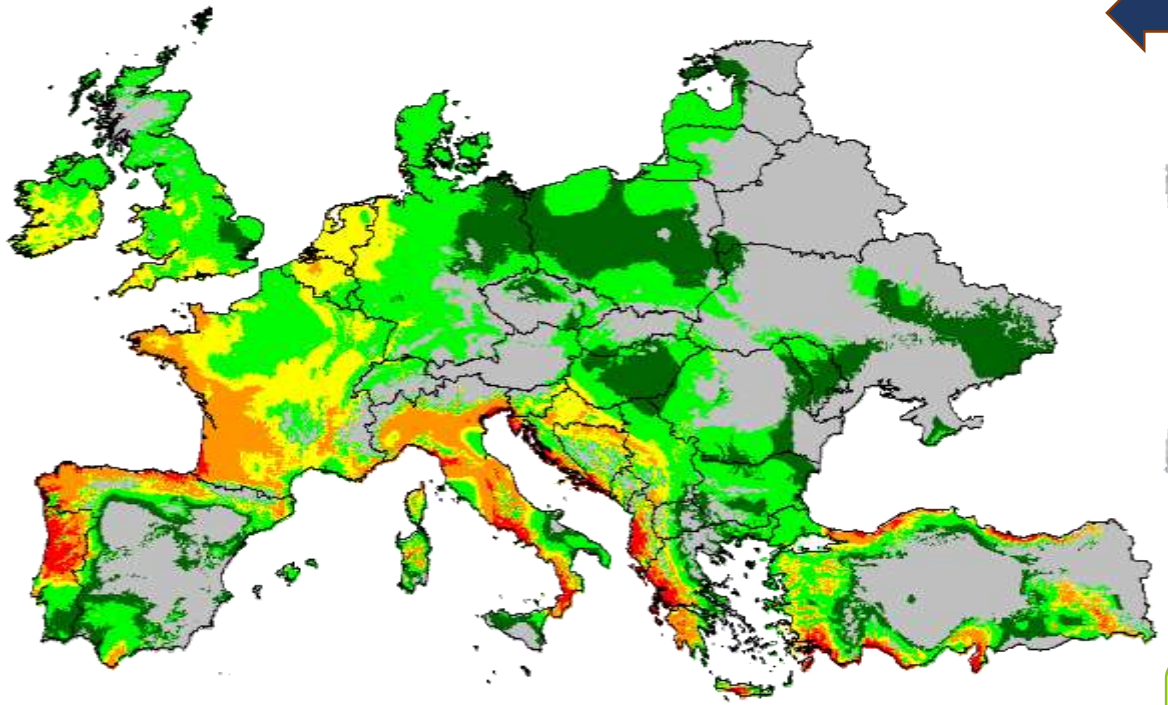
1.Climate change

Present and predicted future habitat of *Castanea sativa*

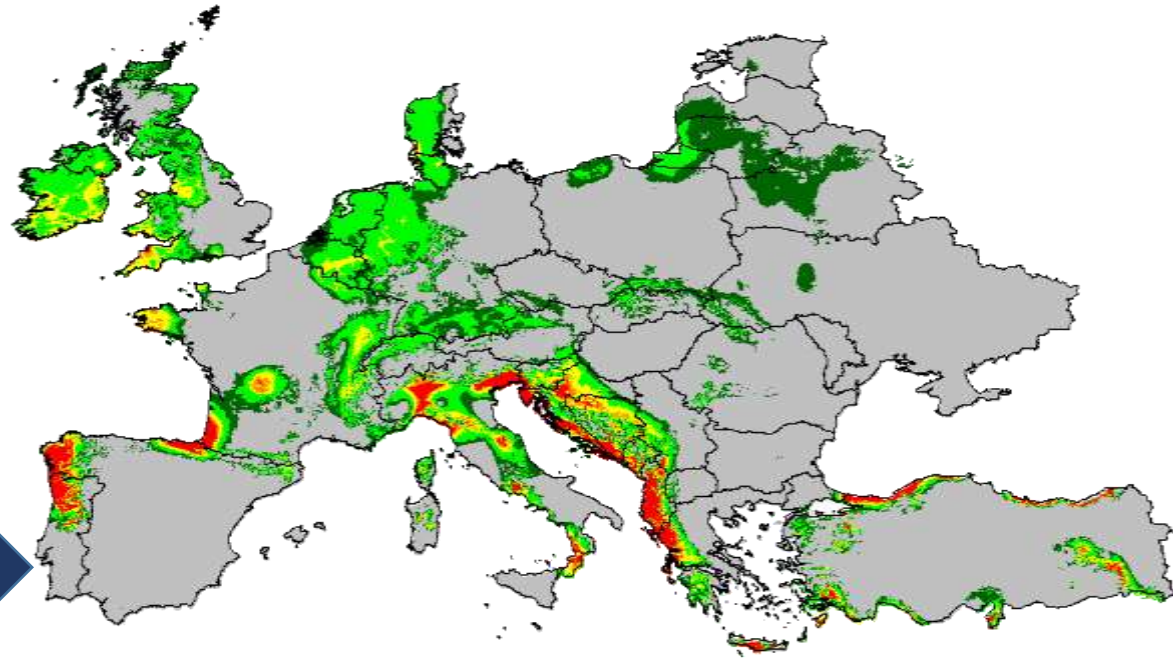
Optimal | Good | Intermediate | Critical

* Prediction of chestnut habitat for year 2050 modelled by DIVAGIS and based on dataset WORLDCLIM at 2.5 min resolution and dataset 'EcoClime'. The map represents the 'worst case scenario'

Present



Future (2050)



The effects of Anthropogenic Climate Change on trees are expected to enhance in the next decades

No strategies have been implemented so far to mitigate the impact of climate change on chestnut

Key points

- Impacts of climate change on chestnut
- Ability of chestnut to adapt to climate change
- Potential of chestnut to mitigate climate change

1.Climate change

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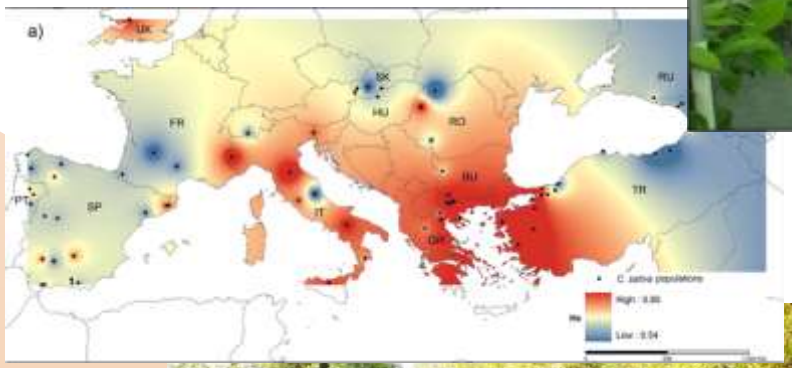
The limitations and expectations of research and innovation in the European chestnut sector

Natural ability of chestnut to adapt to climate change

- European chestnut is in general sensitive to drought and extreme heat weaves
- Chestnut genetic resources conserve a high genetic and functional diversity (adaptive traits)
- The main hot spots of genetic diversity represent a reservoir for future adaptation

Scientific evidence

- In-situ Population genetics, studies on wild and cultivate chestnut
- In-situ Landscape genomics
- Ex-situ Common garden experiments, Field trials, Collections



Carbon sequestration capacity of chestnut

- Chestnut is a relevant species for mitigation greenhouse gases emissions

Scientific evidence – Carbon sequestration

- *Castanea dentata in American (Jacobs et al., 2009)*
- *Castanea sativa in Spain (Prada et al. 2016)*

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The limitations and expectations of research and innovation in the European chestnut sector

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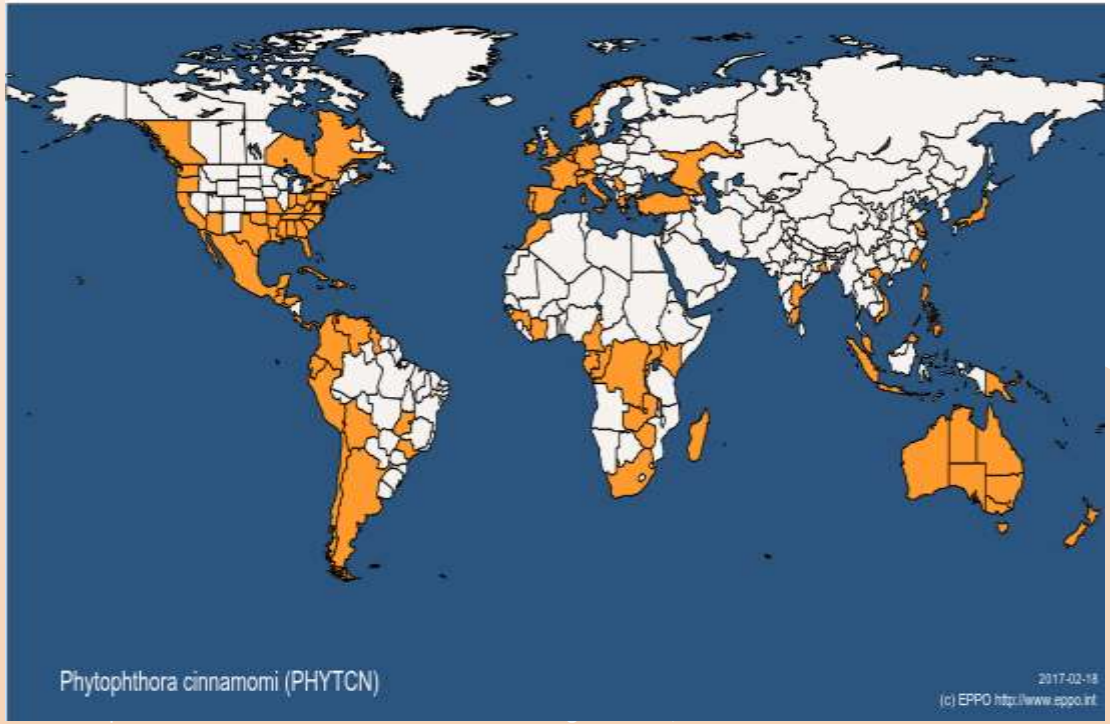
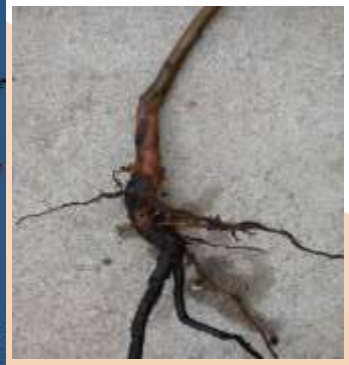
Scientists and **Professionals** from **12 Countries**

Ink disease caused by *Phytophthora cinnamomi* (root rot)

Phytophthora cinnamomi invades more than **3000** plant species with economic impact worldwide





Soilborne oomycete

Zoospores are the major infection propagules

Control is complicated → longevity (often many years) of propagules in soil and root debris

Visible symptoms → the tree survival is compromised

2.1Fungi

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The limitations and expectations of research and innovation in the European chestnut sector

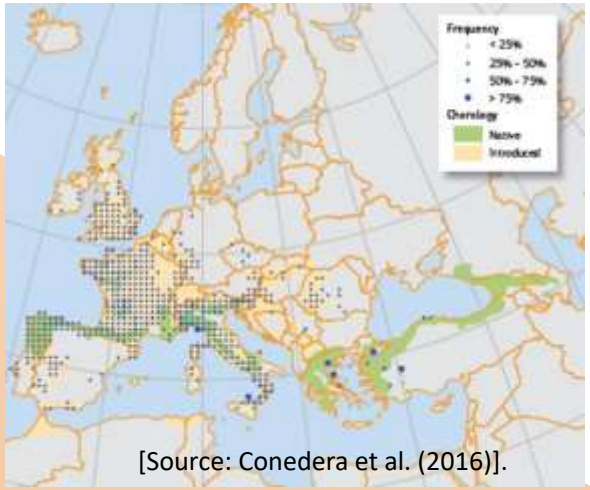
Chestnut blight caused by ***Cryphonectria parasitica***

Impact of chestnut blight in Europe

- Very high disease incidence
- Causes failures in grafting
- Higher expected impact due to interactions with other stresses: gall wasp, ink disease, drought

Distribution of chestnut blight in Europe

- Present in all countries where chestnut is growing
- High impact where *Cryphonectria* HypoVirus is not present



[Source: Conedera et al. (2016)].

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The limitations and expectations of research and innovation in the European chestnut sector

Nut rot caused by the emerging pathogen *Gnomoniopsis castaneae*

2.1Fungi

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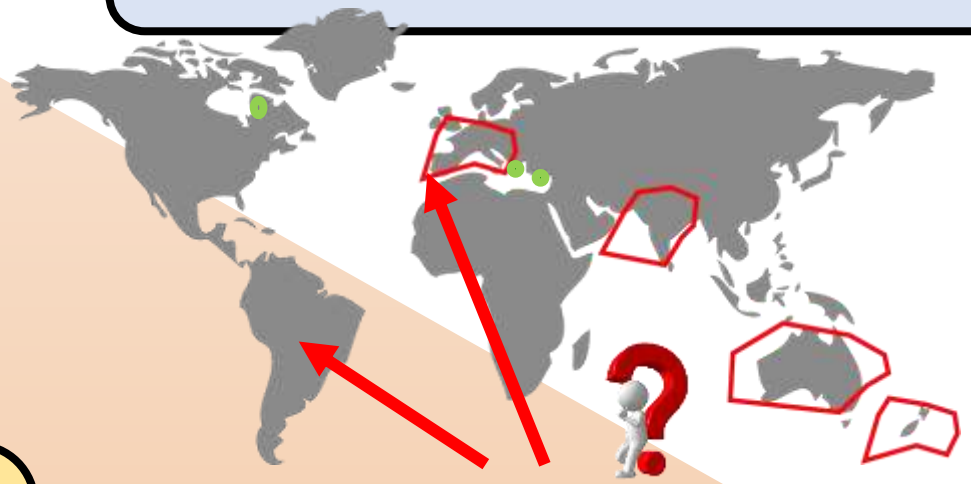
Gnomoniopsis castaneae – Distribution and control

Host range

- *Castanea sativa*
- *Castanea crenata*
- *Buxus sempervirens*
- *Corylus avellana*
- *Fraxinus ornus*
- *Quercus ilex*, *Quercus cerris*
- *Pinus pinaster*

Geographic distribution

15 countries in Europe, Asia, Australasia and North America



Europe

- Belgium,
- Czech Republic
- France
- Italy
- Slovenia
- Spain
- Switzerland
- the Netherlands
- United Kingdom

Next ones

Strategies for control of nut rot

Ozone treatment has fungistatic effect on *G. castaneae*. chestnuts and reduces chesnut rot

Ozone treatment coulbe an appropriate and cost-effective for post-harvest control

Informal communications suggest that Portugal, Chile and Brazil might be the next countries with presence of *G. castaneae*

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Scientists and **Professionals** from **12 Countries**

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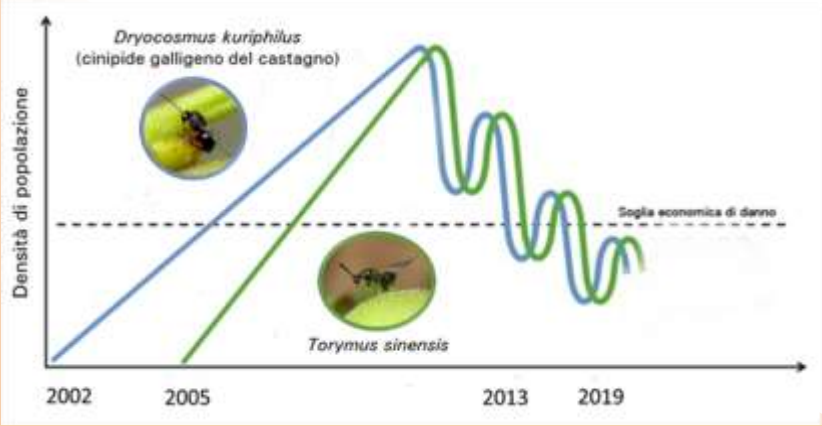
Dryocosmus kuriphilus (Asian chestnut gall wasp)

Biological control by parasitoid *Torymus sinensis*



Gall wasp caused the most severe loss of chestnut production (about 80%) during the last two decades

Biological control with *Torymus sinensis* has been proved to be highly effective.

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Carpophagus tortrix moths

Species

- *Pammene fasciana*
- *Cydia fagiglandana*
- *Cydia splendana*

Distribution and prevalence in Europe are not accurately investigated

The **identification of species** is crucial for effective control

Biological control

Biological control of tortrix moths by *mating disruption*

A three-year project funded for investigations in Northern Italy (2018-2020)

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The limitations and expectations of research and innovation in the European chestnut sector

Thematic groups

1. Climate change

2. Diseases

2.1	**Fungi**	Ink disease
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3.Food safety/Nutritional quality

Scientists and **Professionals** from **12 Countries**

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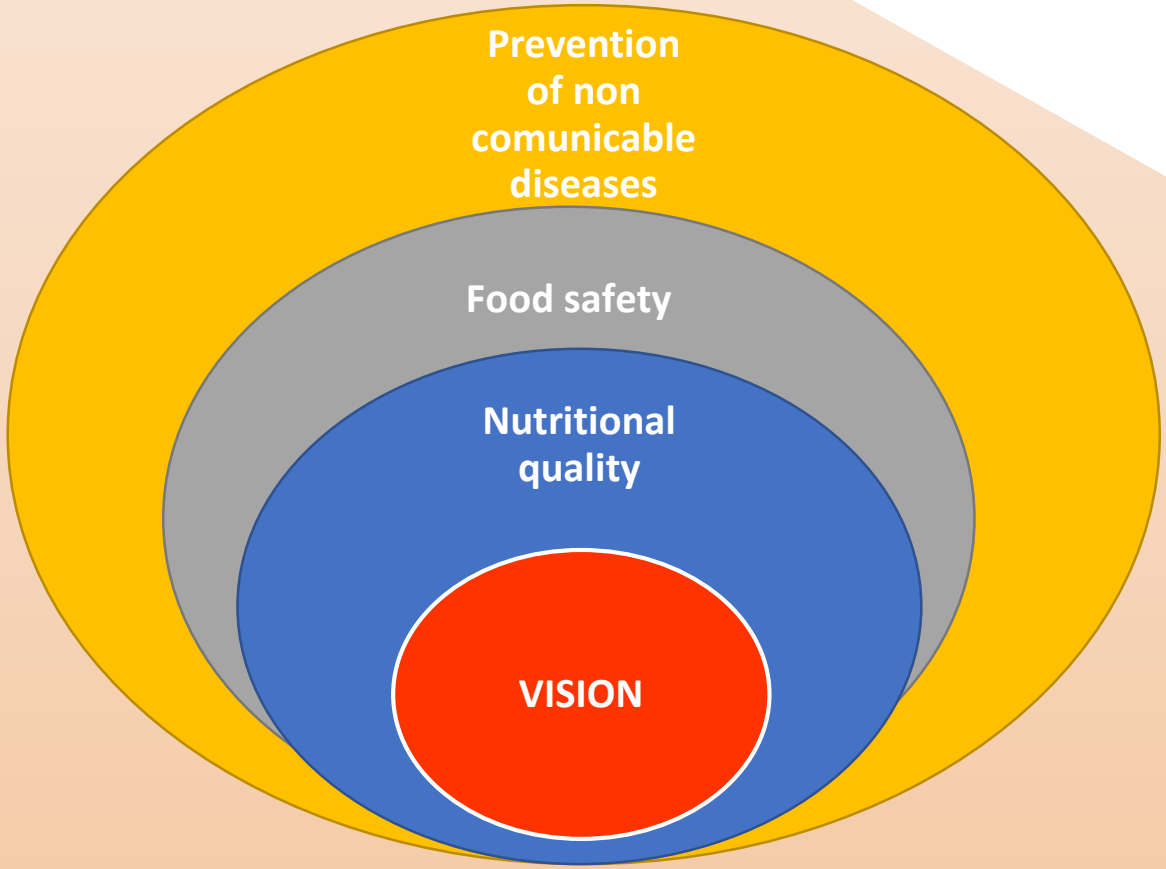
Food safety and Nutritional quality of chestnut products



Traceability of the production chain and verification of the effects on consumers

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Health benefits of chestnut food products

Key features of chestnut fruits

- Very low total fat content (lower SFA, higher MUFA and PUFA)
- Cholesterol-free
- High phytochemical content
- High starch content
- High fibre content
- High Calcium content
- Gluten free

- Antioxidant
- Antinflammation
- Antidiabetes
- Antispasmodic
- Antipathogenetic

Recommended use for chronic diseases

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The limitations and expectations of research and innovation in the European chestnut sector

Quality assurance

GAP
Good Agricolture Practices

GEP
Good Environmental Practices

GMP
Good Manufacting Practices

GLP
Good Laboratory Practices

GHP
Good Hygiene Practices

GKP
Good Housekeeping Practices

Evaluation of the impact on health (EIH)

Environmental Impact Assessment (EIA)

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The limitations and expectations of research and innovation in the European chestnut sector

Challenges – 1. Climate change

- To identify and conserve a **reservoir of genetic diversity** to counteract future environmental changes
- To obtain **new rootstocks and cultivars** adaptable to climate change and parasites
- To predict **future habitat scenarios** and identify the **most vulnerable regions**
- To set up **sustainable management practices** to mitigate impacts on plantations
- **International coordination of management and policy** on large geographic and temporal scale

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The limitations and expectations of research and innovation in the European chestnut sector

Challenges – 2.1 Diseases

Ink disease

- to understand the **genetic determinants of tree resistance** to ink disease (*Phytophtora sp.*)
- to implement **genomic selection in breeding programs** for fast release of new resistant varieties
- to monitor and map the present **hotspots of Ink disease** and **predict changes** in pathogen populations in relation to climate change and host adaptation
- to develop and implement **better management practices** to achieve a low level of severity of ink disease in the field

Blight disease

- to characterize and conserve available **genetic resources** for resistance to blight (*C. parasitica)*
- to set up a **European data base** on ***C. parasitica* and CHV diversity** in Europe
- to select **virus x fungus associations**
- to **register *Cryphonectria* HypoVirus (CHV)** as a **biocontrol agent** in Europe

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The limitations and expectations of research and innovation in the European chestnut sector

Challenges – 2.2 Pests

Nut rot

- to unravel the origin, introduction and spreading of ***G. castaneae*** and ***G. daii*** **emerging pathogen** from China
- to develop new **methods for control** in the field and in post harvest

Insects

- to set up an updated **European database on gall wasp** and other pests for monitoring and early detection of **foci** where increase or new emergence in pests is registered.
- to standardize **EU regulations for biological control**

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The limitations and expectations of research and innovation in the European chestnut sector

3. Challenges – Food safety/nutritional value

- To standardize known and innovative **methodologies** for the evaluation of **safety** and **quality** chestnut fruits and products (Nutrient and Hazarad Analysis of Critical Control Points process - NACCP)
- To evaluate the impact of **chestnut consumption on human health**
- To explore different **consumers groups**: needs, current and potential demands
- To develop **innovative food products** based on chestnut

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The limitations and expectations of research and innovation in the European chestnut sector

Strong points for EU funding

- Chestnut is a **widespread** species across Europe with an **increasing ecological and economic importance**
- A **severe decline** of chestnut across EU countries is occurring caused by **ACC, pests, diseases, abandonment and obsolete management practices**
- There is still a **lack of integrated studies** and sustainable management which considers interaction between **climate change, diseases** and **multifunctionality** of chestnut (food, wood, landscape, carbon sequestration)
- **Research** activities are not enough integrated with **socio-economy**
- The **research** programmes and actions are **not coordinated at European scale**
- **Difficulties to get funds for long-term research infrastructures** (field trials and collections), already available across Europe, and **new innovative plantations**

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The limitations and expectations of research and innovation in the European chestnut sector

Take home message

Needs for effective, innovative, multifunctional **chestnut conservation and breeding**:

- ✓ To get a **multiapproach research group** funded at EU level
- ✓ To **level competence** on chestnut research with USA and Asia
- ✓ To **sustain EU chestnut production** (food and non-food), landscape, and tradition
- ✓ To **adapt chestnut** to climate change, pests and diseases

We have the Consortium, we have the skills and capabilities, we have the spirit,……
WE NEED YOUR FUNDS TO SAVE CHESTNUT CULTURE

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The limitations and expectations of research and innovation in the European chestnut sector

Thank you for your attention

Email : fiorella.villani@cnr.it

Email: santiago.pereira.lorenzo@usc.es

eurocastanea@areflh.org
www.eurocastanea.org

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European Chestnut Network

by A.R.E.F.L.H

MEP Isabel Carvalhais

European Parliament

EUROCASTANEA

European Chestnut Network

by A.R.E.F.L.H

MEP Álvaro Amaro

European Parliament

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Q&A Session

REFCAST

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AgroAguiar

incredible WILD NUTS & BERRIES

SERVRURI Lda.

Saudade

Verfeuille en cévennes

SNPC