

ACTION FA1003

**East-West Collaboration for Grapevine
Diversity Exploration and Mobilization of
Adaptive Traits for Breeding**

ACTION FA0807

**Integrated Management of Phytoplasma
Epidemics in Different Crop Systems**

***Phytoplasmas and viruses management in Grapevine Collections for
Germplasm Conservation, Mobilization and Evaluation***

SOFIA - 8 May, 2012

Grapevine propagation material movement and related phytosanitary rules in the EU

Carlo Frausin

Plant Protection Service of Friuli Venezia Giulia Region – ITALY

Grapevine propagation material movement and related phytosanitary rules in the EU

Targets of the presentation

- Understanding bases and goals of phytosanitary rules related to grapevine germplasm movement
- Assessing current quarantine phytosanitary procedures
- Suggesting possible updating



GOALS:

FAO - December 1951; Includes 170 Countries

- Preventing introduction and spread of harmful organisms
- Promoting safe trade
- Promoting adequate control measures

SPS Agreement

Risk assessment



Members have the right to take phytosanitary measures necessary for the protection of plant life or health.

Measures must be based on:

- Standards, Guidelines and Recommendations (IPPC);
- Scientifically based risk analysis/assessment

(Art. 2: Basic Rights and Obligations - Art. 5: Assessment of Risk and Determination of the Appropriate Level of Sanitary or Phytosanitary Protection – Annex A: Definitions)

Directive 2000/29/EC of the European Council

(Dir. 77/93/CEE)

- protective measures against the introduction into the Community of organisms harmful to plants or plant products and against their spread within the Community.
- provides:
 - Regulated plants, plant products and regulated quarantine organisms within EU;
 - Criteria for the movement of plants and plant products in EU and Third Countries

Vitis L.

in Directive 2000/29/EC of the
European Council_____

- **Annex III, part A, no. 15**

**Import is prohibited from
Third Countries**

Annex I, part A, Sect. I - D), point 5 HARMFUL ORGANISMS WHOSE INTRODUCTION INTO, AND SPREAD WITHIN, ALL MEMBER STATES SHALL BE BANNED

- 5. **Viruses and virus-like organisms of** *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and ***Vitis* L.**, such as:
 - a) Blueberry leaf mottle virus
 - b) Cherry rasp leaf virus (American)
 - c) Peach mosaic virus (American)
 - d) Peach phony rickettsia
 - e) Peach rosette mosaic virus
 - f) Peach rosette mycoplasma
 - g) Peach X-disease mycoplasma
 - h) Peach yellows mycoplasma
 - i) Plum line pattern virus (American)
 - j) Raspberry leaf curl virus (American)
 - k) Strawberry latent «C» virus
 - l) Strawberry vein banding virus
 - m) Strawberry witches' broom mycoplasma
 - n) **Non-European viruses and virus-like organisms of** *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. e ***Vitis* L.**

PM 1/2(20) EPPO A1 AND A2 LISTS OF PESTS RECOMMENDED FOR REGULATION AS QUARANTINE PESTS

- lists of pests whose regulation is relevant for the whole of, or large parts of, the EPPO region
 1. List of **A1 pests** (*not present in the EPPO region*).
 2. List of **A2 pests** (*present in the EPPO region but not widely distributed. I.e. absent from or not widely distributed in endangered areas in certain countries, where they are therefore subject to official control*).

(First lists approved 1975)

PQR - Windows Internet Explorer

http://www.eppo.int/DATABASES/pqr/pqr.htm

Preferiti | 300 risultati | Channel Guide | HotMail gratuita | Il meglio del Web | Informazioni su IE | Internet Start | Personalizzazione collegamenti | Ricerca web alive | WindowsMedia

PQR

European and Mediterranean Plant Protection Organization
 Organisation Européenne et Méditerranéenne pour la Protection des Plantes

Search for names here

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 Plant quarantine
 Plant Protection Products
 Invasive alien plants
 Standards
 Databases
 Publications
 Worldwide activities

PQR - version 5.0 (last update 2012-03-28)

EPPQ Plant Quarantine Data Retrieval System

What is PQR?
 PQR is the EPPQ database on quarantine pests. As decided by the EPPQ Executive Committee in April 2007, it can be downloaded free of charge from this web page. PQR gives access to data on:

- all the pests of the EPPQ A1 and A2 lists and of EU Directive 2000/29, appearing in the EPPQ/CABI publication "Quarantine Pests for Europe" (2nd edition)
- pests added to these lists since that publication
- pests of the [EPPQ Alert List](#)
- plants of the [EPPQ List of Invasive Alien Plants](#)
- many other quarantine pests and invasive plants of interest to other regions of the world (data obtained from FAO, CABI or from IPPC).

Download PQR version 5.0
<http://www.eppo.int/DATABASES/pqr/pqr.htm>
 Read instructions on how to install PQR
 Download PQR user's manual

For each pest, it is possible to obtain lists of host plants, commodities able to act as pathways in international trade, details of geographical distribution with maps, and pictures. Conversely, it is also possible to interrogate the database to obtain specific lists of pests, by stipulating the host species, the commodity, and the countries of interest. PQR contains general nomenclatural and taxonomic details on pests and hosts.

Example of general information that is provided for a specific pest:

Operazione completata. Errori nella visualizzazione della pagina.

start | windows_sofia_08-05... | Microsoft PowerPoint... | EPPQ PQR - STANDA... | PQR - Windows Inter... | Internet | 75% | 18.00

...it is possible to interrogate the database to obtain specific lists of pests, by stipulating the host species, the commodity, and the countries of interest.

Quarantine pests for which *Vitis vinifera* is a host

■ Major

- Grapevine flavescence dorée phytoplasma
- Lobesia botrana
- Viteus vitifoliae
- Xylella fastidiosa
- Xylophilus ampelinus
- Grapevine flavescence dorée phytoplasma (as Vitis)

■ Minor

- Aleurocanthus woglumi
- Hyphantria cunea
- Phymatotrichopsis omnivora
- Viteus vitifoliae (as Vitis)
- Xylella fastidiosa (as Vitis)
- Xylophilus ampelinus (as Vitis)
- Aleurocanthus woglumi (as woody plants)
- Anastrepha fraterculus (as fruit trees)
- Anastrepha ludens (as fruit trees)
- Anastrepha suspensa (as fruit trees)
- Bactrocera dorsalis (as fruit trees)
- Bactrocera tryoni (as fruit trees)
- Ceratitis capitata (as fruit trees)
- Hyphantria cunea (as woody plants)
- Lymantria dispar (as fruit trees)
- Lymantria monacha (as woody plants)
- Planococcus lilacinus (as fruit trees)

■ Unclassified

- Otiorhynchus sulcatus
- Phakospora euvitis
- Tetranychus pacificus

■ Incidental

- Frankliniella occidentalis
- Trogoderma granarium
- Aleurocanthus woglumi (as Vitis)
- Ceroplastes destructor (as woody plants)

■ Wild/Weed

- Xylella fastidiosa (as woody plants)

Harmful organism	Description	Present in EU	Present in Central Asia and Caucasus	efficient control methods available	Potential economic impact
<i>Xylella fastidiosa</i>	Bacteria Pierce's disease	NO	NO	NO	Very high
<i>Xylophilus ampelinus</i>	Bacteria Bacterial blight	YES	NO	NO	high
<i>Agrobacterium tumefaciens</i>	Bacteria (crown gall disease)	YES	NO (YES Turkey)	NO	Effective
<i>Coniella diploidiella</i>	Fungi Grapevine white rot	YES	YES	YES	Low-Effective
<i>Eutypa lata</i>	Fungi	YES	NO (YES Turkey)	NO	Effective
<i>Guignardia bidwellii</i>	Fungi Grapevine black rot	YES	NO (?)	YES	Low-Effective
<i>Pseudopeziza tracheiphla</i>	Fungi Rot-Brenner disease	YES	NO (YES Turkey and Russia)	YES	Low-Effective
<i>Rhacodiella vitis</i>	Fungi Spotted necrosis	NO (YES Ukraine)	NO	?	Low
<i>Septoria ampelina</i>	Melanose	YES	NO	YES	Low
.....		

Harmful organism	Description	Present in EU	Present in Central Asia and Caucasus	efficient control methods available	Potential economic impact
<i>Margarodes prieskaensis, M. vitis, M. vredendalensis</i>	Groun pearls Roots scale	NO	NO	YES	Effective
<i>Pseudococcus comstocki</i>	White Peach scale	YES	YES	YES	Effective
<i>Popillia japonica</i>	Japanese beetle	NO	NO	YES	Low - effective
<i>Daktulosphaira vitifoliae</i>	Grapevine phylloxera	YES	YES	YES	Low
<i>Phenacoccus solenopsis</i>	Cotton mealybug	NO	NO	YES	Low
<i>Thaumatotibia leucotreta</i>	Citrus codling moth - polyphagus Tortricidae	NO	NO	YES	Low
<i>Aleurocanthus woglumi</i>	Aleyrodidae Blue-grey fly	NO	NO	YES	Low
<i>Bactrocera tryoni, B. invadens</i>	Tephritidae Fruit fly	NO	NO	YES	Low
.....					

Harmful organism	Present in EU	Present in Central Asia and Caucasus	efficient vector known	Economic impact
Ajinashika disease	NO	NO	none	Low (affecting only cv. Koshu)
Grapevine stunt	NO	?	Leafhopper <i>Arboridia apicalis</i>	significant
Summer mottle	NO	NO	NO	Low
Blueberry leaf mottle virus	YES (Bulgaria, Hungary, Portugal)	NO	NO (pollen / bees??)	Low (Bulgarian latent strain:no sympom)
Grapevine Flavescence dorée and other GY	YES (Austria, France, Italy, Slovenija, Spain)	NO	Leafhopper <i>Scaphoideus titanus</i>	Very high
Peach rosette mosaic virus	NO	NO	<i>Xiphinema americanum</i> (Not present in UE)	Low
Tobacco ringspot virus	YES Wide range of hosts	YES (?)	<i>Xiphinema americanum</i> (Not present in UE) <i>Thrips tabaci</i> , others (?)	Low
Tomato ringspot virus (“Yellow vein” and other strains)	YES (restricted in Bulgaria, rare in other EU Countries)	YES (only Turkey, Iran)	<i>Xiphinema americanum</i> (Not present in UE)	Low

Vitis vinifera (VITVI)

Close

Vitis vinifera
EPPO Code: VITVI

Basic Data

Pests

Pathways

Pest

cut flowers or branches

plants for planting

Viteus vitifoliae (as Vitis)

Viteus vitifoliae (as Vitis)

Country : Georgia - GE

Neighbouring Countries :

isocode	Country
	No filter
**	*****
GE	Georgia
**	*****
AM	Armenia
AZ	Azerbaijan
RU	Russia
TR	Turkey

Cut flowers or branches

Viteus vitifoliae

Plants for planting

Georgia
Armenia
Azerbaijan
Russia
Turkey

Vitis (1VITG)

Close

Vitis
EPPO Code: 1VITG

Basic Data

Pests

Pathways

Pest

- Minor
 - Viteus vitifoliae
- Unclassified
 - Pseudococcus comstocki

2

Country : Georgia - GE

Neighbouring Countries :

isocode	Country
	No filter
**	*****
GE	Georgia
**	*****
AM	Armenia
AZ	Azerbaijan
RU	Russia
TR	Turkey

Commission Directive 2008/61/EC

- Commission Directive 2008/61/EC of 17 June 2008 establishing the **conditions under which certain** harmful organisms, **plants, plant products** and other objects listed in Annexes I to V to Council Directive 2000/29/EC **may be introduced** into or moved within the Community or certain protected zones thereof, **for trial or scientific purposes and for work on varietal selections**

Commission Directive 2008/61/EC

- **Authorization procedures** set up by NPPO
- Compliance with **technical standards** (Annex I)
 - appropriate documentary evidence regarding the place of origin of the material;
 - Phytosanitary Certificate with specific Additional Declaration Certificato regarding 2008/61/EC;
 - material is held under quarantine containment conditions during introduction or movement.
- NPPO **surveillance** on compliance of **quarantine measures adopted throughout the duration of the activities**, by **examination of the premises and activities at appropriate times**;
- **Release / destruction**

Commission Directive 2008/61/EC

ANNEX I - Authorization procedures

■ GENERAL CONDITIONS

- trial or scientific (non-commercial) purposes of authorized activities
- Compliance of premises and facilities;
- Quantity of material adequate to approved activities and available quarantine facilities
- scientific and technical qualifications of the personnel by whom the activities are to be undertaken

Commission Directive 2008/61/EC

ANNEX I - Authorization procedures

Evaluation of:

materials, premises and activities;
pest biology, possible spread pathways,
interaction with the environment

■ Premises and facilities

ensure:

- Pest containment and exclusion of the risk of spread

Commission Directive 2008/61/EC

ANNEX I

- **Premises and facilities - Control of:**
 - Isolation
 - Regulated Access
 - Internal activity traceability
 - Safety and alarm systems
 - Hygiene and disinfection procedures in activity management
 - Analysis and indexing procedures
 - Disposal
 - Other specific measures depending on harmful organisms



**INTERNATIONAL STANDARDS FOR PHYTOSANITARY
MEASURES**

ISPM 34

**DESIGN AND OPERATION OF POST-ENTRY
QUARANTINE STATIONS FOR PLANTS
(2010)**



ISPM 34

1. General Requirements for PEQ Stations
 2. Specific Requirements for PEQ Stations Location
 - 2.2 Physical requirements
 - 2.3 Operational requirements
 - 2.3.1 Staff requirements
 - 2.3.2 Technical and operational procedures
 - 2.3.3 Record-keeping
 - 2.4 Diagnosis and removal of quarantine pests or vectors
 - 2.5 Audit of PEQ stations
 3. Completion of PEQ Process
- APPENDIX 1: Requirements for PEQ stations

Commission Directive 2008/61/EC

Official release

- **Release from Quarantine** following
 - Quarantine
 - Appropriate tests stating that the material is free from **ANY HARMFUL ORGANISM** not yet present in the EU.
- *(art. 2, pt. 4 Dir. 2008/61/EC: “The details of such quarantine measures shall be completed and inserted in Annex III to this Directive once the necessary technical information is available”*

Commission Directive 2008/61/EC

ANNEX III

*QUARANTINE MEASURES INCLUDING TESTING
ON PLANTS, PLANT PRODUCTS AND OTHER
OBJECTS*

INTENDED FOR RELEASE FROM QUARANTINE

▪ **Sect. III, Plants of *Vitis* L., other than fruits**

“1. The plant material shall be subjected to appropriate therapy procedures, as laid down in FAO/IBPGR Technical Guidelines”



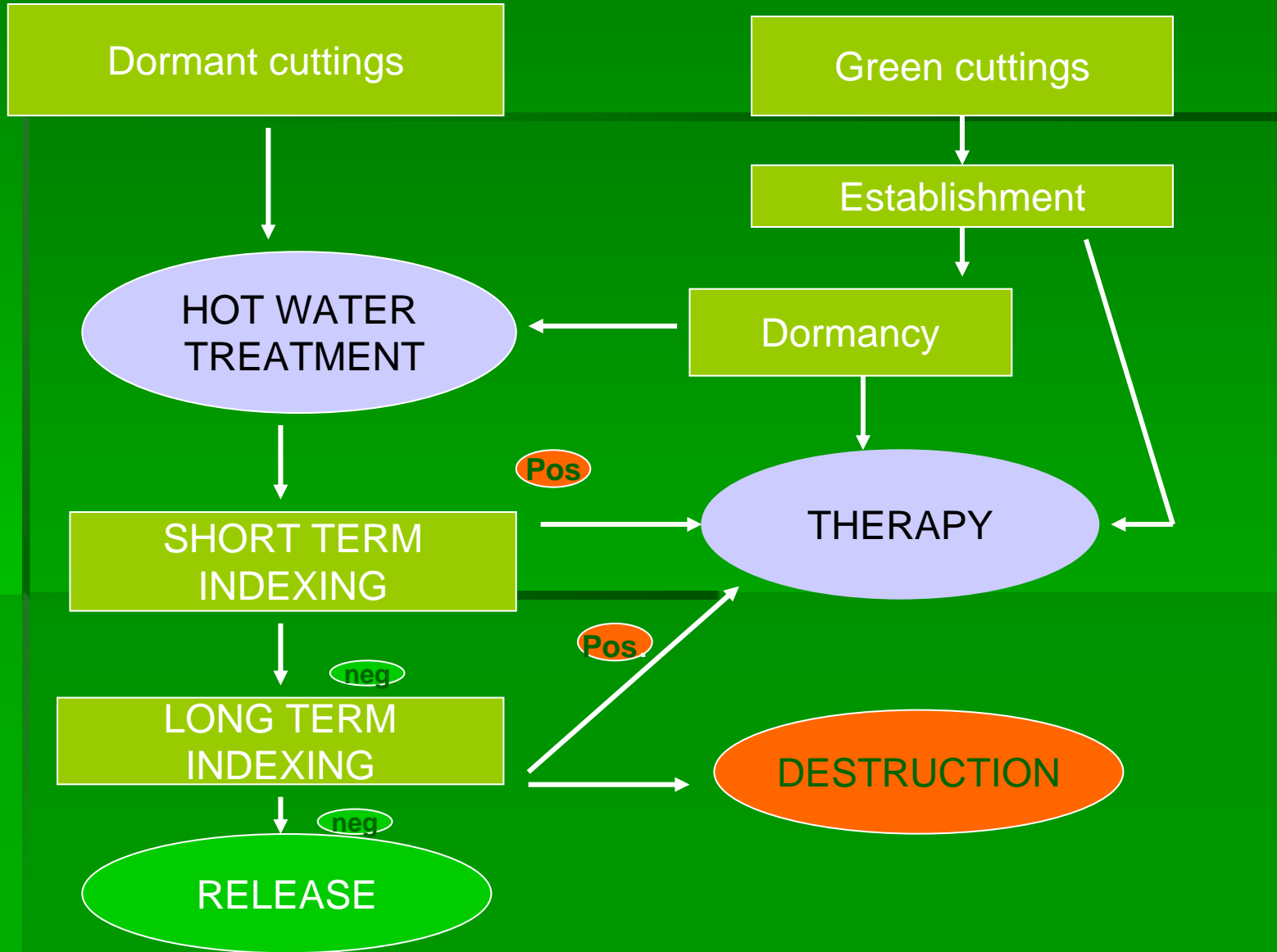
- “FAO / IBPGR Technical Guidelines for the SAFE MOVEMENT OF GRAPEVINE GERMPLASM” edited by E.A. Frison and R.Ikin
 - Food and Agriculture Organization of the United Nations
 - International Board for Plant Genetic Resources
 - International Council for the study of viruses and viruses diseases of the grapevine

(Ed. E.A. Frison and R. Ikin, 1991)

FAO / IBPGR Technical Guidelines for the SAFE MOVEMENT OF GRAPEVINE GERmplasm

- GENERAL RECOMMENDATIONS
- TECHNICAL RECOMMENDATIONS
 - Collecting and movement of seeds
 - Collecting and movement of cuttings
 - Collecting and movement of *in vitro* cultures
 - movement of pollen
- THERAPY AND INDEXING STRATEGIES

Grapevine – therapy and indexing strategy for cuttings



■ ***CRITICAL POINTS:***

1. INDEXING THROUGH GRAFTING ON INDICATOR PLANTS

- COSTS
- TIME

2. HOT WATER THERMOTHERAPY

- NOT FULLY EFFECTIVE
- IMPACT ON ENDOPHYTES
- IMPACT ON GRAPEVINE PHENOTYPIC EXPRESSION (?)

Hot-water treatment: effect on fungi detections

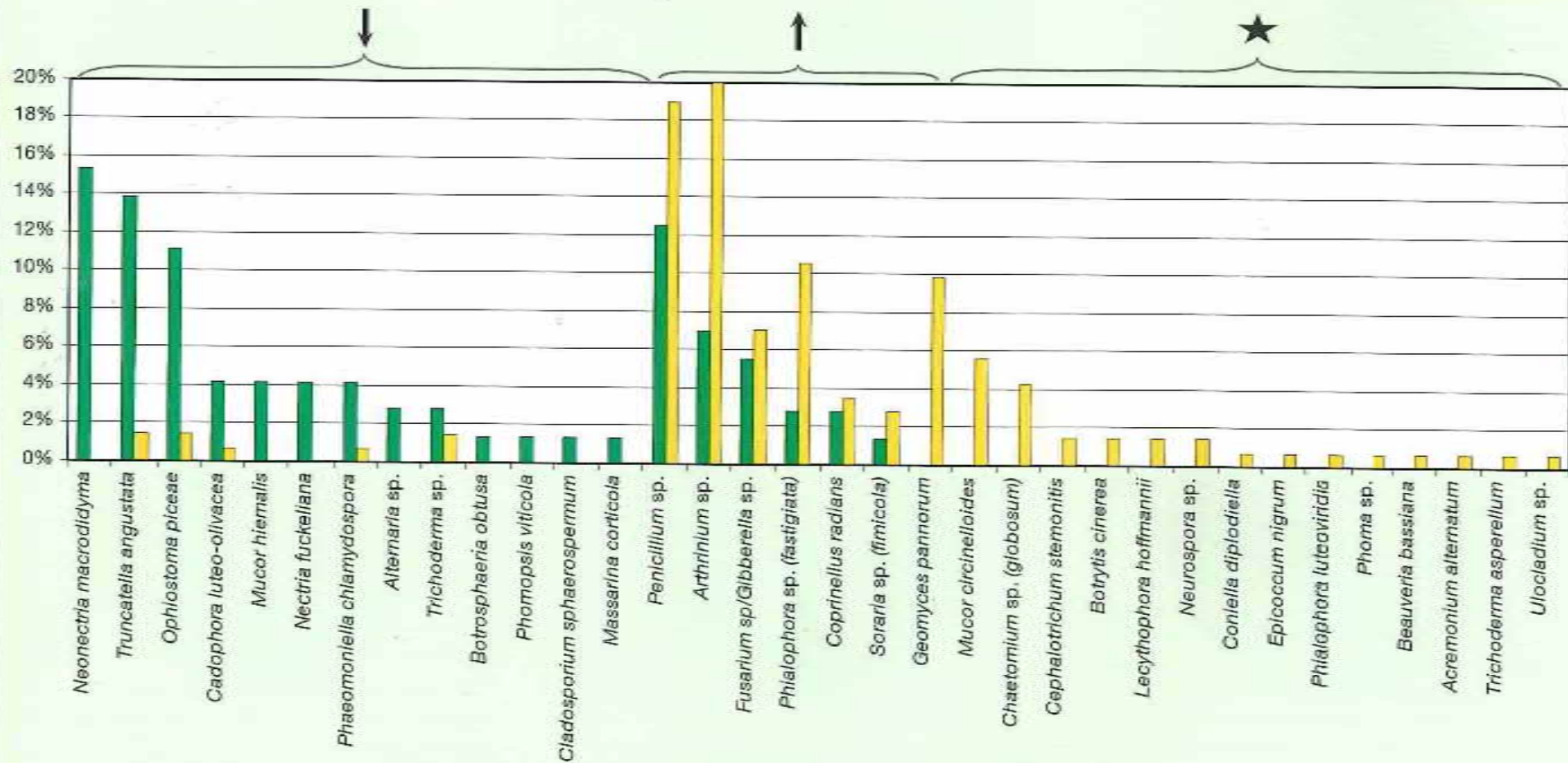


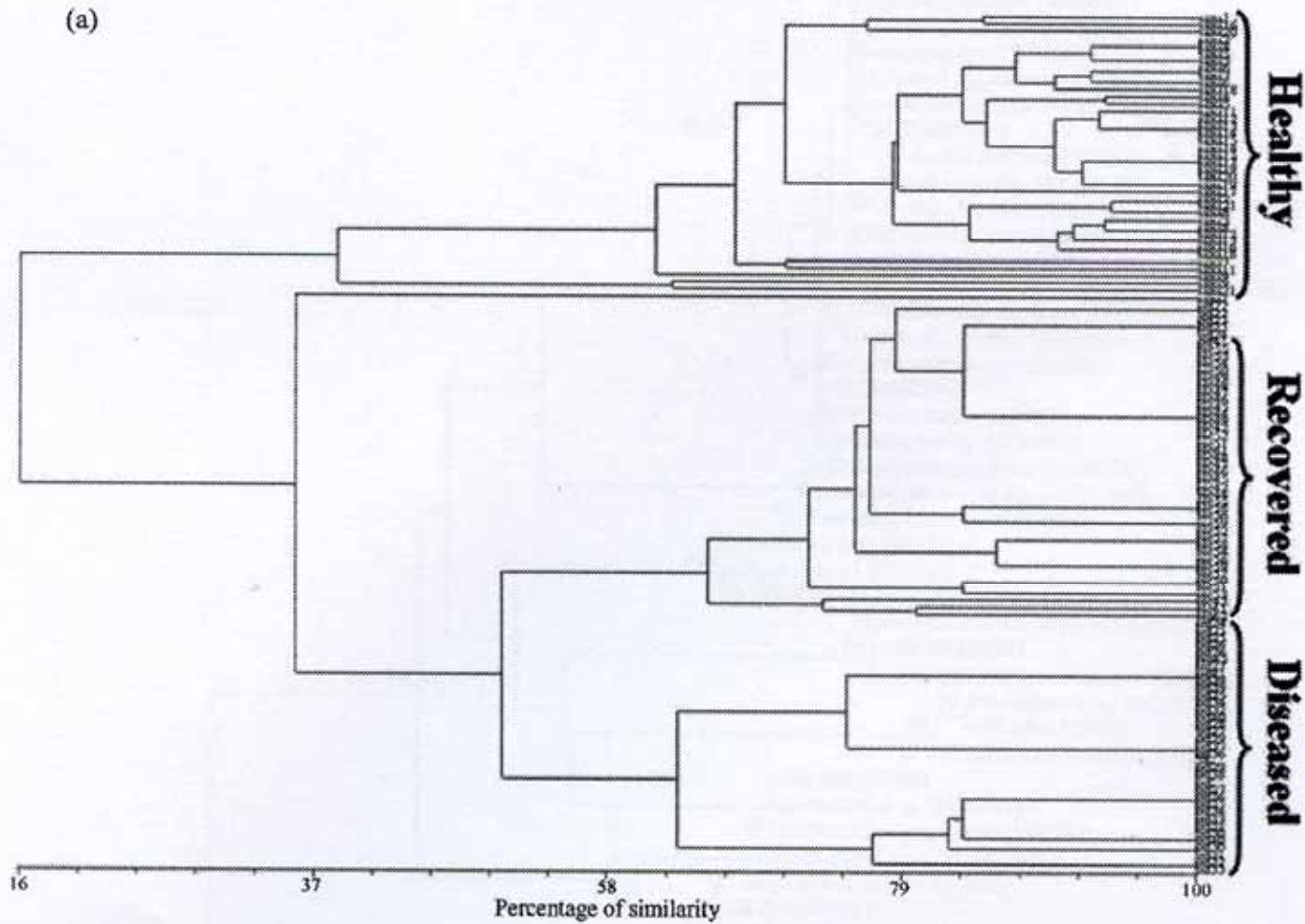
Fig. 2. Fréquence d'isolement des espèces fongiques identifiées dans des barbes de *Vitis vinifera* cv. Chasselas, traitées ou non à l'eau chaude. L'intégralité des résultats sur les autres cépages peut être obtenue auprès des auteurs.

↓ = Fréquence d'isolement réduite. ↑ = Augmentation de la fréquence d'isolement.

★ = Espèces de champignons identifiées uniquement dans les plantes ayant subi un traitement à l'eau chaude.

■ = plantes contrôles. ■ = plantes traitées à l'eau chaude.

Relations between Endophytic communities and Phytosanitary status



Is it possible a new quarantine strategy?

A. PRE-SHIPPING CONTROLS

1. **Field controls** on mother plant at the place of production, in appropriate timing;
2. **Selection** (exclusion of all symptomatic vines);
3. **ELISA / PCR tests** for grapevine known **harmful pathogens** (positive statement in phytosanitary certificate)
4. **Collecting** woody canes
5. **Dipping** in appropriate insecticide and fungicide (?)
6. **Consignment** with appropriate Phytosanitary Certificate (specific additional declaration)

a new quarantine strategy

B. POST-ENTRY CONTROLS

7. **Arrival in “Post Entry Quarantine Station”**, under official control by NPPO;
8. **Visual Testing** (insects, mites, epiphytic bacteria and fungi);
9. Detecting, isolation and identification of epiphytic bacteria and fungi (e.d. **Biolog**)
10. **ELISA** or **RT-PCR** (for relevant grapevine harmful viruses, phytoplasmas on dormant cuttings);
11. (bench) **grafting** on appropriate rootstock
12. Production of **rooted plants**

a new quarantine strategy

B. POST-ENTRY CONTROLS

13. **Field planting** (in isolated conditions?
Evaluation of vector's presence)
14. **Monitoring** during experimental activity

a new quarantine strategy

C. FINAL TESTS for OFFICIAL RELEASE

- Environmental sequencing (**Metagenomics + BLAST** analysis or similar) to determine presence of harmful organisms not yet present in EU .
- **Pest Risk Analysis** (for Pests)

Further specific tests for trade purposes

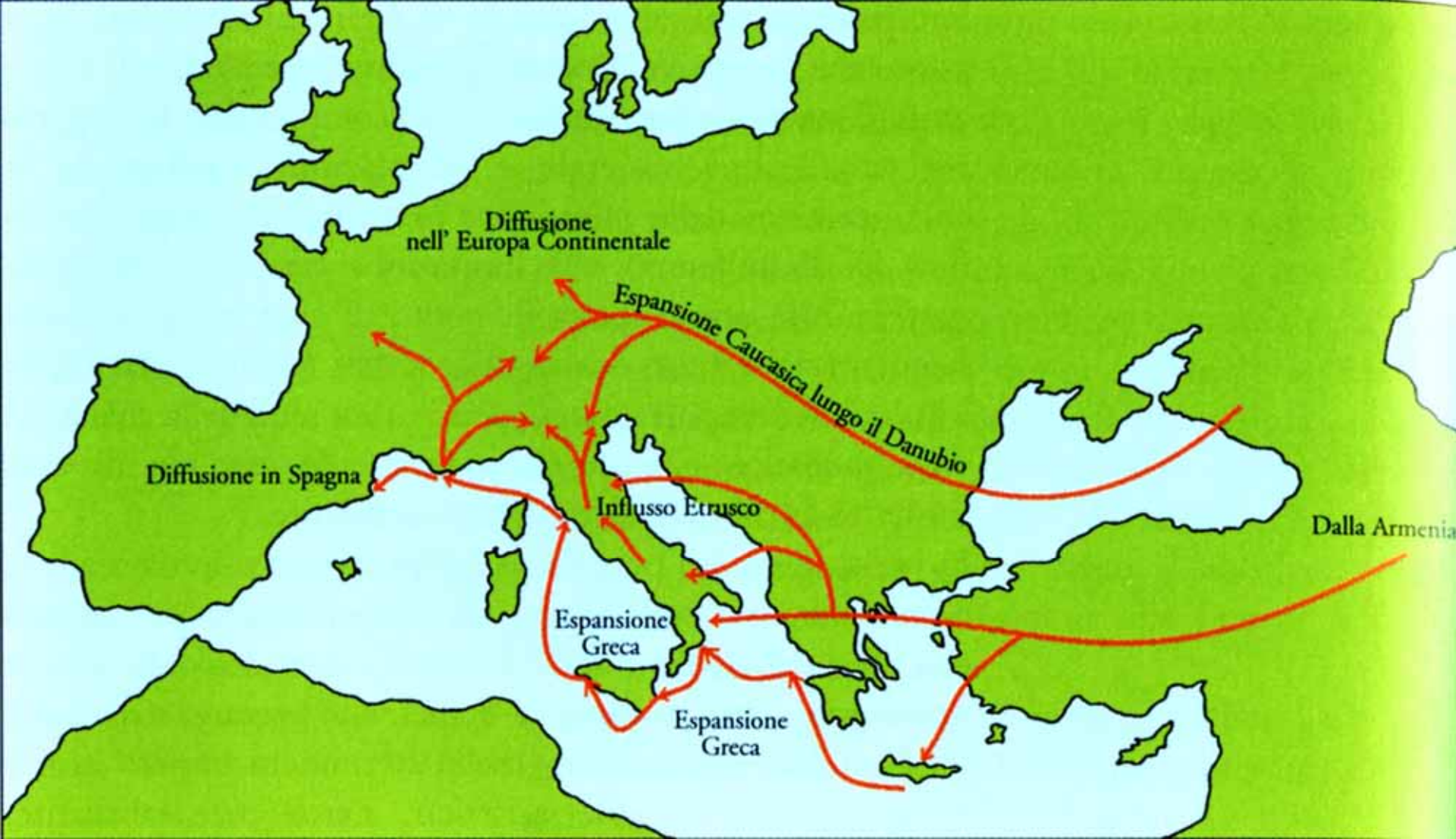
- (see PM 4/8(2) EPPO “Pathogen-tested material of grapevine varieties and rootstocks”)



LEGENDA

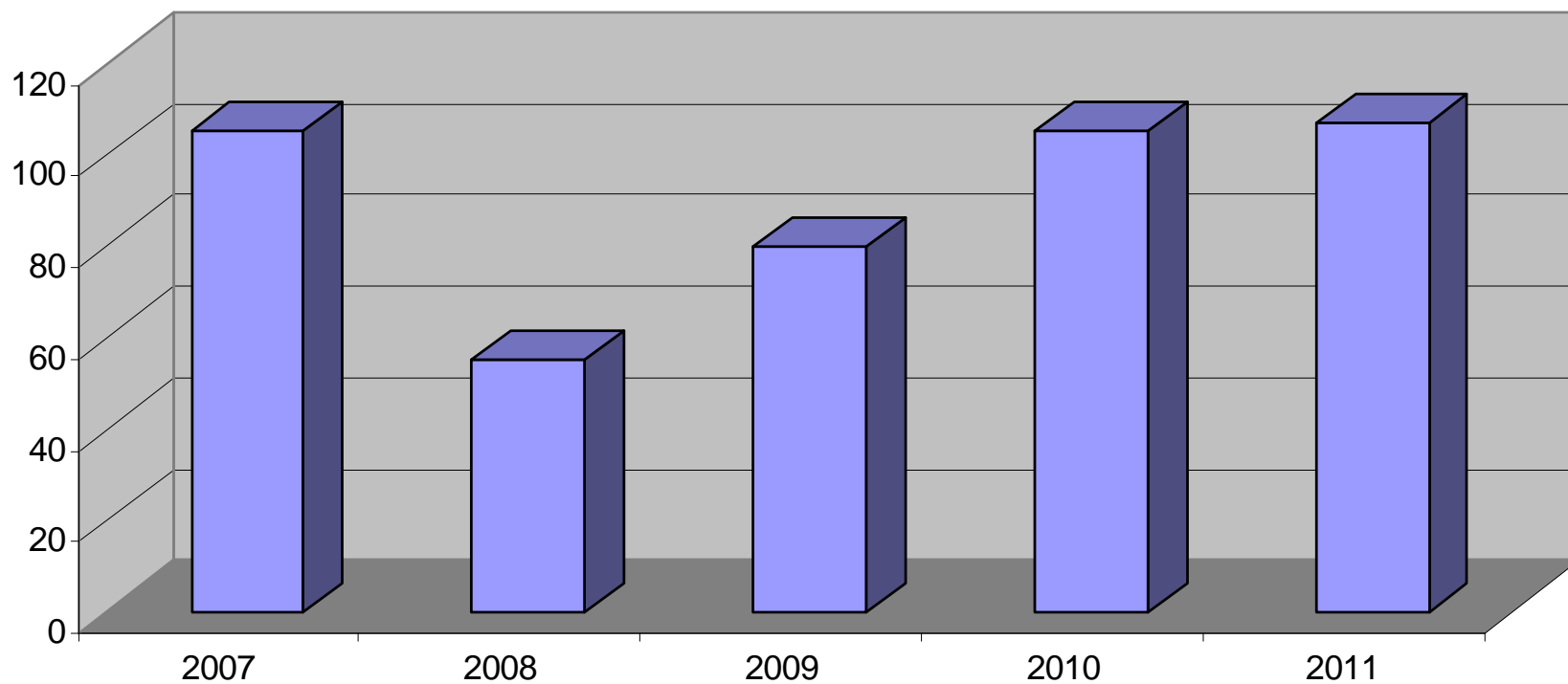
- → Areali di parodomesticazione
- ⊙ → Areali di parodomesticazione precoce
- Ⓛ → Centro primario di domesticazione
- Ⓜ → Centro secondario di domesticazione
- Ⓝ → Centro terziario di domesticazione
- Ⓞ → Centro quaternario di domesticazione
- Ⓟ → Centro quinquenario di domesticazione

Da: F. Del Zan; O. Failla; A. Scienza, 2004

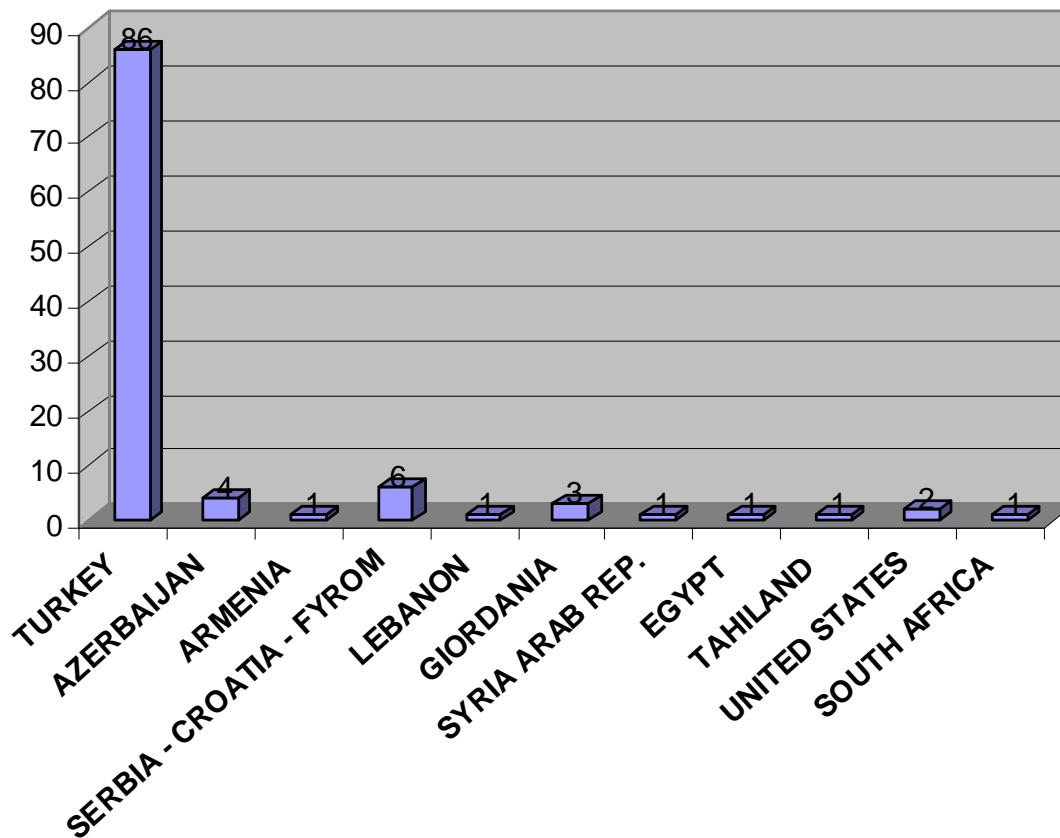


Da: F. Del Zan; O. Failla; A. Scienza, 2009

Illegal import of *Vitis* L. plants in EU 2007-2011 - Interceptions



Illegal import of Vitis plants in EU - 2011



An iceberg floating in a dark blue ocean under a blue sky with light clouds. The small tip of the iceberg is above the water surface, while the much larger, jagged base is submerged. The text 'Intercepted....' is positioned above the water line, and 'Not intercepted...???' is positioned below the water line.

Intercepted....

**Not
intercepted...???**