Ornamental pathways of entry of some pest species in Bulgaria: gaps in the data at national and international level

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The expanding, dynamic global market of ornamental plants provides some major pathways of entry of different exotic pests on the territory of Bulgaria. A retrospective study was carried out on the entry of several groups of pests of economic importance of the country: whiteflies, thrips and leafminers.

The aim of this study is to outline the most common discrepancies and gaps in searched databases in connection with ornamental commodities and studied pests.

Three main groups of discrepancies and gaps were outlined in: 1) trade data; 2) data about pests and 3) host data

Material and Methods

Searched databases and compared data from:

Bulgarian Agency of Food Safety (BAFS) (period 2000-2012)

EUROPHYT (1993-2012)

EUROSTAT (period 2009-2012)

Trade data

The import of ornamentals represents an important group of pathways for all studied pests, comprising **54%** of all interceptions of *Liriomysa*, **44%** for *thrips*, and **51%** for whiteflies. The two main commodities are planting material and cut flowers and branches with foliage. National data about import of ornamentals are summarized in Figure 1 for Planting material and Figure 2 for Cut flowers and braches and foliage.

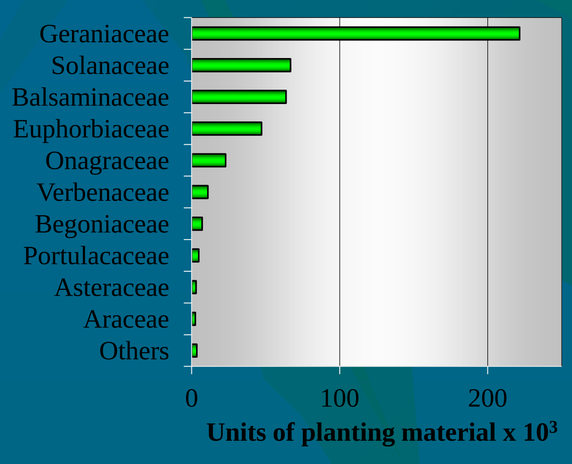
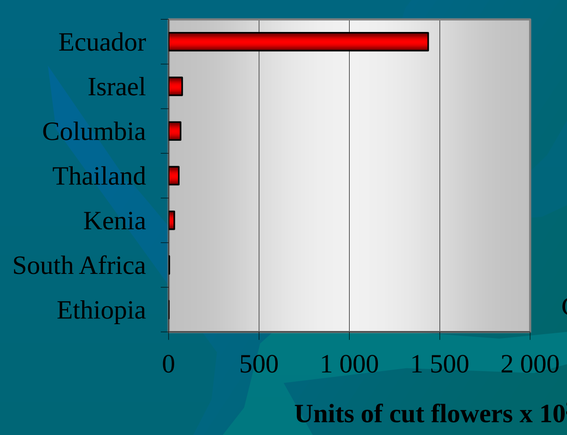


Figure 1. Origin and taxonomic structure of ornamental **plants for planting** imported in Bulgaria from third countries (average for the period 2009-2012), after data of BFSA. (Others: Caryophyllaceae; Scrophulariaceae; Plantaginaceae; Campanulaceae; Orchidaceae; Linderniaceae; Goodeniaceae)



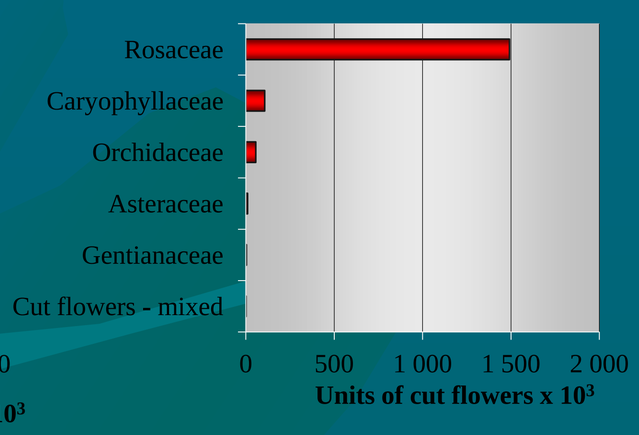


Figure 2. Origin and taxonomic structure of ornamental **cut flowers with branches and foliage** imported in Bulgaria from third countries (average in the period 2009-2012), after data of BFSA.

When national data were compared with those from EUROSTAT it became evident that there were differences in volumes, periods and type of measures for the import from South Africa (Table 1). After a thorough study on the import of the commodity from other countries more discrepancies emerged (outlined in red in Table 2).

Table 1. Comparison of data about types and quantities of import of "Cut flowers with branches with foliage" from South Africa in Bulgaria from two databases for the period 2009-2012*

	From database of BFSA, Bulgaria (numbers of units)				EUROSTAT (numbers of units or kg)			
Plant species	2009	2010	2011	2012	2009	2010	2011	2012
Chrysanthemum			100					
Gypsophila	200	200	200					
Rosa			14 460		23 540		15 000	
Other Cut Flowers (excluding roses, carnations, chrysanthemums)					*< 100 kg***		*< 100 kg***	

*Differences between databases are in red

** Import is given only in kg

Table 2. Comparison of the data on import of "Cut flowers with branches with foliage" in Bulgaria from two databases for the period 2009-2012

From database of BAFS, Bulgaria				EUROSTAT			
2009	2010	2011	2012	2009	2010	2011	2012
Colombia	Colombia	Colombia	Colombia	Colombia	Colombia	Colombia	Colombia
Ecuador	Ecuador	Ecuador	Ecuador	Ecuador	Ecuador	Ecuador	Ecuador
Ethiopia	Ethiopia	Ethiopia					
Israel	Israel	Israel	Israel	Israel	Israel	Israel	Israel
					Moldova		
Kenya	Kenya	Kenya	Kenya	Kenya	Kenya	Kenya	Kenya
South Africa	South Africa	South Africa		South Africa		South Africa	
Thailand	Thailand	Thailand	Thailand	Thailand	Thailand	Thailand	Thailand
				Macedonia, TFYR of	Macedonia, TFYR of		
				Turkey	Turkey	Turkey	Turkey
				Other Asian?			Philipinnes

* Differences between databases are in red

Pest data

95% of the non-compliances concerning whiteflies for the period 1993 – 2012 are related to *Bemisia tabaci* (EUROPHYT) and few records are made for Aleyrodidae.

For leafminers the records are not so precise: over **40%** of the intercepted *Liriomyza* are reported as species but the reason is probably that all four species are included in Directive 2000/29 EU.

The interception records on thrips are the most inconsistent. From all 2279 records concerning this group only **61%** are records about *Thrips palmi*, over 37% are records like *Thrips sp*., Tripidae and even Thysanoptera. Not all members of the family or order are virus vectors and such records do not give the information about the real trends of infestation of commodities

Host records

- Old names (e.g. *Eustoma* is still recorded as *Lysianthus*)

- Synonyms with several taxa (species of the genus *Dipladenia* are synonymized with those of genera *Mandevilla*, *Pentalinon* and *Rhabdadenia*. The taxonomy of *Dipladenia sp.* is still unclear)

–Type of commodity – (e.g. *Hygrophila sp*. is recorded as INTENDED FOR PLANTING : !Others; Not yet planted and Cuttings; *Mormordica charantia* is recorded as cut flowers with branches with foliage; Cactaceae – cut flowers with branches …)

– Many of the records read *Solanum sp*. or *Brassica sp*. or even HORTICULTURAL PLANTS / PLANTES HORTICOLES

Conclusions

There are gaps in the information in the National and EUROSTAT data on the trade of ornamentals. It is presented in categories, most of which encompass a large variety of species. Such data are difficult to interpret for the purposes of risk assessment. Moreover, information is often missing for certain periods and countries. The general measure is kg x 100 which results in a loss of data about small consignments.

The taxonomy of some plants, pests and pathogens in Council Directive 2000/29/EC and respectively in EUROPHYT is outdated due to the constant process of revision and reclassification. This may result in uncertainties regarding the identity of some organisms.

The pests reported in EUROHYT are often identified to genus level and sometimes only to family level.