Kenyan cut flowers as a pathway for the introduction of plant pests to the UK

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INTRODUCTION

The cut flower trade has followed the general trends in international trade in terms of increasing volumes (AIPH, 2004), and this has exacerbated the risk of introducing plant pests to importing countries (Kiritani & Yamamura, 2003; Work *et al*., in press). The aim of this study is to enhance the understanding of the factors that favour the introduction of plant pests as a subcategory of alien invasive species through the cut flower trade. The analysis is applied to the case of the cut flower trade between Kenya (the exporting country) and the UK (the importing country) for the last eight years. Kenya is one of the largest suppliers of cut flowers to the EU (CPI, 2002), and the UK is the second-largest importer of Kenyan cut flowers (Thoen *et al*., 1999).

DATA

Monthly data on plant pests detected by Her Majesty's Customs and Excise (HMCE) on cut flowers imported into the UK from Kenya were provided by Central Science Laboratory (CSL), UK for the period January 1996 to December 2003. Observations on *Chrysanthemum*, *Dendranthema* and *Euphorbia* were excluded because it was not possible to differentiate between imported cuttings and cut flowers. Data on volumes and values of cut flowers imported were obtained from Eurostat; information on exchange rates were also collected. Precipitation rates and temperatures in Kenya were obtained from the National Oceanic and Atmospheric Administration (NOAA). Finally, data on the monthly number of inspections in cut flowers by HMCE were also collected. Here, we explore the potential relationship between the number of pest interceptions in the importing country, trade-related variables (imported volume, prices and exchange rate), local environmental conditions in the exporting country and detection effort.

RESULTS AND DISCUSSION

The volume of cut flowers imported to the UK from Kenya has tripled in the period analysed. However, the inspection effort has not increased commensurately; in fact, it has declined from more than 500 in 1996 to just over a 100 inspections seven years later (Figure 1). There was a negative relationship between volume and detection effort (Spearman correlation coefficient = – 0.74, $P < 0.001$) (Figure 1). The number of interceptions per year has remained relatively steadily during the period studied. Thrips (Thysanoptera) accounted for approximately 30% of the total interceptions. A stepwise regression analysis showed that only rainfall in Kenya and detection effort significantly influence the number of interceptions, although their explanatory power is very small ($R^2 < 0.15$). This seems to imply that local environmental conditions in Kenya may affect the likelihood of imports being infested by plant pests. This variable may also capture the seasonal character of the

interceptions as these increase during the European winter when UK cut-flower production is low. The relationship between inspections and interceptions should be considered when deciding upon the optimal level of inspection effort. These results are merely exploratory, and further statistical analysis is necessary to investigate, in greater depth, the links between socio-economic variables and the introduction of plant pests.

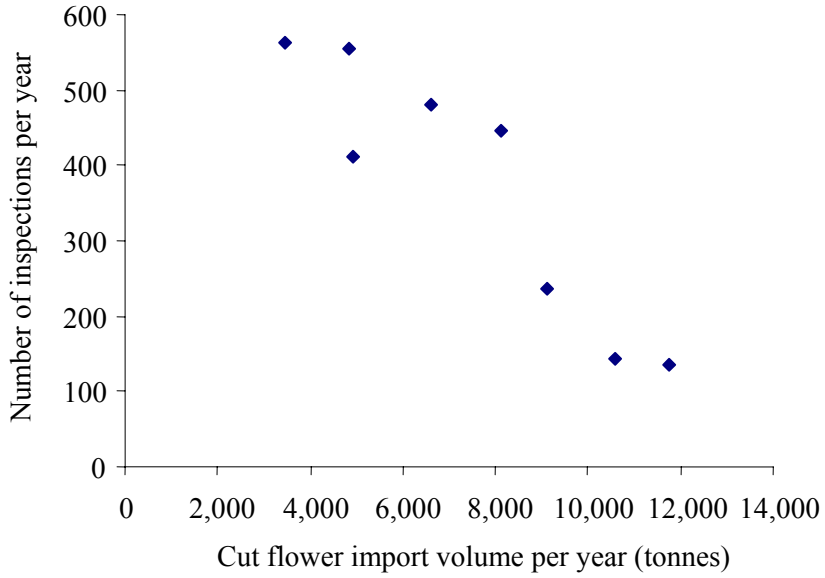

Figure 1. Relationship between cut flower import volume and number of inspections per year, from 1996 to 2003.

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