Fruit Fly Free Areas of the Argentine Republic

The National Fruit Fly Control and Eradication Programme in Argentina (PROCEM), was created in 1994 according to facilitate the access of fruits products in the international market and to reduce economic losses caused by both the Mediterranean Fruit Fly *Ceratitis capitata* Wied. (Diptera: Tephritidae) and the South American Fruit Fly *Anastrepha fraterculus* Wied. (Diptera: Tephritidae), having to date the following phytosanitary status:

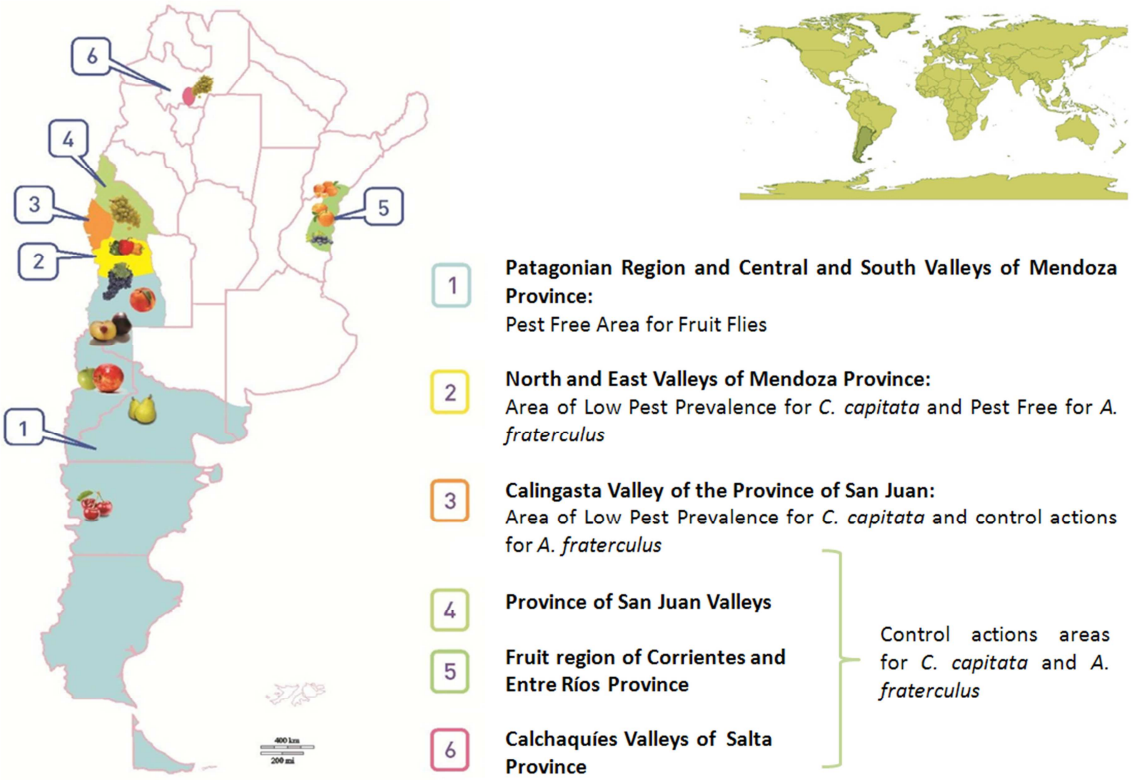


Figure 1: Current Phytosanitary Statuses preserved by PROCEM in Argentina

The significant economic areas declared as free of all genera of fruit flies (Tephritidae) are represented by the Patagonia Region and also by both the Central Valley (Tupungato, Tunuyán and San Carlos departments, collectively denominated as “Uco Valley") and South Valley (Malargüe, San Rafael and General Alvear departments) in Mendoza province, as detailed in the following map:

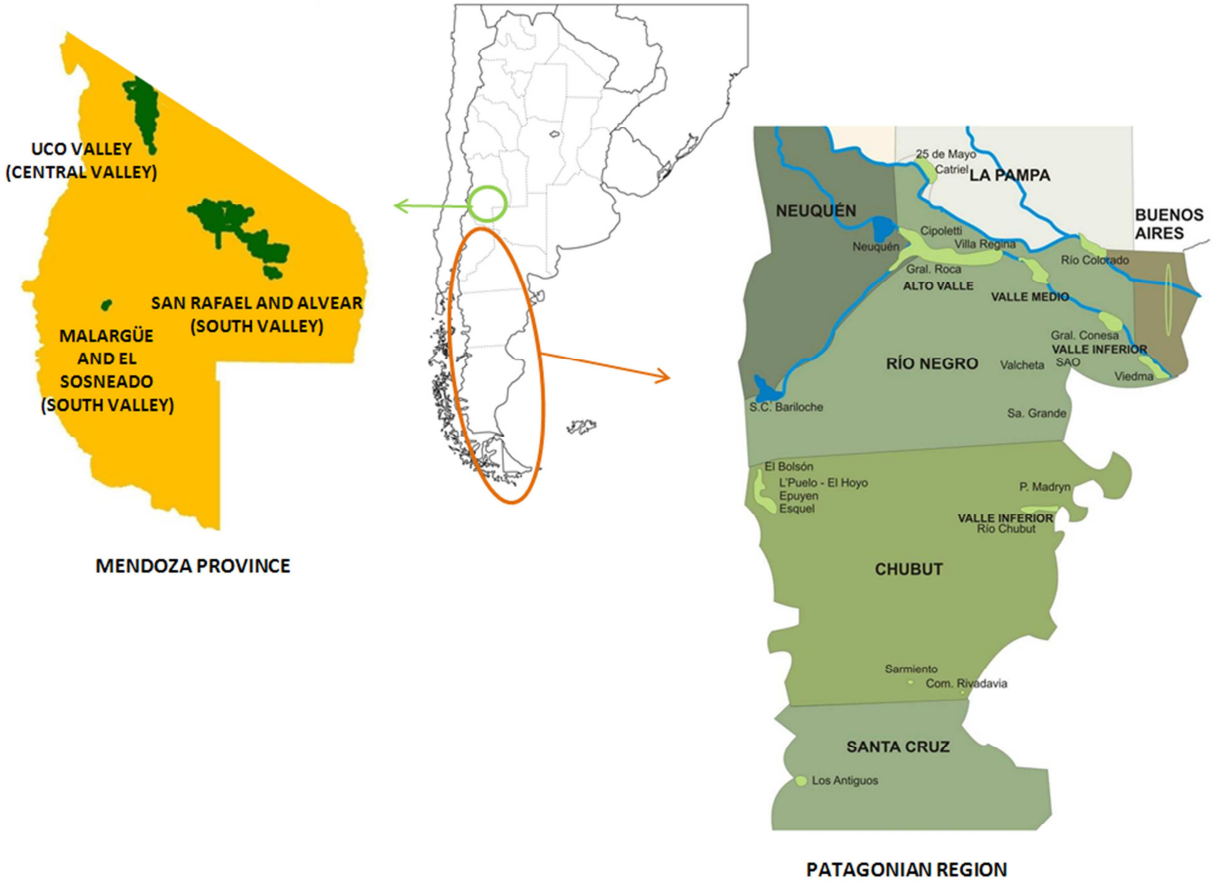


Figure 2: Areas declared as Fruit Flies Free Areas in the Argentine Republic

These recognitions were based on the background described below:

Preliminary processes and decision to establish an eradication program:

From an analysis of agroecological conditions and considering the productive potential of fruit crops areas in Argentina, it was determined that conditions provided by geographical isolation in both the Central and South valleys, Mendoza province, and also in Patagonian productive valleys, presented favourable conditions to undertake an eradication project.

The Isolation is based on semi-desert areas with xerophilous vegetation (non-host of fruit flies) that surround the irrigated productive valleys. In addition, Andean Mountains represent the western natural limit and, in the case of Patagonian Region, the Atlantic Ocean as its east limit.

Climatic conditions in these regions make it difficult the winter survival of these pests, added to the scarce amount of winter hosts (Citrus) which are practically circumscribed to the urban areas.

. Figure 3: Xerophilous vegetation and natural isolation surrounding irrigated valleys.

Fruit production represents the main economic activity in Patagonia Region and also in both the Central and South valleys of Mendoza province, contributing significantly to create added value and employing high levels of labour. In the international market, Argentina's position assumes relevance due to its counter-season production in relation to the northern hemisphere.

All these assumptions were the ones that have promoted the implementation of eradication actions, in order to improve access conditions of fruits and vegetables in the international market.

Both in Patagonian Region and in Mendoza province, the eradication program was jointly developed by the NPPO (National Service for Agri-Food Health and Quality - SENASA), provincial governments, non-governmental organizations, producer associations and research institutions, with the support and technical advice of the International Atomic Energy Agency (IAEA).

Actions implemented during the eradication process:

-Surveillance

The specific surveillance started in 1992 and 1996 in Mendoza and Patagonia respectively, made it possible to determine that *Ceratitis capitata* Wied. (Mediterranean Fruit Fly) was the only species present at that time in target areas, occurring sporadically only in some localities (exclusively in urban areas) and showing a pronounced seasonal presence.

During the first years of work, the host censuses were prepared as a basis for the installation of the trapping networks placing 1 trap/km^2 in rural areas and 2-5 traps/km^2 in urban areas, as well as at risk points (quarantine checkpoints, airports and wholesale fruit markets).

In addition to the installation of Jackson traps with trimedlure (TML) for detection of *C. capitata*, trapping was also carried out with specific traps and attractants to confirm the absence of economically important species of genera *Bactrocera* and *Anastrepha*.

Monitoring actions included field sampling of cultivated and wild host species, as well as sampling in markets, introducers and quarantine control posts.

From the agro-climatic point of view, it was determined that the pest presented very low probabilities of incursion in rural areas, due to low winter temperatures in those areas and treatments with insecticides aimed to other insects, cultural practices, etc.

-Control measures

In the 1990s and the beginning of the 2000s, integrated control actions were carried out for the purpose of eradication.

The sterile insect technique (SIT) was adopted as the main control method. The sterile material used in both regions came from the Sterile Insects mass rearing facility of Mendoza province, modifying the strains of *Ceratitis capitata* used over time.

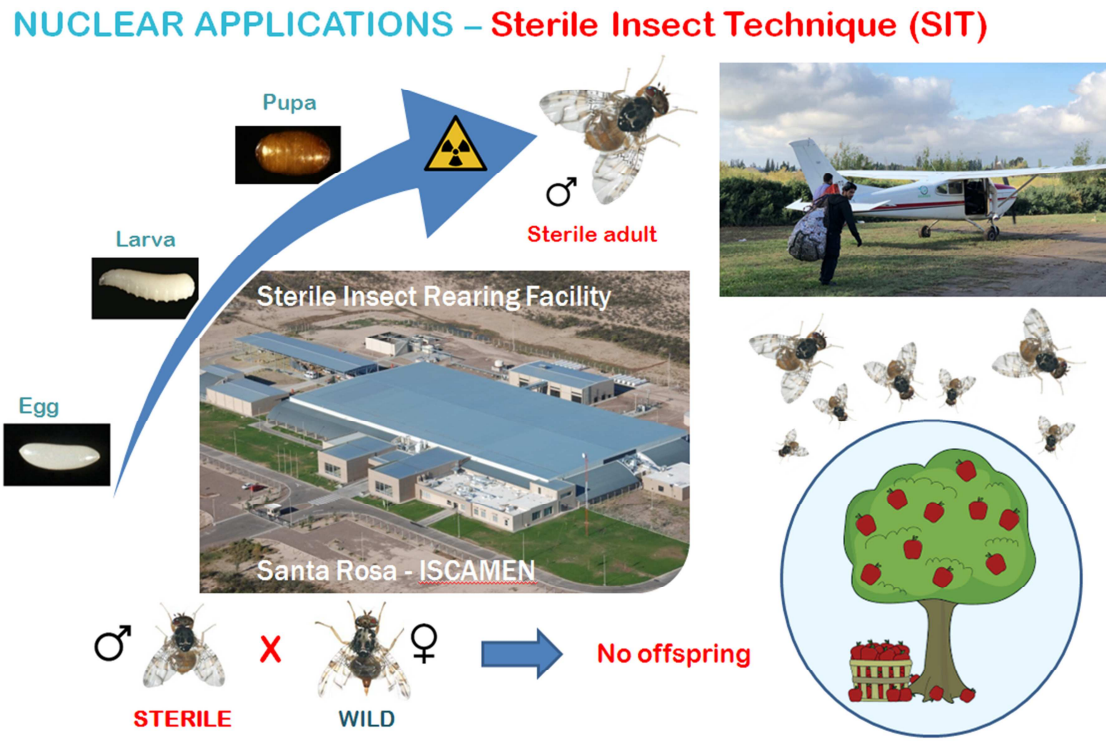


Figure 4: Sterile Insect Technique.

At the same time, the registered pest outbreaks were controlled by brigades that applied cultural control, chemical control of soil and bait insecticides.

Regarding chemical control, the insecticide used was malathion together with hydrolysed protein as attractant (one of the few products available on the market at the time). In addition, chlorpyrifos was used to control larvae or pupae that could be buried at the foot of an attacked tree.

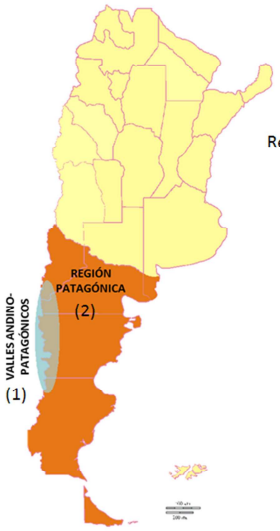
All these measures were also accompanied by mechanical control actions, sanitary measures of management and legal measures, such as the elimination and burial of harvest remnants, destruction of abandoned hosts, etc.

In the same way, quarantine measures were applied for host fruits that are normally mobilized from other regions in Argentina, such as the installation of quarantine control stations on roadways and airports, and the control of 100% of quarantine treatments with methyl bromide or cold for host fruits destined to Protected Areas (through a staff of inspectors that provide the permanent official inspection service in Quarantine Treatment Facilities).

Verification and declaration of pest eradication

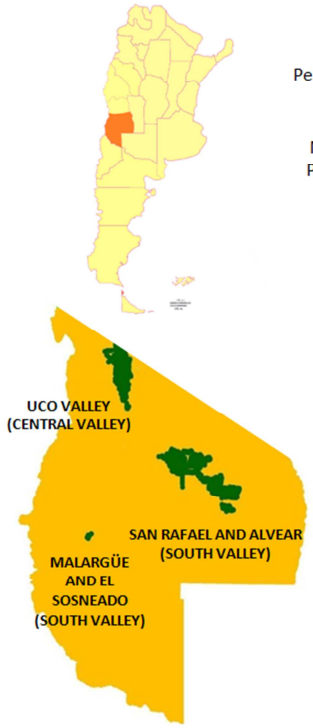
The following is the chronology of declarations and recognitions of free areas:

PATAGONIAN REGION



	National Declarations		International recognitions
1999	Patagonian Andean Valley (1): Pest Free Area for Fruit Flies (Senasa Resolution Nº 194/99)		
2002	Productive Valleys of the Patagonian Region (2): Area of Low Pest Prevalence for *C. capitata* (DNPV SENASA Provision N° 03/02)	2002	CHILE: Patagonian Andean Valley (1): Pest Free Area for Fruit Flies (Exenta Resolution N° 441/02, SAG)
2006	Productive Valleys of the Patagonian Region (2): Pest Free Area for Fruit Flies (DNPV SENASA Provision Nº 18/06)	2005	United States of America: Patagonian Region (2): Pest Free Area for Fruit Flies (Federal Register, Vol. 70, Nº 235/05, Rules and Regulations, APHIS-USDA)
		2013	CHILE: Patagonian Region (2): Pest Free Area for Fruit Flies (Exenta Resolution N°1279/13, SAG)

MENDOZA PROVINCE



	National Declarations		International recognitions
2002	The whole province: Area of Low Pest Prevalence for *Ceratitis capitata* (DNPV SENASA Provision Nº 1/02)		
2003	Malargüe and El Sosneado Valleys: Pest Free Area for Fruit Flies (DNPV SENASA Provision Nº 6/03)		
2004	Uco Valley: Pest Free Area for Fruit Flies (DNPV SENASA Provision Nº 15/04)		
2006	Departments of San Rafael and General Alvear: Pest Free Area for Fruit Flies (Disposición DNPV Nº 15/04)		
		2009	CHILE: Central and South Valleys: Pest Free Area for Fruit Flies (Exenta Resolution N° 5281/09, SAG)
		2011	United States of America: North and East Valleys: Pest Free Area for Fruit Flies (Federal Register, Vol. 76, No. 248/11, APHIS-USDA)

Current phytosanitary measures to preserve pest free areas:

From the declarations and recognitions of the pest free areas and up to the present, the maintenance of such phytosanitary status is carried out following the technical, legal and operational requirements provided for international regulations (ISPM No. 26, 2006 - FAO).

1. **Surveillance**: The Official Detection Trapping Network is kept operative, consisting of 2,500 traps in free areas of Mendoza province and 2,250 in the Patagonian Region, for the early detection of *C. Capitata*, *A. fraterculus*, and other non-native fruit flies species that are not present in Argentina. All traps are codified and georeferenced allowing their identification and traceability. Samples of hosts fruits are also analyzed in fruit introducers (wholesale markets and small markets), and in quarantine control posts.

2. All material is sent to the Dissection Centers for analysis and the information gathered is processed in IT Systems to generate the corresponding Weekly Reports that reflect the different evaluation indices of the Program.

   Irrigated valleys under surveillance correspond to the areas indicated in green in the following maps:

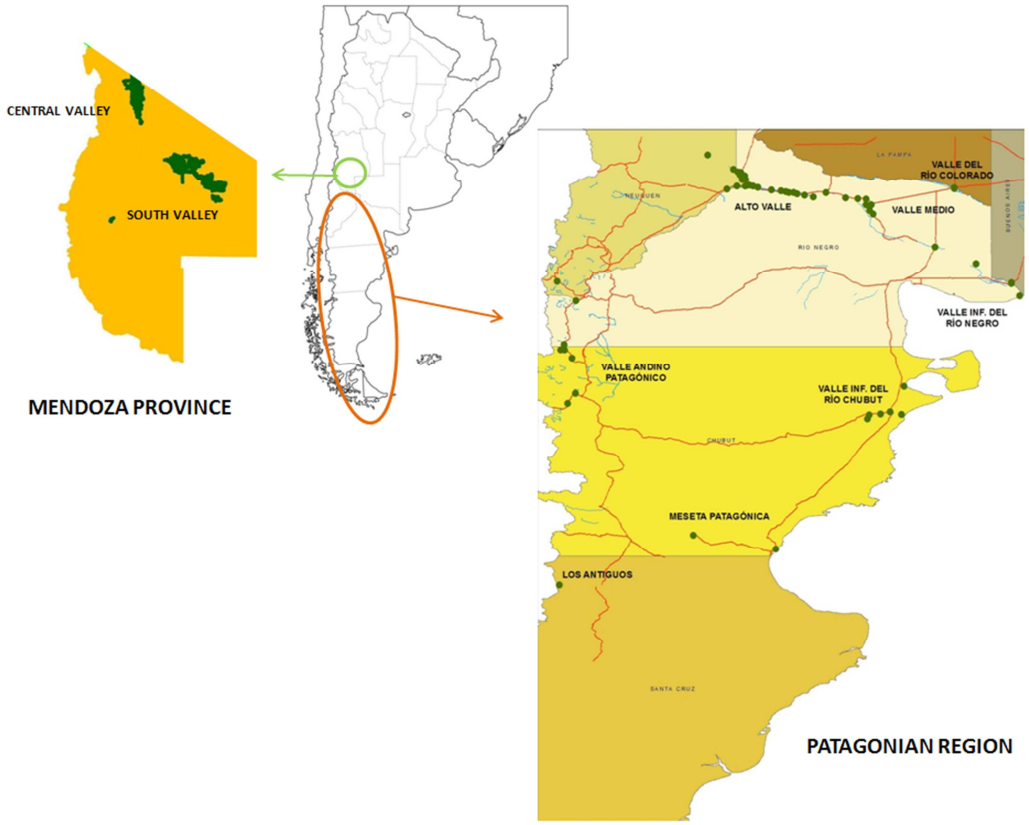


Figure 5: Green-coloured: Irrigated valleys and productive valleys under surveillance in the Patagonia Region and Central and South Valleys of Mendoza

Figure 6: Trapping and fruit sampling activities

3. **Preventive phytosanitary control**: to ensure the protection of pest free areas, the preventive plan for sterile flies release is implemented. In addition, terrestrial sprays are applied with bait insecticide of low environmental impact (Spinosad 0.024%) and destruction of fruits in urban areas and sites of high risk of introduction of host fruits. These actions are carried out in those localities that may imply a risk of re-entry of the pest, mainly due to the flow of people or commodities.

Figure 7a: Cultural control; b: Application of insecticide bait; c: Sterile insect aerial release.

4. **Contingency Plan**: there is a Phytosanitary Emergency Plan for Fruit Flies established by SENASA Resolution No. 152/06, which details the actions to be taken in a possible event of detection or pest outbreak, in order to avoid dispersion towards the rest of free area, preserving such condition and offering security to destination markets with respect to the host commodities that are marketed under the status of pest free area.

Quarantine Protection: at the checkpoints, all private and cargo vehicles that enter into the protected regions for fruit flies are inspected and disinsected. This process is done 24 hours a day, 365 days a year. Different tools such as scanners and sniffer dogs are used, which contribute to improving the quality of work and the acceptance of the general public. On the other hand, there are now 14 quarantine treatment facilities for fruit movement.

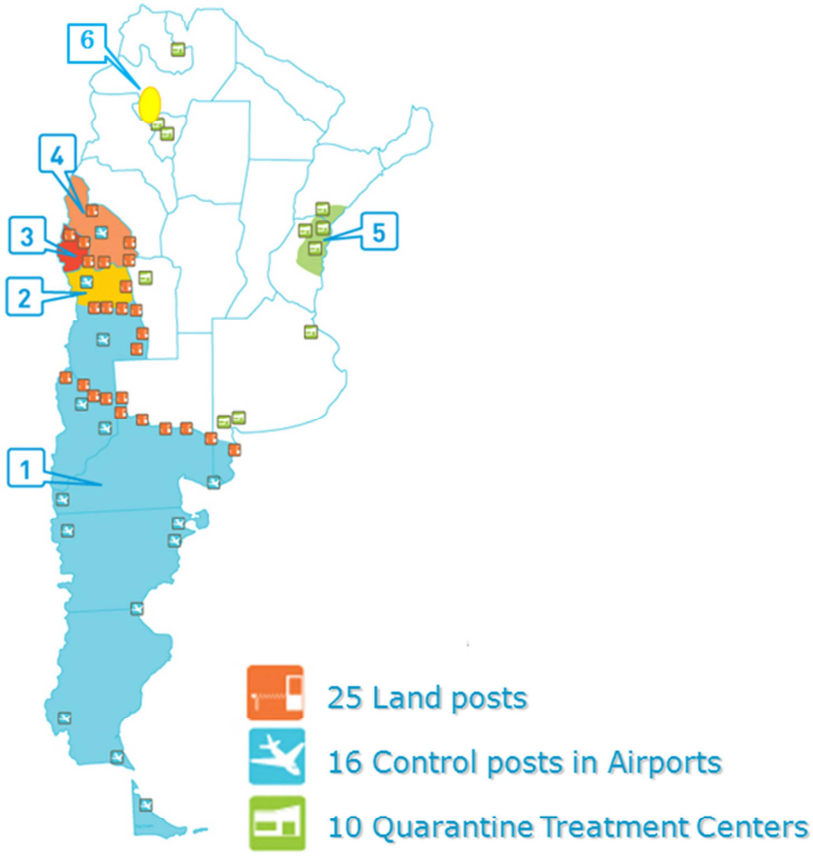


Fig. 8: Quarantine protection system of PROCEM

Fig. 9: Control and inspection in land checkpoints and airports.

- **Institutional communication campaigns**: adapted to different target groups (travellers, citizens and producers).

Figure 10: Communication pieces of the "Protect, just in case " campaign.

- **Internal quality control**: it is carried out through controls to field and laboratory staff in order to observe and evaluate the procedures. The free areas receive permanent audits by the NPPO of Argentina and also from the importing countries.

- **Staff training**: in monitoring, taxonomic identification and field operations.

Socio-economic benefits of free areas:

The official recognition of the Central and South Valleys of the province of Mendoza and of the Productive Valleys of the Patagonia Region as pest areas free of fruit flies allowed to improve the conditions of fruits and vegetables access to export markets and also made it possible to get better prices, mainly in early season. This happened since the need to submit the fruit to quarantine treatment was eliminated, reducing export costs and facilitating logistics in the commercialization, particularly of apples, pears, peaches and plums. It also has benefited the trade of cherries, by allowing them to be exported by air, without having to undergo the cold treatment that reduces their commercial quality.

This communication is submitted for the purpose of transparency and in order to provide more information to the Members, in relation to the background and current situation of the fruit fly free areas of Argentine Republic.

Note: for more information related to the National Fruit Fly Control and Eradication Programme in Argentina (PROCEM) and its actions carried out, please contact the National Service for Agri-Food Health and Quality (SENASA):

Coordination Office for International Relations

Telephone: + (54 11) 4121 5353/5288

E-mail: relint@senasa.gov.ar

Web site: http://www.argentina.gob.ar/senasa