Periurban Horticulture in La Plata, Argentina

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WP 14 “Best practices for horticultural production in periurban areas”
La Plata City – University of La Plata

- LA PLATA: Main political, administrative and educational center of Buenos Aires
- The 4th city in Argentina: 830,000 hab
- National University of La Plata: founded in 1890.
- One of the three great Argentine universities. 10,900 teachers, 120,000 students. 17 Faculties, 137 Grade Carriers, 167 PostDegrees.

La Plata Periurban Green Belt Area 34°55' S 57°57'W
Argentina 38°24’S 63°37’W

- Agriculture area: 38,000,000 ha
- 700,000 ha horticulture (legumes: 276,000 ha)
- 10 mill wages/year
- Domestic market 99%
- Exports: 1-1,4% of vegetables exports
- Dry: Legumes
- Stored: garlic, onions
- Processed: potato, tomato
Crops situation (ha)

- Total: 75700
- Potato: 72739
- Fruit and vegetables: 3,961
- Beans and pulses: 1,000
- Other crops: 2,500
- Maize: 2,000
- Tomatoes: 1,490
- Onion: 1,440
- Wheat: 1,206
- Rice: 1,000
- Cocoa: 950

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Buenos Aires Periurban Green Belt
Horticulture Periurban Greenbelt of La Plata (main Green Belt in Argentina)
Horticulture Periurban Greenbelt of La Plata

La Plata (2005)
High capitalization
Greenhouse Area: 1617.34 ha

La Plata (2020)
High capitalization
Greenhouse Area: 5461.69 ha (2017)
6000 producers
Greenhouses types in La Plata

- Chapel type
- Modified Chapel type
- Modified chapel type of higher height
- Metal parabolic type
Main crops in La Plata Horticulture Green Belt

90 % of the Surface of Greenhouses

Main Crops in open field
### Productive horticulture processes

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
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| **CONVENTIONAL** | - Every tool available under current regulations (there are not many controls for compliance)  
| **ORGANIC, BIOLOGICAL OR ECOLOGICAL** | - Specific Organic Protocols and certifications  
- Res. SAGPyA 374/2016 and 291/2012 homologated with UE. |
| **GAP: GOOD AGRICULTURAL PRACTICES** | - Specific protocols, but “generals” and privates |
| **INTEGRATED PRODUCT (DERIVED FROM INTEGRATED PEST MANAGEMENT)** | - Few products derived from Integrated Pest Management, without marks or labels, availability was sporadic |
“Bad” horticulture practices: problems of inocuity in final product and risk to the workers and the environment.
Horticulture production in the area

- Bad use of pesticides
- Use of fresh manure
- Hygiene and security
- Lack of record keeping
- Desinformation
Good Agriculture Practices

Are Agricultural Practices that are supported by scientific and technical knowledge, which applied to agriculture in a certain temporal and spatial place achieve sustainable production, understanding as such that which can be perpetuated over time and has environmental, economic and social stability and guarantee quality and food safety.

Argentina:
Since 2017, they have been incorporated into the Argentine Food Code for mandatory compliance with GAP: 1-0047-2110-4246-17-4. The standard establishes a deadline to comply with the requirement from January 2, 2020 for the fruit sector and on January 4, 2021 for the horticultural sector.
How we analyzed each GAP??

Good Agriculture Practices

Tools

Inputs

Final product

Waste
SECURITY AND HYGIENE

HARVEST, PACKAGING, STORAGE AND SELLING

IRRIGATION

CROP MANAGEMENT

AMENDMENTS AND FERTILIZERS

INTEGRATED PEST MANAGEMENT (IPM)

RECORD KEEPING

TRAINING

GOOD AGRICULTURE PRACTICE

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**SECURITY AND HYGIENE:**
Water analyses, washing products, manipulation, protocols, packaging and warehouses, workers, hygiene, clothes and behavior.

**HARVEST, PACKAGING, WAREHOUSES AND SELLING:** Water and food analyses, washing products, manipulation, protocols, packaging and storage, workers, hygiene and behavior, warehouse design, waste, boxes, food and animals in the warehouse,.....

**IRRIGATION:** Water requirement, quality and frequency of water.

**CROP MANAGEMENT:** Seeds, inputs, pesticides, fertilizers, labours, irrigation.

**AMENDMENTS AND FERTILIZERS:** Composting, management of nutrients, soil analyses, nutrients requirement.

**INTEGRATED PEST MANAGEMENT (IPM):** Pesticides, monitoring, traps, biological control.

**RECORD KEEPING:** Forms, data

**GOOD AGRICULTURE PRACTICES:** tools and inputs
Security and hygiene (COVID-19)
Water problems in La Plata

1. Water analyses must be done, frequently

2. Prevention of microbiological contamination must be a rule
Amendments and fertilizers

1. The fresh manure must be composted, or replaced.
2. Soil analyses must be done.
3. Requirements of crop nutrients must be known.
Integrated Pests Management

- Agrochemicals
- Biological control
- Colateral effect of pesticides
- Monitoring
- Traps
- Organic production

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### Tomate: identificación de plagas y enemigos naturales

**Mosca blanca**: sucesión de savia con desarrollo de hongos (fumagina). Buscar en HOJAS.

**Polilla del tomate (cogollero)**: ataque de tejido interno de hojas, perforación de tallo, brotes y frutas. Buscar en HOJAS, BROTES, FRUTOS.

**Ácaro del bronceado**: tallo bronceado, secado de la planta desde la punta de las hojas. Buscar en TALLO.

**Pulgones**: sucesión de savia con desarrollo de hongos. Buscar en HOJAS.

### Tomate: identificación de plagas y enemigos naturales

**Avispas parasitoides de moscas blancas (Eretmocerus sp., Encarsia formosa)**: parasitando la forma juvenil de la mosca y terminando matándola, dejan la parte externa perforada.

**Avispas parasitoides de pulgón (Aphidius colemani, Praon volucris)**: parasitan al insecto y terminando matándolo, dejan la momia vacía (el exoesqueleto).

**Tauroclops curvidecus**: Depredador generalista de mosca blanca y cogollero, entre otros.

**Vaquillas** (gran cantidad de especies): Adultos y ninñas comen pulgones y otros insectos.

### Pimiento: identificación de plagas y enemigos naturales

**Orius (chincheta pira)**: se alimenta de trips, polen y otros insectos.

**Avispas parasitoides de pulgón (Aphidius colemani, Praon volucris)**: parasitan al insecto y terminando matándolo, dejan la momia vacía (el exoesqueleto).

**Avispas parasitoides de moscas blancas (Eretmocerus sp., Encarsia formosa)**: parasitan la forma juvenil de la mosca y terminando matándola, dejan la parte externa perforada.

**Vaquillas** (gran cantidad de especies): Adultos y ninñas comen pulgones especialmente.

### Pimiento: identificación de plagas y enemigos naturales

**Trips**: transmisión del virus de la peste negra, también puede dañar hojas y frutos. Buscar en FLORES.

**Mosca blanca**: sucesión de savia con desarrollo de hongos (fumagina). Buscar en HOJAS.

**Ácaro blanco**: encrespamiento de hojas. Frutos corchosos. Buscar en HOJAS NUEVAS.

**Pulgones**: sucesión de savia con desarrollo de hongos. Buscar en HOJAS.
Pesticides Problematic


Characterization of pesticides:
✓ Human health: Information about human toxicity, and waiting time

✓ Safety workers clothes: The pesticides applications are done without protection

✓ Environment: Impact on natural enemies, birds, bees, algae and earthworms
Records keeping, data management and traceability.

- Farm maps and names of production plots
- Batch and/or parcel history.
- Soil works.
- Implantation dates, crops, varieties.
- Soil and water analysis (date and diagnosis).
- Application of fertilizers, amendments, fertilizers and agrochemical applications.
- Stock of agrochemicals.
- Harvests
- Cleaning of different places and objects: toilets, packing shed, machinery, machinery calibration, merchandise transport vehicles.
- Sales
Training and promotion

- GAP Working Committee
- Meetings and Workshops
- Formal Courses and Projects
- Congreso Argentino de Horticultura 2020
- Wiki (Agroknowledge)

(Integrando Tecnología a los Cinturones Verdes”

Commercialized horticulture products

- Derived from GAP Protocols

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Waste

Unsold crops
- Food Bank, incorporated into the soil or for animal feeding (pigs)

All kind of waste
- There are no legislation

Plastics (greenhouses)
- There are no legislation

Empty phytosanitary container
- Empty phytosanitary container management system has not been yet available. Ley27279/2016; Dec. Reg.134/2018

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Thank you for your attention!

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