Improving Competitiveness and Reliability for Consumers
Our sustainability inputs

Pest and beneficials monitoring

Optimization of crop protection

Sprayers' regulation

Bayer Phytobac

Creating the Conditions for Healthy Nutrition

Biological products

Anti-drift nozzle

food chain partnership

BAYDIVERSITY
Food Chain Partnership by Region/Crop
Our main objective was to contribute to the production of high quality fruits that meets consumer demand in terms of food safety while respecting sustainability principles. The achievement of such objectives were based on a close collaboration with our partners who are committed and engaged towards sustainable agriculture.
The integrated solution

The starting point was a sampling of different parts of trees in each of the farms participating in the project, to identify the initial status with regard to pests, statistically quantifying presence/absence levels.

The biological cycle of the first generation of California Red Scale and White Scale was monitored, to establish the major percentage of sensitive forms and to implement the treatment at the most optimal time. A similar task was given for the most prevalent red spider mite (*Tetranychus urticae*) in mandarin trees, the citrus blossom moth (*Prays citri*) in lemon trees, and *Pezothrips kellyanus* in mandarin, orange, and lemon trees. It has to be highlighted that the applied strategies were very efficient, especially for *Pezothrips kellyanus*, and contributed in avoiding fruit damage.

The second generation of California Red Scale and White Scale was also monitored using sticky pheromone traps to lure the males of the species. This allowed us to know the population status of both scales. In addition, the calculation of the site’s thermal integration gave us the indication of the best treatment timing.

The red spider mite, *Tetanychus urticae*, was monitored together with phytoseiidae, their natural enemies. Acaricide solutions, compatible with the beneficials used, were used when the pest threshold was exceeded.

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**Biological cycle of California Red Scale**

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These Food Chain Projects also included other activities such as application technology. It is important to say that improving spraying quality is a key sustainability parameter. In this regard, Bayer cropScience carried out different activities such as regulation of sprayers, calibration (taking into consideration pressure, speed, caudal of nozzles, etc.). All of these actions were implemented according to the pests in focus and the tree dimensions.

Another important parameter used was the identification and quantification of the beneficials of these pests, which help us identify the following:

- The quantity of beneficials
- The level at which they can be controlled without treatment

The big population of the parasitoid of citrus whitefly (*Cales noacki*), the predator of the cottony cushion scale (*Rodolia cardinalis*) and the parasitoid of ceroplastes (*Metaphycus helvolus*) were managed and controlled adequately while avoiding specific treatments.

Moreover, all the Food Chain partners used anti-drift nozzles in their farms. Not only, these are required by the European Directive of Sustainable Use, but highly important in improving the efficacy of the treatments.
What we achieved

These Food Chain initiatives are an example of the commitment and engagement of the partners towards contributing to a sustainable agriculture. Bayer CropScience implemented a variety of tools and measures such as pest monitoring, machinery regulation, use of anti-drift nozzles, beneficials’ management, coaching courses, etc.. These activities were highly appreciated and contributed to tangible results:

• Pest control was better than on conventional farms
• There was an increase of beneficials, making the use of specific pest treatments unnecessary
• Quality fruit at competitive prices, complying with the European retailers requirements with regard to safe and consumer-healthy produce
• Good added value for producers, as farms were better driven and a sustainable balance was reached for future good management
Consumers are becoming increasingly conscious of the need for healthy nutrition. Food Chain Partnerships help to supply consumers with high-quality fresh produce, which forms the basis of a healthy diet. But such partnerships can only succeed if they involve every player in the food chain – from the farmer and processor to the exporter or importer and retailer. Bayer CropScience has the global experience and cutting-edge expertise to create a successful partnership at every level.