

## Sterile Insect Technique Plus (SITPlus) Program

### What's SITPlus?

SITPlus is a national, long-term strategic research and development partnership that aims to deliver an integrated pest management solution to the major horticultural pest Queensland fruit fly (Qfly).

Sterile Insect Technique (SIT) is a method of pest control using area-wide releases of sterile insects to reduce reproduction in a wild-population of the same species. It is used as a component within a holistic program incorporating other techniques (the 'Plus', in SITPlus), such as protein baiting and orchard hygiene, to work towards achieving fruit fly-free areas, or areas of low pest prevalence. SIT is currently being used effectively against fruit flies in the USA, Mexico, Guatemala, Chile, Argentina, Peru, Israel, Jordan, Spain and South Africa.

SIT has the potential to reduce the use of pesticides. This technology has the potential to support export activity, and attract consumers that are increasingly focused on ecologically sustainable production techniques that reduce or eliminate pesticide residues.

### Who's involved and what's the funding breakdown?

Hort Innovation is managing the program and contributing \$15.5M across all SITPlus projects, \$2.2M of this is made up of citrus, cherry, apple and pear, summerfruit, table grape, strawberry, and vegetable matched industry levies. The rest is made up of funding from SITPlus partners including Macquarie University; the South Australian, New South Wales, Victorian, Tasmanian and Australian Governments; the CSIRO; and the New Zealand Institute for Plant and Food Research.

### What's happened with the program to date?

Since it launched in 2014, the focus has been on research and development. Researchers have delivered a large range of work to support the release of sterile Qflies and support Area Wide Management (AWM) of Qflies in major growing regions. Highlights include:

- Scientists have developed techniques to produce an optimised fruit fly, a fly that has all the traits fussy female fruit flies look for.
- A specialised, cost-effective diet to raise sterile flies with maximum efficiency is in use.
- Achieving a temperature sensitive fly, a major step forward in developing a male-only strain for release.
- SITPlus team members have travelled throughout key growing regions affected by Qfly, spreading the word about Area Wide Management– that is, growers and residents banding together to prevent fruit fly affecting large swaths of land.
- A [support website](#) for AWM information has been developed;
- The SITPlus factory was delivered in 2016, and is working towards a target of producing 50 million flies per week by September 2019.
- The first release of sterile Qflies from the factory took place over Adelaide in April 2018, following Qfly incursions in the State.

### **Who owns the Intellectual Property?**

The SITPlus program commenced using publicly available intellectual property, and no further private IP has been generated from research to date. All research outputs and knowledge has, and will be, made openly available providing the best long-term benefit, for everyone.

### **What's coming up next?**

Four types of release activities are being considered for investigation as a research pilot across the 2018/19, 2019/20 and 2020/21 seasons under a research program developed in consultation with industry. These include:

- Area-wide management that includes SIT releases over urban and commercial properties
- Area wide management that includes SIT release over urban spaces only, to support efforts in surrounding production areas
- Prophylactic release to support 'Pest Free Areas' or 'Pest Free Places of Production'.
- Farm only releases.

Ongoing consultation will occur with industries throughout any research pilot process.

### **When doesn't SIT work?**

Where the area populations are too high, hence why Area Wide Management activity is taking place in key growing areas in various parts of the country.

### **Can Qflies ever be eradicated from Australia?**

Qflies are native insects, and therefore the aim is not to eradicate them, but bring the population down to levels where they are not having a significant impact on growing our produce and our ability to trade.

### **Who manages the releases of flies? When and where will releases take place?**

During the pilot program, a dedicated National Queensland Fruit Fly Release Prioritisation Panel has been set up to co-ordinate release decisions. This panel is made up of the Chairman of The Australian National Fruit Fly Council, the Australian Government, Biosecurity SA, the SITplus program and the Ministry of Primary Industries, NZ. Industry input will be considered in all decisions made by the panel.

Initially, the selection of release sites will be based on factors such as: historical outbreak responses, the potential outbreak pressure, the estimated likelihood of success and co-investment by parties.

On top of this, one of the objectives of the post production pilot project being investigated is to identify the best release times and frequency. Ongoing consultation will also occur with industries throughout any pilot process.

### **How much will it cost to deliver SIT flies to regions?**

There will be a charge to cover production, delivery and release expenses. These costs are to be determined with funding agencies and industry. The ultimate aim is to commercialise sterile insect technology facility.

### **How can industry source flies?**

In line with project research and development activities, pilot releases have taken place in areas such as Adelaide after a recent Qfly incursion. The ultimate aim is to move towards commercialisation and make the flies available for purchase. Regions contributing to the R&D program are able to participate in research pilot releases. However, given we are still in the early phase of using new scientific findings and technologies, with the SITPlus factory in Port Augusta ramping up and new developments being adapted into the program, fly numbers at this stage are temporarily limited.

### **Where can I get more information?**

Contact Hort Innovation SITPlus research and development manager Penny Measham on 02 8295 2300 or email [penny.measham@horticulture.com.au](mailto:penny.measham@horticulture.com.au)