



Changing the pattern of IPM





Company profile

Russell IPM is one of the leading manufacturers of insects pheromones for pest monitoring and control. Our core expertise is semiochemicals-based pest management for public health and agriculture. We offer a wide range of innovative products that are environmentally-friendly and deliver safe, effective and sustainable crop protection both in the farm field and in food storage spaces.



Changing the pattern of Integrated Crop Management (ICM)

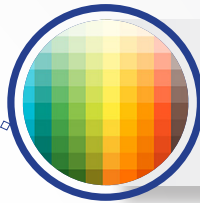
Russell IPM has a dynamic research and development team focussed on providing robust solutions against a wide range of existing and upcoming pest and disease species. Our vision starts with a healthy soil to promote pest and disease resistant plants, repellents to deter pests away from crops and attractants to draw pests onto traps. Our systems are refined to allow integration with, or enhancement of, natural enemies and pollinators. A range of digital traps are in development to monitor pests, diseases and key environmental factors. These remote monitoring traps will alert growers by text or email when remedial action is required.

The addition of sticky roll traps to ICM systems has proven to result in more robust thrips and whitefly control (pages 4-7). Typically the rolls capture the adult flying stages of insects, whilst predators feed on the larval stages. Together predators and rolls work better than either alone. A new range of sticky traps are being adapted to target specific pest species, such as capsids (*Lygus* species), pepper weevil (*Anthonomus eugeni*) and spotted winged drosophila (*Drosophila suzukii*). In a programme of continuous improvement, the rolls are optimised for different climates and pest species by testing and selecting the best colours, patterns, attractants, base material and glues (page 3). Unique to Russell IPM, our formulation chemists have encapsulated pheromones and incorporated them into the rolls, for convenient and longer-lasting release.





The Science behind the tapes



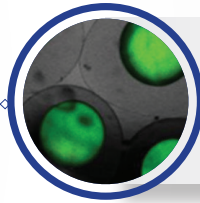
COLOUR

Trap colours selected to attract specific pest species.



ATTRACTANTS

Range of pheromones & kairomones added to increase trap catch of specific pests. Scents incorporated onto adhesive surface during manufacturing for ready-to-use traps.



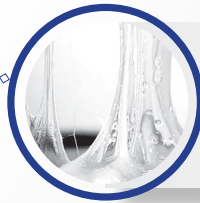
FORMULATIONS

Unique micro-encapsulated formulations developed to produce longer-lasting release.



VISUAL PATTERNS

Patterns printed onto traps to increase the attraction and trap catch of certain pests.



ADHESIVE

Specially developed, high-tech, non-drying, water-resistant and toxin-free glue. Adhesive active from 50° with a dripping point at 185°.



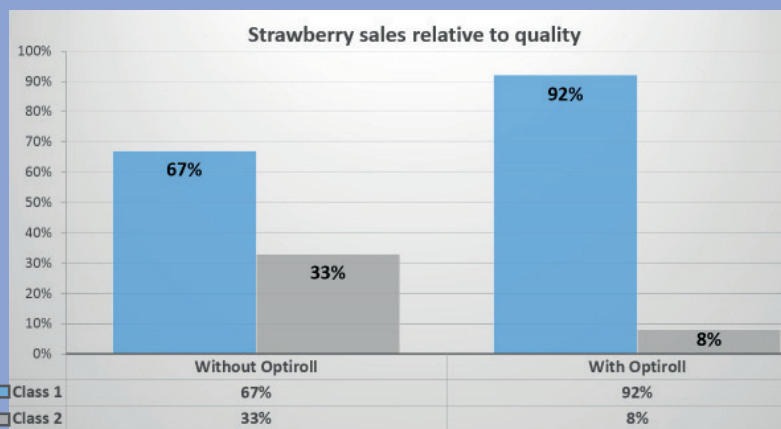
STABILITY

Different specifications to tolerate UV exposure and varying temperatures.

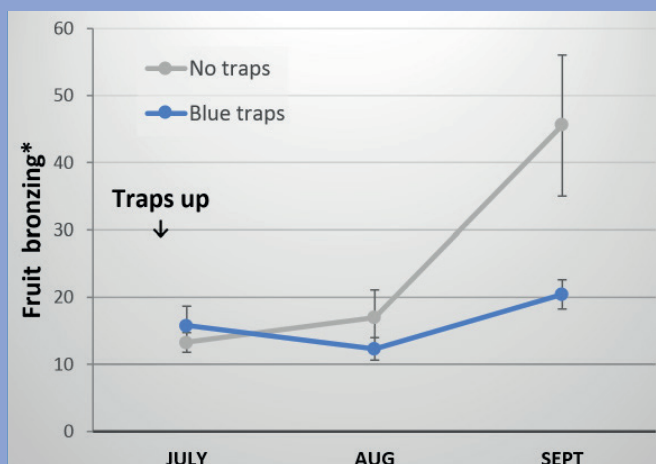


INTEGRATED THRIPS SOLUTION THAT DELIVER

Four years of large scale trials combining the application of natural enemies (mainly the predatory mite *Neoseiulus cucumeris*) and Optiroll Super Blue sticky rolls have proved highly effective in bringing Western Flower Thrips under control.



The integration of Optiroll Blue into an existing management programme increased the marketed Class 1 strawberry from 67% to 92% while reducing Class 2 from 33% to 8%.⁽¹⁾



Strawberry fruit bronzing (numbers of seeds surrounded by bronzing*) in plots with and without Russell IPM blue Optiroll traps.

The combined use provides a robust control system, consistently giving better thrips control than either method alone. The predatory mites feed on thrips larvae, while the traps catch adult thrips, giving growers a holistic solution that is proven to deliver results and increase financial return with the added benefit of reducing pesticide use.

Reference: Sampson C, Kirk WDJ (2013) PLOS ONE 8(11): 80787. Figures and statements are based on the application of Optiroll blue, between all tunnels from first flowering, in integration with programmed releases of predatory mites in strawberry grown in semi-protected tunnels and careful selection of a pesticide programme that was compatible with the predatory mites.



RESULTS Combining Predatory Mites & Optiroll Super Blue Sticky Traps

What do the growers say?

“Combining predators with traps has been very successful in controlling thrips. We have had no crop loss due to thrips in newly planted fields and minimal loss at the end of the season on a replanted 2nd year field. The cost of the programme is less than one weeks’ loss of production”.

“After taking part in farm trials testing the blue Optiroll from Russell IPM in 2012, I have used the traps routinely on everbearer strawberries. Using the rolls, in conjunction with programmed applications of *N. cucumeris* throughout the season, has resulted in no fruit being lost to WFT damage.”



Farmers were pleased to find that the Optiroll blue traps, which are selectively attractive to western flower thrips, integrated well with the natural enemies being released in strawberries and that bumblebee pollination was not affected by the traps.



YELLOW STICKY ROLLS BY RUSSELL IPM CO

Russell IPM has developed new versions of its yellow sticky rolls. The new yellow traps show improved attraction and catch of whiteflies (including glasshouse whitefly, *Trialeurodes vaporariorum* and silver leaf whitefly, *Bemisia tabaci*). They also attract aphids, leaf miners and thrips.

The challenge

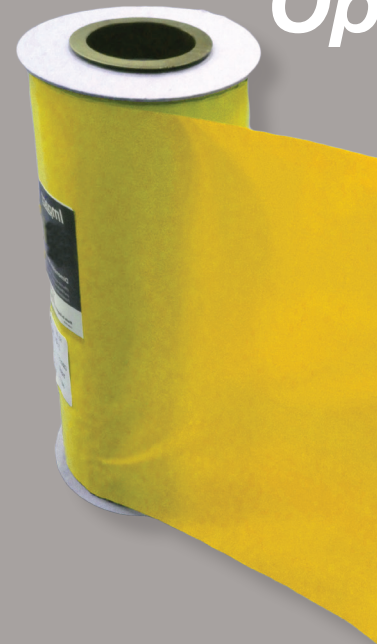
Whiteflies are insect pests attacking a wide range of green-house grown vegetable and ornamental crops, throughout temperate and tropical climates. Whiteflies have developed resistance to a wide range of chemical insecticides, so control relies on integrating a range of methods, including predators and parasitoids (Integrated Pest Management, IPM). Biological control can fail during extreme temperatures, when there are pest invasions or when incompatible pesticides are used. Adding Russell IPM traps provides growers with added protection, resulting in a more robust IPM strategy.

The solution

As part of an on-going development programme, Russell IPM have introduced two improved sticky yellow roller traps – Actiroll and Optiroll - that increase the whitefly trap catch without the added attraction of beneficial species. The yellow colour of both roller traps is of a wavelength scientifically selected in Russell's laboratory to enhance the attraction of whiteflies, while still attracting leaf miners, aphids and thrips.

Russell IPM's new Optiroll trap is made for a tear-resistant, robust, year-round protection. Optiroll is ideal for use outside or in polytunnels, as well as greenhouses. Its specially selected polymer makes it particularly well-suited to warmer climates and long-season crops.

Optiroll





CONSISTENTLY REDUCE ADULT WHITEFLIES

CASE STUDIES

The trapping effect of Optiroll demi (15 cm x 100 m) was tested in a glasshouse strawberry crop (Cultivar lusa), from January to May 2015, in a crop using biological pest control and bumblebee pollination. The trial was laid out in a randomised block design, with seven replicates, comparing plots with and without Optiroll traps. Whitefly numbers were assessed at the start of the trial, then in February and April (Figure 1).

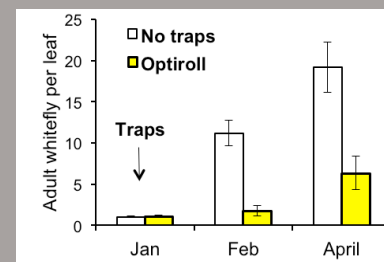


Fig. 1. The whitefly population in plots with and without Russell IPM Optiroll demi traps.

Results SPRING '15

- ✓ Yellow Optiroll demi traps significantly reduced adult whitefly numbers, by 84% in February & 67% in April.
- ✓ The traps are most effective when used from the start of cropping against low whitefly numbers.

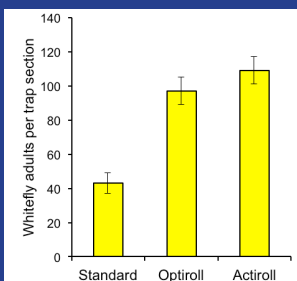


Fig 2. New traps twice as effective as previous standard yellow roller traps

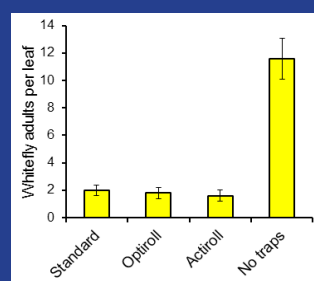


Fig 3. New roller traps reduce whitefly numbers by up to 87% when applied from planting stage

A trial was set up in a glasshouse strawberry crop (cultivar Serena) to test the trapping effect of the new Russell IPM yellow rolls (Optiroll and Actiroll, 30 cm x 100 m) against the standard, compared to plots without traps (July – Oct 2016). The numbers of adult whiteflies per leaf and per trap (10 x 25 cm sections) were counted after the traps had been up for six weeks.

Results SUMMER '15

- ✓ The new Russell IPM traps caught approximately double the number of whiteflies compared to the standard. (Figure 2)
- ✓ Traps reduced whitefly numbers in the crop by 83-87% (Figure 3)

Optiroll

	Target pest	Product	Description
PCT-OPTIN-Y10	Whiteflies, Aphids, Leafminers, Thrips	Optiroll 10 Yellow	Yellow sticky roll size 10 cm x 100 cm
PCT-OPTIN-Y15	Whiteflies, Aphids, Leafminers, Thrips	Optiroll 15 Yellow	Yellow sticky roll size 15 cm x 100 cm
PCT-OPTIN-B10	Western flower thrips, Thrips species	Optiroll 10 Blue	Blue sticky roll size 10 cm x 100 cm
PCT-OPTIN-B15	Western flower thrips, Thrips species	Optiroll 15 Blue	Blue sticky roller trap size 15 cm x 100 cm

Optiroll^{Super}

PCT-OPTIN-S15-Y	Whiteflies, Fungus gnats, Aphids, Leafminers, Thrips	Optiroll Super 15 Yellow	Yellow with Black patterned sticky roll size 15 cm x 100 cm
PCT-OPTIN-S30-Y	Whiteflies, Fungus gnats, Aphids, Leafminers, Thrips	Optiroll Super 30 Yellow	Yellow with Black patterned sticky roll size 30 cm x 100 cm
PCT-OPTIN-S15-B	Western flower thrips, Thrips species	Optiroll Super 15 Blue	Blue with White patterned sticky roll size 15 cm x 100 cm
PCT-OPTIN-S30-B	Western flower thrips, Thrips species	Optiroll Super 30 Blue	Blue with White patterned sticky roll size 30 cm x 100 cm

Optiroll^{Super plus}

WITH WFT THRIPS PHEROMONE			
PCT-OPTIN-SPT15-B	Western flower thrips, Thrips species	Optiroll super plus 15 Blue	Blue with White patterned sticky roll size 15 cm x 100 cm
PCT-OPTIN-SPT30-B	Western flower thrips, Thrips species	Optiroll super plus 30 Blue	Blue with White patterned sticky roll size 30 cm x 100 cm
PCT-OPTIN-SPT15-W	Thrips species, Various pest species	Optiroll super plus 15 White	White with Blue pattern sticky roll size 15 cm x 100 cm
PCT-OPTIN-SPT30-W	Thrips species, Various pest species	Optiroll super plus 30 White	White with Blue pattern sticky roll size 15 cm x 100 cm



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