



# Potato psyllid monitoring

The psyllid / Liberibacter / Phytoplasma complex is a significant threat to the New Zealand potato industry, but early research suggests that its impacts can be minimized by implementing an effective psyllid control programme. Monitoring for potato psyllids can help growers to understand the timing of psyllid invasions, and the life stages present. This will help growers to select the right agrichemical to control that life stage, and apply it at the correct time.

Two methods of potato psyllid monitoring are available – using yellow sticky traps to monitor adult numbers, and crop scouting to determine the numbers of each life stage which are present in the crop. Each method provides different information, as discussed below.

## Monitoring with sticky traps

Yellow sticky traps help to identify the first influx of the potato psyllid or peaks in adult numbers, and tell growers whether or not the psyllid is present. Traps do not provide accurate information on infestation rates in the crop, or of the life stages present. To get this information it is also essential to scout the crop.

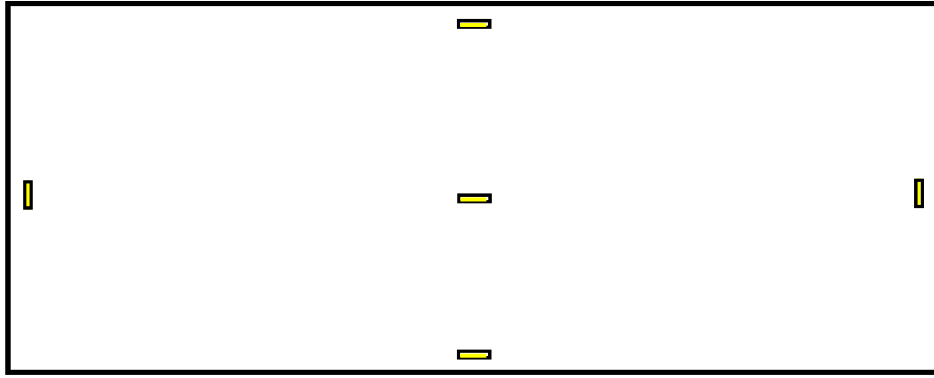
Traps are best placed slightly in from the edges of potato fields, in the corners of blocks, and on headlands (see Figure 1). Work to identify the ideal trap density is still underway, but one yellow sticky trap per hectare is a good starting point. Sticky traps are mounted on a strong stake at a height roughly the same as the tops of the plants. Experience suggests that the first incursion of potato psyllids will often be seen at the ends of rows so it is important to pay particular attention to these areas. Prevailing winds, and potential psyllid

sources such as greenhouses, blocks with volunteer potatoes, or packhouse dumps should be taken into account.

Traps should be changed every seven days and taken back to a well lit work area for counting, or sent to an identifier. If this can't be done every seven days then sticky traps will not provide any useful information as the insects caught will deteriorate and will not be able to be identified. A magnifying glass is very helpful when checking traps, and it is important to accurately identify the insects caught as native psyllids can also be found. Count and record the number of potato psyllids on each trap - a recording template can be found page 3 of this fact sheet, or downloaded from the Potatoes NZ website ([www.potatoesnz.co.nz](http://www.potatoesnz.co.nz)). Recording the number of psyllid found at each date may help predict the timing of population increases in future seasons.

## Key issues

- Sticky traps help identify the first influx of the potato psyllid, or peaks in adult numbers
- Sticky traps should be placed slightly in from the edges of potato fields and changed every seven days
- Crop scouting provides more valuable information on whether the psyllid has established in a crop, the life stages present, and their numbers
- When scouting, 40 plants per field / five plants per hectare should be cut off at the base and carefully examined from top to the bottom
- Like the checking of sticky traps, scouting should be performed every seven days



**Figure 1:** Suggested layout of sticky traps in a potato crop.

## Identifying psyllids on sticky traps

Crop monitoring services are available in some areas and they can arrange accurate identification of the insects caught on sticky traps. It may be possible to work with neighbouring growers (or your customers) to set up a monitoring network, using a professional identification service.

Training in potato psyllid identification will be made available to a limited number of psyllid identifiers – check the Potatoes NZ website ([www.potatoesnz.co.nz](http://www.potatoesnz.co.nz)) for details. Photos to help with psyllid identification will also be available soon on the Potatoes NZ website.

## Monitoring with crop scouting

Regular scouting of plants for eggs, nymphs, and psyllid yellows symptoms can be time-consuming work but can provide valuable information on the life stages present in the crop, and their numbers. Scouting can also indicate whether the psyllid has established in a crop. Yield loss is a serious risk if potato psyllids have colonized a crop, so regular scouting aims to give the grower the chance to spray before damage is done, and also to assess the effectiveness of the spray programme.

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Yellow sticky traps in a potato field. Images courtesy of McCain Foods.

### Sticky trap monitoring template

Date:   
 Paddock name:   
 Number of traps:

Trap	Psyllid Count	Plant Size		Trap	Psyllid Count	Plant Size	
		H	W			H	W
1				14			
2				15			
3				16			
4				17			
5				18			
6				19			
7				20			
8				21			
9				22			
10				23			
11				24			
12				25			
13				26			
Average							

Weed Pressure:  Rated from (0) = Clean, to (5) = Dense and well established

In plant line:

Outside plant line:

Fence lines:

Moisture:

### Potato scouting template

Number of plants sampled:

Average	Small	Med	Large	Eggs

	Nymphs			Eggs		Nymphs			Eggs
	Small	Med	Large			Small	Med	Large	
1					21				
2					22				
3					23				
4					24				
5					25				
6					26				
7					27				
8					28				
9					29				
10					30				
11					31				
12					32				
13					33				
14					34				
15					35				
16					36				
17					37				
18					38				
19					39				
20					40				

(Continued from page 2)

Scouting should be performed every seven days by walking in a W pattern back and forth across the crop. The scout must check right to the edges of the crop as the first incursion of psyllids will often be seen at the ends of rows. The scout should pay extra attention to any plants outside the spray run.

A minimum of 40 plants per field / five plants per hectare should be examined. Carefully inspect the foliage from the top to the bottom of each plant – ensure that the lower leaves and the undersides of leaves are checked. A magnifying glass will be very helpful. In a mature crop it can be difficult to see all of the leaves on the stem, so it is best to cut off a stem at the base and up-end it for a thorough examination.

## Recording monitoring results

It is important to keep a record of psyllid monitoring results so that patterns in developing crops can be identified as this will help with control in the future. Monitoring results can also be compared with other data from the region to build up a better picture of the potato psyllid's behaviour.

A template for potato psyllid monitoring is on page 3 of this fact sheet and can be downloaded from the Potatoes NZ website at [www.potatoesnz.co.nz/psyllid.html](http://www.potatoesnz.co.nz/psyllid.html). A record of psyllid numbers over the 2009 / 10 season can also be found at [www.potatoesnz.co.nz](http://www.potatoesnz.co.nz)

## Thresholds

In spring 2009 a number of consultants have recommended that the threshold for spraying should be one potato psyllid nymph per plant, though sprays should not be applied at closer than seven day intervals (or as recommended on the label).



Potato psyllid adult and eggs. Image courtesy of Whitney Cranshaw, Colorado State University, Bugwood.org



Adult psyllid which are recently emerged and still pale in colour. Image courtesy of Joseph E. Munyaneza, USDA

Front page header image courtesy of Joseph E. Munyaneza, USDA

## Potatoes New Zealand

[www.potatoesnz.co.nz](http://www.potatoesnz.co.nz)  
Ron Gall (Business Manager)  
Horticulture New Zealand  
PO Box 10 232  
Wellington

Phone 04 472 3795  
Fax 04 471 2861  
Mobile 027 446 6838  
Email [ron.gall@hortnz.co.nz](mailto:ron.gall@hortnz.co.nz)