



INSPECTION OF LIVE PLANTS FOR MELON THRIPS

REVISION REGISTER

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1. PURPOSE

The purpose of this work instruction is to provide guidelines for the inspection of live plants for melon thrips. This instruction does not encompass specific protocol inspections for other pests or disease that may be required for some States or Territories.

2. SCOPE

This work instruction covers the requirements for the inspection of live plants requiring certification for freedom from melon thrips and movement from Northern Territory to another State or Territory within Australia by an Approved Inspection Officer.

3. REFERENCES

- WI-02** Guidelines for Completion of Plant Health Assurance Certificates.
- ICA-38** Inspection of Fruits and Vegetables (Post Harvest), Live Plants, Cut Flowers and Foliage for Melon Thrips.
- CA-MSS-01** Inspection and Treatment of Plants and Plant Products for Melon Thrips, Silverleaf and Spiralling Whiteflies.

4. DEFINITIONS

- Approved Inspection Officer** means a person who has completed approved training in the detection and recognition of melon thrips and who is authorised to conduct inspections on behalf of the business by having their name and signature on a register of approved inspection officers maintained by the business.
- Assurance Certificate** means a Plant Health Assurance Certificate.
- Authorised Signatory** means a person whose name and specimen signature is included as an Authorised Signatory on the Business's Application for Accreditation.
- Business** means the legal entity responsible for the operation of the facility and the ICA/CA arrangement detailed in the Business' Application for Accreditation.
- CA** means a Certification Assurance arrangement.
- Certified/Certification** means covered by a valid Plant Health Assurance Certificate.
- Consignment** means a quantity of packed produce described on one Plant Health Assurance Certificate by a single consignee.
A consignment may contain a number of lots.
- DPIF** means the Department of Primary Industry and Fisheries.
- End-point Inspection** means the process by which a representative sample is drawn and inspected from the finalised consignment prior to certification.
- Facility** means the location where plants are assembled, inspected, securely stored, certified and dispatched.



Growing Unit	means a pot, cell, tube or a number of small plants in a cell tray or other unit for growing plants
Homogeneous	means produce that is all of the same or similar kind or nature.
ICA	means Interstate Certification Assurance.
In-line Inspection	means the process by which a representative sample of packed product is drawn from a lot and inspected during the processing and packing of the produce.
Inspection	means the act of inspecting produce to determine if the entry conditions or melon thrips freedom requirements of the importing State or Territory have been met.
Lot	means a quantity of homogeneous product assembled for inspection at one place at one time. A lot could consist of product from one or more growers/blocks/properties.
Melon Thrips	means all stages of <i>Thrips palmi</i> (Karny) including egg, nymph and adult.
MT	means melon thrips.
Package	means the complete outer covering or container used to transport and market the produce.
Packed Product	means produce that has been packed into its final package. For live plants, final packaging may mean a plant(s) in a growing unit or a bare rooted plant.
Produce	means fruits and vegetables, but excludes seeds, underground parts and dried or processed plant materials.
Plant Health Assurance Certificate	means a certificate issued by an Authorised Signatory under an ICA/CA arrangement stating that the plant or other thing described on the certificate meets a specified treatment, condition, pest or area freedom or other requirement.
Restricted Area	means an area of a state or territory from which plants are required to be certified for property freedom for melon thrips.
Thrips	means all stages of <i>Thrips</i> spp. including egg, nymph and adult.
Unit (Live Plants)	means one plant in a growing unit or a number of small plants in a growing unit or a bare rooted plant.

5. GENERAL

This Work Instruction refers to key elements of the Interstate Certification Assurance Operational Procedure Inspection of Fruits and Vegetables (Post Harvest), Live Plants, Cut Flowers and Foliage for Melon Thrips (ICA38) and the Certification Assurance arrangement Procedure Inspection and Treatment of Plants and Plant Products for Melon Thrips, Silverleaf and Spiralling Whiteflies (MSS01) that require further explanation to a task or activity. Persons responsible **must** ensure they refer to the relevant sections of the Operational Procedure and/or Procedure before applying any task in this Work Instruction.



6. ACTIONS

6.1 Sampling Live Plants for Inspection

6.1.1 Inspection Type

The Approved Inspection Officer **shall** inspect live plants by one of two types.

1. End-point inspection;

OR

2. In-line inspection.

6.1.2 Inspection Rate

The Approved Inspection Officer **shall** inspect live plants by end-point or in-line inspection at one of the following rates:

- 600 units;

OR

- 2% of the number of packages.

6.1.3 Factors to be Considered Prior to Taking a Sample for Inspection

An Approved Inspection Officer may be presented with a mixed consignment or lot from which they will be required to draw a sample and inspect.

Mixed consignments and lots present unique problems regarding homogeneity and require special consideration with regard to sampling.

The Approved Inspection Officer **shall** consider the following factors when making a decision on how to sample from a mixed consignment or lot:

- treatments (where known) that have been applied to control certain pests and disease;
- history of previous melon thrips detections (where known) associated with a particular production area, produce type or grower;
- the quantity of a particular plant within the lot or consignment; and
- the number of different growers/packers associated with the lot or consignment.

6.1.4 Minimum Sample Size

A minimum of three (3) packages will be drawn when undertaking an inspection using the 2% sampling rate.

Where the Approved Inspection Officer identifies that the number of units in a consignment or lot is less than the required 600 units (i.e. pre-determined unit number inspection e.g. 600 units), the Approved Inspection Officer **shall** examine all units in the consignment.

6.2 Sample Selection for an In-Line Inspection

An In-line inspection **shall** involve the selection and inspection of live plants drawn from a lot and inspected during the processing and packing of the produce.



The Approved Inspection Officer **shall** sample packed product at the predetermined inspection rate (refer 6.1.2) from the packing line and move the packed product to the inspection area for examination (refer 6.4).

The following are two examples of how to sample live plants an In-line Inspection.

Example A – In-line 600 Unit Inspection

An Approved Inspection Officer is presented with 3000 cell trays of tomato seedlings of which three consignments consisting of 1000 trays each are to be consigned to Tasmania.

The Certification Controller of the packing shed advises the Approved Inspection Officer that the packing period to pack the cell trays into cartons will be 3 hours. The Approved Inspection Officer calculates the rate at which the samples are to be drawn from the processing line to obtain a 600 unit sample as follows:

The Approved Inspection Officer calculates:

- *3 hour packing period for 3000 cell trays from one grower (one lot);*
- *600 units are to be drawn prior to packing over a 3 hour packing period = 100 units per ½ hour;*
- *one cell tray = one unit.*

100 cell trays will need to be drawn every ½ hour from the processing line prior to packing the cell tray into cartons.

The Approved Inspection Officer examines 100% of each cell tray (unit) until the required 100 cell trays (units) have been reached for each interval. The Approved Inspection Officer shall not examine more than 100 trays (units) at each interval.

Note: The sampling rate selected has provided sufficient time to fully inspect the units as they are drawn during each period.

(Refer Attachment 1 for the completed Melon Thrips Inspection Record for Example A).

Example B – In-line 2% Inspection

An Approved Inspection Officer is presented with 1200 cell trays of tomato seedlings of which three consignments consisting of 400 cell trays are to be consigned to South Australia.

The Certification Controller of the packing shed advises the Approved Inspection Officer that the packing period to pack to pack the cell trays into cartons will be 3 hours. The Approved Inspection Officer calculates the rate at which the samples are to be drawn from the processing line to obtain a 2% sample as follows:

The Approved Inspection Officer calculates:

- *3 hour packing period for 1200 cell trays from one grower (one lot);*
- *400 trays per hour packed;*
- *1200 cell trays packed over a 3 hour packing period.*



One (1) in fifty (50) or 8 cell trays per hour need to be drawn from the processing line prior to packing the trays into cartons.

24 trays inspected over 3 hour packing period.

The Approved Inspection Officer examines 100% of each unit within each cell tray (unit) until the required 8 cell trays (units) have been reached for each interval. The Approved Inspection Officer shall not examine more than 8 trays at each interval.

Note: The sampling rate selected has provided sufficient time to fully inspect the units as they are drawn during each period.

(Refer Attachment 2 for the completed Melon Thrips Inspection Record for Example B).

6.3 Sample Selection for an End-Point Inspection

End-point inspections are only carried out on consignments that have been finalised.

The Approved Inspection Officer **shall** sample packages at the predetermined inspection rate (refer 6.1.2) from the consignment and move the packages to the inspection facility ready for examination (refer 6.4).

The following are two examples of how to sample live plants for an End-point Inspection.

Example C – End-point 600 Unit Inspection

An Approved Inspection Officer is presented with a mixed consignment of live plants to be consigned to a quarantine restricted market for melon thrips. The consignment consists of 344 cartons and comprises:

- 72 cartons of Gerbera sp. In pots from grower/packer A Smith;***
- 56 cartons of Bougainvillea sp. In pots from grower/packer B Brown;***
- 144 cartons of Heliconia sp. In pots and 72 cartons of Anthurium sp. In pots from grower/packer C. Blogs.***

The Approved Inspection Officer calculates that:

- A Smith's 72 cartons represent 21% of the consignment;***
- B Brown's 56 cartons represent 16% of the consignment;***
- C Blogs' 144 cartons of (Heliconia sp.) represent 42% and 72 cartons of (Anthurium sp.) represent 21% of the consignment respectively.***

The Approved Inspection Officer determines that the proportion of live plants in pots to be examined from each grower will be based on the percentage of each growers live plants in the consignment.

The Approved Inspection Officer calculates the number of units to examine from each grower as follows:

The number of A Smith's Gerbera sp. to examine is $600 \times 21\% = 126$ units.

The number of B Brown's Bougainvillea sp. to examine is $600 \times 16\% = 96$ units.



The number of C Blogs' Heliconia sp. to examine is $600 \times 42\% = 252$ units, and the number of Anthurium sp. to examine is $600 \times 21\% = 126$ units.

The Approved Inspection Officer draws live plants at random from each grower until they have examined the required number of units.

(Refer Attachment 3 for the completed Melon Thrips Inspection Record for Example C).

Example D – End Point 2% Inspection.

An Approved Inspection Officer is presented with a mixed consignment of red and yellow Gerbera sp. (in pots) which are to be consigned to a quarantine restricted market for melon thrips. The consignment comprises:

Six (6) pallets of red Gerbera sp. and four (4) pallets of yellow Gerbera sp. from grower/packer J Smith.

The consignment totals 120 cartons with each pallet comprising 12 cartons.

The Approved Inspection Officer calculates that there are:

- *72 cartons of red Gerbera sp. representing 60% of the consignment; and*
- *48 cartons of yellow Gerbera sp. representing 40% of the consignment.*

The Approved Inspection Officer determines that the proportion of packages to be sampled will be based on the percentage of red and yellow Gerbera sp. (in pots) in the consignment.

The Approved Inspection Officer calculates the number of red and yellow Gerbera sp. sample packages to take as follows:

- *$2\% \times 72$ packages = 2 packages (always round up to next whole number).*
- *$2\% \times 48$ packages = 1 packages (always round up to next whole number).*

The Approved Inspection Officer draws sample packages at random from pallets to achieve 3 packages (2 red and 1 yellow Gerbera sp. [in pots] in packages).

The Approved Inspection Officer examines 100% of units within each sample package.

(Refer Attachment 4 for the completed Melon Thrips Inspection Record for Example D.

6.4 Examination of Produce

The Approved Inspection Officer **shall** examine live plants after drawing the required number and depending on the inspection type and rate (refer 6.1.1 and 6.1.2).

Where a 2% rate is nominated by the Certification Controller, the Approved Inspection Officer **shall** examine 100% of the live plants contained in each sample package.

Where a 600 unit rate is nominated by the Certification Controller, the Approved Inspection Officer **shall** not examine more than 600 units.

All live plant examinations **shall** be carried out by an Approved Inspection Officer.



The Approved Inspection Officer **shall**:

1. move all live plants to the inspection area;
2. record information on the Melon Thrips Inspection Record in accordance with section 7.6.1 of ICA-38 and/or section 7.4.1 of MSS-01;
3. place live plants on the inspection bench;
4. visually examine the required number of units (refer 6.1.2) for melon thrips;

Live plants selected for inspection **must** be thoroughly inspected on both sides of the leaves, flowers and stems. Particular attention **shall** be paid to areas that may provide shelter to melon thrips such as the flowers and stem axils.

The Approved Inspection Officer will use, as necessary, a hand lens of at least X10 magnification or similar device to assist in the examination of live plants and detection of melon thrips.

The Approved Inspection Officer where possible, **shall** shake/tap foliage over a clean white inspection tray for a minimum of 10 seconds to dislodge any insects. The Approved Inspection Officer will then inspect the tray for signs of melon thrips. This process is to be repeated until the required number of units has been inspected.

The Approved Inspection Officer **should** ensure that any tapping and shaking during the inspection does not damage the sample unit.

Where packages are fully unpacked during the examination of the produce, the Approved Inspection Officer **shall** examine the sample package, including the lid for the presence of suspect melon thrips.

5. place the sampled units back into the package, where applicable, until the sample package has been fully repacked;
6. return the sample packages to the consignment or lot following the inspection;
7. record information on the Melon Thrips Inspection Record in accordance with Section 7.6.4 of ICA-38 and/or section 7.4.4 of MSS-01.

6.5 Suspect Melon Thrips Detection

The Approved Inspection Officer **shall** immediately advise the Certification Controller of the detection of suspect melon thrips. The Approved Inspection Officer **shall** take a sample and reject and segregate all produce in the consignment or lot until the sample results are returned to the business.

The Approved Inspection Officer **shall** determine by reference illustrations and photographs (refer Attachment 6 Identification of Melon Thrips) whether the sample is suspect melon thrips.



Should the Approved Inspection Officer determine the sample to be suspect melon thrips, the sample **shall** be submitted to DPIF Entomology in accordance with section 7.7.1 or 7.7.2 of ICA-38 and/or section 7.5.2 of MSS-01.

If the suspect thrips is subsequently confirmed not to be melon thrips by the DPIF Entomologist, all rejected product that is held in the consignment or lot may be reconsidered for certification provided all requirements of ICA-38 and/or MSS-01 have been met.

6.6 Sampling Suspect Melon Thrips

6.6.1 Taking the Sample

All suspect melon thrips samples **must** be taken and submitted to DPIF Entomology by an Approved Inspection Officer. Where possible, more than one sample **shall** be submitted.

The Approved Inspection Officer **shall** take each sample by:

1. carefully retrieving the suspect melon thrips with an appropriate instrument i.e. brush, forceps or scalpel;
2. placing the suspect melon thrips in a specimen bottle that contains an appropriate preservative material i.e. methylated spirits;

Where a suspect melon thrips is contained on the plant or foliage, the plant or foliage with the suspect melon thrips **must** be wrapped in damp paper towel and placed into a plastic sealable bag without a preservative material i.e. methylated spirits.

3. completing a Sample Submission Form in accordance with section 7.7.3 of ICA-38 and/or section 7.5.3 of MSS-01 (refer Attachment 5 for correctly completed example) for each sample taken; and
4. placing the specimen bottle or produce (if applicable) along with completed sample submission form into a sealable plastic bag.

The Approved Inspection Officer **shall** forward the sample to DPIF Entomology within 24 hours of the sample being taken.

Where a suspect pest sample cannot be delivered in person by an Approved Inspection Officer, the sample **shall** be forwarded by secured mail or courier to DPIF Entomology for identification.

6.7 Issuance of a Plant Health Assurance Certificate

Following examination of the produce and when the Approved Inspection Officer is satisfied that all the conditions and restrictions associated with the produce described on the Melon Thrips Inspection Record have been met the Approved Inspection Officer **shall** issue a Plant Health Assurance Certificate in accordance with ICA-38 and/or MSS-01 and Guidelines for Completion of Plant Health Assurance Certificates (WI-02).



7. ATTACHMENTS

Attachment 1	Melon Thrips Inspection Record	(COMPLETED EXAMPLE)
Attachment 2	Melon Thrips Inspection Record	(COMPLETED EXAMPLE)
Attachment 3	Melon Thrips Inspection Record	(COMPLETED EXAMPLE)
Attachment 4	Melon Thrips Inspection Record	(COMPLETED EXAMPLE)
Attachment 5	Sample Submission Form	(COMPLETED EXAMPLE)
Attachment 6	Identification of Melon Thrips	

MELON THRIPS INSPECTION RECORD

Attachment 1

Date of Inspection <i>23/12/11</i>			Package Identification		
Place of Inspection <i>A. Smith</i> <i>Beddington Road Humpty Doo 0836</i>			IP Number <small>(if applicable)</small> <i>A9999</i>		
Name of Approved Inspection Officer <i>A.I. Person</i>			Name & Address of Grower and or Packer <small>(if multiple, list in comments/findings column)</small> <i>A. Smith</i> <i>Beddington Road, Humpty Doo</i> <i>0836</i>		
Inspection Type <input type="checkbox"/> End-point <input checked="" type="checkbox"/> In-line			Produce Type <small>(if multiple, list in comments/findings column)</small> <i>Tomato seedlings</i>		
Inspection Rate <input checked="" type="checkbox"/> 600 Unit <input type="checkbox"/> 2%			Total Number of Packages in Consignment/Lot <small>(list separately if multiple commodities)</small> <i>3000 trays</i>		
Notes:			PHAC No(s) <i>9993,9994,9995</i>		
Package No.	Time sample taken (in-line only)	Number of Units	Total Number of Units	Comments/Findings	
1	<i>8:30am</i>	<i>100</i>	<i>100</i>		
2	<i>8:30am</i>	<i>100</i>	<i>200</i>		
3	<i>9:00am</i>	<i>100</i>	<i>300</i>		
4	<i>9:00am</i>	<i>100</i>	<i>400</i>		
5	<i>9:30am</i>	<i>100</i>	<i>500</i>		
6	<i>9:30am</i>	<i>100</i>	<i>600</i>		
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
Pass	<input checked="" type="checkbox"/>	Fail	Signature of Approved Inspection Officer: <i>A.I. Person</i>		
Actions resulting from a suspected detection of a quarantine pest					

MELON THRIPS INSPECTION RECORD

Attachment 2

Date of Inspection <i>23/12/11</i>		Package Identification		
Place of Inspection <i>A. Smith</i> <i>Beddington Road, Humpty Doo 0836</i>		IP Number <small>(if applicable)</small> <i>A9999</i>		
Name of Approved Inspection Officer <i>A.I. Person</i>		Name & Address of Grower and or Packer <small>(if multiple, list in comments/findings column)</small> <i>A. Smith</i> <i>Beddington Road, Humpty Doo 0836</i>		
Inspection Type <input type="checkbox"/> End-point <input checked="" type="checkbox"/> In-line		Produce Type <small>(if multiple, list in comments/findings column)</small> <i>Tomato seedlings</i>		
Inspection Rate <input type="checkbox"/> 600 Unit <input checked="" type="checkbox"/> 2%		Total Number of Packages in Consignment/Lot <small>(list separately if multiple commodities)</small> <i>1200 trays</i>		
Notes:		PHAC No(s) <i>8993,8994,8995</i>		
Package No.	Time sample taken (in-line only)	Number of Units	Total Number of Units	Comments/Findings
1	<i>9:00am</i>	8	8	
2	<i>10.00am</i>	8	16	
3	<i>11.00am</i>	8	24	
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
Pass	✓	Fail	Signature of Approved Inspection Officer: <i>A.I Person</i>	
Actions resulting from a suspected detection of a quarantine pest				

MELON THRIPS INSPECTION RECORD

Attachment 3

Date of Inspection <i>23/12/11</i>				Package Identification	
Place of Inspection <i>Green Beauty Pty Ltd Hopewell Road, Berry Springs 0837</i>				IP Number <small>(if applicable)</small> <i>A9999</i>	
Name of Approved Inspection Officer <i>A.I. Person</i>				Name & Address of Grower and or Packer <small>(if multiple, list in comments/findings column)</small>	
Inspection Type <input checked="" type="checkbox"/> End-point <input type="checkbox"/> In-line				Produce Type <small>(if multiple, list in comments/findings column)</small>	
Inspection Rate <input checked="" type="checkbox"/> 600 Unit <input type="checkbox"/> 2%				Total Number of Packages in Consignment/Lot <small>(list separately if multiple commodities)</small> <i>Gerbera 72 cartons, Bougainvillea 56 cartons, Heliconia 144 cartons, Anthurium 72 cartons</i>	
Notes:				PHAC No(s) <i>9993</i>	
Package No.	Time sample taken (in-line only)	Number of Units	Total Number of Units	Comments/Findings	
1		126	126	<i>Gerbera sp A Smith Humpty Doo NT 0836</i>	
2		96	222	<i>Bougainvillea sp B Brown Darwin River NT 0837</i>	
3		50	272	<i>Heliconia sp C Blogs Howard Springs 0835</i>	
4		50	322	<i>Heliconia sp C Blogs Howard Springs 0835</i>	
5		50	372	<i>Heliconia sp C Blogs Howard Springs 0835</i>	
6		50	422	<i>Heliconia sp C Blogs Howard Springs 0835</i>	
7		50	472	<i>Heliconia sp C Blogs Howard Springs 0835</i>	
8		2	474	<i>Heliconia sp C Blogs Howard Springs 0835</i>	
9		126	600	<i>Anthurium sp C Blogs Howard Springs 0835</i>	
10					
11					
12					
13					
14					
15					
16					
Pass	<input checked="" type="checkbox"/>	Fail		Signature of Approved Inspection Officer: <i>A.I. Person</i>	
Actions resulting from a suspected detection of a quarantine pest					

MELON THRIPS INSPECTION RECORD

Attachment 4

Date of Inspection <i>23/12/11</i>		Package Identification		
Place of Inspection <i>Green Beauty Pty Ltd Hopewell Road Berry Springs 0837</i>		IP Number <small>(if applicable)</small> <i>A9999</i>		
Name of Approved Inspection Person <i>A.I. Person</i>		Name & Address of Grower and or Packer <small>(if multiple, list in comments/findings column)</small> <i>Green Beauty Pty Ltd Hopewell Rd Berry Springs 0837</i>		
Inspection Type <input checked="" type="checkbox"/> End-point <input type="checkbox"/> In-line		Produce Type <small>(if multiple, list in comments/findings column)</small> <i>Gerbera sp.</i>		
Inspection Rate <input type="checkbox"/> 600 Unit <input checked="" type="checkbox"/> 2%		Total Number of Packages in Consignment/Lot <small>(list separately if multiple commodities)</small> <i>120 cartons</i>		
Notes:		PHAC No(s) <i>8993</i>		
Package No.	Time sample taken (in-line only)	Number of Units	Total Number of Units	Comments/Findings
1		36	36	<i>Red Gerbera sp J Smith Stow Rd Humpty Doo 0837</i>
2		36	72	<i>Red Gerbera sp J Smith Stow Rd Humpty Doo 0837</i>
3		36	108	<i>Yellow Gerbera sp J Smith Stow Rd Humpty Doo 0837</i>
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
Pass	<input checked="" type="checkbox"/>	Fail	Signature of Approved Inspection Officer: <i>A.I. Person</i>	
Actions resulting from a suspected detection of a quarantine pest				

SAMPLE SUBMISSION FORM

Attachment 5

APPROVED INSPECTION PERSON DETAILS

Approved Inspection Officer Name	<i>C. Smith</i>	IP Number of Accredited Business	A9898
Name and address of grower/packer or IP number of the produce that sample was taken	<i>Green Beauty Pty Ltd Hopewell Rd Berry Springs 0837</i>	Type of produce & quantity from which sample was taken	Type of produce: <i>Chrysanthemum plant</i>
			Quantity of produce: <i>100 cartons</i>
Date sample was taken	<i>23/11/11</i>	Date sample was submitted to Diagnostician	<i>23/11/11</i>
Contact Telephone No	<i>08 8988 1234</i>	Email/Fax No	<i>08 8988 1234</i>

SAMPLE DETAILS

Type of Sample: <small>(e.g. insect, leaves, seeds)</small>	<i>Insect (adult)</i>
Diagnosis request: <small>(e.g. identify insect, disease, seed)</small>	<i>Confirm whether melon thrips or not</i>
Sample details: <small>Describe where, when and how the sample was taken. Include the type produce or crop the sample was taken from, who took the sample and why diagnosis is required.</small>	<i>Sample taken by C Smith at Green Beauty Pty Ltd Hopewell Rd Berry Springs on Chrysanthemum .Diagnosis required for market access to Tasmania</i>

DIAGNOSIS DETAILS - For Diagnostician Use Only

Date Sample Received	<i>23/11/11</i>	Date Sample Diagnosed	<i>23/11/11</i>
Diagnosis Result	<i>Confirmed as Melon Thrips (<i>Thrips palmi</i>)</i>		
Method of Diagnosis	<i>Microscope</i>		
Comments			
Diagnostician Name	<i>B. Bugg</i>	Diagnostician Position	<i>Senior Entomologist</i>
Signature	<i>B. Bugg</i>	Date	<i>23/11/11</i>

Melon Thrips (*Thrips palmi* Karney)

Host Range

Melon thrips have a wide range of fruit, vegetable, ornamental and weed hosts but are best known as a pest in crops of Cucurbitaceae and Solanaceae. Crops most affected by melon thrips include beans, capsicum, chilli, cucumber, eggplant, melons, okra, pumpkin, tomato, silverbeet, squash, watermelon and zucchini. Weed hosts include pigweed, amaranthus, gomphrena and potato weed as well as a variety of weeds of the cucurbit and solanum families such as Devil's Fig (*Solanum torvum*).

Detection and Identification

Melon thrips injure infested plants by killing surface cells with their piercing and sucking mouthparts. Feeding normally occurs on foliage but flowers and fruit may be preferred feeding sites on some plant species. Leaves become yellow, white or brown and then crinkle and die. Heavily infested crops often acquire a silver to bronze colour.

Damaged terminal growth may be discoloured, stunted and deformed. Fruit may abort or develop scar tissue as a result of melon thrips feeding under the calyx of expanding fruit.

Melon thrips are very small and resemble many other common thrips species and therefore require specialist identification. Samples of suspected melon thrips must be submitted to an Approved Taxonomist for identification.

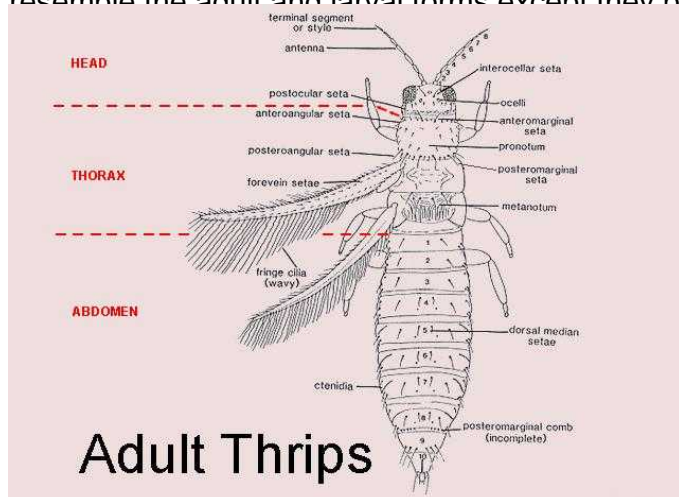
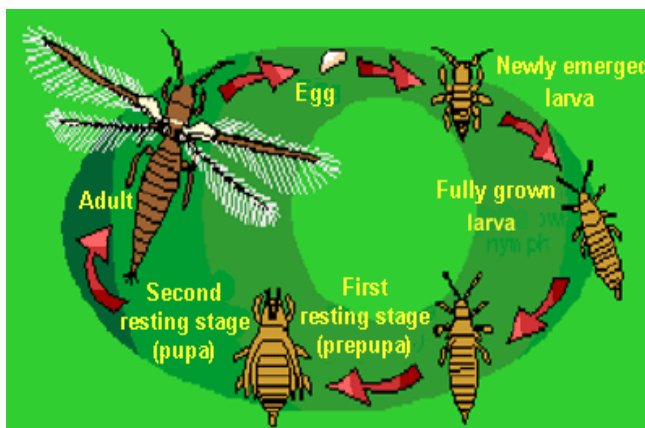
Life Cycle

Eggs are kidney-shaped, colourless to pale yellowish-white and measure only 0.25 mm in length. Eggs are normally deposited in leaf tissue in a slit cut by the female but can also be deposited in flowers and fruit. Females can produce up to 200 eggs but average approximately 50 per female.

Larvae resemble the adult in general body form though they lack wings and are smaller. There are two instars or stages during the larval development period. Larvae feed in groups, particularly along the leaf midrib and veins, usually on older leaves. On completion of the larval stage the insect normally descends to the soil or leaf litter where it constructs a small earthen chamber as a pupation site.

Pupa progress through two instars, the prepupal instar which is nearly inactive and the pupal instar which is inactive. Both instars are non-feeding. The prepupae and pupae resemble the adult and larval forms except they possess wing pads.

LIFE CYCLE OF THRIPS

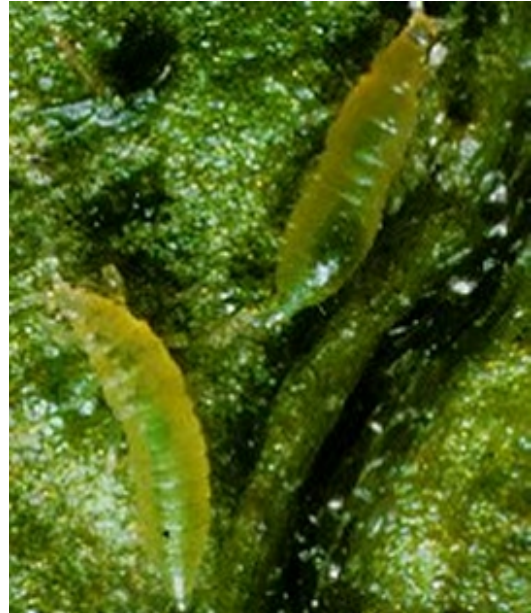


Adults are winged, pale green to orange in colour, cigar-shaped and measure from 0.8 to 1.3 mm in length. A black line, resulting from the juncture of the wings, runs along the back of the body. Adults tend to feed on young growth and are most commonly found on the undersides of the leaves but can also occur on flowers and fruits.

IDENTIFICATION OF MELON THRIPS



Adult Melon Thrips
(Photo: C Freebalm, DEEDI, Qld)



Melon Thrips Larvae
(Photo: Zenkoko Noson, Kyoiku Kyoiku Co. Ltd, Japan)



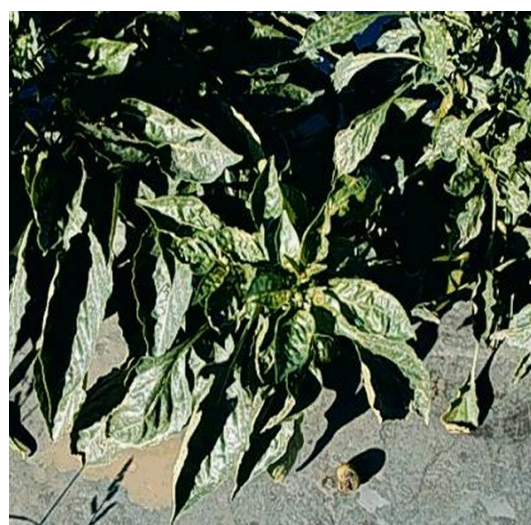
Melon Thrips Damage – Capsicum Fruit
(Photo: University of Florida, USA)



Melon Thrips Damage – Eggplant Fruit
(Photo: J Hargreaves, DEEDI, Qld)



Melon Thrips on French Bean
(Photo: University of Florida, USA)



Melon Thrips Damage – Capsicum Plant
(Photo: University of Florida, USA)