Bactrocera dorsalis: Current status

JH VENTER
NPPOZA
MAY 2017

Photo: JH Venter
National exotic fruit fly surveillance program

- Since 2006
- Forms part of the Strategic plan of DAFF
- An early warning system against exotic fruit flies such as:
  - *Bactrocera dorsalis* (Oriental fruit fly)
  - *B. zonata* (Peach fruit fly)
  - *B. cucurbitae* (Melon fruit fly)
- Approximately 1500 DAFF traps and 300 Fruitfly Africa traps
## DAFF Role Players

| Plant Health          | • Policy & Procedures  
|                       | • Legislation          
|                       | • Pest Action Plans    |
| Inspection Services   | • Inspection           
|                       | • Surveillance         
|                       | • Execution of Legislation  
|                       | • Diagnostic and Quarantine |
| Food Import Export Standards | • Import permits  
|                       | • WTO SPS              
|                       | • Awareness Promotions |
Dispersal/Distribution (Pathways for entry)

- Short distances by flying – good flyers
- Dispersal through natural vegetation (wild hosts)
- Pupae in soil (possible but not probable)
- Eggs and larvae are internal in fruit
- Spread through commercial fruit cargo
- Spread through informal trade, travellers and truck drivers
Spread in South Africa

- Natural within low altitude high humidity and high fruit production areas
- Such as Vhembe and Mopani districts
- Bakkie trade
- Informal fresh produce markets
- Hawker stalls
- Public
Informal trade contribute to distribute and spread *B. dorsalis*
Damage in many other African countries

- Up to 100% production
- 30–80% in African countries depending on host and availability
- Most damage on Guava and Mango
- However *B. dorsalis* is now the dominant fruit fly which infests fruit in Africa. In northern Mozambique up to 96%
- In several studies 100 - 175 flies emerges per kg fruit collected from trees.
- *It reproduces quicker than* *Ceratitis capitata* and *C. rosa*
Control of *B. dorsalis*

- High numbers lead to production and market losses
  - Effects local agricultural development especially small scale farmers
  - Presence and interceptions leads to export market loss
  - Is a quarantine pest for: EU, USA, Japan, Mauritius, Mexico etc.

- This pest must be controlled by applying:
  - Diligent orchard or field sanitation,
  - Male annihilation technique (MAT blocks)
  - Bait application technique (BAT) protein bait sprays or the placement of bait stations
Trap catches highest after the mango season (April to May)

Total number of *Bactrocera dorsalis* specimens detected from April 2014 to September 2015 from an average total of 1500 surveillance traps placed countrywide.
Deciduous fruit hosts
Damage
Legislation and Actions

- Agricultural Pests Act, 1983 (Act No. 36 of 1983), (APA)
- Control measures, R110
- *Bactrocera invadens* is a prohibited insect
  - The executive officers of the Act are the Directors Plant Health (DPH) and Inspection Services (DIS)
  - Bactrocera invadens Steering Committee (BiSC)
  - South African Bactrocera invadens fruit fly (SABIFF) Action plan
  - South African Emergency Plant Pest Response Plan (SAEPPRP)
  - Quarantine areas by means of an official order, or Gov Gazette
  - Phytosanitary measures
  - Removal permit for produce from affected areas is required
Official control in terms of R110

Removal of host material from an affected requires a permit.

1. Quarantine area where pest is declared present:
   - These areas will be announced in the Gov gazette or by order
   - Conditions for removal, transport

2. Quarantine area under eradication
   - Land users receive an official order
   - Control measures
   - Conditions for removal, transport

3. Pest free areas (Eastern, Northern, Western Cape and Free State)
   - Pest freedom per Production unit (PUC), area surveillance
   - Official recognition is required
   - Monitoring surveys (one-two traps per PUC or per square km)
Eradication and Suppression

- The official status of *B. dorsalis* for South Africa is: Present in some areas and under official control
- It can successfully be eradicated when detected early and response is quick in new areas (Manrakhan et.al, 2011)
- For that permanent surveillance, cooperative role players and stockpiles of chemicals are needed (rapid response)
- Suppression can be achieved when the basic control measures are implemented
  - Such as, orchard and field sanitation, BAT and MAT
  - Commercial farmers can maintain FTD’s at below 1 if diligent
  - Small scale and subsistence farmers need assistance from government
- Mango is the primary host and the removal of mangos to pest free areas need to be controlled fiercely
PUC Surveillance

For special markets:

- Surveillance data must be submitted with registration documents as part of the 2016 registration requirements
- Electronic copies of the data can be sent to PH EWS on the prescribed format

For all markets:

- All producers must continue to implement PUC surveillance for *B. dorsalis*
- Markets such as Botswana, Zimbabwe, Reunion requires pest free area freedom
- USA pest free areas, grown in isolated structures or treated with an approved post harvest treatment.
PUC surveillance continue

- Each producer have **one ME baited trap per 100ha for each PUC**

- Traps must be serviced 1-2 weekly according to a surveillance procedure

- Trap numbers are PUC number plus alpha numerical number in case of more than one.

- **Don’t** use doringboom or liefie or blok 1 or perskes 1, etc for unique trap numbers

- **USE** the standard trapping forms to fill in the trapping results as on trapping guidelines

- Please use excel format for electronic submission
<table>
<thead>
<tr>
<th>Province</th>
<th>Location</th>
<th>Farm name</th>
<th>PUC number</th>
<th>Host</th>
<th>Block No.</th>
<th>Trap No.</th>
<th>Date trap set</th>
<th>Longitude</th>
<th>Latitude</th>
<th>Altitude</th>
<th>Comments</th>
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# APPENDIX 4: TRAP SERVICING RECORD SHEET

<table>
<thead>
<tr>
<th>Date serviced</th>
<th>PUC Number</th>
<th>Trap Number</th>
<th>Rebaited (Yes/No)</th>
<th>Number of fruit fly specimens caught</th>
<th>Number of suspect B. invadens caught</th>
<th>Suspect B. invadens identity (include name of identifier)</th>
<th>Comments (eg. trap lost or broken)</th>
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Appendix 4: Trap Details datasheet for *B. dorsalis* surveillance

<table>
<thead>
<tr>
<th>Date monitored</th>
<th>PUC</th>
<th>Trap nr.</th>
<th>Rebaited? (Yes/No)</th>
<th>Nr of fruit fly specimens caught</th>
<th>Nr of suspect <em>B. dorsalis</em> caught</th>
<th>Suspect <em>B. dorsalis</em> identity (include name of identifier)</th>
<th>Comments (eg trap lost or broken)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13/05/2017</td>
<td>Y0262</td>
<td>Y0262A</td>
<td>y</td>
<td>1</td>
<td>1</td>
<td><em>B. dorsalis</em> (Pia Addison)</td>
<td>DAFF was notified</td>
</tr>
<tr>
<td>13/05/2017</td>
<td>Y0262</td>
<td>Y0262B</td>
<td>y</td>
<td>0</td>
<td>0</td>
<td><em>Dacus bivitattus</em> (Pia Addison)</td>
<td></td>
</tr>
<tr>
<td>13/05/2017</td>
<td>Y0262</td>
<td>Y0262C</td>
<td>y</td>
<td>1</td>
<td>1</td>
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<tbody>
<tr>
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<tr>
<td>19/11/12</td>
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</table>
CONTACT DETAILS

- National coordinator: Jan Hendrik Venter;
- Manager Plant Health Early Warning Systems, Directorate Plant Health;
- Department of Agriculture; Forestry & Fisheries
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- http://www.nda.agric.za/
THANK YOU

FRUIT FLIES DO NOT WAIT THEY MATE
EARLY DETECTION SECURES TRADE