

Mini data sheet on *Bactrocera invadens*

Bactrocera invadens was added to the EPPO A2 List in 2010. A fuller datasheet may be prepared, however several studies published after its addition to the EPPO A2 List have suggested that *B. invadens* was as synonym of *B. dorsalis*. You can view here the data which was previously available from the EPPO Alert List (added to the EPPO Alert List in 2005-deleted in 2010).

Bactrocera invadens (Diptera: Tephritidae)

Why: Since 2003, a new fruit fly species, morphologically very similar to *B. dorsalis*, has been reported spreading rapidly in central Africa. This new pest is attacking mangoes, citrus and other tropical fruits. It was recently described and called *Bactrocera invadens* (Drew *et al.*, 2005). Its finding in Sri Lanka confirmed its suspected Asian origin.

Where:

Africa: Angola, Benin (first found 2004-06), Burkina Faso, Cameroon (2004-07), Chad, Congo, Comoros, Côte d'Ivoire, Democratic Republic of Congo, Equatorial Guinea, Ethiopia, Gabon, Gambia, Ghana (2005-01), Guinea, Guinea-Bissau, Kenya (2003-02), Liberia, Malia, Mauritania, Mozambique (2007), Niger, Nigeria (2005-01), Senegal (2004-10), Sierra Leone, Sudan (2004-05), Tanzania (2003-12), Togo (2004-10), Uganda (2004-07), Zambia. Its first place of discovery (i.e. Kenya) should not be assumed to be its point of entry into Africa, as it may have been overlooked in some areas.

Asia: Bhutan, India, Sri Lanka. *B. invadens* has been found in a collection of Dacini trapped during earlier surveys, so there was no indication of host plants or associated damage.

On which plants: Especially mango (*Mangifera indica*), but *B. invadens* is also found on guava (*Psidium guajava*), *Citrus* spp., papaya (*Carica papaya*), tomato (*Lycopersicon esculentum*), banana (*Musa*), *Annona* spp. and some other wild African hosts (e.g. *Strychnos* spp.). Studies carried out in Kenya on the host range of this fruit fly have shown that it could attack a wide range of fruit crops (in particular mango, banana and citrus).

Damage: In the preliminary findings in Kenya and Tanzania, it appeared clearly that mangoes were readily attacked by *B. invadens* and that it was competing strongly with *Ceratitis cosyra*. In infested mango samples, it was equally or even more abundant. However, as observations made are very recent, data is lacking on extent and severity of damage to the crops concerned. Considering its similarities with *B. dorsalis*, significant economic damage is expected.

Dissemination: Adults can fly but there is no data on their flying capacity. Trade of infested fruit can spread the pest. For the moment, there is no assumption on the pathway of introduction of *B. invadens* from Asia to Africa.

Pathway: Fruits of *B. invadens* host plants.

Possible risks: Although data is lacking on the biology of *B. invadens* and in particular on its potential to survive in more temperate regions, the recent example of *B. zonata* spreading in some countries around the Mediterranean Basin strongly advocates a cautious approach. In addition, citrus and tomatoes are mentioned as host plants and therefore could be immediately at risk in the EPPO region. The rapidity of spread and the probable large host range add to the risk. Control measures are probably available (e.g. male annihilation technique etc.) but for the moment, their efficacy is not known. It is desirable to prevent the introduction of such a new fruit fly species into the EPPO region.

Sources

- Correia ARI, Rego JM, Olmi M (2008) A pest of significant economic importance detected for the first time in Mozambique: *Bactrocera invadens* Drew, Tsuruta & White (Diptera: Tephritidae: Dacinae). *Bolletino di Zoologia Agraria e di Bachicoltura Serie II*, 40(1), 9-13.
- Drew RAI, Romig MC, Dorji C (2007) Records of Dacine fruit flies and new species of *Dacus* (Diptera: Tephritidae) in Bhutan. *The Raffles Bulletin of Zoology* 55(1), 1-21. <http://rmbn.nus.edu.sg/rbz/biblio/55/55rbz1-21.pdf>
- Drew RAI, Tsuruta K, White IM (2005) A new species of pest fruit fly (Diptera: Tephritidae: Dacinae) from Sri Lanka and Africa. *African Entomology* 13(1), 149-154.
- Lux SA, Copeland RS, White IM, Manrakhan A, Billah MK(2003) A new invasive fruit fly species from the *Bactrocera dorsalis* (Hendel) group detected in East Africa. *Insect Science and its Application*, 23(4), 355-361.
- Mwatawala MW, White IM, Maerere AP, Senkondo FJ, Meyer M de (2004) A new invasive *Bactrocera* species (Diptera: Tephritidae) in Tanzania. *African Entomology*, 12(1), 154-156.
- Manrakhan A, Grout T, Hattingh V (2009) Combating the African invader fly *Bactrocera invadens*. *SA Fruit Journal* 8(1), 57-61 (abst.).
- Rwomushana I, Ekesi S, Gordon I, Ogoi CKPO (2008) Host plants and host plant preference studies for *Bactrocera invadens* (Diptera: Tephritidae) in Kenya, a new invasive fruit fly species in Africa. *Annals of the Entomological Society of America* 101(2), 331-340.
- Sithanatham S, Selvaraj P, Boopathi T (2006) The fruit fly *Bactrocera invadens* (Tephritidae: Diptera) new to India. *Pestology* 33(9), 36-37.
- Vayssières, J-F, Sinzogan A, Bokonon-Ganta A (2008) The new invasive fruit fly species, *Bactrocera invadens* Drew Tsuruta & White. *Regional Control Fruit Fly Project in West Africa No. 2*. IITA-CIRAD, 4 pp.
- INTERNET
- Conseil Phytosanitaire Inter Africain. Présence au Bénin d'une nouvelle espèce exotique de mouche des fruits (Diptera: Tephritidae). http://www.au-appo.org/fr/breve.php3?id_breve=11
- IAEA website. Scientific and Technical Newsletter. *Insect Pest Control Newsletter*. The new invasive *Bactrocera* species. *Insect Pest Control Newsletter*, no.65, 18-20. <http://www.iaea.org/programmes/nafa/d4/public/ipc-nl-65.pdf>
- NAPPO Phytosanitary Alert System. *Pest Alert* (2007-09-06). Update on the distribution of *Bactrocera invadens* - First find in Bhutan. <http://www.pestalert.org/viewNewsAlert.cfm?naid=48>
- Invasive Fruit Fly Pests in Africa. A diagnostic tool and information reference for the four Asian species of fruit fly (Diptera, Tephritidae) that have become accidentally established as pests in Africa, including the Indian Ocean Islands, by Marc De Meyer, Salah Mohamed and Ian M. White. <http://www.africamuseum.be/fruitfly/AfroAsia.htm>
- 'Programme Régional de Protection des Végétaux dans l'Océan Indien' website - *Bactrocera invadens* aux Comores. <http://www.prpv.org/index.php/fr/layout/set/print/content/view/full/995>

EPPO RS 2005/085, 2006/146, 2007/150, 2007/216, 2008/217, 2008/218, 2008/219, 2009/214

Panel review date -

Entry date 2005-06