Insect Ecology—Insect Pests : **FACT SHEET NO. 4**

THE NEW INVASIVE FALL ARMYWORM (FAW) IN SOUTH AFRICA

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The FAW originates from the tropical regions of the United States, Argentina, and the Caribbean region and is a serious pest of maize in Brazil and other countries. The first reports of outbreaks of the Fall Armyworm (FAW) in Africa came from several West and Central African countries early in 2016, but were initially attributed to indigenous *Spodoptera* spp.

During December 2016, the first unconfirmed reports of armyworm damage to maize were received from Zambia and Zimbabwe. In January 2017, the South African Department of Agriculture, Forestry and Fisheries (DAFF) received reports of an unknown armyworm damaging maize plants on farms in the Limpopo and North West provinces. A taxonomist at the ARC-PPRI, Biosystematics Division positively identified the male moth specimens collected, as the Fall Armyworm *Spodoptera frugiperda* (JE Smith) (Lepidoptera: Noctuidae).

The FAW flies on prevailing winds, has a short life-cycle, and attacks a wide range of crops, rendering it a serious economic risk to our farmers. It is classified as an A1 quarantine pest on the list of European and Mediterranean Plant Protection Organisation (EPPO).

IDENTIFICATION

Eggs are laid in batches of 20-250 on the underside of leaves.

Larvae (worms): six developmental instars from egg to moth stage. Young larvae are difficult to identify morphologically as the early instars resemble those of several other Noctuids.

Instar #	Body length (mm)	Colouring	Markings
1, 2	1,5 to 3,5	Green with black head	None
3, 4	6 to 10	Dorsal area tan colour, ventral area green. Lateral white/beige stripes visible	Four dark pinacula or raised spots arranged in a square on the 8th abdominal segment and in a trapezoid on the 9th
5, 6	15 to 40	Light tan, green, black	Four dark pinacula or raised spots arranged in a square on the 8th abdominal segment and a trapezoid on the 9th

FAW larva (5th instar) (Photo: Benjamin Janse van Rensburg)

FAW head showing inverted white "Y" (Photo: Margaret Kieser)

Moths:

Please Note: Due to the cryptic pattern variations seen in the samples received in South Africa, the identification is sometimes confused with other noctuid moth species. Samples can be sent to Ms Vivienne Uys at ARC-PPRI, for a reliable morphological identification.

Wingspan ranges from 30 to 40mm. Forewings: male - grey to brown shading, mottled with a white patch on outer tip; female – uniform grey to brown, wing markings indistinct. Hindwings: both male and female have white/silver wings with a narrow dark brown border.

Comparison of Related Species

Description	Fall Armyworm (*S. frugiperda*)	African Armyworm (*S. exempta*)
Adult larvae colouring	Brown/green with lateral beige stripes	Velvet black with lateral beige/yellow stripes
Larval behaviour	Concealed in plants	Marches through crops
Eggs	Batches covered in light brown scale-hairs. Laid under leaves	Batches covered in black scale-hairs. Laid under leaves
Male moth	Identified per genitalia	Identified per genitalia
Host plants	Predominantly maize and sorghum	Predominantly veld grasses, teff
Outbreak dynamics	Migration from countries north of South Africa; local breeding and outbreaks have been confirmed during February 2017 in South Africa	Sporadic local outbreaks, but mostly migration from countries north of South Africa

CROPS AT RISK IN SOUTH AFRICA

The FAW is polyphagous pest which shows a preference for grain crops. Maize and sweetcorn (young plants and cobs) are currently infested in South Africa, with some reports of damage on sorghum. The literature also records damage on spinach, sugarcane, rice, lucerne, sunflower, wheat, cabbages, pepper, soya, potatoes, pastures and grasses.

CONTROL

The Department of Agriculture, Forestry and Fisheries has issued a Preliminary interim guide for the use of agricultural chemicals to control infestations of Fall Armyworm in South Africa and the guide can be downloaded here …. http://www.daff.org.za

Please note that farmers must only apply approved insecticides at the application dosage rates recommended on the product label. Application must only be made against young instar larvae which are less than 10mm long. Application against older larvae is not successful as they feed deep inside whorls of plants and are therefore protected from contact with the insecticide.

FAW damage to sweetcorn ear (Photo: Margaret Kieser)

FAW Adult male moth (Photo: Matt Bertone)

FAW damage to maize leaves (Photo: Annemie Erasmus and Margaret Kieser)

REPORTING OF OUTBREAKS

Please report all observations/outbreaks of the FAW to Jan Hendrik Venter at (012) 3196384, janhendrikv@daff.gov.za or to Dr Gerhard Verdoorn at CropLife at info@croplife.co.za, stating date observed, farm name, province, area of infestation and crop infested.

Farmers are encouraged to scout for the presence of FAW eggs and larvae. Scouting guidelines will be made available on the DAFF website.

ACKNOWLEDGEMENT

We thank Matt Bertone (North Carolina State University) for the use of his FAW moth photo and Benjamin Janse van Rensburg for his photo of the 5th instar larva.

For more information contact:

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