

Attention Maize Farmers...

Manage Fall Armyworm (FAW) (*Spodoptera frugiperda*) in Maize Crop

Pre-planting / Sowing

- Avoid scattered / delayed sowing; complete block sowing within 8-10 days window. Avoid sowing in light & shallow soils, where FAW attack is severe under rainfed conditions.

Balanced Fertilizer inputs:

- Apply recommended dose of NPK based on soil test (overdosing of nitrogen may lead to attract more moths and subsequent egg laying).

Monitoring / Scouting:

- Erect Pheromone traps @ 5 per acre immediately after sowing to monitor adult FAW movement.
- Continue monitoring and take action if 5% & 10% plants are damaged at 3-4 weeks (seedling to early whorl stage) and 5 – 7 weeks (mid to late whorl stage) after emergence.

Chemical Control via Seed Treatment:

- Treat seeds with Cyantraniliprole 19.8% + Thiamethoxam 19.8% FS @ 6 ml/kg seeds. Seed treatment protects against FAW at early crop stage and helps to maintain plant population.

Chemical Control via Foliar Application:

Following insecticides (approved by CIB & RC) could be used if more than 10% foliar damage is seen, to manage 2nd and 3rd instar larvae :

- Spinetoram 11.7% SC
- Chlorantraniliprole 18.5% SC
- Thiomethoxam 12.6% + Lambda cyhalothrin 9.5% ZC

Resistance Management Strategies:

Do not treat successive generations of FAW with insecticide of same mode of action. Hence, rotation with approved insecticides of different mode of action is recommended.

Cultural & Mechanical Control

- Weed free clean cultivation including removal of alternate host plants around field helps to reduce the FAW attack.
- Collect larvae manually from infesting tassel/cob & destroy it. Planting of natural fertilizer trees like *Gliricidia*, etc reduces egg laying, discourages FAW and also act as bird perches at later stage, which enables more predation by birds.

Biological Control (Bio-pesticides)

Entomopathogenic fungi such as *Metarhizium anisopliae*, *Metarhizium rileyi* (*Nomuraea rileyi*), *Beauveria bassiana*, *Verticillium lecani* @ 1×10^8 cfu/g or @ 5g/litre as whorl application. Repeat after 10 days, if required.

Augmentative release of egg parasitoid *Trichogramma pretiosum* or *Telenomus remus* @ 50,000 per acre at weekly intervals or based on trap catch of 3 moths/trap.

Bacillus thuringiensis v. *kurstaki* and Nuclear Polyhedrosis Virus (NPV) @ 2g/l (or) 400g/acre.

Monitoring /Scouting & Identification of Fall Armyworm (FAW)

- Start scouting as soon as maize seedlings emerge (damaged whorls). The occurrence of multiple generations, the ability to migrate, and the ability to feed on a wide range of crops make FAW one of the most severe economic pests. The life cycle is highly temperature dependent and lasts about 30 days in summer to 90 days in winter, resulting in multiple generations per year.
- FAW was first detected in Karnataka in July 2018 ; currently reported in many other states. Maize is the predominant crop (having FAW attack) till date however, FAW has potential to invade more than 80 crop species.
- Looking at the larva from its head gives the appearance of a dragon fly face ; Inverted 'Y' marking on head area ; Four large spots in square arrangement on dorsal surface of 2nd last segment. Small leaf holes/papery windows on leaf and defoliation.

★ **Always Use Personal Protective Equipment while handling Pesticides.**



NITRILE GLOVES



MASK



GOGGLE

★ **Save yourself from fake products by insisting on Receipt of Purchase**

★ **Do not mix pesticides with each other or with any other chemical.**

★ **Timely application of chemicals is required for effective management. Spray application should be directed towards whorl and given either in the early hours of the day or in the evening time.**

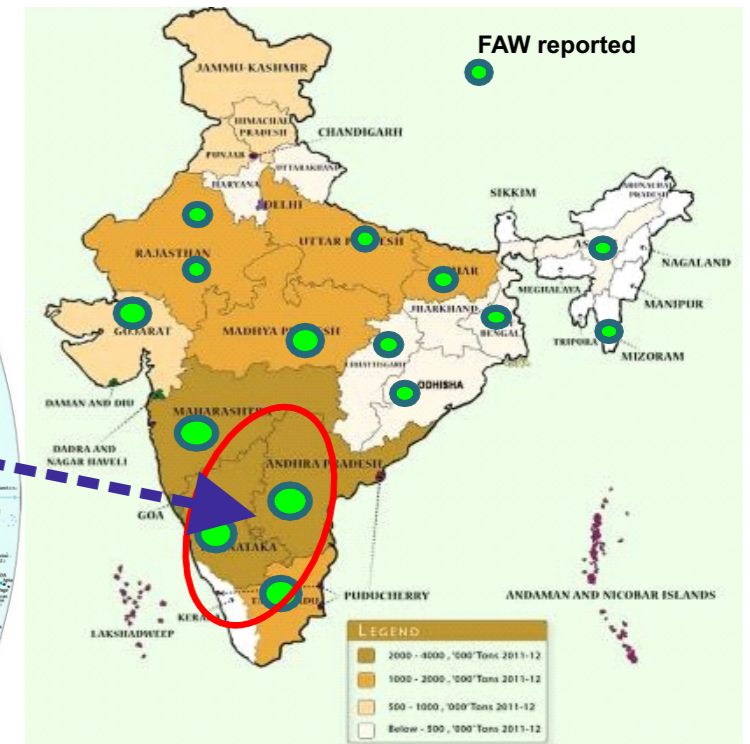
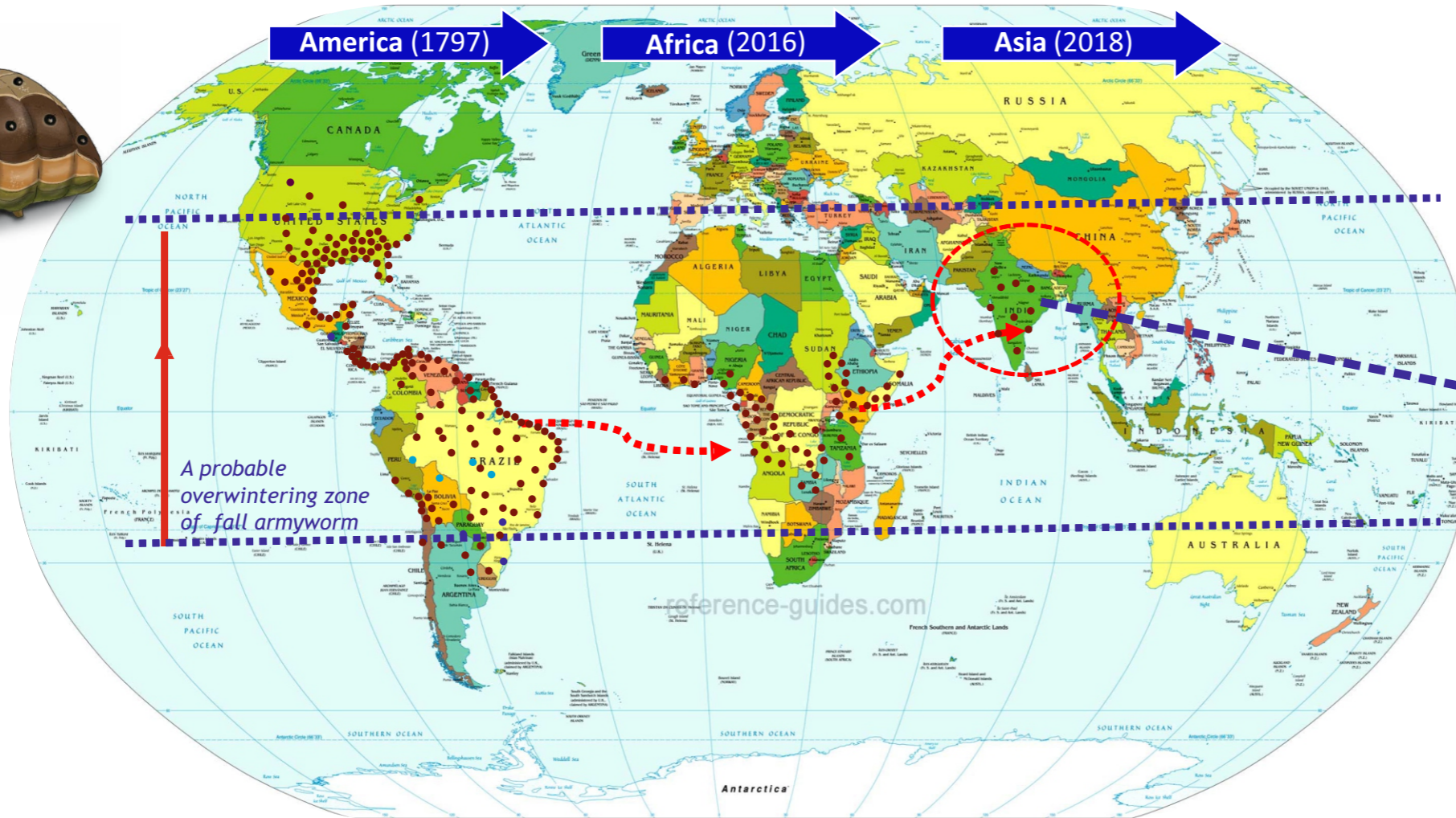
Reference: Central Insecticide Board & Registration Committee CIB&RC (<http://ppqs.gov.in/divisions/cib-rc/about-cibrc>), Directorate of Plant Protection and Quarantine, MoA Printed on Nov' 2019.



Fall Armyworm's invasion !

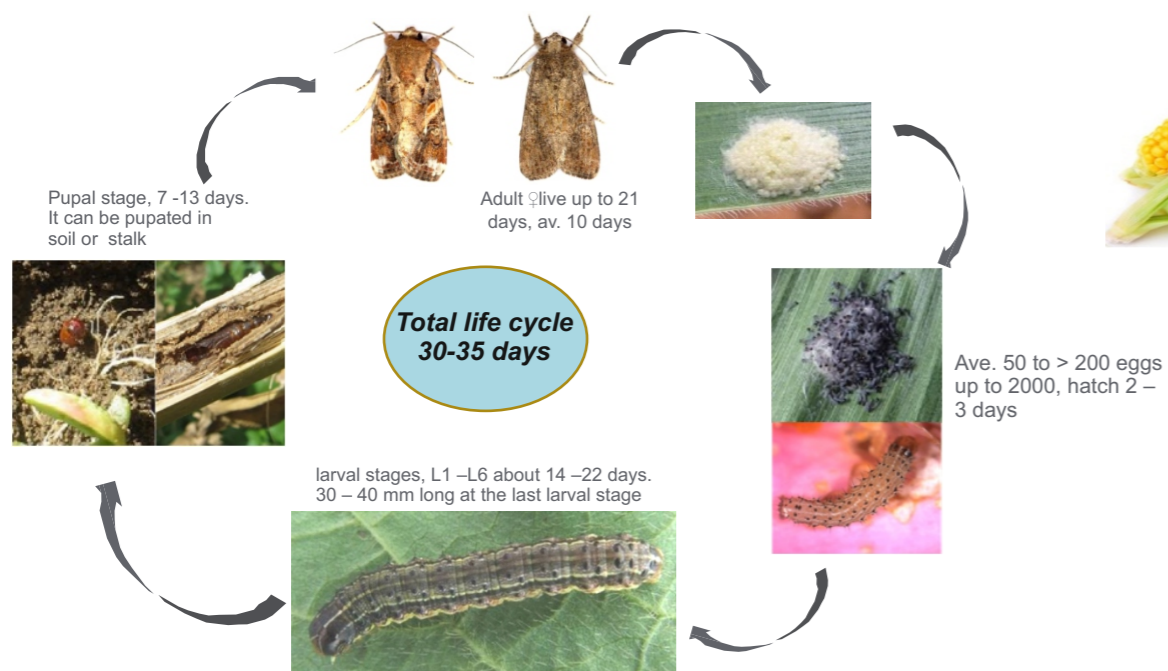


- Fall Armyworm was first detected in Karnataka in July 2018 and is currently reported in more than 20 States in India.
- Corn is the predominant crop till date however Rice, Sorghum and Sugarcane may come under attack as well.

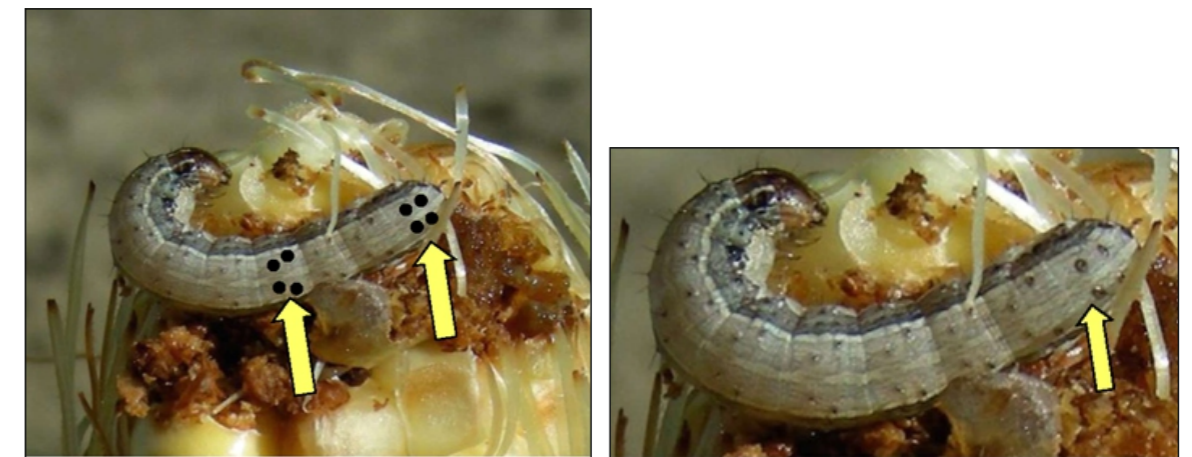


Source: https://farmer.aov.in/m_crostaticsmaize.aspx

Life Cycle of Fall Armyworm



Fall Armyworm: Correct identification



- Spots near "tail" arranged in square pattern
- Spots in middle not in square