



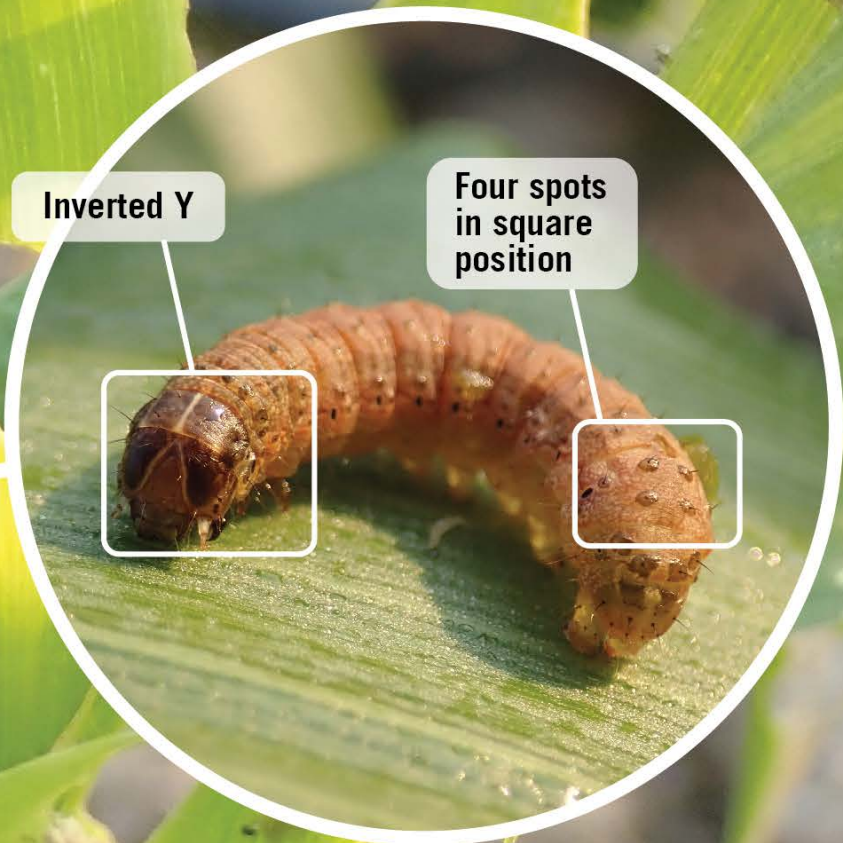
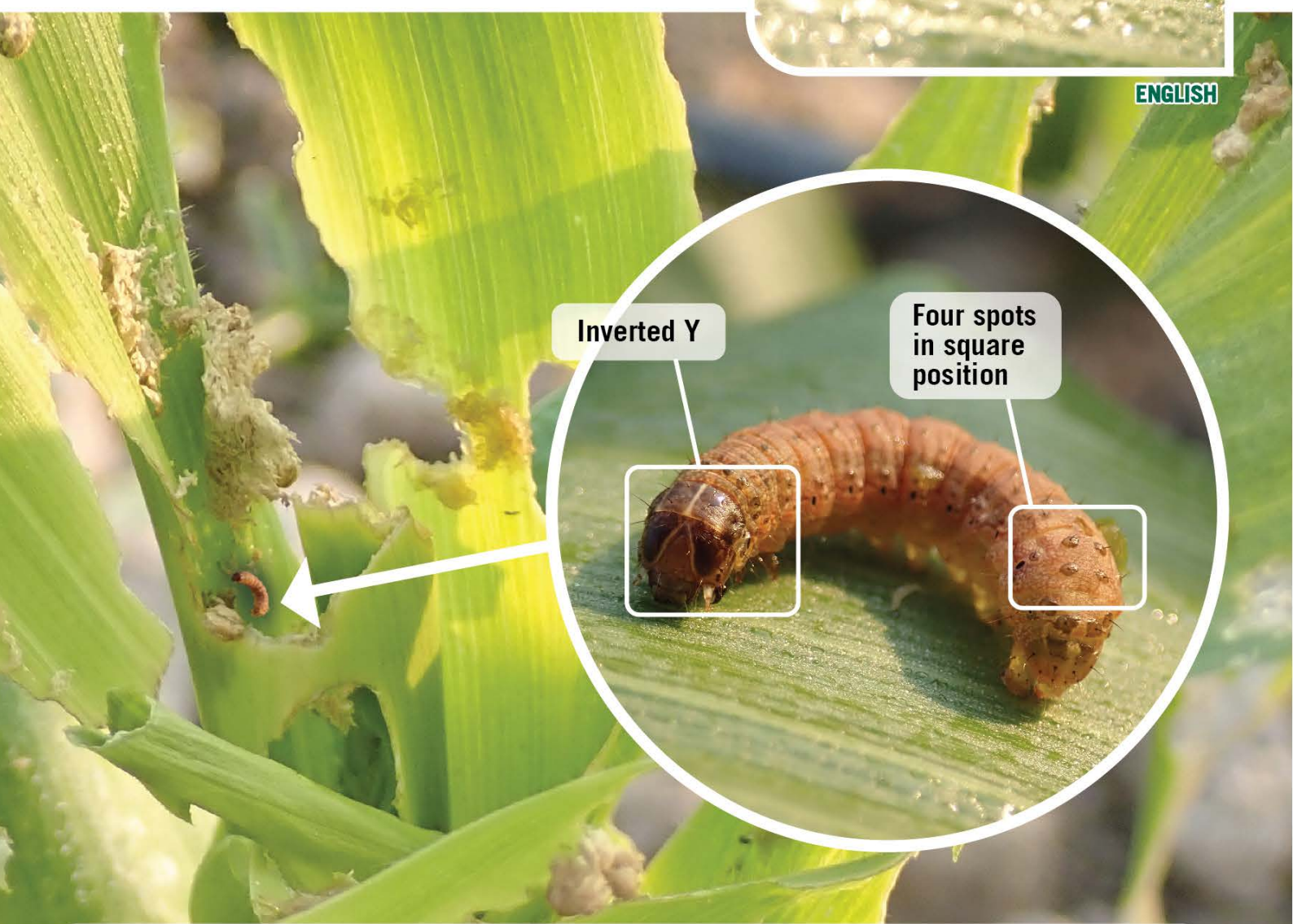
FALL ARMYWORM (FAW)

Technical guide

• What is Fall Armyworm?



ENGLISH



Scientific name: *Spodoptera frugiperda*
Order: Lepidoptera
Yield loss: 20-55% without pest management (CABI)
Crops: Prefers maize, but also feeds on over 80 other plants (species) including tomato, cucumber and brassicas.

Life Stages and Damage

Egg



- * 100 -200 eggs laid in clusters at one
- * mostly found underside the leaves
- * Duration: 2-3 days

Adult (moth)

- * Most active during warm, humid evenings
- * Duration: 2-3 weeks



Larva (caterpillar)



- * Destructive stage
- * Color changes from pale brown to green and darker at the later stage
- * Duration: 12-20 days

Pupa

- * Dark brown
- * Hides in the soil
- * Duration: 12-14 days



Damage: Feeding of larvae results to patches or “windows” and ragged holes on the leaves. Larvae prefer to feed on leaf whorl, leaves around the cob, silks and even on young kernels. Brown frass or “poop” is observed on the damaged area.

• Management Strategies

Do not PANIC! Maize plants are able to compensate for foliar damage, especially if there is good plant nutrition and moisture (FAO).

Follow recommended management. Check efficacy of insecticides and the recommended spraying program. Be sure to alternate MoA to avoid build up of resistance.

Integrated Pest Management (IPM)

for effective and sustainable control of Fall Armyworm
Reliance on insecticide alone may increase the build up of resistance.

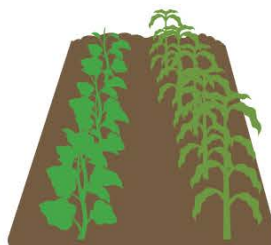
PREVENTION



Early planting. Avoid staggered planting that gives continuous food for the pest.



Ensure good fertilization and soil moisture. Avoid high nitrogen use.

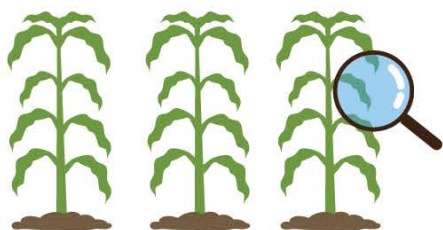


Intercropping (e.g. beans and pumpkin)



Attract beneficial insects by planting flowering plants.

MONITORING



Check the field 3-4 times/week. Take action when fresh damage is 10-30% of the total plants monitored (FAO). Consult local experts for advice.



Use pheromone trap, if available. Improved trap can be made from plastic bottles; add more traps for mass trapping. Consult local experts for advice.

INTERVENTION



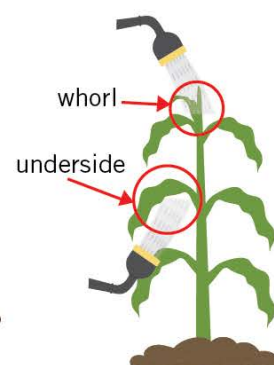
Manual collection and crushing (all life stages, if observed)



Use biopesticides like neem extract, *Bacillus thuringiensis*, *Beauveria bassiana* and Nucleopolyhedrovirus (NPV), if available.



Use of recommended pesticides with alternating MoA to prevent resistance.

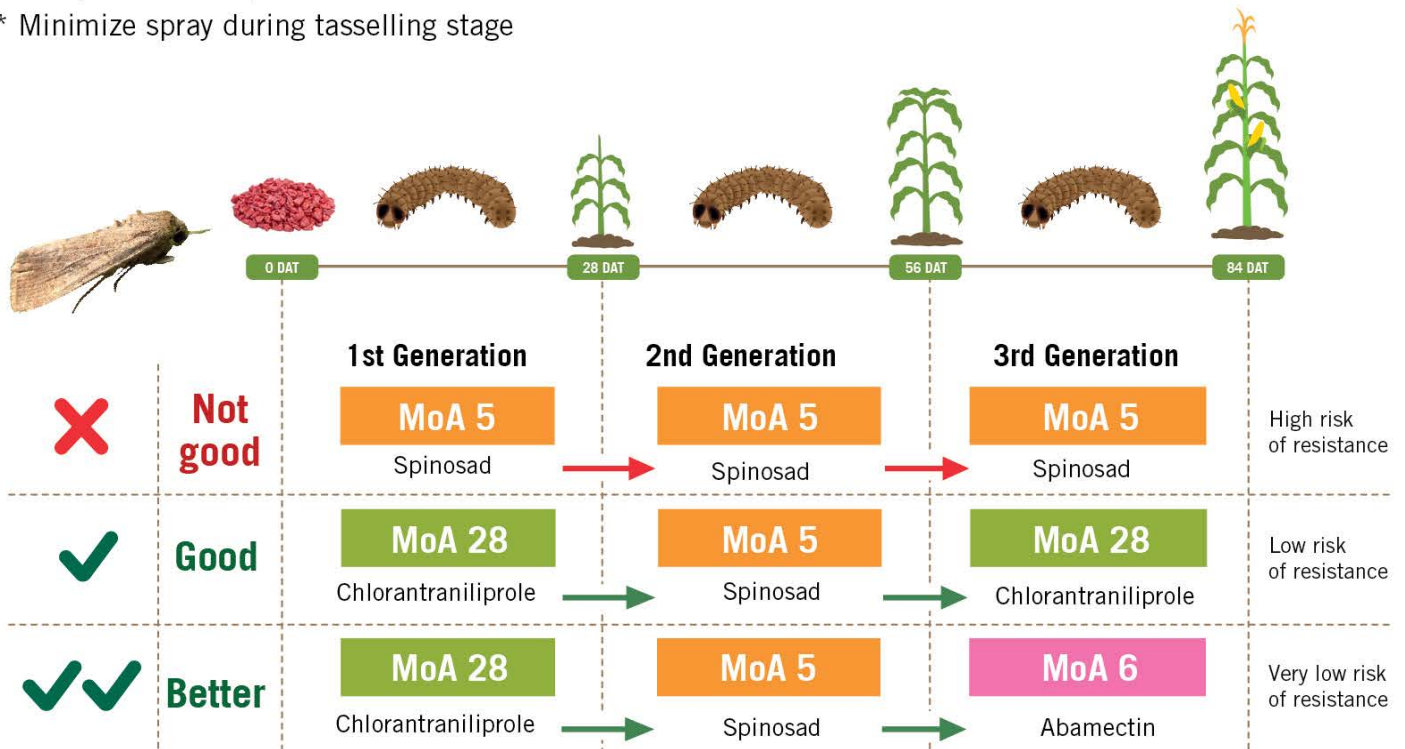


Spray underside the leaves and the whorl, where eggs and larvae are usually found.

• SPRAY SCHEDULE EXAMPLE: alternate MoA groups to prevent resistance

Tips:

- * Apply only when needed (when 20% damaged observed in early whorl stage and 40% during late whorl stage)
- * Always follow the product label
- * Minimize spray during tasselling stage



Insecticide Mode of Action (MoA) Groups for the Control of Fall Armyworm (from IRAC)

Group	Common Active Ingredients (e.g.)	Group	Common Active Ingredients (e.g.)
5	Spinetoram, Spinosad	22A	Indoxacarb
6	Abamectin, Emamectin benzoate	22B	Metaflumizone
11	<i>Bacillus thuringiensis aizawai</i> , <i>Bacillus thuringiensis kurstaki</i>	28	Chlorantraniliprole, Flubendiamide
13	Chlorfenapyr	UN	Azadirachtin
18	Chromafenozide, Methoxyfenozide, Tebufenozide	UNF	<i>Beauveria bassiana</i>

* Always check registration of insecticides for fall armyworm and maize in your country.

• Safe handling of insecticide



References:

B.M. Prasanna, Joseph E. Huesing, Regina Eddy, Virginia M. Peschke (eds). 2018. Fall Armyworm in Africa: A Guide for Integrated Pest Management, First Edition. Mexico, CDMX: CIMMYT.

<https://www.cabi.org/isc/fallarmyworm>

<https://www.cimmyt.org/tag/fall-armyworm/>

<http://www.fao.org/fall-armyworm>

Photo sources: EWS

<http://growhow.eastwestseed.com>

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Agrochemical recommendations have been developed in cooperation with Wageningen University & Research