Let the farmers 'breathe": Management of the fall armyworm under different tillage and cropping systems in Nigeria

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The why

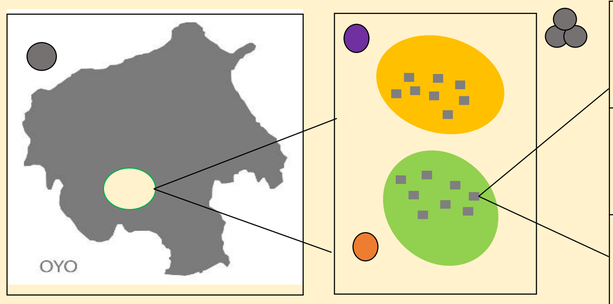
- Damage by the fall armyworm (FAW; *Spodoptera frugiperda*) on maize results in a loss of food for 40-100 million people[1]
- Synthetic chemicals: health and environmental risks, kills beneficial organisms: necessitating alternative control methods
- Growing evidence of agroecological management options[2] , not in Nigeria!
- Suitability of agro-ecological measures against fall armyworm across two landscapes in Ibadan, Nigeria, was hypothesized

Objective

Empirically test the effects tillage and cropping systems in reducing FAW larval population and damage

The how

•Two differing landscapes from Southern Oyo State, Nigeria
-High Tree cover, HTC (Elekuru); - Low tree cover, LTC (Ajibode)



Oyo State, Nigeria[ ]; Elekuru [ ]; Ajibode [ ]; Experimental unit [ ]

Maize monocrop (NI), Conventional tillage (CT); Cowpea intercrop (CP); Minimum tillage and mulching (MTM); Additional (celosia) intercrop (AI)

6 experimental units = treatments ; 8 farms = replicates/landscape)

FAW abundance

- Adult abundance - (weekly/*Throughout*) using pheromone traps.
- Egg /larval abundance (5-points, *W-level*[1]*,3-6-12 Intervals* assessed per sampled plant.


FAW egg batch

FAW larva

FAW foliar damage – assessed with 1-9 CIMMYT pictorial scale


1


9

- The effect of cropping systems, tillage and landscape on FAW was determined. Statistics was done in R.

The outcome

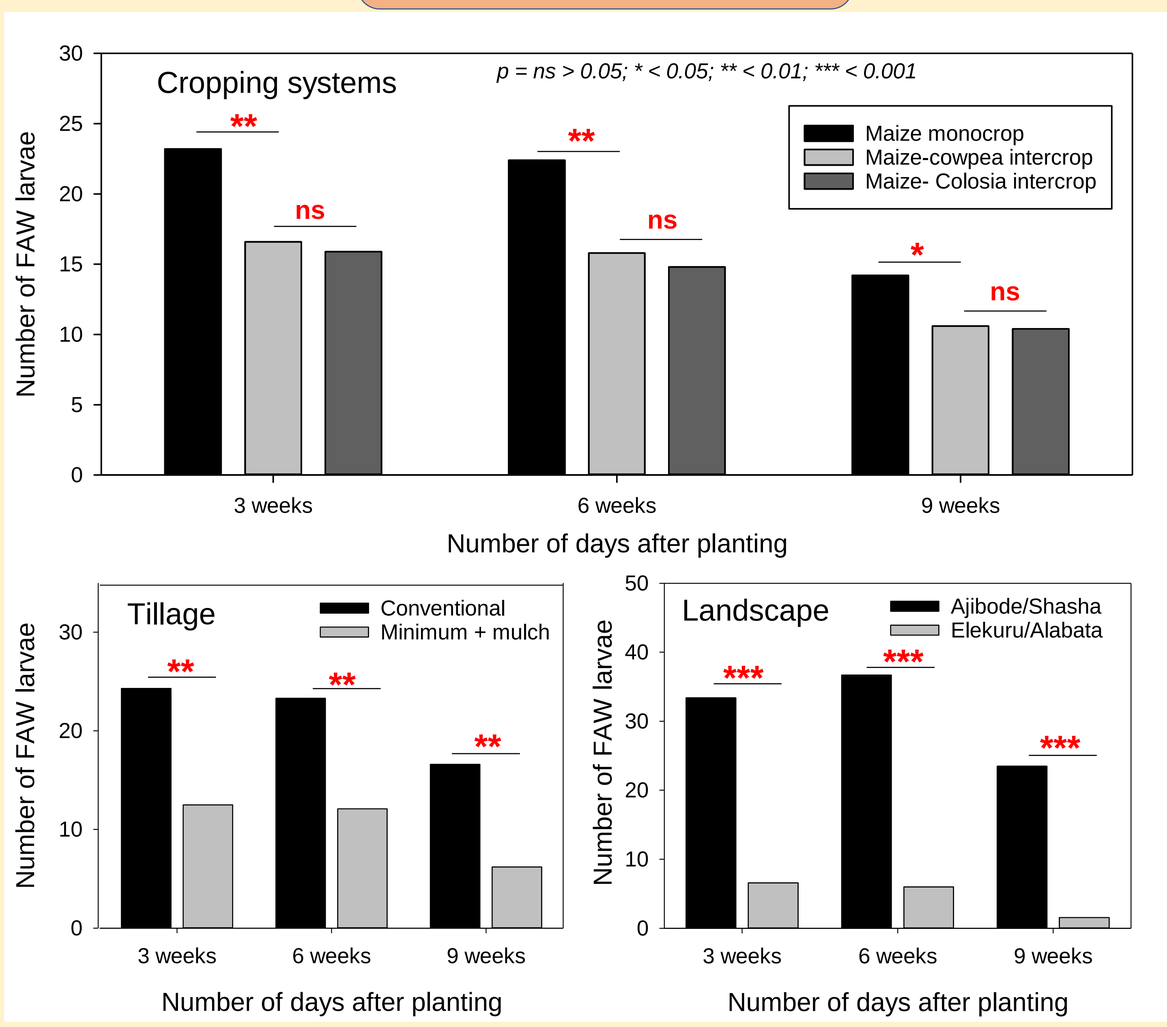


Fig.1: Effect of cropping systems, tillage and landscape on larval population of fall armyworm in Ibadan, Nigeria between August and December 2023

* = significant, ns = not significant

The meaning

• FAW larval population and foliar damage were significantly ($p \leq 0.05$) reduced on intercropped plots than on maize monocrop plots

- NICT plot had the highest number of FAW larvae in both the HTC and LTC areas

•Minimum tillage and mulch plot had reduced FAW population and damage than conventional tillage plot

•High tree cover caused a stronger effect than the low tree cover in reducing fall armyworm population and damage in Nigeria[3]

Take home

Agroecological approach offers effective management of the invasive fall armyworm in Nigeria

Thank you

EKHAGASTIFTELSEN

Food and Agriculture Organization of the United Nations

References

1. FAO (2020). Action framework, 2020-2022
2. Harrison et al. (2019). *J. Environ Manage,* 243: 318–330
3. Martin et al. (20i6). *Ecol. Lett.* doi: 10.1111/ele.13265

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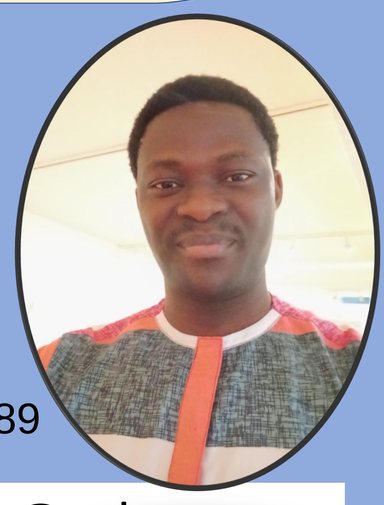

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