



Economic Analysis of FAW invasion in Africa: *informing immediate and long-term action*



Menale Kassie
On behalf of *icipe* and CIMMYT

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FAW a global problem, a global responsibility

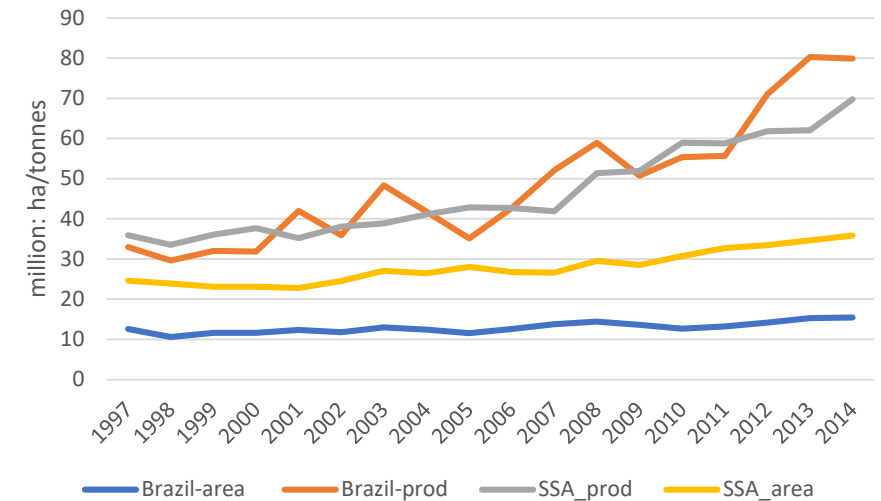
Economic importance of maize sector in SSA

- Maize covers 35.8 million ha in SSA
- Maize represented an average of 35% of cereal area and 45% of cereal production(1997-2014)
- Why FAW is of serious consequence
 - Threaten food security, poverty reduction efforts, health and environment

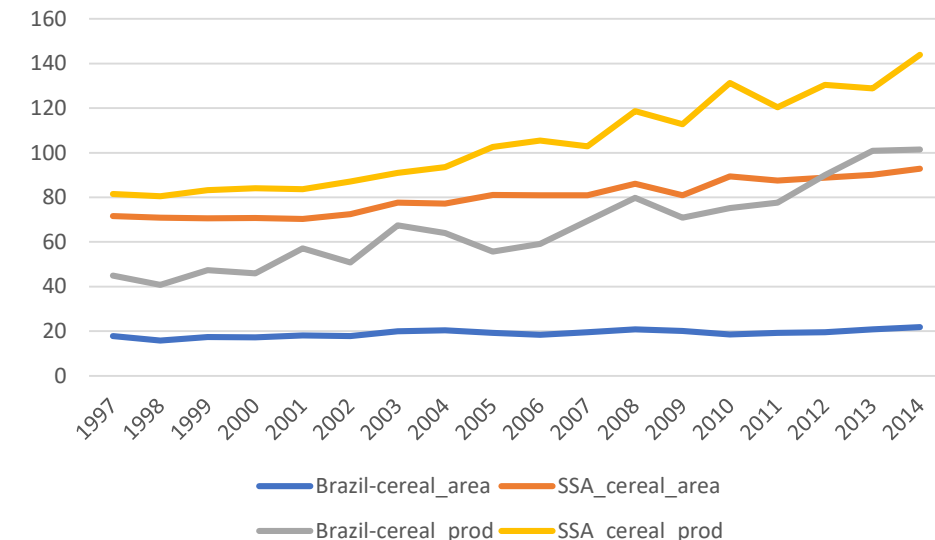
FAW a global problem, a global responsibility (cont'd)

- Response to FAW from other parts of the world
 - Brazil spend \$600 million a year to control FAW
 - Comparably SSA would need
 - \$1.2 billion a year
 - \$600 million (same maize and other cereals crops infested as in Brazil)
 - \$300 million assuming material and labor are cheap, farmers practices used and part of crops area infested in SSA
- Where will \$XXX come from?
 - Governments
 - International response
 - International research community
- Like with any epidemic **only** a coordinated **global** response is effective

Maize area and production in SSA and Brazil



Cereal area and production in SSA and Brazil



Understanding costs and benefits of FAW management

- Establish concrete impact numbers to fully understand community and national level impacts of FAW
 - No systematic objective data is yet available
- Identify feasible interventions that can work across various agroecology for smallholder farmers: what works where, how and for whom?
 - **Feasibility** is both technical and economic and involves many types of accessibility
- Priority setting: where to put scarce resources?
 - Many technically sound approaches, which ones need immediate investment
 - How much
- Also coordinated farmer action (unique to pests and diseases)
 - **Scalable, cost effective, affordable, accessibility**
 - **Which are these? (next)**

Data and economic research to inform action

- data assembly: identification and characterization of existing and potential control options including farmers' practices and assessing the importance of the pest and crop attached
 - through surveys, FGDs and trials
- economic analysis would be to help in choosing the most promising control methods
 - conduct efficacy and benefit-cost analysis of options (e.g., crop diversification, resistant varieties, biological control, pesticides, bio pesticides, ...)
 - Remember: farmers chose technologies based on their food security and economic bottom-lines
- Map distribution of FAW and economic losses

Data and economic research to inform Action (cont'd)

- **FAW and control options impact at all relevant levels**
 - quantifying impact at farm household, community, national, regional
- **Immediate**
 - Estimate economic losses, by country and agroecological zone.
 - Estimate impact on food production and local and regional marketing (household survey, mapping and modeling)
 - Estimate the potential adoption of control methods
 - Ex ante impact assessment of FAW and control methods
 - Training of NARS scientists/extension on the loss estimation methods and economic analysis of control methods.
- **Long term**
 - Based on the above advise long term deployment of:
 - Varieties
 - Bio-pesticides and other bio-control methods by country/zone
 - Environmental and human impact assessment of control methods, including synthetic chemicals
 - E.g. in emergency, chemical control can be used, in the LT environmental and health costs may be unacceptably high
 - Ex-post impact assessment

Multiple Approaches and Tools

- **Immediate (*ex-ante* to inform immediate action and resource planning):**
 - FGDs
 - Household and community surveys: building on existing data and system of data collection
 - Economic surplus methods
 - GIS and remote sensing
- **Long Run (*ex-post* for Foresighting and Long term Strategy development)**
 - Economic surplus methods
 - Econometrics
 - General Equilibrium Modelling
 - Crop and Climate Modeling

Multi-pronged Efforts

- FAW distribution Map (GIS and remote sensing experts, modeling experts, economists)
- FAW monitoring tools developed (Entomology, Modelling)
- Economic and social impacts of FAW
 - control measures evaluated (different levels) - (Economics and Biophysical Scientists)
- Environmental and human health impacts of FAW and control measures documented - (Public Health, Environmental Sciences, Economists)
- Datasets: household survey, FGD and secondary sources - (All on board)
- Partners trained in methodologies in three countries (All on board)

Users of Economic Research Results

- Researchers (inform appropriate technology development and targeting)
- Donors and governments (inform resource planning and prioritization)
- Extension
 - (provide information on available, scalable and affordable techniques, feedback)
- Farmers (provide information most effective control methods)
 - User friendly
 - Cost effective
 - Available, accessible
- NGOs and the business community (to inform technology multiplication and scaling)

Thanks you

EXTRA SLIDES

R &D area:1

Fall armyworm(FAW) monitoring and crop loss assessment

- Develop tools for FAW monitoring and spatial loss assessment
- Map FAW in terms of their distribution, abundance dynamics
- Assessing the importance of the pest and crop attached, loss assessment, current practices through field trials, household and community surveys