PEST MANAGEMENT CHALLENGES IN AFRICA
AND PROPOSED SOLUTIONS

Presented
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Africa is the 4th largest producer of cotton in the world after China, India and the United States of America.

Africa accounts for around 10-15% of the total global cotton production across the globe.

Cotton production in Africa is mainly done by Smallholder farmers who rely on rain fed agriculture.

The cotton sector provides employment opportunities for millions of people especially in the rural areas.

A major challenge faced by cotton farmers in Africa is low productivity and the poor quality of cotton.

This is due to a number of factors including lack of access to modern inputs and technologies as well as Pest Infestations.
Common Cotton Pests in Africa

1. **Cotton Bollworm (Helicoverpa armigera):** This is the most destructive pests across the world. The Larvae of cotton bollworm feeds on the cotton bolls causing damage to the crop.

2. **Cotton Leafworm (Spodoptera liyyoralis):** the Larvee feed on the leaves of cotton plants leading to defoliation.

3. **Cotton Aphids (Aphis gossypii):** These are small insects that suck sap from the cotton plants causing stunted growth and reduced Yield.

4. **Whiteflies (Bemisia tabaci):** These are sap sucking insects that can cause significant damage to cotton crops through transmitting viral diseases and causing yellowing in leaves.

5. **Cotton Stainers (Dysdercus spp):** These are bugs feeding on cotton bolls causing discoloration and staining of the fibers. This reduces the quality and market value of cotton.
■ Pest Management in Africa involves the Use of various cultural and indigenous practices to control pests.

■ These methods have been passed down through generations and often based on local knowledge and experience.
Traditional Pest Management practices in Africa

- **Crop Rotation**
  Where farmers rotate cotton with other crops to disrupt the life cycle of pests and reduce their population.

- **Intercropping**
  Which involves planting cotton alongside other crops such as legumes or aromatic plants that helps to deter pests.

- **Trap Crops**
  Where farmers plant specific crops that are highly attractive to pests away from the main cotton crop.

- **Hand picking**
  Where farmers manually remove pests such as cotton Bollworms or strainers from the plants.
Traditional Pest Management in Africa

Cultural Practices
Where timely and proper planting, pruning and weeding helps to reduce pest population.

Natural Insecticides
Where farmers use plant-based insecticides derived from local plants such as Neem extracts which are believed to have insecticidal properties.

Biological Control
Where natural enemies of pests such as birds are encouraged by creating suitable habitats for the pests.
Pesticide Misuse, Resurgence and Resistance

- Cotton bollworms are a major pest, causing damage to cotton crops and affecting yields and quality in Malawi, Mali, Nigeria, Burkina Faso, Zambia and many African countries.
- The majority of farmers misuse pesticides such as using incorrect dosage or applying pesticides at inappropriate times.
- Inadequate rules and regulations based on scientific knowledge make it challenging to prevent the entry and spread of exotic pests.
- The excessive use of pesticides has led to pest resistance rendering chemicals ineffective and increasing the pest population.
- Persistent use of synthetic organic insecticides and other compounds has led to environmental contamination. There is growing concern about the toxic hazards to humans, wildlife, and domestic animals due to pesticide residues in the environment.
Inadequate Ecological Information, Research and Innovation

- Many research establishments in most African countries including Tanzania, Chad, Ivory Coast, Burkina Faso, Ethiopia and Zambia lack the necessary skills and resources to address pest taxonomy and management.
- There is inadequate accessible information on pest ecology to implement effective pest management mechanisms with reduced reliance on chemicals.
- Lack of educational investment has left smallholder farmers ill-equipped to deal with changing agro-ecosystems and a changing world, posing new challenges in pest management.
Climate Variability and Effects

- Cotton production is vulnerable to changing weather patterns and increased pest pressure influenced by climate change.
- Climate change has altered pest dynamics in countries like Cameroon, Mali, Nigeria, Malawi among others, making it challenging to anticipate and mitigate infestations.
- Changes in temperature and rainfall patterns have been influencing pest populations, their life cycles and effectiveness of control measures.
Limited Availability of Pest Resistant Varieties, Monitoring and Early Detection

Limited access to Genetically modified or conventional pest resistant cotton Varieties making it difficult to control pest effectively

Lack of effective pest monitoring tools and training.
## Inadequate Finance and Government Support

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<th><strong>Inadequate Government Support</strong></th>
<th><strong>Lack of Financial Resources</strong></th>
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<td>□ Insufficient government support including inadequate funding for research and extension hinders the development and dissemination of effective pest management strategies.</td>
<td>□ Implementing pest management strategies requires financial resources such as purchasing of pesticide, equipment or investing in alternative pest control methods.</td>
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<td>□ This limits smallholder farmers access to essential information and resources</td>
<td>□ Limited resources make it difficult for farmers to adopt and sustain effective pest management practices.</td>
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Proposed Solutions to Cotton Pest Management In Africa

1. Research and Innovation

- Encouraging the use of pest-resistant cotton varieties to reduce vulnerability to bollworms.
- Countries such as Chad are exploring the potential of genetically engineered crops to produce varieties with desirable traits.
2. Promotion of Integrated Pest Management Practices

- Combining multiple pest management strategies to achieve long term pest control while minimizing the use of chemical pesticides.
- This will involve use of monitoring pest population using cultural and biological control methods and only resorting to chemical control when necessary.
Improving and Enhancing Extension Services

- Offering comprehensive training to cotton farmers on pest identification, IPM techniques, and safe pesticide use.
- Strengthening extension services to reach remote areas with pest management guidance.
- Investing in farmer education and extension services to equip them with the knowledge and skills for effective pest management.
Adoption of Climate Resilience Practices

- Promoting climate-smart agricultural practices like crop rotation and diversification to adapt to changing weather patterns and evolving pest pressures.
- Promoting climate-smart agricultural practices, such as crop diversification, intercropping, and improved water management, to mitigate the impact of changing climate patterns.
Introduction of Pest Monitoring and Early Warning Systems

• Establishing pest monitoring networks and providing low-cost monitoring tools and mobile applications to help farmers track pests.
• Implementing pest monitoring and early warning systems with mobile applications and SMS services for real-time pest information for farmers.
END OF PRESENTATION
THANK YOU