Vi Agroforestry

PELUM KENYA

Networking for a Greener Africa

UNDERSTANDING THE HIDDEN COSTS OF GMOS

A GUIDE FOR COMMUNITY FACILITATORS AND FARMERS

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WHAT ARE GENETICALLY MODIFIED ORGANISMS GMOS?

Genetically Modified Organisms (GMOs) are plants, animals, or microbes whose DNA has been artificially altered in a lab to introduce specific traits like resistance to pests or herbicides.

Why are GMOs Created?

The Truth Behind the Promises

Some scientists and companies claimed that GMOs would help farmers and solve world hunger. But over time, many of these promises have not come true.

Let's break it down:

1. To Fight Climate Change

What they say: GMOs could survive droughts, floods, and heat.
What really happens: Many GMO crops still struggle in bad weather, just like traditional crops.

2. To Increase Crop Yields

What they say: GMOs would grow more food on the same land.
What really happens: In many cases, traditional and local seeds grow just as much—sometimes even more—without the expensive chemicals.

3. To Add Nutrition (e.g., Golden Rice)

What they say: GMOs like Golden Rice could address vitamin A deficiency.
What really happens: A child would need to eat over **25 bowls of rice** a day to get enough vitamin A. Real solutions are fruits, vegetables, and local food diversity.

4. To Resist Pests

What they say: GMO crops can kill pests and reduce the need for spraying chemicals.
What really happens: Over time, pests become stronger, and **more toxic chemicals** are being used.

So What's the Real Reason?

The **biggest reason** GMOs are pushed is **money**.

- GMO seeds are **owned by big companies**.
- These seeds are **protected by patents**, so farmers must **buy them every season**.
- Farmers can't save or share seeds this is **controlled by law**

You Deserve the Truth!!!!!

GMOs may look like a solution, but they come with **hidden costs** to your soil, your health, your independence, and your wallet.

Are there cases where GMOs can be useful

Yes, **there are cases where GMOs can be useful**, especially in **medicine and health**. Unlike GMO crops in farming, which raise many concerns for smallholder farmers, some **GMO technologies in medicine** have brought real benefits for example:

1. Insulin for Diabetes

- Before, insulin came from animals like pigs.
- Now, **GMO bacteria** are used to produce **synthetic human insulin** in large amounts.
- This type of insulin is safer, more consistent, and widely available to diabetic patients.

2. Gene Therapy for Diseases

- For example, **sickle cell anemia** is a painful blood disorder.
- New **GMO-based gene therapies** can correct the faulty gene in a patient's cells.

- These treatments are still new and expensive, but they offer hope for curing some inherited diseases.

⚠️ Important Note for Farmers:

While **GMO medicines** have shown clear benefits under strict regulation, **GMO crops in agriculture** are a different story. The main goal in farming has often been to make money for seed companies, not to help small farmers.

Bottom Line:

- **Yes**, GMOs have useful roles, **especially in health and medicine**.
- But in farming, **the risks often outweigh the benefits**, especially for smallholders who rely on seed saving, biodiversity, and independence.

WHY SAY NO TO GMO!

1. GMOs' Impact on Biodiversity

What's Happening when GMOs are introduced :

- GMO crops often replace traditional varieties, reducing genetic diversity.
- Cross-pollination between GM and native crops can contaminate natural seed banks.
- Some GMOs are designed to resist pests, which can harm beneficial insects and pollinators and disrupt the ecosystem.

Why It Matters:

- Biodiversity protects crops from disease, climate change, and pests.
- Loss of local varieties means losing centuries of farmer knowledge and climate resilience.

Less diversity = less resilience to disease, pests, and climate change.

2. Environmental Consequences of GMOs

What's Happening:

- GM crops often encourage increased use of chemical herbicides like glyphosate.
- Herbicide-resistant weeds are emerging, requiring even stronger chemicals.
- Soil health declines due to the overuse of chemical inputs and monoculture farming

Why It Matters:

- Healthy soil and clean water are essential for current and future generations of farmers.
- Environmental degradation harms wildlife, pollinators, and long-term productivity.

3. Potential Health Risks of GMOs

What's Happening:

- There is still debate over long-term effects of GMOs on human health.
- Some GMO-related chemicals, such as herbicide residues, have been linked to health concerns like cancer.

Why It Matters:

- Smallholder families often eat what they grow health risks affect entire communities.
- Unlabeled GM food makes informed choices difficult.

4. Social and Economic Impact of GMOs

- GMO seeds are often patented farmers must buy them every season.
- Farmers become dependent on big seed companies and lose control over their seeds.
- Traditional seed-saving practices are under threat.

Why It Matters:

- Seed sovereignty is key to farmer independence and cultural heritage.
- Rising costs and legal risks create stress and insecurity for smallholders.

ARE GMOS A SOLUTION FOR KENYA'S FOOD INSECURITY?

GMOs Are Not the Solution for Kenya's food insecurity!!

Many people talk about GMOs like they are the answer to hunger and poverty. But for Kenyan farmers, **the real problems are elsewhere**. For instance:

Low Government Support for Agriculture

- Only about **4% of the national and county budget** goes to farming.
- Yet farming supports over **60% of Kenyans!**

Limited Agricultural Extension Services

- Most farmers **don't get proper training** or advice on new and better farming practices.

Poor Roads and Transport

- Bad roads make it hard to take produce to markets.
- In some areas, **food rots** because it can't be sold on time.

Inadequate Water and Irrigation

- Many farms rely only on rain.
- **No irrigation = crop failure during droughts.**

Neglect of Indigenous Crops and Practices

- Traditional crops like millet, sorghum, and cassava are **resilient** and **nutritious**, but are often ignored.
- These crops also protect our **culture and food heritage**.

FAILED PROMISES OF GMO: A CASE OF BT COTTON

Case of India

- **Ineffective Pest Control**: Bt cotton, engineered to resist bollworm, has increasingly failed as pests—including secondary pests and even bollworm—have adapted.
- **Farmer Distress**: A correlation has been observed between Bt cotton adoption and rising farmer suicide rates, especially in rain-fed areas where the water-intensive crop worsens vulnerability.
- **Economic Burden**: High costs of patented seeds and required chemical inputs have pushed many farmers into debt.
- **Expert View**: Dr. Keshav Kranthi, former Director of the Central Institute for Cotton Research, advocates for **sustainable, low-input methods**, including:
    - Locally adapted seed varieties
    - Organic soil enrichment
    - Biological pest control
    - Crop rotation and legume integration

Case of South Africa (Makhatini Flats)

- Initially launched with 3,000 farmers supported by credit and subsidies.
- Over time, farmers struggled with **high input costs** and **debt repayment**, leading to the **withdrawal of support**.
- Today, **less than 10%** of the original farmers still grow Bt cotton.

Case of Burkina Faso

- Once a Bt cotton adopter, Burkina Faso is now **scaling back** due to **poor cotton quality and low yields**.
- Farmers have demanded compensation, citing economic losses and compromised fiber standards.

RISK TO ORGANIC EXPORT MARKETS

- **GMO Contamination Threat**: Organic farming systems risk losing integrity due to potential cross-contamination from GM crops.
- **Economic Impact on Kenya**:
    - Kenya depends heavily on **organic agricultural exports** for foreign exchange.
    - Introducing GMOs could undermine market trust, threatening Kenya's position in the growing **global organic food market**.
- **Global Trends**: With increasing global consumer demand for organic, non-GMO foods, Kenya’s move toward GM crops could be economically shortsighted.

SO WHAT'S THE BETTER ALTERNATIVE?

AGROECOLOGY

Agroecology is a **farming method that works with nature**, not against it. It's built on **local knowledge, community practices, and respect for the environment.**

What Agroecology Offers Farmers:

a) Fairness and Equality

- Respects smallholder farmers, women, and communities.

b) Food and Nutrition Security

- Focuses on growing a variety of healthy, local foods.

c) Food Sovereignty

- Empowers farmers to control how they grow and share food.

d) Better Incomes and Sustainability

- Reduces reliance on expensive inputs like GMO seeds and chemicals.

e) Right to Safe, Healthy Food

- Protects your land, your health, and your children's future.

f) Climate resilience

PROTECTING LOCAL FARMING AND THE FUTURE

What You Can Do:

- **Support Seed Sharing:** Exchange and preserve traditional seeds with other farmers.
- **Practice Agroecology:** Use natural methods to manage pests, improve soil, and diversify crops.
- **Stay Informed:** Ask questions about where your seeds come from and what they contain.
- **Advocate Together:** Join or support local farmer groups that protect biodiversity and seed rights.

Support Farmer-Managed Seed Systems

- FMSS supplies 80% of planting seed to 75% of the farming community
- **Farmers as Stewards and Breeders of Sustainable Agriculture**
  Farmers play a vital role in preserving, selecting, and improving seeds adapted to local environments and needs.

- **Low-Cost and Locally Driven**
  These systems rely on farmer knowledge and local resources, minimizing external input costs.
- **Aligned with Community Seed Bank Initiatives**
  Seamlessly integrated with community seed banks, supporting local seed sovereignty and resilience.
- **Custodians of Genetic Diversity**
  Farmer-managed systems maintain and enhance a wide range of crop varieties, ensuring ecological and nutritional diversity.

ADVOCATE FOR SEED SOVEREIGNTY

What is Seed Sovereignty?

Seed sovereignty refers to **the rights of farmers to save, breed, exchange, and sell their own seeds**—particularly **open-source, non-GMO, and non-patented seeds** that are free from corporate control. It ensures that **farmers not corporations, control the foundation of the food system.**

Why Seed Sovereignty Matters

1. **Seeds are the foundation of the food system** they carry the potential for life and the future of agriculture.
2. **Essential for biodiversity** open pollinated and indigenous seeds support ecological balance and resilience.
3. **Reduces costs for farmers** open-source seeds can be produced locally at low cost, minimizing dependency on expensive commercial varieties.
4. **Empowers seed self-reliance** farmers can produce and store their own seeds.
5. **Facilitates seed exchange and trade** among farmers, fostering community resilience.
6. **Enables climate adaptation**—farmers can select and adapt seed varieties best suited to local conditions.
7. **Preserves traditional and indigenous seed varieties**—ensuring cultural heritage and food security for future generations.

KEY INTERNATIONAL FRAMEWORKS SUPPORTING SEED SOVEREIGNTY

1. UN Declaration on the Rights of Peasants and Other People Working in Rural Areas (UNDROP)

Adopted in 2018, it recognizes farmers' rights under **Article 19**:

a) Protection of traditional knowledge related to seeds.

b) Equitable sharing of benefits from plant genetic resources.

c) Participation in decision-making around seed conservation and use.

d) Right to **save, use, exchange, and sell** seeds.

2. Sustainable Development Goals (SDGs) – Goal 2: Zero Hunger

- **Target 2.5**: Aims to **maintain genetic diversity** in seeds, plants, and animals.
- **Indicators include**:
    - Number of plant/animal genetic resources secured in conservation facilities.
    - Proportion of local breeds at risk of extinction.

3. International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)

- **Operational since 2009**, it promotes the conservation and sustainable use of plant genetic resources.
- **Article 9** outlines **Farmers' Rights**:
    - Recognition of farmers' contributions to crop diversity.
    - Rights to **save, use, exchange, and sell farm-saved seeds**.
    - Protection of traditional knowledge.
    - Equitable benefit-sharing.
    - Participation in decision-making processes.

Article 9.3 affirms that nothing in the Treaty should limit farmers' existing rights to seed, subject to national law.

4. The Constitution of Kenya (2010)

- **Article 11(3)(b)** mandates Parliament to recognize and protect **ownership of indigenous seeds and plant varieties**, and their use by communities.
- **Article 43(1)** guarantees every person the right:
    - (c) to be free from hunger and to have **adequate food of acceptable quality**.

The right to **clean and safe food**, *is increasingly at risk from GM contamination.*

CONCLUSION

Corporatization of seeds through patents and GMOs threatens food sovereignty globally.

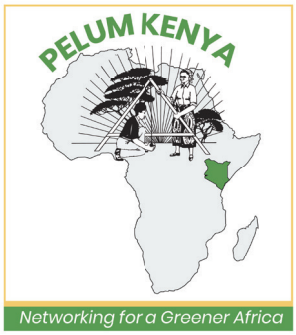
Seed Sovereignty is a prerequisite for food security, climate resilience, cultural preservation, and economic justice.

Kenya must resist seed privatization to protect both their biodiversity and their economy, especially as the global demand for **organic, non-GMO food** continues to rise

GMOs may promise short-term gains, but the long-term impacts can put your land, health, society, and livelihood at risk. Protecting nature and farmers' knowledge is the strongest foundation for a secure farming future.

Let's Build a Stronger Future Together !!!

Kenya doesn't need GMO seeds controlled by big companies. We need **support for local farmers to multiply, save**, **agroecological solutions**, and **farming systems that respect people and nature**.



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