

### R&D AND EXTENSION



**TECHNOLOGY** 

### Policy Goals for a Productive, Sustainable Healthy World

The Global Harvest Initiative and its partners have identified **five strategic policy goals** that foster productive sustainable agriculture and food systems.

These policies bring benefits to consumers, the environment and to producers.

They stimulate productivity growth and resiliency in the agricultural value chain while helping producers manage risks during challenging agricultural business cycles.

They increase access to safe, affordable food and provide science-based information, so consumers can make healthy choices.

These policy goals also help reduce waste and loss in the agricultural value chain and mitigate climate change while creating opportunities for economic growth and innovation.

## Invest in Public Agricultural Research, Development and Extension

Agricultural R&D and extension programs are essential public goods and the principal drivers of Total Factor Productivity (TFP) growth.

Public sector R&D and extension programs deliver innovation and information to agricultural producers. They provide access to proven techniques such as conservation agriculture and animal care practices to improve sustainability and resilience.

Public R&D provides foundational results that the private sector can further develop to improve specific crops, livestock, machinery or food manufacturing industries. R&D and extension services help producers control costs, reduce loss and waste and become resilient to climate change while conserving natural resources.

Public-private research partnerships improve the nutritional quality of food through crop biofortification. Farmers receive technology and training to cultivate and store their crop and livestock products in a way that preserves their freshness and prevents contamination.

Research partnerships leverage funds to tackle environmental and economic challenges faced by producers and consumers.

# Embrace, Customize and Disseminate Science-Based and Information Technologies

Productive sustainable food and agriculture systems depend on public policies that support the development, customization and dissemination of science-based and information technologies.

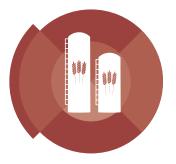
Information technologies such as apps and social media help consumers learn more about the food they eat and agriculture products they use.

Technologies help producers manage the ever-present risks in agriculture while improving sustainability and competitiveness.

Advanced plant breeding through biotechnology and gene-editing enhances drought tolerance and yields, while disease management practices keep livestock healthy and productive. Efficient irrigation and cultivation technologies improve water productivity and reduce labor burdens. Storage and cold chain innovations ensure that more agricultural products reach markets rather than landfills.

Producers use technology to access vital information on market prices, weather, pests and soil health.

Precision agriculture and data management tools reduce costs and conserve scarce water and soil resources.



PRIVATE-SECTOR INVOLVEMENT

#### Enhance Private-Sector Involvement in Agriculture and Infrastructure Development

Policies that incentivize privatesector investment in physical and human infrastructures are crucial to increasing the productivity and sustainability of agriculture. An efficient infrastructure system brings safe, nutritious affordable food to more people.

Public-private partnerships to develop road, water, rail and port infrastructures open new markets and reduce transaction costs for producers, retailers and consumers.

Reliable and affordable electricity and cold chain systems as well as access to high-quality, high-speed fixed broadband and mobile cellular coverage make farmers more efficient and competitive, while reducing loss and waste in the value chain.

For small-scale and emerging producers, infrastructure investments reduce costs and connect them with education, innovation and wider market opportunities.

Collaborative efforts between government, industry and communities to develop an educated and entrepreneuriallyminded workforce stimulate off-farm employment and reduce rural poverty.



**CULTIVATE PARTNERSHIPS** 

#### Cultivate Partnerships for Sustainable Agriculture and Improved Nutrition

To develop their agricultural economies and reduce malnutrition, governments leverage their resources through partnerships with local and international private businesses, non-governmental organizations, foundations, multilateral institutions and development agencies.

Partners agree to share the risk, responsibilities and benefits of their joint investments to increase agricultural productivity and sustainability, improving the lives of small-scale producers and rural communities.

Including producer groups in the design, management, monitoring and evaluation of the partnerships provides local knowledge, increases community buy-in, builds leadership and encourages the inclusion of underserved groups, such as women and youth.

Multi-stakeholder partnerships that share knowledge, innovations and resources are essential to achieving the Sustainable Development Goals (SGDs).



**TRADE** 

## Foster Capacity for Regional and Global Agricultural Trade

Forward-looking trade agreements efficiently move products to markets that need them, benefitting consumers and producers.

An enabling policy environment for regional and global trade includes transparent policies and consistently enforced laws and regulations, as well as coherent trade rules across countries.

Since many countries do not have the human or financial capacity to effectively manage complex regional and global trade opportunities, policies can start by building country capacity to facilitate agricultural trade, with an eye toward helping small and medium-scale farmers access larger markets, increase their incomes and expand their businesses.

Improvements in trade policies and infrastructure will enable consumers around the world to access a wider variety of foods, as well as staple foods at competitive prices.

In agriculture, trade in services improves and modernizes production and brings innovation to agri-food systems. Developing countries can unlock the potential of their manufacturing and agricultural sectors by opening to trade in services that boost the sustainability and quality of agricultural production and lowers costs for consumers and businesses.