CropLife Asia

Vietnam Roundtable Discussion

Demands of a Growing World, Societal Expectations & Role of Technology: A Global View

August 2021

Demands of a Growing World, Societal Expectations & Role of Technology: A Global View

I. Introduction of CropLife Asia

II. Global, Regional Trends & Our Smallholders

III. Growing Role of Innovative Technologies

About CropLife Asia

- CropLife Asia (CLA) is a non-profit organization dedicated to promoting plant science.
- We are part of the global federation, CropLife International.
- Under CropLife Asia, we have 15 national associations across Asia-Pacific – including CropLife Vietnam.
- Our members are 6 global R&D companies active in the crop protection and plant biotechnology space.

Our National Associations

- CropLife Australia
- Bangladesh Crop Protection Association
- CropLife China
- CropLife Asia-Beijing Office
- CropLife India
- Federation of Seed Industry of India
- Japan Crop Protection Association
- Council of Biotech Information Japan
- Korea Crop Protection Association
- CropLife Korea
- **CropLife Vietnam**
- CropLife Indonesia
- CropLife Taiwan (ROC)
- AgCarm (New Zealand)
- CropLife Pakistan
- CropLife Philippines
- Malaysian CropLife & Public Health Association
- Thai Agricultural Innovation Association (TAITA)
- CropLife Sri Lanka

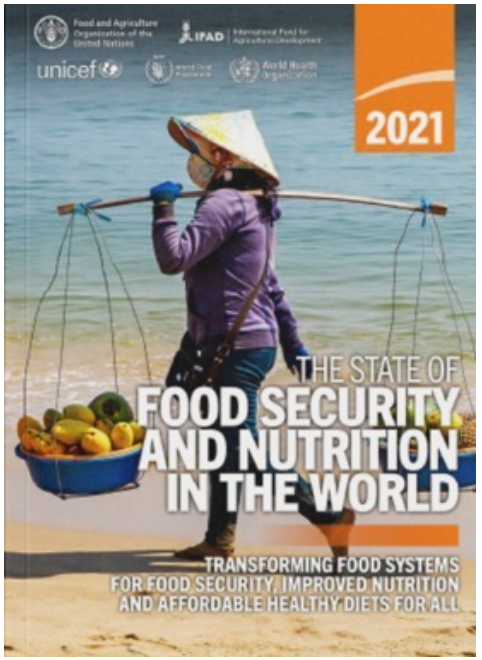
Implications of a Rising Global Population

- The UN projects that the world's population will reach 9.1 billion by the year 2050
- According to the UN's FAO (*How to Feed the World in 2050*), feeding this larger population will require raising overall food production by some **70%**
- Production in developing countries would need to **almost double**
- In these developing countries, **80%** of the necessary production increases would need to come from **greater yields and cropping intensity** (only 20% from expansion of arable land)

Global Food Security & Nutrition Challenges

According to the UN's ***2021 State of Food Security and Nutrition in the World***

- The number of people unable to access adequate food year-round rose to 2.37 in 2020 – an increase of 320 million from the previous year
- The prevalence of undernourishment climbed to around 9.9% in 2020, from 8.4% a year earlier
- More than ½ of the world's undernourished live in Asia (418 million)
- Africa and Asia account for more than 90% of all children with stunting, more than 90% of all children with wasting, and more than 70% of all children who are affected by overweight worldwide



Global Food Security & Nutrition Challenges

According to the World Bank brief on ***Food Security & COVID-19***

- Global food prices rose close to 20% in the last year (January 2020 – January 2021)
- Reduced calorie intake and compromised nutrition threaten gains in poverty reduction, health / could have lasting impacts on the cognitive development of young children
- COVID-19 is estimated to have dramatically increased the number of people facing acute food insecurity
- As of April 2021, 296 million people in 35 countries (where the WFP operates) were without sufficient food – an increase of 111 million from April 2020

Regional Smallholders

Nearly **85%** of the world's smallholders call Asia home

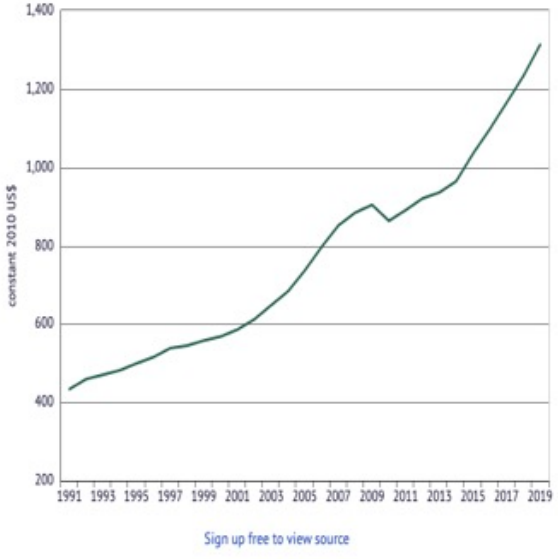
Among the unique challenges these food heroes face:

- Landholder Rights
- Market Access
- Availability of Finance
- Access to Technology
- Increasing Impacts of Climate Change

The pandemic has only exacerbated many of these.. but also created new opportunities to consider the role of **innovative technologies**.

“Remarkable” Transformation of Vietnam

What is Viet Nam agriculture value added per worker?



DATE	VALUE	CHANGE, %
2019	1,313	6.50 %
2018	1,233	5.85 %
2017	1,165	6.15 %
2016	1,097	6.07 %
2015	1,034	7.28 %
2014	964	3.07 %
2013	935	1.65 %
2012	920	3.35 %
2011	890	3.18 %
2010	863	-4.51 %
2009	904	2.23 %

7 Driving forces behind Viet Nam’s remarkable achievements

Robust growth of exports fostering domestic production taking advantage of the growing, qualified and low cost labor force

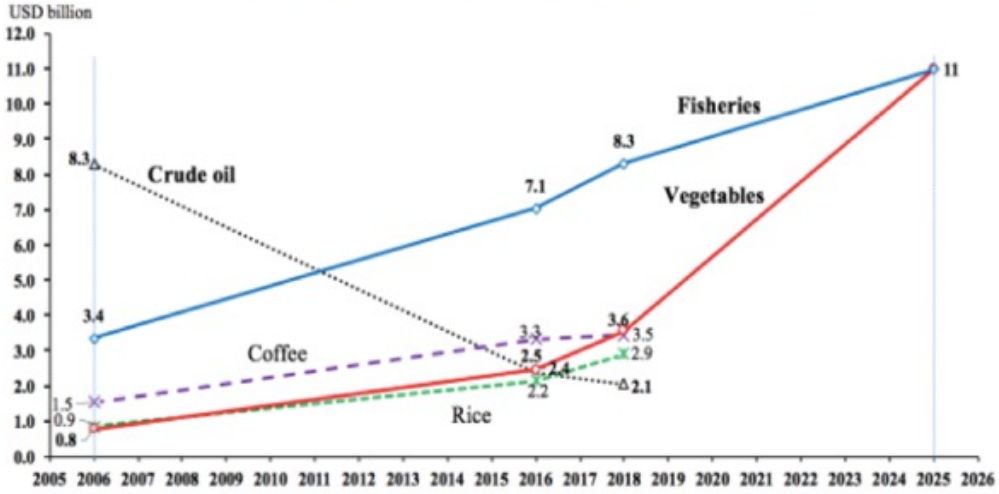
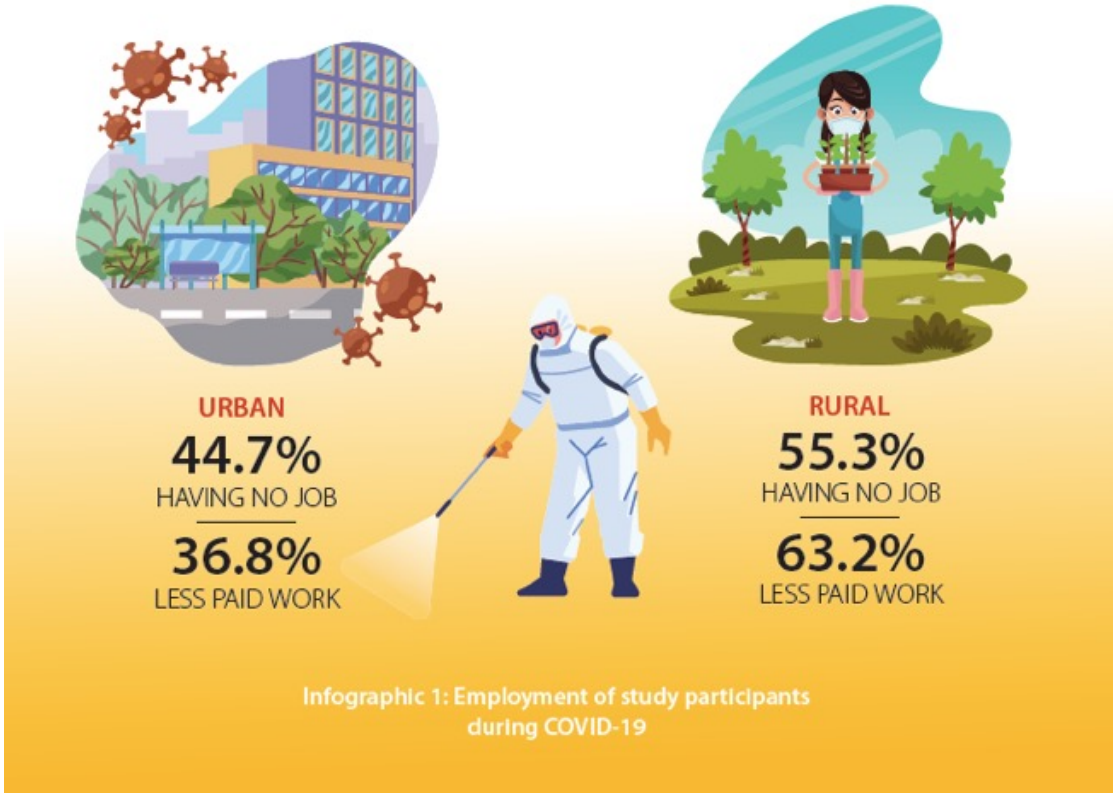


Figure 12. Export products – Highlights - *Source: General Statistics Office, Customs Office*

Transformation Under Threat:
Impact of COVID-19 on Agriculture & Society



Infographic 1: Employment of study participants during COVID-19

Rapid assessment on the social and economic impacts of the pandemic on Vietnam's families

Transformation Under Threat:
Impact of COVID-19 on Agriculture & Society

We can work from home & study online..

The Farmer cannot!

Vietnam Snapshot & Smallholders

First National Food Systems Dialogue for Viet Nam

15/06/2021 Hanoi, Viet Nam. The Ministry of Agriculture and Rural Development (MARD), with support from FAO, other United Nations (UN) Agencies in Viet Nam, and international and national development partners, convenes the First National Food Systems Summit Dialogue in Hanoi. The Dialogue, co-chaired by MARD's Vice Minister Le Quoc Doanh and FAO Representative ad interim Rana Flowers, is the very first attempt in a series of events leading to the national preparation of UN Food Systems Summit (UNFSS) in September 2021.

The food systems of Viet Nam are diversified but facing considerable challenges. Projection and empirical data show that Viet Nam is among the most vulnerable countries to climate change. The agricultural work force is under mounting pressure to improve the labor productivity and accumulated value. The cooperation among supply chain actors is limited, while the capacity to respond to risks and disasters remains modest. The operation of the food system has so far concentrated more on economic targets rather than environmental issues.

"Viet Nam needs concrete actions to promote the cooperation and effective use of resources," said Rana Flowers, FAO Representative ad interim, "not only to supply sufficient, safe and nutritious food for an approximately 100-million population but also to become a transparent, responsible and sustainable food supplier for the global market."

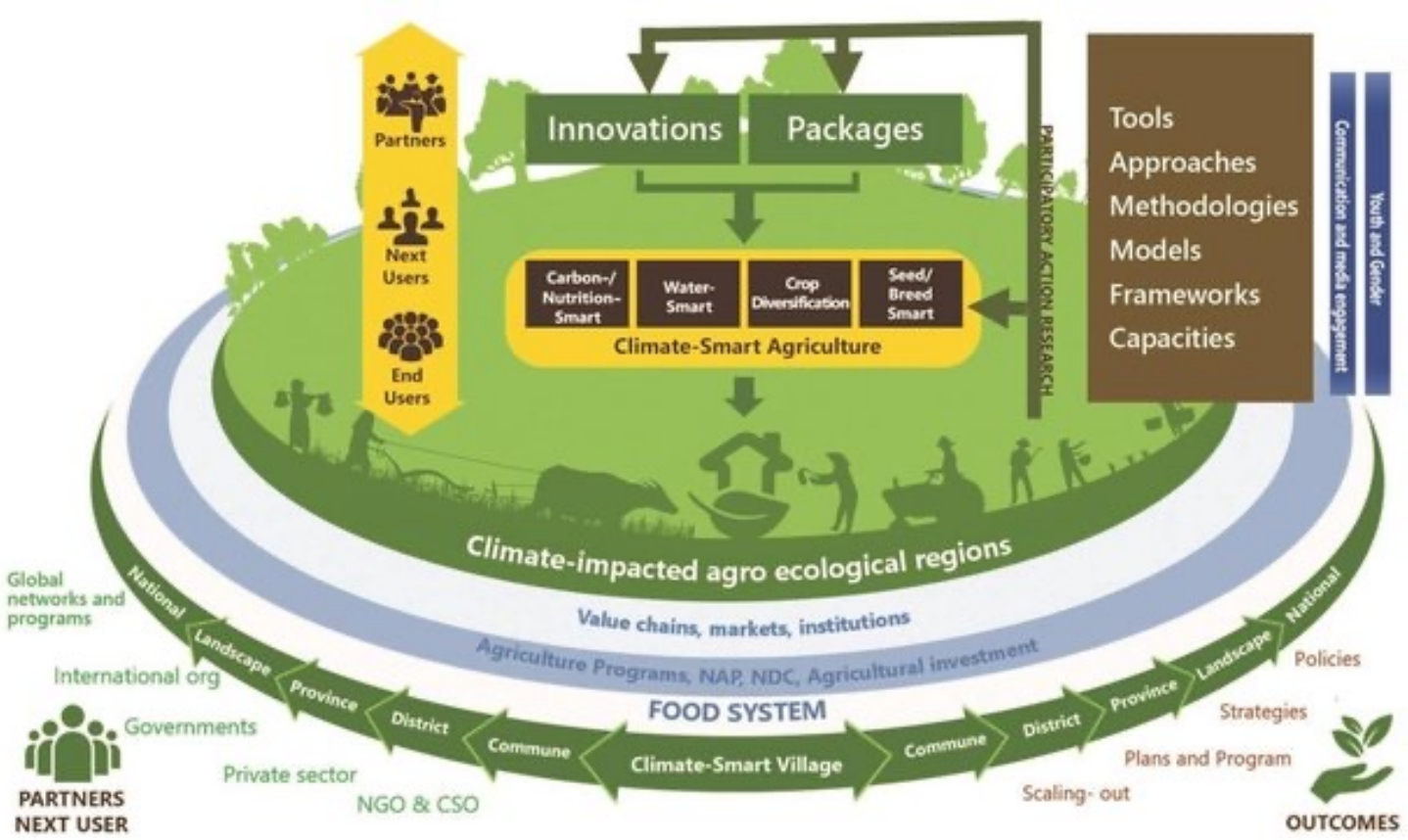
The UNFSS 2021 aims to define orientations for sustainable, inclusive and resilient food systems, creating multi-dimensional impacts to deliver progress on the 2030 Sustainable Development Goals (SDG). The Summit focuses on five action tracks:

(i) ensuring access to safe and nutritious food for all;
(ii) shifting to sustainable consumption pattern;
(iii) boosting nature-positive production;
(iv) advance equitable livelihoods and value distribution;
(v) build resilience to vulnerabilities, shocks and stresses.

"The food systems of Vietnam are diversified but facing considerable challenges. Projection and empirical data show that Vietnam is among the most vulnerable countries to ***climate change****.."*

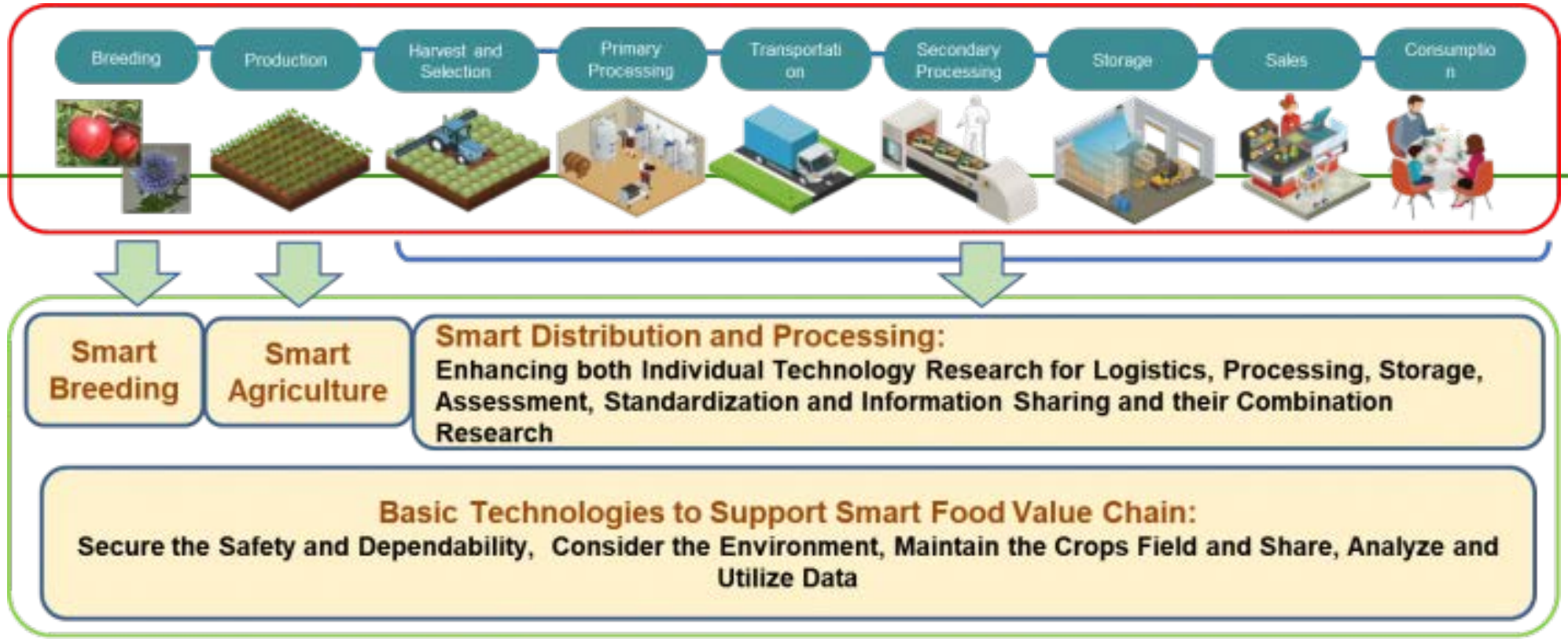
How to empower and enable these men and women in light of this reality?

Simultaneous Intervention is Critical for Success



- 36.23% employment in Ag
- US$ 41.2 b export value of Ag, Forestry and aquaculture in 2020
- 18 new factories for ag product established
- 90% growth rate for ag
- Ranked 16th world top ag export countries
- Rice export reached US$3 billion in 2020
- 500 hi-tech agri-cooperatives
- US$ 4.4 billion credit line for high tech agriculture

https://www.researchgate.net/publication/351772169_Lessons_learnt_from_CCAFS_-_10_years_scaling_climate-smart_agriculture_Insights_from_the_review_of_CCAFS_scaling_activities_2019/figures?lo=1



Goal: To realize Smart Food Value Chain as an overall optimum system, not just to develop individual technologies for each process on the food value chain

Objective: To improve productivity, eliminate waste, reduce costs, improve quality, needs and seeds matching and optimize the entire food value chain

NARO's research areas to focus on: Smart breeding, smart agriculture, smart distribution and processing, AI and ICT, Database establishment

Delivery: Innovations in Market Access

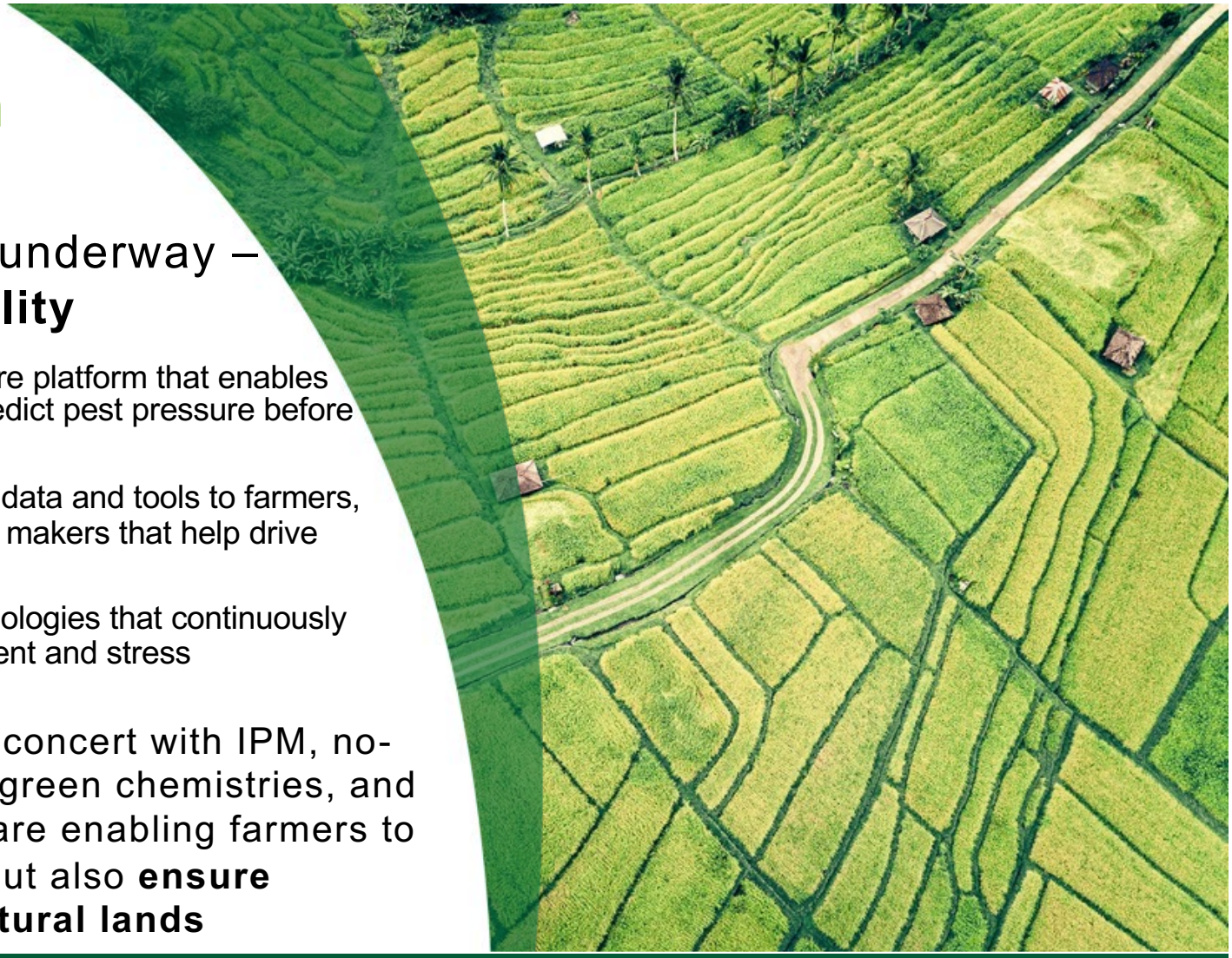
Driving food supply chain online – has COVID19 been a catalyst?

Malaysia Case Study

Heart-breaking examples of growers in Malaysia left with no alternative but to dump fruits and vegetables as a result of transport disruption in the food supply chain due to pandemic 'movement control order' (MCO) restrictions

- National farmers and fisherman turned to social media and e-commerce platforms to navigate MCO and reach consumers
- MAFI is encouraging / **signs it may be taking root**
- Three platforms (Agro Bazaar Online, Nekmatbiz, e-peladang) have recorded over RM300 million in agriculture sales revenue since the pandemic hit roughly a year ago

Digital: Innovations in Harnessing Data



Agriculture digitalization is underway – and **driving farmer capability**

- **Arc Farm Intelligence** – Precision agriculture platform that enables growers and advisors to more accurately predict pest pressure before it becomes a problem
- **Agrimetrics** – Digital platform that provides data and tools to farmers, agrifood businesses, researchers and policy makers that help drive sustainable crop production
- **Prospera** – Develops computer vision technologies that continuously monitor and analyze plant health, development and stress

Many platforms such as these (in concert with IPM, no-till agriculture, biocontrol agents, green chemistries, and responsible use of current tools) are enabling farmers to not only **increase productivity**, but also **ensure protection of biodiverse and natural lands**

Drones: Innovations in Crop Management

Challenge	Benefit of drones
Increasing pest pressure	Monitoring of crop health and precision application of pesticides
Rising production costs	Lower labor and fuel costs, more efficient application of inputs
Dwindling natural resources	Reduced water consumption
Farmer health and safety	Reduced operator exposure

Meet a growing demand for affordable and sustainable food production

Digital: Innovations in Harnessing Data

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Plant Science: Bringing More Diverse Innovations to Farmers' Toolbox

FMC

Arc™ farm intelligence

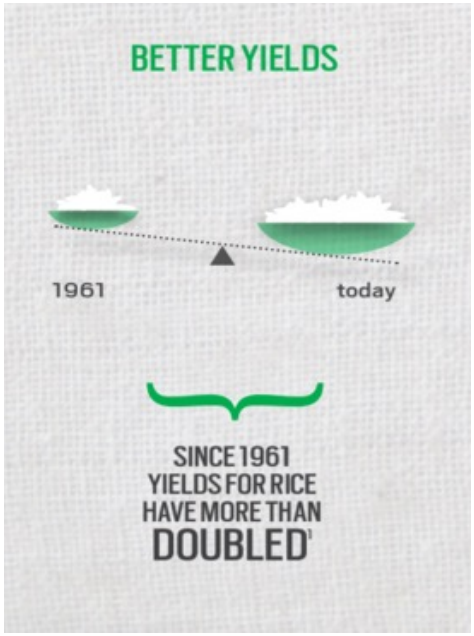
A WATER STEWARDSHIP TOOL

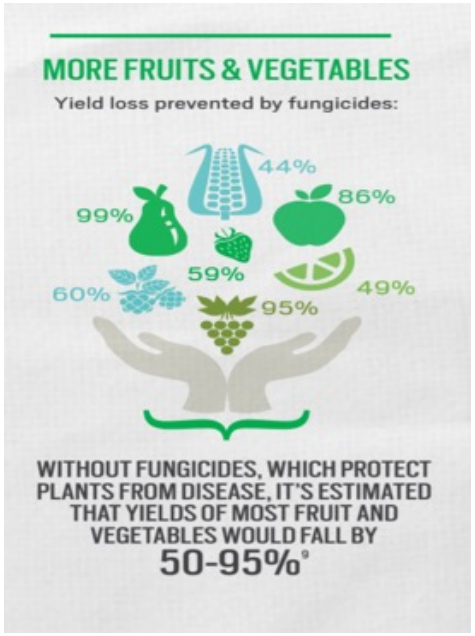
Agrimetrics
THE CATALYST FOR CHANGE

BASF
We create chemistry

Plant Science: Driving Food Production

Benefits of Crop Protection





Plant Science: Driving Food Production

Research shows that herbicides **increase yields** by:

55% **in maize**

and

75% **in cotton**[1].

It takes person

2 hrs/ha

to apply herbicide

VS

\- +

people

HAND-WEEDING

60 hrs/ha!

A maize study in **Kenya** showed that:

1
herbicide application
was
1/3
the cost of
2
rounds of
hand-weeding.

Plant Science: Driving Food Production

Benefits of Plant Biotechnology

CREATING MORE NUTRITIOUS, ACCESSIBLE FOOD

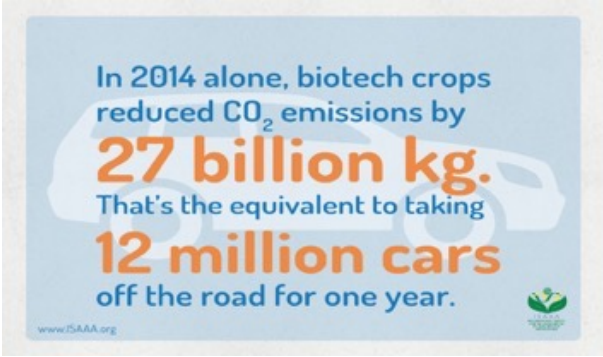
#1 By growing biotech crops, farmers have increased crop yields by 22% in the last 20 years

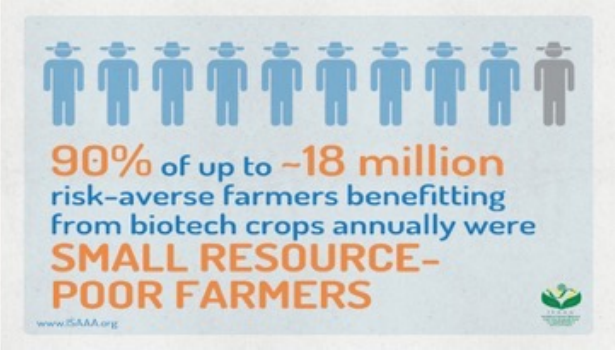
#2 They boosted soybean production by 138 million tons

#3 And corn production by 274 million tons

#4 A new variety of biotech rice will one day prevent blindness in 500,000 kids

#5 And drought-tolerant maize will keep 300 million Africans fed during times of drought





Plant Science: Driving Food Production

Regulation of Crop Protection

- Crop protection products are **essential to agricultural production**. But regulation of them is key to ensure appropriate use and minimize environmental impact.

- Regulation should result in **societal trust, confidence and benefits** (i.e., safe, reliable food supply).

Plant Science: Helping Drive Sustainability with Regional & Vietnam Food Production

- Industry commitment to responsible use
  - *Regionally (partner with governments, civil society and diverse value chain stakeholders to advance responsible use of crop protection technology across the region / training both directly and indirectly over 15 million men and women in Asia between 2005-15)*
  - *In Vietnam (mention of Better Rice Initiatives project, VITAS-IDH initiative, SOCODEVI project, Son La Province initiative, early work w/ IDEAS42 on 'behavioral change' project, etc)*

More Sustainable Food Production Requires More Options for Farmers – Not Fewer

Quality Seeds → **Quality Inputs** → **Farm Practices**

- Improved quality seeds
- Improved Seed replacement ratio: Shift from farm saved seeds to hybrids – increase productivity
- Combination traits to mitigate multiple stress factors : e.g. resilience to climate change
- Combining planting materials with "Traits" and technologies

- Increased input efficiency - Nutrients and water
- Judicious use of Agrochemicals usage for crop protection
- Increased nitrogen use efficiency with reduced carbon footprint

- Improved farming practices – mechanization, land preparation, crop care and harvesting
- Increased pre & Post harvest care


CropLife
INTERNATIONAL
90% of the growth in crop production globally—80% in developing countries—is expected to come from more planting and higher yields

Thank you

For further information, feel free to contact us:

w http://www.croplifeasia.org/contact-us/#/

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