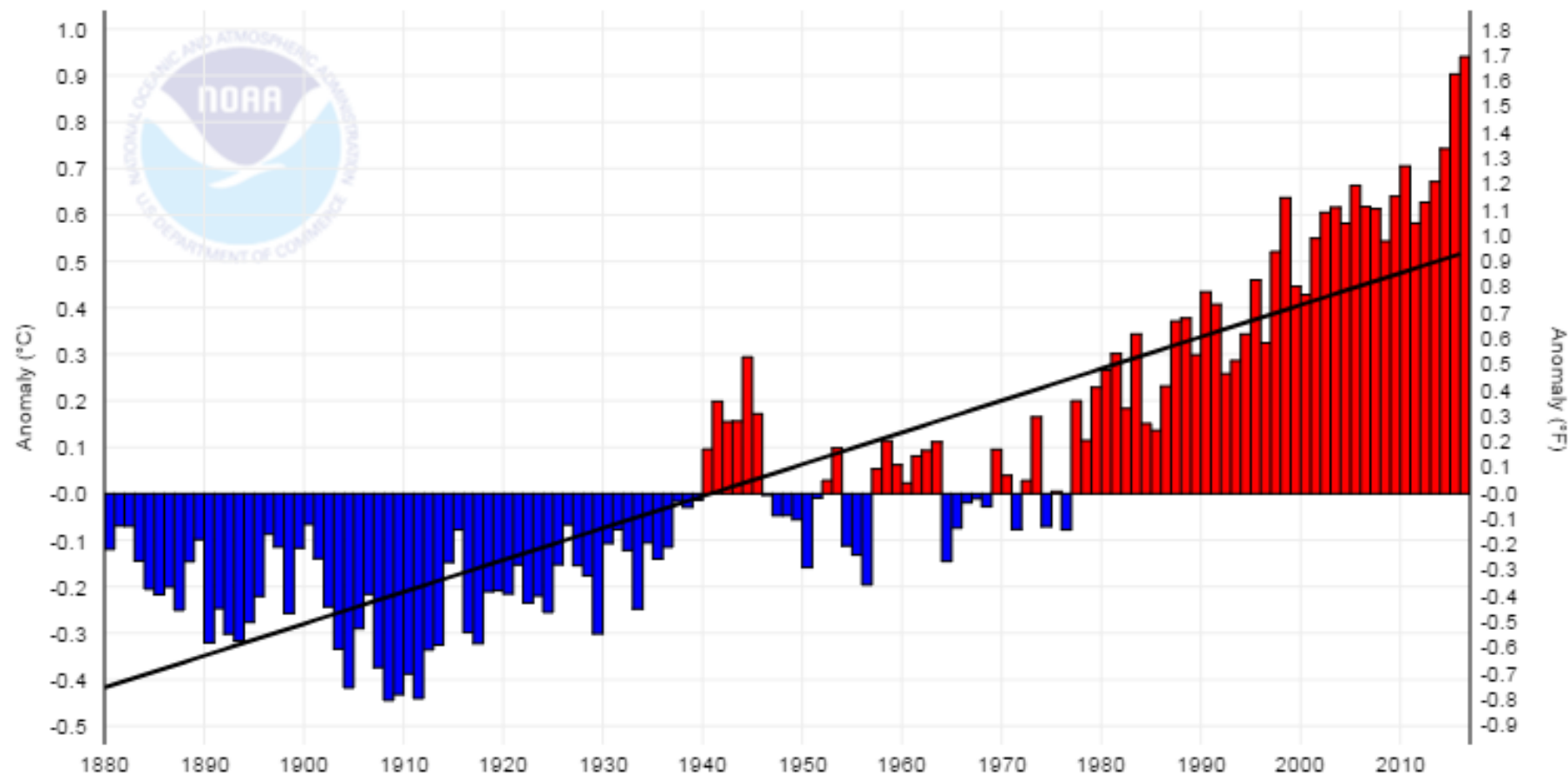


# Global Land and Ocean Temperature Anomalies, January-December



Temperature Anomalies

— 1880-2016 Trend +0.07°C/Decade

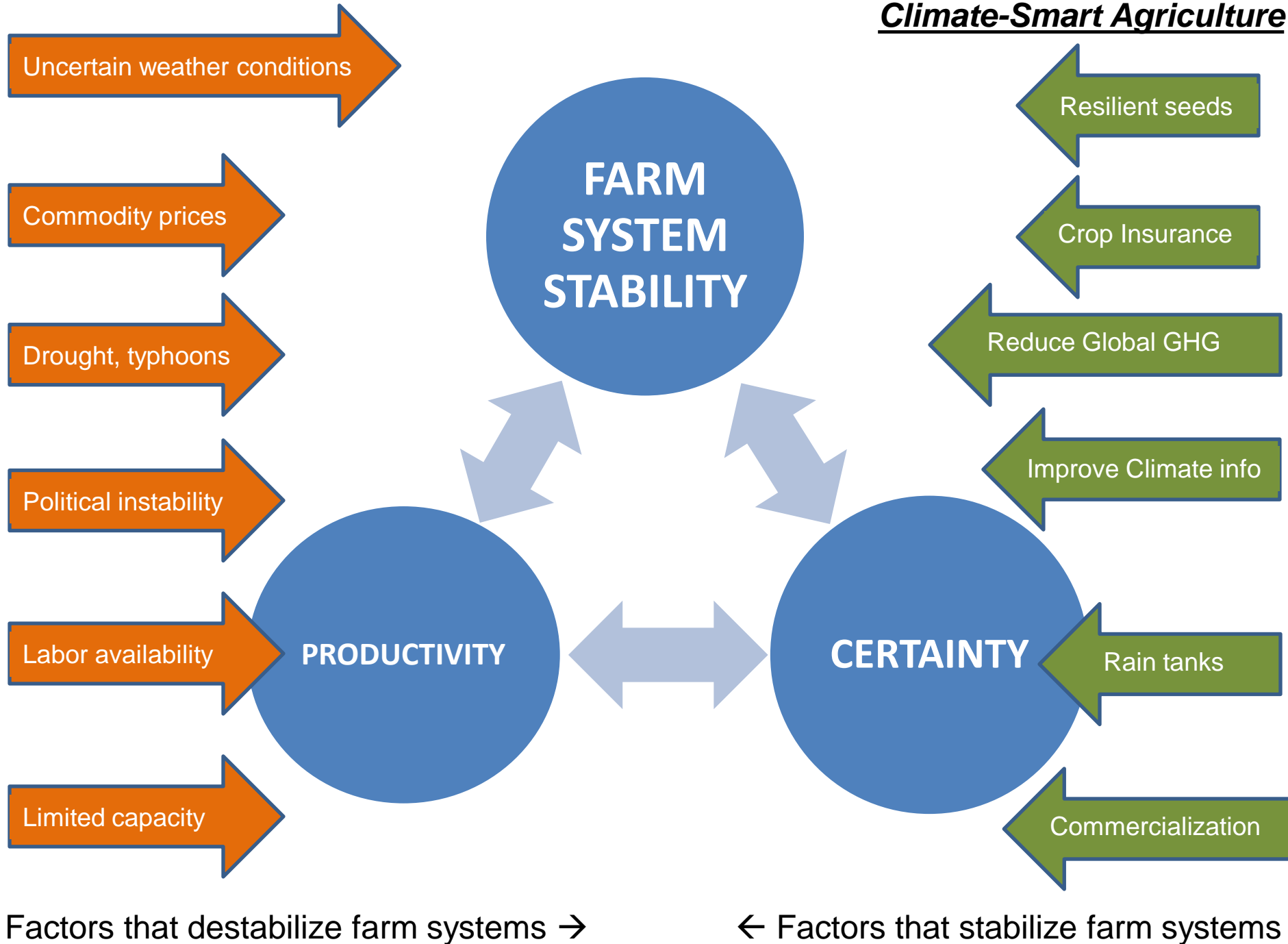


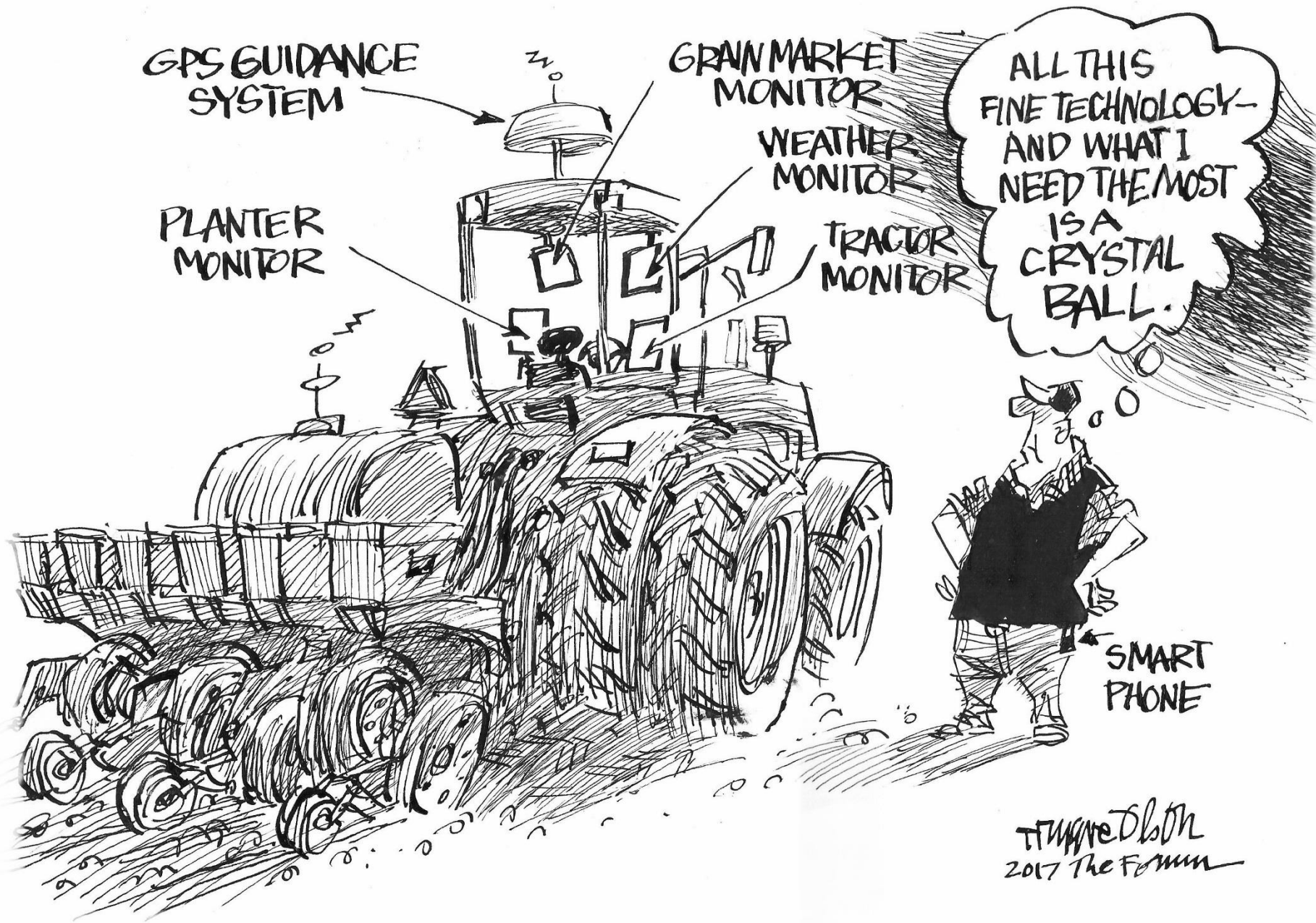
# Climate Change & Agriculture

- **Historical weather patterns no longer reliable**
- **Shifts in:**
  - Optimum planting windows
  - Timing, quantity and quality of water
  - Occurrence / intensity of extreme events
  - Number of growing degree days
  - Shifts in habitat suitability of species (pests, fish, livestock)
- **Cumulative effect of climate & non-climate stressors:**
  - Migration
  - Conflict
  - Health
  - Commodity prices



## **Climate-Smart Agriculture**





THOMAS D. BORN  
2017 The Farmer

# CSA Project Planning Tools - 1

Name	Organization	Scale	Output
Planning for Community-based Adaptation to Climate Change	FAO	Project, Community	Training for ag extension, CBOs
Climate-Smart Planning Platform	World Bank	Regional, National	Compendium of tools for planners
Community-based Risk Screening Tool – Adaptation and Livelihoods (CRiSTAL)	IISD	Project	Identify and prioritize climate risks and interventions
Climate-Smart Agriculture Investment Prioritization Framework	CCAFS	Project portfolio	Portfolios of prioritized CSA interventions
Climate-Smart Agriculture Rapid Appraisal (CSA-RA) Prioritization Tool	CCAFS	Landscapes	Vulnerabilities and issues associated with CSA

# CSA Project Planning Tools - 2

Name	Organization	Scale	Output
Guidelines for Climate Proofing Investments in Ag, Rural Development and Food Security	Asian Development Bank	Project	CSA-Screened Agriculture Project
REDD+ Energy and Ag Programme (REAP) Siting Tool	SNV	Landscape, Project	Identification of geographic areas for agricultural expansion
Climate and Disaster Risk Screening Tool - Agriculture	World Bank	Project	CSA-Screened Agriculture Project



# GHG Emission Reduction Tools

Name	Organization	Scale	Output
Small-holder Agriculture Monitoring and Baseline Assessment Tool (SHAMBA)	University of Edinburg	Farm	Net emissions and reductions in tons CO <sub>2</sub> e/ha/year/ Intervention
Mitigation Options Tool for Agriculture (CCAFS-MOT)	CGIAR CCAFS	National	Ranks mitigation options for 34 crops
Ex-Ante Carbon Balance (ExACT)	FAO	Project	Net emissions and economic benefit CO <sub>2</sub> e/ha/year/\$/ Intervention
Cool Farm Tool	Cool Farm Alliance - industry	Farm	Quantify on-farm greenhouse gas emissions and soil carbon sequestration
Global Livestock Environmental Assessment (GLEAM)	FAO	National, Global	Quantitative environmental impact, GHG emissions/feed use/water use, and GIS

+ Add product

i About

⚙ Farm settings

🕒 View products

# Results

? Help

📊 Data aggregation

🌱 Biodiversity

Daniella Malin

Sign out



**CROP**

General

**Growing Area**

Field Treatment

Management

Energy & Processing

Transport

## Field treatment i

This page allows you to specify your farming methodology. In the following sections, provide as much information as possible on fertiliser and pesticide applications and crop residue management.

### Flooding i

Paddy cultivation time: 4 months

Straw incorporation: more than 30 days before

Water management

Before cultivation: Not flooded pre-season

During cultivation: Intermittently flooded

### Fertiliser applications

Type: Calcium ammonium nitrate - 27% N

Source region: Europe (2011)

Rate: 200 kg / ha

Rate measure: N i

Method: Incorporate

## Live Results

Full results >

Product: **rice2\_2016**

(Rice, 2016)

Finished product:

**225 tonnes**

Product yield:

**4.50 tonne / ha**

### GHG emissions

**199,073.89 kg CO<sub>2</sub>e**

Per hectare:

**3,981.48 kg CO<sub>2</sub>e**

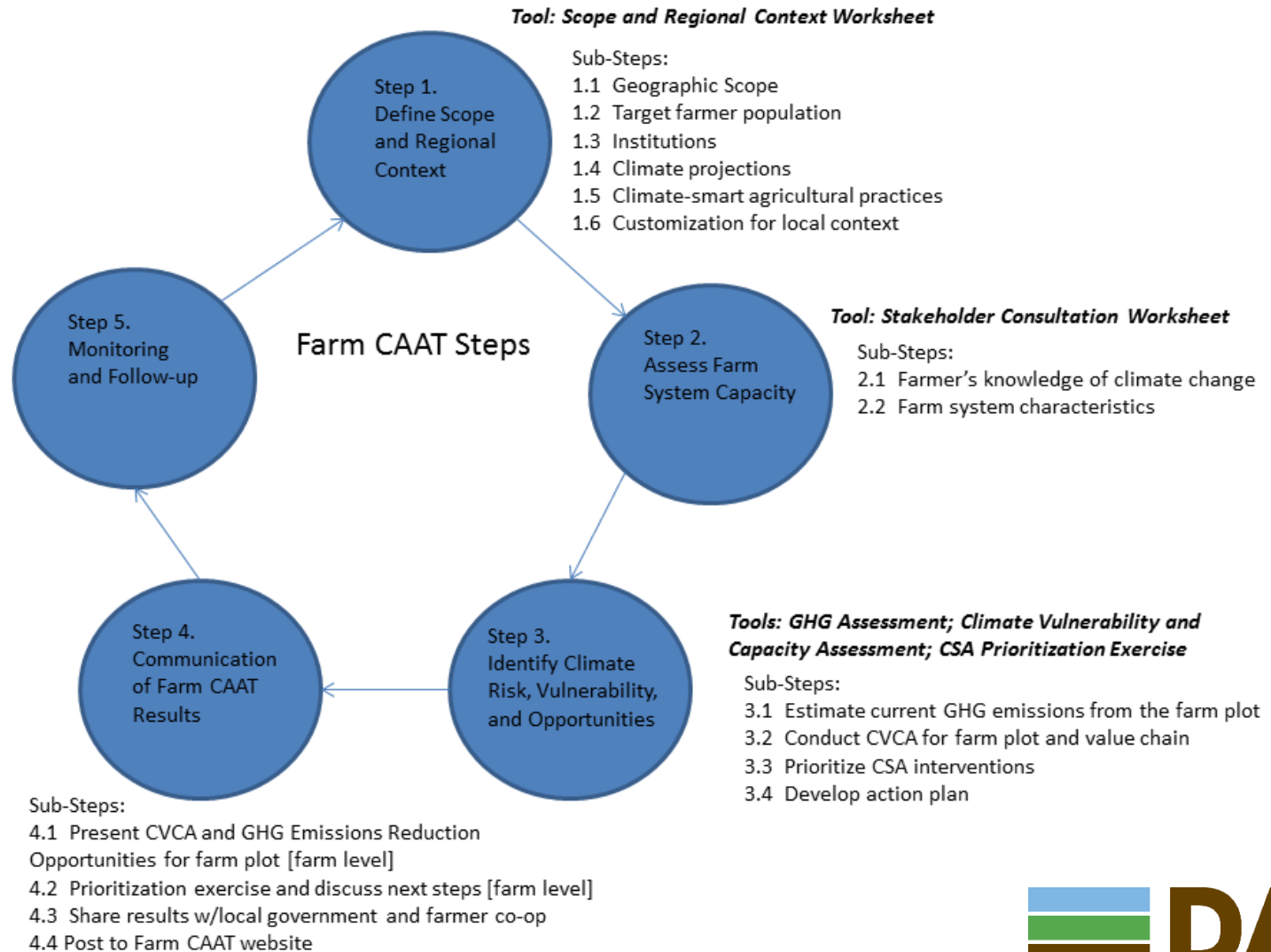
Per tonne:

**884.77 kg CO<sub>2</sub>e**



	kg CO <sub>2</sub> e
Land management	0.00
Soil / fertilisers	52220.93
Pesticide	4100.00
Residue mgmt	17671.99
Energy & processing	16187.56
Water waste	0.00
Transport	0.00
Paddy methane	109693.41

# Farm-level Climate Smart Agriculture Assessment Tool (Farm CAAT)





# Farm CAAT – Kenya Agriculture Belt





# Farm CAAT – Kenya Agriculture Belt





# Farm CAAT – Vermont, USA





# Farm CAAT – Vermont, USA



# Farm CAAT – Eastern Caribbean





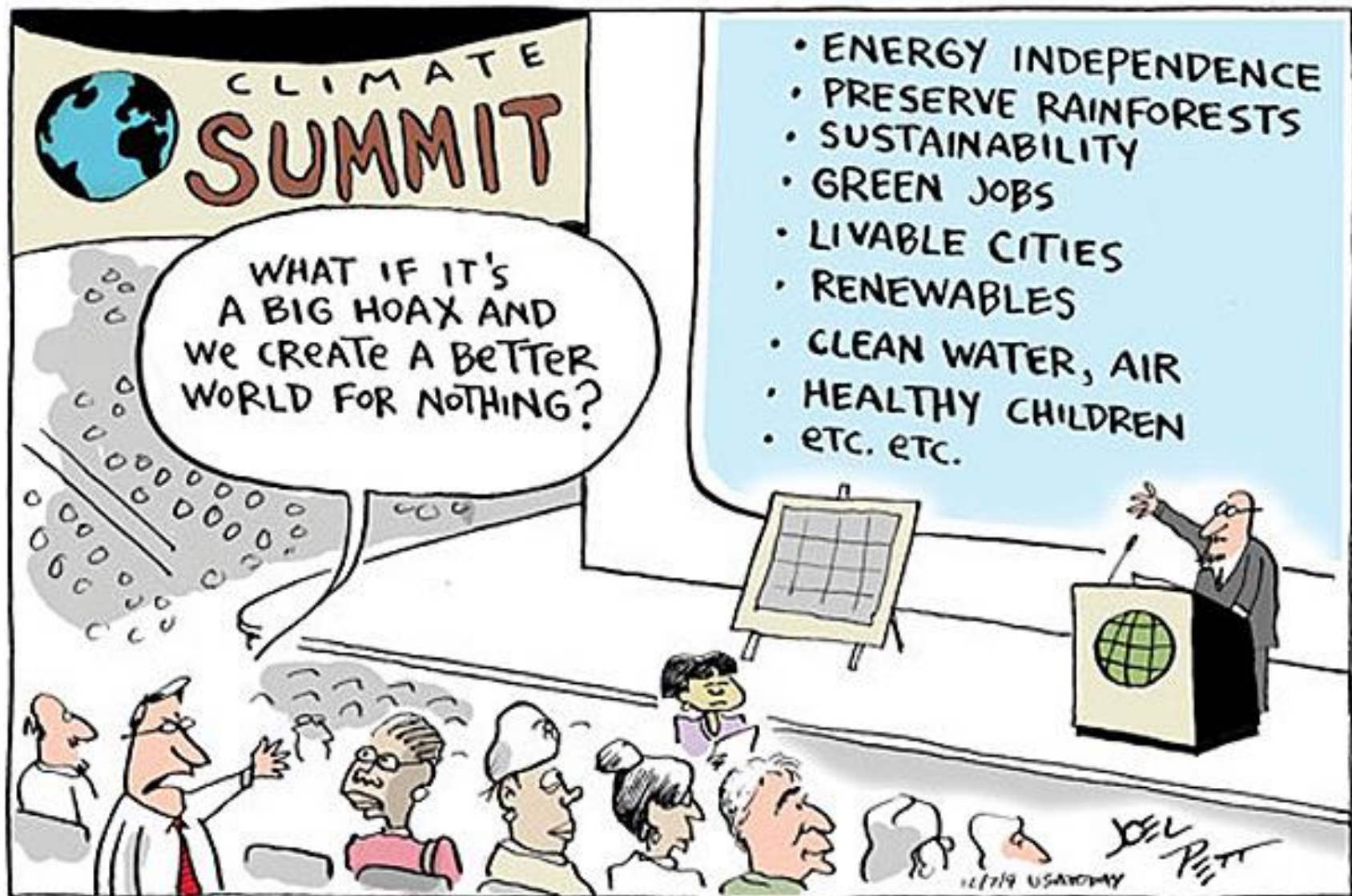
# Farm CAAT – Eastern Caribbean





# Lessons from Farm CAAT Pilot Tests

- Climate change projections need to be shared with farmers
- GHG reductions should include economic case & incentives....CO<sub>2</sub>e goals don't matter
- Rethink the scale – KII great for the farm-level but FGDs would get at regional issues
- Rain tank is a rain tank is a rain tank – yes, context matters but fundamentals are the same
- Better near-term weather information and insurance products have high potential to increase resilience



# CSA Practitioner Tools and Farm CAAT

Jonathan Randall

DAI

Global Practice Leader

Environment & Climate Change

