

CME

STEM Talks

BY THOUGHT LEADERS

2022.05.05 CLA, S&P IHS, NASA: Accelerating Food Security

Webinar

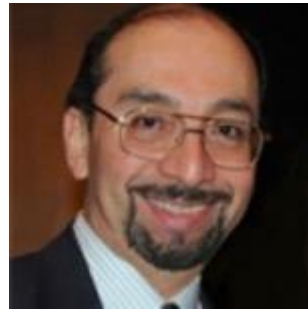
CME STEM Talks Co-Hosts



INTRODUCTION

Steve Barnett
Livingston, NJ

Co-Chair



INTRODUCTION

George Rodriguez
Morristown, NJ

Program Producer



INTRODUCTION

Ksenia Takhistova
East Brunswick, NJ

Co-Chair



PROGRAM

Shah Karim
Old Tappan, NJ

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Q&A

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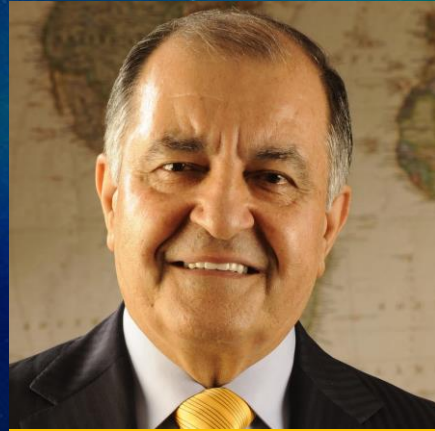
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CME
STEM Leadership
AWARDS



Lifetime Achievement

Seifi Ghasemi
Air Products



Diversity & Inclusion

Jim Fitterling
Dow

06.01 Luncheon/Webinar: Trinseo's Transformation: Unlocking Bold, Creative, Sustainable Solutions



Frank Bozich
Trinseo
CEO



CME: Accelerating STEM Leadership

For Sustainable Innovation



3-Minute STEM Student Thesis Talk: “Structural Studies on Far-red Light Photosystems”



STEM STUDENT

David Flesher

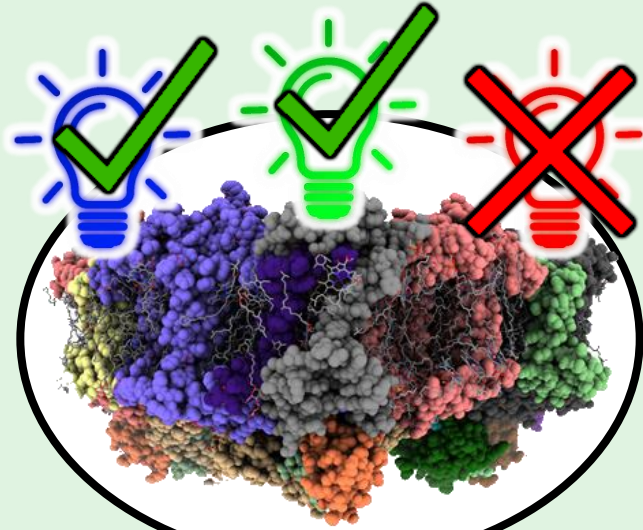
Yale University

PhD student of Biophysics
and Biochemistry

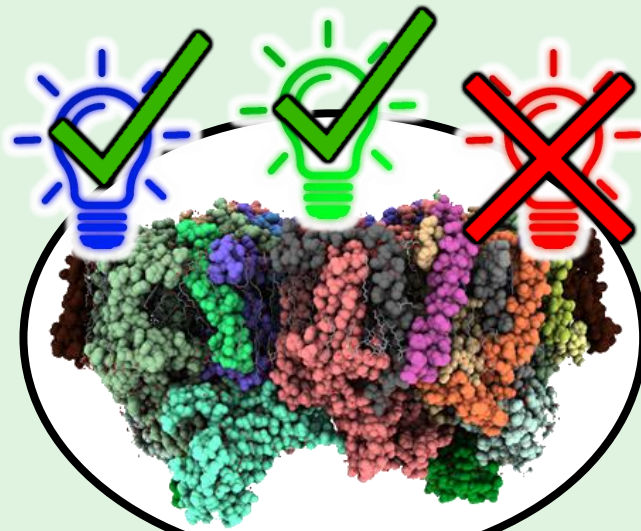
Traditional Photosynthesis



Corn Field

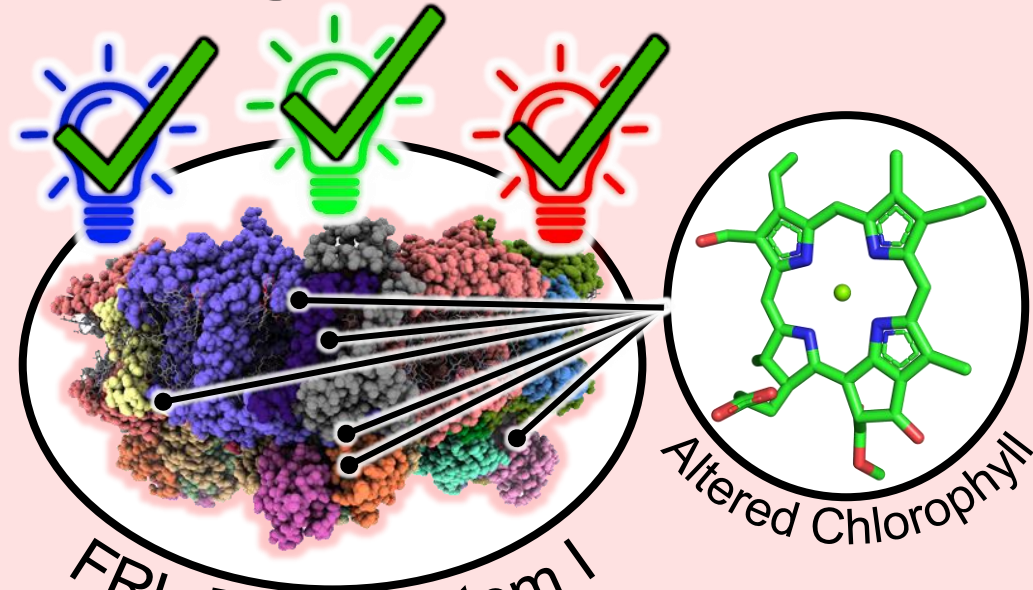


Photosystem I



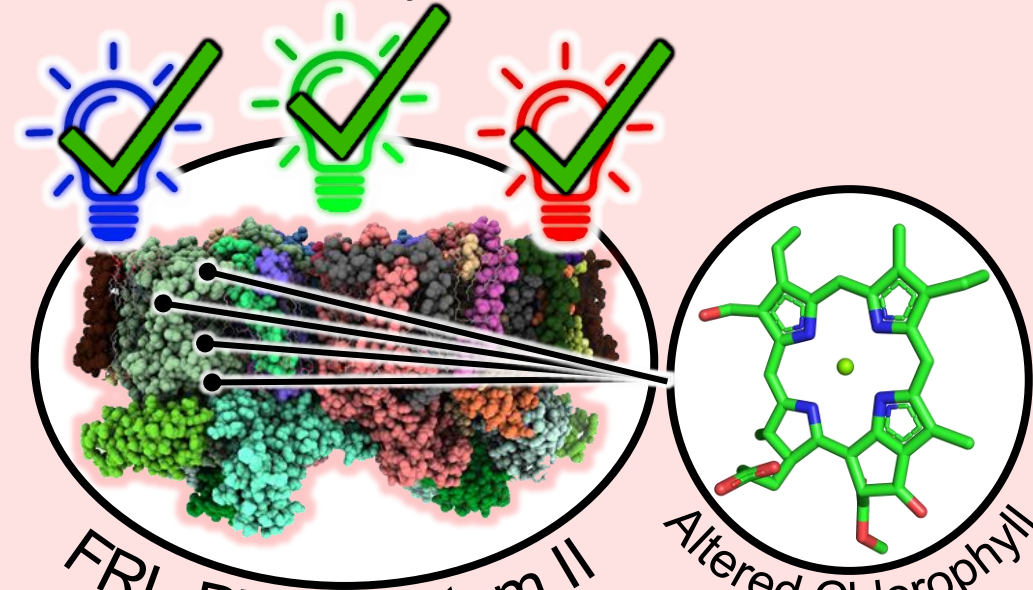
Photosystem II

Far-red light photoacclimation



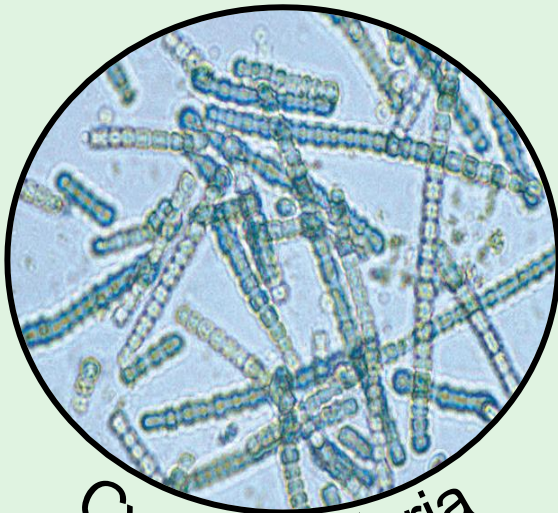
FRL-Photosystem I

Altered Chlorophyll



FRL-Photosystem II

Altered Chlorophyll



Cyanobacteria

05.05 CropLife America, S&P Global IHS, NASA: Accelerating Food Security



MODERATOR

Shah Karim
SafeRock, CME



Chris Novak
CropLife America



Jonathan Shoham
S&P Global, IHS Markit



Michael Puma
NASA GISS



Agenda

01. Introduction

02. Presentations & Panel Discussion

03. Open Q&A session

2022.05.05 Accelerating Food Security



MODERATOR

Shah Karim

SafeRock CEO

CME Board Member

2022.05.05
Accelerating Food Security



PANELIST

Chris Novak

CropLife America

CEO



2022.05.05
Accelerating Food Security



PANELIST

Michael Puma

NASA GISS

Unit Director & Scientist

2022.05.05
Accelerating Food Security



S&P Global

PANELIST

Jonathan Shoham

S&P Global, IHS Markit

Senior Consultant Analyst

- Overview on Food Security - Oral presentation



CropLife America

- Founded in 1933 as The Agricultural Insecticide and Fungicide Association forms (CLA's original name) with headquarters in NYC
- Now based in Arlington, VA
- Focus on Innovative Conversations, Regulatory Integrity and Sustainability
- 100+ member companies
- Members include BASF, Coca Cola, Corteva Agriscience, Syngenta and other fine Manufacturers, distributors, users and other stakeholders of pesticides, fungicides and other crop protection chemicals

CropLife America

- Oral presentation on Food Security

Michael Puma: The Impact of War on Food Security



NASA GISS

Goddard Institute for Space Studies
at Columbia University



NASA Goddard Institute for Space Studies (NYC)

The screenshot shows the NASA Goddard Institute for Space Studies website. At the top left is the NASA logo and the text "National Aeronautics and Space Administration Goddard Institute for Space Studies". At the top right is "Goddard Space Flight Center Sciences and Exploration Directorate Earth Sciences Division". Below this is a banner with "NASA Goddard Institute for Space Studies" and images of Saturn and Earth. A left sidebar contains a menu: GISS Home, News & Features, Projects & Groups, Datasets & Images, Publications, Software, Education, Events, About GISS. The main content area has the title "Increasing Resiliency to Extreme Weather" and a satellite image of a hurricane. Below the image is a text box: "The 2017 hurricane season could be the turning point in planning for climate resilience. NASA scientists provide risk information for preparatory action. (2017-11-06)".

- +Global climate modeling
- +Crop modeling (Agricultural Model Intercomparison and Improvement Project)
- +Modeling of disruptions to food commodity prices and trade

 COLUMBIA CLIMATE SCHOOL
Climate, Earth, and Society



NASA's bridge to Food Security



EARTH DATA FOR INFORMED
AGRICULTURAL DECISIONS



- + NASA Harvest: Enables and advances the “adoption of satellite Earth observations by public and private organizations to benefit food security...”
- + GEOGLAM: Increases “market transparency and improve food security by producing and disseminating relevant, timely, and actionable information on agricultural conditions and outlooks of production at national, regional, and global scales” by ***facilitating the use of Earth observations***

Latest global crop conditions from GEOGLAM

Synthesis Conditions



Conditions:

- Exceptional
- Favourable
- Watch
- Poor
- Failure
- Out-of-Season
- No Data

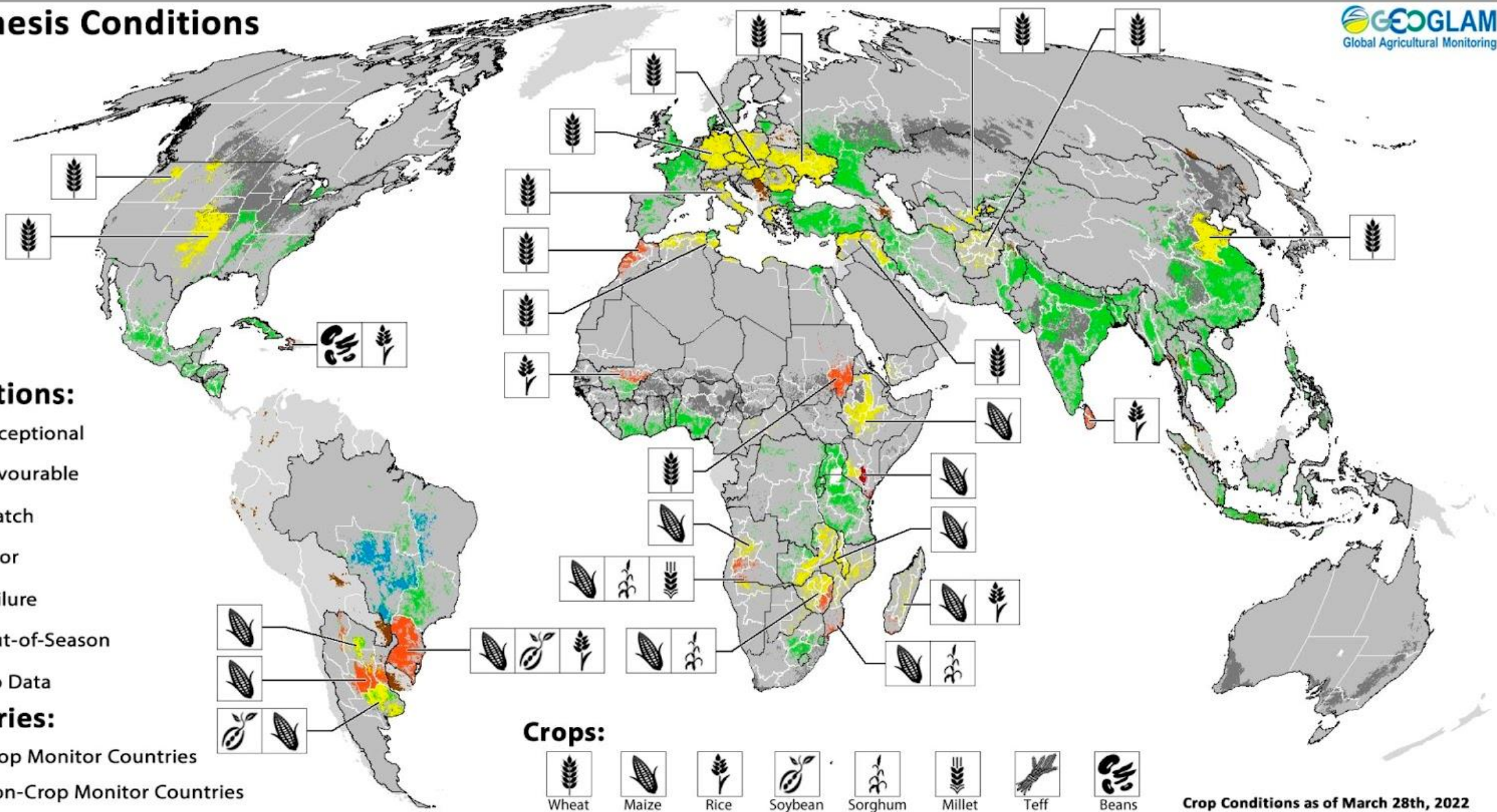
Countries:

- Crop Monitor Countries
- Non-Crop Monitor Countries

Crops:

- Wheat
- Maize
- Rice
- Soybean
- Sorghum
- Millet
- Teff
- Beans

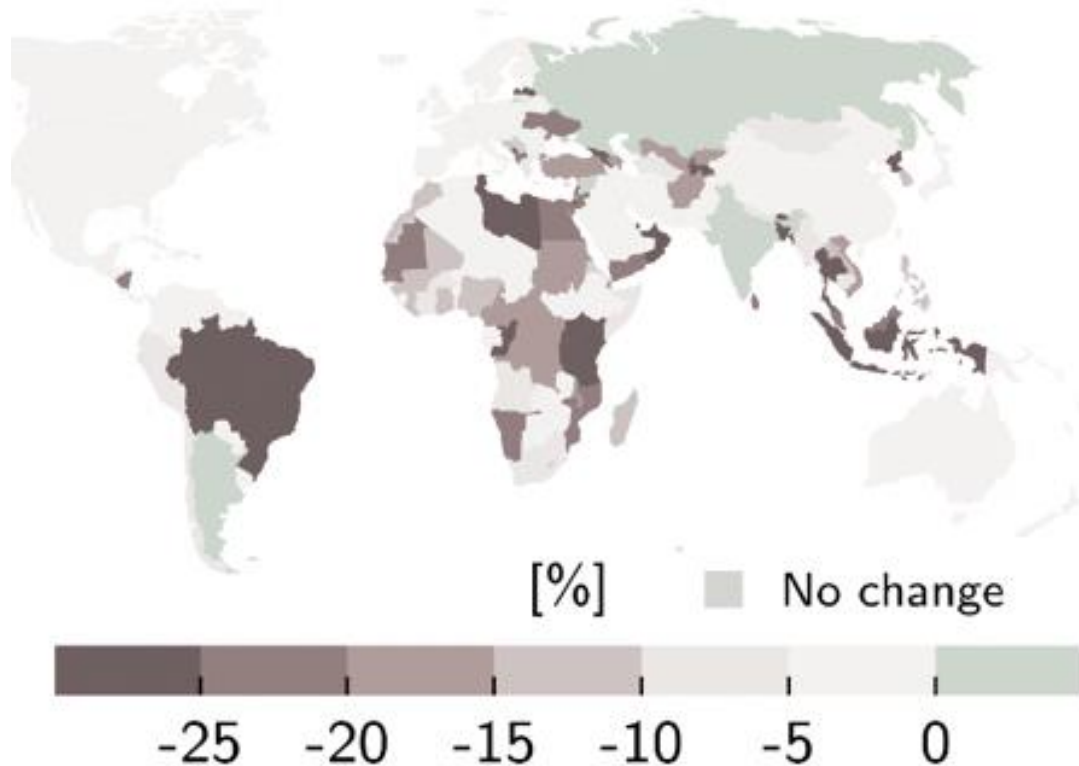
Crop Conditions as of March 28th, 2022



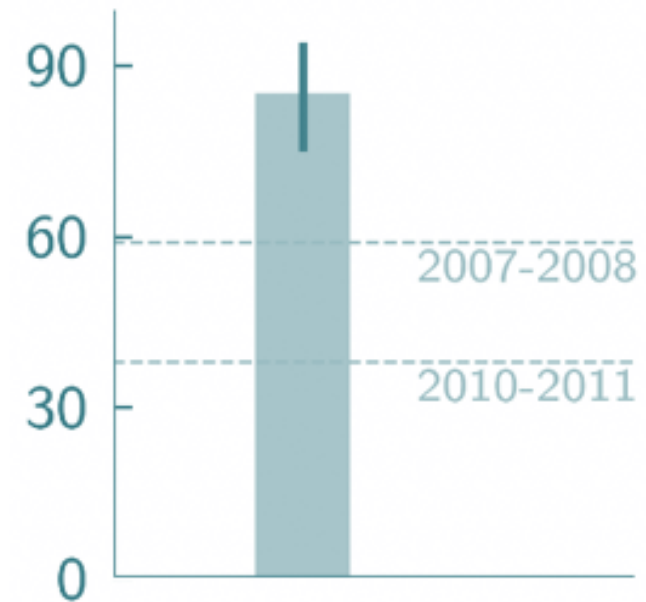
Ongoing study of Ukrainian war's impacts



Impaired wheat supply



Estimated changes in the world market prices

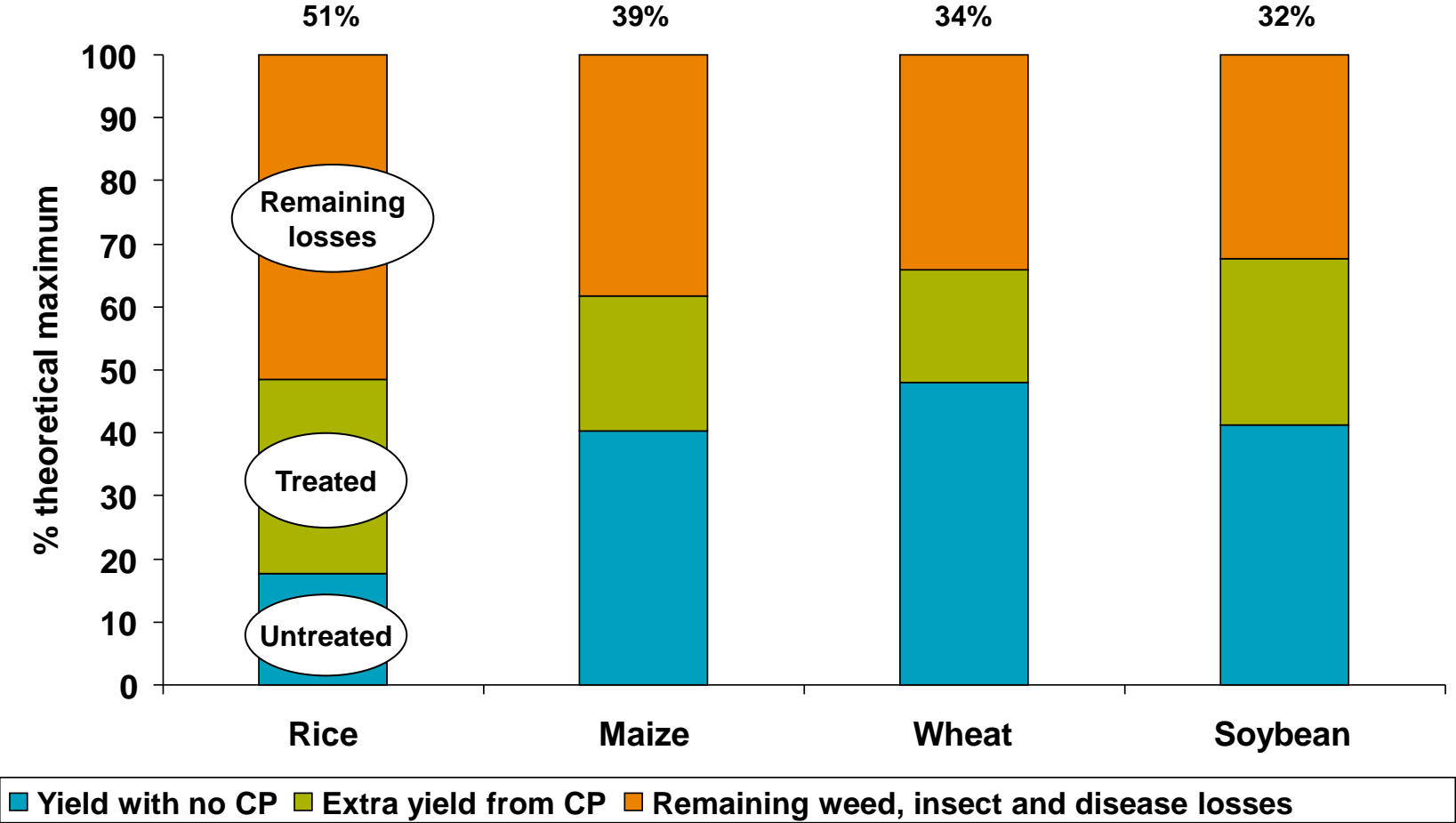


- + Four scenarios for Ukrainian wheat production and export interventions globally
- + Most severe case for wheat – that we consider – involves export restrictions in multiple countries

S&P Global



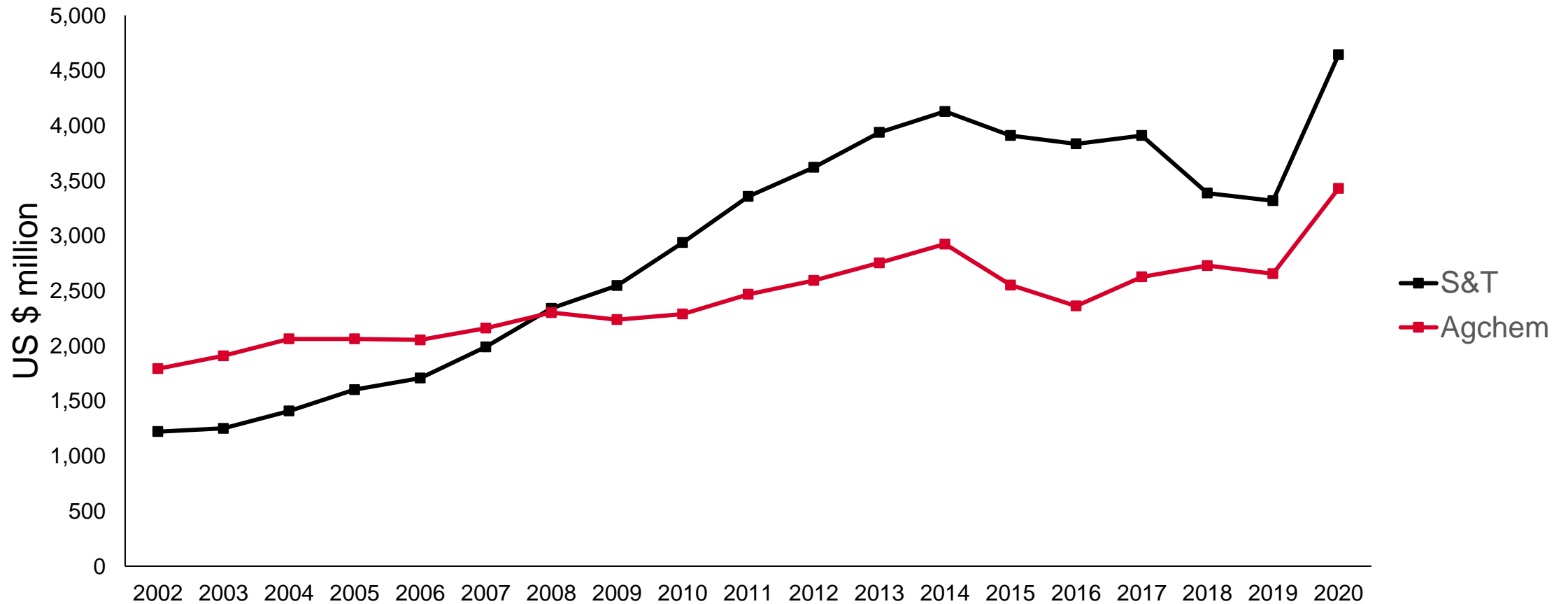
Yield benefits from use of Crop Protection Products



Source: Oerke et. al. 2006

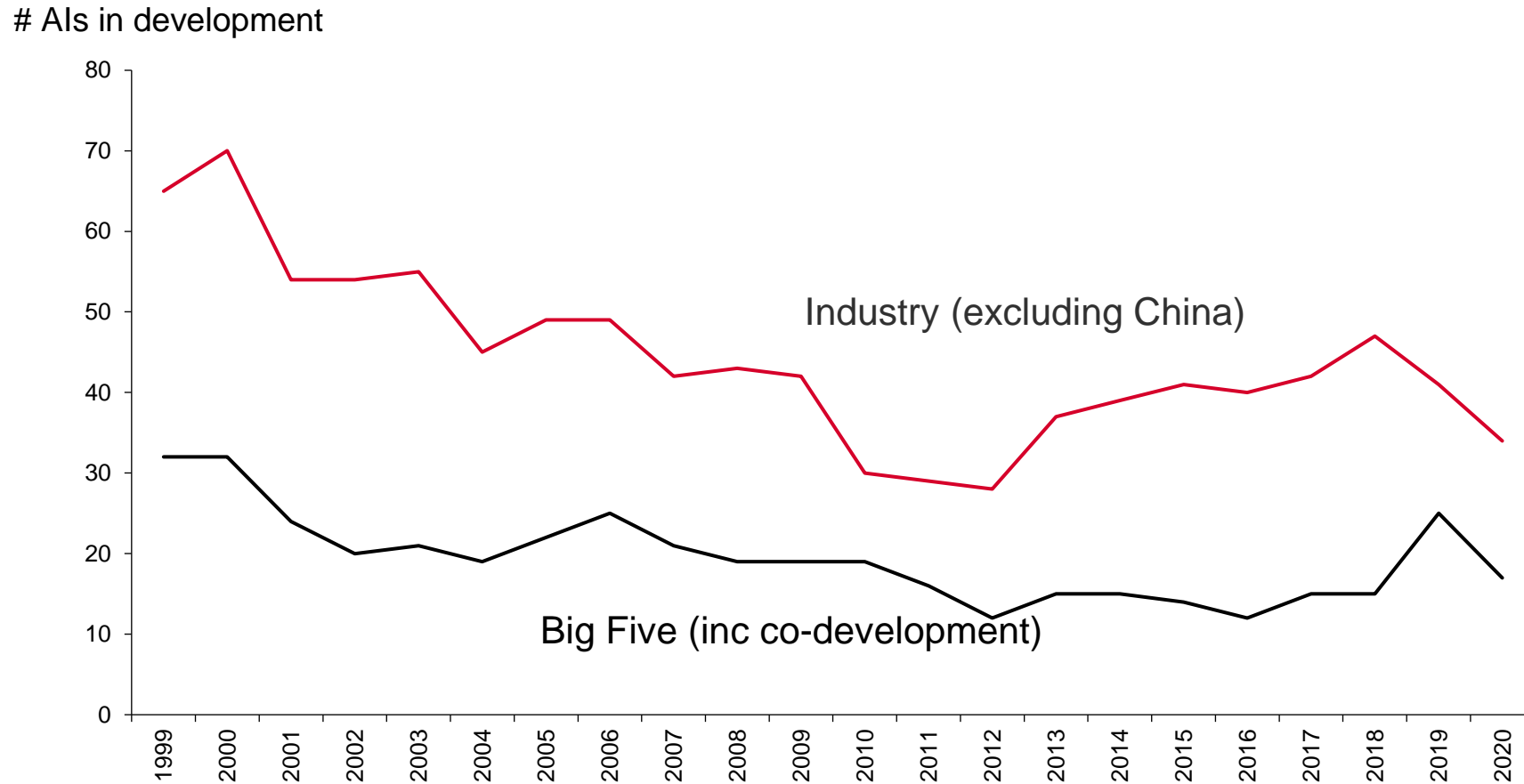
Industry continues to invest heavily in R&D

Total R&D Expenditure by the 'Big 5' Agrochemical Companies – Bayer, Syngenta, BASF, Corteva and FMC



Number of New Active Ingredients in Late Development

Industry pipeline has decreased, but is still healthy



Sustainability-related influences on crop protection

- Ever increasing regulatory requirements
- Agricultural policy pressures – e.g. Farm 2 Fork
- Growth in use of biologicals products, such as those based on microbes
 - Rate of innovation higher than that for conventional CP
- Contribution to carbon sequestration by locking up carbon in the soil – e.g. no-til

05.05 Panel Discussion



MODERATOR

Shah Karim
SafeRock, CME



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Michael Puma
NASA GISS



Open Q&A

Use the Chat feature



06.01 Luncheon/Webinar: Trinseo's Transformation: Unlocking Bold, Creative, Sustainable Solutions



Frank Bozich
Trinseo
CEO



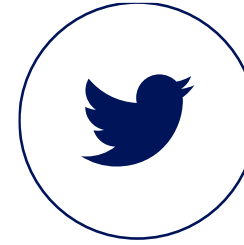
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CME: Chemical Marketing & Economics--Advancing STEM Talent. Accelerating Sustainable Innovation

1387 group members - interactive



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