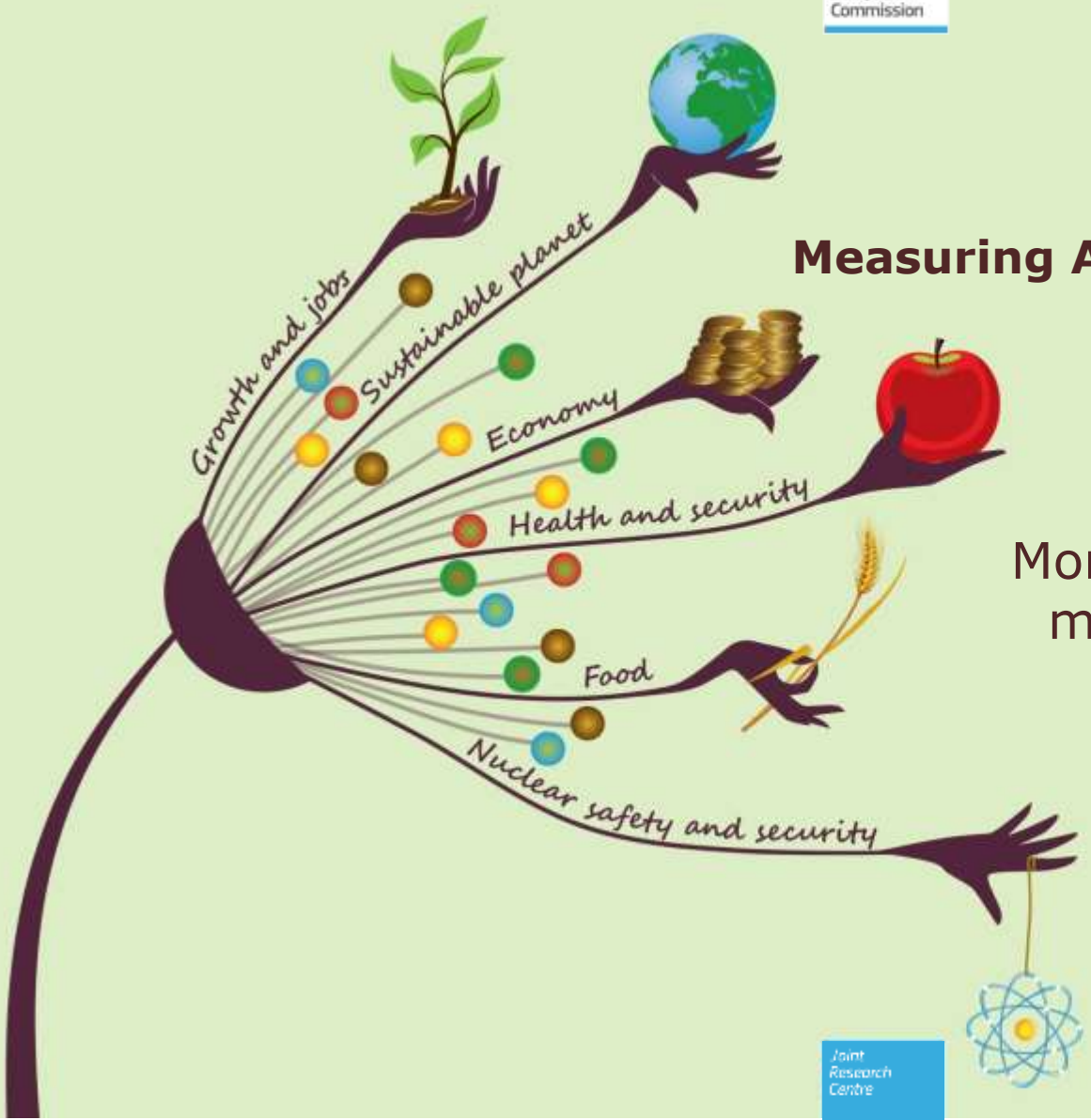


EXPO Milan 2015
Measuring Agriculture and Rural Planning with advanced methods

Monitoring Agriculture for market management and Food Security

Giampiero Genovese
JRC Seville
Agriculture and Life Science in the Economy Unit

Outline of the presentation

- EU Agriculture in a nutshell
- CAP Past present and future
- Stats needs for Markets and Food Sectors
- Some Examples
  - Food Balance Sheets / AMIS
- Challenges and technologies
- COPERNICUS and Big data

EU Agriculture in a nutshell

EU's rural areas cover more than 90% of the EU territory

Around 55% of the EU population live in the rural areas

Common Agricultural Policy (CAP) manages 43% of EU budget

The agri-food chain in the EU accounts for 7% of employment and 3.5% of EU's total value added.

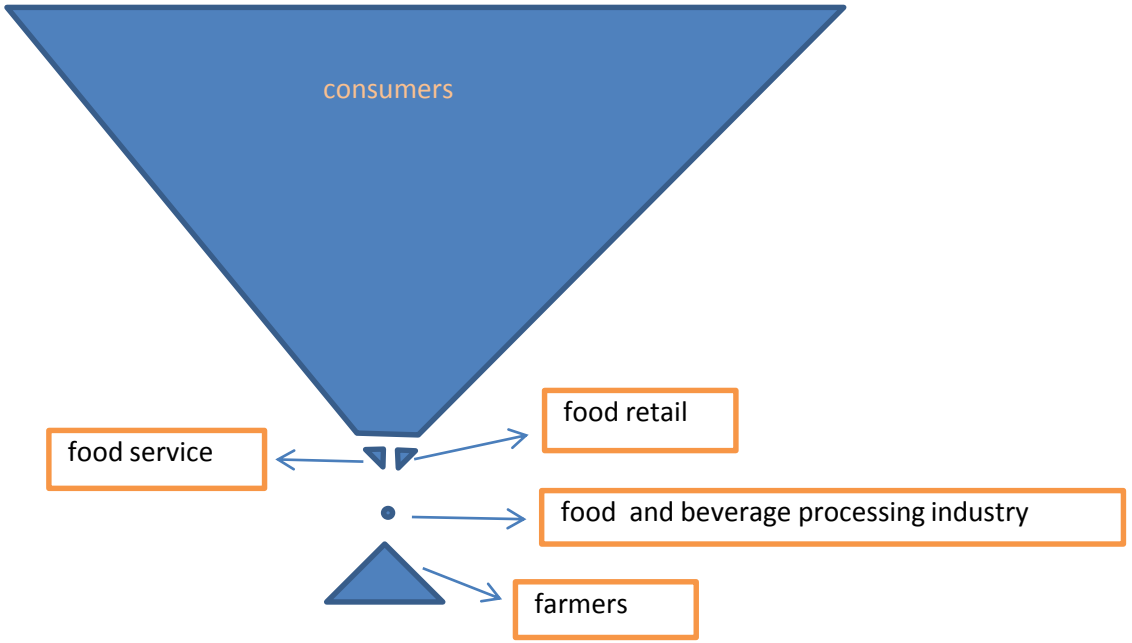
EU is top world agri-food exporter and importer

EU average farm has 14 ha of Utilised Agriculture Area and 11 livestock Units

EU Agriculture in a nutshell

Representation of the EU food chain by actors involved

(size of the shape corresponds to number of enterprises/consumers)



- *Agriculture* (12.2 million farms)
- *Food processing industry* (0.3 million holdings)
- *Food retail and food services* (2.9 million holdings*)
- *500 million consumers*

* 1.3 million in food retail and 1.55 million in food services

CAP Past present and future

Historical development of the EU CAP

Productivity →

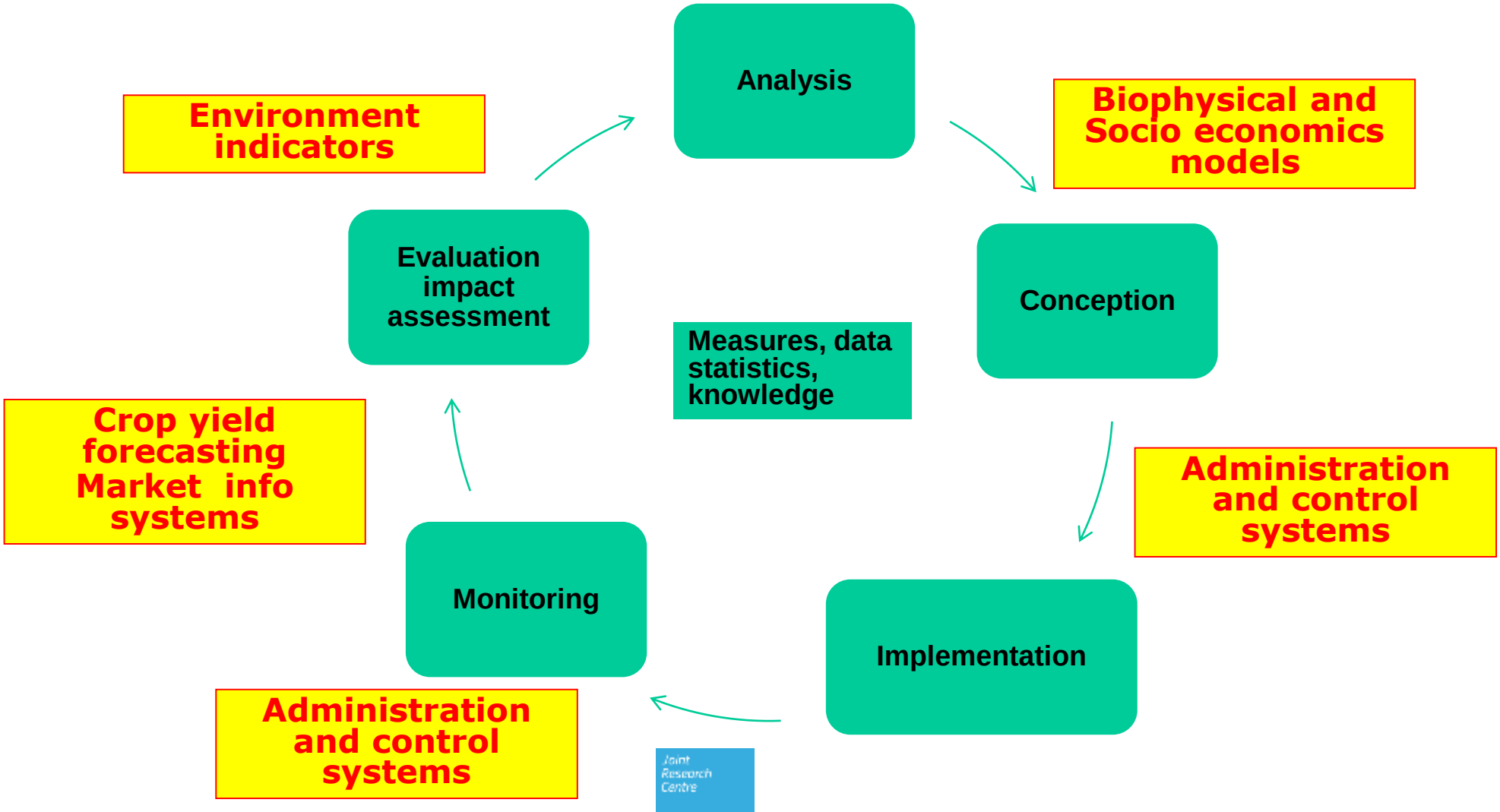
Competitiveness →

Sustainability →

The early years	The crisis years	The 1992 reform	Agenda 2000	CAP reform 2003	CAP Health Check 2003	CAP reform 2013
Food security	Over production	Reduced surpluses	Deepening the reform process	Market orientation	Reinforcing the 2003 reform	Greening
Improving productivity	Exploding expenditure	Environment	Competitiveness	Consumer concerns	New challenges	Internal and external convergence
Market stabilisation	International friction	Income stabilisation	Rural development	Rural development	Risk management	Small-farm option
Product support	Structural measures	Budget stabilisation		Environment		Active farmers
				Simplification		Flexibility between policy areas
				WTO compatibility		Monitoring and evaluation

Stats needs for Markets and Food Sec needs

The Policy Cycle



Stats needs for Markets and Food Sec needs

An evolving policy environment: implications for monitoring&statistics

TODAY

- **FADN, FSS, EEA still main stat sources, LPIS/IACS the main data admistrative source**

NEW REQUIREMENTS

- **Indicators and data on new greening elements (crop diversity; permanent grassland including environmentally sensitive grassland; ecological focus area)**
- **Geo-referenced information (if possible at the level of the observation unit)**
- **Continuity on data on prices, yields, production structures and food supply chains**
- **Synergies with the overall policy debate on environment, climate change and renewable energy.**

CAP Past present and future

EVOLUTION OF THE USE OF REMOTE SENSING AS A SPECIFIC TECHNOLOGY FOR CAP SUPPORT

1rst applications with remote sensing mainly stemming from the Landsat programme: Regional Inventories..

Sat based indicators to focus on yields, production monitoring (but no area estimates), development of controls with remote sensing, use of GPS

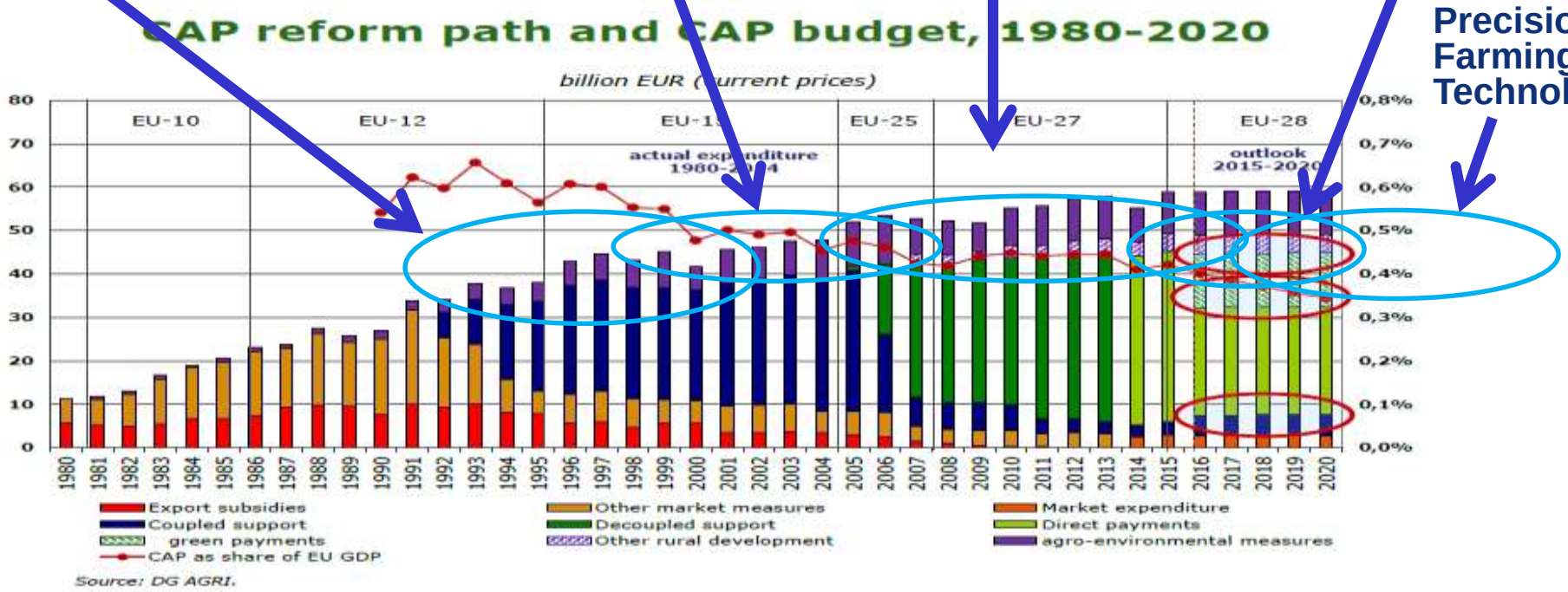
Improvement of spatial resolution, development of LPIS, agroenvironmental aspects

Partial re-coupling + greening, indicators

COPERNICUS

Big Data

Precision Farming Technologies



Some Examples

Food Balance Sheets / AMIS

European Commission

CEREALS SUPPLY & DEMAND

LAST UPDATED: 24/09/2015

'000 metric tonnes

	2015/16 fc									
	Common wheat	Barley	Durum wheat	Maize	Rye	Sorghum	Oats	Triticale	Others	TOTAL CEREALS
Beginning stocks	10 965	6 577	810	22 623	1 122	321	1 445	1 072	1 156	46 092
Usable production	144 553	58 969	7 981	58 447	8 124	619	7 435	11 503	4 315	301 947
Area ('000 ha)	24 211	12 324	2 411	9 277	2 235	142	2 484	2 815	1 622	57 523
Agronomic yield (t/ha)	*6.0*	*4.8*	*3.3*	*6.3*	*3.6*	*4.3*	*3.0*	*4.1*	*2.7*	*5.2*
Imports (from third countries)	3 042	300	1 800	11 000	92	213	4	0	137	16 589
TOTAL SUPPLY	*158 561*	*65 847*	*10 591*	*92 071*	*9 338*	*1 154*	*8 884*	*12 575*	*5 608*	*364 628*
Domestic uses										
Human consumption	*47 952*	*363*	*8 100*	*4 982*	*3 000*	*156*	*1 152*	*52*	*23*	*65 779*
Seed	*4 727*	*2 262*	*400*	*482*	*491*	*24*	*455*	*476*	*325*	*9 642*
Industrial uses	*10 600*	*9 300*	*100*	*10 000*	*1 500*	-	*100*	*600*	*100*	*32 300*
of which alcohol										*12 800*
of which bioethanol/biofuel	*4 500*	*700*	-	*4 700*	*800*	-	-	*500*	-	*11 200*
Animal feed	*52 000*	*35 600*	*80*	*62 300*	*3 400*	*700*	*4 800*	*11 000*	*3 200*	*173 080*
Losses	*900*	*400*	*40*	*600*	*70*	-	*70*	*90*	*40*	*2 210*
Total domestic uses	116 179	47 926	8 720	78 363	8 461	880	6 576	12 217	3 688	283 011
Exports (to third countries)	27 900	9 000	1 237	2 966	162	8	213	2	8	41 497
TOTAL USE	*144 079*	*56 926*	*9 957*	*81 330*	*8 624*	*888*	*6 789*	*12 219*	*3 696*	*324 507*
Final stocks**	14 482	8 921	634	10 741	715	266	2 095	356	1 912	40 121
Change in stocks**	3 517	2 344	-176	-11 883	-407	-56	650	-716	755	-5 971
Stocks at the end of August '15	127 369	52 542	7 471	16 054	7 755	794	7 809	10 417	4 794	235 007

* Marketing year: from July to June

** At the end of the marketing year

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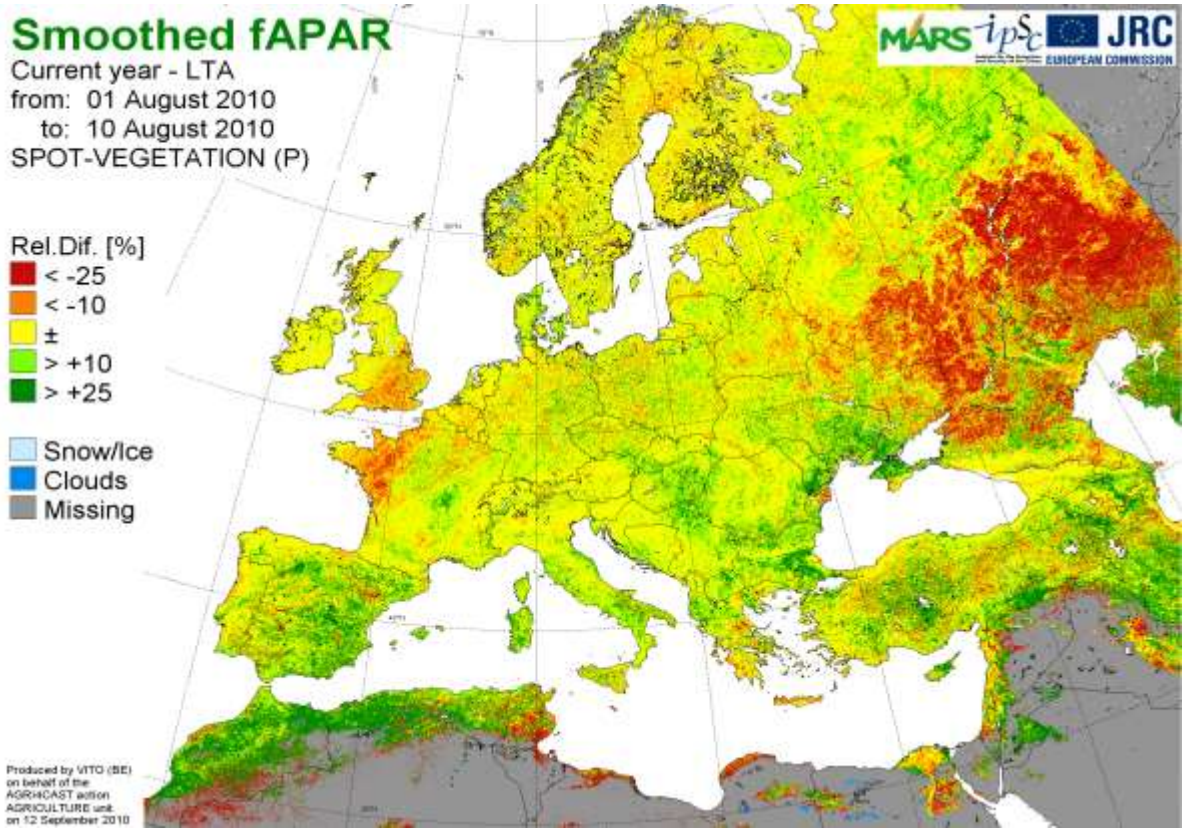
Some Examples

Food Balance Sheets / AMIS

European Commission

2010 Drought in Russia



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Some Examples

Food Balance Sheets / AMIS

The Agriculture Market Information System (AMIS) G20 initiative on MARKET TRANSPARENCY to reduce market volatility

- **Improve Agr Market Information (especially stocks), analysis end forecasts at both national and international level**
- **Report on "abnormal" international market conditions and strenghten global early warning capacity**
- **Collect and analyse policy information, promote dialogue and responses and international policy coordination**
- **Build data collection capacity in participating countries**

Some Examples

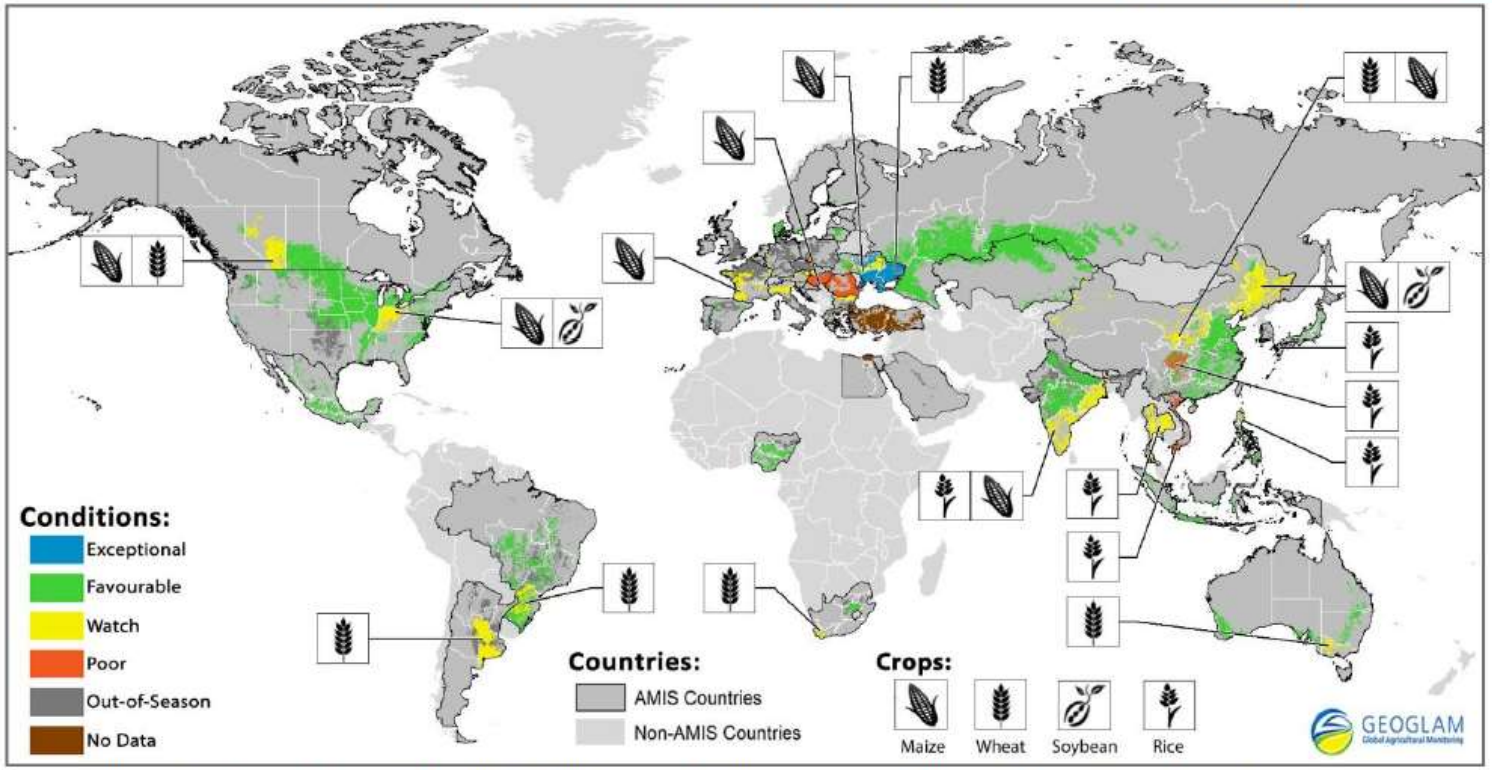
Food Balance Sheets / AMIS

European Commission

AMIS Agricultural Market Information System

Crop Monitor

Crop Conditions in AMIS countries (as of August 28th)



Crop condition map synthesizing information for all four AMIS crops as of August 28th. Crop conditions over the main growing areas for wheat, maize, rice, and soybean are based on a combination of national and regional crop analyst inputs along with earth observation data. ***Crops that are in other than favourable conditions are displayed on the map with their crop symbol.***

http://www.amis-outlook.org/

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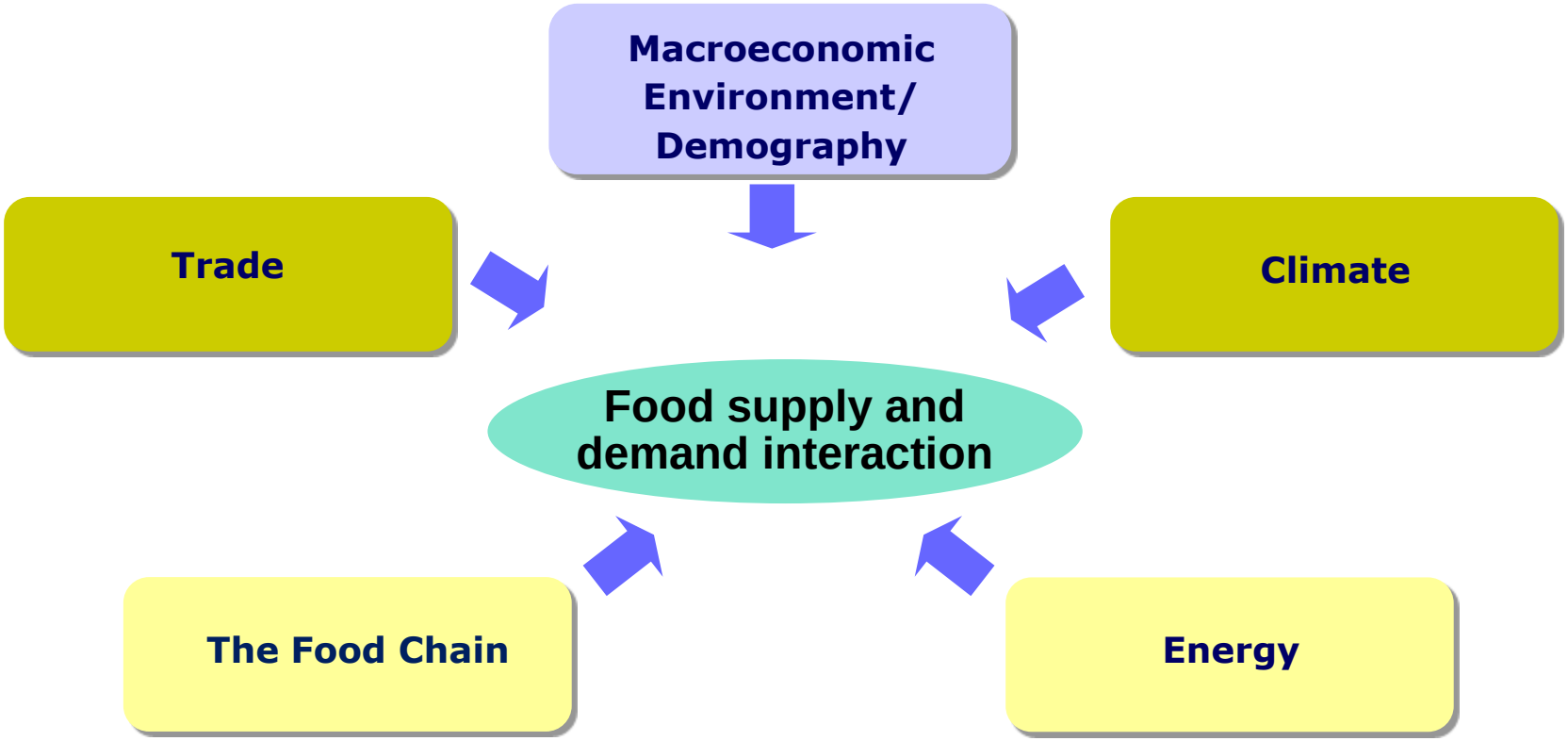
CAP MANTRA PRODUCE MORE WITH LESS
what are the drivers and challenges?



Challenges and technologies

WHAT CAN BE USED AND HOW

Technologies for data gathering and statistics to support the new needs (could be at policy level or farm level) already exists, applications will be extended

with the objective (depending on spatial and time frequency of the observation) of monitoring / control (indicators-administrative) / land management / statistics (merge of administrative data and statistics?)

Satellite REMOTE SENSING depending on the spatial/time resolution will deliver applications with lower costs and more effectiveness than in the past

PRECISION AGRICULTURE TECHNOLOGIES (drones, micro sensors, positioning systems, portable communication technologies…etc)…will be used more at local level to improve productivity, decrease input costs and mitigate GHG emissions. The data gathered could stay at local level or shared (ex crowd sourcing) and become public

Challenges and technologies

European Commission

WHAT'S NEXT?

CONTRIBUTION OF COPERNICUS (change in the paradigm of cost efficiency):
earth observation data available with higher frequency (3 days revisit), higher spatial coverage and high resolution;
data open and free at world level for everyone

BIG DATA ISSUES (remote sensing, in situ data, crowd sourcing, precision farming tech….)
data open and free? Commercial value of data?

Policy will have to offer solutions

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Thank you!

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