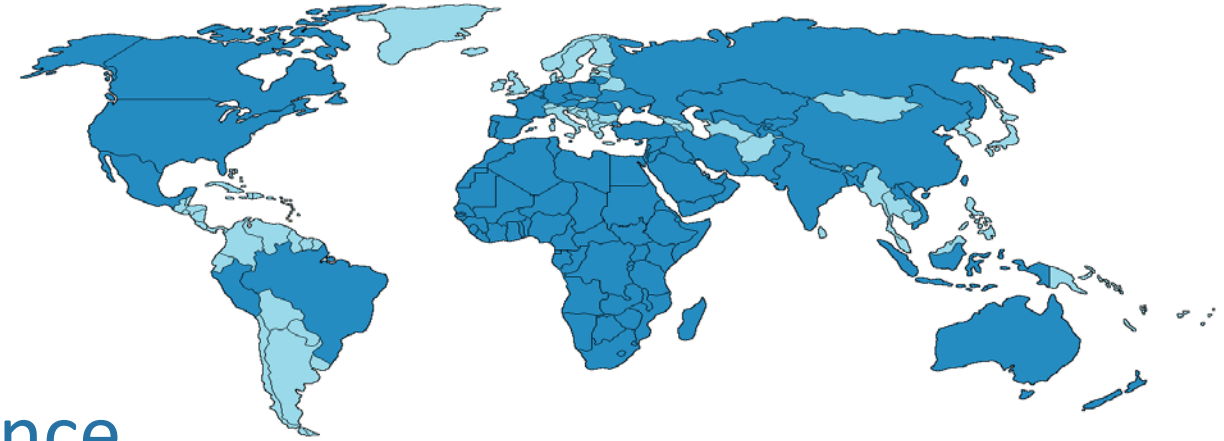
facts from space

Maurits Voogt

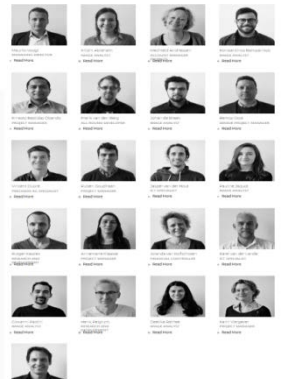
A new economy for Middle East and North Africa Countries:
Youth, Technology and Finance

eleaf
FEED THE WORLD

eLEAF

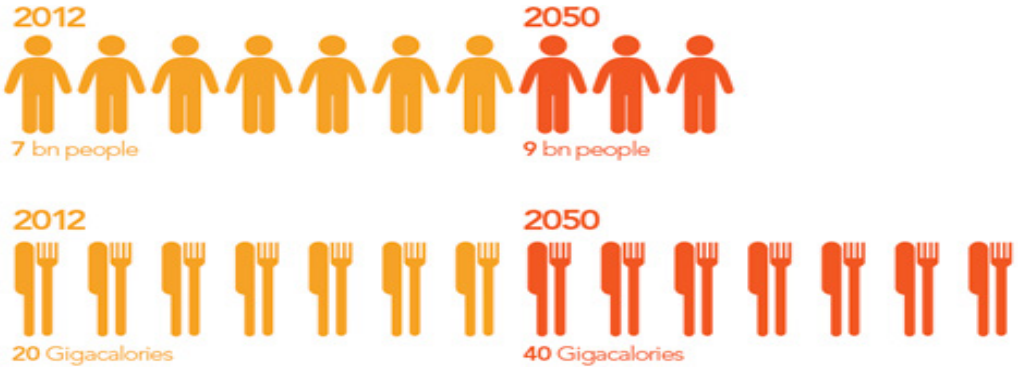


- Dutch SME
- Global experience
- Remote Sensing
- Data and solutions
- Agriculture and water



eleaf
FEED THE WORLD

Global development

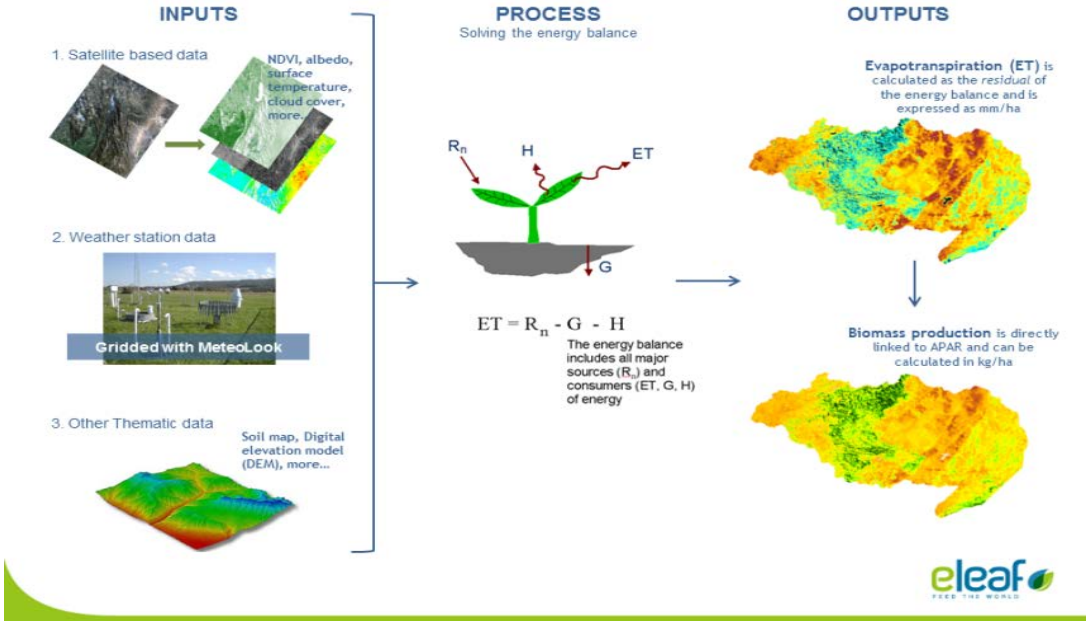


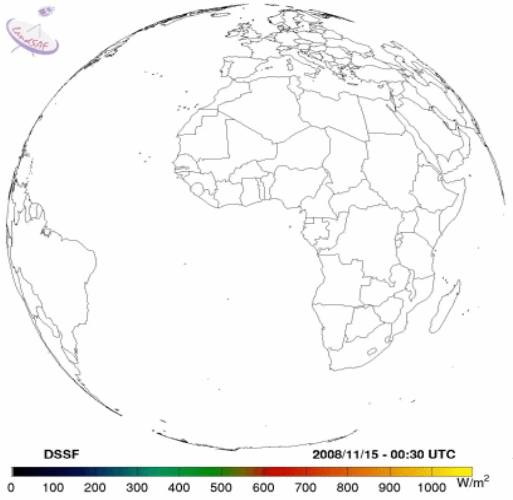
- Land productivity [kg/ha]
- Water productivity [kg/m^3]

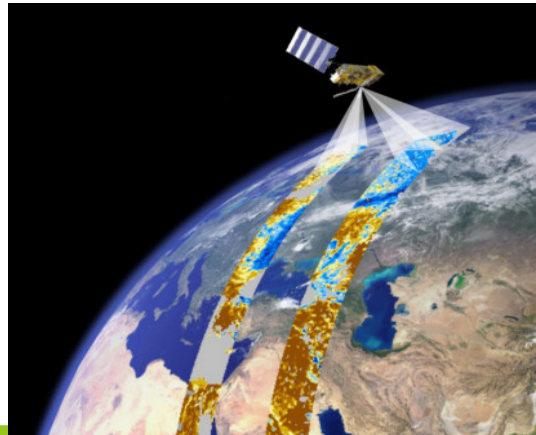
Water Productivity

eleaf
FEED THE WORLD

Our Technology

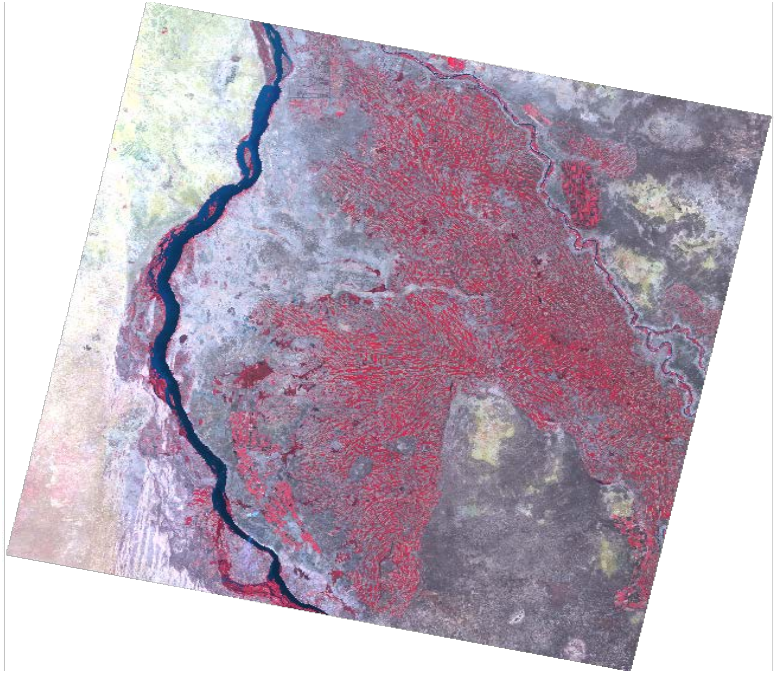




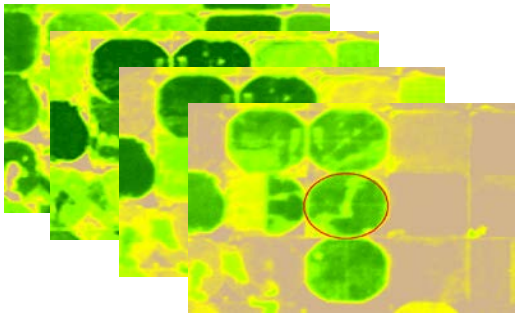


Gezira Irrigation Scheme

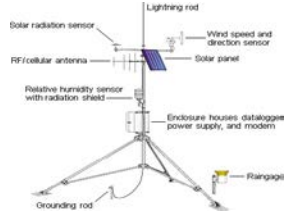
- Satellites show crop development



FieldLook Irrigation Advice

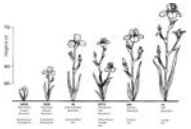


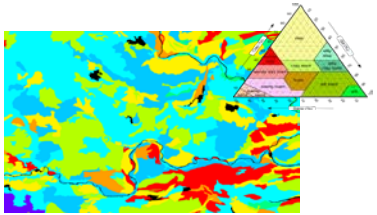
Weekly NDVI and albedo maps (satellite observations)



Daily update of historic weather data and forecast (5 days)

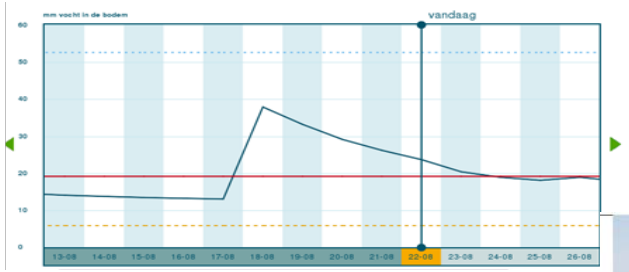
Crop list+ properties





Soil map + properties

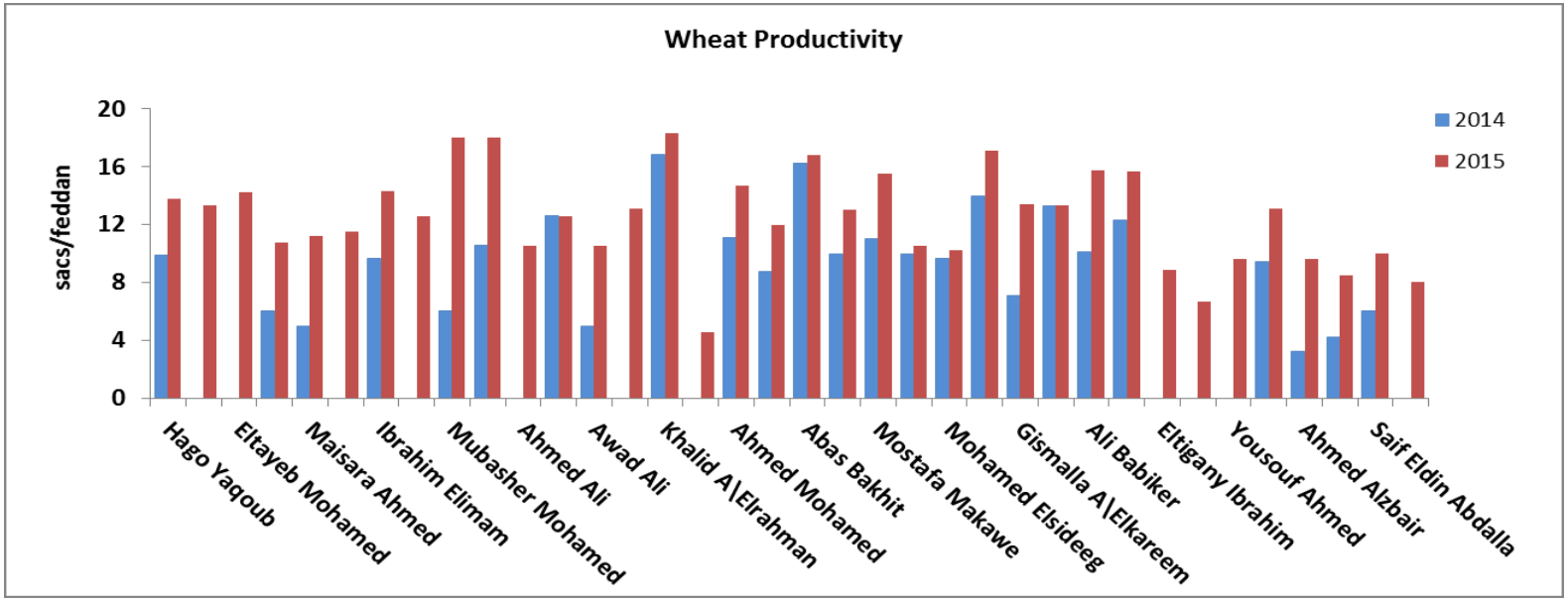
Irrigation Planner



Soil moisture content root zone (historic, actual and forecast)
+
Irrigation requirements
(updated on a daily basis)

أيام من الأن 2تحتاج إلى ري فى ظرف

Results



- Average yield increase: 63%

Problem

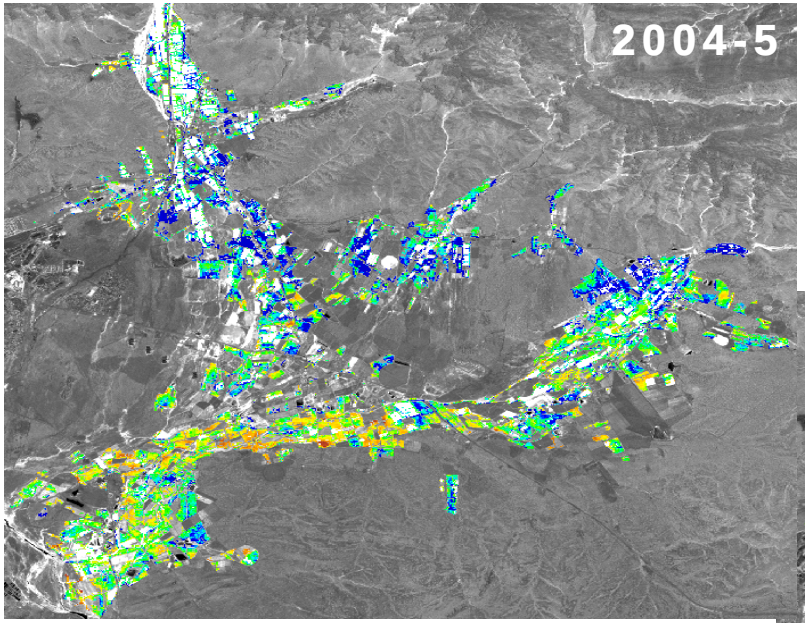
Limited water (climate change, competing sectors)

Economically important grape/fruit sector (export, livelihood)

$$\textit{Water Productivity} = \frac{\textit{Crop yield (kg)}}{\textit{Water consumption } (m^3)}$$

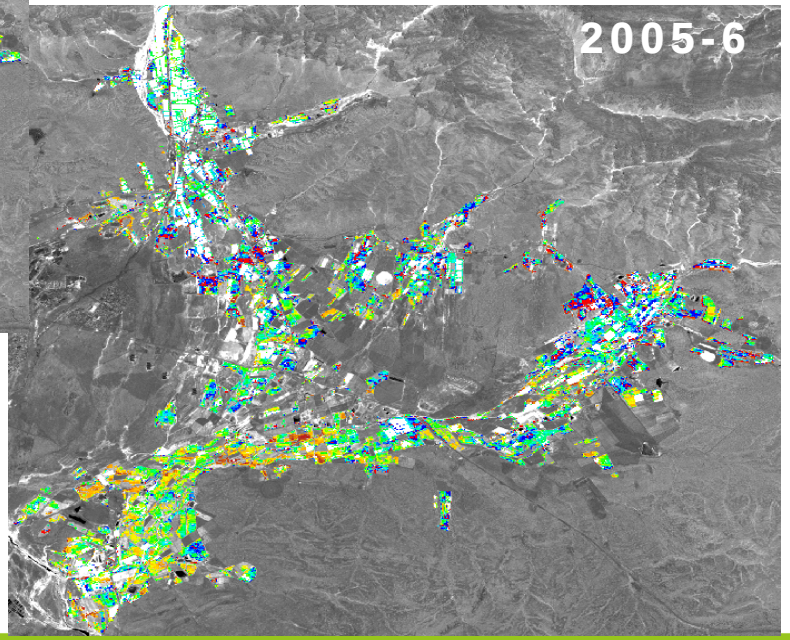
eleaf
FEED THE WORLD

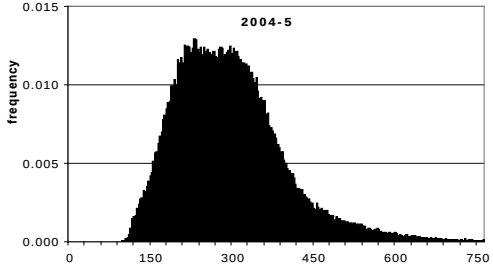
Water Productivity

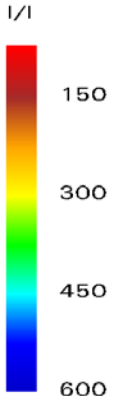


Spatial distribution of good and bad practices.

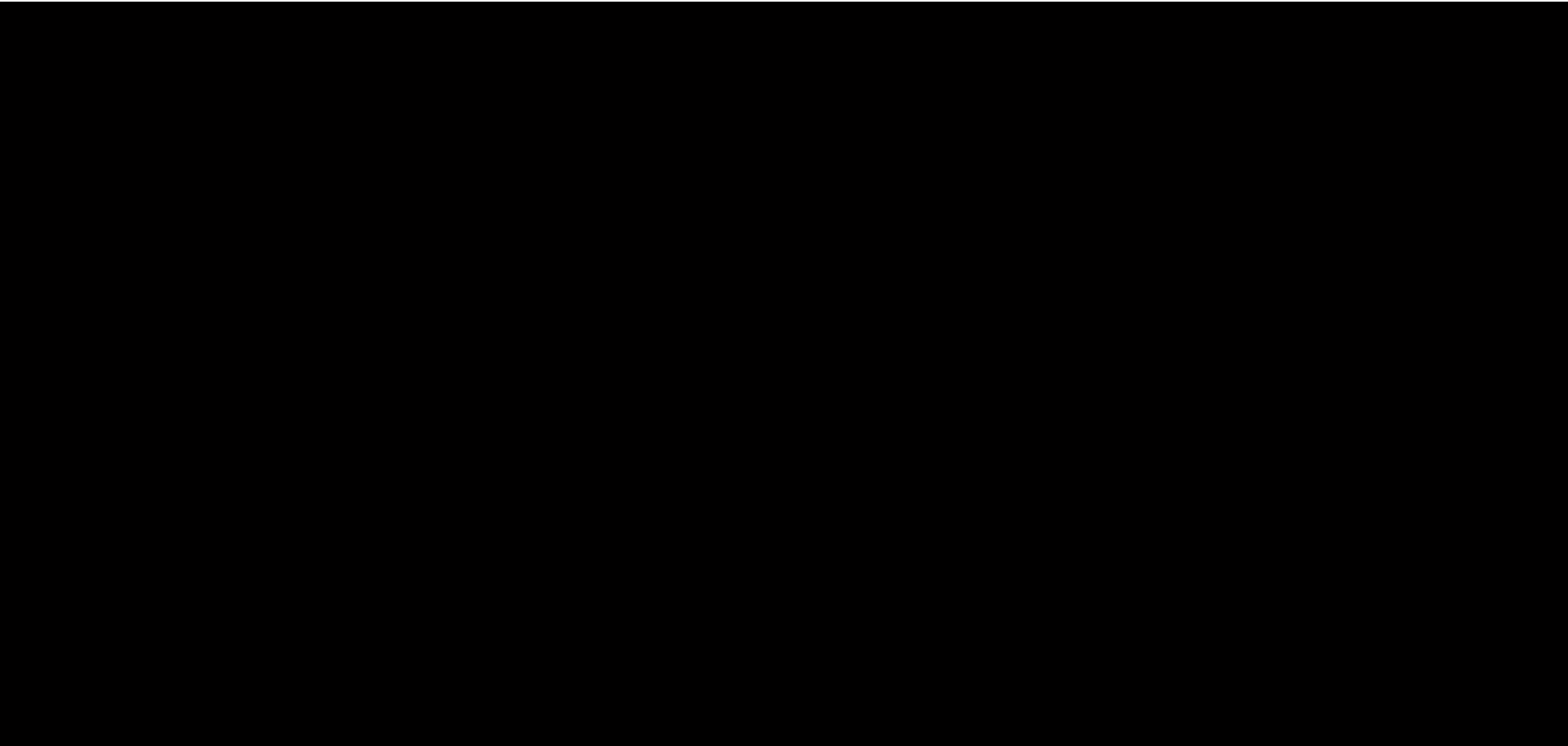
Learn from each other and improve to the same level.



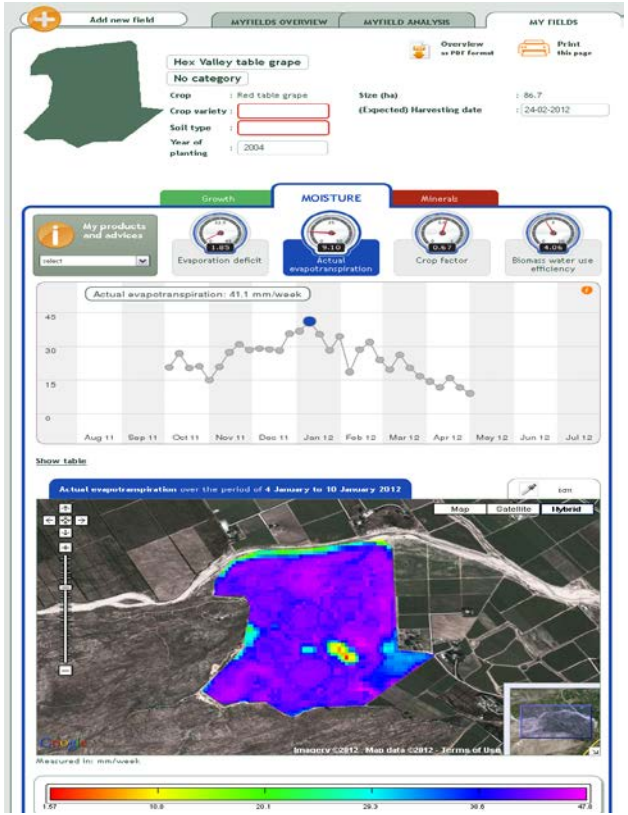




eleaf
FEED THE WORLD



FruitLook



- Weekly updates on:
  - Growth
  - Moisture
  - Minerals

- Automated alerting system

fruitlook.co.za

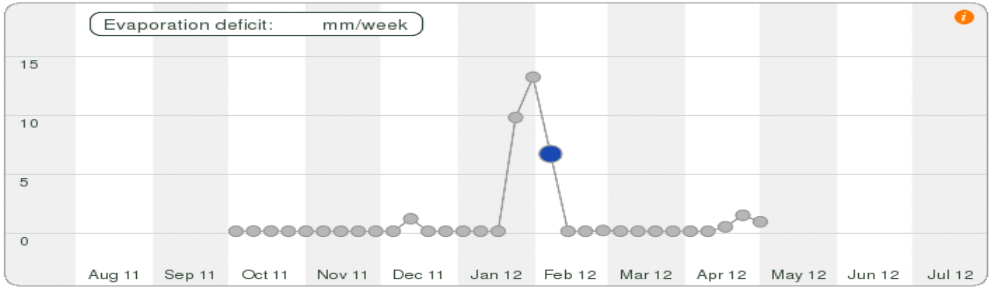
eleaf
FEED THE WORLD

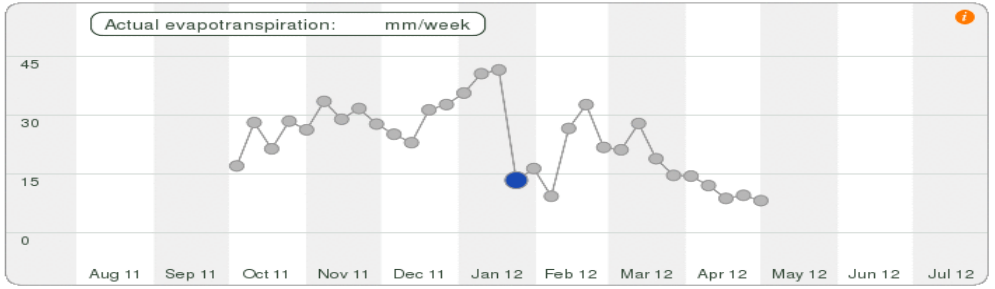
Irrigation failure

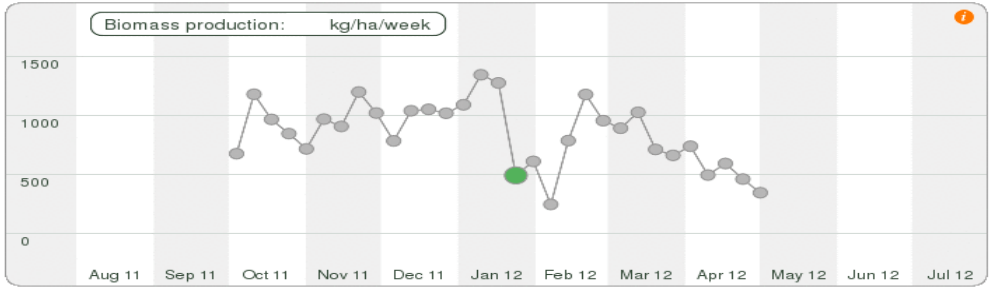
Mid summer:
water shortage

Actual water use
drops in same period

Decreasing production
→ yield loss







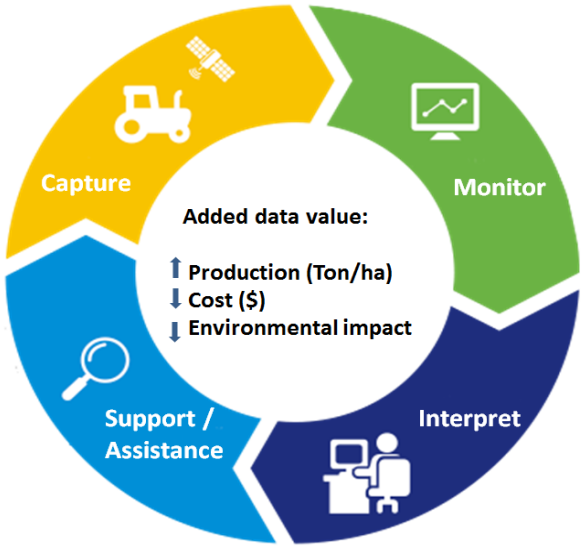
Impact

Water Productivity

improved more than 10%

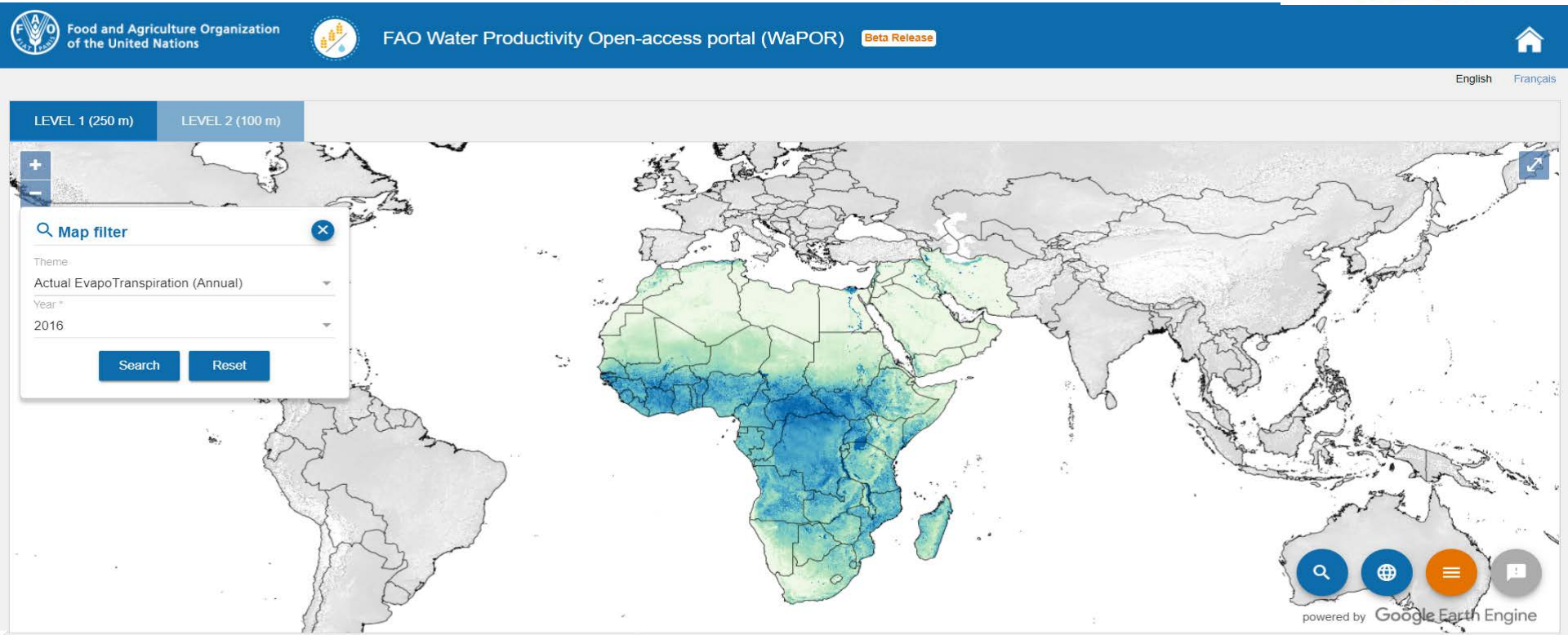
for 60% of the users

- Satellite information provides much insight at unprecedented scale
- To create value the whole management cycle needs to be addressed
- Further implementation at scale requires commitment from industry and government

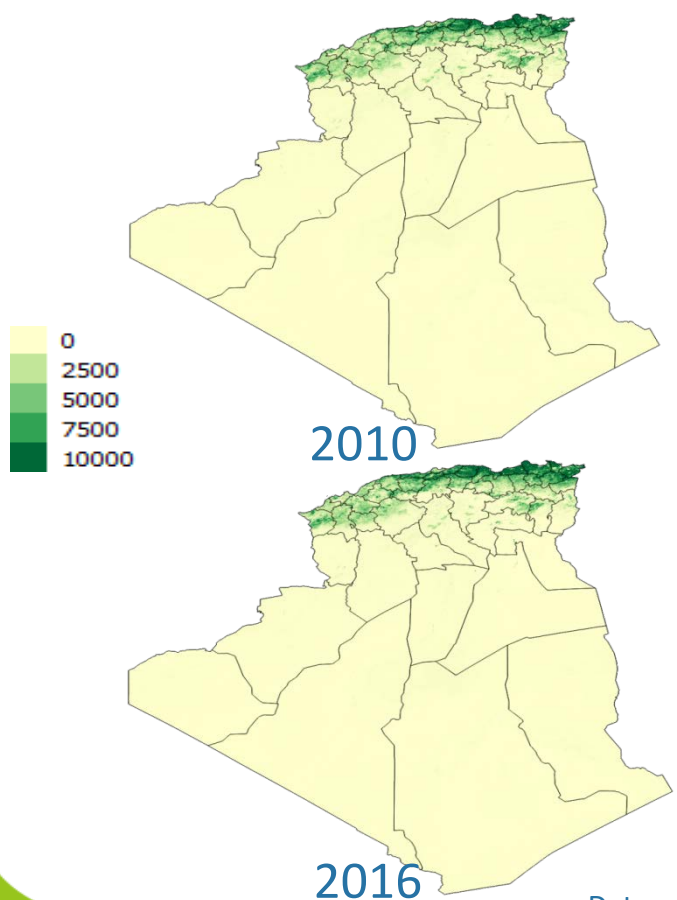


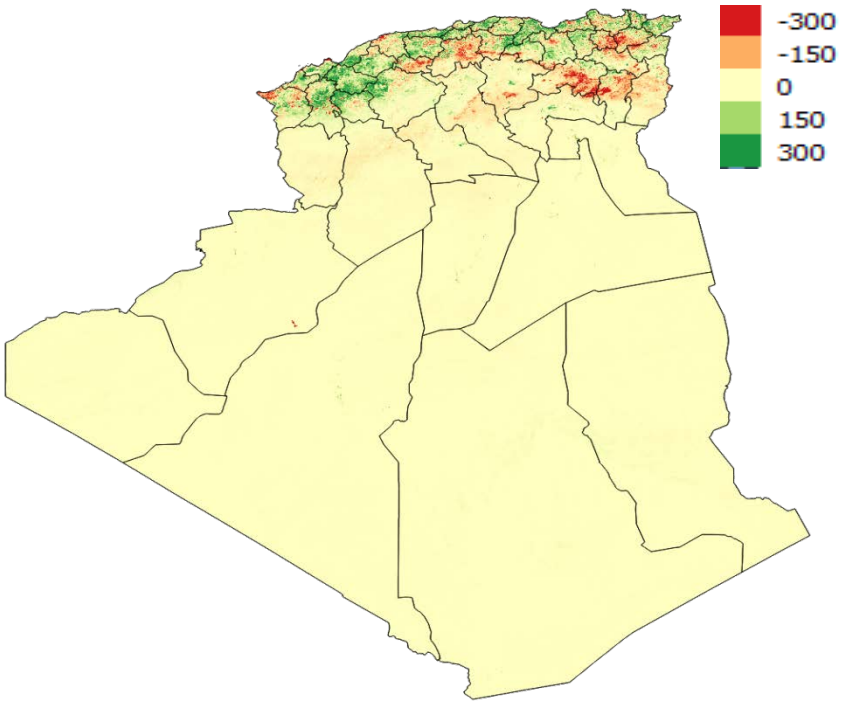
eleaf
FEED THE WORLD

Water Productivity



Biomass Production [kg/ha/year]



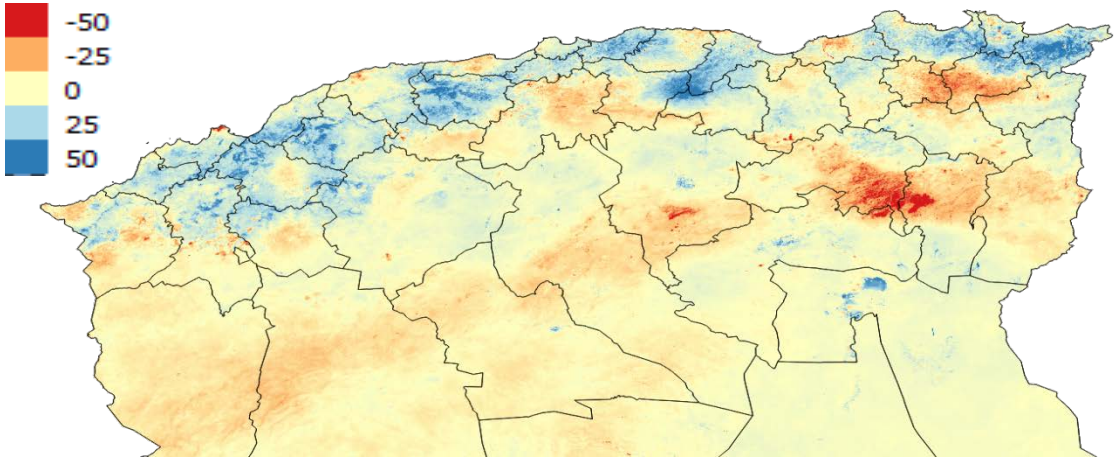


Trends in annual above ground biomass produced from 2010-2016 (slope in kg/ha/year decrease or increase)

Data source: FAO WaPOR database

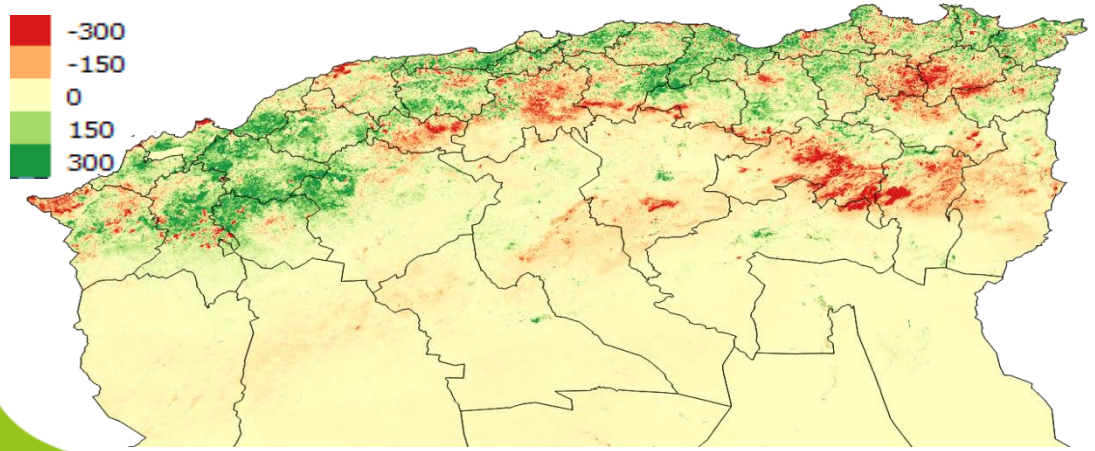
eleaf
FEED THE WORLD

Trends 2010-2016



Water Used

Trends in annual Actual Evapotranspiration from 2010-2016 (slope mm/year decrease or increase)



Biomass Produced

Trends in annual above ground biomass produced from 2010-2016 (slope in kg/ha/year decrease or increase)

eleaf
FEED THE WORLD

Industry 4.0

Facilitating government:

- Education
- Entrepreneurial climate
- Democratize knowledge

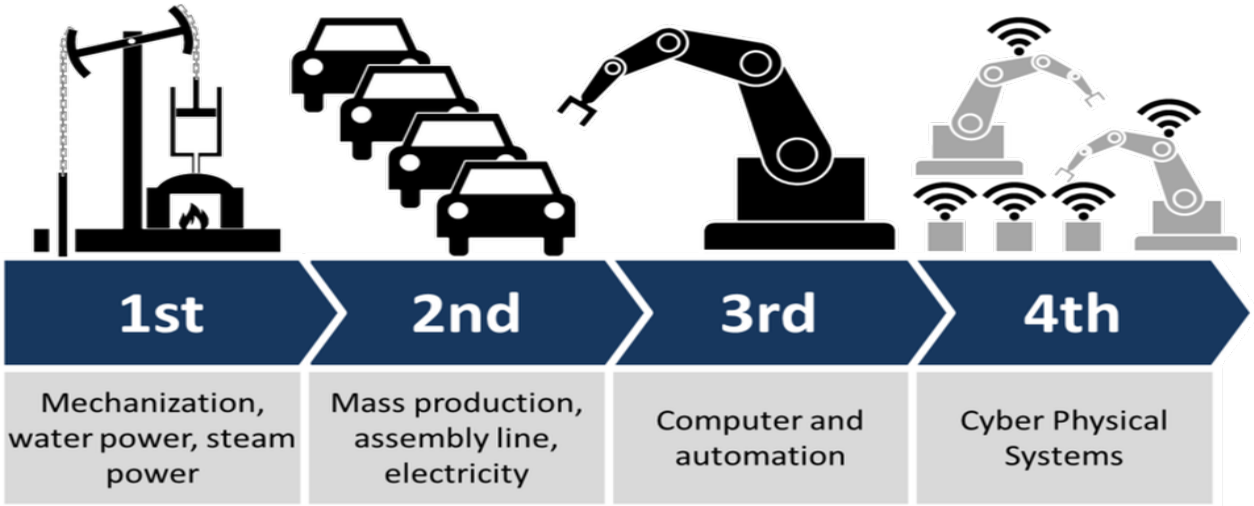
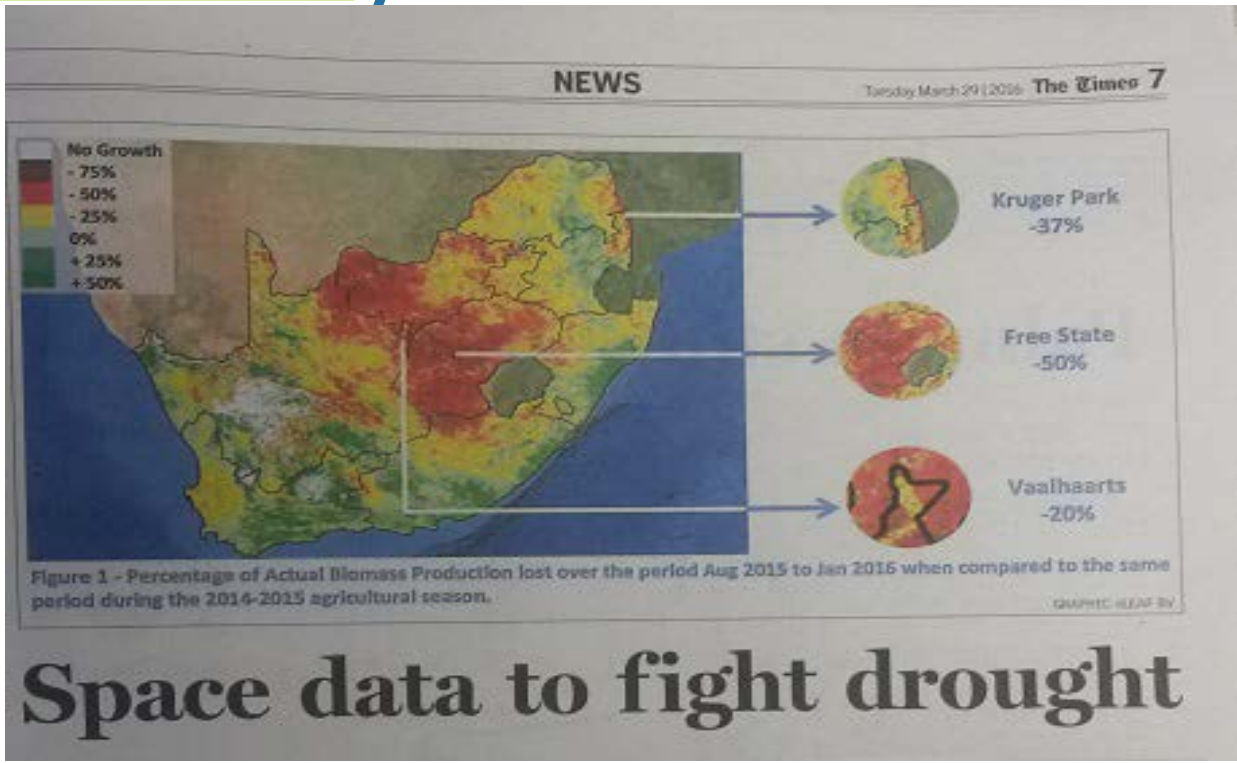


Image - allaboutlean.com

eleaf
FEED THE WORLD

Thank you



NEWS

Tuesday March 29 | 2016 The Times 7

No Growth
- 75%
- 50%
- 25%
0%
+ 25%
+ 50%

Kruger Park
-37%

Free State
-50%

Vaalhaarts
-20%

Figure 1 - Percentage of Actual Biomass Production lost over the period Aug 2015 to Jan 2016 when compared to the same period during the 2014-2015 agricultural season.

GRAPHIC: ELEAF BV

Space data to fight drought

- www.eleaf.com
- maurits.voogt@eleaf.com

eleaf
FEED THE WORLD