

# SENTINEL 2A/2B SOCIAL VALUE FOR AGRICULTURE MANAGEMENT



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# AGRICULTURE

“The beauty of agriculture is that it really cannot change. You have a limited set of inputs like soil, water, and sun to work with and in some cases few pieces of high-tech inputs, but the output is fundamentally the same. At the end of the day, you need to produce something that is compatible with what humans eat. You cannot move away from that.”

*Michell Zappa*

# REMOTE SENSING

- What is the social cost of a satellite image produced by Sentinel 2A/2B?
- What is the social value of a satellite image produced by Sentinel 2A/2B?
- In the end we are speaking of an infrastructure cost of millions of euros each year and we really don't know it's true social value and how to valorize it every day?

# AGRICULTURE AND REMOTE SENSING

- REMOTE SENSING

- Spectral resolution
- Spatial resolution
- Temporal resolution
- Radiometric resolution



- AGRICULTURE

- Pests and diseases
- Irrigation
- Soil and plant nutrition
- Yield
- Yield quality
- Euros (€)



# AGRO-SENSING MODELS

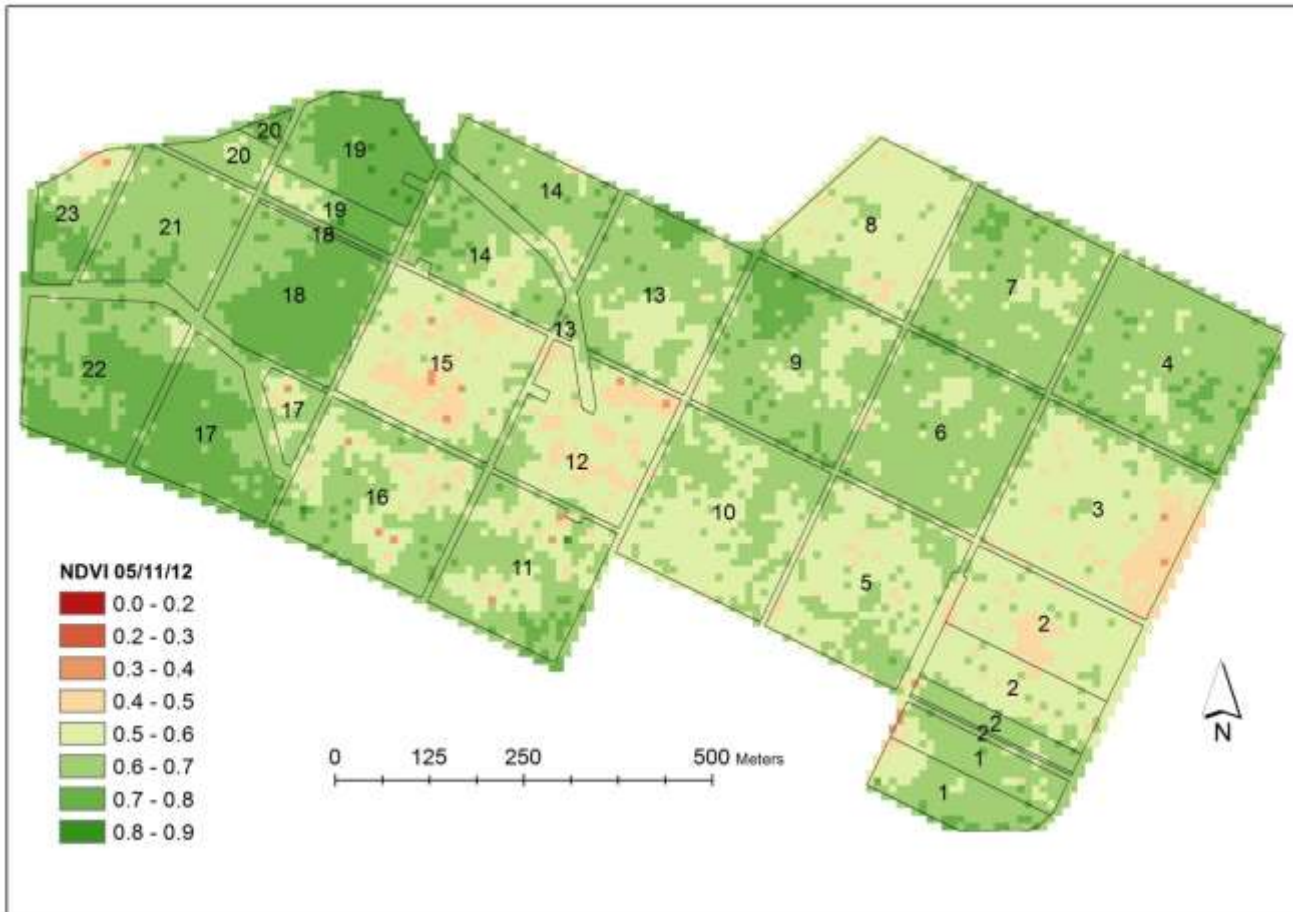
- OK I GOT THE IMAGE, AND NOW, WHAT CAN I DO WITH IT?
- CAN HELP ME IN MY AGRONOMICAL DECISIONS WITH IT?
- CAN I BETTER PROTECT THE ENVIRONMENT WITH IT?
- CAN I BE MORE EFFICIENT WITH IT?
- CAN I SAVE SOME MONEY WITH IT?



# AGRO-SENSING DECISIONS

- Pest and diseases – Every day decisions
  - Meteorological satellites;
- Irrigation – From 1 to 7 days decisions
  - Sentinel 2A/2B (with a 5 days revisiting time);
- Plant nutrition – From 15 to 30 days decisions
  - Sentinel 2A/2B;
- Soil nutrition – One to two times a year
  - Sentinel 2A/2B;

# VINEYARD NDVI ANIMATION

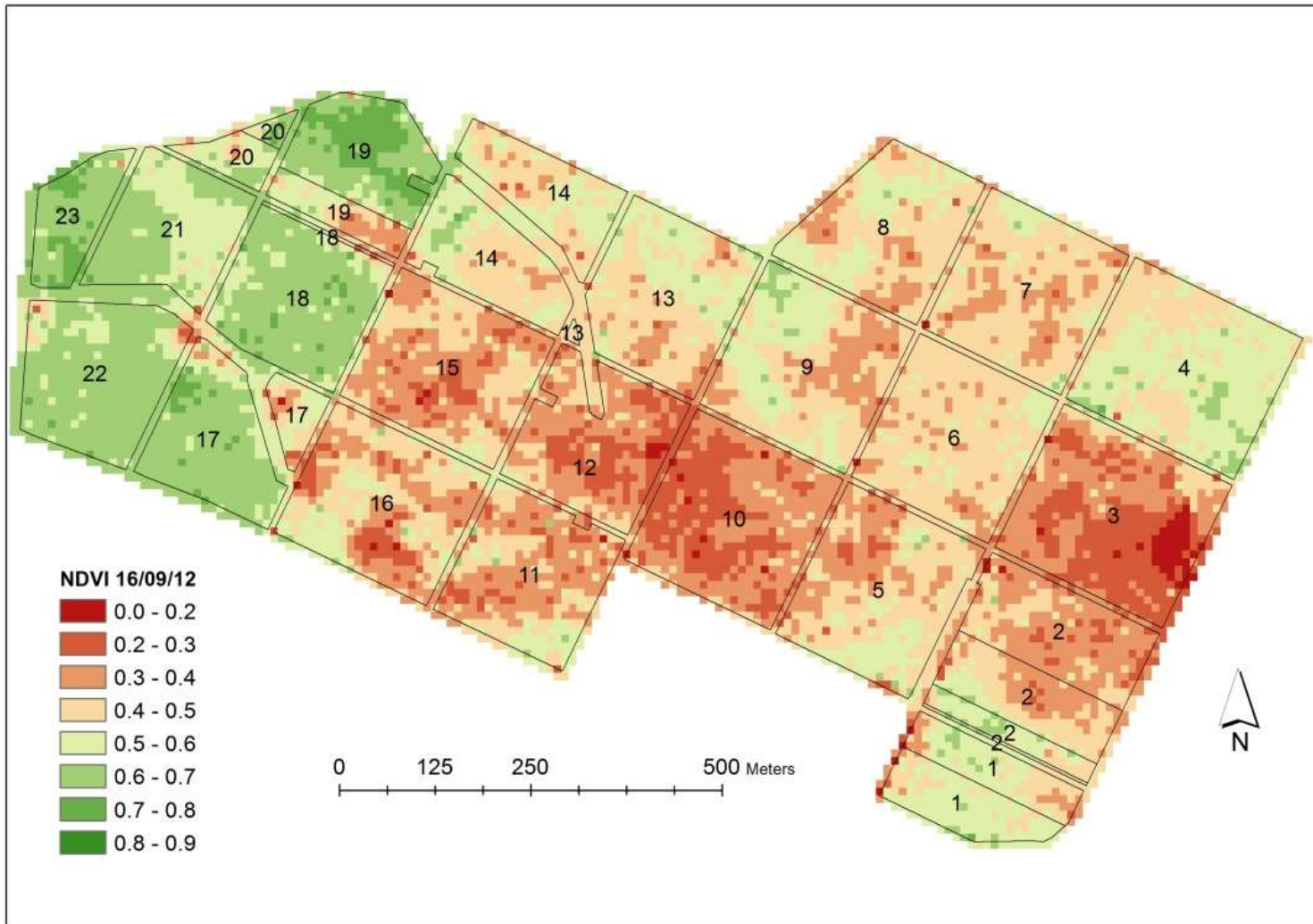


# WHAT IS THE VALUE OF THAT?



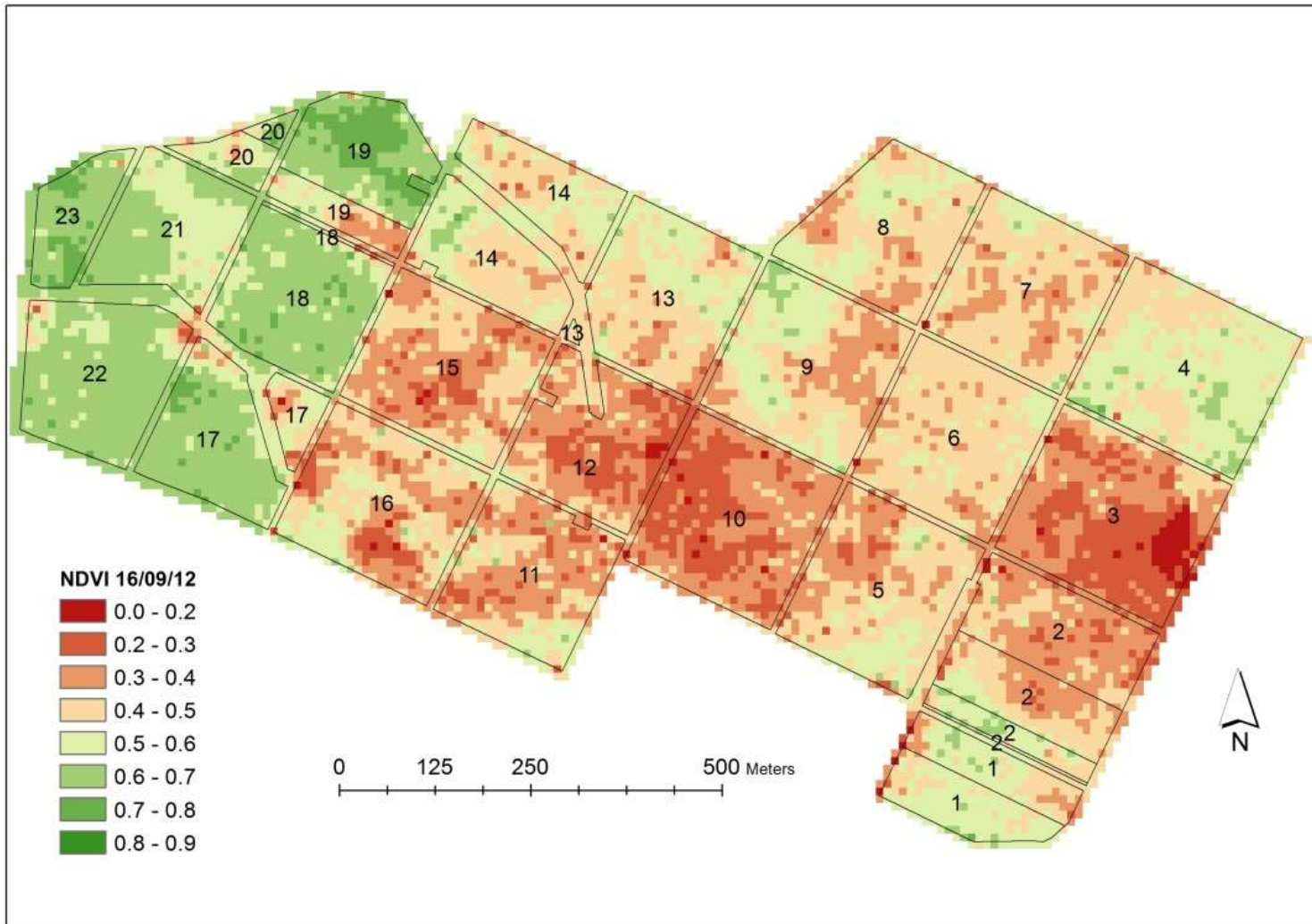


# HOT AND DRY CLIMATE VINEYARDS!



- 1 – NUTRITION?
- 2 – IRRIGATION?
- 3 – PEST AND DISEASES?
- 4 – QUALITY?
- 5 – SAMPLING?

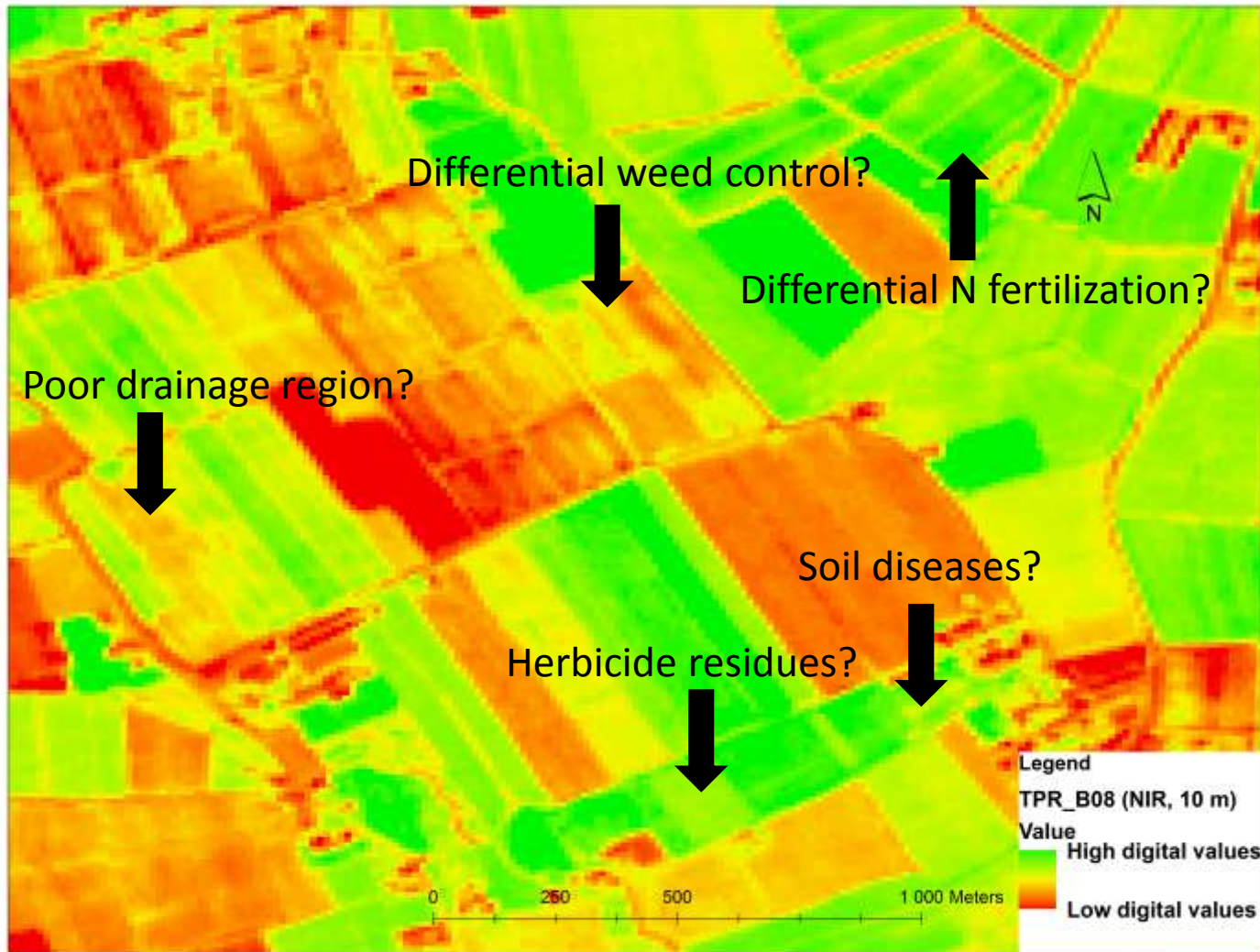
# HOT AND RAINY CLIMATE VINEYARDS!



- 1 – NUTRITION?
- 2 – IRRIGATION?
- 3 – PEST AND DISEASES?
- 4 – QUALITY?
- 5 – SAMPLING?

# GRAINS/SOYA NORTH ITALY

SENTINEL 2A sample image



# AGRO-SENSING MODELS

- OK I GOT THE IMAGE, AND NOW, WHAT CAN I DO WITH IT?
- CAN HELP ME IN MY AGRONOMICAL DECISIONS WITH IT?
- CAN I BETTER PROTECT THE ENVIRONMENT WITH IT?
- CAN I BE MORE EFFICIENT WITH IT?
- CAN I SAVE SOME MONEY WITH IT?

**YES YOU CAN.**



# CONCLUSIONS



- SENTINEL 2A/2B images will have a huge social value for agriculture and environmental management.
- This value will only be true if agricultural technology developers receive insights from agricultural decision-makers in order to promote satellite images SocValue (Agvalue, Envvalue, Econvalue).

# CONCLUSIONS



- The communication between agricultural technology developers and agricultural decision-makers is in our opinion the key to the success.
- But how we achieve that?
  - Working together (side by side in the farms);
  - Some time (several years); some money; and
  - A lot of patience and tolerance.

# CONCLUSIONS



- Otherwise satellite images will have a high social cost and a low social value. At list for agriculture management!
- ESA should be worried not just with accuracy, frequency, coverage, cost, data accessibility, suitability, etc. but also, with the social value from their work. And this value will only be available if ESA work with the decision makers (e.g. Local & regional authorities, others, etc.).

# CONCLUSIONS



- The SOCIAL value of SENTINEL 2A/2B images in the production of:
  - MAIZE; TOMATO; VINEYARD; HORTICULTURE;
  - WHEAT; PASTURES; FRUTICULTURE; OLIVES;
  - ETC.....



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