

Adopting Intelligent Environmental Management Systems for Enhancing Land Use Sustainability

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Brisbane, Australia



2007 National Ranking

Le più virtuose

17481 Graduatoria delle università per produttività della ricerca

Ateneo	Punt.	Ateneo	Punt.	Ateneo	Punt.
1 Trento	1.111	21 Università Napoli II	1.033	39 Napoli	981
2 Venezia	1.090	22 Udine	1.031	40 Camerino	978
3 Piemonte Orient.	1.087	23 L'Aquila	1.025	41 Molise	976
4 Padova	1.079	24 Politecnica delle Marche	1.022	42 Perugia	974
5 Modena-Reggio E.	1.078	25 Chieti	1.022	43 Salerno	967
6 Milano-Bicocca	1.075	26 Milano	1.022	44 Lecce	964
7 Siena	1.061	27 Pavia	1.021	45 Calabria	953
8 Trieste	1.061	28 Verona	1.021	46 Roma La Sapienza	951
9 Pisa	1.059	29 Napoli Orientale	1.020	47 Politecnico Bari	950
10 Basilicata	1.053	30 Torino	1.011	48 Macerata	950
11 Firenze	1.051	31 Brescia	1.005	49 Toscana	946
12 Bologna	1.047	32 Parma	1.003	50 Foggia	945
13 Ferrara	1.045	33 Torino Politecnico	997	51 Bari	941
14 Sannio	1.043	34 Teramo	996	52 Cagliari	931
15 Bergamo	1.037	35 Milano Politecnico	992	53 Mediterraneo di Reggio Calabria	927
16 Genova	1.037	36 Sassari	992	54 Venezia Iuav	927
17 Insubria	1.035	37 Napoli Parthenope	986	55 Cassino	923
18 Roma Tor Vergata	1.035	38 Roma Iuav	983	56 Catania	906
19 Catanzaro	1.033	39 Roma Tre	982	57 Palermo	902
				58 Messina	873

Le più attrattive

17483 Graduatoria delle università per capacità di attirare fondi privati per la ricerca

Ateneo	€ per docente	Ateneo	€ per docente	Ateneo	€ per docente
1 Trento	76.724	20 Torino	23.513	39 Bologna	14.032
2 Siena	42.189	21 Padova	22.294	40 Bari	13.155
3 Sannio	40.709	22 Milano	21.689	41 Insubria	12.739
4 Torino Politecnico	40.621	23 Ferrara	21.578	42 Venezia Iuav	12.551
5 Milano Politecnico	37.095	24 Catania	20.540	43 Messina	10.075
6 Basilicata	36.175	25 L'Aquila	19.338	44 Mediterraneo di Reggio Calabria	9.753
7 Politecnico delle Marche	35.536	26 Udine	18.983	45 Roma Tre	9.445
8 Verona	34.771	27 Salerno	18.975	46 Roma La Sapienza	9.272
9 Perugia	33.579	28 Parma	18.768	47 Bergamo	9.261
10 Roma Tor Vergata	31.919	29 Catanzaro	18.500	48 Chieti	7.902
11 Firenze	28.742	30 Pavia	18.388	49 Politecnico Bari	7.547
12 Sassari	27.862	31 Napoli	17.848	50 Lecce	7.479
13 Napoli II Univ.	26.565	32 Milano-Bicocca	16.040	51 Molise	7.394
14 Pisa	25.814	33 Piemonte Orient.	15.870	52 Napoli Parthenope	7.300
15 Camerino	25.736	34 Venezia	15.425	53 Palermo	7.238
16 Toscana	24.369	35 Foggia	15.173	54 Macerata	5.139
17 Calabria	24.007	36 Cagliari	15.093	55 Cassino	4.487
18 Brescia	23.936	37 Trieste	14.491	56 Teramo	3.391
19 Modena-Reggio E.	23.875	38 Genova	14.219	57 Napoli Orientale	3.274

Nota: da questa classifica è stato escluso l'Istituto di Scienze motorie di Roma, che per la sua particolarità presenta dati non confrontabili.
Fonte: elaborazioni su dati Mier

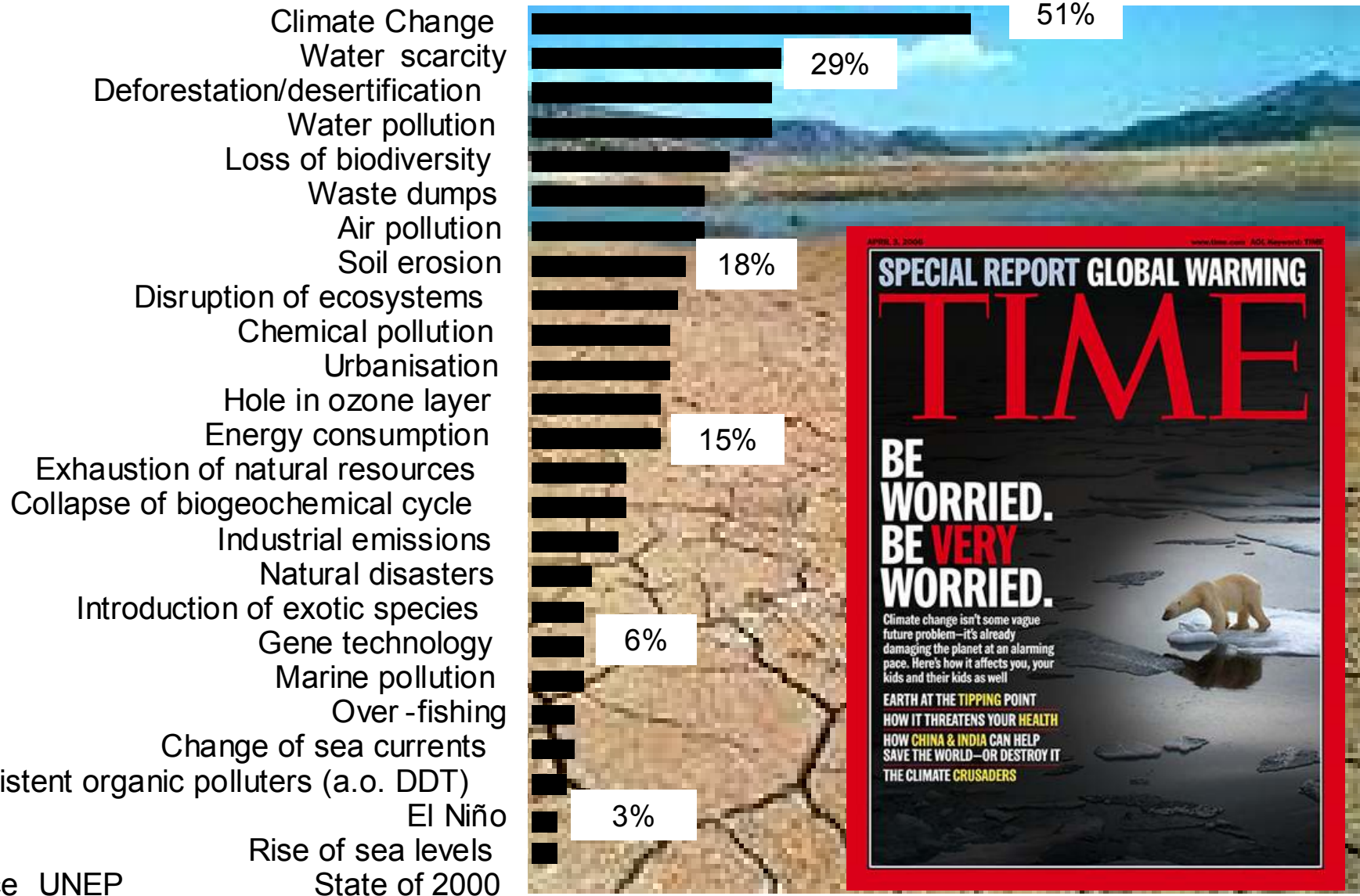
COME NASCONO LE CLASSIFICHE

La classifica della produttività... assegnisti, dottorandi e progetti di rilevante interesse nazionale, ed FCIv, basato sui calcoli della seconda graduatoria. Le cifre sono il

6° University out of 70 for Capacity of obtaining private and public funding

10° University out of 70 for productivity (ISI Papers) of research funding

Environmental Problems of the 21st Century

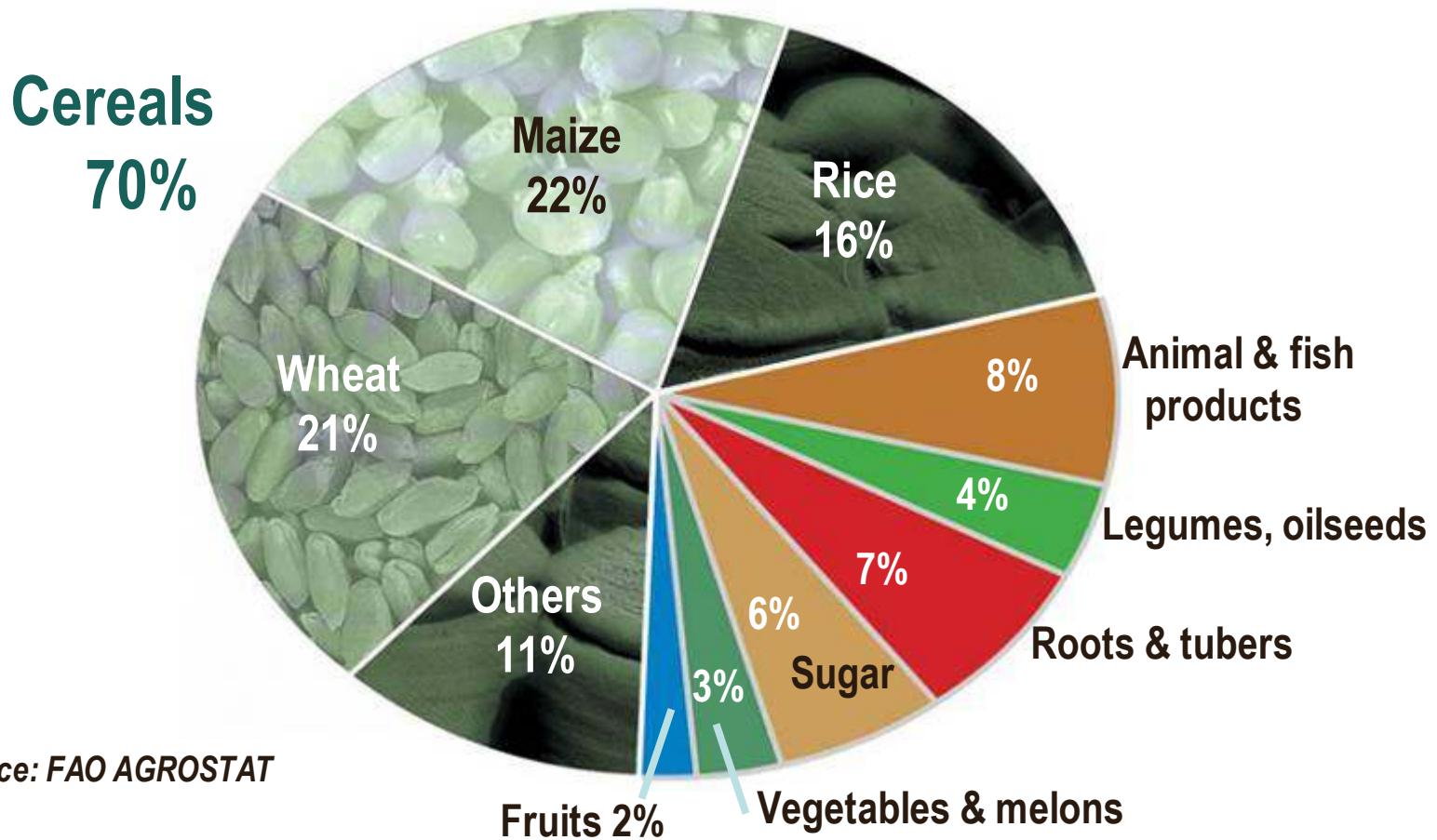


Source UNEP

2008 World Food Supply

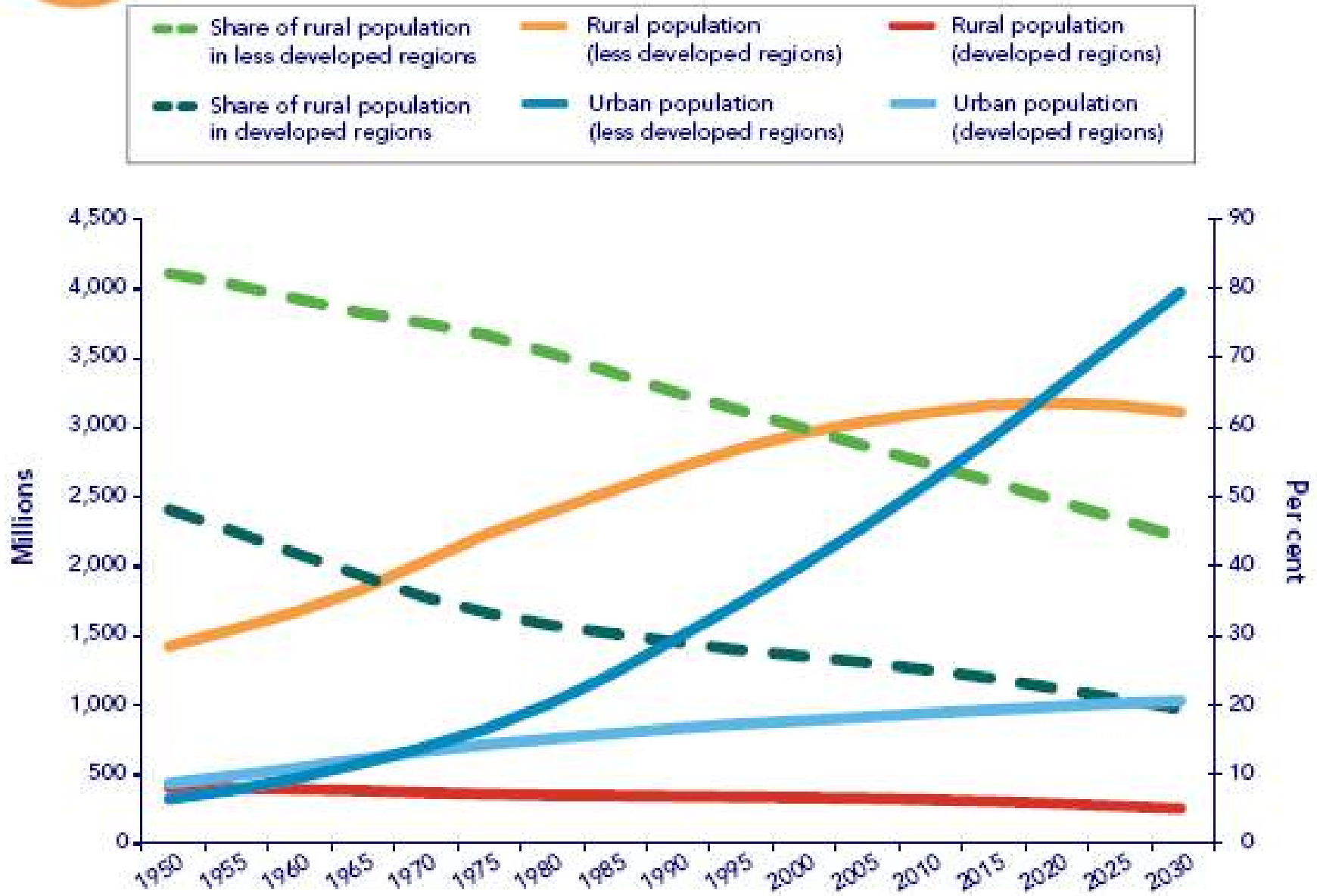
5.2 billion gross tonnes; 2.5 billion tonnes dry weight

Edible dry matter, expressed in Kcals



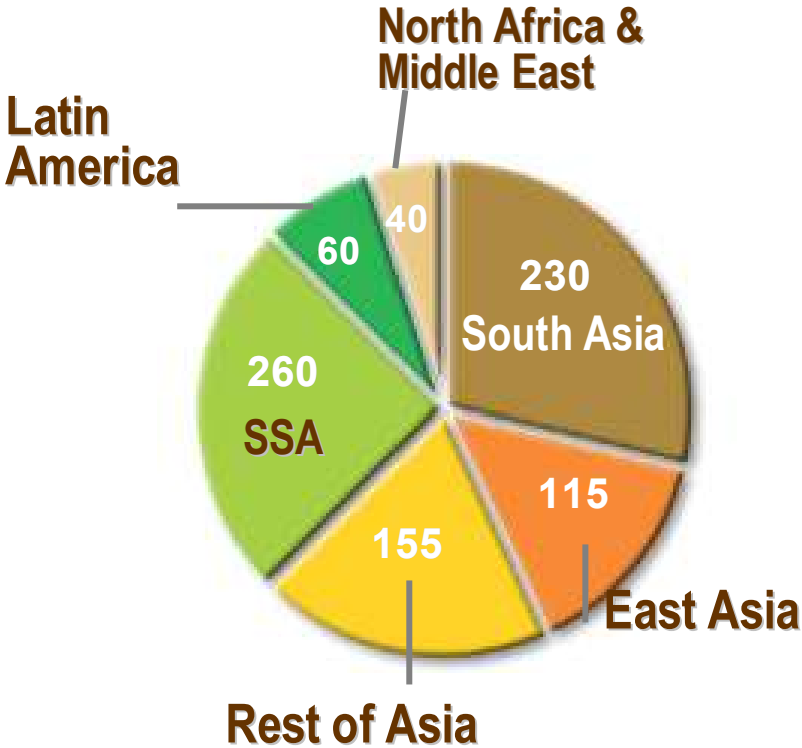
Source: FAO AGROSTAT

Rural and urban population, 1950-2030

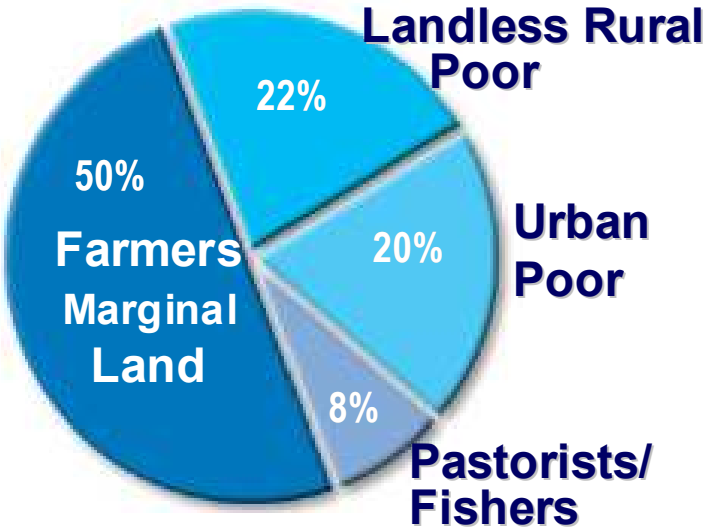




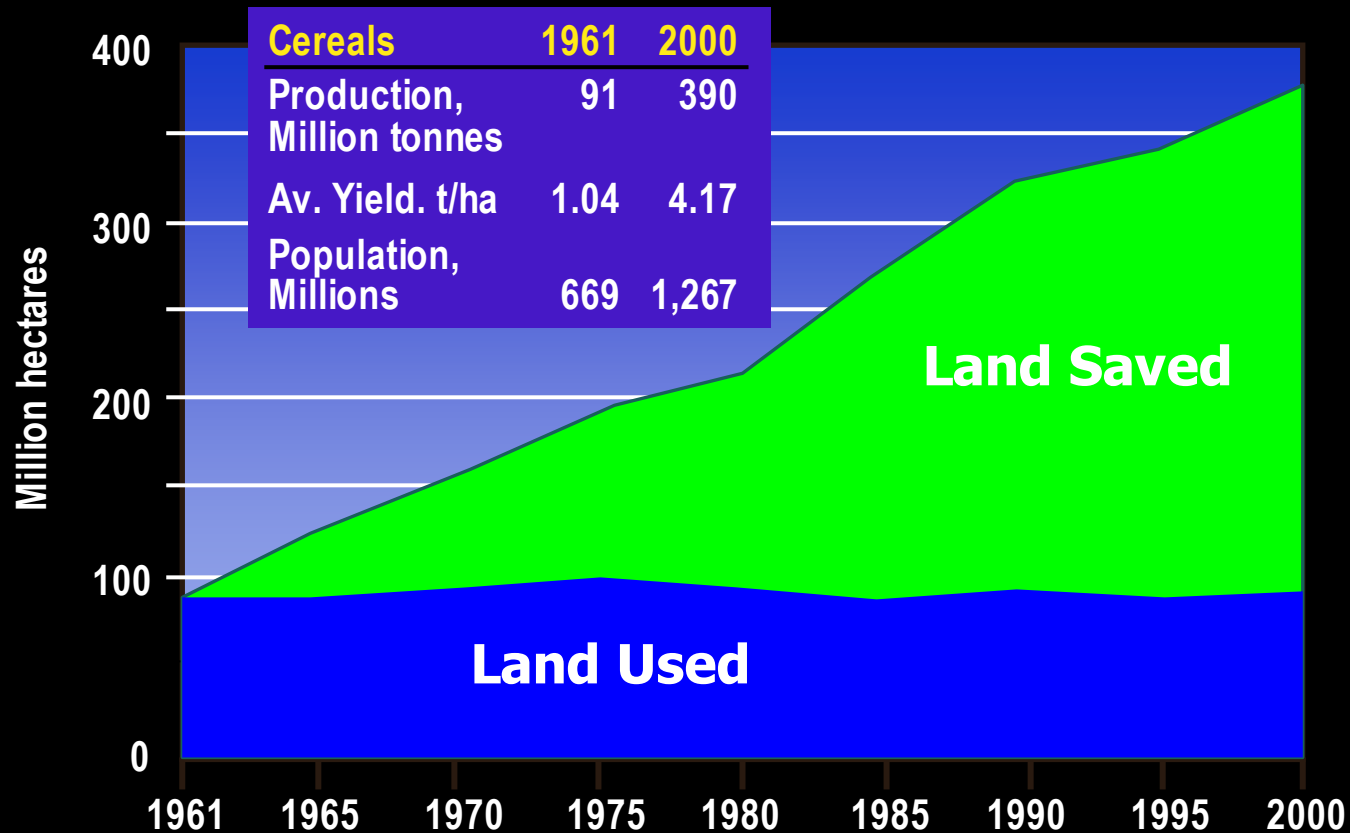
Where are they?



Who are they?



Chinese Cereal* Production—Area Saved Through Use of High-Yield Technology



* Uses milled rice equivalents

Source: FAO AGROSTAT, April 2002

Ecosystems Services

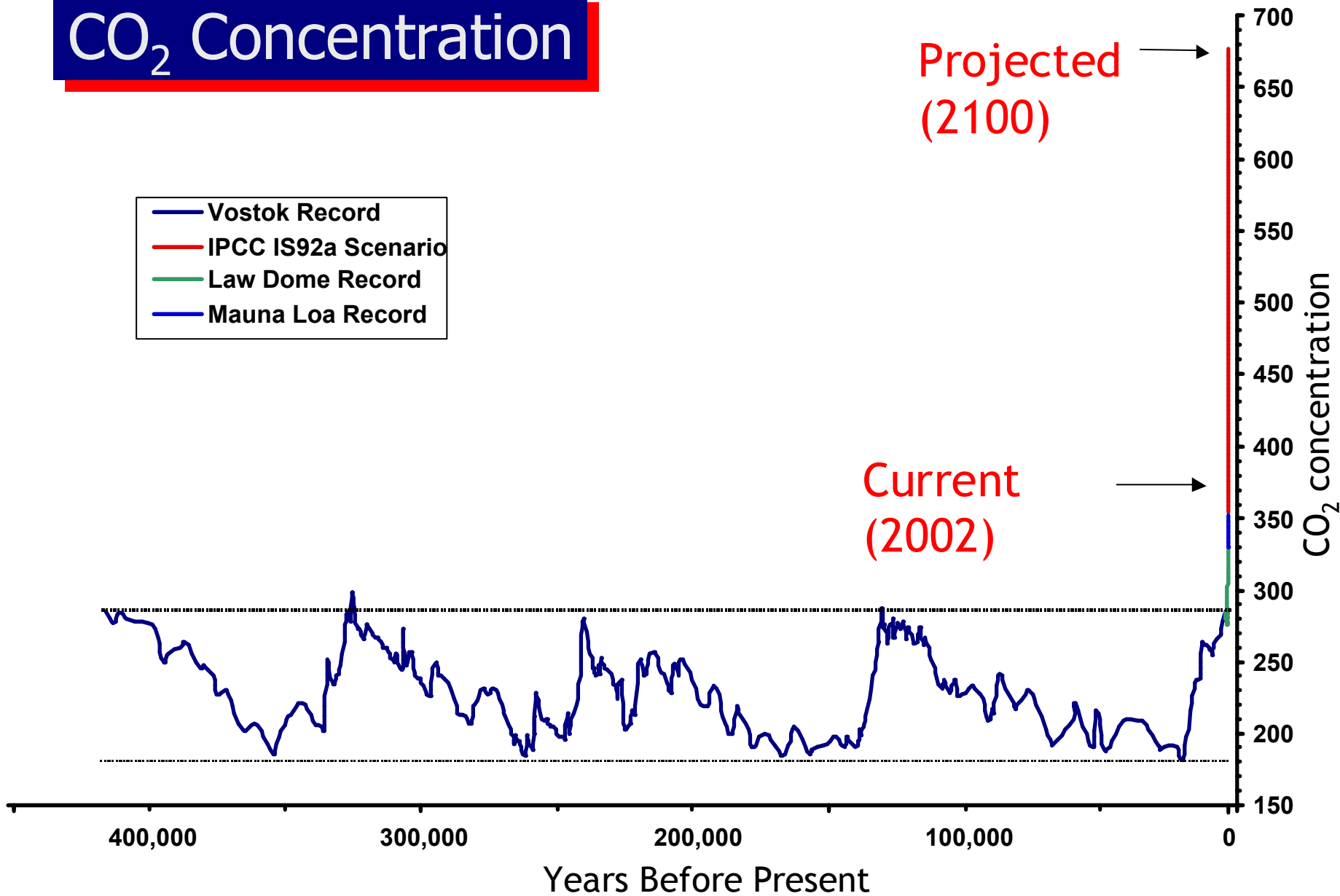
Ecosystems Services are the processes by which the environment produces resources that **we often take for granted** such clean water, timber, and habitat for fisheries, and pollination of native and agricultural plants.

Ecosystem services are severely threatened by

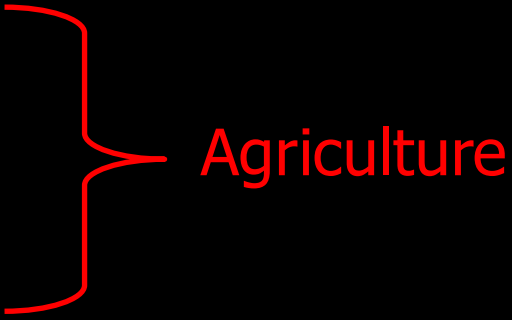
- 1) growth in the scale of human enterprise (population size, per-capita consumption, and effects of inappropriate management strategies to produce goods for consumption)
- 2) a mismatch between short-term needs and long-term societal well-being

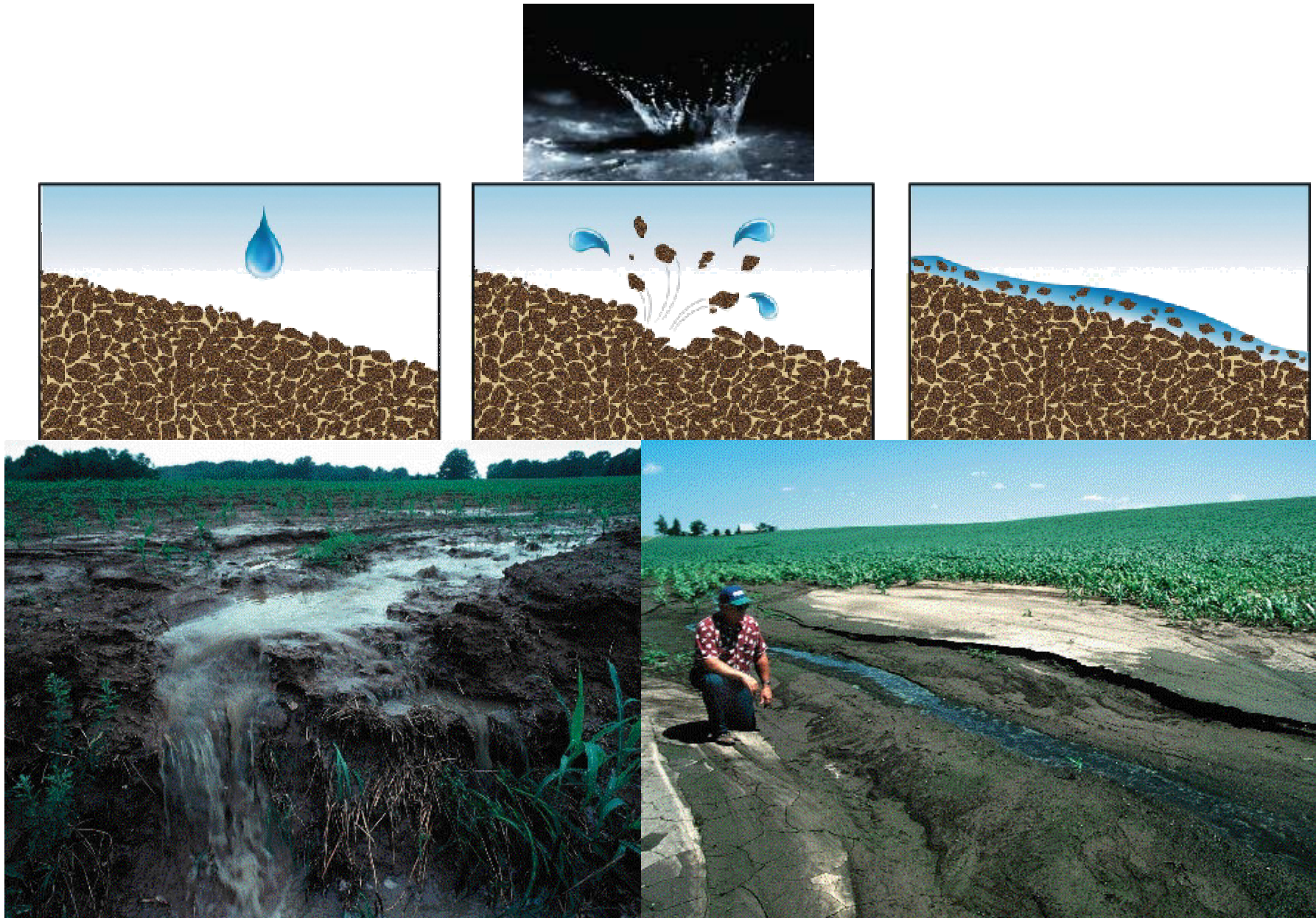
CO₂ Concentration

- Vostok Record
- IPCC IS92a Scenario
- Law Dome Record
- Mauna Loa Record

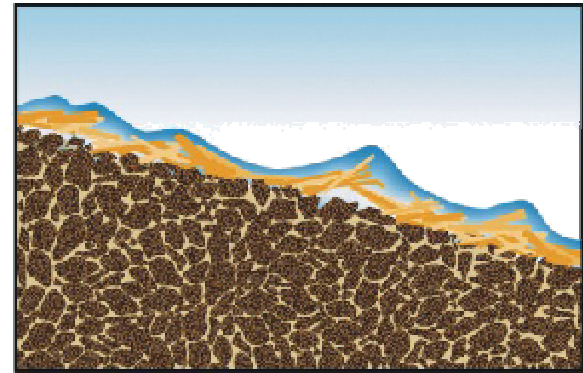
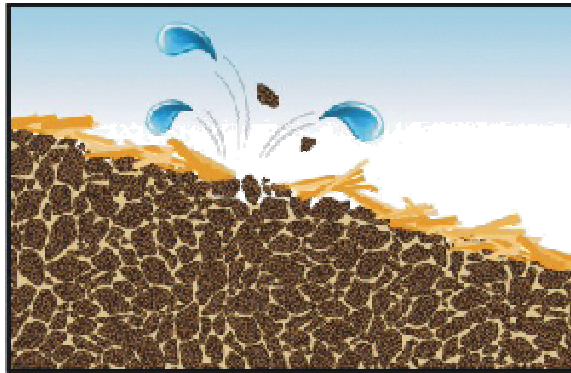
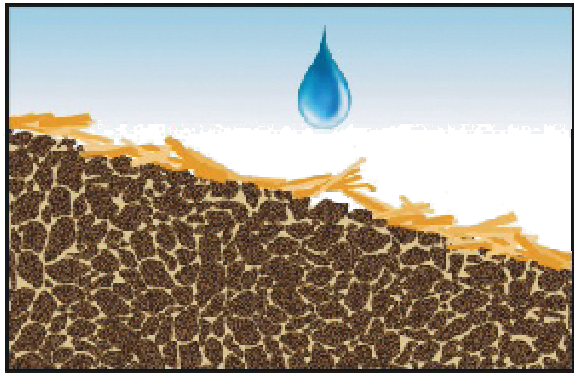


Primary Greenhouse Gases - Global Warming Potential

- Carbon dioxide (CO₂) = 1
 - Methane (CH₄) = 21
 - Nitrous oxide (N₂O) = 310
 - Chlorofluorocarbons
 - Ozone
 - Water vapour
- Agriculture
- 



Conventional Tillage with no surface residues




Conservation Tillage with surface residues retained

Organic Agriculture: Advantages and Limitations

Slow Food Internatio... x

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» Slow Food is a non-profit, eco-gastronomic member-supported organization that was founded in 1989 to counteract fast food and fast life, the disappearance of local food traditions and people's dwindling interest in the food they eat, where it comes from, how it tastes and how our food choices affect the rest of the world. Today, we have over **85,000** members in **132** countries. Find out more **about us** and **what we do**.

Join us today!



0465

Slow Food

About Us

Philosophy, Mission, History, Who we are, Where we are...

What we do

Defense of biodiversity, Linking producers and co-producers...

Our events


Local, National, International, Calendar...

Our publications


Magazines, Newsletters, Books....

Taste Education

Latest news




Mongolia - 11 Dec 2008
Down and Out
As winter sets in, thousands of nomadic herders in Mongolia are preparing for a harsh and uncertain few months, with fears of not being able to get bank loans to help overcome the freezing temperatures which annually devastate grazing patterns. Living in one of the toughest climates in the...



United States - 05 Dec 2008
Help a Biodiversity Pioneer
Dear Friends of Terra Madre: It is with the deepest and most profound grief that I write this message. At 5:30am November 19th, 2008, we awoke to our

Focus



Jain Foodway
As healthy a diet is likely to be found anywhere ...

News Archive

United Kingdom - 10 Dec 08
Co-op Crazy
Local food purchasing cooperatives spring up around the UK ...

United States - 09 Dec 08
Secretary For Sustainability
Notable US food and farming activists urge Obama to appoint Secretary of Agriculture with green credentials ...

Ethiopia - 05 Dec 08
Oh Honey, Honey
Scheme for an Ethiopian

Survey Says Less Steering Wheel Use

Posted by **Kurt** – December 9th, 2008

COMMENTS: 0

Like farmers, more retailers are using their steering wheels less this past year—without going in the ditch!



Survey says...adoption of auto guidance grew from 27% use by retailers to 37% in 2008. Other growing precision technologies being applied for customers include GPS guidance using lightbars, satellite/aerial imagery, field mapping with GIS for legal/billing/insurance purposes, and GPS for logistics uses.

When asked how they see farmer use expanding in the next three years (percent of acres in their retail area), survey says...

- soil sampling w/GPS will grow from 27% to 44% of acres
- field mapping w/GPS will grow from 27% to 46%
- variable seeding w/GPS will grow from 5% to 18%
- variable fertilizer w/GPS will grow from 20% to 38%
- satellite imagery will grow from 9% to 20%
- lightbar guidance w/GPS will grow from 35% to 50%
- auto guidance w/GPS will grow from 15% to 33%
- yield monitors w/GPS will grow from 22% to 42%
- yield monitors w/o GPS will grow from 26% to 32%

These facts, and plenty more, came from the 13th annual survey by *Crop Life* magazine and Purdue University's Center for Food and Agricultural Business. Over 275 U.S. retailers responded.

For some light winter reading, check out the entire 55-page report here [2008 dealership survey](#). You'll also discover their opinions on barriers to growth and expansion, as well as how they see their role with manufacturers and customers.

RELATED **TOPICS**: [Dealers](#), [Research](#)

How To Think About Variable Rate

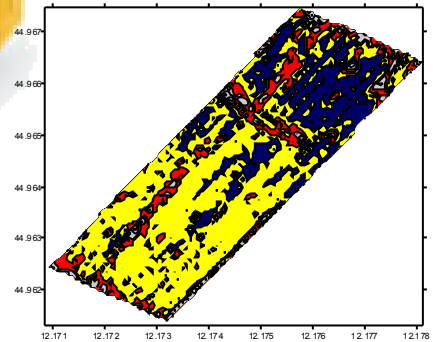
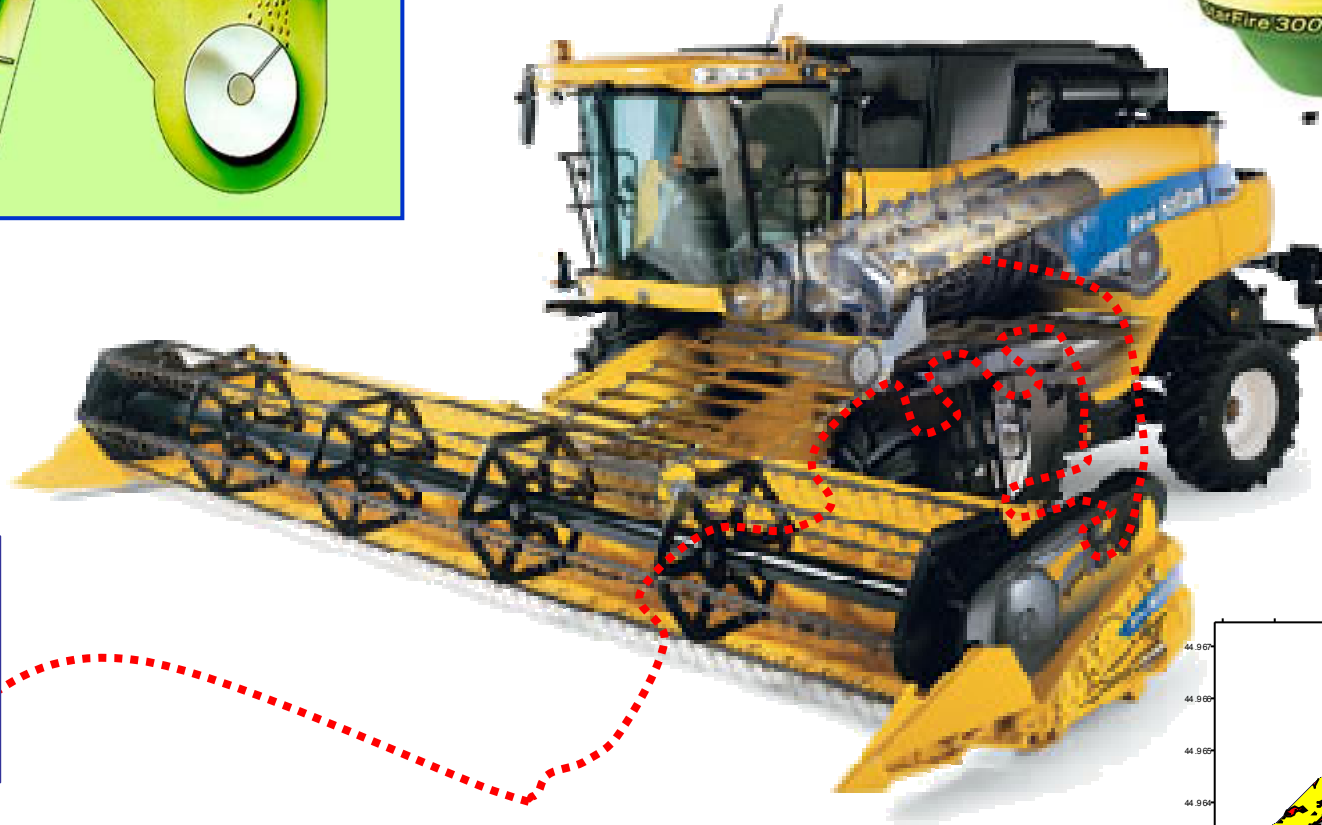
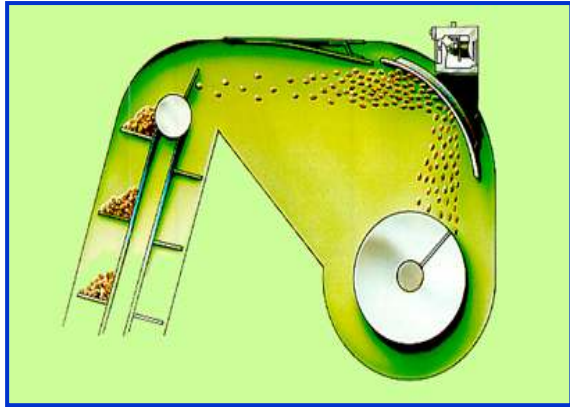
Posted by **Kurt** – December 5th, 2008

COMMENTS: 0

With fertilizer costs and 2009 cropping plans being top-of-mind right now, variable-rate (VR) application is an option you should explore to improve efficiency.

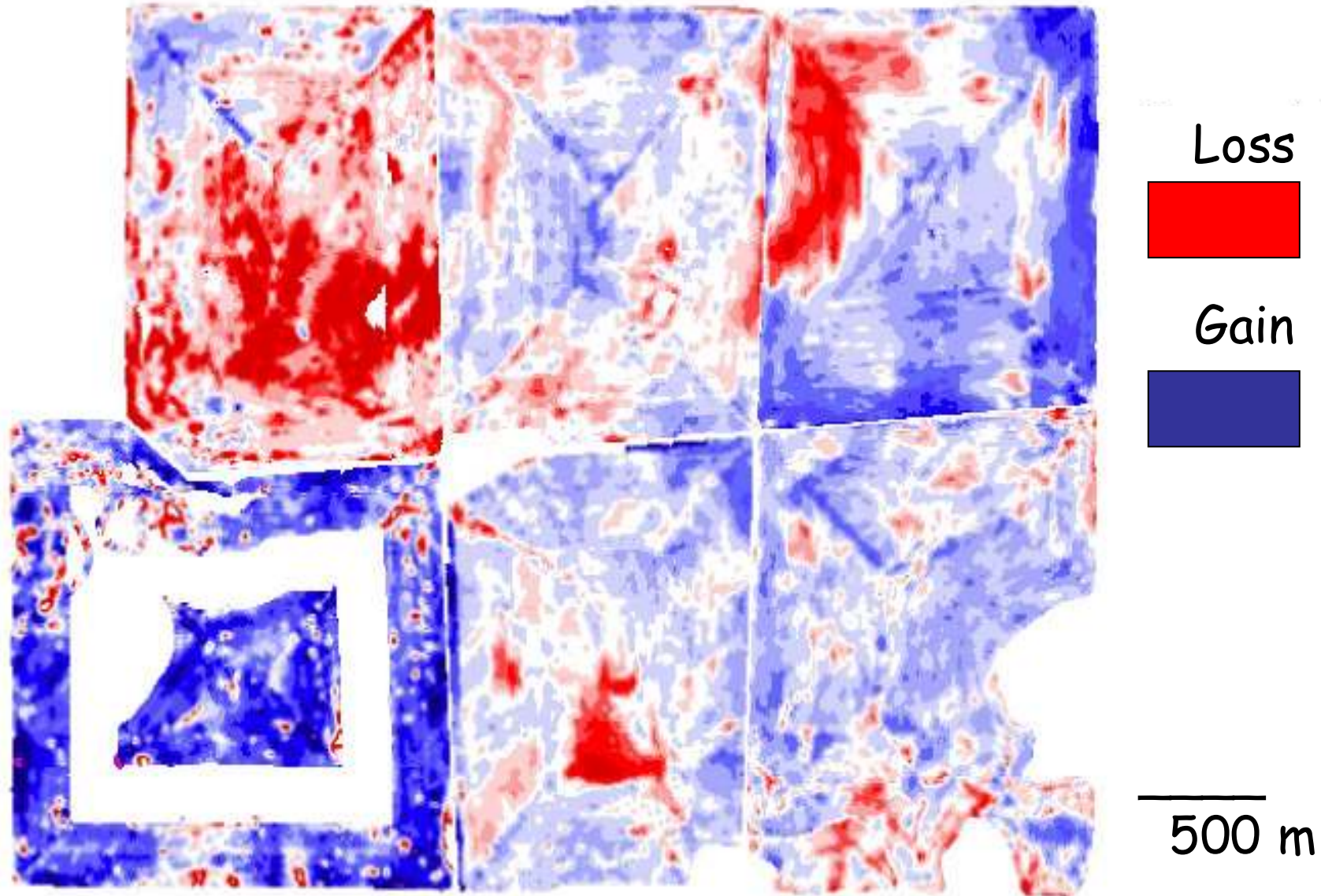


But where does one begin their thought process to understand the value



Yield monitor system for quantity, humidity, and quality (proteins, starch, micotoxins based on NIRs systems);

Map of wheat yield across a farm converted into economic return



Precision Agriculture

..is the application of technologies and principles to manage spatial and temporal variability associated with all aspects of agricultural production for the purpose of improving crop performance and environmental quality.

Using Mobile Device on Agricultural Investigation

行動化敏感作物調查系統

雲林縣口湖鄉

GPS Navigation



農戶資訊

Capture on-site photos with PDA camera

敏感性
耕作
扣除變更 150 平方公尺
種植面積: 5087 平方公尺
常用詞庫: 農業設施
農業設施, 農舍約50平方公尺
GPS訊號: ●

同上頁 確定

行動化敏感作物調查系統

現況調查查詢

資料下載

資料上傳更新

離開系統



Generate Crop Investigation Theme based on Cadastral Map

Statistic of Crop Plants

Input investigation result with Voice-Recognition Technology

Agricultural Monitoring

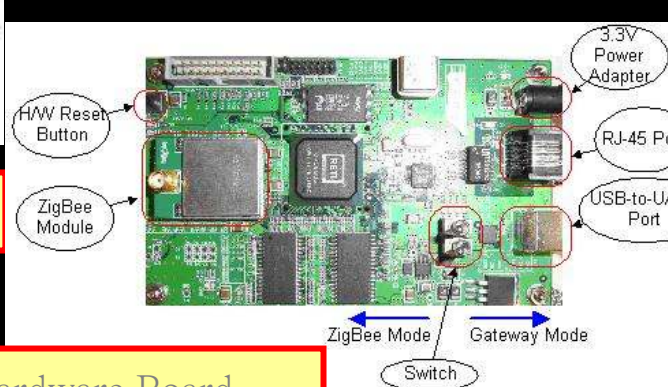
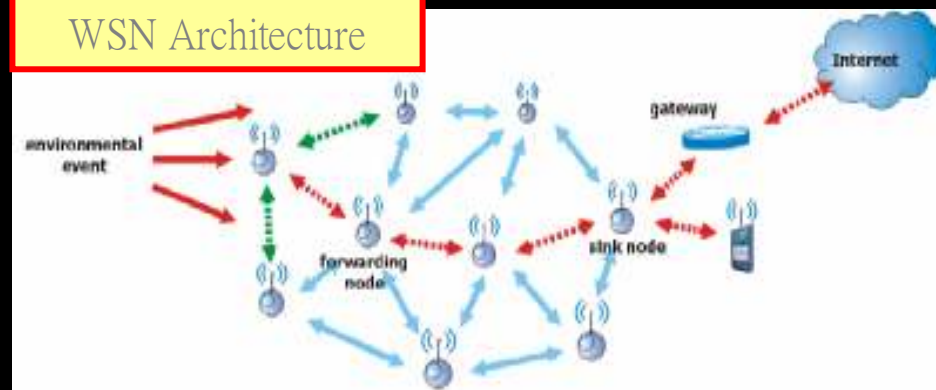
Wireless Sensor Network Application

Using the WSN method build the relationship between the microclimate and the plant growth. The meteorological instruments include temperature and humidity sensor, wind speeds and directions sensor, solar irradiation sensor, atmospheric pressure sensor and soil water content sensor.



WSN Camera and Server location

WSN Architecture



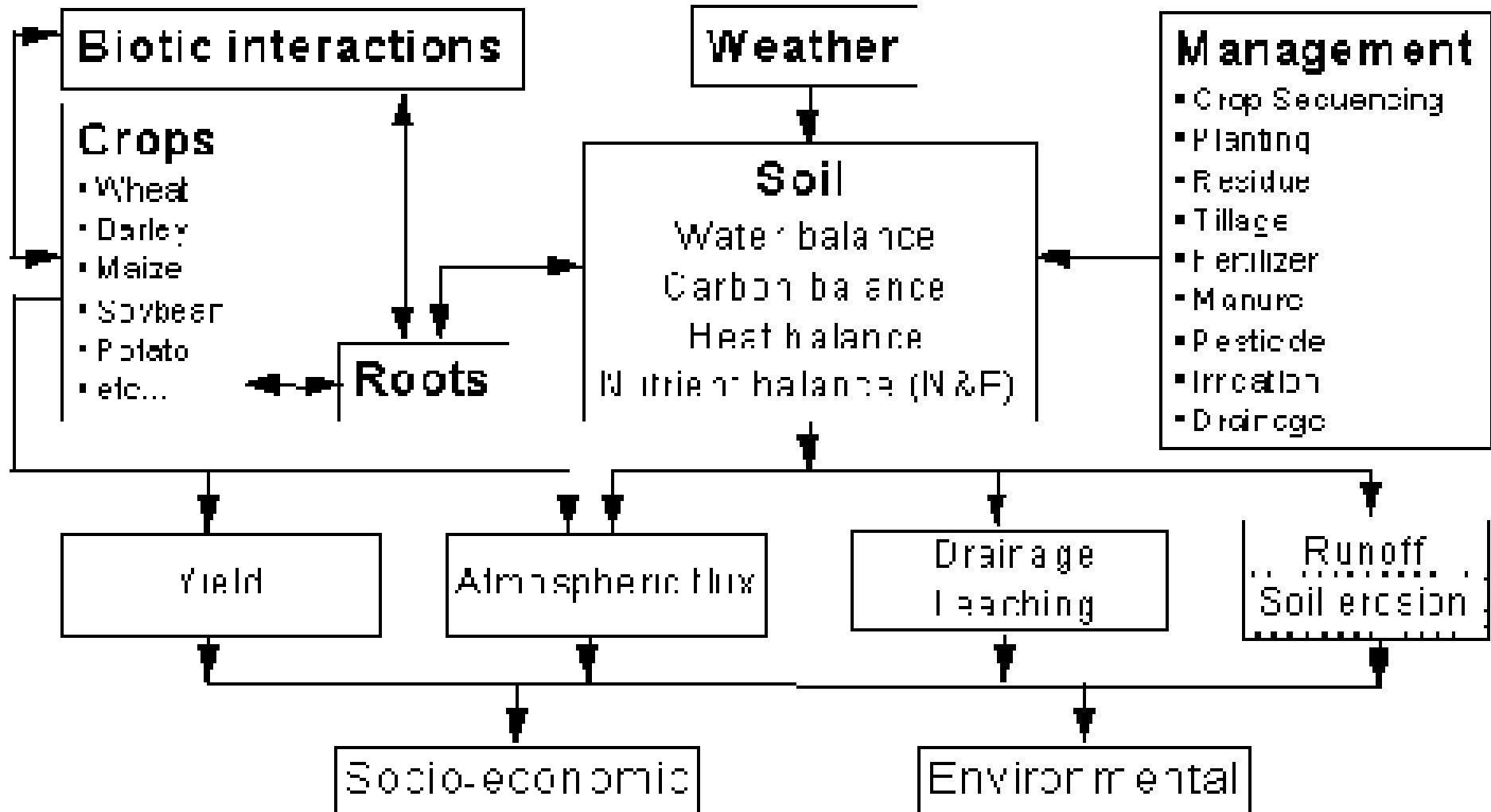
WSN Hardware Board



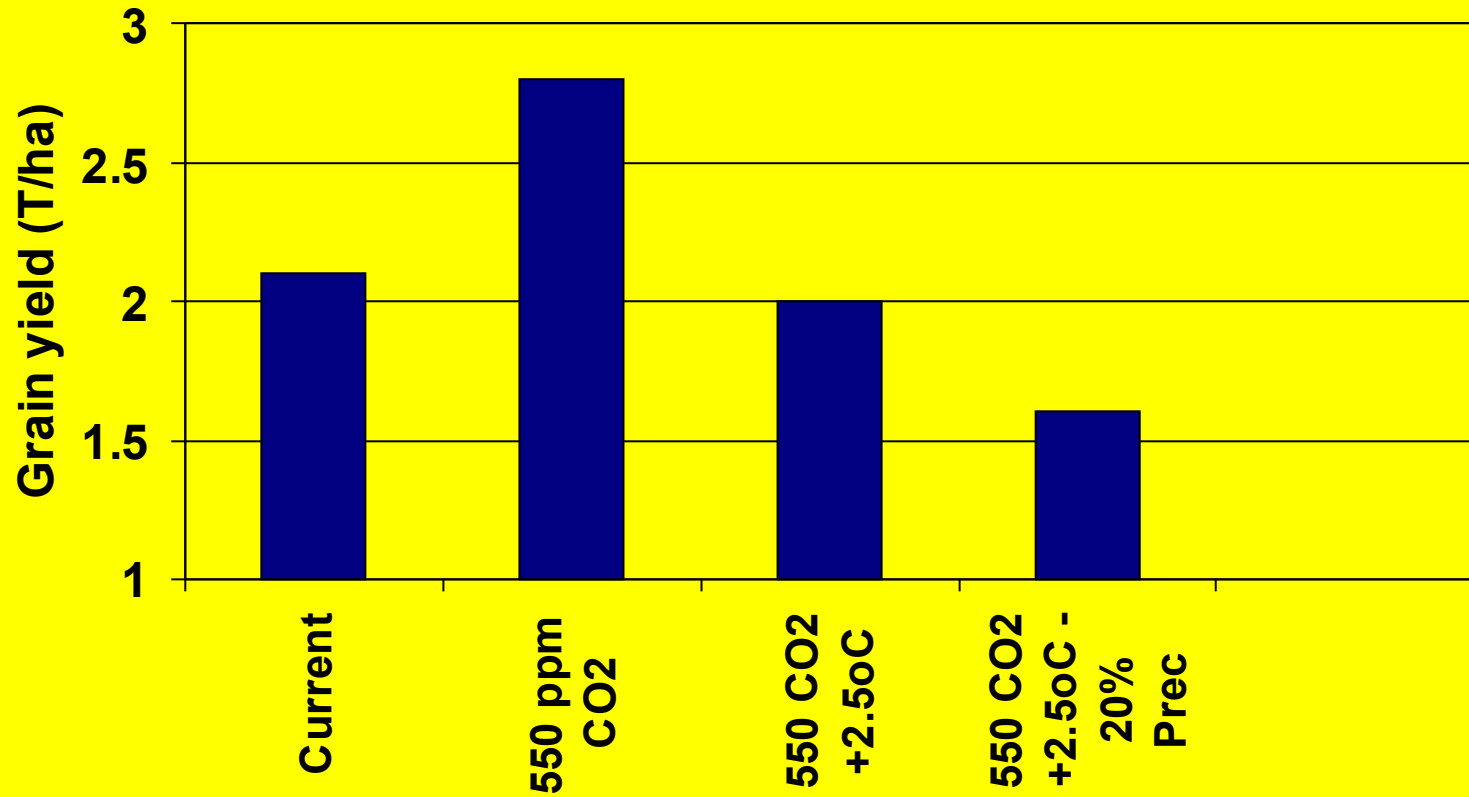
WSN rain gauge

SALUS MODEL

System Approach for Land Use Sustainability



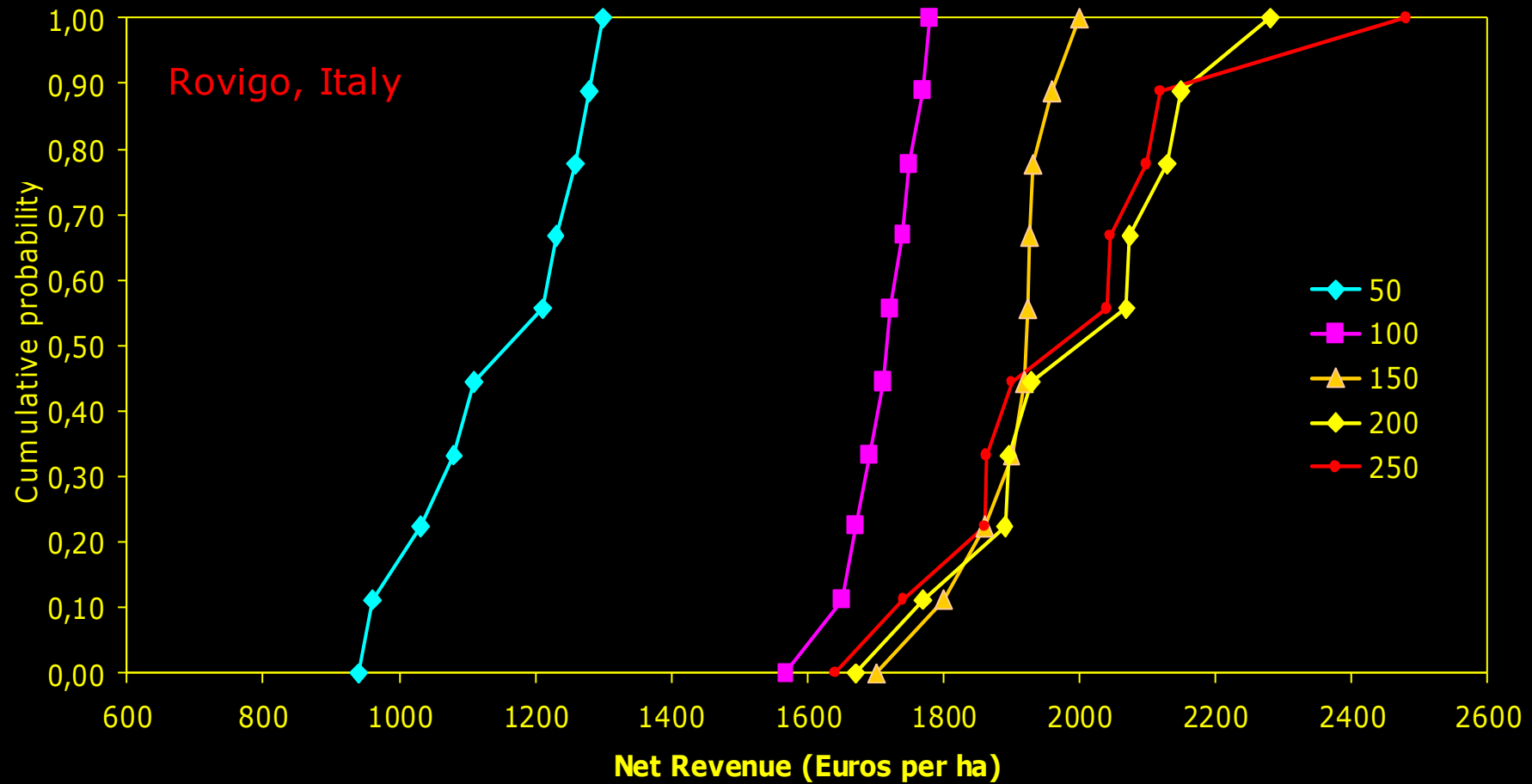
Modeling Climate change effects on wheat yield

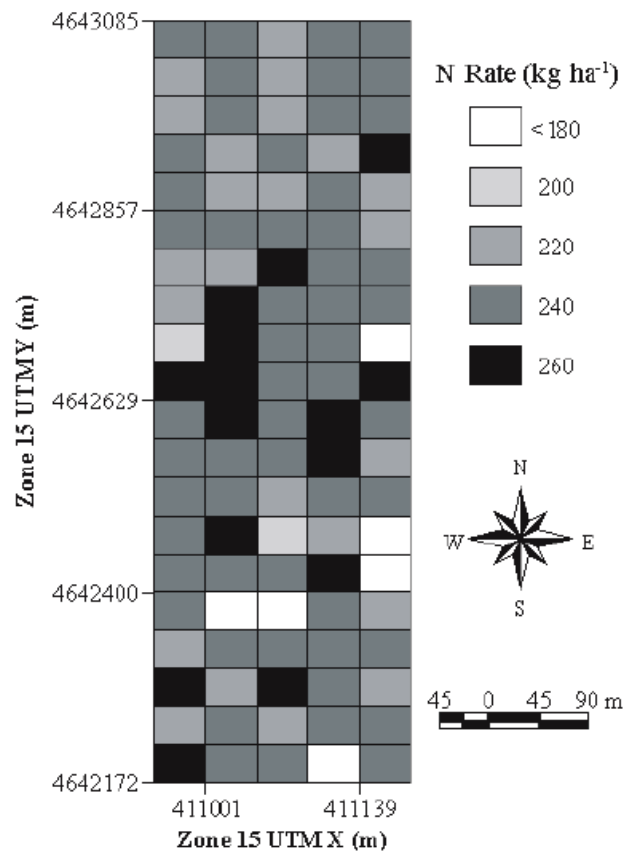


*Simulated using Salus Model

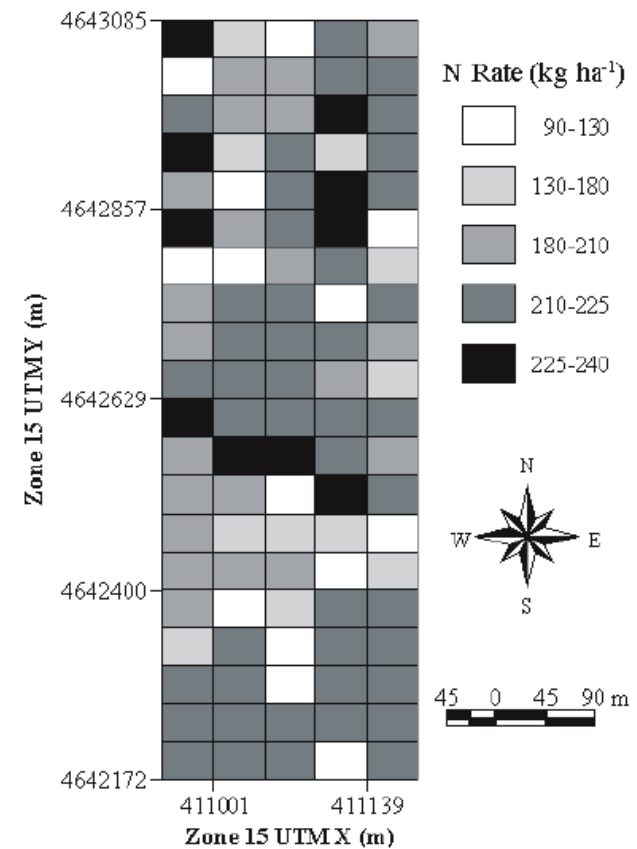
Risk analysis using models

Maize Response to Fertilizer (Kg N ha⁻¹)

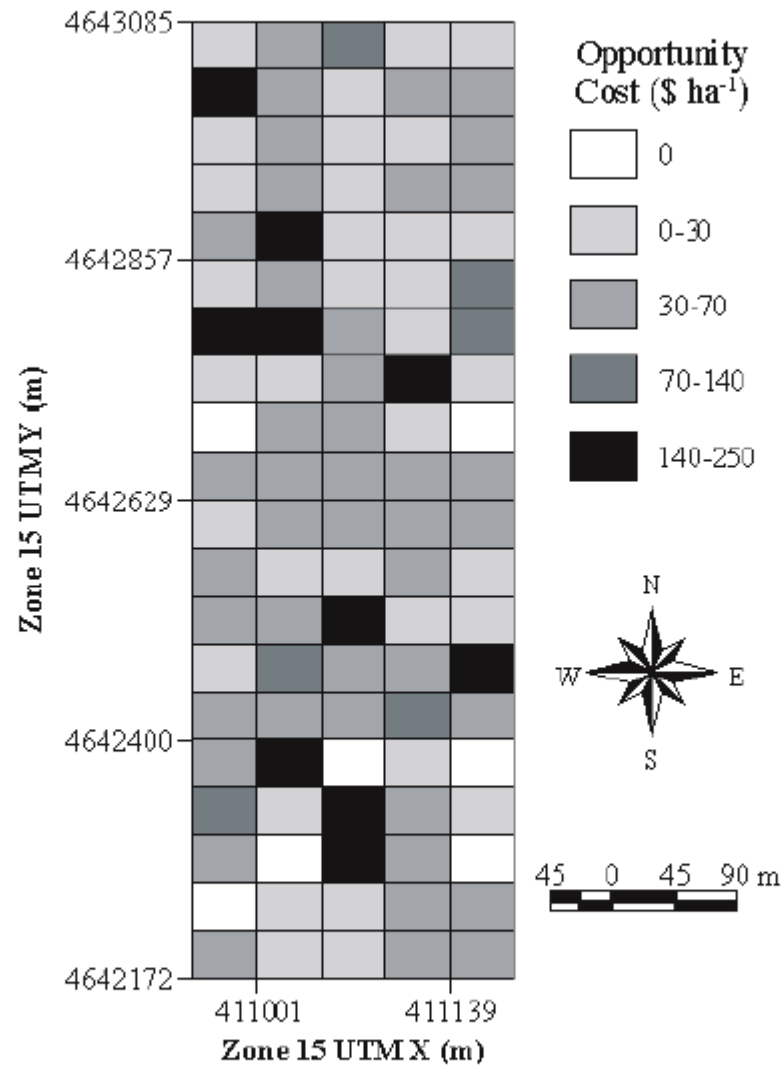




• Nitrogen prescription for optimizing marginal net return over 37 growing seasons



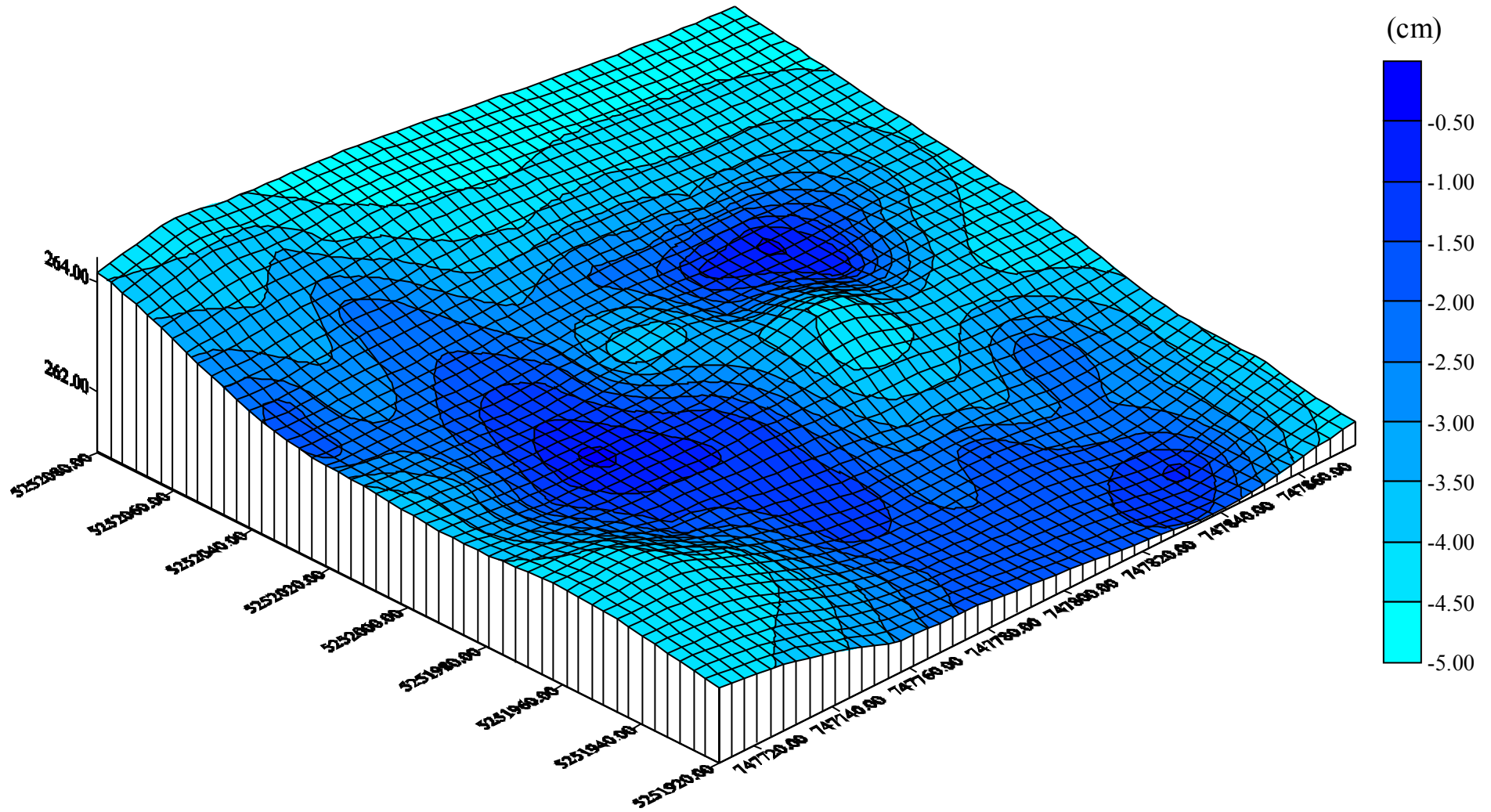
• Nitrogen prescription for not exceeding 40 kg ha⁻¹ of unused N in the soil at harvest in 80% of growing seasons

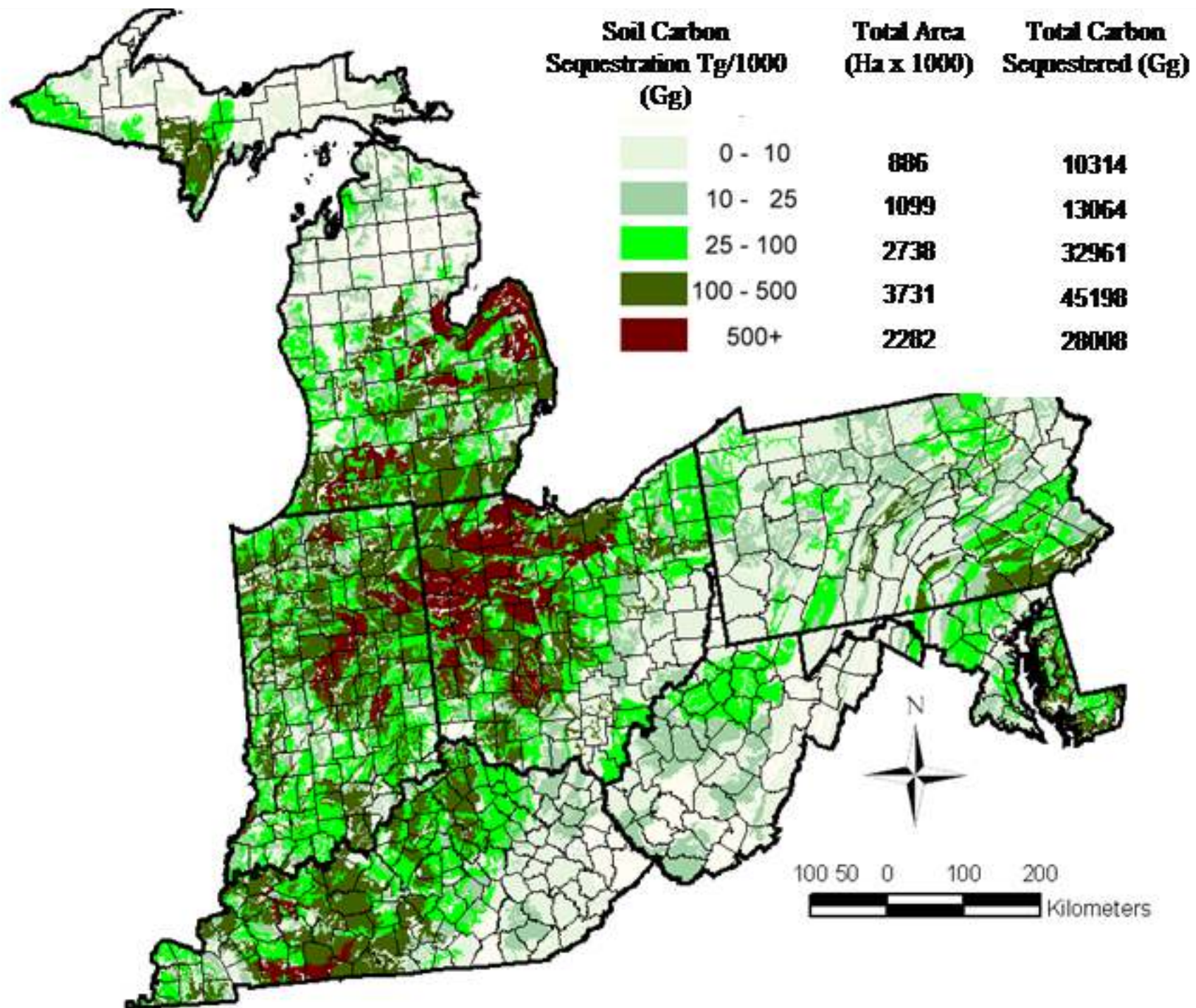


1
2
3
4

Figure 11. Producer's opportunity cost for leaving less than 40 kg ha⁻¹ of unused N in the soil 80% of the time

Modelled net surface water fluxes (Runon-Runoff)





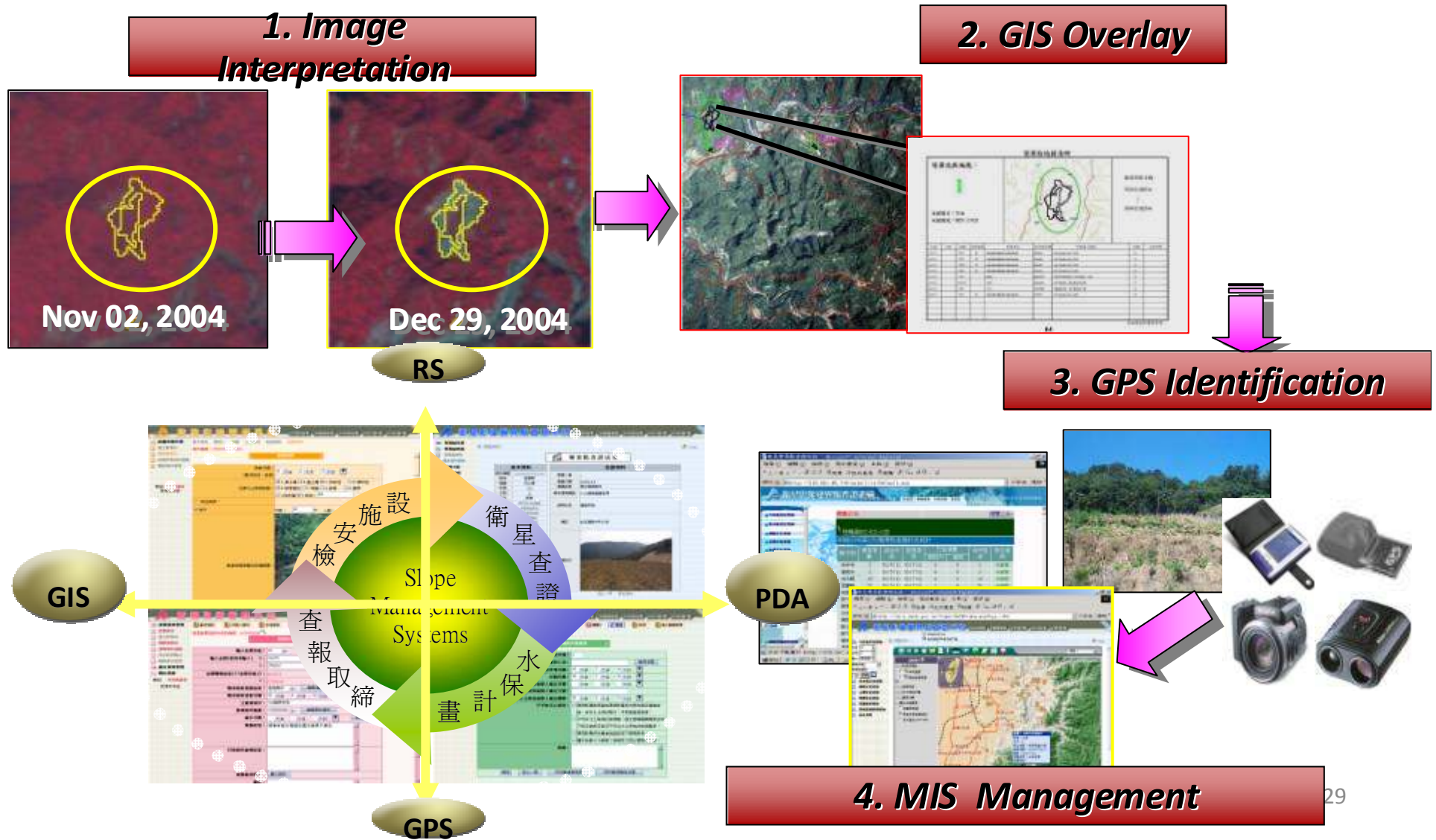
陳有蘭溪壯闊景色



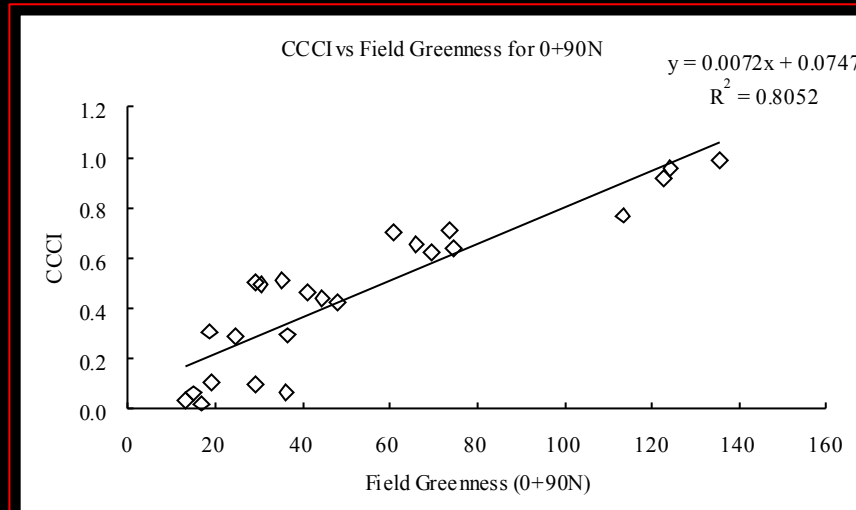
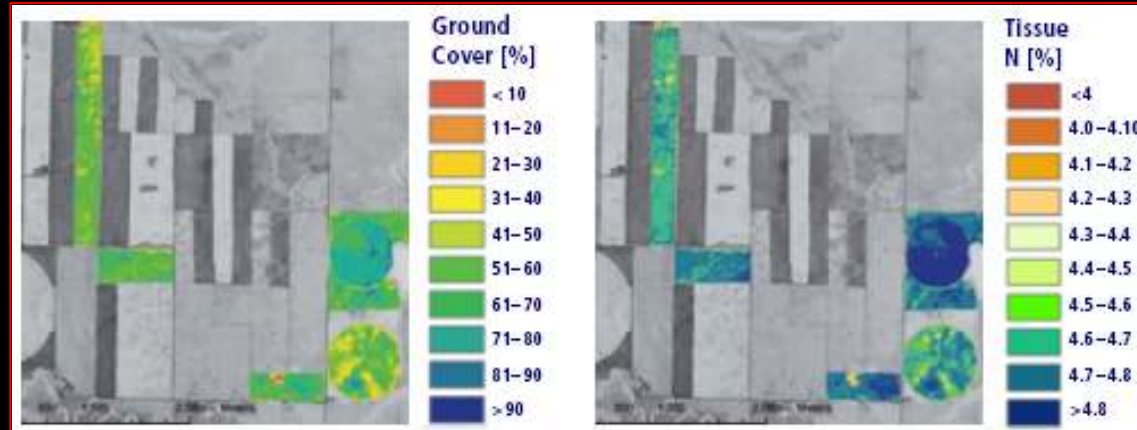
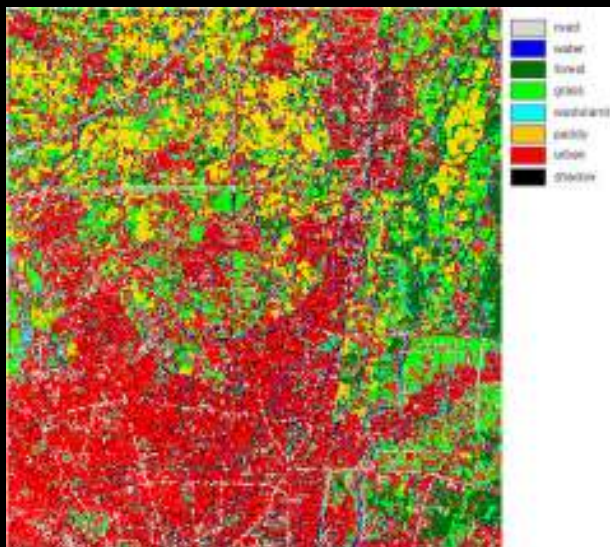
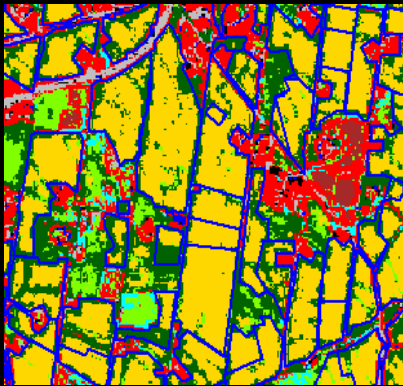
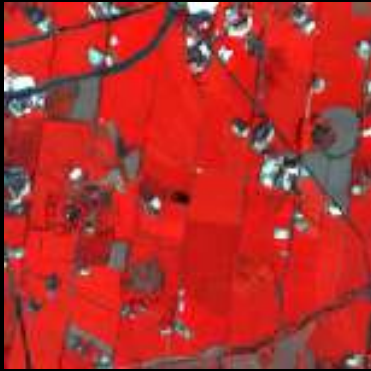
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三
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Remote sensing applied to land changes monitoring and Management

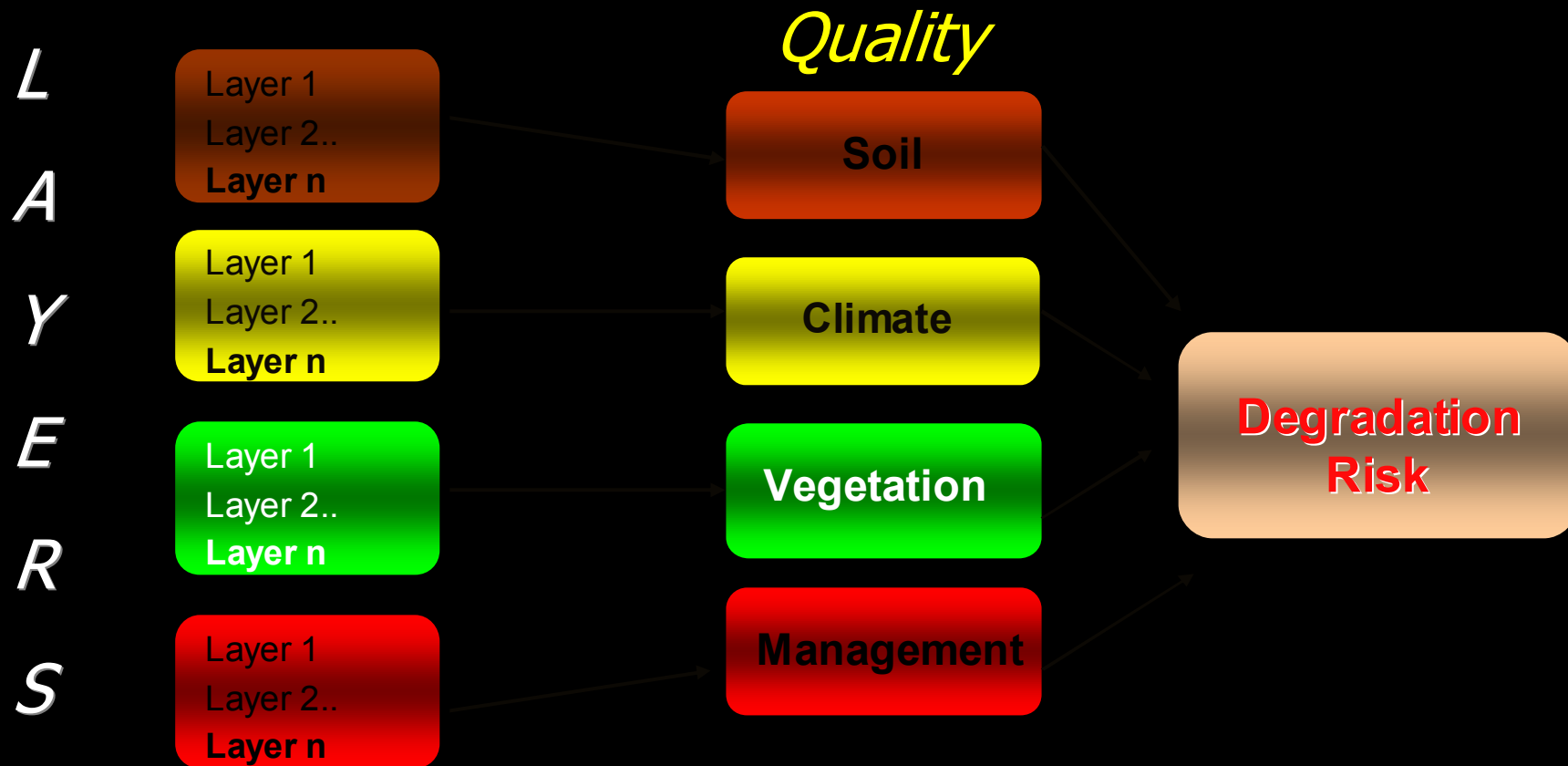


Remote Sensing and Vegetation Indices



VI can be used to detect N stresses (low yield) or N excesses (food poisoning for nitrosamine; NO₃ leaching)

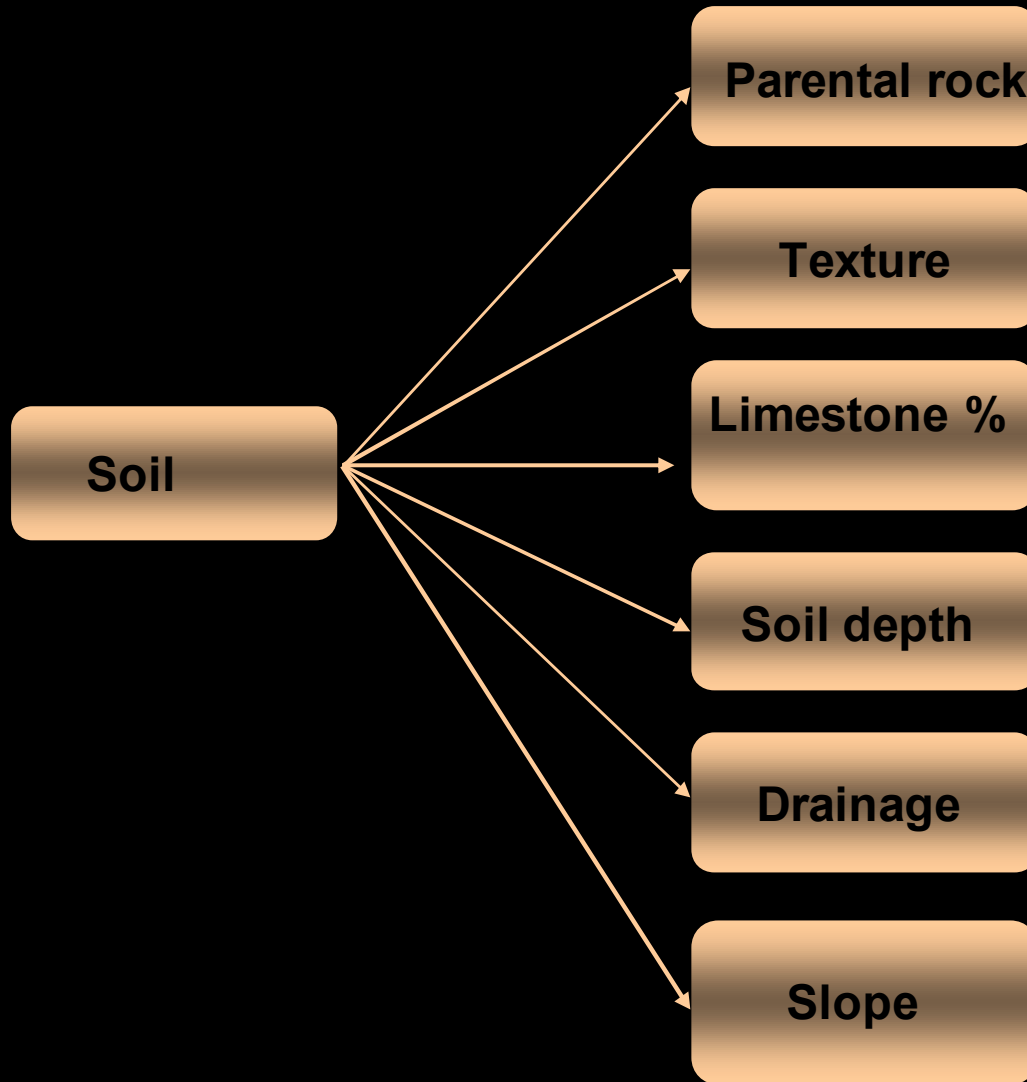
Risk Assessment of Environmental Sensitive Areas (ES) (Basso et al., 2008)



$$\text{Quality}_{xij} = (\text{layer}_{1ij}) (\text{layer}_{2ij}) (\text{layer}_{3ij}) \dots (\text{layer}_{nij})^{(1/n)}$$

$$\text{ES} = (\text{Quality}_{1ij}) (\text{Quality}_{2ij}) (\text{Quality}_{3ij}) \dots (\text{Quality}_{nij})^{(1/4)}$$

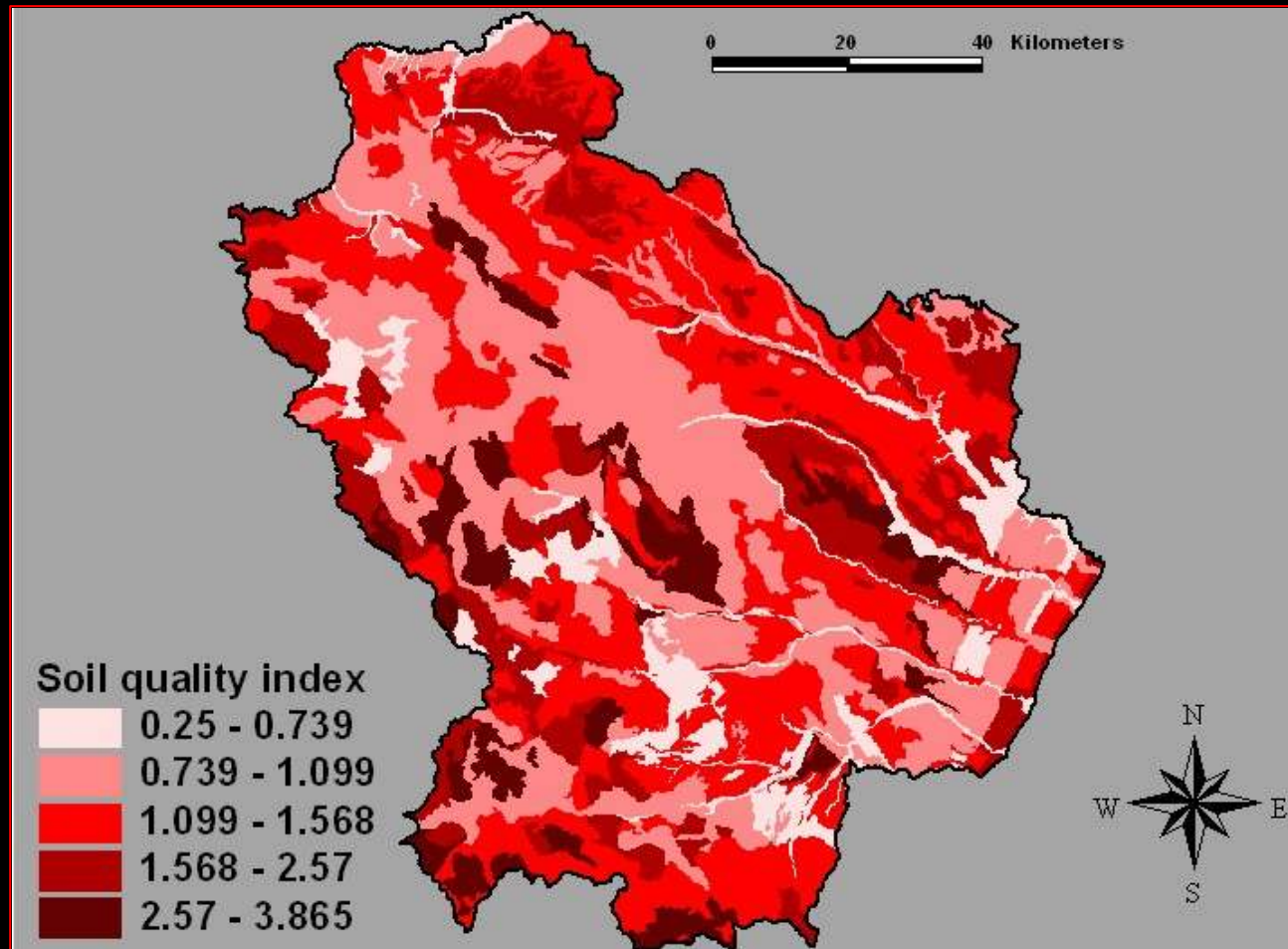
Soil Quality Index



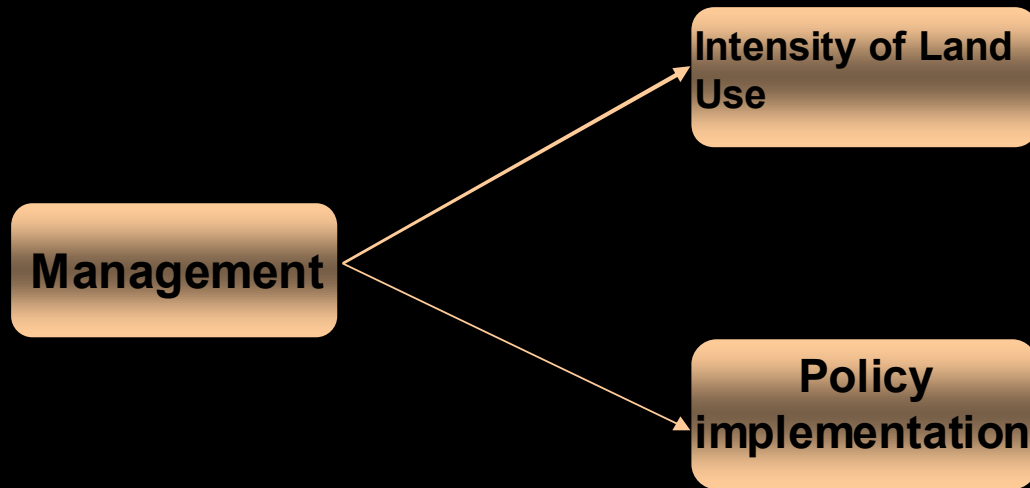
Scores	Classes
1	>70 cm
1.5	30-70 cm
2	<20 cm

Scores	Classes
1	< 6%
1.33	6-18 %
1.66	18-35 %
2	> 35%

Soil Quality Index

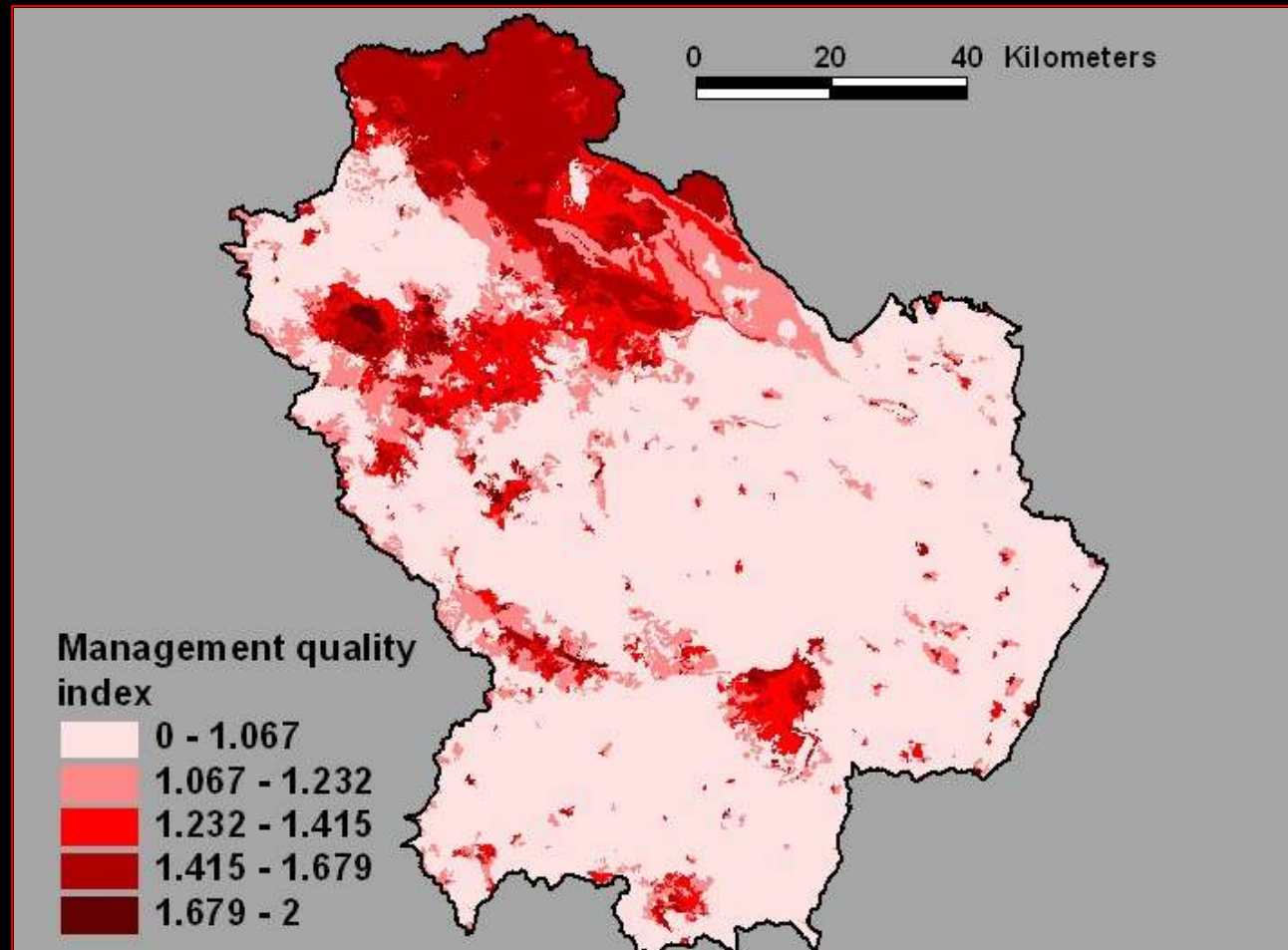


Management Quality Index

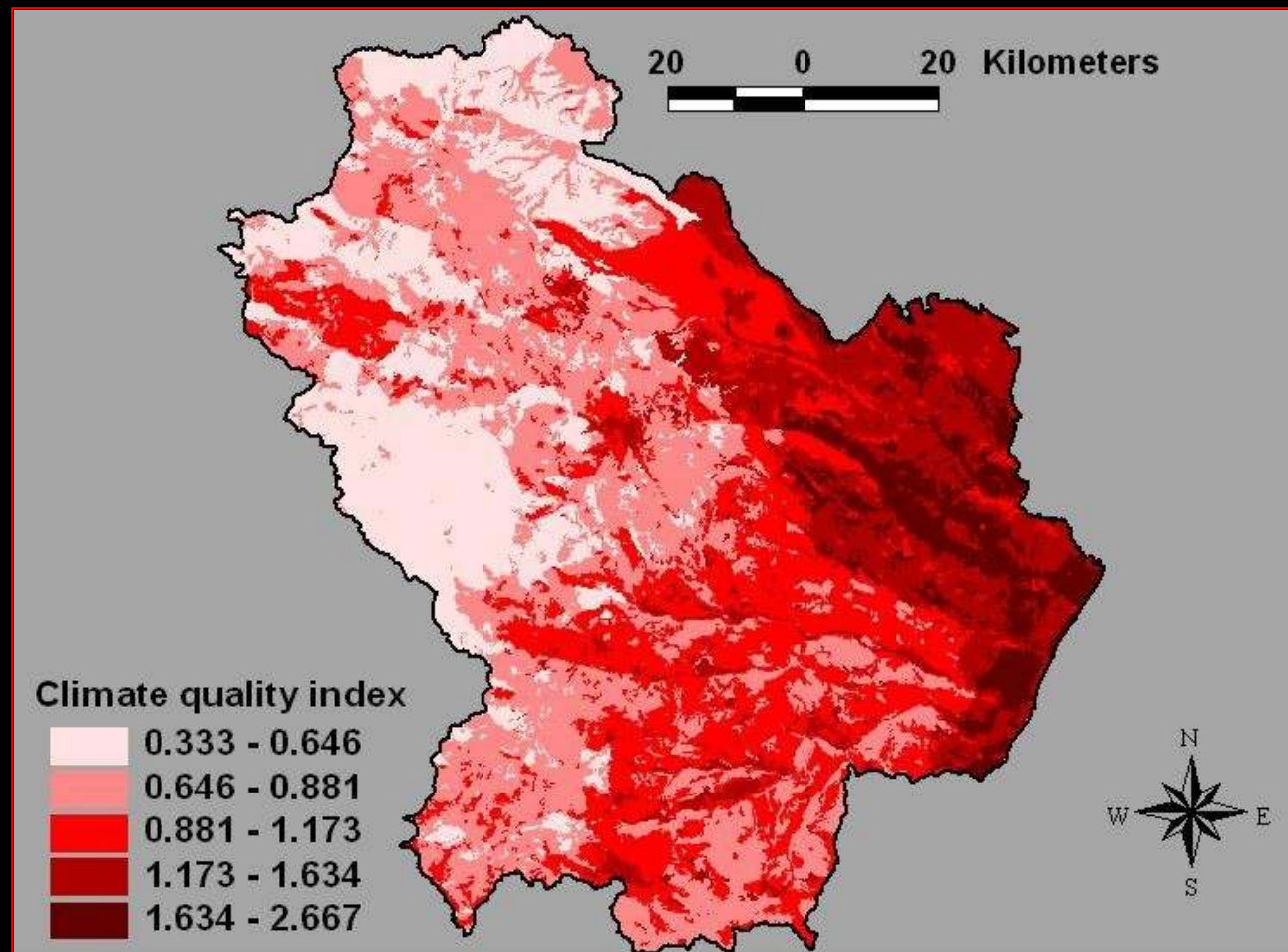


Elderly Index		Employed Index		Illiteracy Index		Retirement Index	
Class	Score	Class	Score	Class	Score	Class	Score
< 200	1	>40	1	>40	1	<10	1
200 - 400	1.33	30 - 40	1.33	30 - 40	1.33	10 - 20	1.33
400 - 500	1.66	20 - 30	1.66	20 - 30	1.66	20 - 30	1.66
>500	2	<20	2	<20	2	>30	2

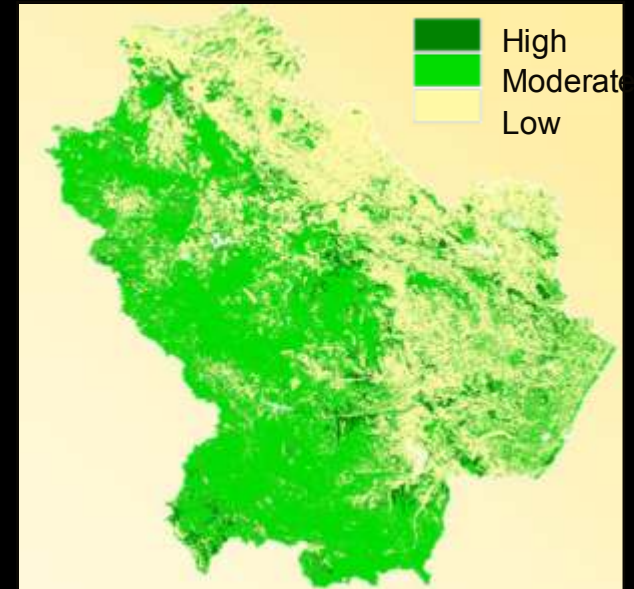
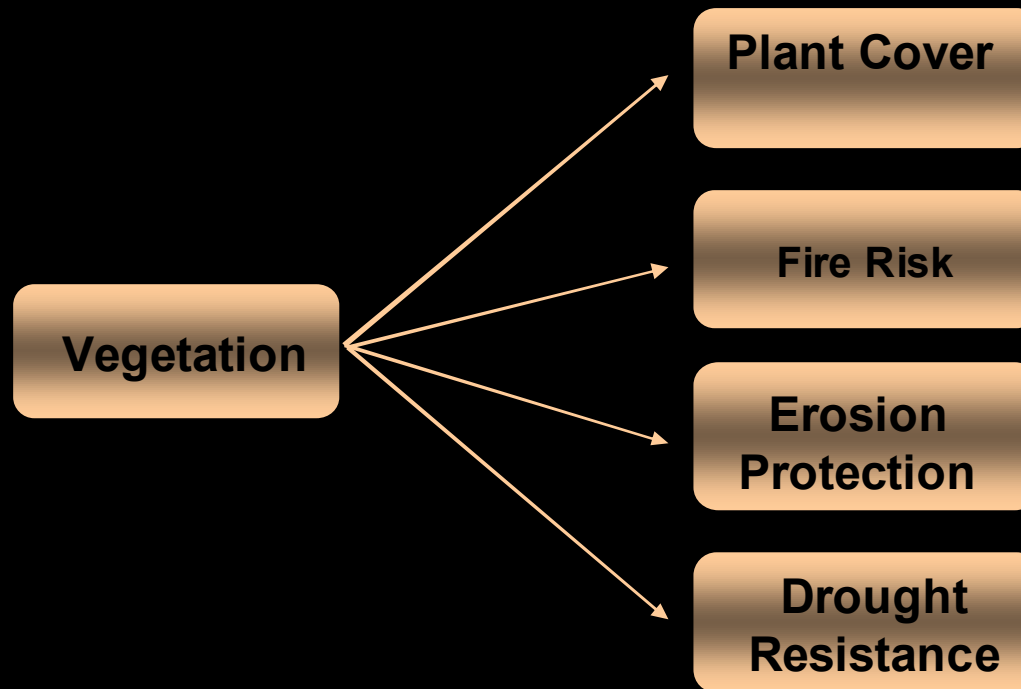
Management Quality Index



Climate Quality Index



Vegetation Quality Index



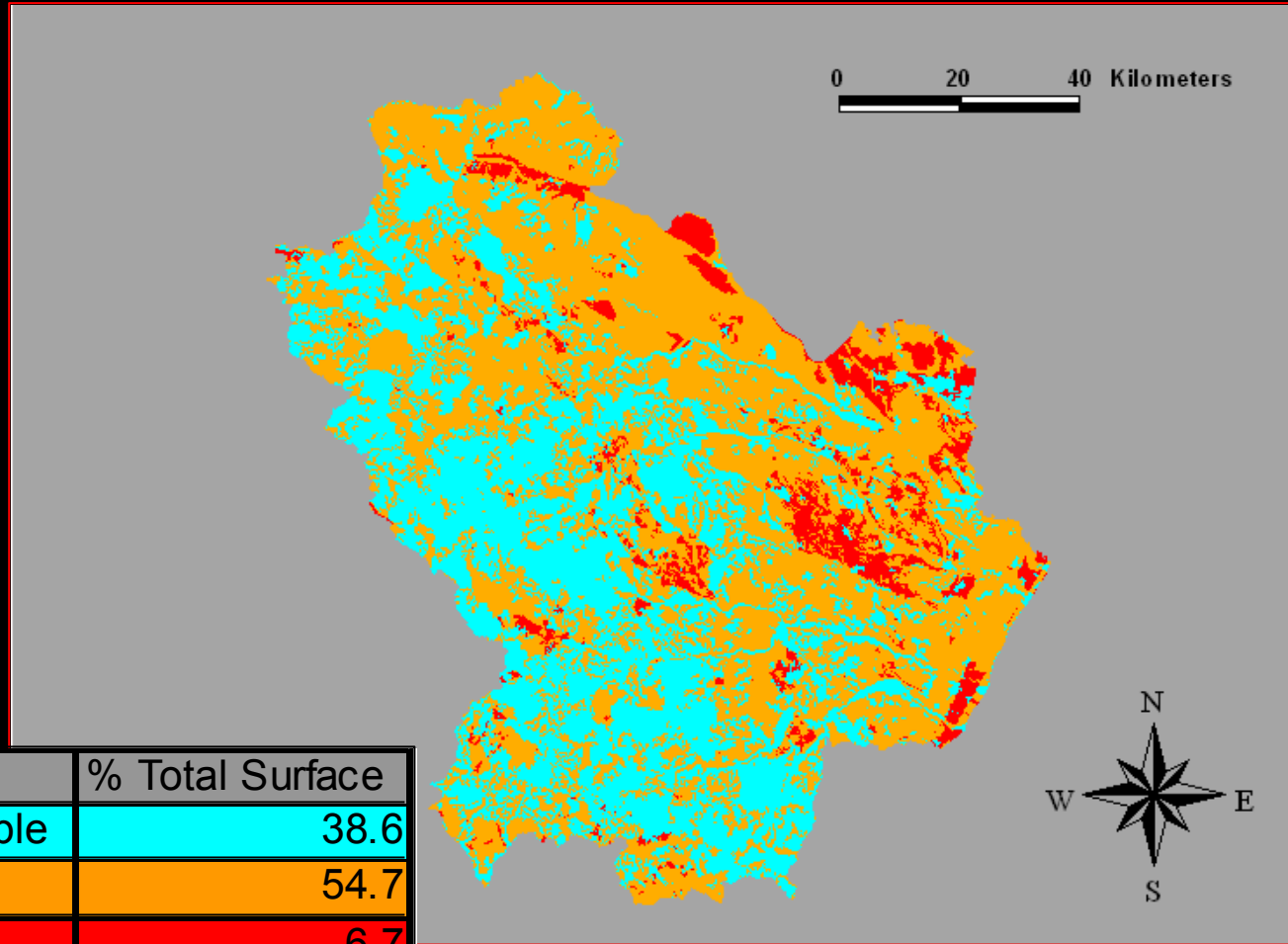
Erosion Protection	
Class	Score
Urban, Water	N
Mixed Mediterranean macchia-Evergreen forests	1
Mediterranean Macchia, Conifer	1.2
Dedicious; Permanent Grassland	1.4
Evergreen Permanent Agriculture	1.6
Dedicious Permanent Agriculture	1.8
Crops; Vines; Barren	2

Drought Resistance	
Class	Score
Urban, Water	N
Mixed Mediterranean macchia-Evergreen forests	1
Conifer, Deciduous, Olives	1.25
Permanent Agriculture	1.5
Permanent grasslands	1.75
Crops; Barren	2

Fire Risk	
Class	Score
Urban, Water	N
Barren; Permanent Agriculture;Crops	1
Cereals; Grassland; Dedicious; Mixed Mediterranean macchia-Evergreen forests	1.33
Mediterranean macchia	1.66
Conifer	2

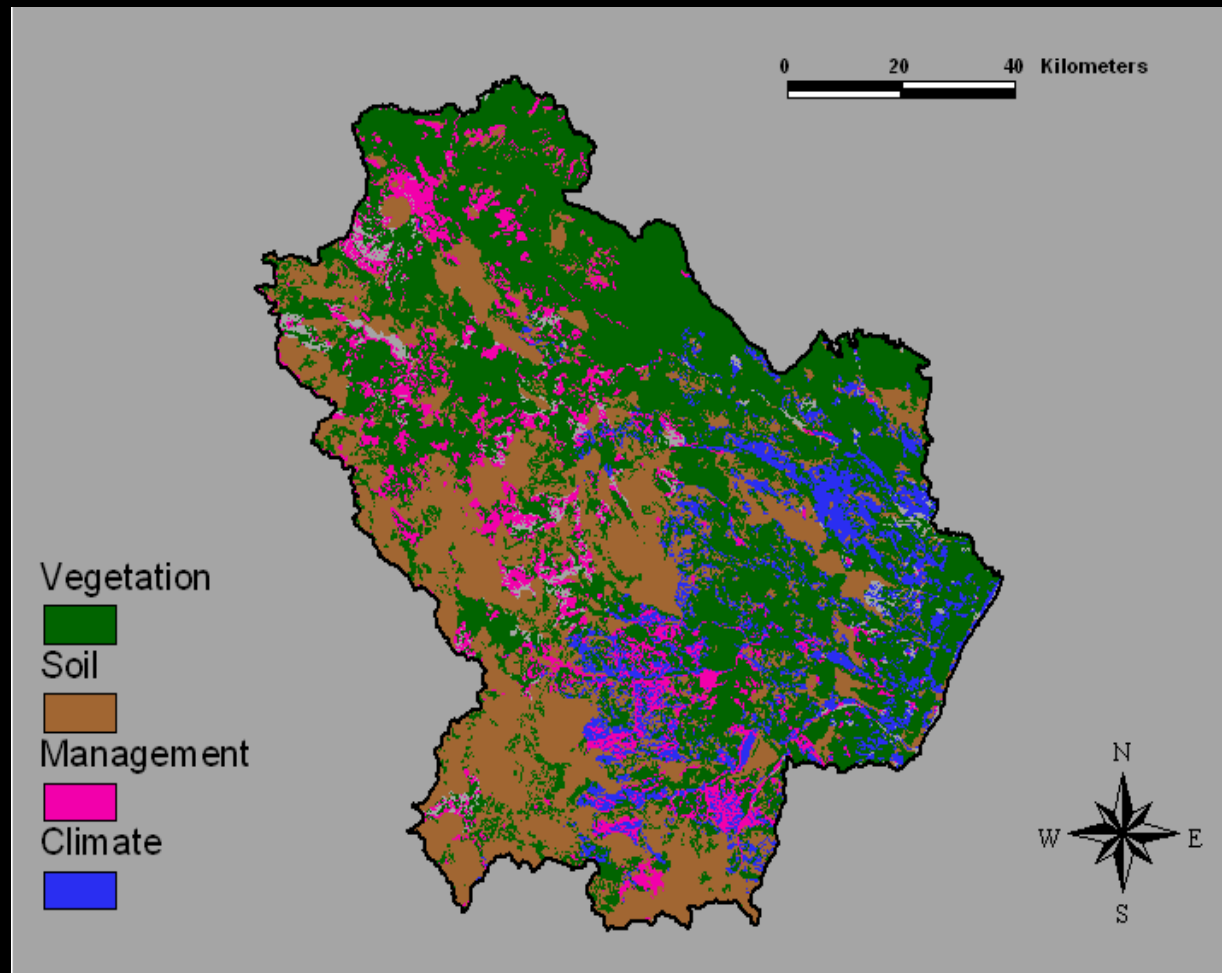
Plant Cover	
Class %	Score
>40	1
40 - 10	1.33
<10	1.66

Environmental Sensitivity



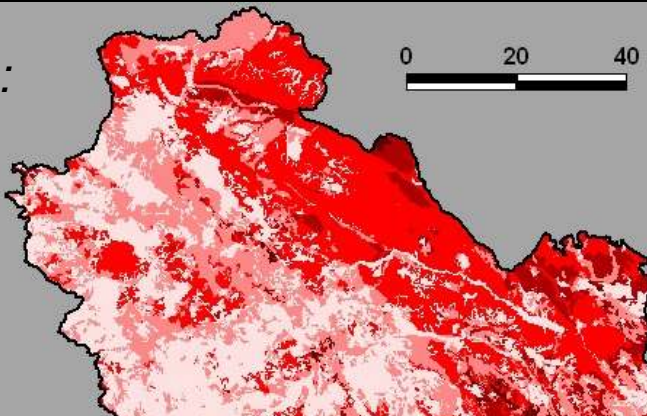
Risk Rank	% Total Surface
Low or negligible	38.6
Medium	54.7
High	6.7

Analysis of Main Contributing Factor

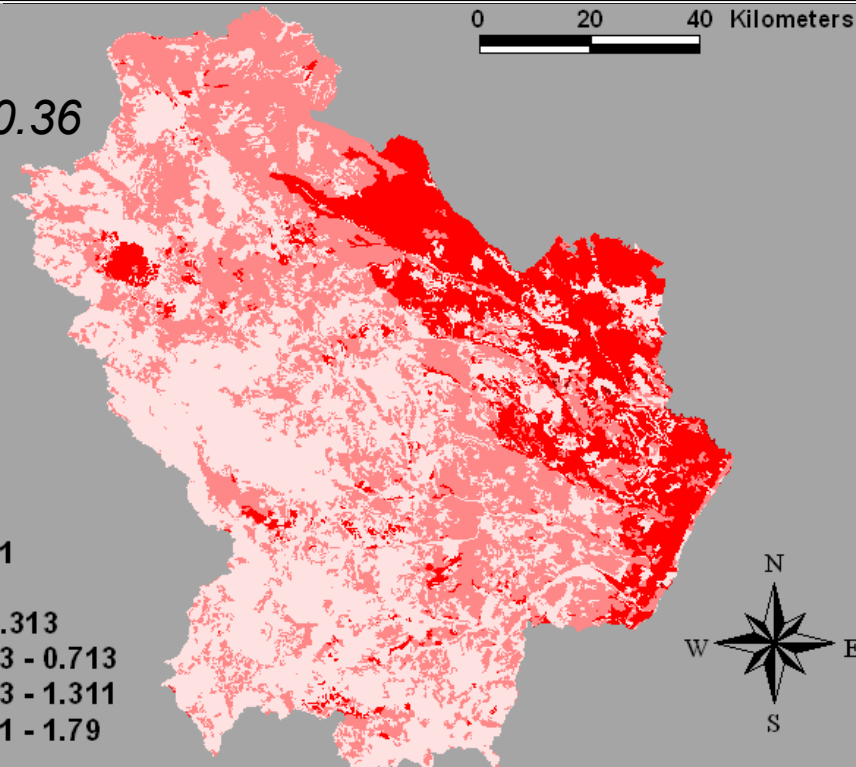


SALUS Simulation of Soil Degradation Mitigation Measures Scenarios

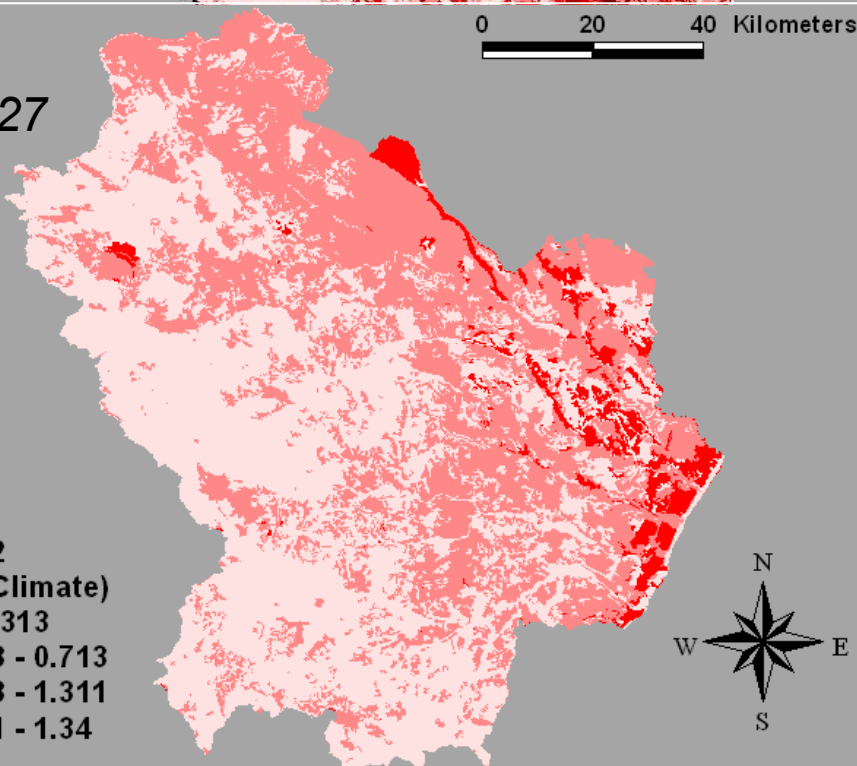
Mean ES:
0.4977



Mean
ES: 0.36



Mean
ES: 0.27



Scenario 2
(Soil and Climate)

- 0 - 0.313
- 0.313 - 0.713
- 0.713 - 1.311
- 1.311 - 1.34

1
0.313
13 - 0.713
13 - 1.311
11 - 1.79

	% Total Surface		
Risk Rank	ES	scenario 1	scenario 2
Low or negligible	38.6	46.63	54.14
Medium	54.7	53.26	45.86
High	6.7	0.11	0

SALUS-WebGIS

Table of Content

- Result Layer
- SALUS Map
 - CornBelt

Search Tool

Experiment Tool

Experiment Management

Weather Data

SALUS Tool

Run SALUS Model

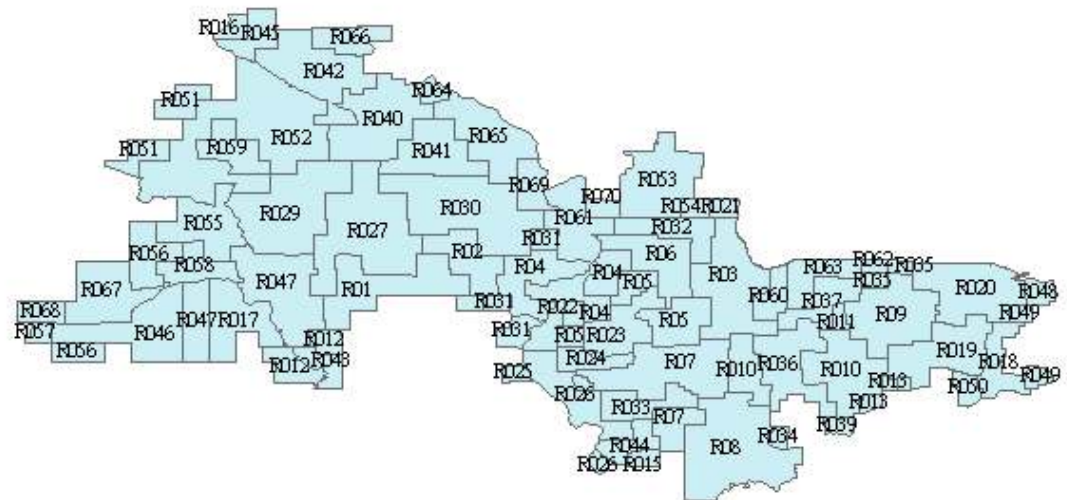
Display Tool

Build Thematic Map

Result Layers

Layer Management

Difference Analysis





Select Region

- 1 - R045
- 14 - R027
- 16 - R041
- 17 - R029
- 18 - R030
- 19 - R040
- 2 - R016
- 3 - R067
- 4 - R056
- 48 - R061

ADD >>>

Simulation List

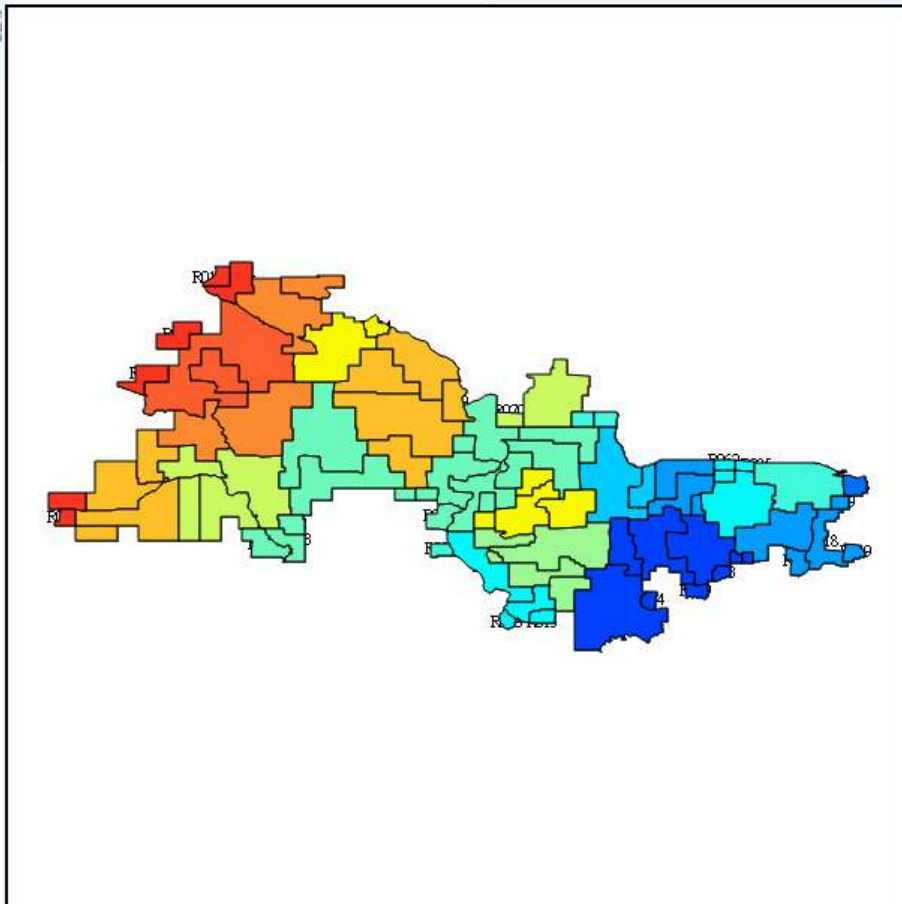
- 1 - R045

<<< Remove

OBJECTID: 14
 NAME: R027
 Soil: IB00000004
 Weather: IADM
 Experiment: 20080413214956

1987_1989C_RAIN has added.

Map navigation controls: zoom in (+), zoom out (-), pan (hand), home (house), info (i), back (left arrow), and print (printer icon).



List of Thematic Maps

- early
- middle
- late
- DEMO
- new Thematic Map

Add Delete

TM_ID	65019
NAME	DEMO

Obj_ID	Obj_Name	ExpID	ExpName
1	R045	20080413214956	DEMO
2	R046	20080413214956	DEMO
8	R052	20080413214956	DEMO
17	R028	20080413214956	DEMO
50	R066	20080413214956	DEMO

- Subject3_Leach_Fert:300
- Subject3_Leach_Fert:600
- Subject3_grain_Fert:150
- Subject3_grain_Fert:300
- Subject3_grain_Fert:600
- 1987_1989C_RAIN
- early
- middle
- late
- DEMO

Add Remove

Open Table

Regions

With

Add

Remove

Add ALL

Remove All

- R045
- R016
- R052
- R029
- R066
- R042
- R051
- R059

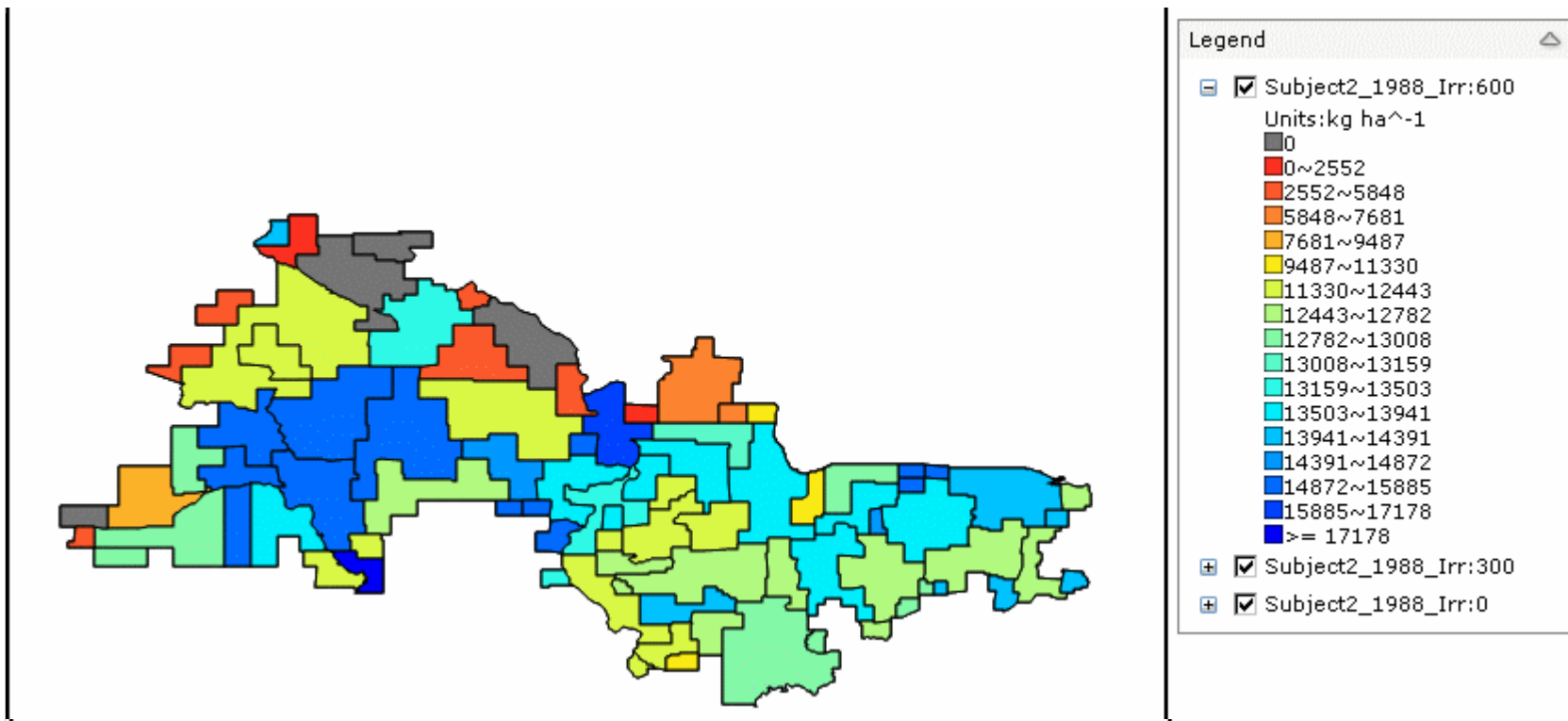
Legend

1987_1989C_RAIN

Units:mm

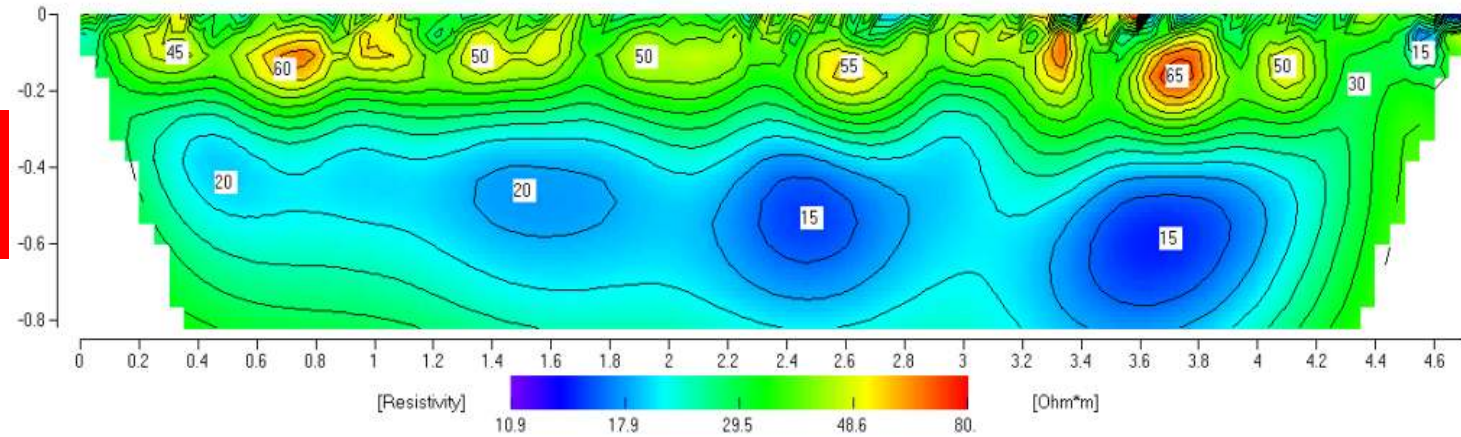
1239.7007 ~ 1239.7007
1239.7007 ~ 1362.7004
1362.7004 ~ 1530.3005
1530.3005 ~ 1746.9008
1746.9008 ~ 1833.8
1833.8 ~ 1930.9008
1930.9008 ~ 2102.5002
2102.5002 ~ 2243.1011
2243.1011 ~ 2446.8008
2446.8008 ~ 2565.0012
2565.0012 ~ 2646.5991
2646.5991 ~ 2709.1011
2709.1011 ~ 2828.0005
2828.0005 ~ 2924.9001
2924.9001 ~ 3094.3984

- **Different irrigation amount under the same weather and soil type**

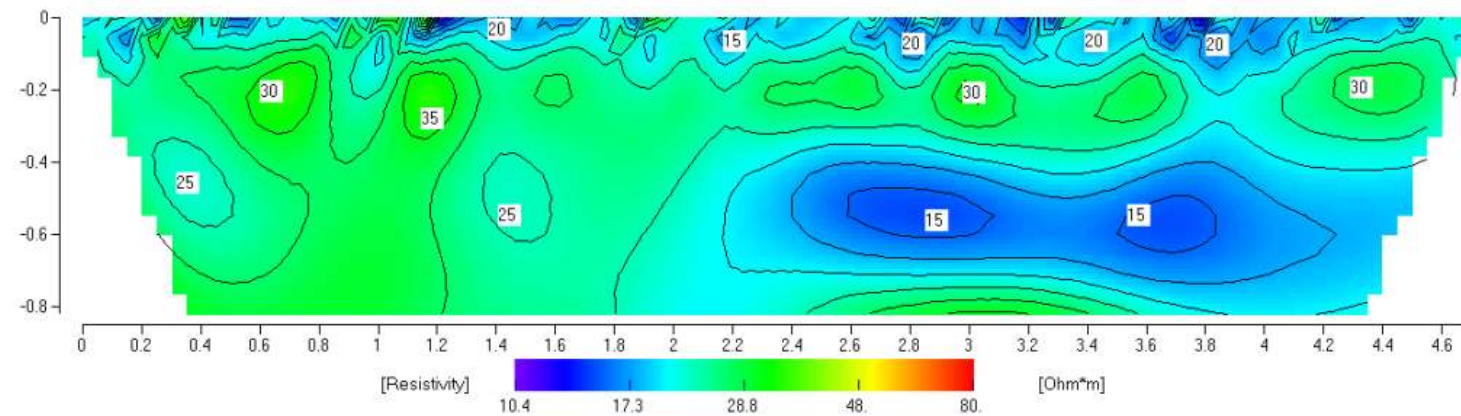


High-resolution 2-D resistivity tomography

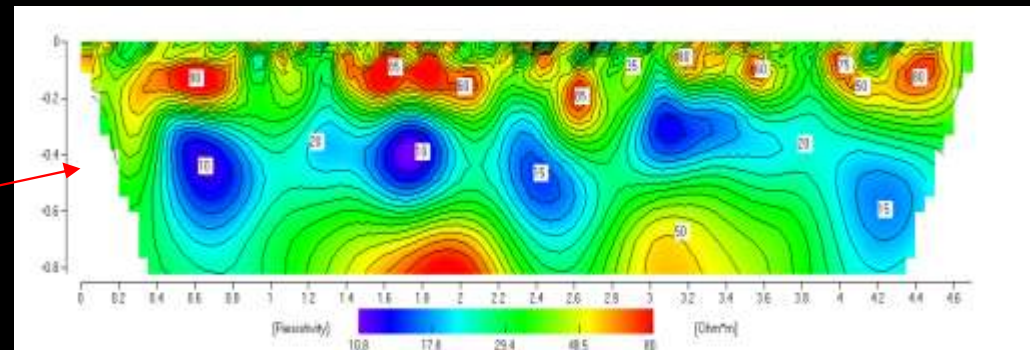
Conventional Tillage



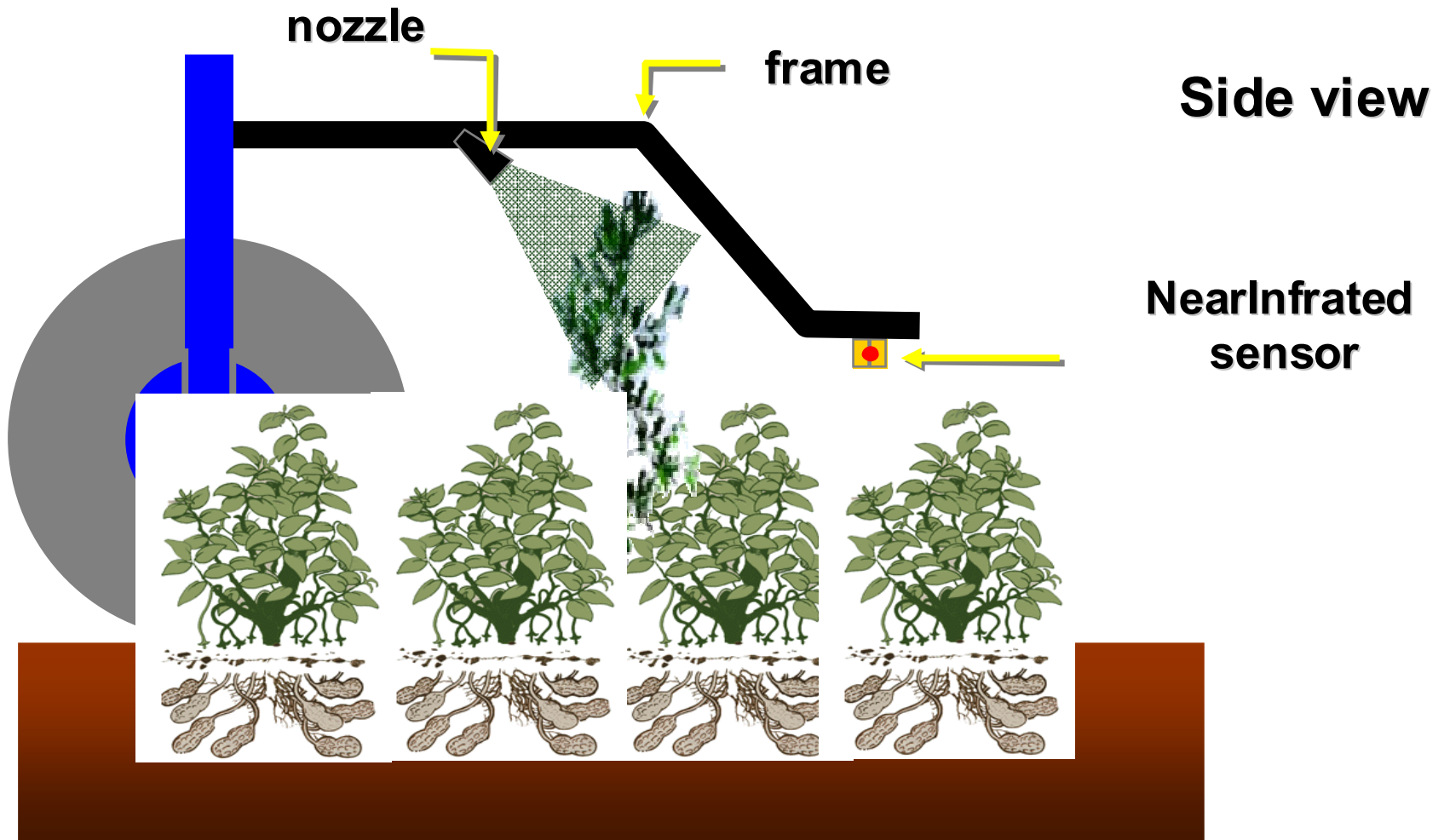
No Tillage



No Tillage after a tillage event









Navigation

- The Project
 - + News
 - + Partners
 - + Pilot Farms
 - + Stakeholders
 - + Contacts
- Work Packages
 - + WP 1
 - + WP 2
 - + WP 3
 - + WP 4
 - + WP 5
 - + WP 6
 - + WP 7
 - + WP 8
- Events
- Publications
- Legal
- Log in

The FutureFarm Project

Submitted by [SalwanAlkash](#) on Tue, 01/03/2008 - 00:00

in [FutureFarm](#)

FutureFarm is a European project funded by the EU as part of the [Seventh Research Framework Programme](#). The official project start date was 1st January 2008, and the project duration is 3 years.

The full project title is "Meeting the challenges of the farm of tomorrow by integrating Farm Management Information Systems to support real-time management decisions and compliance to standards".

This website serves as the central point for information on the project as well as for communication between project partners.

The project is still in the early stages, and more information is continuously being made available on this website.

[Vision of the farm of tomorrow](#)
[Analysis of management strategies and required compliance to standards](#)
[Analysis and specification of knowledge based farm management](#)
[Knowledge management in the FMIS of tomorrow](#)
[Socio-economic, environmental impact and technology assessment](#)
[Influences of robotics and biofuels on economic and energetic efficiencies of farm production](#)
[Generalisation, integration, application and dissemination](#)
[Project coordination and exploitation](#)

Internet Promotion



Rural Village



Leisure Agriculture

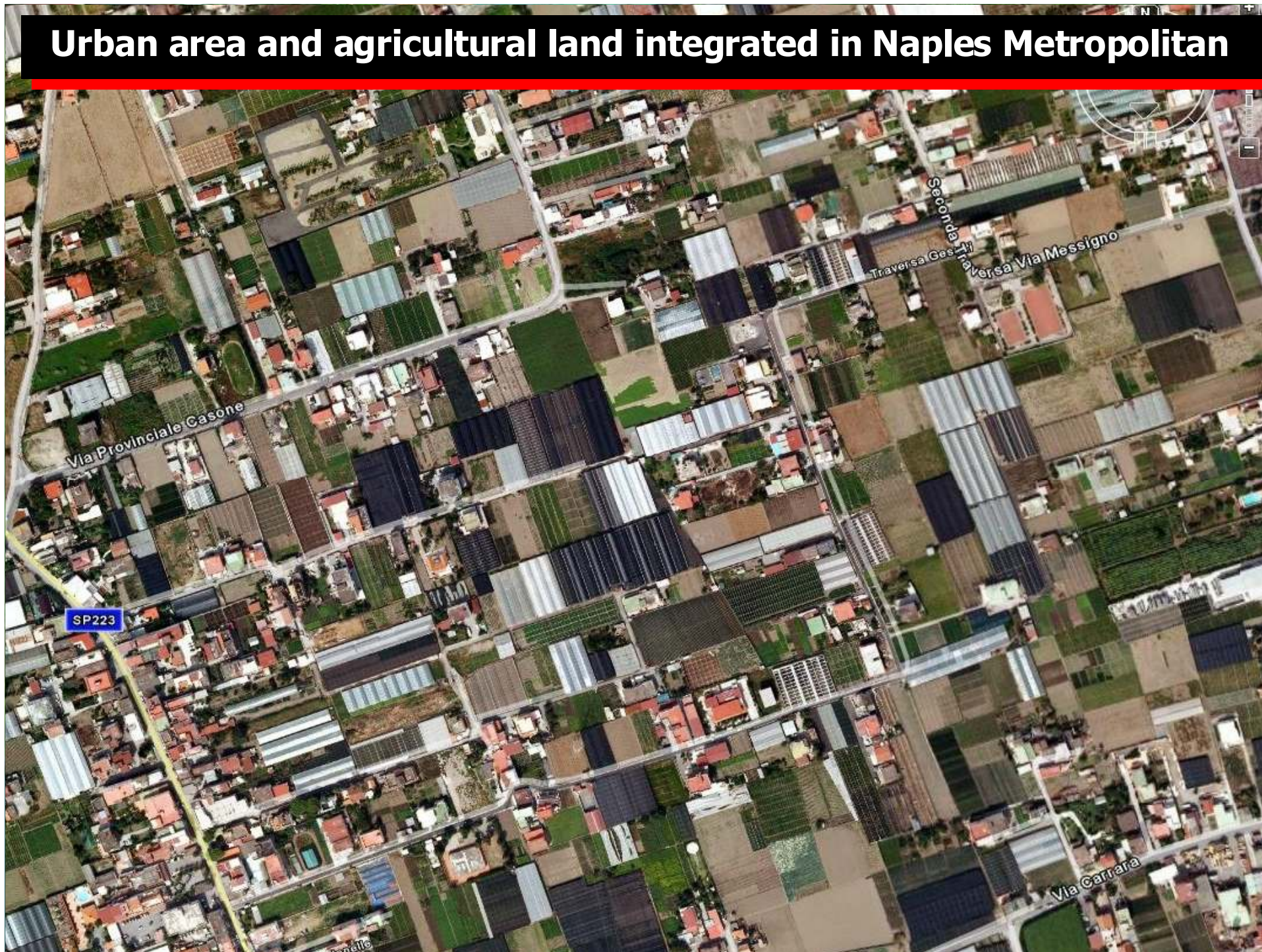


Farm coffee beauty

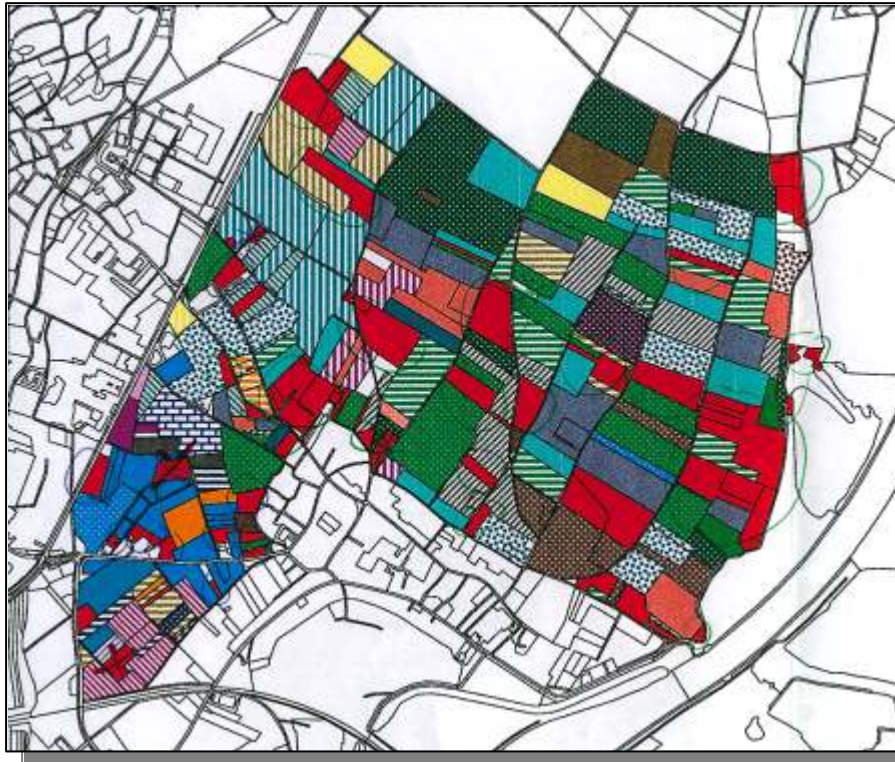


LOHAS

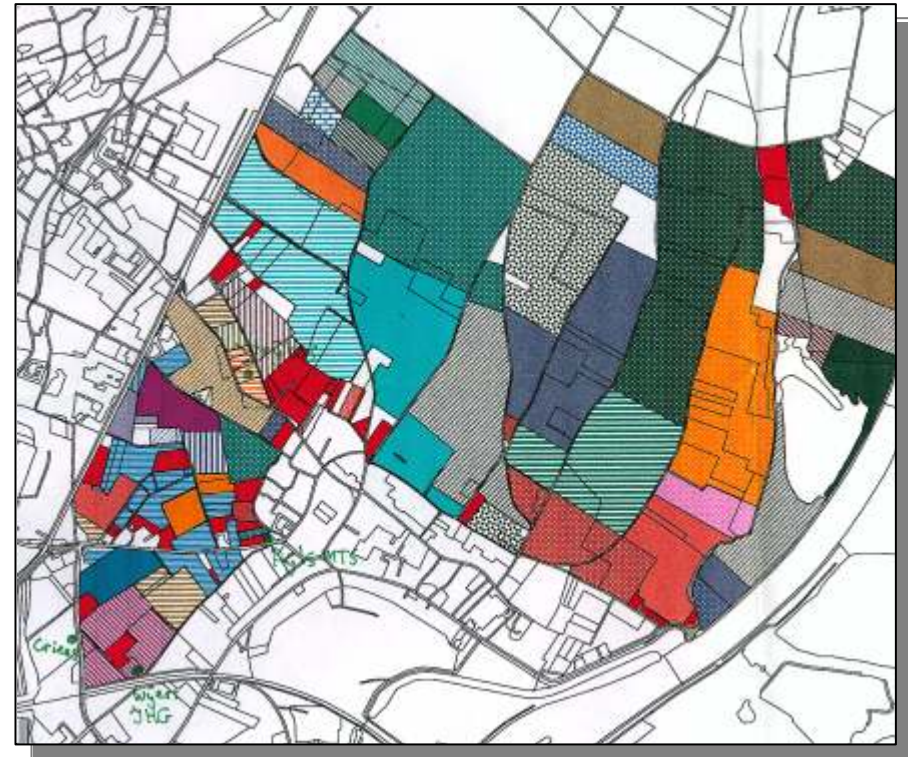
Urban area and agricultural land integrated in Naples Metropolitan



Example of Land consolidation scheme in the Netherlands



Before ...



... After



115 ha

69 ha

From Jack Damen

	Before	After
Nr. of farms	114	95
Nr. of parcels	543	231
Parcels per farm	4.8	2.4
Parcel size	10.1	22.2 ha
Consolidation ratio		2.20
Total cost (Meuro)		15.1

Traceability

EUROPA - Food Safet...
http://ec.europa.eu/food/intro_en.htm

Food Safety - From the Farm to the Fork

EUROPA - European Commission - DG Health and Consumer Protection - Overview

Special Topics

- Avian Influenza
- Bleedoutage
- Labelling - Better Regulation
- Animal Health Strategy
- TSE in Goats
- Approved Establishments
- Third Country Establishments List
- BSE
- GM Food & Feed
- Animal Transport
- Rapid Alert System
- Movements of Pets
- Training Strategy 2005
- EFSA

Overall mission

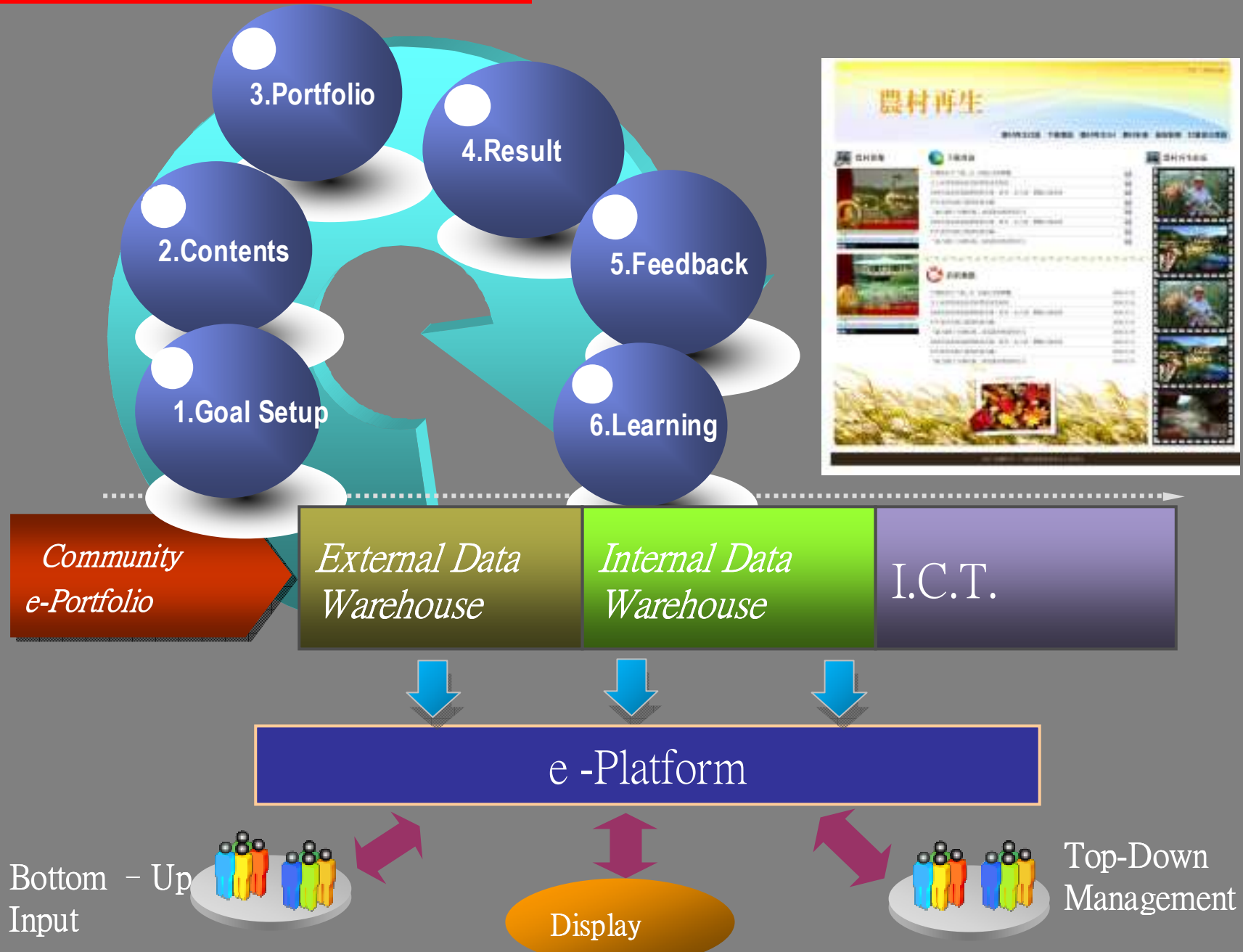
The EU integrated approach to food safety aims to assure a high level of food safety, animal health, animal welfare and plant health within the European Union through coherent farm-to-table measures and adequate monitoring, while ensuring the effective functioning of the internal market.

The implementation of this approach involves the development of legislative and other actions:

- To assure effective control systems and evaluate compliance with EU standards in the food safety and quality, animal health, animal welfare, animal nutrition and plant health sectors within the EU and in third countries in relation to their exports to the EU;
- To manage international relations with third countries and international organisations concerning food safety, animal health, animal welfare, animal nutrition and plant health;
- To manage relations with the [European Food Safety Authority \(EFSA\)](#) and ensure science-based risk management.

FOOD AND FEED SAFETY
ANIMAL HEALTH AND WELFARE
PLANT HEALTH
FVO INSPECTIONS

Rural Village Revitalization



CERTIFICATIONS

1300 certified with EMAS
12.500 ISO14001

ISO 9001:2008
ISO 14001
EMAS
ISO 14040 LCA
PEFC
EPD
Emission trading
ISO 14064 Gas serra
Certificazione energetica
Biomass
SA 8000
AA1000
ISO 22000
HACCP
BRC (GSFS)
IFS
GOST R e Ukr
Food
Controlled Chain Filiera controllata
UNI 10939
UNI 11020
ISO 22005
GLOBALGAP(Eurepgap)
Hygienic Design
QWeb
Web Accessibility



Organic from small farm
QS
DOP
IGP
STG
Certified Meat
Agriquality
Organic large farm
Fami-QS
GMP+
Codex Assalzo
BRC/IoP (GSPP)
GMP FEFCO/ESBO
UNI EN 15539
BRC Storage & Distribution (GSSD)
IFS logistic (ILS)
Certificazione di servizio
UNI 11034
UNI 10865
UNI 10670
UNI 10881
UNI 10600
UNI 10668
UNI EN 14804
Site specific Trade marks
ISO 27001
ISO 20000
Risk Management
Sabotaggio (tampering)
OHSAS 18001
Inspections

Insight to Taiwan Agriculture

GOALS



- Adopt best management strategies for sustainable farming systems – Reconcile productivity (quantity and quality) with environmental integrity
- Guarantee food safety processes through Traceability
- Reward farmers for producing high quality product and/or services – improve farmers income
- Cultivate new high value crops (herbs, medicinal plants)
- Reduce chain between farmers and final end-user

Figure 6: Average annual agri-environment premium

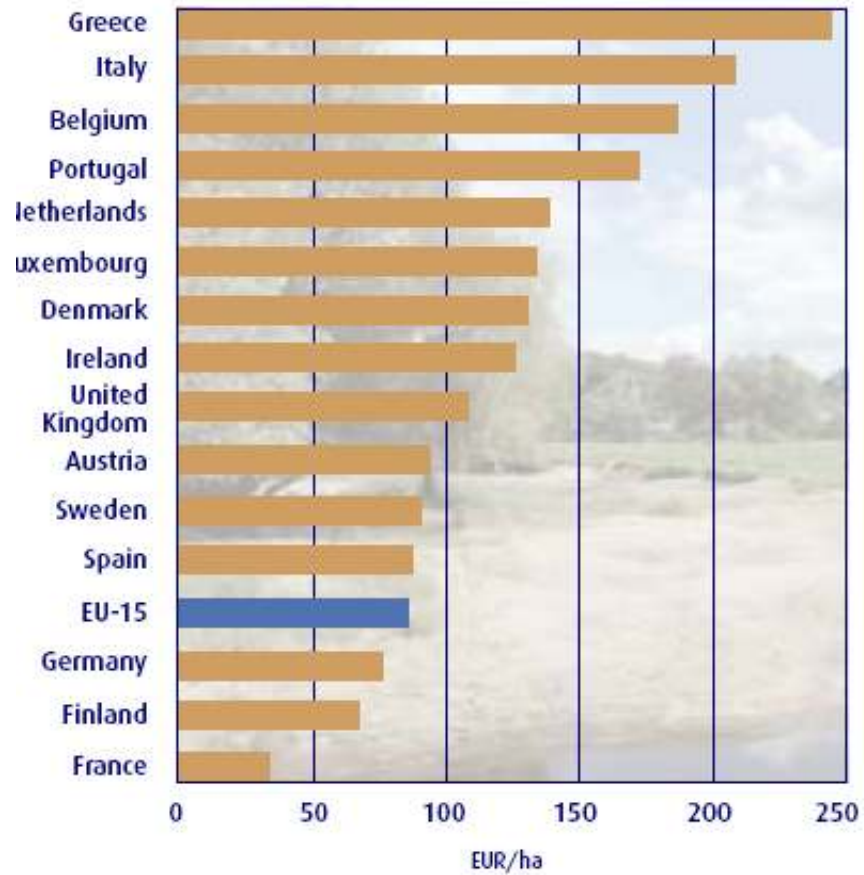
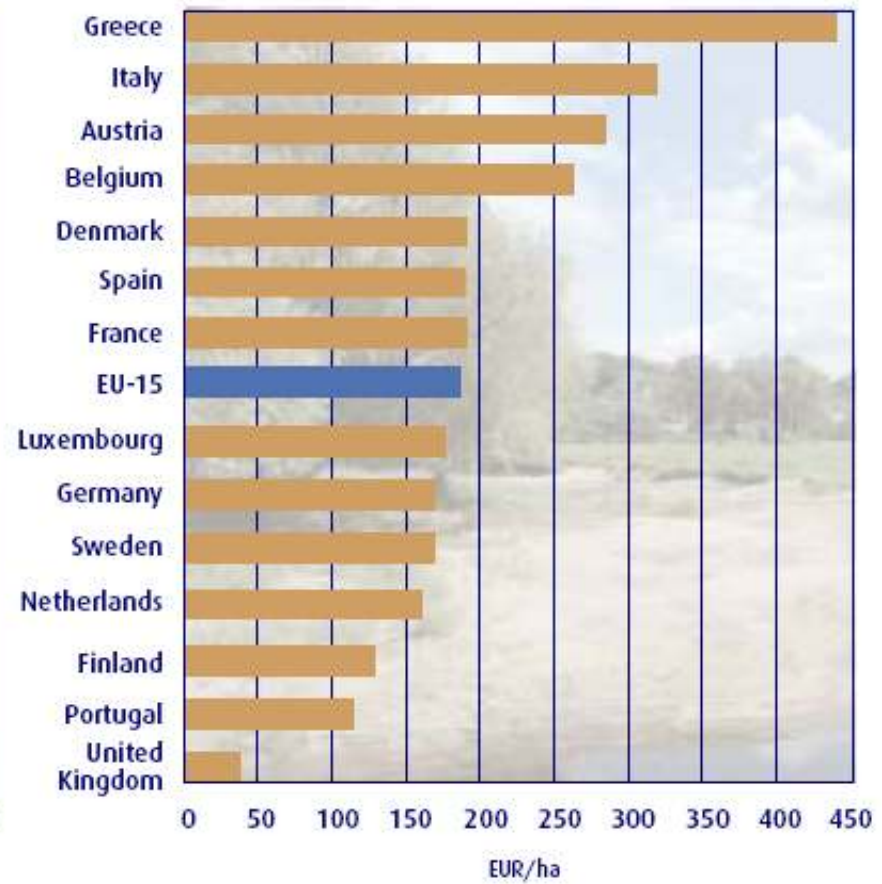


Figure 7: Average annual 'organic' premium



Recommendation for Taiwan Agriculture

ACTIONS



Create an up to date Geographical information system (available recent data and new remote sensing imagery to indentify demonstration areas and site specific constraints)

Adopt a decision support system with spatial modeling to evaluate potential scenarios (best management strategies under new global treats - climate change, soil degradation

Promote appropriate land use – from high quality crops to rural turism activities

Provide incentives for ecosystem services and environmental integrity

Favourable loans for purchasing land or for investements in techonologies (ICT, robotics)

Invest in multidisciplinary research projects



Role of Precision Ag in Feeding the World

Posted by **Cindy** – October 19th, 2008



Precision technology can play a vital role in helping to feed a growing world population, which is why it was a focus at the World Food Prize symposium last week in Des Moines.

John Deere CEO Robert Lane participated in a panel conversation on "The Role of the Private Sector in Global Food Security and Development," together with representatives from other major agribusiness companies such as Monsanto, Syngenta, and Bunge.

Lane says Deere has been in the business of bringing productivity tools to the best producers in the world for 170 years. "Precision agriculture is a huge step forward because there is now intelligent machinery that takes productivity to a much higher level," Lane told me. "We have a limited amount of land and an even more limited amount of water and to make that work so we can double the amount of food production, precision agriculture is indispensable."

Listen to a short comment from Mr. Lane after his presentation at the World Food Prize:

RECENT POSTS

- [Precision Resources](#)
- [Precision Ag In The News](#)
- [Role of Precision Ag in Feeding the World](#)
- [Cotton Picker in Action](#)
- [Picking Cotton at Sunbelt Ag Expo](#)

PRECISION LINKS

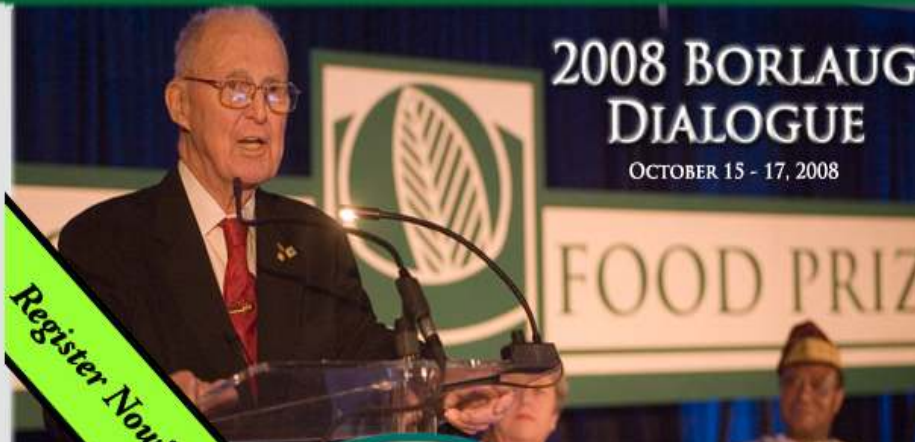
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2008 BORLAUG
DIALOGUE

OCTOBER 15 - 17, 2008

FOOD PRIZE

Conclusion

The choices we make today in how we use land and water resources will have enormous consequences on the future sustainability of earth's ecosystems and the services they provide.

Sustainable agriculture will require that society appropriately rewards farmers and other agriculturalists for the production of both food and ecosystem services.

To value and manage agricultural landscapes for multiple ecological services will require the integration of ecological and socioeconomic research, policy innovation, and public education

Conclusions

Conservation Agriculture

Precision Agriculture

Mosaic Agriculture

The word "mosaic" derives from the Greek:
"patient work, worthy of the Muses".



Mosaic in Pompeii



Gail Larned, Columbus, Ohio



Mosaic landscape



THANK YOU
FOR
YOUR
ATTENTION

