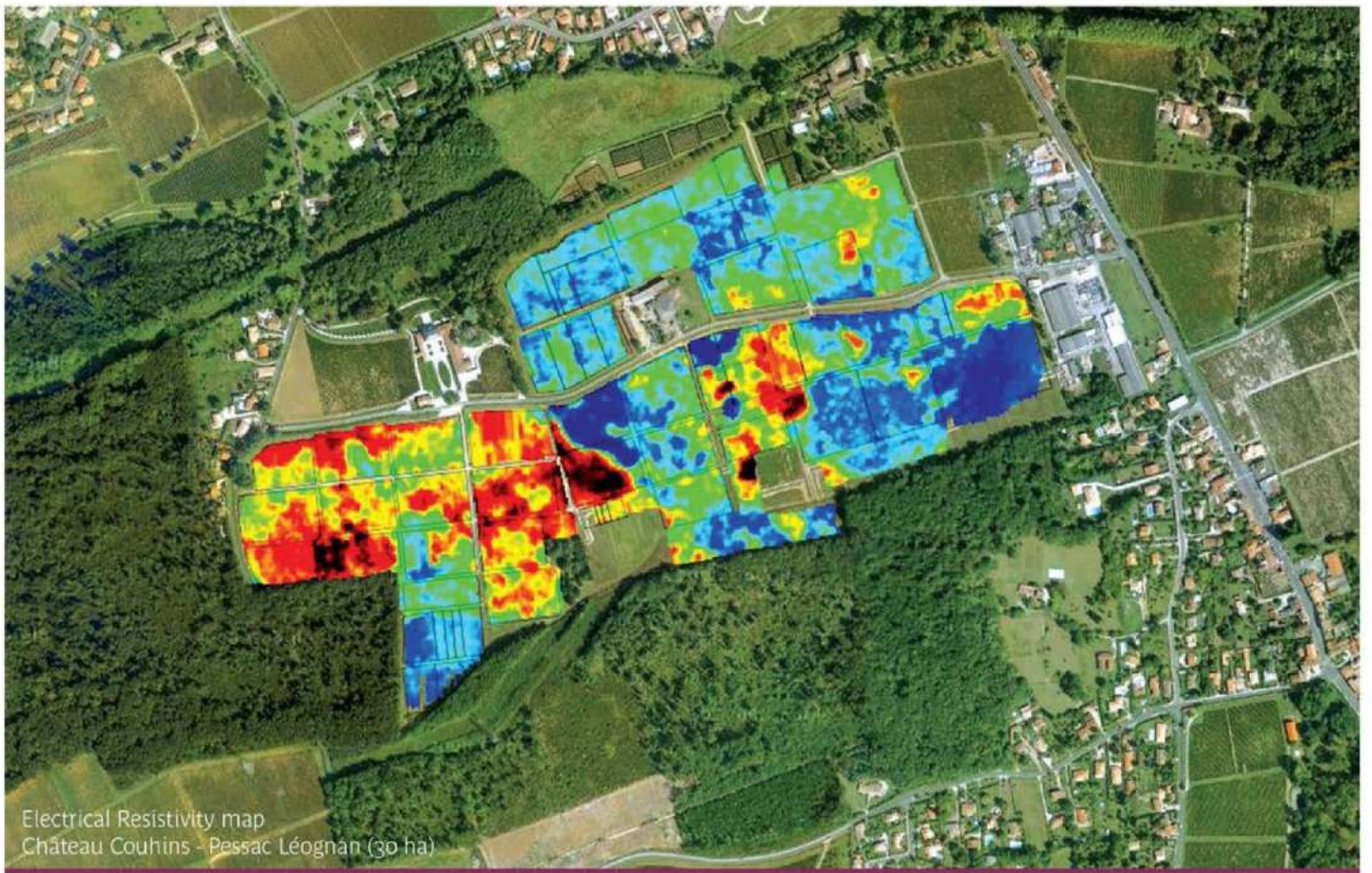


> VITICULTURE

DIGITAL SOIL MAPPING



Electrical Resistivity map
Château Couhins - Pessac Léognan (30 ha)

intra-field harvesting

precision Viticulture

blocks layout & design

grape selection

Visualize
to **OPTIMISE**

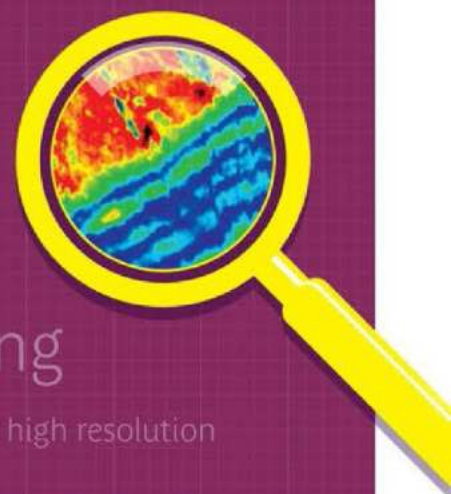
available
water capacity

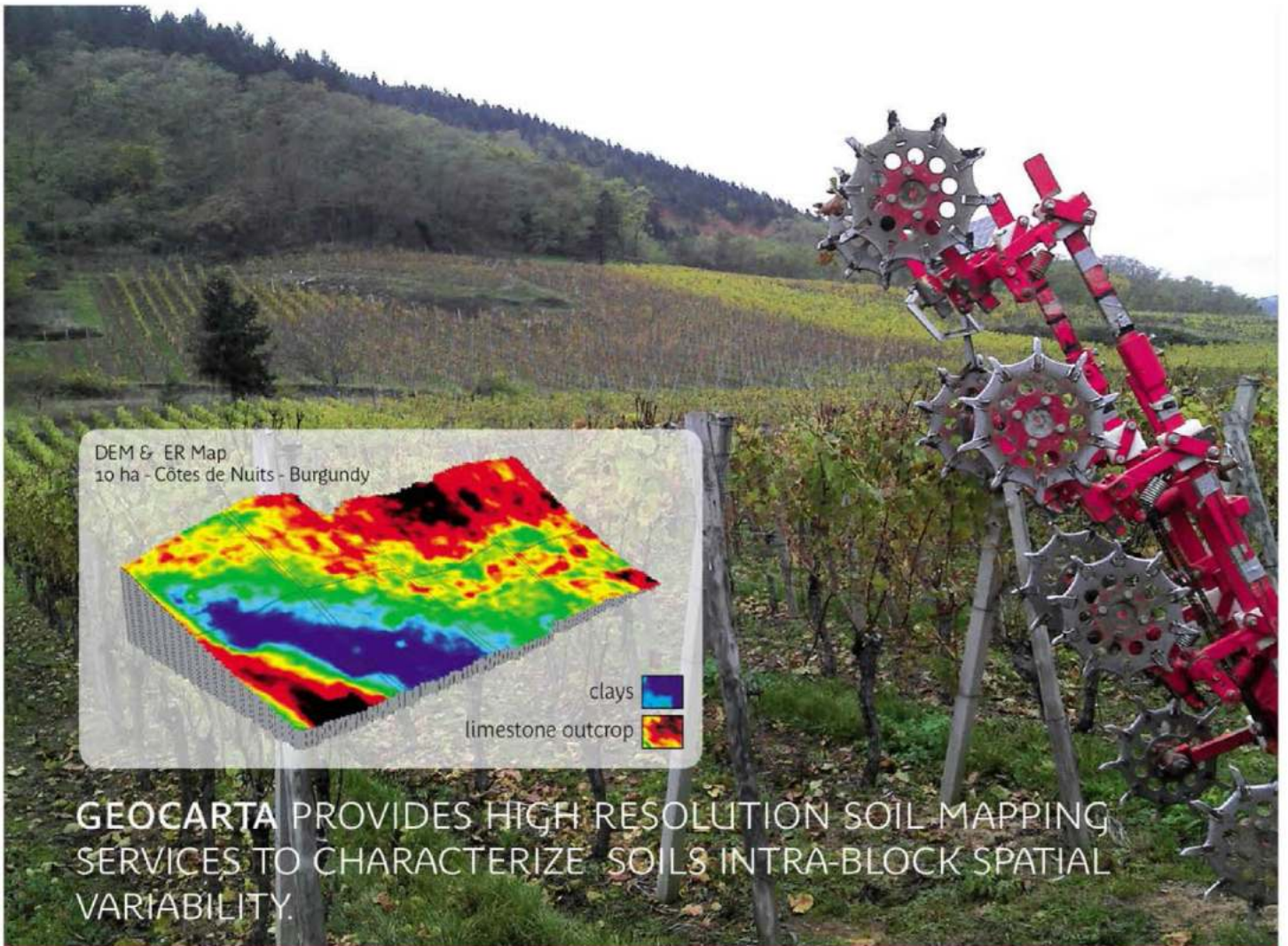
high resolution

smart sampling

3D visualization

high resolution

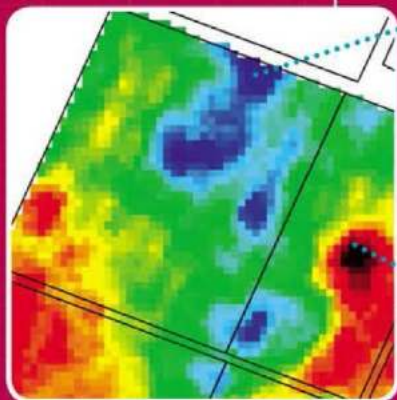




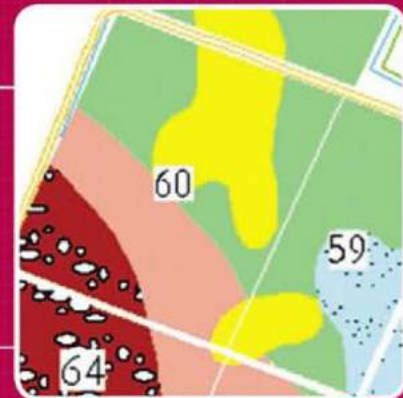
Thousand hectares of vineyards have been mapped in Europe with the patented ARP® technology (multi-depth electrical resistivity measurement).

MANAGEMENT ZONE > SOIL SAMPLING > SOIL MAPPING

Maps are interpreted by soil scientists to reduce boring quantity and to define soil limits.



Credit: O. Trégoat

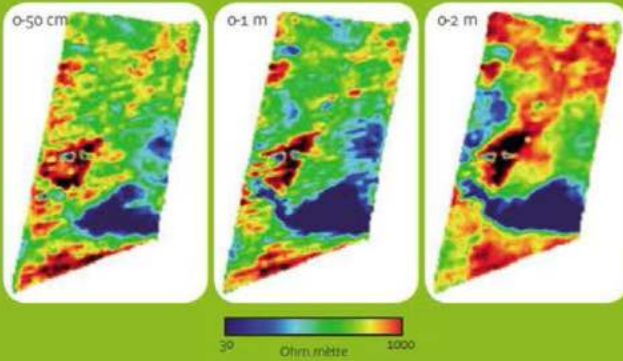


Final soil maps are precise, objective and sustainable.

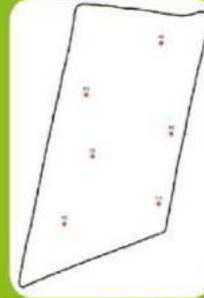
Resistivity 0-2m - sampling pictures and soil map (Château d'Yquem, Sauternes)

NEW VINEYARDS

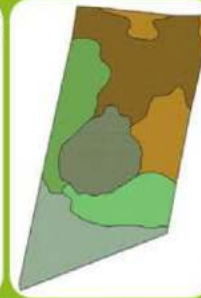
Precision Pedology Saint-Emilion example



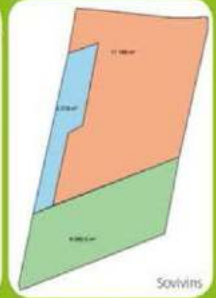
Emplacement des observations pédologiques raisonné à partir des cartes de résistivité



Carte pédologique



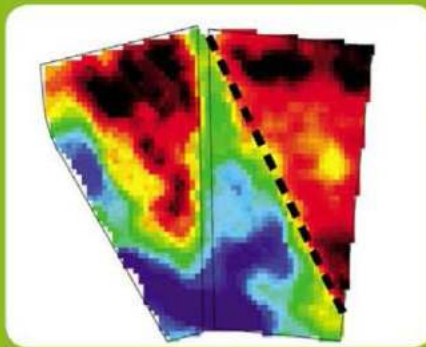
Porte-greffes recommandés



- LPS 1: Plantés sablo-émiro-graveux sur argile lourde localement carbonatée
- LPS 2: Colivacois sablo-graveux sur argile lourde moyennement pédonée
- LPS 3: Brunacois sablo-émiro-graveux sur gravin sablo-argileux légers
- LPS 4: Brunacois sablo-émiro-graveux sur peyzac à marnes sableuses
- LPS 5: Peyzac à marnes sableuses sur argile lourde profonde
- LPS 6: Colivacois sablo-graveux sur marnes argilo-sableuses en profondeur
- Espaces Cote de Montpèlerin ou ses dérivés
- Espace Cote de Montpèlerin
- 44 CSP

Soil maps are more precise and useful before planting in order to optimize varietal choices, drainage plan or irrigation parameters.

SELECTIVE HARVESTING



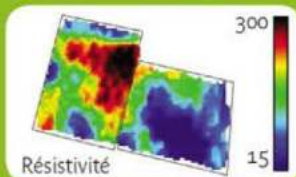
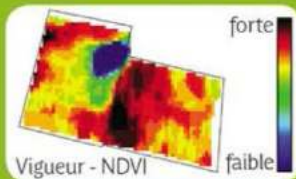
ER Map is a decision-making tool to optimize quantity and location of other measures like maturity controls or $\Delta C13$.

Intra block selection
Château Lagrange - Saint Julien - 2,5 ha

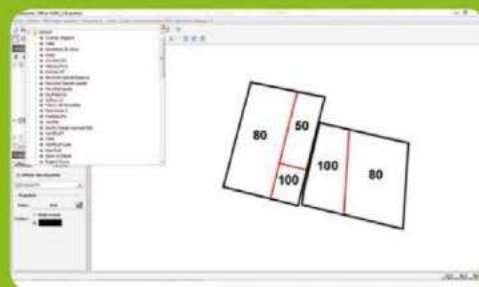


VARIABLE RATE CROP INPUTS MANAGEMENT

Intra-block information of ER maps, crossed with complementary measures (NDVI, pruning weight), can be used to cut down use of phytosanitary treatment. Within-field crop inputs management is possible through direct injection sprayers.



Cave des Hauts de Gironde - 3 ha



Modulation des doses - logiciel GIP



Pulvérisateur SPID



GEOCARTA develops the patented ARP system® (Automatic Resistivity Profiling) based on researches from CNRS and INRA. The sensors measure on-the-go soil Electrical resistivity for 3 investigation depths.

THE ELECTRICAL RESISTIVITY

The ER is linked with soil physical parameter :

- > texture : clay soils are less resistive than sandy soils
- > depth : a superficial soil is more resistive than a deeper one
- > porosity
- > coarse elements
- > available water capacity

VITICULTURE REFERENCES

France

Champagne : Roederer, GH Mumm, Moët et Chandon, Veuve Clicquot, CIVC, Société viticole de Reims ;
Bourgogne : Clos des Epeneaux (Cte Armand), Clos de la Maréchale (Mugnier), Clos de Tart, Henri Rebourseau, Faiveley, Clos du roi (Louis Latour) ;
Saint-Estèphe : Cos d'Estournel, Lafon-Rochet, Ormes de Pez, Phélan Ségur, Calon-Ségur, Montrose, Haut-Marbuzet ;
Pessac-Léognan : Chevalier, Couhins, Fieuzal, Smith Haut Lafitte, Seguin, Baulos-Charmes, Carbonnieux, Brown, Carmes Haut-Brion, Luchey-Halde, Olivier, Latour-Martillac, Haut-Bailly, Malartic-Lagravière, Thil Comte Clary, Pape-Clément, Le Pape, Seguin, Haut Nouchet, Gazin-Rocquencourt, Solitude ;
Sauternes : Yquem, Rieussec, Climens, Suduiraut, Guiteronde ;
Saint-Émilion : Cheval-Blanc, Faugères, Figeac, Soutard, Chauvin, La Gaffelière, Capet Guillier, Corneil-Figeac, Canon-Lagaffelière, Ripeau, La Dominique, La Tour du Pin, Candale, L'Arrosée, Tertre-Daugay ;
Paulliac : Mouton Rothschild, Lynch-Bages, Lynch Moussas, Latour, Lafite Rothschild, Beau site, Duhart Milon, Grand Puy Ducasse, Grand Puy Lacoste, Haut-Batailley, Pichon-Longueville, Croizet-Bages ;
Saint-Julien : Léoville Las Cases, Beychevelle, Branaire Ducru, Lagrange, Gruaud Larose, Gloria, Talbot ;
Margaux : Palmer, Kirwan, Margaux, du Tertre, Giscours, Rauzan Segla, Dauzac, Malescot St Exupery, Prieuré-Lichine ;
Médoc : Patache d'Aux, Livran, Potensac ;
Haut-Médoc : Antilope Tibétaine, Sénéjac, Cissac, La Tour Carnet, Beaumont, Camensac, La Lagune, Lamothe-Bergeron, Gelsenheim ;
Pomerol : Petrus, La Violette, Le Gay, Fayat, Grande Antilope, La Conseillante, Némin, Le Pin, Sales, Petit Village, Evangile, La Fleur-Petrus, Vieux Chateau Certain, Bourgneuf ;
Fronsac : Plain-Point ;
Côtes de Provence : Domaine de l'Île, Galoupet, Bourrian ;
Languedoc : Valoussière, Fenouillet, Mas de Lunes ; **Bergerac** : Lys ; **Côtes de Gascogne** : Tariquet ;
Cognac : Hennessy, Oisellerie, Graves ; **Sancerre** : Domaine Guérin ; **Coteaux du Layon** : Brossay ;
 Coopérative vinicole des Hauts de Gironde (Tutiac), Cave de Rauzan, Cave de Nogaró en Armagnac, Producteurs de Plaimont

Italy

Tuscany : Calarossa, Fattoria Villa Saletta, Barone Ricasoli, Castello di Brolio, Marchesi Mazzei, Tenuta dell' Ornellaia, Le Macchiole, Duemani, Castello La Leccia, Villa Brancatelli, Casale Del Mare, Castello Romitorio, Kol ;
Sicily : Tasca d'Almerita, Mezzacorona, Villa Albius-Feudo Arancio, Planeta Dispensa.

Hungary

Tokaji : Disznókő, Oremus

Spain

Empordà : Terra remota
Rioja : Marqués de Vargas, Valdegón, La Grajera, Vega Sicilia

Portugal

Bairradas : Colinas de São Lourenço
Alvarinho : Quinta da Pedra
Dão : Dom Bella

Austria

AOC « Camuntum » (300ha), Weingut Heinrich

Russia

Gelendzhik : Fable town group



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