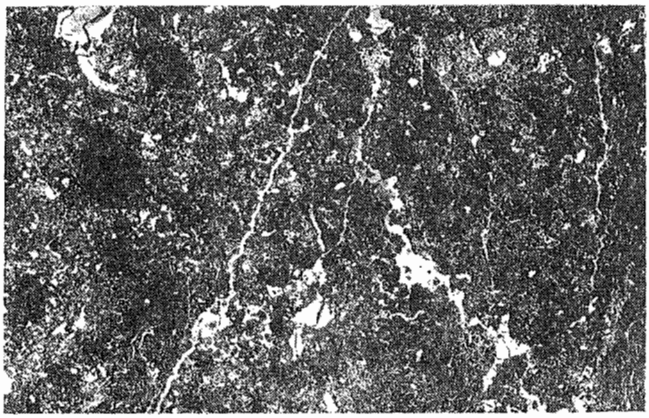
SCIENCE DU SOL n° 1986/1 - pp. 19-20 - PLAISIR-FRANCE

POROSITY AND SOIL THERMIC BEHAVIOUR OF ANJOU VINEYARD

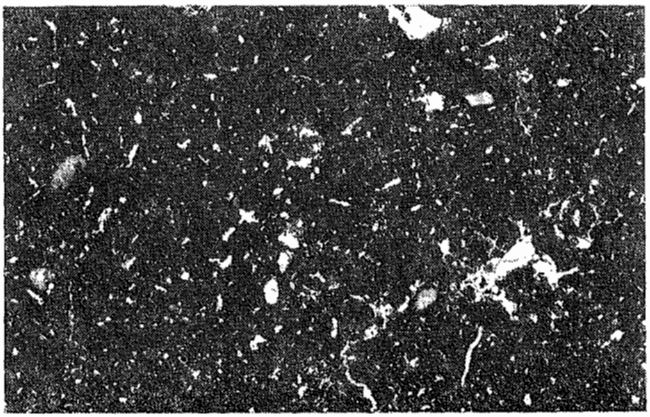
P. DE KOCHKO et P. CURMI [1]

(Science du Sol n° 1985/3)

The relationship betwen soil constitution, soil fabric and thermic property of vineyard is studied on 4 plots with decreasing precocity. Bulk density and water retention curves of undisturbed soils amples (fig. 1) allow estimation of volumetric heat capacity versus pF (fig. 2). Pore space morphology is linked with thermal conductivity. For a same amount of macroporosity, its effect on thermal conductivity will depend on the dimension, shape, orientation and continuity of the void network : large, continuous planes with horizontal orientation (Ph. 2) would have had a better insulating power than tubular biological voids (Ph. 3). Good correlation between morphological data, root profiles and precocity of vine has been observed.



Photographie 2 : High porosity of planar voids and biological channels (4 cm × 6 cm)



Photographie 3 : Low porosity of discontinuous biological channels (4 cm × 6 cm)

1) Ecole Nationale Supérieure Agronomique de Rennes et Institut National de la Recherche Agronomique - Laboratoire de Science du Sol, 65, route de Saint-Brieuc, 35042 Rennes Cédex.

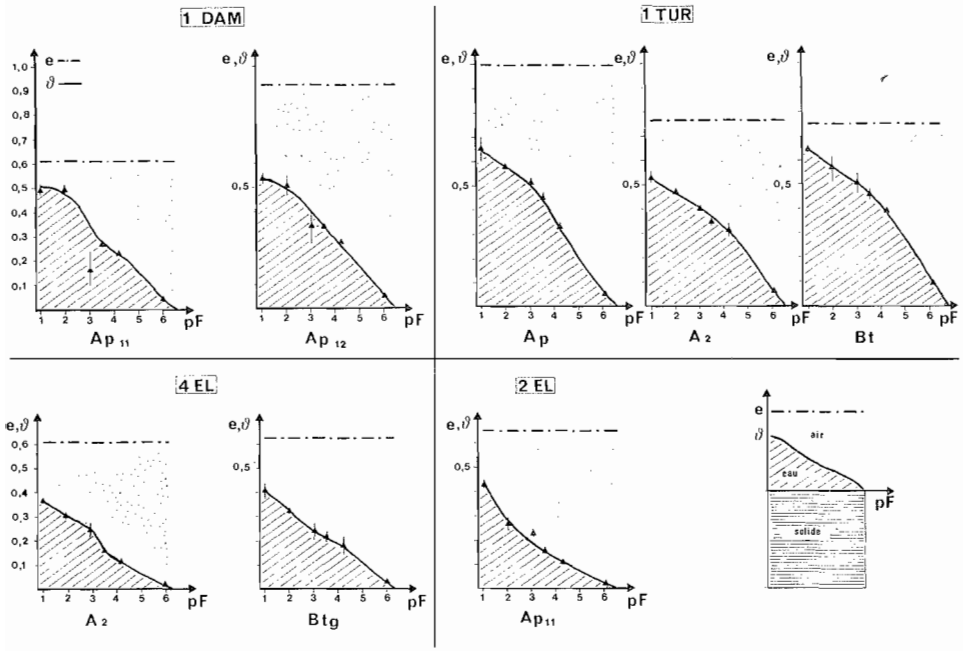


Figure 1 : Void ratio (e) and water ratio (θ) curves versus pF for the horizon in the 4 plots (↑ mean value and confidence interval $\alpha = 0.05$).

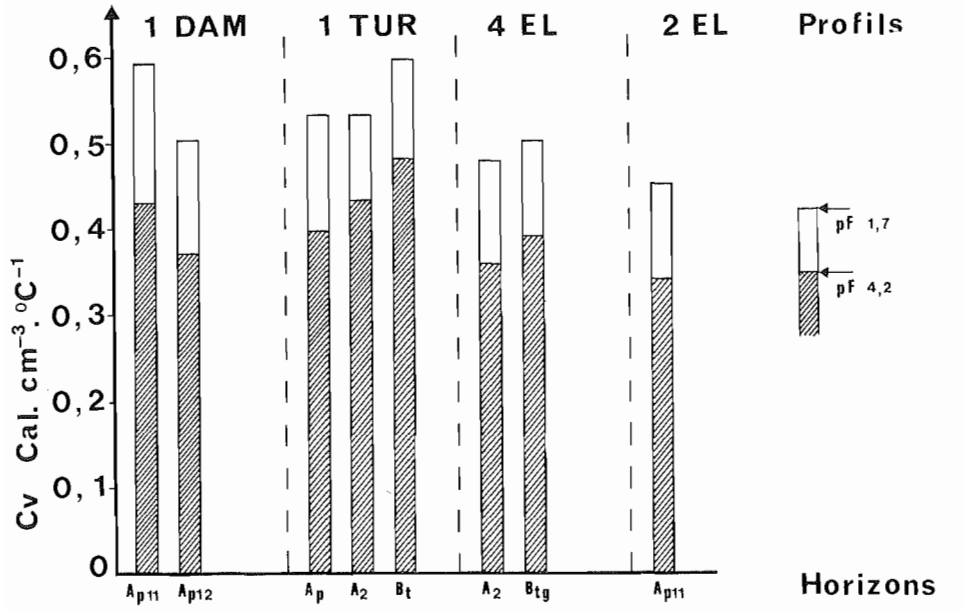


Figure 2 : Volumetric heat capacity C for the horizons in the 4 plots at pF 1.7 and 4.2.