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VINE WATER UPTAKE IN BORDEAUX AREA DURING A DRY PERIOD (SAINT-EMILION and POMEROL, summer 1980)

J. DUTEAU [1]

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A study of the relationship between soils and grape vines of Saint-Emilion and Pomerol has been carried out. In 1980, regulation mechanisms were demonstrated to occur in vine water uptake, at least during the dry period. These mechanisms are very different from those observed in Haut-Medoc vineyards which occur on gravelly soils and which are characterised by a very deep root system.

a — In Saint-Emilion, superficial soils with a loamed-sandy texture occur on the "calcaire à Asteries". The water stored in the thinnest pores of the bedrock can migrate by capillarity through a thick layer of rock (figure 7). This phenomenon allows the vines to take up water regularly during the ripening of grapes (table III).

b — Very clavey soils of Pomerol are located in the heart of Quaternary alluvial substrata of the river « Isle ». In summer, the roots which have lived through winter anoxy develop a network of rootlets. The resulting slow decrease in water content between — 70 and — 100 cm depth (figure 5) suggests that uptake is neither excessive, nor too difficult (table V), which is an important quality factor for the vintage.

So, each year, these phenomena permit the very good wines of Bordeaux to be obtained on soils of various substrata ; but, the characteristics of these wines are very different according to the « terroirs ».

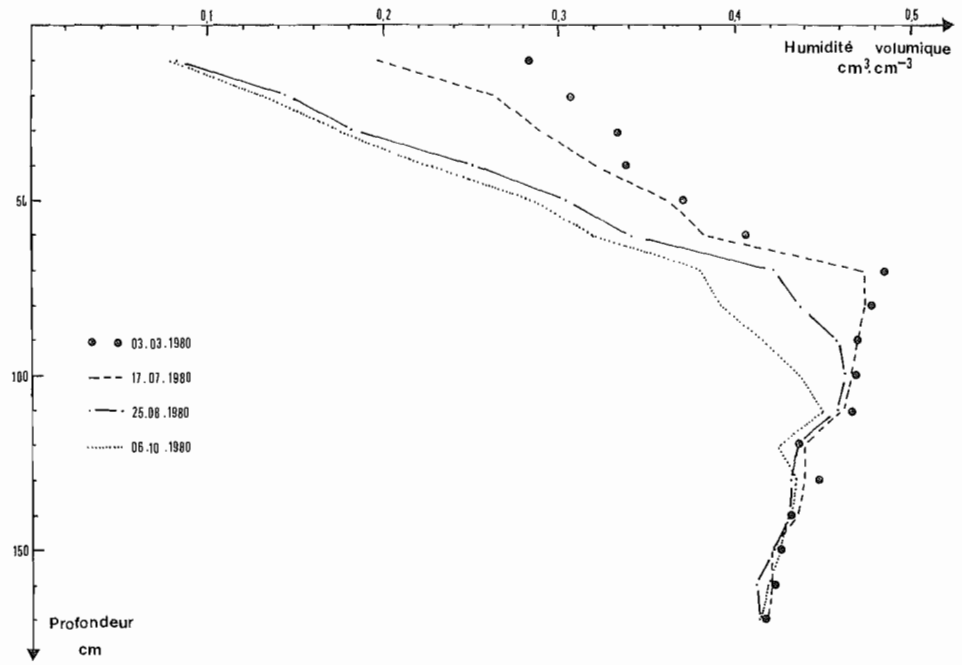

Figure 5 : Evolution of drying during summer in soil B (1980).

(1) Institut d'Œnologie, 351, cours de la Libération, 33405 Talence Cédex.

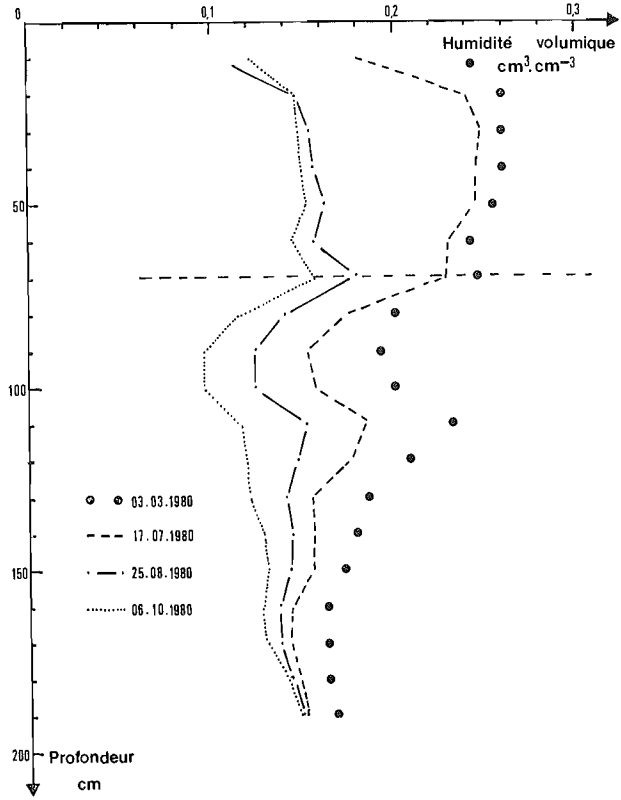

Figure 7 : Evolution of drying during summer in soil A (1980).

Table III : Water uptake of vine in plot A (1980).

SAINT-EMILION		17 juillet au 24 août	25 août au 7 septembre	8 septembre au 21 sept.	22 sept. au 5 octobre
P	mm	26	11	19	3
ETR	mm	105	23	20	14
ETP	mm	182	52	39	29
ETR/ETP × 100		58	44	51	48

P : pluviosité ; ETR : évapotranspiration réelle ; ETP : évapotranspiration potentielle (PENMAN).

Table V : Water uptake of vine in plot B (1980).

POMEROL		17 juillet au 24 août	25 août au 7 septembre	8 septembre au 21 sept.	22 sept. au 5 octobre
P	mm	25	11	17	2
ETR	mm	88	21	20	16
ETP	mm	182	52	39	29
ETR/ETP × 100		48	40	51	55

P : pluviosité ; ETR : évapotranspiration réelle ; ETP : évapotranspiration potentielle (PENMAN).