

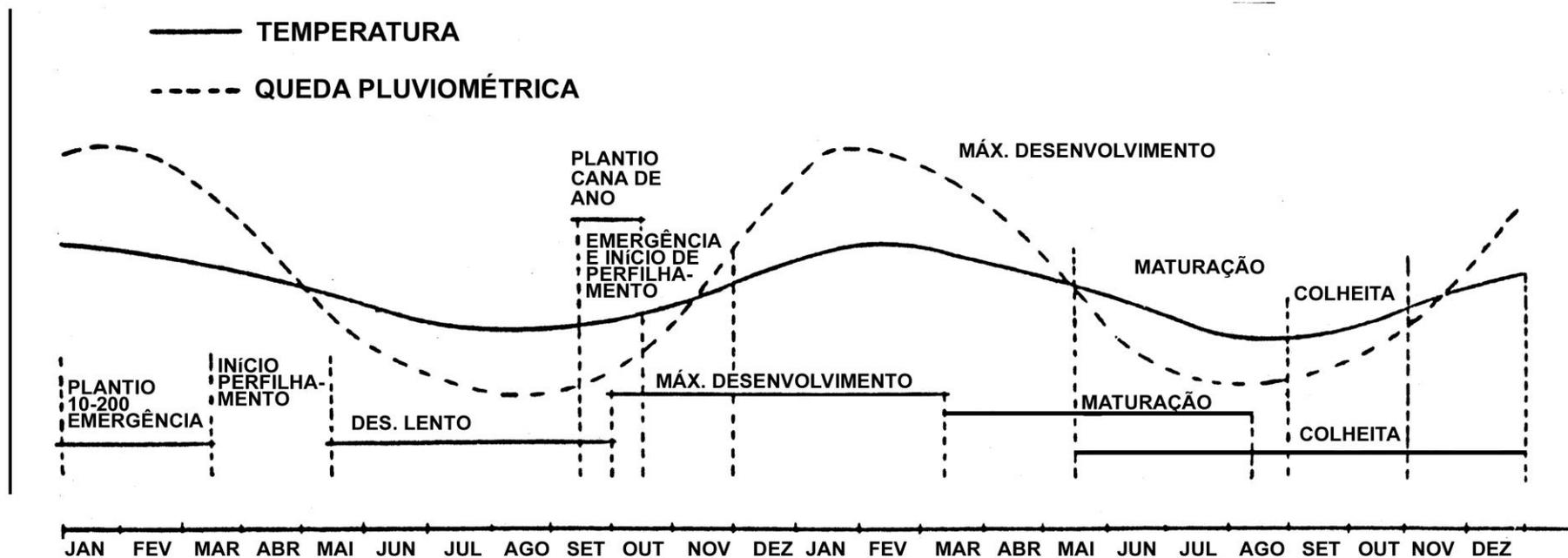


FISIOLOGIA DE CULTIVOS: CANA-DE-AÇÚCAR

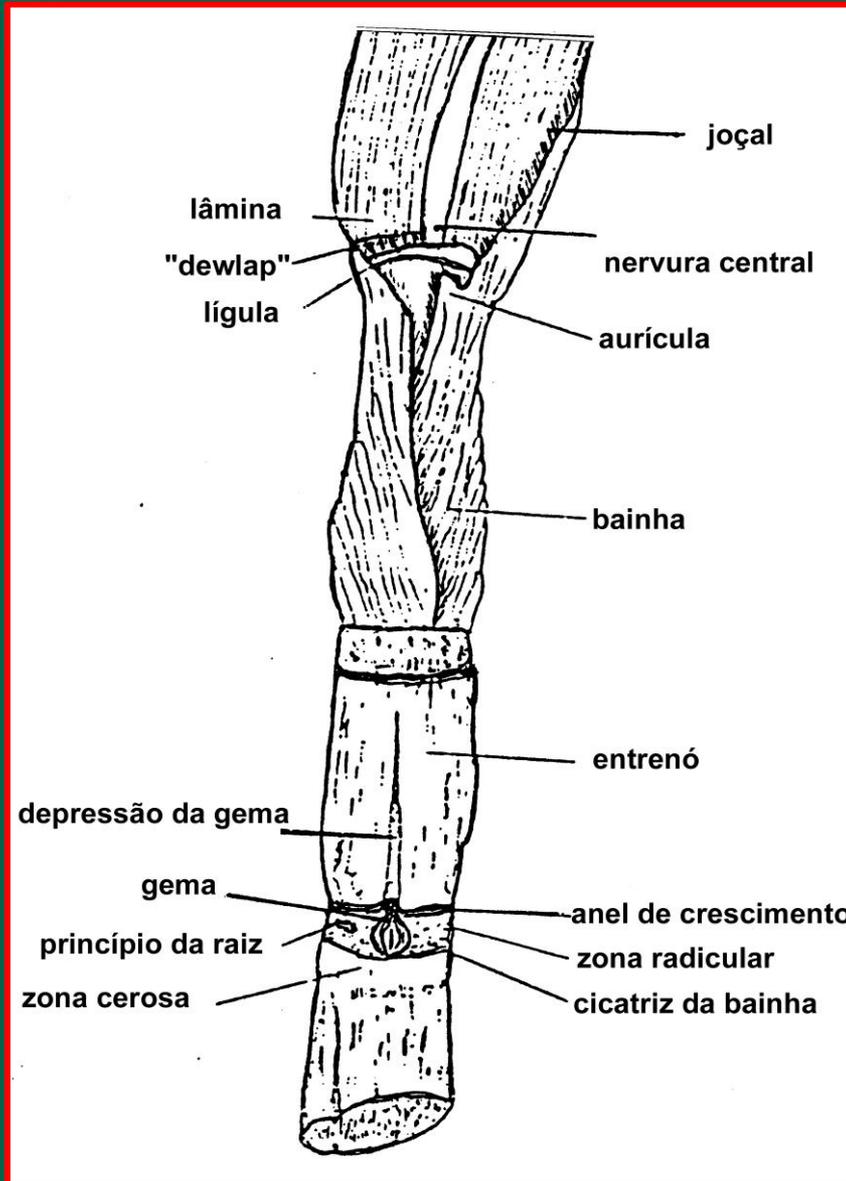


Paulo Roberto de Camargo e Castro
Professor Titular - ESALQ/USP

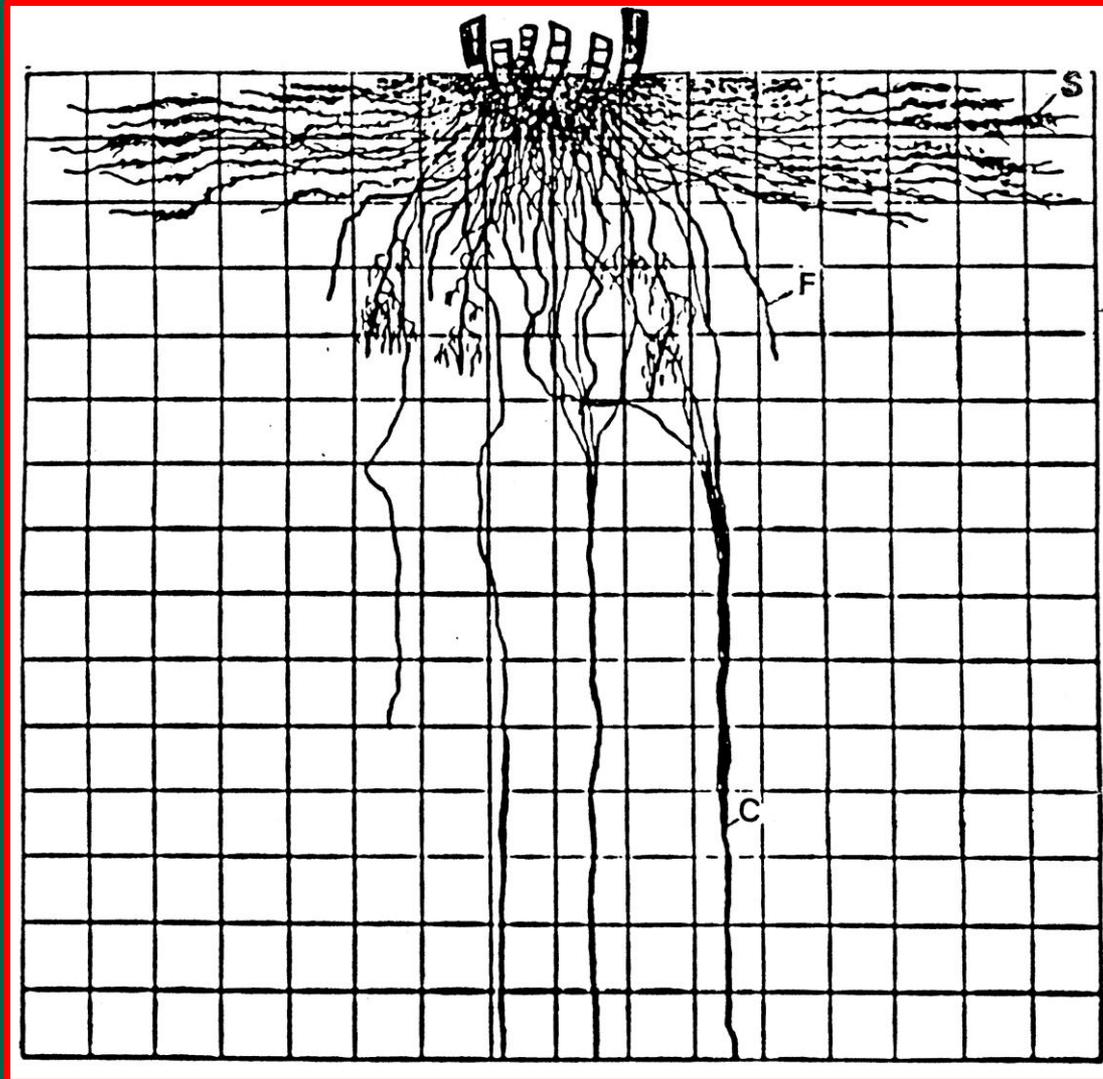
CICLO DA CANA, TEMPERATURA E CHUVA



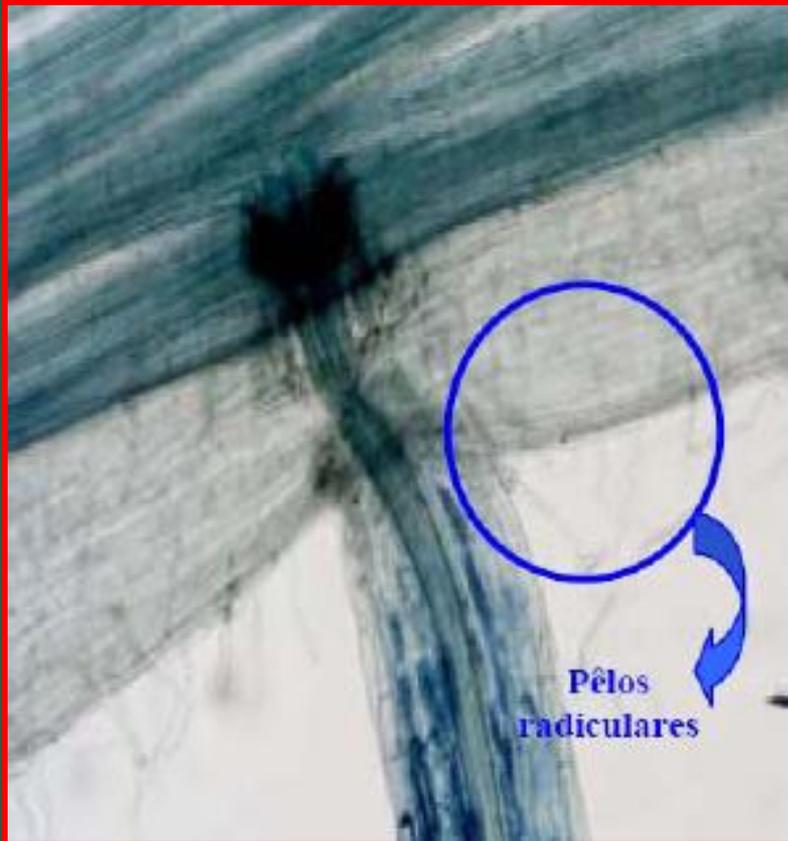
MORFOLOGIA



SISTEMA RADICULAR



RAIZ DA CANA-DE-AÇÚCAR

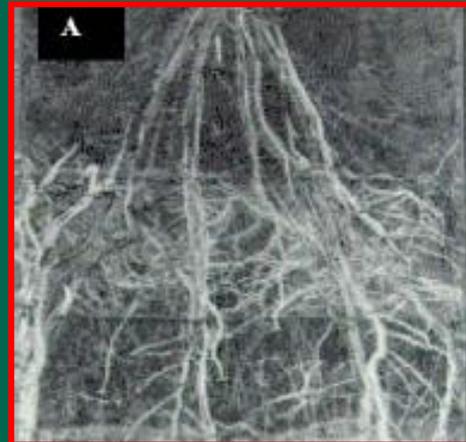


Fonte: Vasconcelos, 2005.



Fonte: Rodrigues, J. D.

RAIZ DA CANA-DE-AÇÚCAR



C

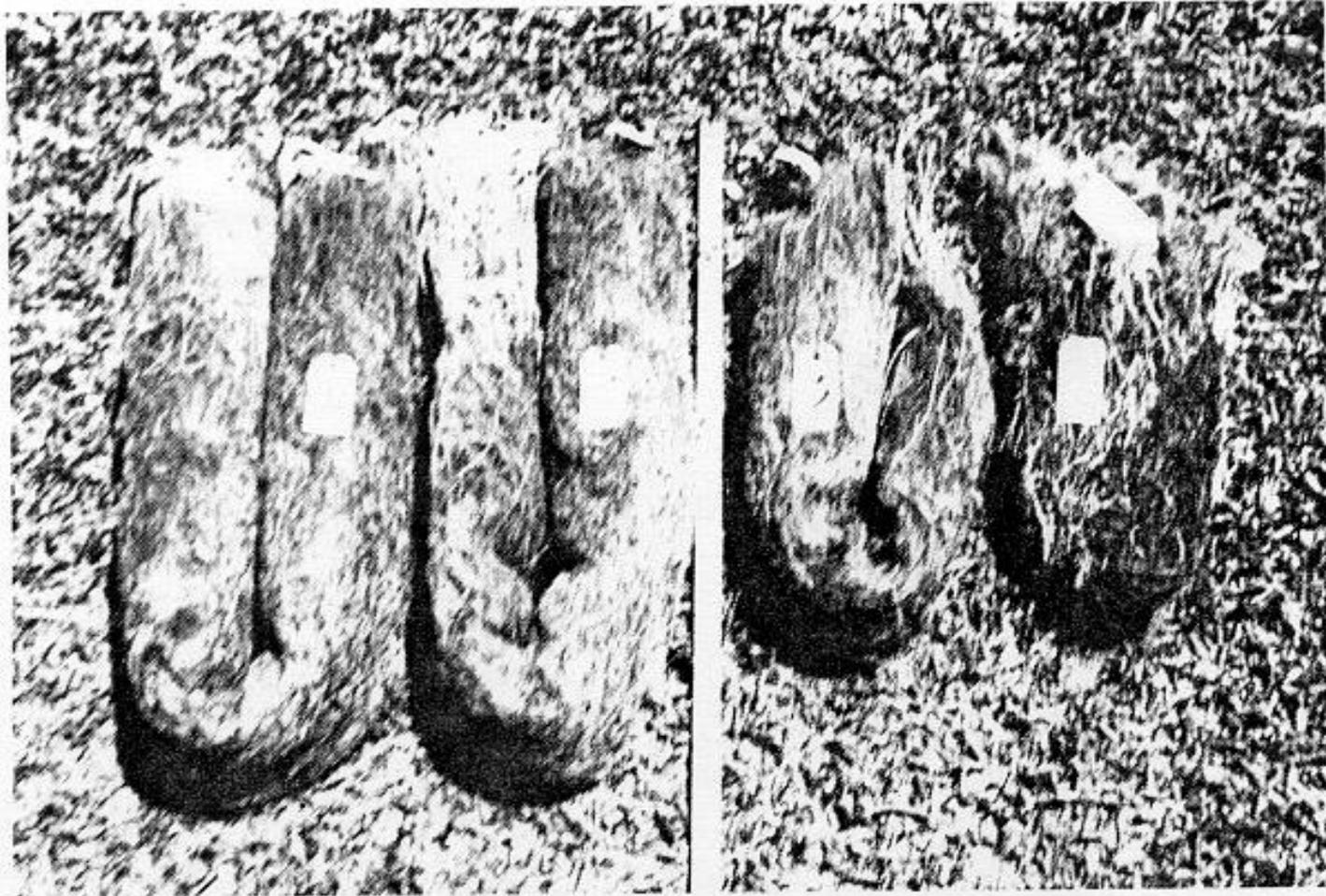
2
DAC



32
DAC

60
DAC

AERAÇÃO DO SISTEMA RADICULAR

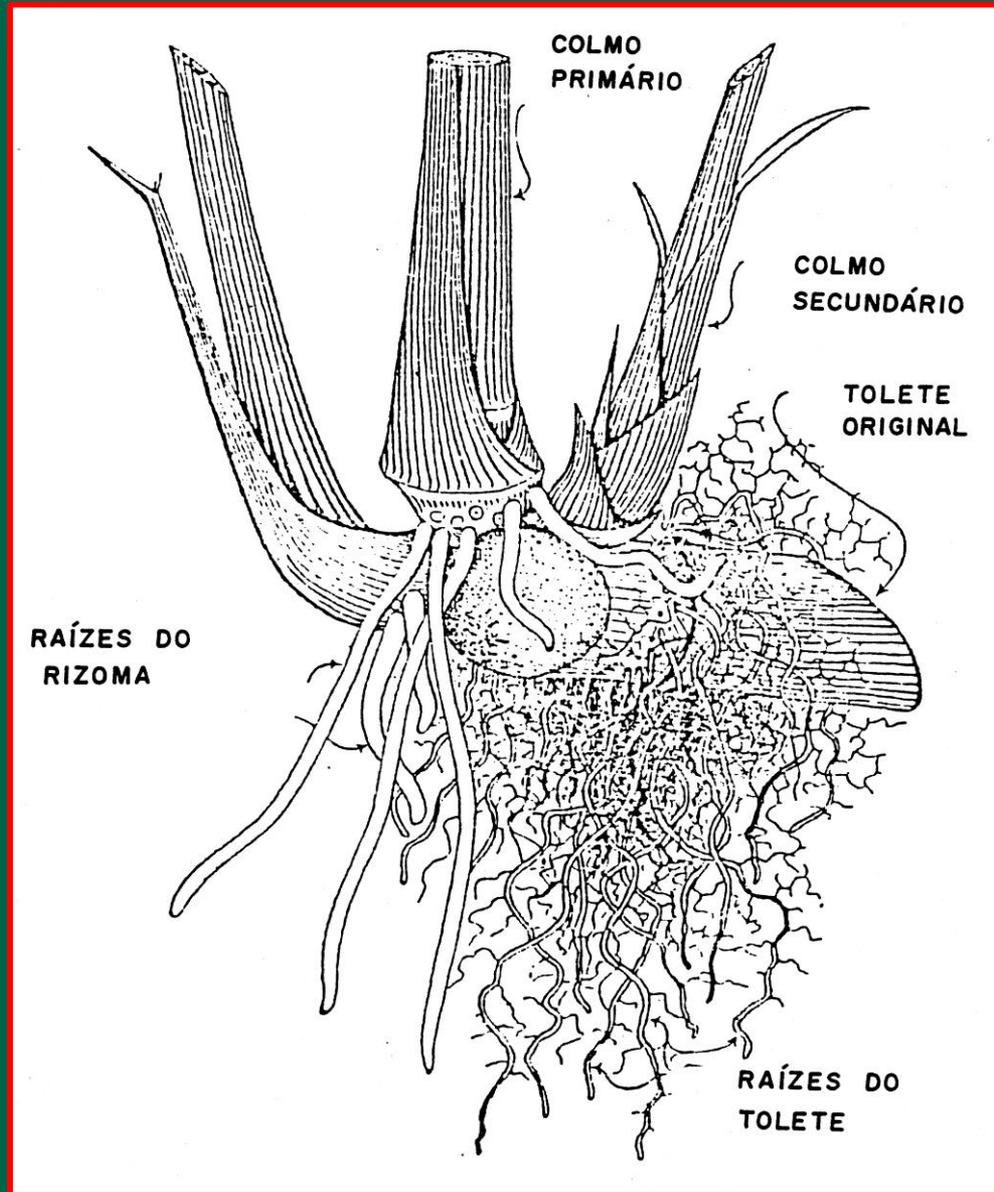


EFEITO DA PROFUNDIDADE E DO ÂNGULO DE PLANTIO NA PORCENTAGEM DE EMERGÊNCIA

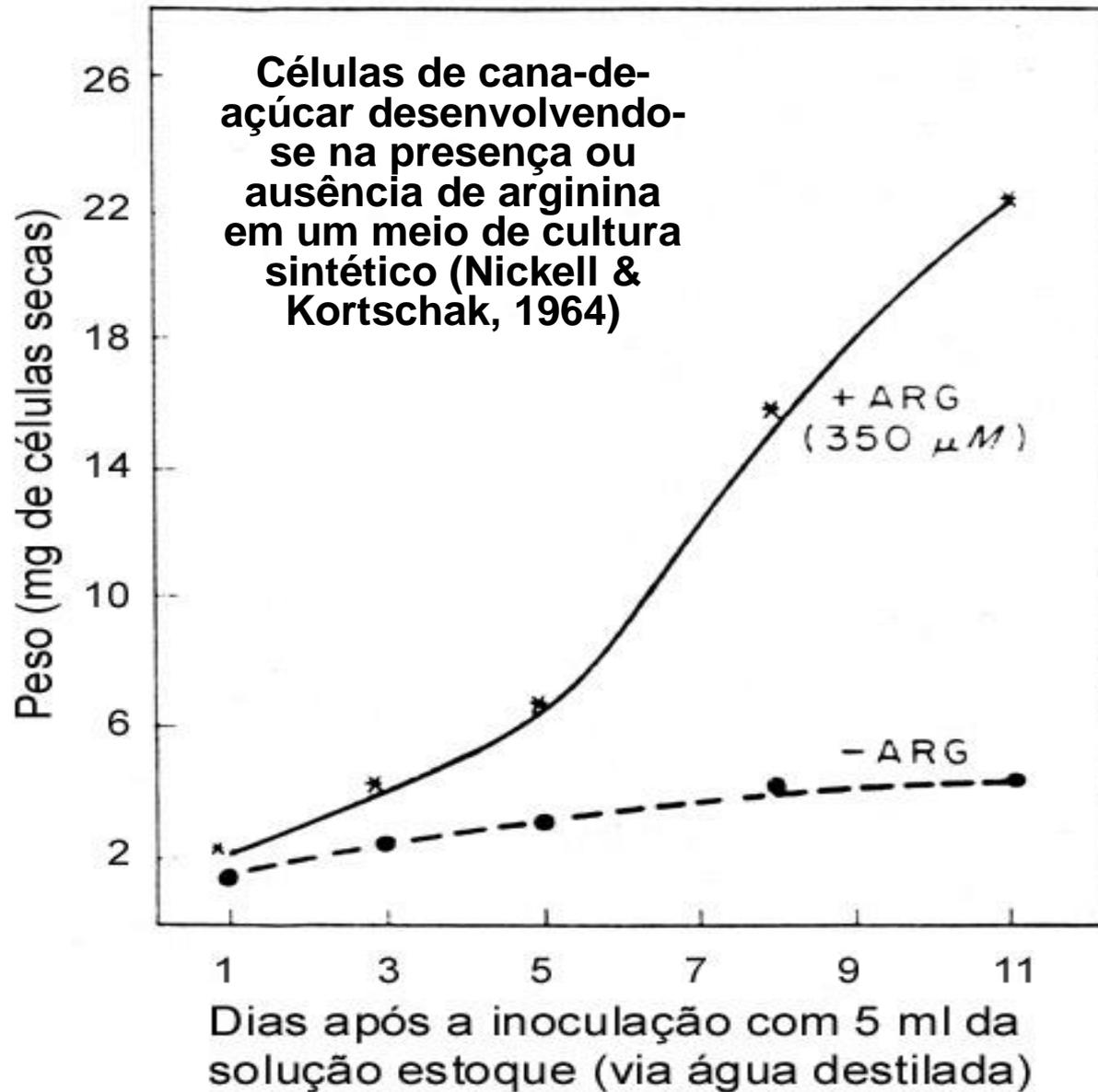
Days after planting	Planting depth (inches)				
	1	2	3	4	5
8	20	10	-	-	-
9	50	20	-	-	-
10	50	20	10	-	-
11	50	40	30	-	-
12	60	60	50	10	30
13	100	70	50	10	30
15	100	80	60	60	70
17	100	80	70	70	90
19	100	80	70	80	100

Days after planting	Planting angle (degree)				
	1	2	3	4	5
13	40	30	-	-	-
14	50	40	-	-	-
15	60	40	10	-	-
17	70	80	10	-	10
19	80	80	50	-	20
20	100	80	100	30	30
22	100	100	100	70	60
25	100	100	100	100	100

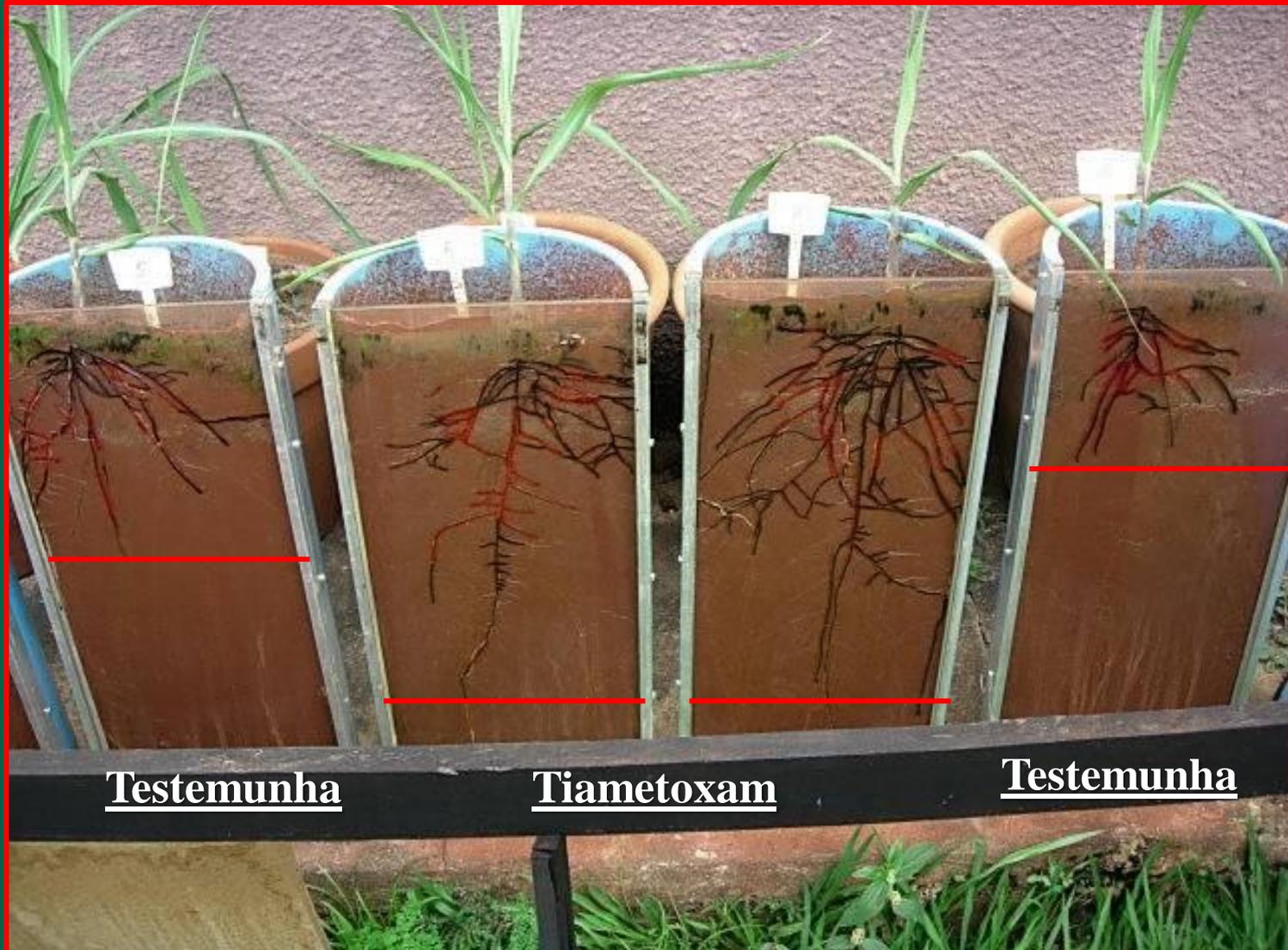
TOUCEIRA



ARGININA



EFEITO DO TIAMETOXAM NO DESENVOLVIMENTO RADICULAR



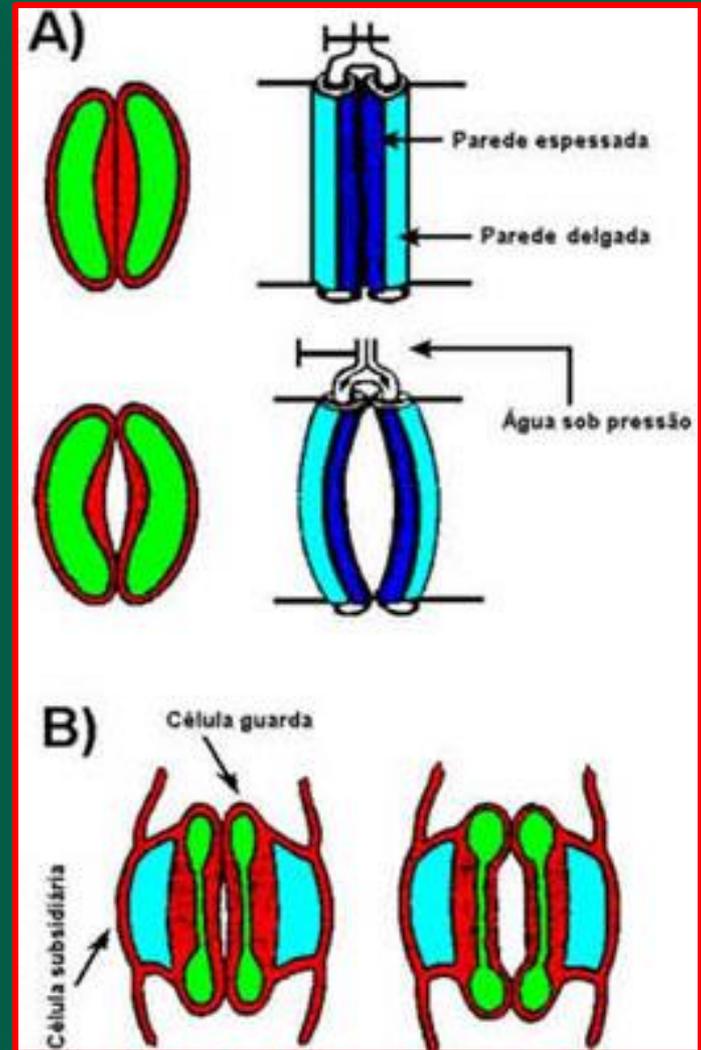
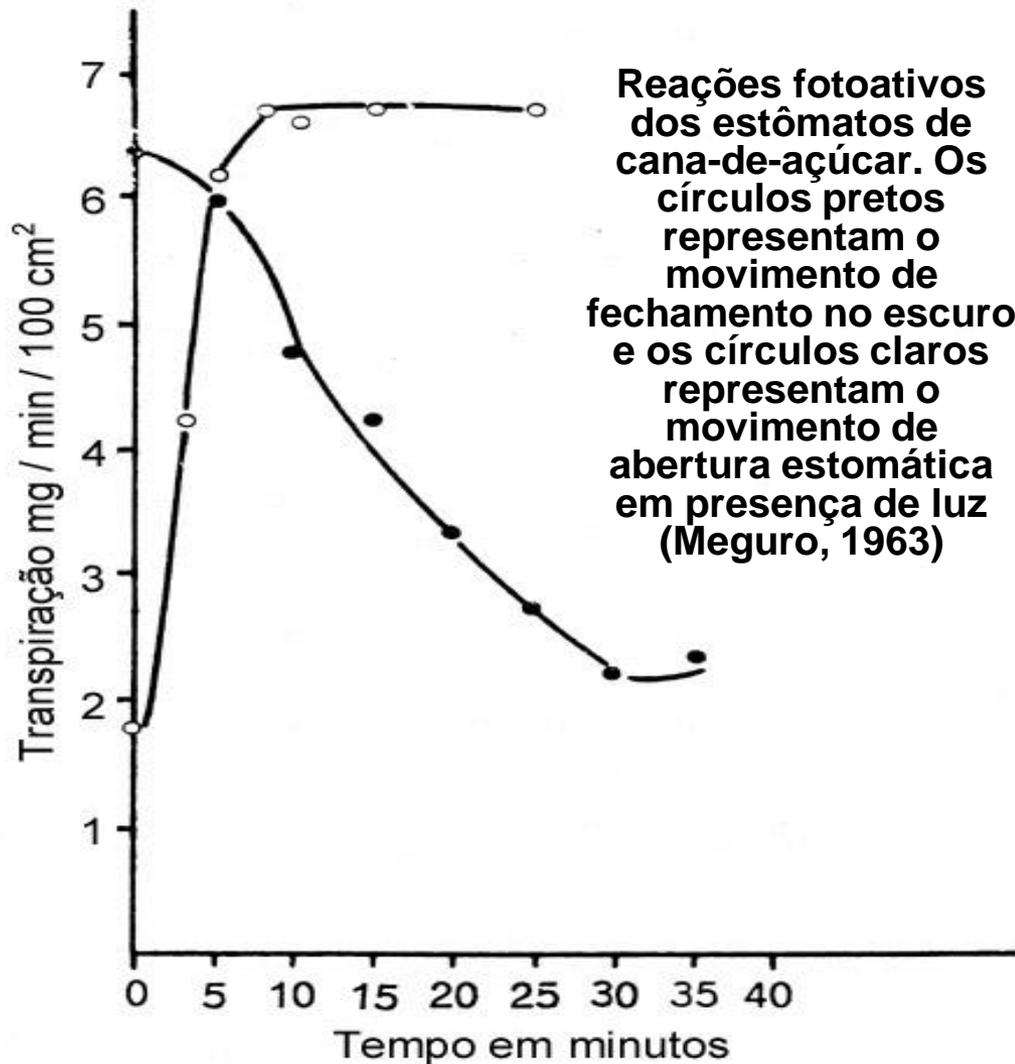
PRODUTIVIDADE



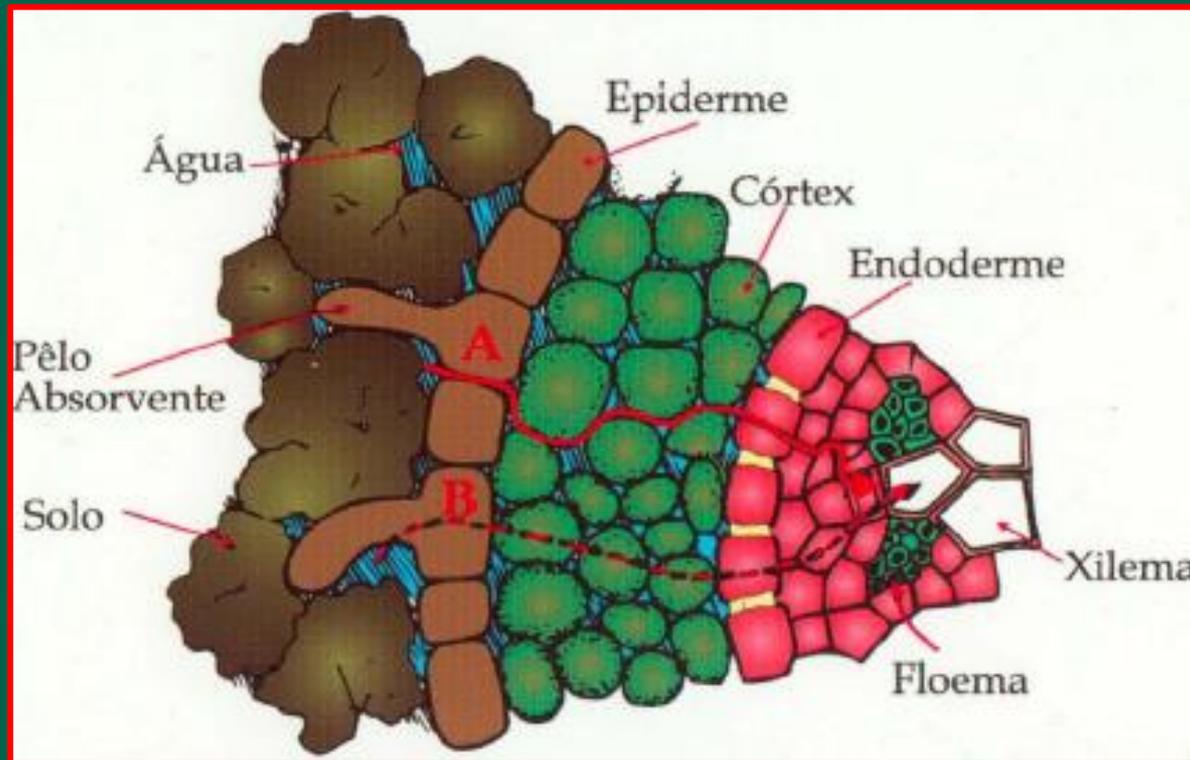
PRODUTIVIDADE



REAÇÕES FOTOATIVAS DOS ESTÔMATOS

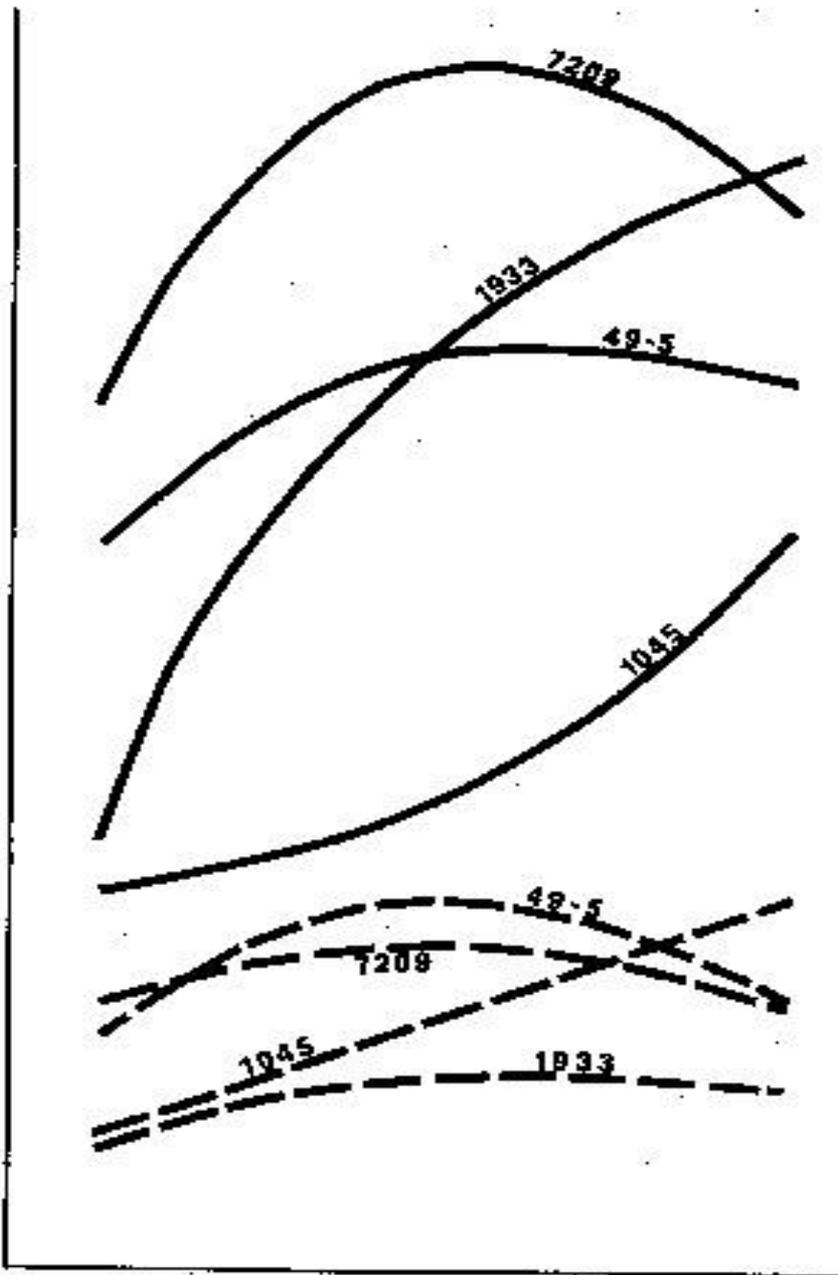


ABSORÇÃO DE MINERAIS



NITROGÊNIO

Resposta de cultivares de cana-de-açúcar ao aumento de nitrogênio (eixo horizontal) medida em termos de produção total de cana (eixo vertical). As quatro curvas superiores correspondem a insolação total, as 4 inferiores resultam de 50% de sombreamento.



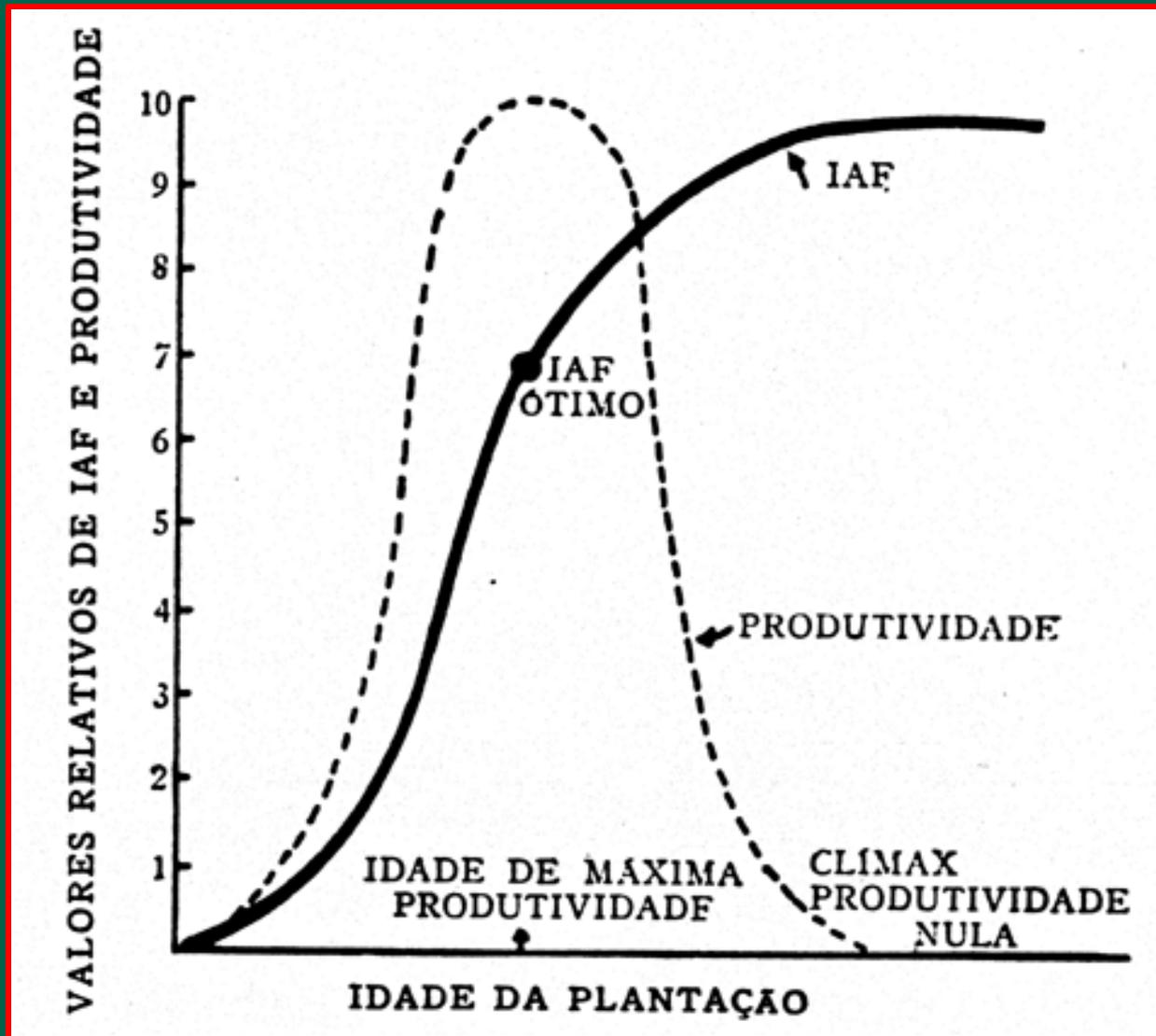
NÍVEIS ADEQUADOS DE NUTRIENTES NO TECIDO FOLIAR DA CANA-DE-AÇÚCAR

Nutrientes	Teor (ppm)		Tecido foliar utilizado	Idade do tecido (meses)	Correção kg/ha
	Crítico	Ótimo			
N	-	1,65-2,59	3	04-9	20-100
P	0,15	0,20-0,35	3	04-9	0-80
K	0,62	0,62-1,45	3	6	99
Al*					
B	1	6-29	3	4-16	3-4,5
Ca	-	0,43-0,76**	3	4-9	-
Cl*					
Cu	-	9-17	3	4-9	6
S**	-	0,13-0,28	3	6	50
Fe	-	76-392	3	4-9	6-10
Mg	-	0,11-0,36	3	4-9	-
Mn	-	73-249	3	4-9	3-6
Mo*					
Si*					
Na*					
Zn*					

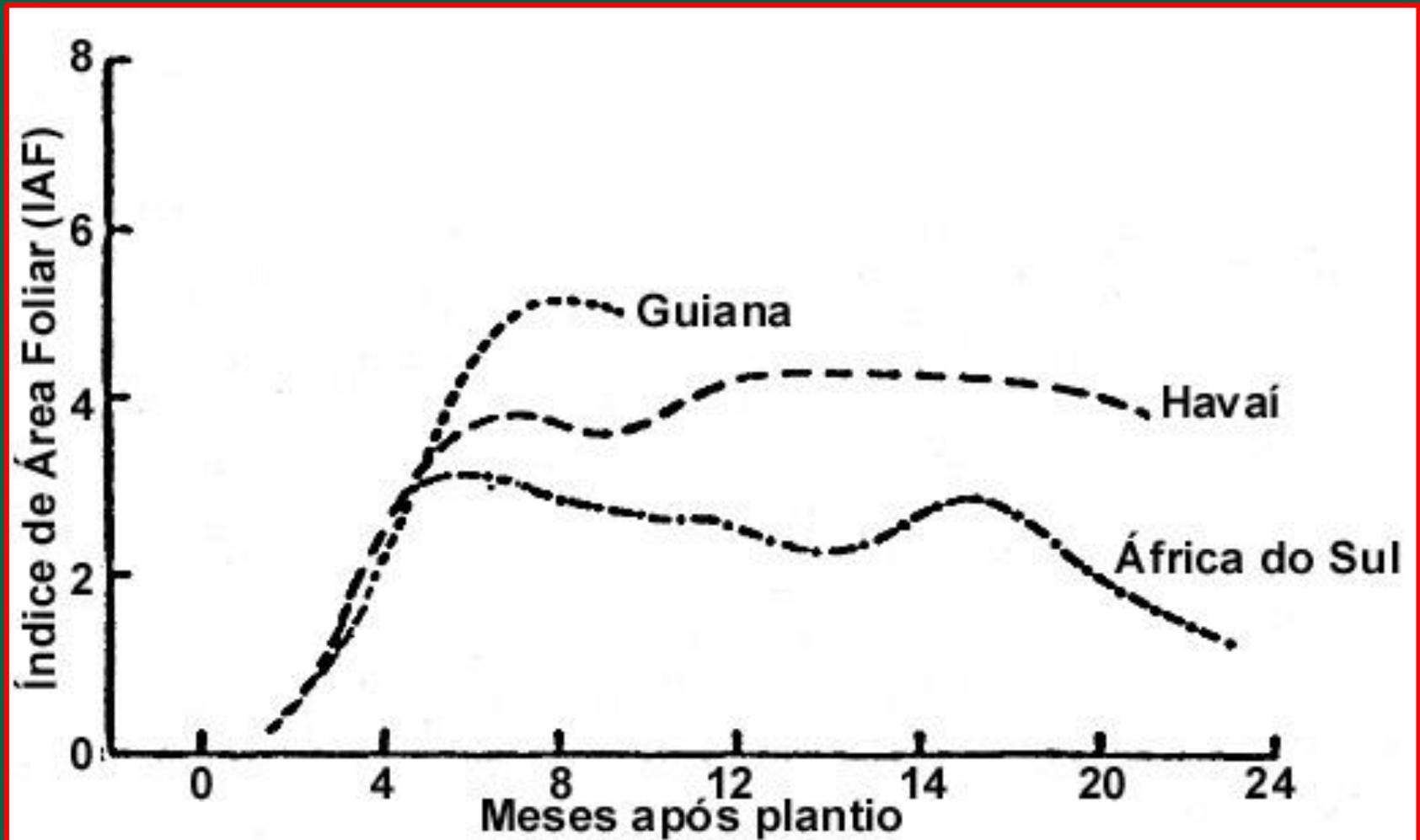
Dados não publicados ** variação calculada com base na massa seca

Fonte: Baseado nos dados fornecidos por Anderson & Bowen (1992)

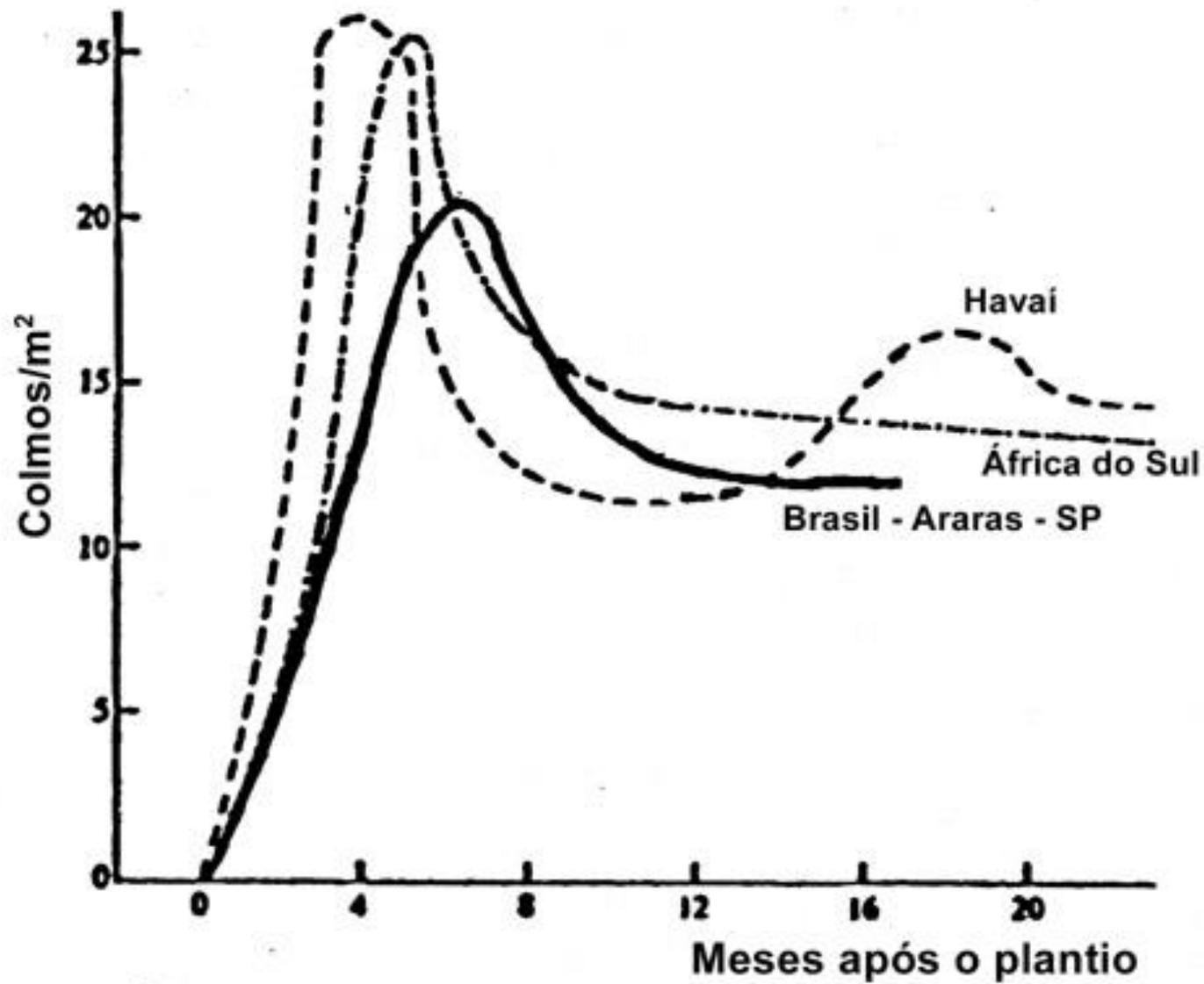
ÍNDICE DE ÁREA FOLIAR (IAF) E PRODUTIVIDADE



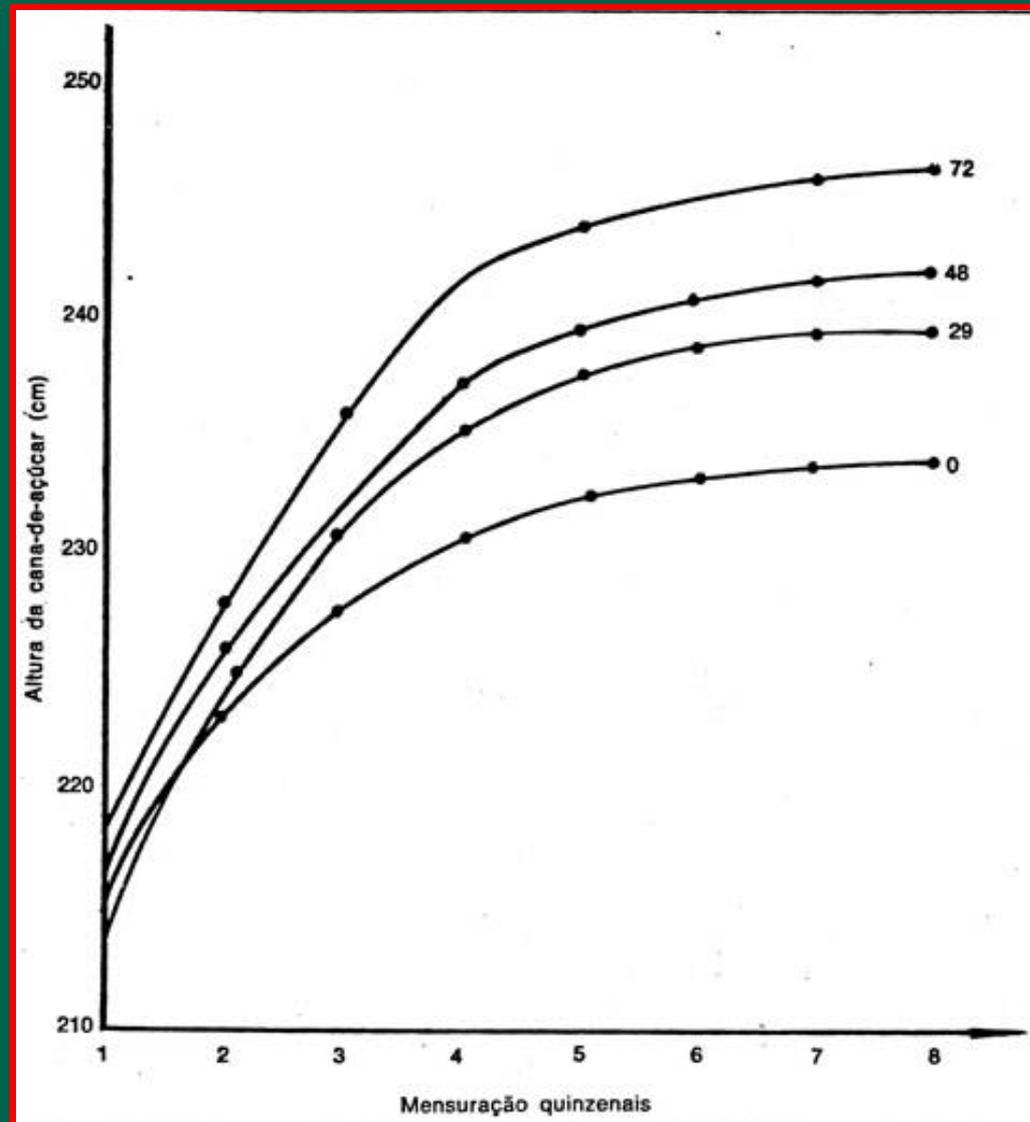
DIFERENÇAS NO ÍNDICE DE ÁREA FOLIAR



NÚMERO DE COLMOS



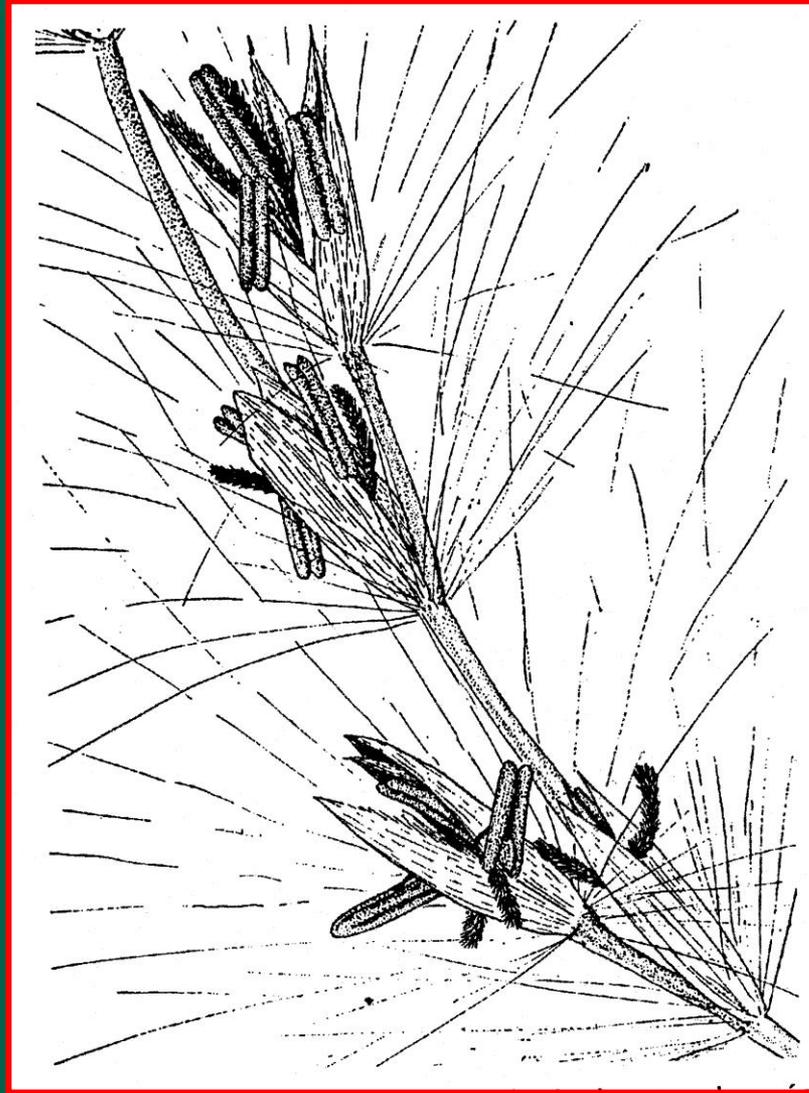
ÁCIDO GIBERÉLICO – ALTURA DAS PLANTAS (cm)



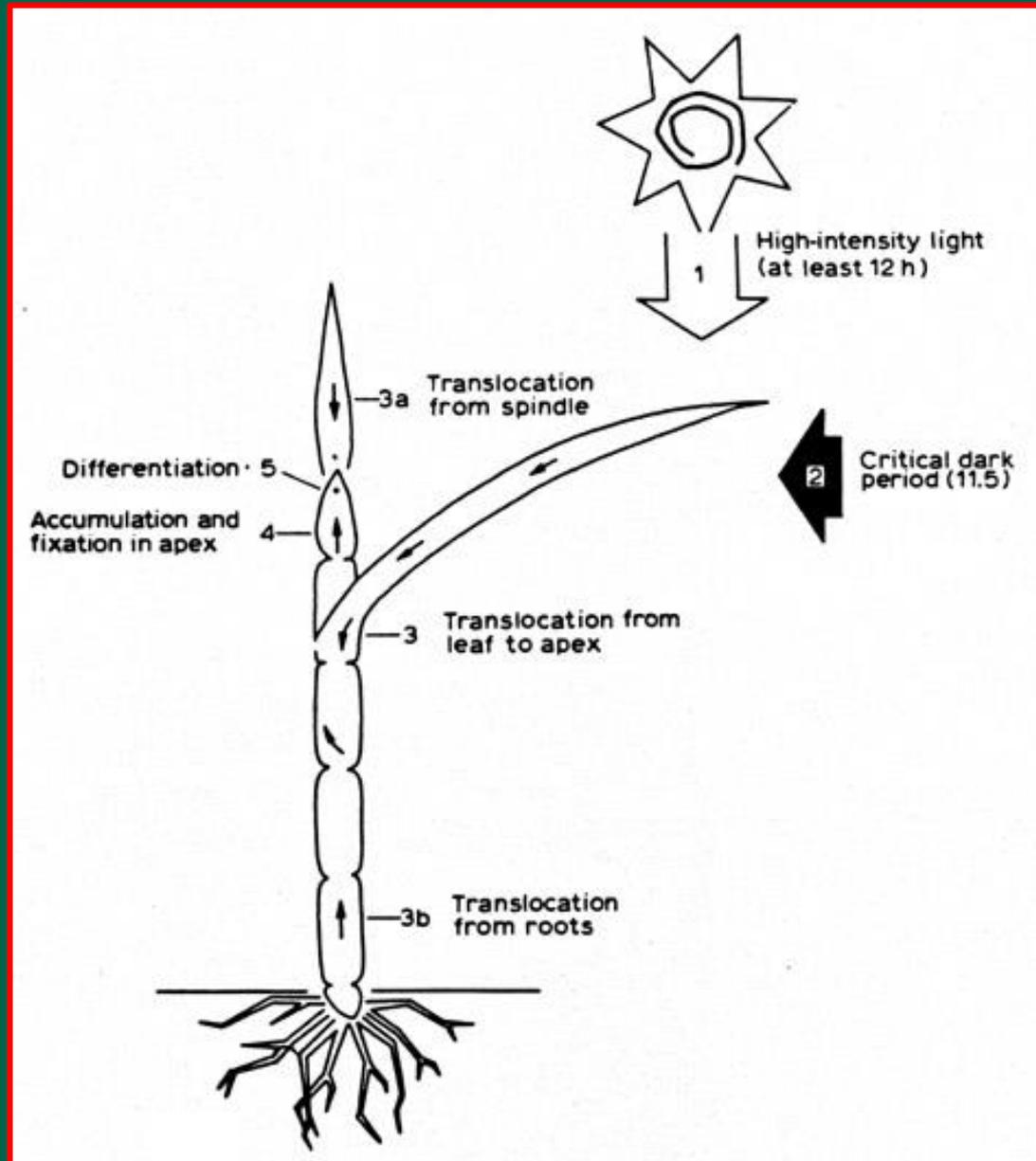
CARACTERÍSTICAS MORFOLÓGICAS ASSOCIADAS À PRODUTIVIDADE DA CANA-DE-AÇÚCAR

Parte da planta	Característica desejável	Efeito na fotossíntese e na produção
Perfilhos	Vertical Alto perfilhamento	Melhor penetração da luz Substituição de plantas mortas Desenvolvimento rápido do IAF
Folha	Espessa Curta e pequena Ereta	Hábito mais ereto Associada a hábito mais ereto Aumento na área iluminada permite IAF maiores
Colmos	Alta força de dreno para sacarose Firme	Alta produtividade Previne acabamentoo

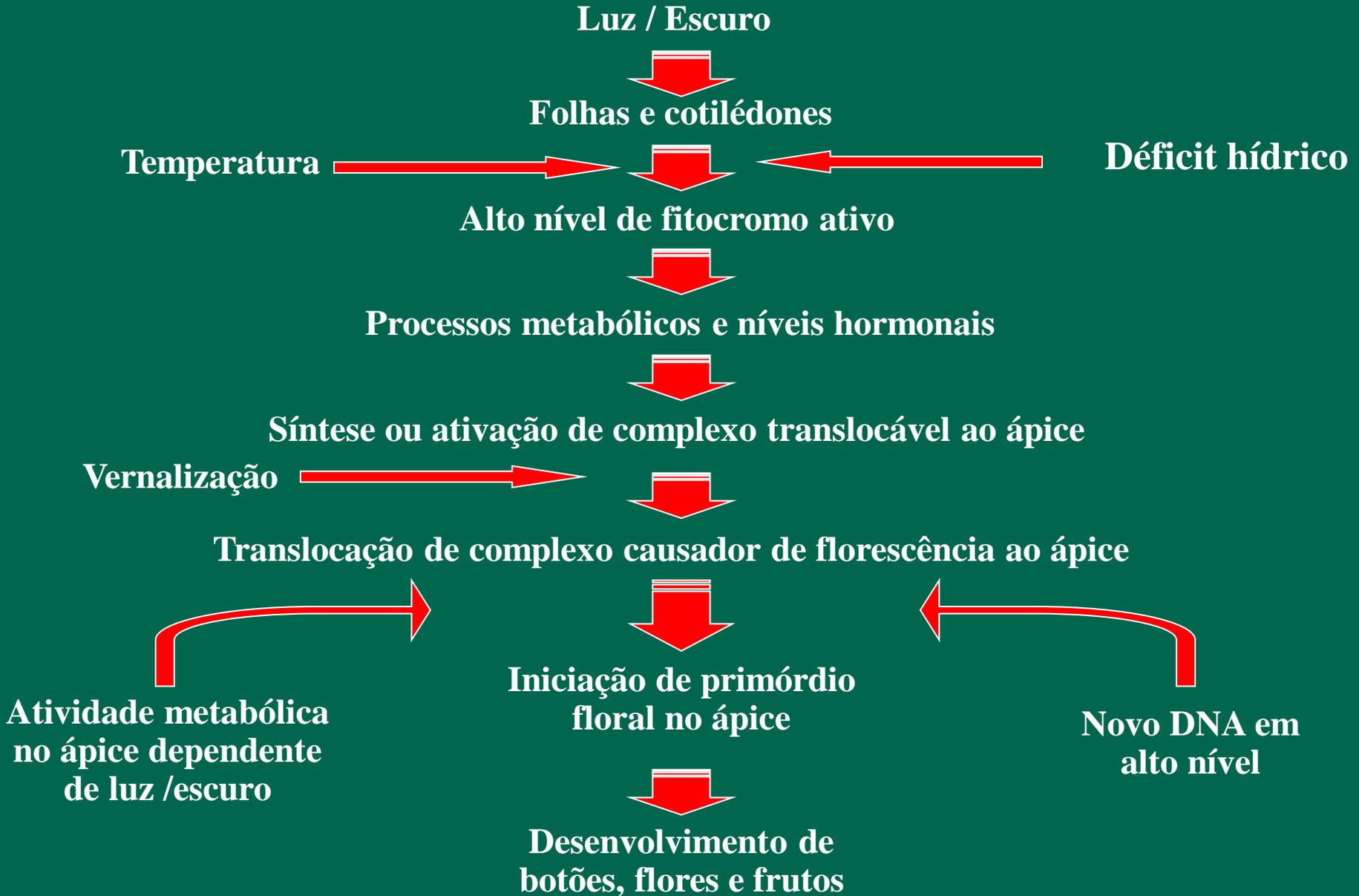
INFLORESCÊNCIA



PROCESSO DO FLORESCIMENTO



EVENTOS QUE LEVAM AO FLORESCIMENTO



EFICIÊNCIA FOTOSSINTÉTICA



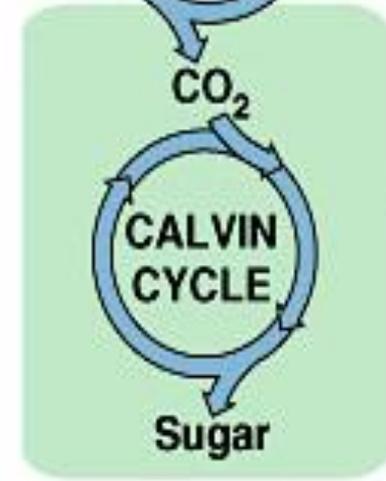
Sugarcane

C_4

Mesophyll cell



Bundle-sheath cell



(a) Spatial separation of steps

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ARQUITETURA FOLIAR

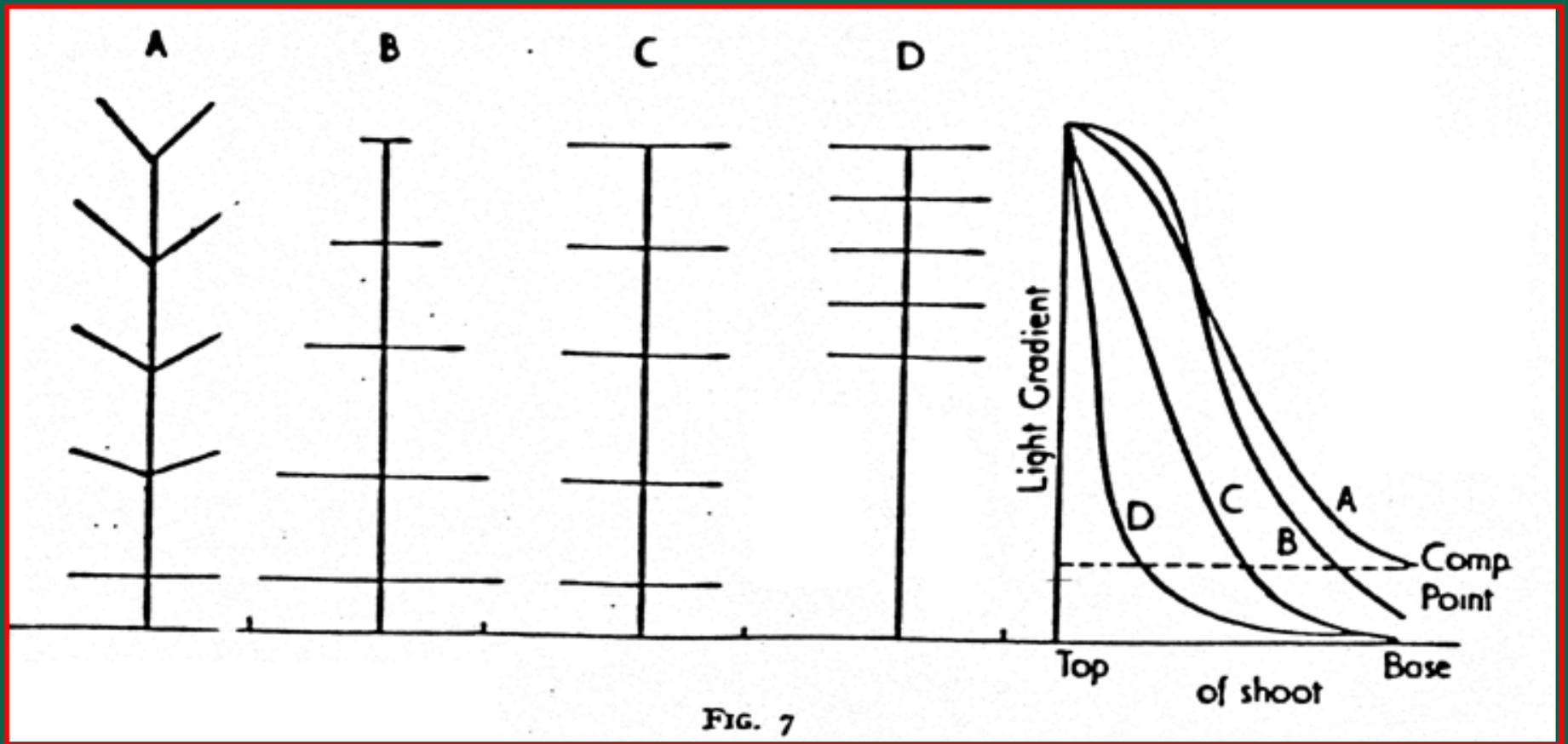
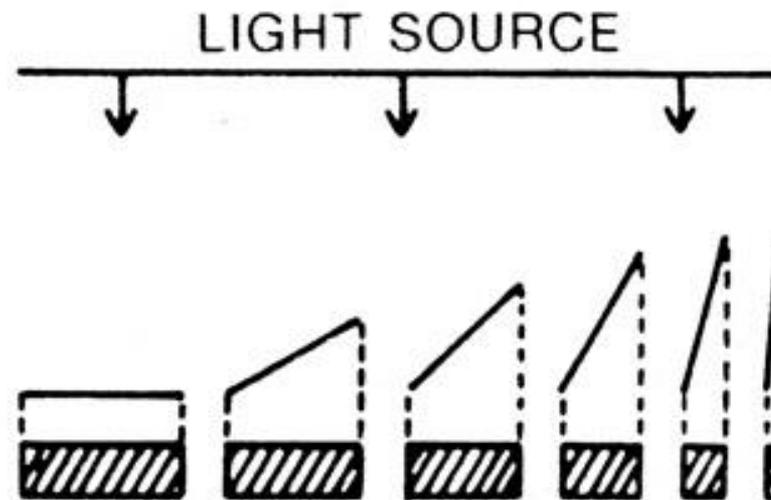


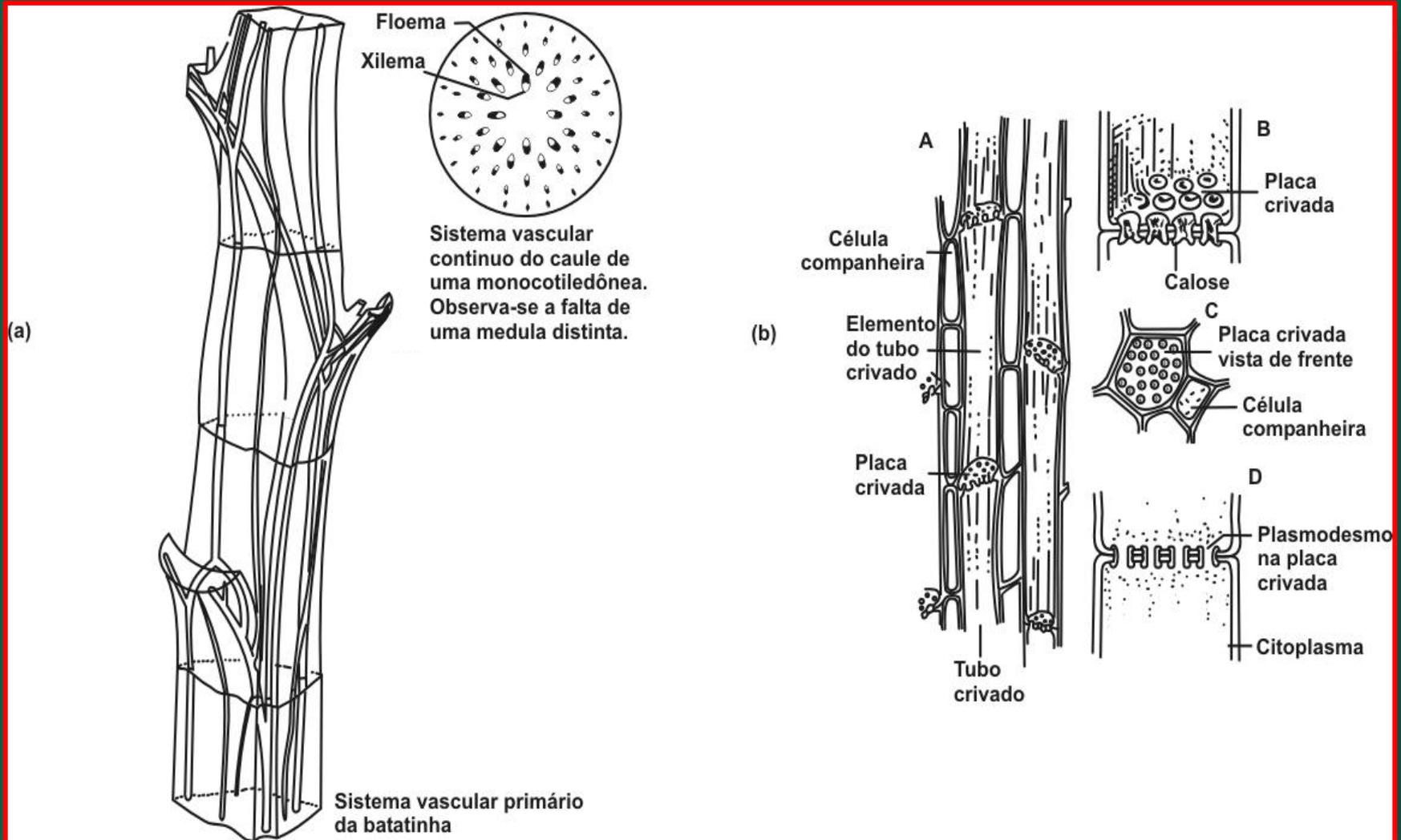
FIG. 7

PENETRAÇÃO DA LUZ

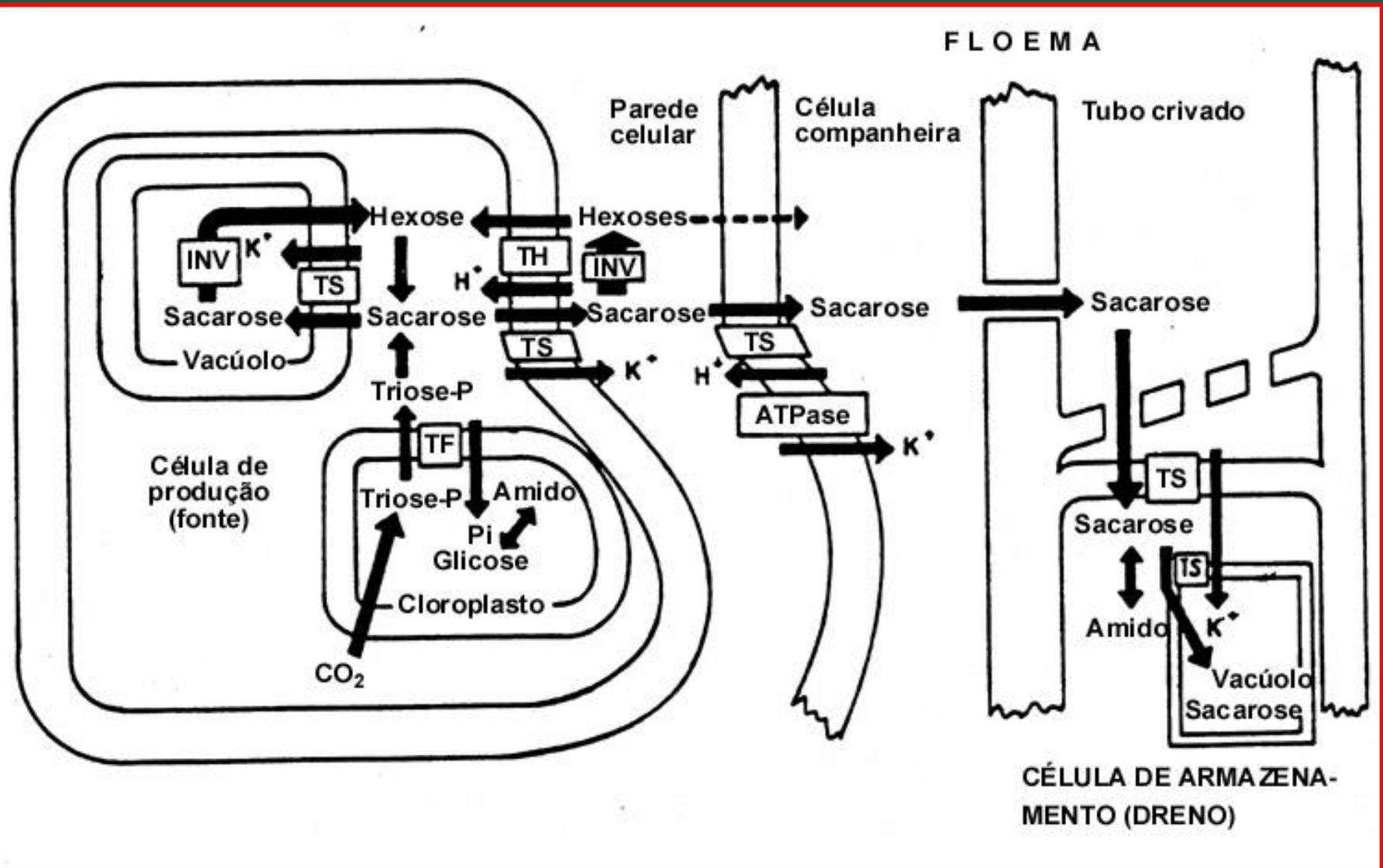


DEGREES FROM HORIZONTAL	0	30	45	60	75	85
EFFECTIVE LIGHT INTENSITY	1	.87	.71	.50	.26	.09
LIGHT PENETRATION (%)	10	22	36	55	77	90
AREA SHADED	1	.87	.71	.50	.26	.09
K-VALUE	2.3	1.5	1.0	0.6	.26	.10

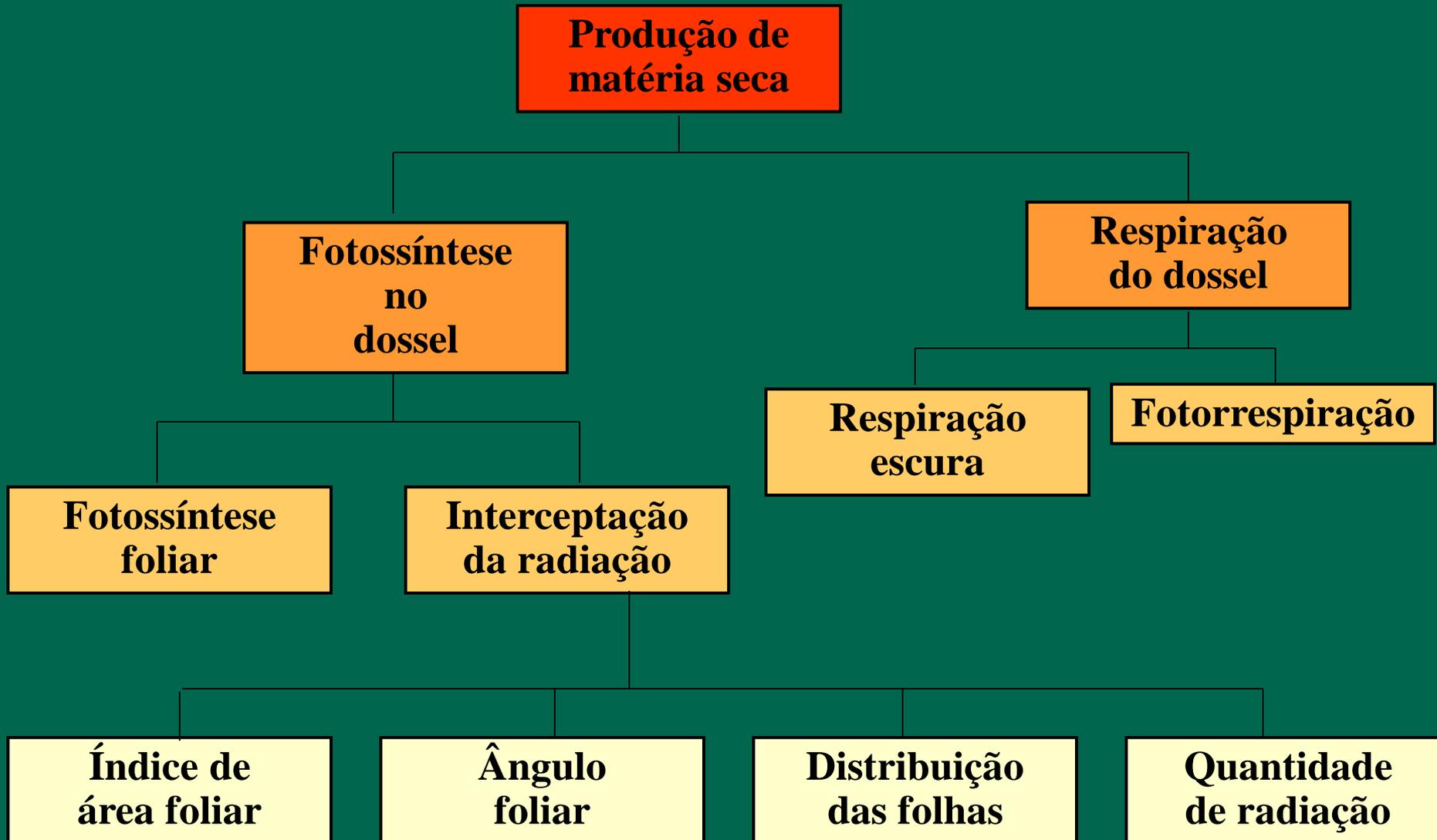
FLUXO DE PRESSÃO NO FLOEMA



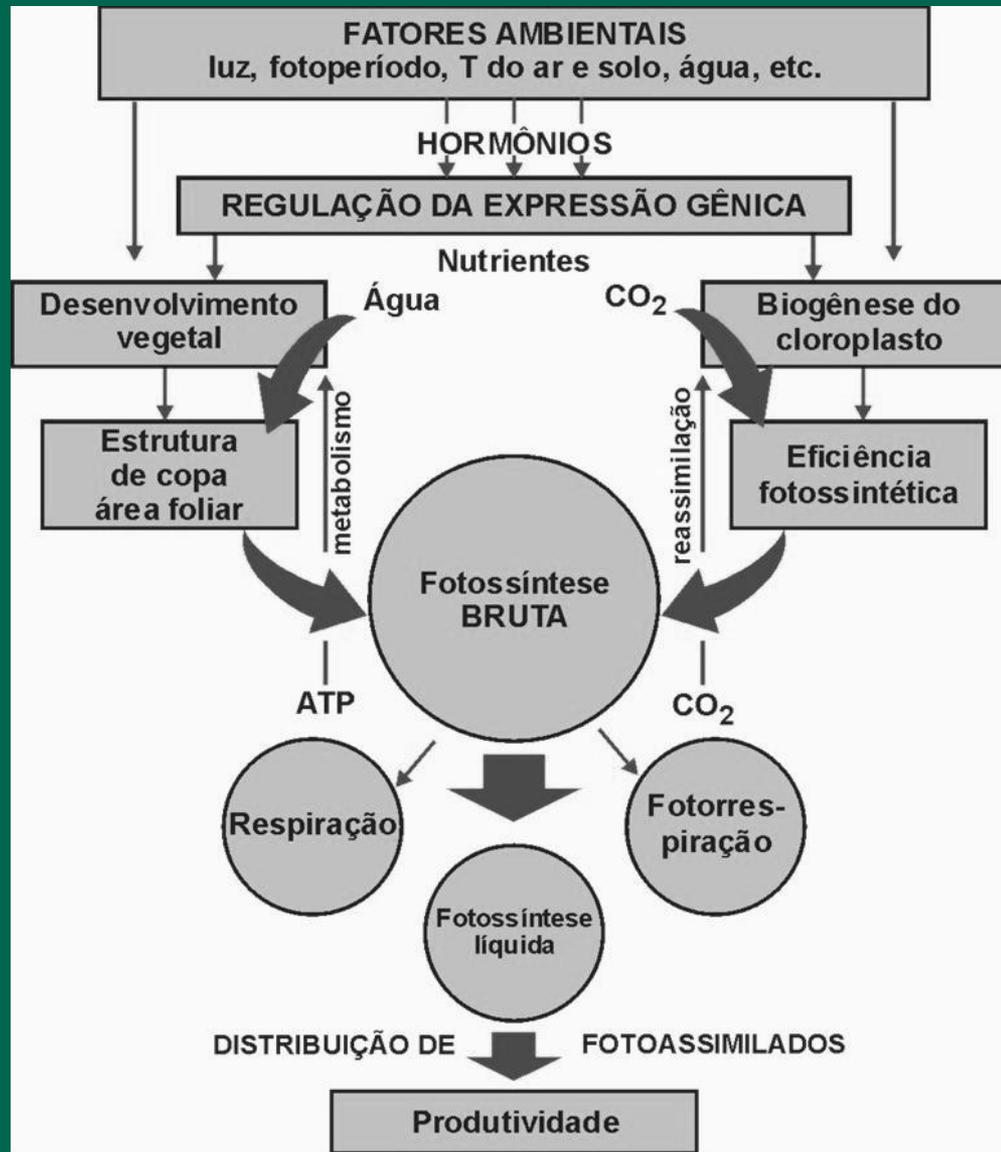
RELAÇÕES FONTE-DRENO



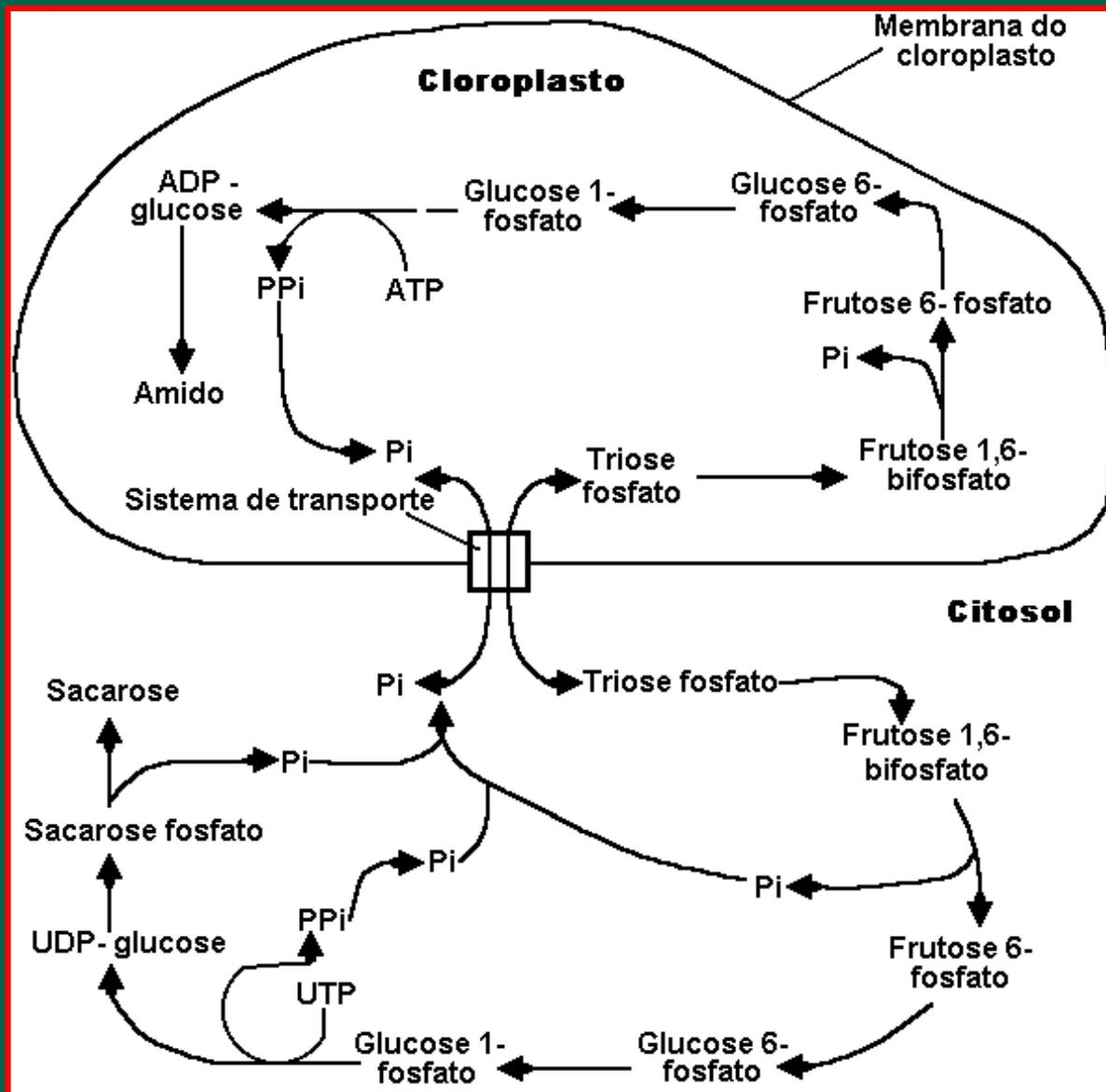
DEPENDÊNCIA DA PRODUTIVIDADE VEGETAL



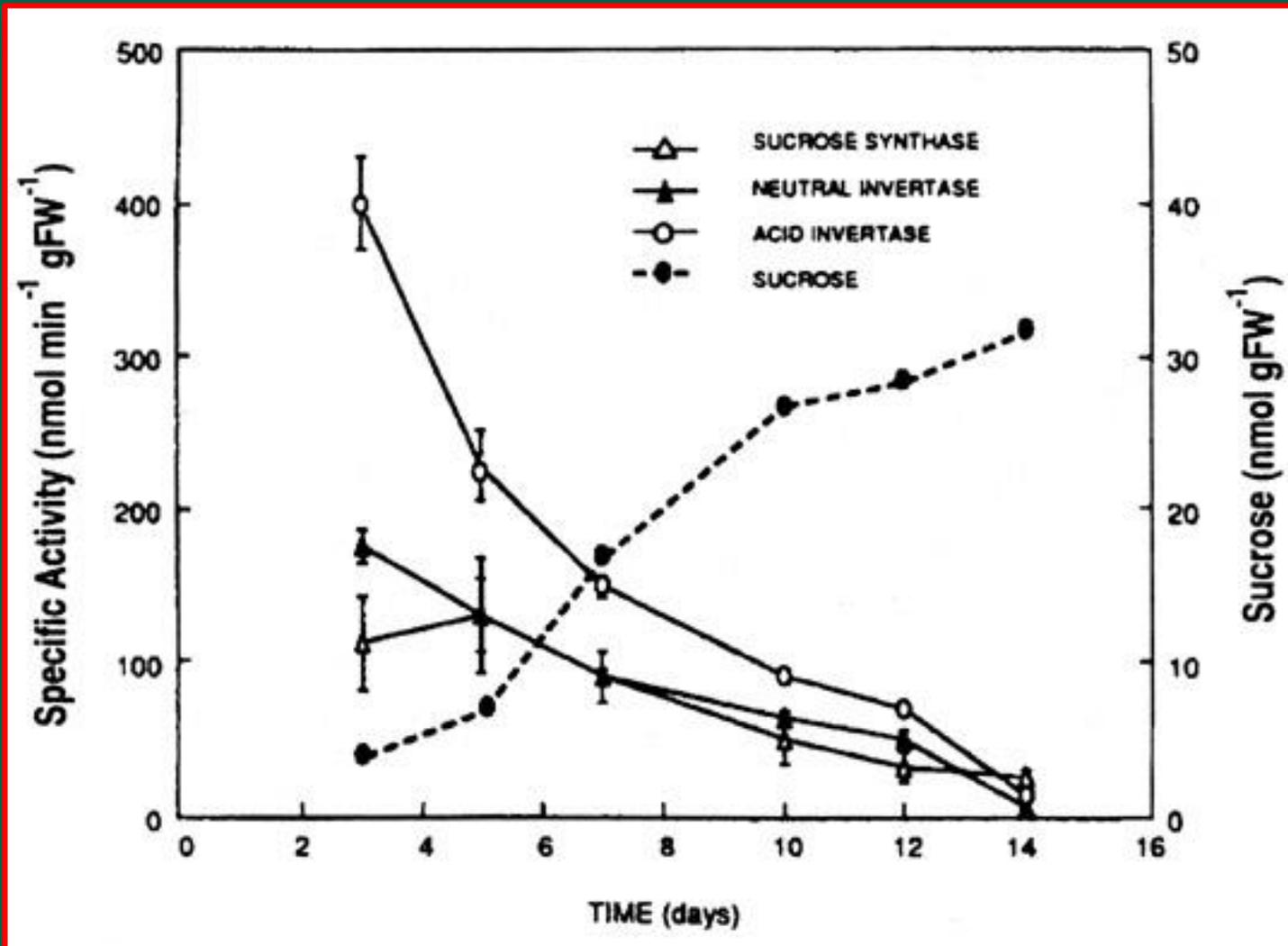
PRODUTIVIDADE



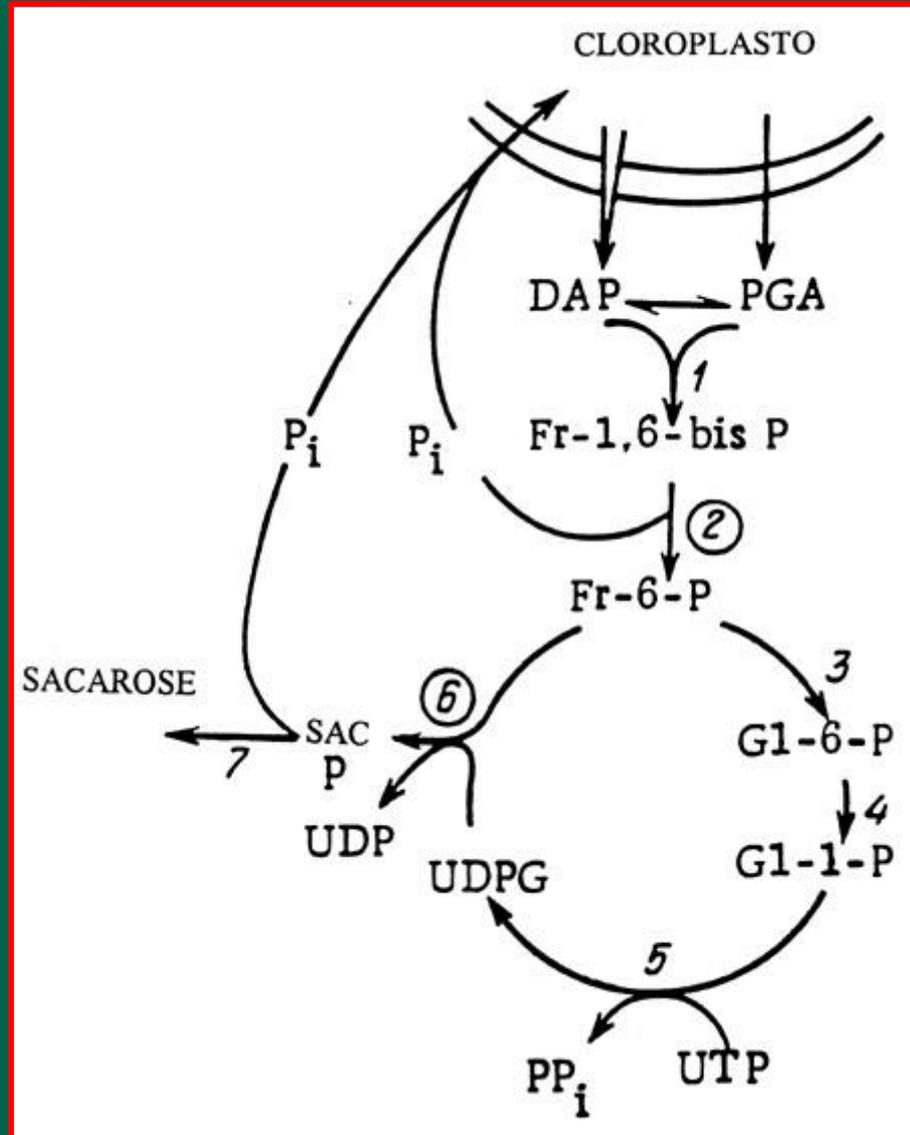
SÍNTESE DE AMIDO E DE SACAROSE

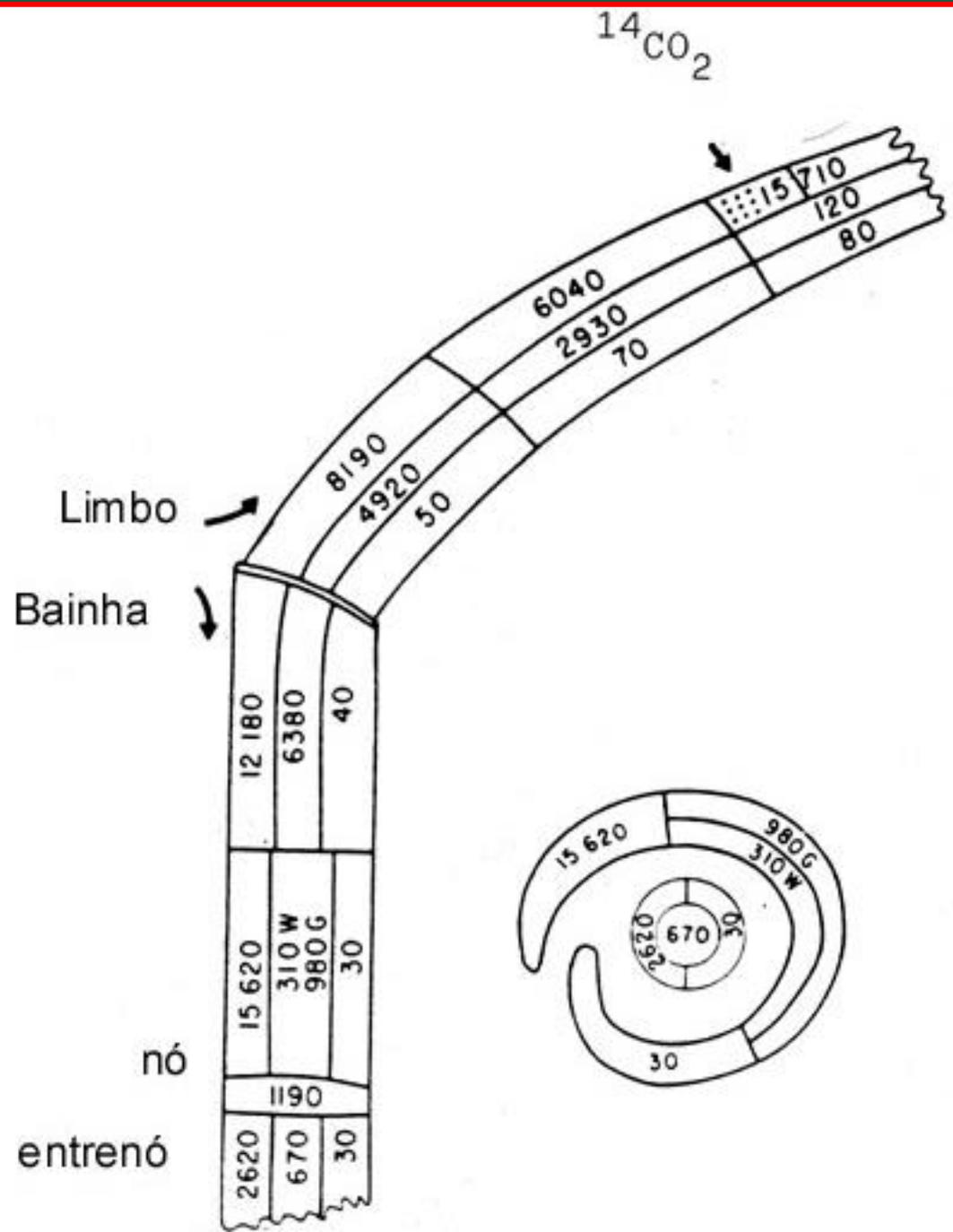


SACAROSE E ATIVIDADE ESPECÍFICA DE ENZIMAS



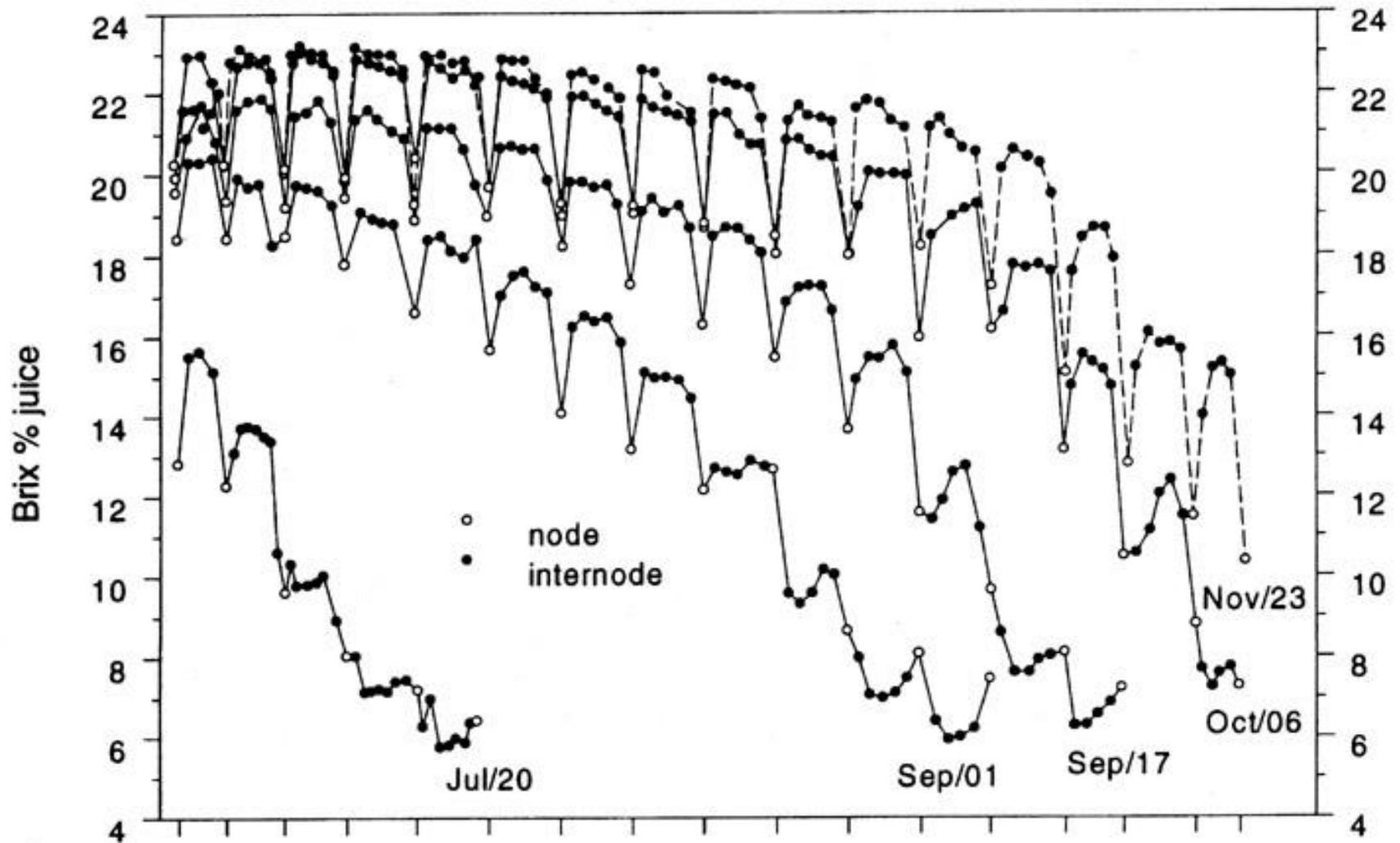
SÍNTESE DE SACAROSE



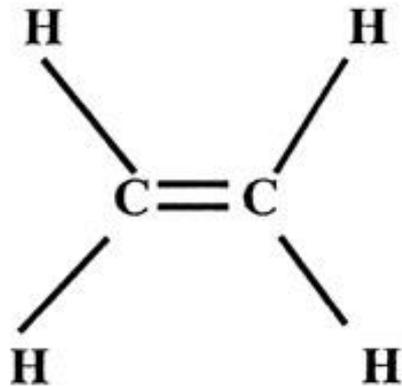


Via de movimento de fotossintetizados no limbo foliar de cana-de-açúcar e na bainha que envolve o colmo.

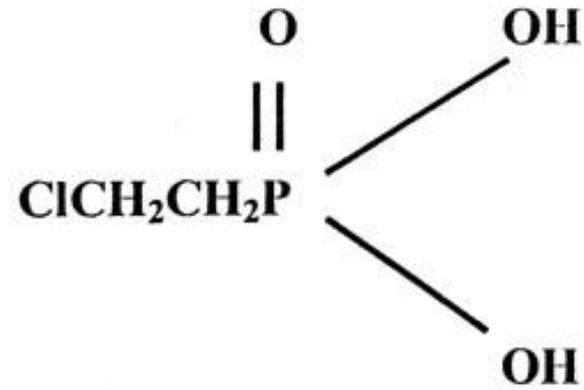
DISTRIBUIÇÃO DO BRUX



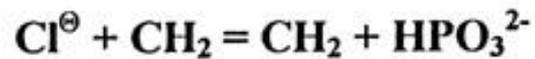
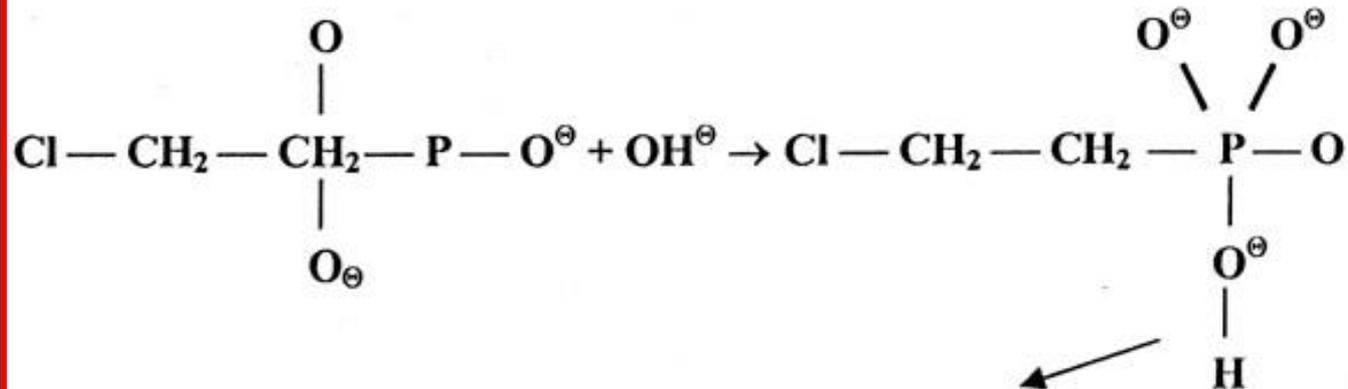
ETILENO E ETHEPHON



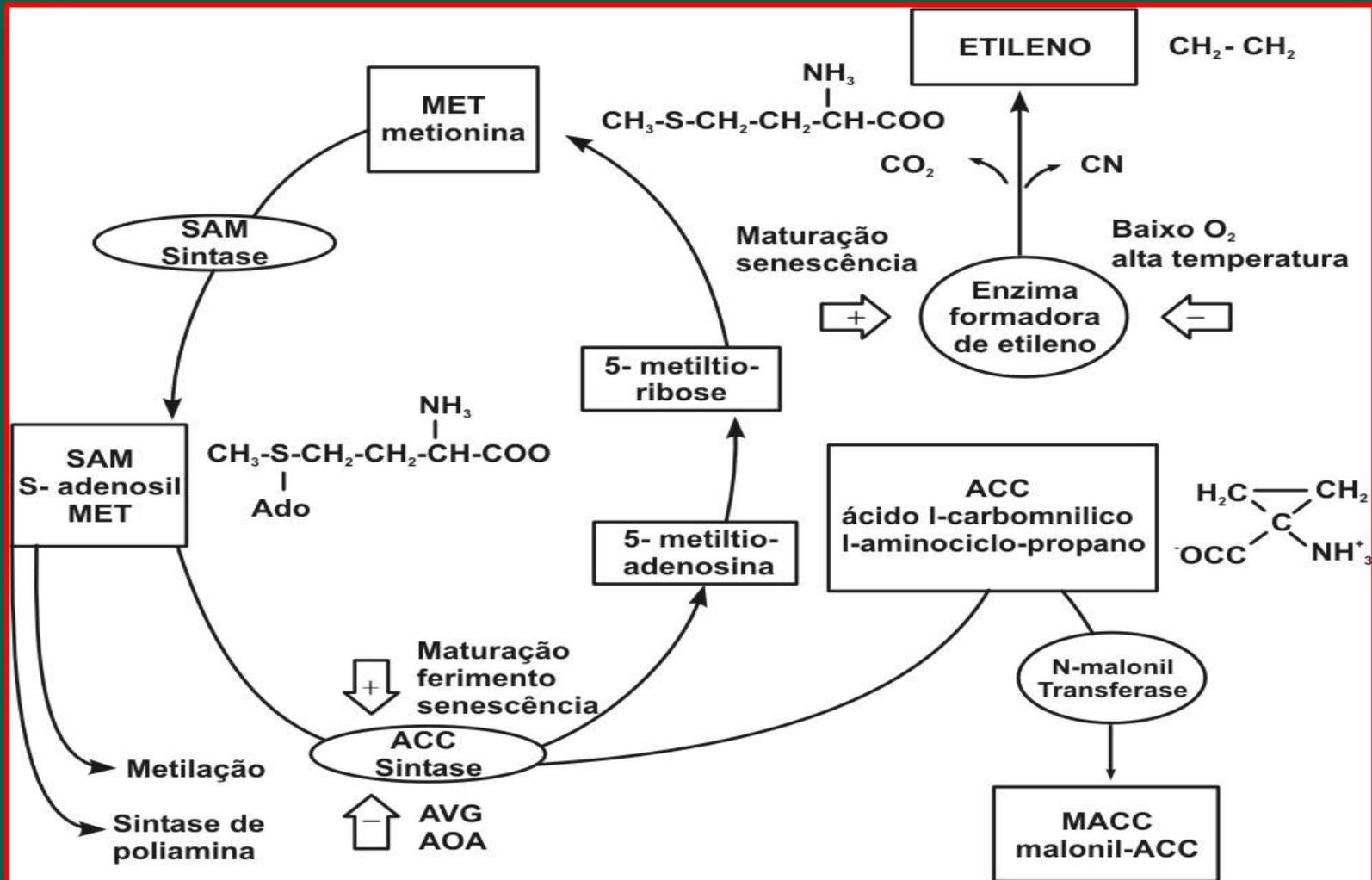
ETILENO



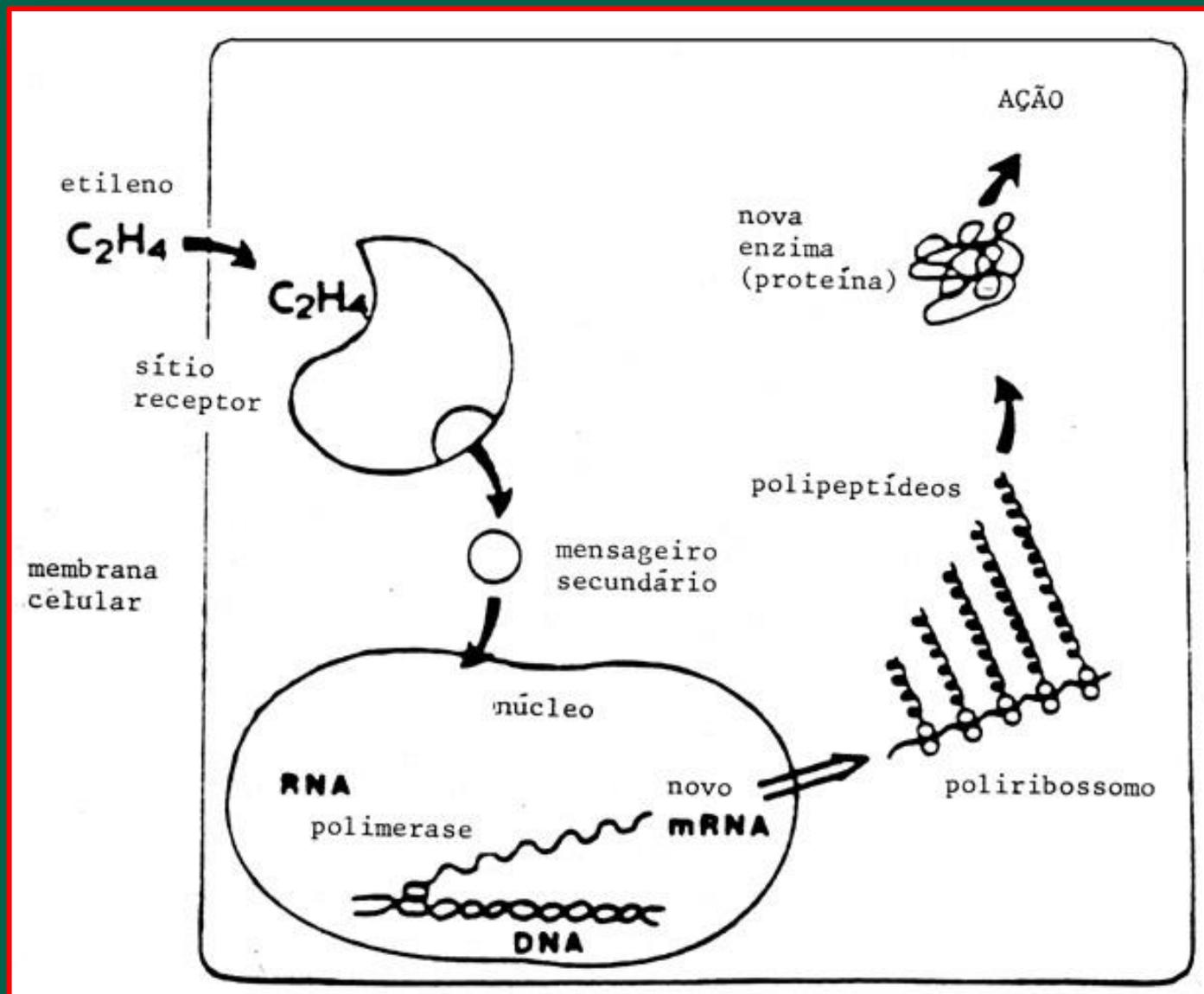
ETHEPHON



FORMAÇÃO DE ETILENO



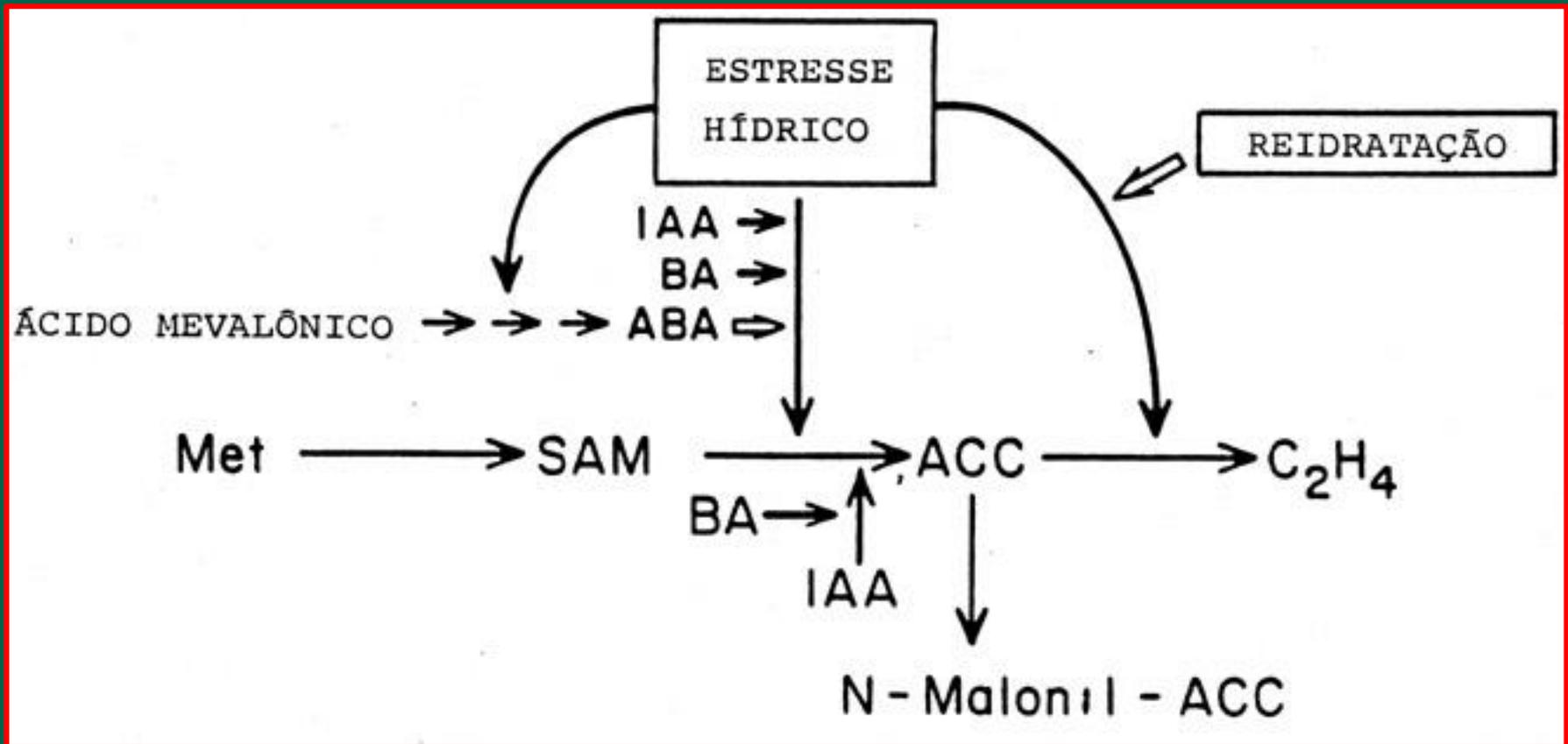
MECANISMO DE AÇÃO DE ETILENO



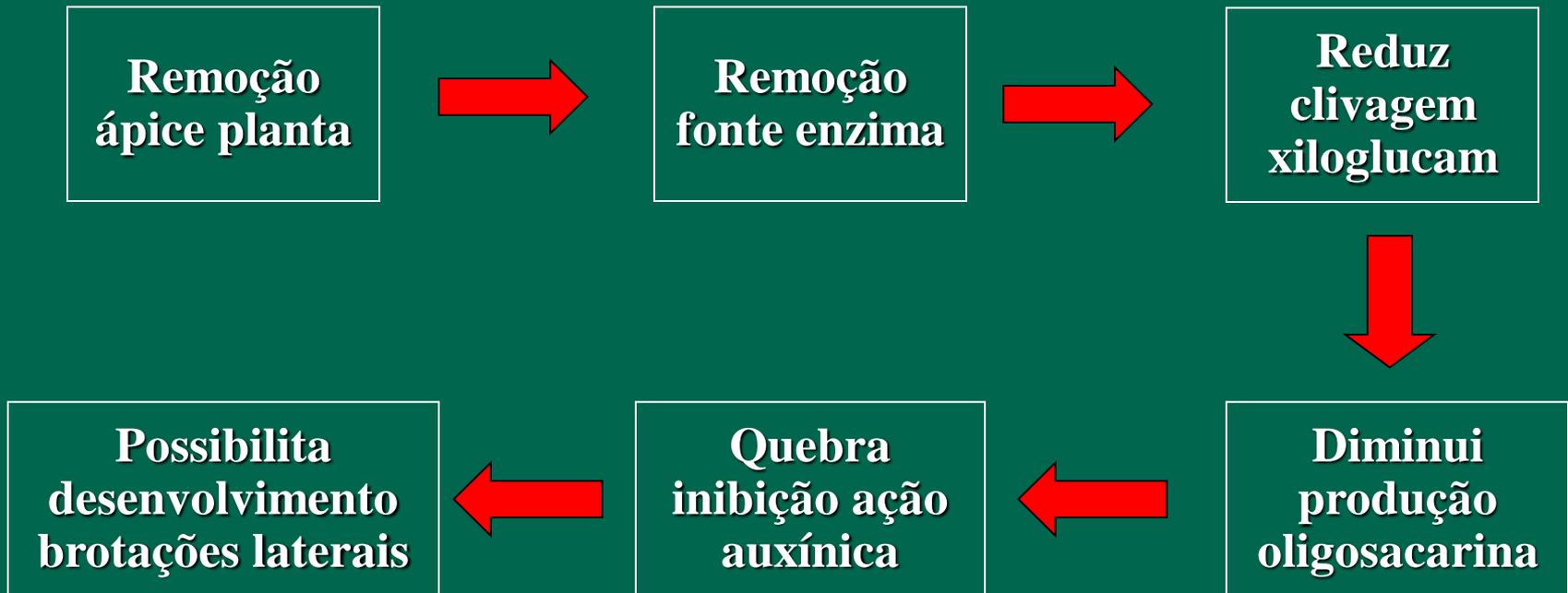
RESPOSTA AO ETHEPHON

Eficiente	Variável	Emergência e perfilhamento
SP70-1143	SP71-5368	SP70-1284
SP70-1284	SP71-6163	SP71-6163
SP 80-185	SP79-1011	SP79-1011
SP81-1763	RB72454	RB765418
RB806043	RB765418	RB855156
RB825336	RB785148	
RB835019	RB855536	
RB835486		
RB855113		

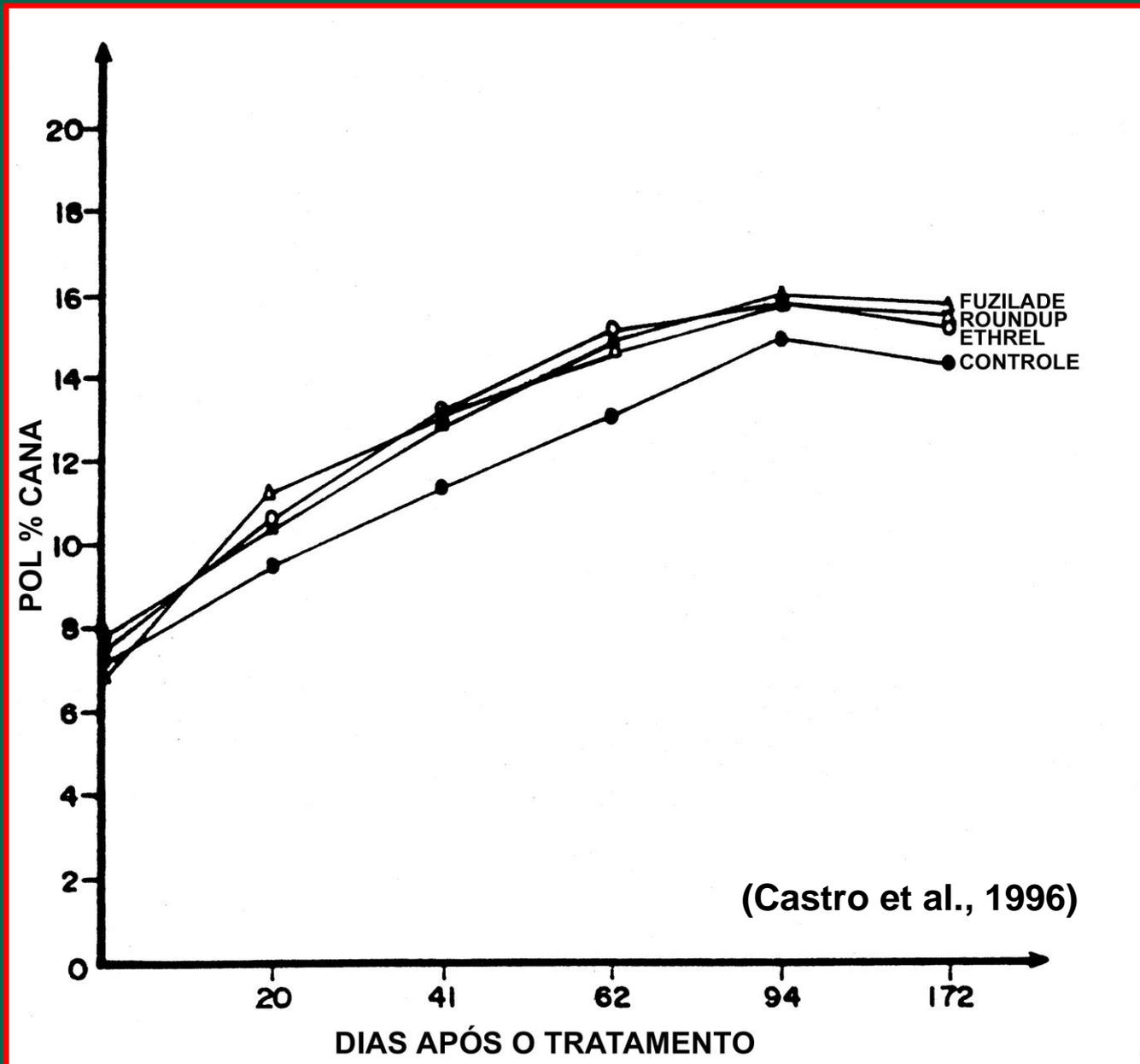
MATURADORES DE CANA-DE-AÇÚCAR: ESTRESSE MODIFICADOR DE PARTIÇÃO DE FOTOASSIMILADOS



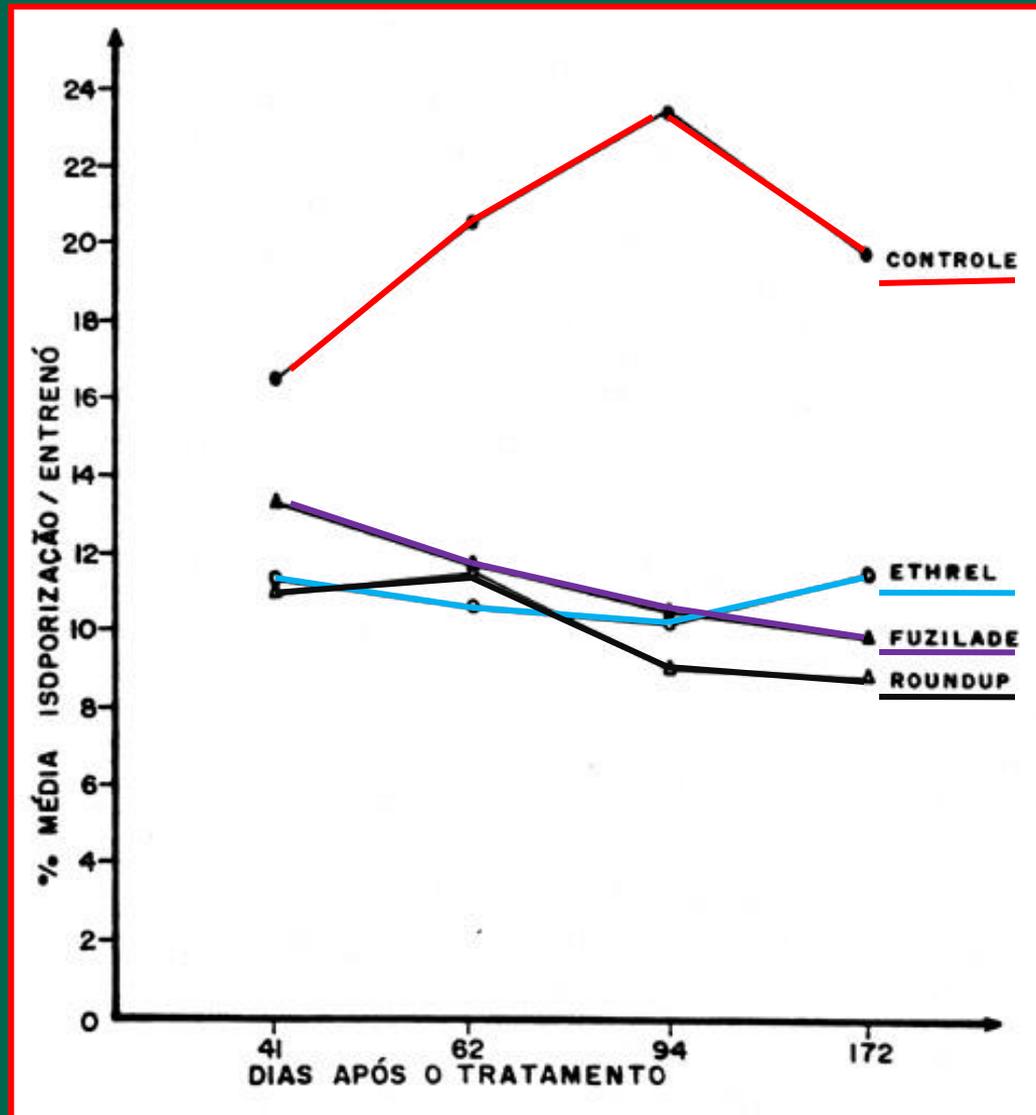
EFEITO DA QUEBRA DA DOMINÂNCIA APICAL



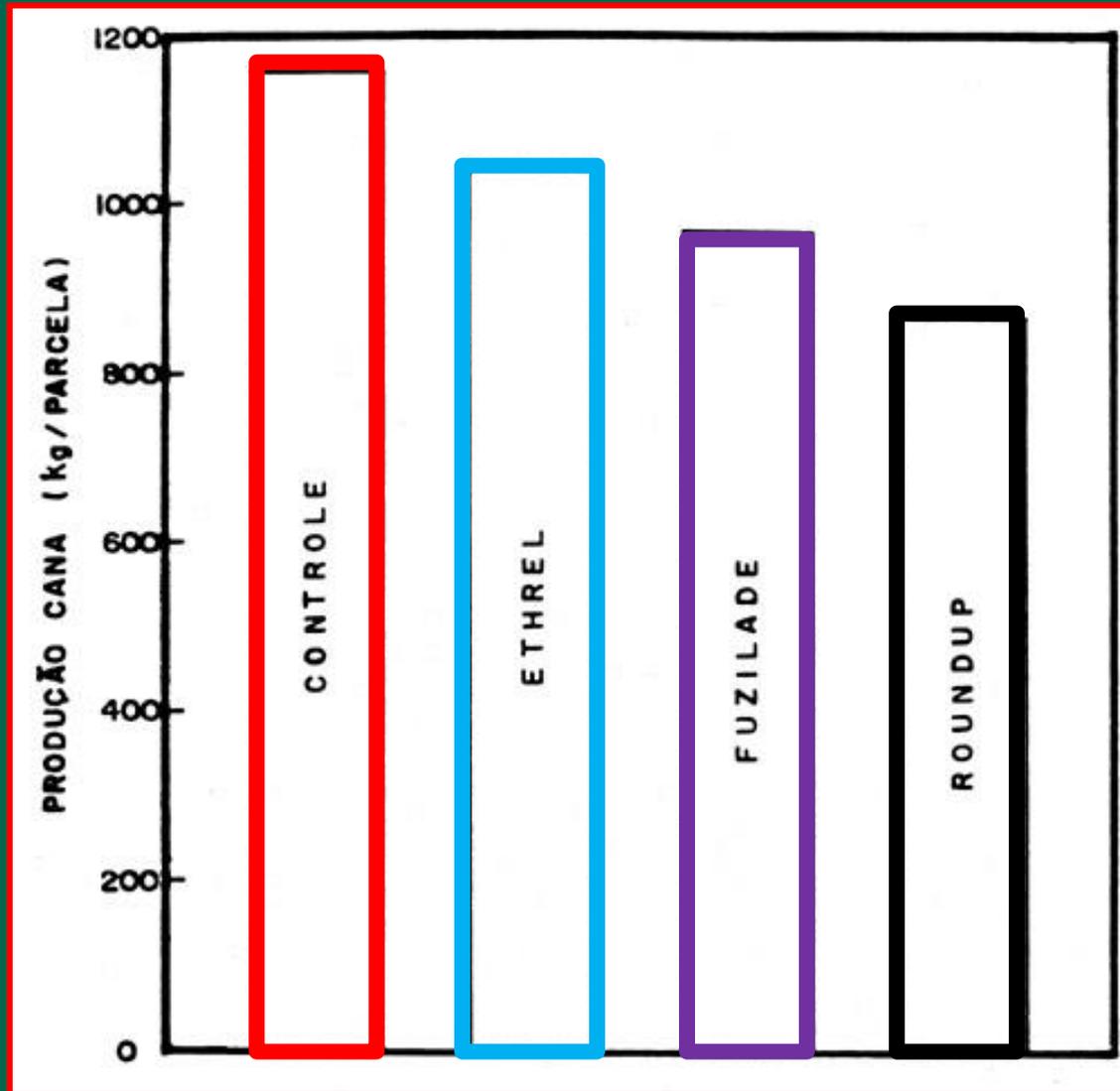
POL % CANA, SP70-1143 TRATADA COM MATURADORES



ISOPORIZAÇÃO, SP70-1143 TRATADA COM MATURADORES



PRODUÇÃO DA SP70-1144 TRATADA COM MATURADORES



Cana





OBRIGADO

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