

**RESEARCH REGARDING THE EFFECT OF
IRRIGATION AND FERTILIZATION ON
PHOTOSYNTHETIC RATE AT DIFFERENT
PLUM VARIETIES IN THE FRUIT TREES
NURSERY, IN THE CONTEXT OF CLIMATE
CHANGE**

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Average photosynthetic rate under the effect of the different watering norms

Watering norm	Photosynthetic rate ($\mu\text{mol}/\text{m}^2/\text{s}$)		Relative values (%)	Difference/ Significance
	20 mm	30 mm		
10 mm – 0 mm	2,38	2,08	114,75	0,31**
20 mm – 0 mm	2,84	2,08	136,87	0,77***
30 mm – 0 mm	3,40	2,08	163,61	1,32***
20 mm – 10 mm	2,84	2,38	119,28	0,46***
30 mm – 10 mm	3,40	2,38	142,59	1,01***
30 mm – 20 mm	3,40	2,84	119,54	0,56***

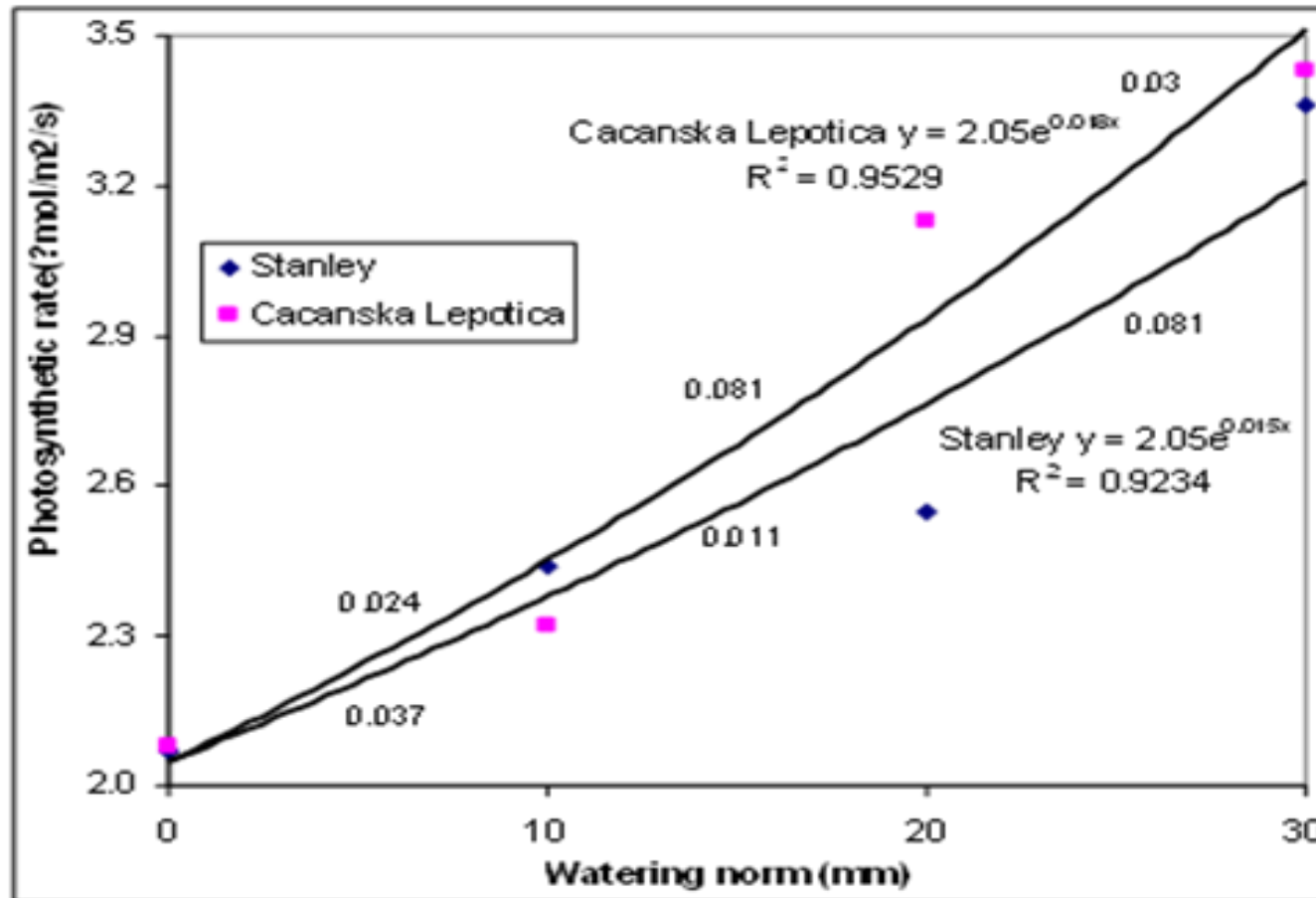
DL (LSD)_{5%}=0,16 DL (LSD)_{1%}=0,23 DL (LSD)_{0,1%}=0,32

Average photosynthetic rate under the effect of the different fertilization

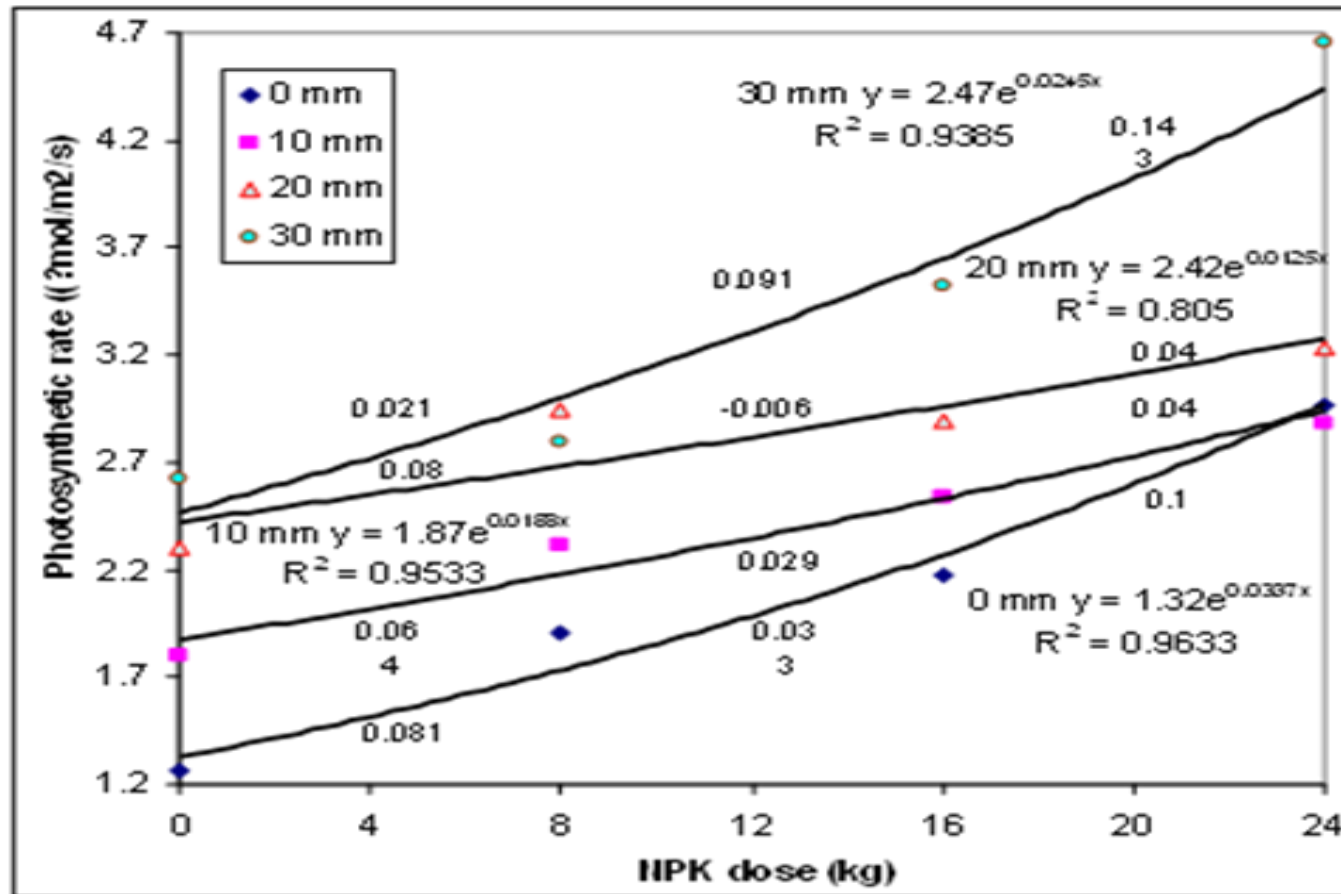
NPK dose	Photosynthetic rate ($\mu\text{mol}/\text{m}^2/\text{s}$)		Relative values (%)	Difference/ Significance
N₈P₈K₈ – N₀P₀K₀	2,49	1,99	124,80	0,49***
N₁₆P₁₆K₁₆ – N₀P₀K₀	2,78	1,99	139,41	0,79***
N₂₄P₂₄K₂₄ – N₀P₀K₀	3,44	1,99	172,44	1,44***
N₁₆P₁₆K₁₆ – N₈P₈K₈	2,78	2,49	111,71	0,29***
N₂₄P₂₄K₂₄ – N₈P₈K₈	3,44	2,49	138,17	0,95***
N₂₄P₂₄K₂₄ – N₁₆P₁₆K₁₆	3,44	2,78	123,69	0,66***

DL (LSD)_{5%}=0,12; DL (LSD)_{1%}=0,16; DL (LSD)_{0,1%}=0,20;

Variation of photosynthetic rate for the two varieties under the effect of different watering norms



Variation of photosynthetic rate under the effect of different watering norms and fertilizations



The effect of irrigation and fertilization on photosynthetic rate of the two varieties

Specification	Watering norm			
	0 mm			
Variety	NPK dose			
	N₀P₀K₀	N₈P₈K₈	N₁₆P₁₆K₁₆	N₂₄P₂₄K₂₄
Stanley	z 1,37 a	y 2,05 a	y 2,18 a	x 2,69 b
Cacanska Lepotica	u 1,14 a	z 1,77 a	y 2,15 a	x 3,25 a
Variety	10 mm			
	NPK dose			
Variety	N₀P₀K₀	N₈P₈K₈	N₁₆P₁₆K₁₆	N₂₄P₂₄K₂₄
	Stanley	y 2,18 a	y 2,44 a	y 2,34 b
Cacanska Lepotica	z 1,42 b	y 2,18 a	x 2,73 a	x 2,95 a
Variety	20 mm			
	NPK dose			
Variety	N₀P₀K₀	N₈P₈K₈	N₁₆P₁₆K₁₆	N₂₄P₂₄K₂₄
	Stanley	y 1,85 b	x 2,84 b	x 2,63 b
Cacanska Lepotica	z 2,75 a	yz 3,04 a	y 3,15 a	x 3,58 a
Variety	30 mm			
	NPK dose			
Variety	N₀P₀K₀	N₈P₈K₈	N₁₆P₁₆K₁₆	N₂₄P₂₄K₂₄
	Stanley	z 2,62 a	z 2,74 a	y 3,22 b
Cacanska Lepotica	z 2,61 a	z 2,83 a	y 3,82 a	x 4,47 b

Variety – DL (LSD)_{5%}=0,39; DL (LSD)_{1%}=0,52; DL (LSD)_{0,1%}=0,67; (a,b)

Fertilization - DL_{5%}=0,34; DL_{1%}=0,44; DL_{0,1%}=0,57; (x,y)

DL (LSD)_{5%}=0,37; DL (LSD)_{1%}=0,49; DL (LSD)_{0,1%}=0,63;

Conclusions

- ▶ Fertilization showed the highest contribution to the variability of the photosynthesis rate (47.26 %), followed by irrigation (28 %), both effects being significantly superior to the effect of the variety (2.04 %), considering that in general the trees of the variety Cacanska Lepotica showed a more intense photosynthesis by about 5.1 %. The application of irrigation had a significant effect on photosynthesis related to increases between 14.75 and 63.61 %. Increasing the watering rate from 10 to 20 mm significantly influenced this character on the background of an intensification of photosynthesis by 19.3 %, while changing the watering rate from 10 to 30 mm, caused a significant increase by 42.6 % of this process.

THANK YOU FOR YOUR
ATTENTION!