

()

(Triticum aestivum L.)

*

(// : // :)

)
, (**UV-A, B, C**) ()
. () ()

CO₂

.(Schutz & Fangmeier, 2001 Watson et al., 1990)

CO₂

CO₂

(Ainaworth et al., 2004)

PEP UV

(Correia et al., 2005)

(He et al., 1995)

)

UV

(b a

UV

(Correia et al., 2002 & 2005)

UV

(Correia et al., 2005)

UV

(Correia et al., 2005; Musil, 1996)

UV-A, B, C

/

UV

(Nasibi et al., 2003)

UV

(Mazza et al., 2000)

UV (Olsson et al., 1998)

UV-B

(Tosserams et al., 2001)

UV-B

World Meterological)

(Organization, 1994

CO₂

CO₂

UV

UV-C

(nm)

UV-C

) UV-B

(

UV-B

(nm) UV-A

UV-A

()

UV

(Nogues & Baker, 2000)

UV

CO₂

(Donnelly, 2000)

CO₂

(Nie et al., 1995;

Mulholland et al., 1997)

UV CO₂

(Smrkolj et al., 2005)

(Ashraf et al., 1994)

(Turujillo, 1994; Castrillo & Siosemarde et al., 2004)

(Siosemarde et al., 2004)

(%) (Castrillo & Turujillo, 1994)

(UV-A, B, C UV-B UV-A UV-C)

(Nasibi et al., 2003)

UV UV UV-B UV

(Nasibi et al., 2003) UV

(P₂O₅)

()

	(%)	(%)	(%)	()
/	/			
/	/			

Arnone % (1940)

(Arnone, 1940)

b a

a+b

(Lichtenthder, 1987; Ashraf et al., 1994)
(1976) Bradford

(UV-C Philips TUV 30W/G30T8; UV-B Philips UV-A 40W/12)

(Krizek et al., 1998)

UV-A, B, C
(Digital UV Indicator)

Sinco 2100 UV-S

cm⁻¹ M⁻¹

UV

UV-3

CO₂

(Krizek et al., 1998)

CO₂

)

CO₂

/

(Testo

Dubois

(1956) et al.

(SAS Institute Inc., 1997)

SAS

(Dubois et

(

.al., 1956)

(Steel & Torrie, 1998)

UV

A / (Nogues and Baker, 2000)

A UV

B UV
 Mazza et al., Krizek et al., 1998

() (2000)

UV

() (Alexieva et al., 2001)

(P≤0.01)

UV

()

B

() (Buchholz, et al., 1995) UV

UV

() (P≤0.01) ()
 (Tosserams et al., 2001)

UV

/ B (Cen & Bornman, 1993)

A

() UV

() (Gonzales et al., 1996) UV

() UV-

a+b b a (Olsson et al., 1998) B

() UV

(P≤0.05) ()

(Smrkolj et al., 2005)

... :

a, () (P≤0.01) a+b b B A

) a+b b a (A B

/ / / UV ()

a+b b a UV UV (Nasibi et al., 2003)

() a+b b a UV ()

Krizek et) DNA

(Ormord & Hale, 2000 al., 1998 a+b b a

UV-C a ()

(Nasibi et al., 2003) (%)

()	()	()
/ a	/ cd	UV-A
/ ab	/ d	
/ bc	/ ab	UV-B
/ cd	/ a	
/ e	/ b	UV-C
/ de	/ b	

(P≤0.05)

()
/ c
/ bc
/ a
/ a
/ b
/ b

UV-A

UV-B

UV-C

(P≤0.05)

b

b

CO₂

CO₂

UV-B

(Agrawal, 1992)

UV

(Pessarkli, 1999)

(Ashraf et al., 1994)

(Smith et al., 2000)

CO₂

CO₂

(Schutz & Fangmeier, 2001) a

(P<0.01)

(P<0.01)

(P<0.05)

CO₂

(Sicher & Bunce, 1997)

(Castrillo & Turujillo

et al., 1994)

a

(P<0.01)

(P<0.05)

(Schutz & Fangmeier, 2001)

a

% b %

(Siosemarde et al., 2004)

()	a+b	b	a	()	()	()
/ a	/ a	/ a	/ a	/ def	/ Cd	/ a
/ b	/ bc	/ cd	/ bc	/ cde	/ Bc	/ f
/ b	/ abc	/ abc	/ bc	/ f	/ D	/ b
/ bc	/ ab	/ ab	/ ab	/ ef	/ d	/ de
/ cd	/ bcd	/ de	/ bc	/ b	/ b	/ bc
/ bcd	/ bcd	/ cde	/ bcd	/ a	/ A	/ f
/ def	/ bc	/ bcd	/ bc	/ bc	/ B	/ b
/ de	/ bcd	/ cd	/ bcd	/ b	/ B	/ e
/ def	/ de	/ f	/ de	/ bc	/ bc	/ cde
/ def	/ e	/ f	/ e	/ bc	/ Bc	/ fg
/ ef	/ cde	/ def	/ cde	/ cd	/ bc	/ bcd
/ f	/ e	/ f	/ e	/ bc	/ bc	/ g

(P<0.05)

... :

C

(P≤0.01)

/
()

()

(Safaii and Ghadiri, 1995)

() (P≤0.01)

UV-B

(Greenberg et al., 1995)

()

UV

Krizek et)

(al., 1998

(/)
C

A

UV

UV

D2 D1

(Krizek et al., 1998)

UV-A, B, C

/
()

(Tosserams et al., 2001)

/
(Nasibi et al., 2003)

UV

UV

UV

CO₂

Sinclair et (Kimball et al., 2002)

(2000) al.

(Mazza et al., 2000)

CO₂

() (P≤0.01)

A

A

() /
 (C
 % a /
 % % C A .()
 (Schutz & Fangmeier, %
 2001).
 در کل می‌توان چنین نتیجه گرفت که در آینده A
 چنانچه تغییراتی نظیر تغییرات ایجاد شده در UV، CO₂ و
 آبیاری در آزمایش حاضر وقوع یابد ارزش غذایی و میزان B A
 کربوهیدرات‌ها و پروتئین‌های محلول غلات به ویژه گندم
 نان که از مهمترین محصولات غذایی جهان می‌باشد .()
 کاهش پیدا خواهد کرد. و با کاهش بنیه گیاه میزان
 عملکرد این محصول راهبردی کم شده و امنیت غذایی CO₂ CO₂
 بشر به مخاطره خواهد افتاد. a

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