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## Path analysis of Biomass and Seed Yield Under Three Irrigation Regimes in

### *Vicia dasycarpa*

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### Abstract

This study was conducted to evaluate the effects of different irrigation conditions on 12 genotypes of vetch (*Vicia dasycarpa*) at the Agriculture and Natural Resources Center of East Azarbaijan province,

Iran, during 2003. Field trial was conducted as a split plot design based on randomized complete blocks with three replications. Three irrigation regimes were considered as regular (irrigation at 5-day intervals), water deficit (irrigation at 10-day intervals) and rainfed (no irrigation). Several characters including biomass and grain yield were measured. Path analysis of biomass and grain yield under the above mentioned conditions, using stepwise ridge regression, indicated that some yield components had significant direct effect on these characters. Under regular condition the direct effect of number of grains per pod and number of lateral branches were positive and significant and that of stem length was negative and significant in relation to the biomass. Also the direct effect of number of grains per pod was positive and significant and that of grain density was negative and significant in relation to grain yield. Under water deficit condition the direct effects of number of grains per pod and grain density on biomass and 1000 grain weight and stem length on grain yield were positive and significant. In the rainfed condition because of severe stress, grains were not matured and path analysis was carried out only on biomass. Results showed that in this condition, only number of grains per plant had important effect on the biomass.

**Key Word:** Biomass, Grain yield, Hairy vetch, Stepwise ridge regression

(*Vicia dasycarpa*)

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1

14

(2004)

pH

8/2

4/9

<sup>1</sup>3- isoxazolinonyl  
<sup>2</sup>Allelopathic effects

)  
(1371)  
(2000 )  
(1989 )  
(1999)  
12 %50  
(1993)  
14 24 62  
4/95 (1375 )  
8/4  
81 82  
246/4 (1998)  
7/57 81 82  
18/53  
1837/2  
12 ( )  
( )  
4 1382

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/1 18 / ... 136  
1387

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24 3×1/5 1382

8  
480

240

116/9

81 82  
)

(  
893/2

116/9 1384

10 0/5

.(1 )

(1992)

( )  
4/5

80 4/5

(1381) 48

83/3

(1993)

16/1

75

(1995)

%50

(2 )

(1984)

1

با عملکرد همبستگی بیولوژیک

با عملکرد همبستگی بیولوژیک			اثر مستقیم	صفت
0/473**	0/112	0/280	1/027 **	
0/095*	0/011		0/505	0/57*
0/328*		0/011	0/21	0/55*
= 0/740		=0/01	%1 %5	: ** *

2

همبستگی با عملکرد دانه

همبستگی با عملکرد دانه		اثر مستقیم	صفت
0/407	0/076	0/611*	
0/492		0/078	0/60*
	=0/02	%5	:*
	=0/554		

%60

(3 )

3

صفت	اثر مستقیم	همبستگی با بیوماس هوایی
	0/78	0/496
	0/77	0/271
	%5	=0/01
		=0/617

\* :

%76

(4 )

(2000)

( )

( )

%40

(5 )

4

صفت	اثر مستقیم	همبستگی با عملکرد دانه	
	0/69**	0/11	0/811
	0/35*	0/218	0/570
** *	%5	=0/01	
		=0/76	

( )

5

0/693	0/685**
=0/01	%1
=0/475	::**

.1381

.54

.1375

.1371

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