

( )

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( / / : / / : )

(*Cicer arietinum* L.)

(*Hordeum vulgare*)

( )

( % % % ) ( % % % )

%

(P<0.01)

%

%

%

%

( / )

/

%

%

%

( )

(1994) Ghorbani & Koochak

(1994) Vaezzadeh .(Ghorbani & Koochaki, 1994)

%

(*Cicer arietinum* L.)

(*Hordeum vulgare* L.)

(Hauggaard-

.Nielsen & Jensen, 2001)

Khazaei & Koochaki .

(1993)

/

(Langat et al., 2003)

Banisadr & Bazgosha .

(1997)

(*Lolium multiflorum*)

+

:

(Koochaki, 1996)

(Banisadr & Bazgosha, 1997)

( % % % ) (

( )

INFRAMATIC8620 (NIR)

NIR

MSTATC

(LSD) % % % )

Mn mg/kg	Zn mg/kg	Fe mg/kg	Mg meq/lit	O. M %	K mg/kg	P mg/kg	N %	Ca Meq/lit	Na meq/lit	SAR %	EC ds/m	pH
/	/	/	/	/		/	/	/	/		/	/

/	/	/
/ **	**	/ **
/	/	/
	%	.*
ns	%	.*.*

( )  
 %  
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 %  
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 %  
 ( )  
 %  
 ( )  
 ( ) :  
 (Jandaghi, 2005)  
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 %  
 Jandaghi  
 (2005) Jandaghi (2005)  
 ( )  
 %  
 Rahnama &  
 % % (1995) Poori  
 / /  
 ( )  
 (1993) Khazaei & Koochaki .  
 )  
 (

(Langat et al., 2003)

(1996) Shahrivar et al.

(2005) Jandaghi

( )  
/ % + %

(2005) Asghari-Meidani & Ghaffari

% +

(1998) Fakhreddin

(Kg/ha)	(Kg/ha)	(Kg/ha)		
/ ab	/ ab	/ bc	C	B
/ c	/ cd	/ bc	C	B
/ c	/ cd	/ b	C	B
/ d	e	/ a		C
/ bc	/ bc	/ d	C	B
/ bc	/ bc	/ cd	C	B
/ c	/ d	/ b	C	B
/ ab	/ ab	/ d	C	B
/ bc	/ bc	/ d	C	B
/ c	/ cd	/ cd	C	B
/ a	/ a	d		B

Barley = B, Chickpea = C

( )

( )

% % % % %

(TDN)	(ADF)	(NDF)	(CF)	(WSC)	(Ash)	(CP)
/ **	/ ns	/ *	/ ns	/ ns	/ **	/ ns
/ **	/ *	/ **	/ **	/ ns	/ **	/ **
/	/	/	/	/	/	/

ns % : \*\* % : \*

(CP)

( )

( )

(Torabi, 1991) % % ( )

(WSC) %

(1998) Carr et al.

(1987) Tripathi et al.

( )

( )

( )

(2004) Rahmani .

(2004) Rahmani .

(2004) Lauriault & Kirksey .

(*Pisum sativum* subsp. *arvense* L.)

(*Triticum aestivum* L.)

(*Triticosecale rimpaui* Wittm.)

(Lauriault & Kirksey, 2004)

( )

( )

( )

(NDF)

NDF (2004) Carr et al. ( )

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2. Water Soluble Carbohydrates  
3. Neutral Detergent Fiber

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1. Pearl millet

(1999) Redfearn, et al. (McAndrews et al., 2004)

%

NDF

% / (C B) % +

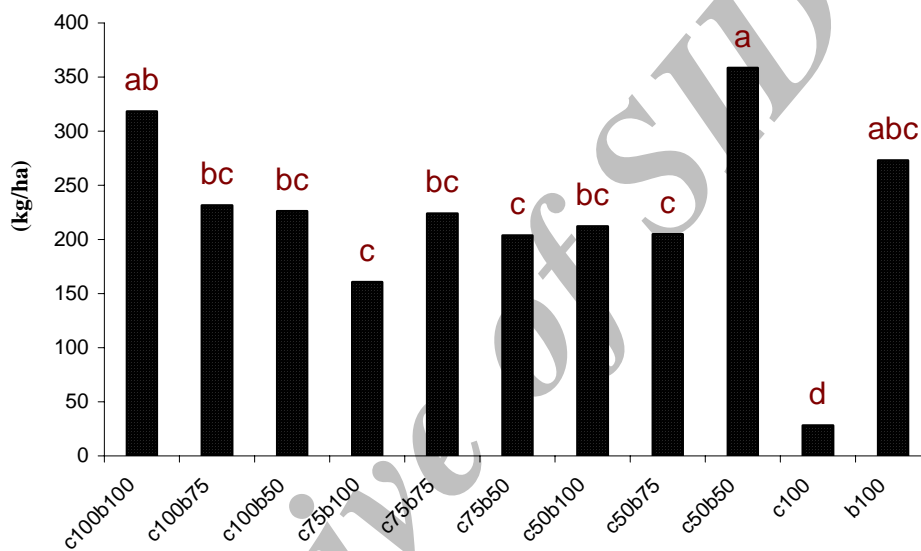
( ) NDF

.( )

(% ) NDF

.(Sharifi, 2004)

NDF



(B) (C)  
( )

(TDN)	(ADF)	(NDF)	(CF)	(WSC)	(Ash)	(CP)		
/ cd	/ a	/ ab	/ a	/ a	/ bc	/ bcd	C	B
/ b	/ abc	/ b	/ ab	/ a	/ bcd	/ bc	C	B
/ bc	/ ab	/ ab	/ ab	/ a	/ ab	/ bc	C	B
/ a	/ abc	/ c	/ c	/ a	/ a	/ a		C
/ d	/ bc	/ ab	/ a	/ a	/ cde	/ e	C	B
/ cd	/ abc	/ ab	/ a	/ a	/ de	/ bcde	C	B
/ cd	/ abc	/ ab	/ ab	/ a	/ bc	/ b	C	B
/ d	/ cd	/ a	/ a	/ a	/ e	/ de	C	B
/ cd	/ abc	/ ab	/ a	/ a	/ bcd	/ cde	C	B
/ cd	/ abc	/ ab	/ bc	/ a	/ bcd	/ bcde	C	B
/ cd	/ d	/ a	/ a	/ a	/ bcde	e /		B

% % (ADF)

ADF

% % % % %  
% % % % %  
% % % % %

(2004) Carr et al. .( )

/

) ADF ( g/Kg) NDF

/ (

(2004) Rahmani .( )

ADF

% %

% %

%

Beuselinck .( )

( )

(1992) et al.

( )

ADF NDF

+

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### 1. Acid Detergent Fiber

## REFERENCES

1. Asghari-Meidani, J. & Ghaffari, A. (2005). Comparison of quantity and quality yields of vicia and barley in pure and mixture planting. In: Proceedings of *First National Forage Crop Congress*, Kraj, Iran.
2. Banisadr, N. & Bazgosha, F. (1997). Berseem clover and annual lolium (*Lolium multiflorum*) intercropping. *Plant and Seed*, 13, 2-12.
3. Beuselinck, P. R., Sleper, D. A., Bughrara, S. S. & Roberts, C. A. (1992). Effects of mono and mixed culture of tall fescue and birdfoot on yield and quality. *Agronomy J*, 84, 133-137.
4. Carr, P. M., Martin, G. B., Caton, J. S. & Poland, W. W. (1998). Forage and nitrogen yield of barley-pea and oat-pea intercrops. *Agronomy Journal*, 90, 79-84.
5. Carr, P. M., Horsley, R. D. & Poland, W. W. (2004). Barley, oat and cereal-pea mixtures as dryland forages in the Northern Great Plains. *Agronomy Journal*, 94, 223-228.
6. Fakhreddin, F. (1998). Maintenance of the best berseem clover – grass intercrops ratios. In: Proceedings of *7<sup>th</sup> Iranian Agronomy and Plant Breeding Congress*, Karaj, Iran.



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7. Ghorbani, R. & Koochaki, E. (1994). Comparison of quantity and quality traits of forage in different amounts and ratios of mixed seeds of clover and barley. *Agricultural Science*, 4, 3-14.
  8. Hauggaard-Nielsen, H. & Jensen, E. S. (2001). Evaluation pea and barley cultivars for complementary in intercropping at different levels of soil N availability. *Field Crops Research*, 72, 185-196.
  9. Jandaghi, R. (2005). *Evaluation of water stress effect on forage and seed yield in chickpea – barley intercropping system*. M. Sc. thesis in agronomy, Azad University, Saveh Unit.
  10. Khazaei, H. & Koochaki, E. (1993). Evaluation of different seed ratios effect on forage yield and quality in barley and vicia intercropping. In: Proceedings of *First Iranian Agronomy and Plant Breeding Congress*, Karaj, Iran.
  11. Koochaki, E. (1996). *Agronomy in arid zones*. Mashhad Jahad Daneshgahi Press. (In Farsi).
  12. Langat, M., Mukhwana, E. & Woome, P. L. (2003). *Managing beneficial interactions in ecosystems*. New York.
  13. Lauriault, L. M. & Kirksey, R. E. (2004). Yield and nutritive value of irrigated winter cereal forage grass–legume Intercrops in the southern high plains, USA. *Agronomy Journal*, 96, 352-358.
  14. Levine, S. H. (1976). Competitive interactions in ecosystems. *Am Nat*, 110, 903-10.
  15. McAndrews, G. M., Franke, K., Moore, K. & George, R. (2004). *Forage yield and nutritive value of oat interseeded with berseem clover and sweetclover*. Online. Crop Management doi:10.1094/CM-2004-0301-01-RS.
  16. Rahmani, A. (2004). *Evaluation of sorghum – berseem clover intercropping effect on yield, forage quality and weed population dynamics*. M. Sc. thesis in Agronomy, University of Tehran.
  17. Rahnema, A. & Poori, A. (1995). *Evaluation of different mixed seed ratios effect in Karoon barley–berseem clover and Karoon barley – vicia intercropping*. Information and Document Center of Agricultural Research Office. Ministry Jihad of Agriculture.
  18. Redfearn, D. D., Bextun, D. R. & Devine, T. E. (1999). Sorghum intercropping effects on yield, morphology and quality of forage soybean. *Crop Science Journal*, 39, 1380-1384.
  19. Shahrivar, R., Kashani, A. & Noormohammadi, G. (1996). Evaluation of density and sowing pattern effect on quantity and quality forage yield in berseem clover – barley intercropping system in Ahvaz climate. In: Proceedings of *Fifth Iranian Agronomy and Plant Breeding Congress*, Isfahan, Iran.
  20. Sharifi, Y. (2004). *Evaluation of forage production in cowpea – sorghum intercropping*. M. Sc. thesis in Agronomy, Tarbiat Modares University.
  21. Torabi, M. (1991). *Evaluation of density and plant ratio on quantity and quality characteristics of forage on mixed cropping of barley and berseem clover in Ahvaz climate*. M.Sc. thesis in agronomy, Collage of Agriculture, Shahid Chamran University.
  22. Tripathi, S. N., Singh, A. P. & Gill, A. S. (1987). Forage production in sole and mixed stands of Cereals and Legums under summer condition. *Indian Journal of Agronomy*, 32(3), 545-547.
  23. Vaezzadeh, A. (1994). Evaluation and maintenance of the best sowing methods of mixed berseem clover and grass in quantity and quality yield and LER. In: Proceedings of *Third Iranian Agronomy and Plant Breeding Congress*, Tabriz, Iran.