

() , ()

*

\

(// : // :)

()

(%)

:

)

(

()

() Lyles & Woodruff . ()

.(

Kepner)

/

(et al.,1978

%

(%)

(Wilting point)

(%)

(%)

Ogeniyi & Dexter

(Telischi et al., 1956)

()

/

(Lower Plastic Limit)

() Adam & Erbach

(Kepner et

() Krishnan et al.

.al.,1978)

Zareian .

()

%

/ /

/ /

() Barzegar et al.

() Aykas et al.

(MD)

+

/

(DD)

+

-
- 1 . Tandem disk harrow
 - 2 . Specific draft
 - 3 . Offset disk harrow

...

:

/ (OD) +

MD

OD

/

DD

/

/

×

(% / % % /)
% /

% /

()

()

1 . Field Capacity

(John Deere 4230)
(MF 285)

()

(Eberhavot, Rotak 4)

)

(

2 . Gang angle

, ()

. ()

. ()

()

Karl Kolb

()

()

$$DBP = \frac{F \cdot S}{3.6}$$

()

=DBP

()

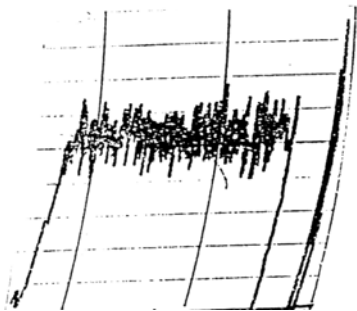
()

=F

()

=S

-
- 1 . Mean Weight Diameter
 - 2 . Dynamometer



()

()



...

:

/

RNAM

(Regional Network for Agricultural Machinery, 1983)

()

()

()

() Adam & Erbach ()

$$S = \frac{A - B}{A} \times 100$$

(

$$MWD = \sum X_i \cdot W_i$$

()

()
=MWD

=Xi

()

=Wi

()

=B

= S

() Loghavi & Behnam

()

%

()

)

()

(

%

(

/

%

)

Adam & Erbach () Ogeniyi & Dexter .

() Barzegar et al. ()

()	()	
۳/۱۸	۰-۰/۲۵	۱
۹/۵۳	۰/۲۵-۰/۵	۲
۱۹/۰۵	۰/۵-۱	۳
۳۸/۱۰	۱-۲	۴
۶۳/۵۰	۲-۳	۵
۸۸/۹۰	۳-۴	۶
۱۲۷/۰۰	۴-۶	۷

4 . Duncan's new multiple range test
5 . Cohesion

1 . Slippage
2 . Mean Weight Diameter (MWD)
3 . Rotary sieves

(Bybordi, 1978)

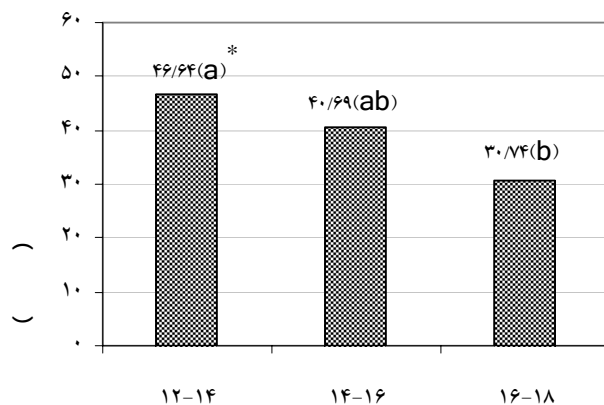
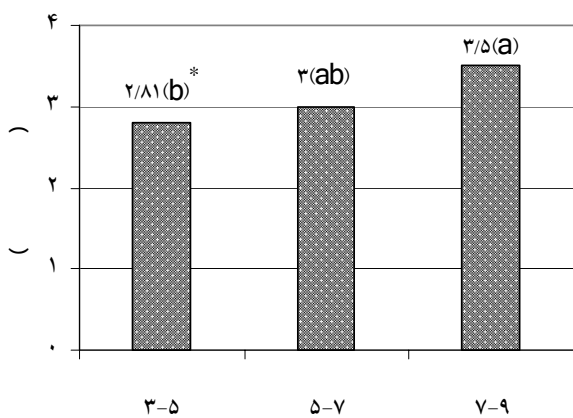
(M.S.)

/ ns
/ *
/

ns %

*

() (Kepner et al.,1978)



%

*

(M.S.)

MWD

37/80.6 ^{n.s.}	0/54.0 ^{n.s.}	0/0.7 ^{n.s.}	2	تکرار
599/973**	116/64.0**	0/0.62 ^{n.s.}	2	اندازه کلوخ های خاک (D)
56/80.3 ^{n.s.}	271/118**	1/131**	2	سرعت (S)
65/0.34 ^{n.s.}	26/453**	0/0.1 ^{n.s.}	4	اثر متقابل (D×S)
279/0.59	3/631	0/173	16	خطای آزمایش

n.s.

%

%

* **

...

:

()

%

()

()

()

%

%

()

% /

% /

/

%

%

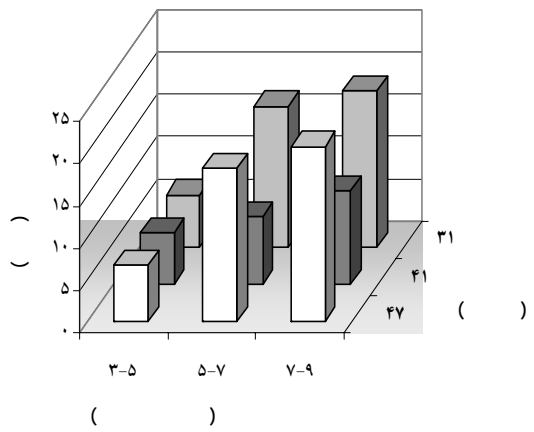
()

%

(%)

)
)

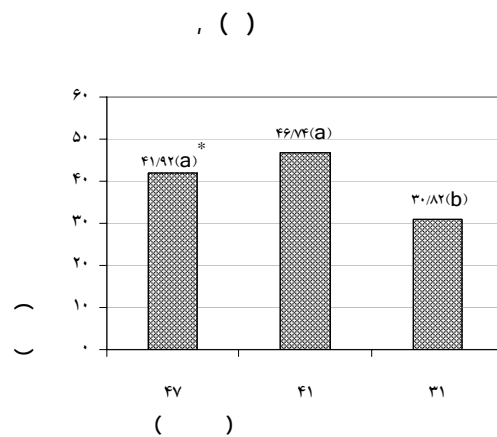
(
(



()
(LPL)
(% LPL) %

() Zareian () Khosravani et al.

() Solhjoo et al.



%

*

REFERENCES

- Adam, K. M. & Erbach, D. C. (1992). Secondary tillage tool effect on soil aggregation. *Transactions of the ASAE*, Vol. 35(6): 1771-1776.
- Aykas, E., Cakir, E. & Gulsoylu, E. (2004). The effect of tillage parameters of the heavy duty offset disk harrow. *Asian Journal of Plant Sciences*. 3(4): 425-428.
- Barzegar, A.R., Hashemi, A.M., Herbert, S.J. & Asoodar, M.A. (2004). Interactive effects of tillage system and soil water content on aggregate size distribution for seedbed preparation in Fluvisols in Southwest Iran. *Soil and Tillage Research*. 78(1): 45-52.
- Bybord, M. (1978). *Soil Physics*. Tehran University publications. (in Farsi)
- Kepner, R. A., Bainer, R. & Barger, E. L. (1978). *Principles of Farm Machinery*. 3rd Ed. The AVI Publishing Co., Inc.
- Khosravani, A., Ranjbar, I. & Loghavi, M. (2001). Study of yield parameters of tandem disk. *Journal of Agricultural Science*. Tabriz University Pub. 11(2): 67-77. (in Farsi)
- Krishnan, P., Kemple, L. J., Williams, T. H. & Collins, N. E. (1988). Draft requirements of disk harrow. *ASAE Paper No. 88-1504*, ASAE St. Joseph MI 49085.
- Loghavi, M. & Behnam, S. (1998). The effects of soil moisture content and tillage depth on performance of disk plows in a clay loam soil. *J. of Science and Technology of Agriculture and Natural Resources* 2(4): 105-117. (in Farsi)
- Lyles, L. & Woodruff, N. P. (1962). How moisture and tillage affect soil cloddiness for wind erosion control. *Agricultural Engineering*. 42(3): 150-153, 159.
- Ogeniyi, S. O. & Dexter, A. R. (1979). Soil factors affecting the macro-structures produced by tillage. *Transactions of the ASAE*, 22(2): 339-343.
- Regional Network for Agricultural Machinery. (1983). *Test Codes and Procedures for Farm Machinery*. RNAM Technical Publications, Series No. 12, Pasay city, Philippines.
- Solhjoo, A. A., Loghavi, M. & Ahmadi, H. (1997). Study on the effect of soil moisture content and plowing depth on soil pulverization and reduction of secondary tillage operation. Research Report. Agricultural Research, Education and Extension Organization. Agricultural Engineering Research Institute. (in Farsi)
- Telisch, B., McColly, H. F. & Erickson, E. (1956). Draft measurement for tillage tools. *Agricultural Engineering*. 37(9): 605-608, 617.
- Zareian, S. (1985). Effect of soil moisture content on draft of plows and soil pulverization. *Iranian Journal of Agricultural Sciences*. 16(1and 4). (in Farsi)