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.(Nasiri and Rabie, 2003)

.(Raheb, 2002)

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(Brassica napus L.)

.(Cannel et al., 2001)

(Kolacou and

.Harison, 2002)

(Evans

.and Fausey, 1995; Hodgson and Macleod, 1987)

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.(Yazdani, 2001)

.(Trought and Drew, 1998)

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.(Kahlow and Azam, 2002)

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.(Zhou et al., 1995)

(Shariat Ahmadi,

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.(Yang at al., 2005)

.(Tyagi et al., 2007)

.(Mejia et al., 2000)

Hyola308

(Linkmer et al.,

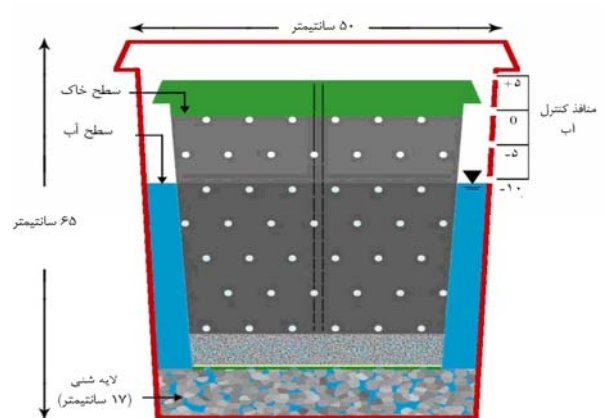
1998)

Hyola 308

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(Kolacou and Harison,

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(Garrity and Pernito,

1996; Hodgson, 1982)

(Zhou and Line, 1997)

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(Mejia et al., 2000)

(Garrity and Pernito, 1996)

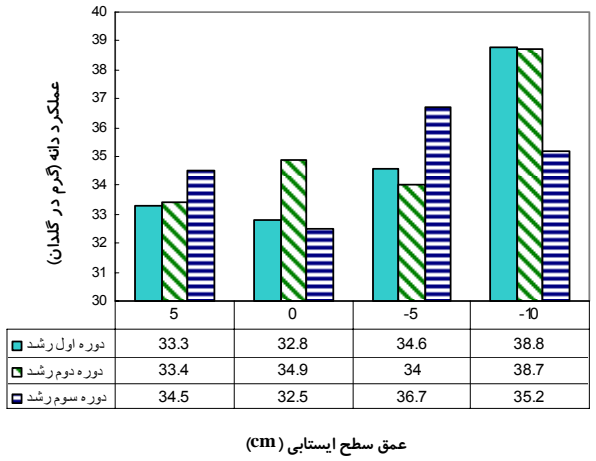
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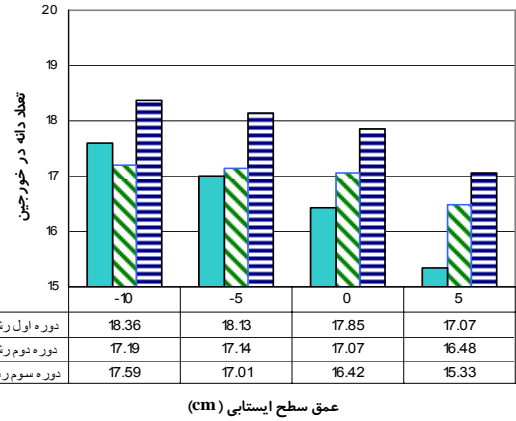
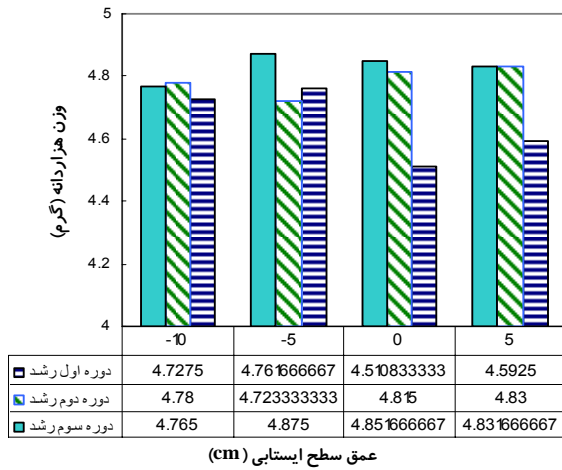
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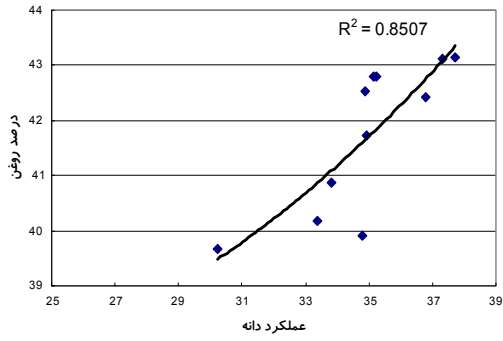
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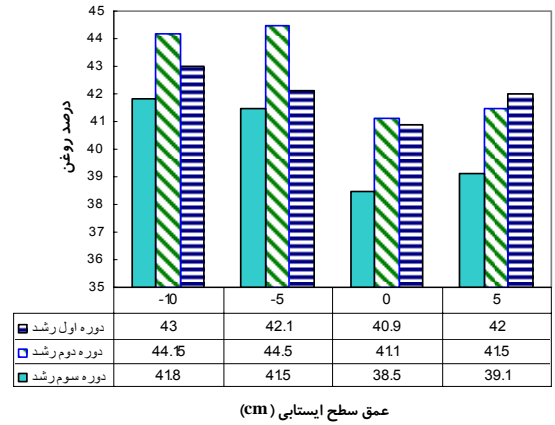
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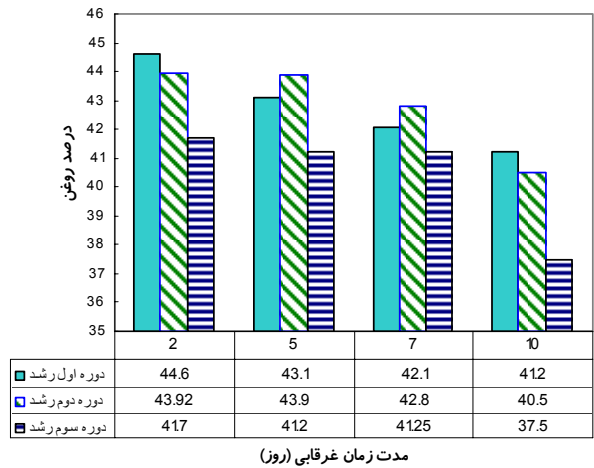
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## REFERENCES

- Arab G. (1993). Assessment of Canola cultivation as a post rice crop. *Mazandaran Agriculture Research Center*. NO. 231, page 75. (In Farsi)
- Board, J. (2003). *Soybean tolerance to waterlogging at different development stages*, <http://www.Agronomy.Isu.edu/pdf/BOARD3.pdf>.
- Cannel, R. Q., Belford, R. K. and Deninis, C. W. (2001). Effects of waterlogging at different stages of development on the growth and yield of winter wheat, *Sci. Food Agric.*, 31(2), 117-132.
- Evans, R.O. and Fausey, N. R. (1995). Effect of inadequate drainage on crop growth and yield, *Agricultural Drainage*, 1(3), 18- 26.
- Garrity, D. P. and Pernito, R. (1996). Mungbean response to surface drainage when grown as a pre-rice crop on waterlog-prone Riceland, *Agri. Water Management*, 29(2),299-314.
- Hodgson, A. S, (1982). Effect of duration, timing and chemical amelioration of short term water logging during furrow, *Agric. Res.*, 23(3),1019-1028.
- Hodgson, A. S. and D. A. Macleod, 1987, Effect of foliar applied nitrogen fertilizer on cotton waterlogged in a cracking gray clay, *Agric. Res.*, 38:681-688.
- Kahlow, M. A. and Azam, M. (2002). Individual and combined effect of water logging and salinity on crop yields in the Indus basin. *Irrig. and Drain*. 51(2), 329-338.
- Kolacou, A. and Harison, G. (2002). Effects of waterlogging at different stages of development on the yield of wheat. *Irrig. and Drain*. 51(3), 349-365.
- Linkmer, G., Board, J. E. and Musgrave, M. E. (1998). Waterlogging effects on growth and yield components in late planned soybean. *Crop Science*, 38 (3), 1576-1584.
- Mejia, M. N., Madramootoo, C. A. and Broughton, R. S. (2000). Influence of water table management on corn and soybean yield. *Agri. Water Management*, 46(2), 73-89.
- Nasiri M. and Rabie M. (2003). Canola cultivation on paddy rice field. *National Rice Research*, NO. 245, page 115. (In Farsi)
- Raheb J. G. (2002). Second crop in paddy fields of Mazandaran province. *National Rice Research Institute*, Rasht, 24-35. (In Farsi)
- Shariat Ahmadi J. (2004). Effect of depth and duration waterlogging in different growth stages of canola as a second crop in paddy fields. (In Farsi)
- Trought, M. C. T. and Drew, M. C. (1998). Effect of water logging on young wheat plants and on soil solutes at different soil temperature, *Plant and Soil*, 69(3), 311-326.
- Tyagi, N. K., Director, D., Sharma, K, and Luthra, S. K. (2007). Effect of water logging duration on crop yields of soybean and canola. *Irri. Drain. Eng*. 17 (1),345-351.
- Yang, X., Bouman, B. A. M., Zhang, Q., Xue, C., Zhang, T., Xu, J. and Wang, H. (2005). Effect of water logging at different growth stages on seed yield of canola and wheat in North China. *Nongye Gongcheng Xuebao/ Transactions of the Chinese Society of Agric. Eng*. 22(2), 37-41.
- Yazdani M. R. (2001). Effects of surface drains with different type and distance on Canola cultivation as a second crop in Gilan Province. *National Rice Research Institute*, NO. 240, page 153. (In Farsi)
- Zhou, W., Zhou D. S. and Line, X. (1995). Effect of water logging at different growth stages on physiological characteristics and seed yield of winter rape. *Field Crop Res.*, 44(1), 103-110.
- Zhou, W. D., Zhou, S. and Line, X. (1997). Effect of water logging on nitrogen accumulation and alleviation of water logging damage by application of nitrogen fertilizers and mixtalol in winter rape, *Plant Growth Regul.*, 16(2), 47-53.