RELATIONSHIP OF WATER USE WITH BIOPHYSICAL AND YIELD PARAMETERS UNDER VARIOUS IRRIGATION LEVELS IN RAPESEED CULTIVARS.

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Water is the most limitation factor in agricultural productions of the word. Research on drought and opportune water use is too important for water saving and high yield product. On time water use may also induce high biomass production, involving economic and environmental costs for moving and disposal of grass clippings. Also Rapeseed cultivars have a different and good tolerance to water deficit.
Therefore, In Kraj-Iran, (35° 59′ N, 50° 75′ E), three irrigation levels were applied to a *Brassica napus* L. cv. Rebel turf from 2004/05.Treatment were equal to 50, 80, 110 of ETm (maximum evaporation) as main factors, and cultivars: Hyola401, Hyola308, 19-H, Heros, Hyola420 were as sub factors.
Metacistocsis pesticide rate was 1.5 lit/ha use for pests' control, fertilizers used on basis of recommended. Biological yield, Grain yield, Harvest Index, pod length, shrub height, Oil percent and number of pod measured. Result showed that no significant different between 50 and 80 ETm on all of the measured characters. But Hyola401 with 4320 Kg/ha grain yield and Harvest Index (%21.61) was the best cultivar in the water deficit condition. Also Heros had maximum Oil percent without significant different, And Hyola420 had maximum shrub length (140.5 cm) in this condition. Grain yield, Biological yield, Harvest Index and shrub length were significant different between 80 and 110 Etm in the cultivars. Result showed that Hyola308 had minimum grain yield (2925.2 Kg/ha) and Oil percent (%40.30) under 110 ETm, Also 19-H, Heros c.v with 3125 and 3050 produced maximum Grain yield in this condition respectively.

However results showed that with 30% water saving May could produce maximum Grain yield and Oil percent without significant different with Hyola401 cultivar of *Brassica napus* L. And also in 110 ETm condition; 19-H, Heros c.v recommended for planting to best economic and water saving result.

Key Words: Water, Rapeseed *(Brassica napus* L.), Yield