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EFFECT OF RHIZOBIA, NITROGEN AND WEEDS ON SOYBEAN [*GLYCİNE MAX* (L.) MERR.] GRAIN PROTEIN AND OIL CONTENT

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ABSTRACT

Application of nitrogen fertilizers and *Bradyrhizobium japonicum* inoculation in soybean has different effects on seed protein and oil. Complexity of this field of research increases with weed interference. In order to study of these effects on soybean, a factorial experiment based on randomized complete block design with three replications, was carried out at research fields, University of Tabriz, East Azerbaijan Province, Iran. Two varieties of soybean, Williams and Harcor, were grown at the field in 2004. Fertilizer treatments were applied in four levels. Weeds were controlled by hand weeding up to the end of the critical period of soybean as one level of weed treatment and weedy plots were the other level. Results showed that Williams had high protein content while Harcor had high oil content. Biological nitrogen fixation as the single source of nitrogen fertilizer decreased the soybean grain protein and increased oil percent. On the other hand, application of urea in four different payments of urea topdressing, increased grain protein about 13%. Weed infestation in inoculated plots increased significantly grain protein content but in urea applied plots results were reversed. Grain oil percent had reverse order in comparison with protein content.

Key words: *Bradyrhizobium japonicum*, *Glycine max*, nitrogen, N_2 fixation, oil, protein, soybean, weed.