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[previous paper](#) [back to paper's list](#) [next paper](#)

Germination capacity and health status of alfalfa seeds after laser treatment

[\(get PDF !\[\]\(56549452e01ca28bdf2500ced9653143_img.jpg\)\)](#)Wilczek M.¹, Koper R.², Ćwintal M.¹, Kornilłowicz-Kowalska T.³¹ Department of Crop Production, University of Agriculture, Akademicka 15, 20-934 Lublin, Poland² Department of Physics, University of Agriculture, Akademicka 15, 20-934 Lublin, Poland³ Department of Agricultural Microbiology, University of Agriculture, Akademicka 15, 20-934 Lublin, Poland

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abstract Laboratory studies on the germination of alfalfa seed (American variety 'Legend') were carried out completely randomly in four replications in 2002. The factors studied were as follows: 1) irradiation with divergent He-Ne laser light with a surface power density in the irradiation plane of 0, 3 and 6 mW cm⁻² applied 1, 3 and 5 - times; 2) seed dressings: Funaben T, Sarfun T 65 DS and Super-Homai 70 DS in a controlled environment. The number of seeds germinating normally and abnormally as well as hard seeds and seeds infected with fungal disease was determined. Seed treatment with He-Ne laser light did not significantly influence the share of those seeds germinating normally. However, it did decrease the percentage of those seeds germinating abnormally, the hard seeds and also those seeds infected with disease but only when double the power was used. Laser light with surface power density and multiplication of R 6x3 and R 6x5 destroyed fungi from the Penicillium kind completely, whereas in a dose of R 3x3, R 3x5 and R 6x1 it significantly stimulated the growth of fungi from the Alternaria type. All seed dressings destroyed fungi from the Penicillium and also Alternaria types completely (except for Super-Homai 70 DS dressing).

keywords laser treatment, alfalfa, germination