

IDENTIFICATION OF EMPTY AND PLUMP SEEDS OF SPRUCE FIR BY X-RAY AND GAS DISCHARGE VISUALIZATION METHODS

M. V. Arkhipov ¹, N. S. Priyatkin ², L. P. Velikanov ¹, A. S. Bondarenko ³, A. V. Zhigunov ³

¹Agrophysical Research Institute of Russian Academy of Agricultural Sciences
14 Grazhdansky prospect, St. Petersburg, 195220, Russia

E-mail: arhipov@spb.lanck.net

²“BioLine”, 36 A Petrogradskaya naberezhnaya, St. Petersburg, 197101, Russia

³Research Institute of Forestry, 21 Institutsky prospect, St. Petersburg, 194021, Russia

The comparative study of spruce fir (*Picea abies* L.) seeds' quality was carried out using X-Ray and gas discharge visualization methods. The obtained data indicated that the empty seeds investigated by the gas discharge visualization method do not show gas discharge glow in contrast to the plump seeds. The empty seeds investigated by X-Ray method show lower level of brightness compared to plump ones. The results indicated that both X-Ray and gas discharge visualization methods can be applied as reliable tools for identification of empty and plump seeds of spruce fir.

Keywords: X-Ray, gas discharge visualization, seeds, spruce fir, *Picea abies* L.