BSE

CERTIFICATE

This is to certify that

Hanna Pantsyreva

has participated at the conference

Biosystems Engineering

held on May 6, 2020

Prof. Jüri Olt
CHAIRMAN
SCIENTIFIC COMMITTEE

EMU

Prof. Timo Kikas
CHAIRMAN
ORGANISING COMMITTEE

Biosystems Engineering 2020

Dear PARTICIPANTS of Biosystems Engineering 2020 conference. As we notified in the earlier news and mailing list, the conference will take place in the e-platform this year. We have chosen Zoom as our platform and all the presentations will be done in Zoom environment. Conference will take place on one day only this year. It starts at 11 am Estonian time (UTC+3) with the Welcome words from the Rector of Estonian University of Life Sciences and Mayor of Tartu. Director of the Institute of Technology will then explain the schedule and inner workings of the conference. At 11.15 we will start with the Plenary Session, where our distinguished keynote speakers will introduce us to their work.

After the Plenary Session we will take few minutes to create a virtual “Conference Picture”, so stay in the Zoom room until the moderator has called for the “coffee break”.

After the break we will continue with 7 parallel sessions. All sessions will start at the same time and take place in different Zoom rooms.

Poster session will be available at least till the end of the week, so take your time to look at the posters and leave your questions at the poster.

COMPLETE SCHEDULE is now also available!

Conference videos

11.00	Welcome address from rector Prof. Mait Klaassen			
	Welcome address from Mayor of Tartu City Urmas Klaas			
	Opening of the Conference and Plenary session, Margus Arak			
11.15	PLENARY SESSION			
12.45	Photo session			
COFFEE BREAK				
13.30	PARALLEL SESSIONS			
	BIOENERGY AND BIOFUELS	FOOD TECHNOLOGY	NANOMATERIALS AND WASTE RECOVERY	AGRICULTURAL AND LIVESTOCK TECHNOLOGY
	ENGINEERING	RENEWABLE ENERGY	PRECISION AGRICULTURE	

13.30. Hanna Pantsyreva. **Vinnytsia National Agrarian University.** **Influence of the assimilation apparatus and productivity of white lupine plants.**

Artificial regulation of the growth and development of cultivated plants aimed to increase biological productivity and improve the quality of eco-frienfly products is an important goal of modern agricultural production. Application of the natural growth stimulators and bacterial agents is quite relevant and effective. The field research was conducted on the basis of the research farm 'Agronomichne' of Vinnytsia National Agrarian University, village Agronomichne, Vinnytsa district, Vinnytsia region, Ukraine. Features of the growth and development of white lupine (Lupinus albus L.) plants are examined. There has been established a positive effect of the combination of inoculation with the bacterial agent and growth stimulator on the productivity of white lupine, which is important for the formation of high and stable yields. The papers presents the results of studies on the effect of pre-sowing seed treatment and foliar nutrion under conditions of the right-bank Forest-Steppe of Ukraine on the assimilation apparatus of white lupine plants. It has been established that bacterial agents and growth stimulators increase white lupine productivity due to optimization of the studied technological methods of cultivation. The optimal leaf surface area that provided maximum grain yield has been determined. The research has established a positive effect of pre-sowing seed treatment with the bacterial agent Rhizohumin and the growth stimulator Emistym C and foliar nutrition with Emistym C on the chlorophyll content in the white lupine leaves. The influence of the investigated technological methods on the formation of the assimilation surface area and chlorophyll synthesis in the leaves of white lupine has been proved. The preparations studied induce intensive development of the photosynthetic apparatus, yield increase, improvement of the yield structure and they improve grain quality under conditions of right-bank Forest-Steppe of Ukraine. The issue of seed bacterization and application of growth stimulators requires a more detailed study. Theefore, such researches are relevant and significance in terms of both practical and scientific value.

White lupine variety Veresnevyi was selected as the material for the study. In the experiment, the effect and interaction of three factors were studied: A – variety, B – pre - sowing seed treatment, C - foliar fertilization. On the day of sowing, white lupine seeds were treated with bacterial Risogumin (600 g per hectare seed) and growth promoter Emistim C (10 mL per 1 t seed) using PKC-20 Super. Growth stimulator Emistim C with a rate of use of 15 mL ha-1 was used in the non-root nutrition. The first foliar nutrition of Emistim C was carried out in the budding phase, and the second in the phase of seeding. For control, an option is adopted without pre-planting and without extra-root crops. On the day of sowing, white lupine seeds were treated with water in a control.

It is known that white lupine is characterized by slow and uneven growth in the initial phase of development; however its growth rate increases in the future. White lupine grows especially intensely after the beginning of bloom. The growth rate during this period depends mainly on the environment and characteristics of the variety. It is noted that depending on the factors studied the height of white lupine plants before the phase of budding did not change significantly, but since the beginning of the stage of full bloom the difference in height between the variants considerably increased.

Application of the bacterial agent Rhizohumin and the growth stimulator in combination with the double foliar nutrition with the growth stimulator Emistym C during pre-sowing treatment of white lupine seeds promoted the increase of the leaf area, formation of photosynthetic apparatus of plants and chlorophyll

content in the leaves. The highest stimulatory effect was obtained in the variant of pre-sowing seed treatment with Rhizohumin + Emistym C + double foliar nutrition with Emistym C.