Crop Science and Technology: Shaping the Future of Agriculture

International Scientific Conference

BOOK OF ABSTRACTS

September 29 - October 2, 2025 - Belgrade, Serbia

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CROP SCIENCE AND TECHNOLOGY: SHAPING THE FUTURE OF AGRICULTURE

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Biomass quality of the faba bean lines

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Many studies have shown that various parts of the faba bean plant (Vicia faba L.) contain useful compounds, including protein, fiber, and a wide range of bioactive substances. The chemical composition of faba bean plant sections varies depending on the plant's genotype and growing conditions. Aside from the grain, the faba bean plant contains relatively little protein. This study evaluated ten promising faba bean lines with high grain protein content identified in prior research. These lines are derived from local Serbian faba bean populations, and previous research indicated that their grain has high protein content (more than 27%). A two-year experiment with two replications was conducted in the experimental field of the Institute for Forage Crops Kruševac, utilizing a random block design. The plants were cut at the green pod stage when the seeds had formed but the plants remained green because higher protein content and higher biomass quality were expected. The following parameters were assessed using the Weende method: crude protein, crude cellulose, ash, crude fat, and nitrogen-free extract (NFE). The results showed significant variance across the studied faba bean lines. Dry mass content ranged from 90% to 91.4%, crude protein content from 18.3% to 23.3%, crude cellulose from 14.2% to 25.6%, crude ash from 6.3% to 9.4%, crude fat from 0.4% to 2.1%, and NFE content from 41.2% to 50.3%. As expected, the protein level in the biomass was high at this stage of mowing, possibly due to the developed grains. This biomass is a high-quality feed for fresh and ensiling applications. Furthermore, the high levels of some of the other assessed parameters indicate that more research is needed on the dry matter content of the entire faba bean plant at this cutting stage.

Keywords: *whole plant; faba bean; mowing stage; feed quality; protein*

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