

**IMPACT ASSESSMENT OF PLANT PROTECTION PRODUCTS AND FERTILIZERS ON WET BIOMASS
AND YIELD OF BARLEY WITH UNDERSOWN PERENNIAL GRASSES USING EXPLORATORY DATA
ANALYSIS**

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The research was carried out in the field experiment at the Agrophysical Research Institute (Leningrad region, Gatchina district). In the RStudio environment (R version 3.6.2), an exploratory analysis of data on the effect of plant protection products and mineral fertilizers on the components of the agrocenosis of spring barley with undersown perennial grasses was carried out. The purpose of the analysis was to identify the relationships, mutual influence and actions of each of the agrotechnological techniques on the yield of spring barley. Exploratory data analysis has shown that the yield of spring barley and undersown perennial grasses in the studied region was determined by the crop biomass. Barley wet biomass depended on the level of mineral nutrition and the weather conditions of the year. The treatment with herbicides during the growing season led to a significant decrease in wet biomass of weeds during harvesting, but increased the wet biomass of barley only in fertilizer treatments. The sowing of perennial grasses together with barley had an impact already in the year of sowing. The wet biomass of barley had a noticeable negative correlation with the wet mass of grasses. The analysis allowed to conclude that there were interactions between the wet biomass parameters of individual components in the agrocenosis. These relationships change with changes in the phytosanitary situation, mineral nutrition, and weather conditions.

Keywords: spring barley, weeds, phytomass, yield, RStudio.

