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The impact of cultivation systems on the development and yielding of soybean cultivars

(*Glycine max* (L.) Merill)

Summary

In the years 2016 – 2018, two – factorial field experiment was established on the Top Farms production fields in Głubczyce. The following factors were examined :

- Tillage systems; a) traditional (plowing); b) simplified (zero - plowing) with deep tillage using Horsch Tiger AS; c) direct sowing, deep stubble tillage with simultaneous sowing, applying Horsch Pronto TD 5m seed drill
- Soybean cultivars: Lissabon, Mavka and Merlin.

Direct sowing (deep stubble cultivation with simultaneous sowing), in comparison with traditional cultivation resulted in a 19% reduction in seed yield. The highest seed yields were obtained from Merlin cultivar, while 6% lower ones featured Mavka and Lissabon cultivars.. The content of total protein in the seeds shaped the cultivation methods and the level of crude fat depended on the cultivar factor. Higher than average long-term temperature, accompanied by slight water deficit, provided for the accumulation of protein. At mean expenses, counted for three years of research, the cost of growing 1 ha of soybeans ranging 2557.56 PLN and the sales price of 1 t of seeds 1610.33 PLN, the treshold of payability, without subsidies, is obtained at the yield of 1.59 t ha⁻¹. The production cost of 1 kg of protein at the level of PLN 3.16 is achieved at the yield of 2.55 t ha⁻¹, which corresponds to the yield per 1 ha of 809 kg of protein.