

Characteristics of hydrogel substrates as alternatives to natural soils in monitoring of the development of the root system of plants in precision agriculture

Piotr Szatkowski, Ewa Szczepanik, Edyta Molik

Summary

Climate change, including drought, necessitates the search for solutions to support agricultural production. The root system of plants plays an important role in the uptake of water and nutrients. A well-developed and effectively functioning root system can provide a sufficient supply of water to the plant even under conditions of water scarcity. For this reason, it is reasonable to orient agriculture towards plants whose structure allows them to better assimilate soil resources. The introduction of transparent soil in agricultural production enables precise control of the development of the root systems. Materials engineering tools currently enable the development of transparent substrates designed for specific soil types.

KEY WORDS: hydrogel substrates, precision agriculture, soils