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EVALUATION OF THE EFFICACY OF A FUNGICIDE APPLIED BY AN XAG DRONE FOR THE CONTROL OF *Septoria glycines* IN SOYBEAN

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Soybean (*Glycine max* (L.) Merr.) is an important crop for the agriculture of the Republic of Moldova, and maintaining the phytosanitary status of plants is essential for achieving their productive potential. Among the foliar diseases of economic importance is Septoria leaf spot, caused by *Septoria glycines*, which is characterized by the appearance of brown lesions on leaves and may reduce the active photosynthetic leaf area.

The aim of the study was to assess the practical efficacy of the fungicide Pictor® Active, applied using the XAG V40 agricultural drone, for limiting the development of Septoria leaf spot in soybean under commercial production conditions.

Observations were carried out in 2026 under the pedoclimatic conditions of northern Moldova, on an area of 2.2 ha. The crop was monitored throughout the growing season, and the fungicide treatment was applied upon the appearance of the first characteristic symptoms of Septoria leaf spot.

For disease control, the fungicide Pictor® Active, containing 150 g/l boscalid and 250 g/L pyraclostrobin, was applied at a rate of 0.6 l/ha. The phytosanitary treatment was carried out using the XAG V40 agricultural drone.

During application, the XAG V40 drone was configured with the following flight and spraying parameters: flight altitude – 2.5 m, working width – 5 m, flight speed – 3 m/s, droplet size – 130 μm, and spray volume – 100 l/ha. These parameters were used to ensure uniform treatment across the targeted area.

The effect of the treatment was assessed through visual observations conducted before and after application, focusing on the development of Septoria leaf spot symptoms and the general condition of the foliage. Since the treatment was performed under actual commercial production conditions, without an untreated control

and experimental replications, treatment efficacy was assessed qualitatively, without statistical analysis.

At the time of crop monitoring, the first symptoms of Septoria leaf spot were identified, which prompted fungicide application at an early stage of disease development. The application of Pictor® Active using the XAG V40 drone enabled rapid and uniform treatment of the entire 2.2 ha area without the need for ground machinery to pass through the crop.

Post-treatment observations indicated a limitation in the development of Septoria leaf spot symptoms and the maintenance of a favorable phytosanitary condition of the plants. The foliage remained functional, while the further expansion of symptoms observed prior to treatment was reduced.

The use of the agricultural drone provided an important technological advantage by enabling treatment to be carried out in a standing crop without causing plant damage associated with the passage of ground-based machinery through the field.

Conclusions

The application of the fungicide Pictor® Active at a rate of 0.6 l/ha using the XAG V-40 agricultural drone in soybean crops over an area of 2.2 ha enabled timely phytosanitary intervention at the onset of the first symptoms of Septoria leaf spot.

Under the production conditions of 2026, the treatment was followed by a limitation in the development of disease symptoms and the maintenance of a favorable phytosanitary status of the crop. The application using the XAG V-40 drone proved to be a practical technological solution for carrying out phytosanitary treatments in a standing crop.

The results obtained confirm the importance of continuous monitoring of soybean crops and timely phytosanitary intervention at the onset of the first disease symptoms. Further experimental research conducted using untreated control plots, replicated treatments, and quantitative phytopathological assessments is required to accurately quantify the biological efficacy of the treatment and its effect on soybean yield.

Keywords: Soybean, *Septoria glycines*, fungicide, agricultural drone, plant protection, phytosanitary management.

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