Influence of Fungicide Foliar Treatments on the Spring Barley Grain Yield

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SUMMARY

Spring barley crops are damaged by numerous diseases but only a few caused quantitative and qualitative yield losses in every year, in Transylvania conditions. The complex of foliar diseases: powdery mildew (Blumeria graminis f. sp. hordei), scald (Rhynchosporium secalis), net blotch (Pyrenophora teres) and leaf blotch (Septoria passerini), leaf rust (Puccinia hordei) as well as head blight (Fusarium spp.) and barley yellow dwarf virus (BYDV) are the most frequently in spring barley crops. Yield losses reaching to 25% from yield value depend on climatic conditions and spring barley cultivar.

The effect of fungicide foliar treatments on the four spring barley cultivars was studied at ARDS Turda during three years. It was organized bifactorial trials after block split type with 4 cultivars and 3 treatments variants: untreated (T0), 1 Treatment (T1) applied leaf flag emergence and 2 treatments (T2) applied leaf flag emergence and in the end of flowering. The fungicides used contain: spiroxamine 250g/l + tebuconazole 167g/l + triadimenole 43g/l at dose 0,6l/ha for the first treatment and for the second treatment contain: trifloxystrobin 100g/l+ tebuconazole 200g/l at dose 0,8g/l. In the field, attack degree for main diseases (%) and yield (kg/ha) were determined. In the laboratory, thousands kernels weight (TKW), volumetric weight (VW) and percentage of Fusarium diseased kernels were registered.

The weather conditions from April, May, June months of 3 years is characterized by exceeded temperature in April and May months, associated with strong hydric deficit in April and very rainfall in May month, were not very favorable of the diseases occurrence, it know that is essentially weather-dependent. Foliar diseases: powdery mildew, net blotch, and leaf rust were presented in spring barley crops. By applying of one single fungicide treatment, attacked leaf area by foliar diseases was significantly reduced, in average, with 50% and quite more at Daciana and Jubileu cultivars. Applying of 2 treatments diminished substantially diseased leaf area (3,1 %) and percentage of Fusarium diseased kernels (2,0%). Applying one foliar treatment increases yield with 7,9 % and for two treatments with 18,2%, in average, in the three years, compared with untreated plots. Fungicidal foliar treatments have influenced positively TKW and VW, determining increases rich up to 17,5%, respectively up to 5,8%, statistic assured values. Tested fungicides such as theses contain: propiconazole 250g/l+ciproconazole 160g/l (0,5l/ha), azoxystrobin 200g/l + ciproconazole 80g/l (0,5l/ha) and prothioconazole 125g/l + tebuconazole125g/l (0,8 l/ha) and the others, presented a good efficacy in controlling spring barley foliar and ear diseases.

REFERENCES