IRRIGATION INFLUENCE ON WATER CONSUMPTION, YIELD AND WATER USE EFFICIENCY IN POTATO IN THE CRIŞURILOR PLAIN CONDITIONS

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SUMMARY

The paper is based on the research results obtained during 2001-2005 in Oradea in the long term trial placed on preluvosoil in 1976.

During the vegetation period of the potato, the following quantity of the rainfall were registered: 426.2 mm in 2001, 210.4 mm in 2002, 165.4 mm in 2003, 359.6 mm in 2004 and 335.2 mm in 2005.

To maintain the soil water reserve on 0-75 cm between easily available water content and field capacity, the irrigation rate used was of 40.0 mm in 2001, 271.0 mm in 2002, 287.0 mm in 2003, 157.5 mm in 2004 and 65.0 mm in 2005.

Irrigation determined the increase of the values of the water consumption with 7.4% (618.2 mm vs 575.7 mm) in 2001, with 48.9% (526.2 mm vs 353.4 mm) in 2002, with 79.2% (585.5 mm vs 326.8 mm) in 2003, with 26.0% (632.0 mm vs 500.8 mm) in 2004 and 17% (580.6 mm vs 496.5 mm) in 2005.

Yields obtained in the irrigated variants had bigger values han in nonirrigated variants, the differences were very significant statistically every year. The relative values of the differences were of 17.9% (37.67 t/ha vs 31.95 t/ha) in 2001, 106.6% (42.0 t/ha vs 20.32 t/ha) in 2002, 363.8% (31.68 t/ha vs 6.83 t/ha) in 2003, 137.3% (35.17 t/ha vs 14.82 t/ha) in 2004 and 53.8% (45.8 t/ha vs 29.8 t/ha) in 2005.

Water use efficiency was improved in the irrigated variant in comparison with the nonirrigated variant every year: 60.9 kg/mm vs 55.4 kg/mm in 2001, 79.8 kg/mm vs 57.5 kg/mm in 2002, 54.1 kg/mm vs 20.9 kg/mm in 2003, 55.6 kg/mm vs 29.6 kg/mm in 2004 and 78.9 kg/mm vs 60.0 kg/mm in 2005.

All the results obtained sustain the opportunity of the irrigation in the potato crop from Crişurilor Plain.

BIBLIOGRAPHY