TILLAGE SYSTEM’S INFLUENCE UPON ECONOMIC EFFICIENCY ON THE MAIZE YIELD

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ABSTRACT

Experiments were carried out in the soil conditions (vertic chernozem) of the Didactic Station from Banat’s University of Agricultural Sciences and Veterinary Medicine - Timișoara (Timiș county) between 2003-2005. We used two soil-working methods: conventionally technology and no-tillage technology.

The experimental device for studies upon the no-tillage influence was organized as a stationary experience with the following variants:

$V_1$ (control): tillage with the plough with a mould board + disk harrow
$V_2$: tillage with the disk harrow – two times
$V_3$: tillage with the combined rotating harrow
$V_4$: tillage with the disk harrow + the combined rotating harrow
$V_5$: tillage with the disk harrow + soil processing with a vibrocultor
$V_6$: no tillage

On the vertic chernozem from D.S. Timisoara, the determinations carried out upon fuel intake per total technology show certain differences between the variants used. So, under the conditions provided by the classic system, we have used 111,10 l/ha (100%) compared to 92,10-98,10 l/ha (82,90-88,30%) in the variants with minimal tillage and 80,70 l/ha (72,62%) in the no tillage variant.

The fuel intake analyzed in comparison with the yield achieved has the following values: 14,7 l/t under the classic system, 13,2-13,8 l/t in the variants with minimal tillage system and 12,0 l/t in the no tillage variant.

The energy intake for the initiation and maintenance of maize crop, according to the classic technology, represents 22,957 Mj/ha.

The replacement of the work carried out with the plough with a mould board with the no tillage system reduces the energetic input with 15.52%.

Within the variants $V_4$ ($\eta$=8,15), $V_5$ ($\eta$=8,46) and $V_6$ ($\eta$=8,79), the energetic efficiency is bigger compared to the control variant ($\eta$=8,12), meaning that the difference between the energy output and the energy input is superior in these variants compared to the control variant.

The economic efficiency of the no tillage technology in maize crop consists of the achievement of yields similar to those achieved under the classic system, but with smaller technological costs.

BIBLIOGRAPHY