RESEARCHES ACHIEVED CONCERNING THE DIRECT SEEDING COMBINER’S DYNAMICS

D. Popa

U.S.A.M.V.B. Timișoara, Calea Aradului 119, Timișoara, Romania

Key words: direct seeding machine, traction power, pressure force, moment resistant

ABSTRACT

The minimal work method is a concept that has gained approval in a shorter period of time than the necessary one to adopt maize hybrids 50 years ago. Direct seeding is the most important method of saving power and of preserving the soil’s production capacity.

The experimental field was set on the lands of the Didactic Station from B.U.A.S.V.M. Timișoara on a vertic chernozem. The object submitted to experimental research was represented by the aggregate comprising the direct seeding machine Massey Ferguson MF 354 TSB and the tractor U-650 M.

The objective of the experimental research regarding the dynamics of the work system tractor – direct seeding machine has led to:

- the determination of forces which act in the coupling points between machine and tractor (traction power and pressing power);

- the determination of the twisting moment transmitted to machine through the tractor power take-off shaft;

According to the processing and analysis of the data achieved during our experimental researches, could elaborate a series of conclusions, the most important of them being presented synthetically as following:

- The average traction power $F_{t \text{med}}$ has values of 469,1 daN in the step III L and 530,0 daN in the step IV L;

- The average pressure force $F_{a \text{med}}$ increases from 285,0 daN in the step II L up to the maximal value of 391,0 daN in the step IV L;

- The moment resistant to the power take-off shaft $M_{ap \text{med}}$ is between 1,3 daNm in the step II L and 8,3 daNm in the step IV L.

The values of the moment resistant to the power take-off shaft are low, indifferently of the velocity step used, because only the ventilator of the direct seeding machine is hydrostatically acted by the tractor power take-off and the energy required is reduced;

The protection and preservation of soil fertility by implementing the direct seeding technology in the maize crop under the conditions of high-level crops with low costs represents a facile solution that may be applied in pedo-climatic areas similar to those from the researched areas

BIBLIOGRAPHY
