Studies on Seeding Machines

Mariana DUMITRU

Lucian Blaga University of Sibiu, Romania
B-dul Victoriei, no.10,Sibiu, Romania
E-mail: mariana_dumitru2001@yahoo.com

SUMMARY

Seeding machines are a group of machines that distribute materials over fields. Management problems of these machines include assuring that the desired application rate is obtained. Soil conditions may require different rates for different parts of the field. A future need is for rate controllers that can be set from the tractor seat while in motion. In the best case, a computer program based on a navigation system that can locate the implement on a stored map of the field will make adjustments automatically and more precisely. Whether the materials applied are seed, fertilizer or chemical sprays, the mechanical operation of the equipment must be understood before adjustments and calibration are attempted. There are 3 general types of rate application machines: Ground wheel driven, Power take-off driven, Constant delivery. The first ones are the simplest to operate, since speed variations within practical limits do not effect the application rate. In general, the application rate of these machines is varied by changing the gear ratio between the metering mechanism and the ground wheel. The power take-off driven rate application implements are not effected by changes in speed within each forward gear of the tractor, but are definitely affected by changes in the selection of forward gears. The constant delivery applicator is the most sensitive to speed variation. Any slight change in the forward speed of the implement causes a change in the rate of material applied. From the all 3 types of seeding machines, it is more important to calibrate the last two than the first. A special attention is given to field distributors and metering devices. The metering mechanisms we referred to are: fluted feed with seed gate, double internal run feed and those with variable orifice agitator. Both mechanical and air systems are used to meter seed. From the last category we presented the finger pickup metering mechanism, which is designed for high-speed seeding of single kernels of corn. We also studied the adjustments which can be made to this type of machines, in order to adapt them to the actual conditions from the field.

REFERENCES