

EXPLOITATION OF AGRICULTURAL EQUIPMENT (IVth Year of study, Ist SEMESTER)

Credit value ECTS - 5

Course category

Domain (Imposed)

Course holder:

Lecturer. dr. Dan Cazacu

Discipline objectives (course and practical works)

Knowledge of the rational formation of different agricultural aggregates as well as knowledge of the main types of tractors and agricultural machines used in our country. Establishing the optimal working parameters of different complex agricultural aggregates. Correct establishment of the technical condition of agricultural equipment.

Contents (syllabus)

Course (chapters/subchapters)
General notions about agricultural tools, machines and equipment, technological process of mechanization.
Mechanization of agricultural works on slopes, methods of moving agricultural aggregates.
Formation of agricultural aggregates. Tensile strength
Stability of tractors on sloping terrain
Methods of increasing the stability of tractors
The force available on the hooks of the tracers.
Working capacity of agricultural aggregates, actual working time.
Energy balance in agriculture, fuel consumption
Soil compaction and compaction in agriculture due to agricultural traffic
Decreased excessive soil compaction Reduction of conventional fuel consumption for agricultural works
Factors influencing the size of the compaction forces
Physico-mechanical properties of the soil
Phenomena that occur in the soil under the action of wheels

Practical works
Determination of tensile strength on different types of soils.
Determination of the force required to operate the units at the tractor's PTO.
Determination of qualitative work indices in the preparation of the germination bed
Determination of qualitative working indices for seed drills
Determination of qualitative working indices for spraying machines.
Determining the effective working time for servicing agricultural aggregates
Determining the optimal working speed according to the work performed
Determining shift and campaign work times
Establishing the optimal methods of travel in order to increase the real working capacity

Bibliography

1. Bill A. Stout 1999 - *CIGRE Handbook Volume III*. Publisher American Society of Agricultural Engineers Texas A & M University, USA Co-Editor: Chez Bernard Ministry of Agriculture, Fisheries and Food, France
2. Course notes
3. Canarache A. et al., 1984 - Soil compaction, causes and effects. Publisher Rev. Prod. Veget., No.9-10, Bucharest.
4. Caraciugiuc Gr., 1989 - Reducing the wear and consumption of tires on agricultural machines and tractors through their rational operation. Publisher Edit. Ceres, Bucharest.
5. Cazacu Dan 2009 -Reduction of fuel consumption and soil compaction in agriculture Publisher PIM, Iasi
6. Toma Dragos, Traian Neagu and collab., 1981 - *Tractors and machinery for agriculture*, vol. II, Publisher Didactic and Pedagogical Bucharest.

Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Exam	oral	60%
Laboratory activity	tests, laboratory activity	40%

Contact

Lecturer Ph.D. Cazacu Dan

Faculty of Agriculture - USAMV Iași
Aleea Mihail Sadoveanu nr. 3, Iași, 700490, Romania
telefon: 0040 232 407563, fax: 0040 232 260650
E-mail:dcazacunori@yahoo.com