

Testing and Evaluation of Tractors and Farm Equipment

FMPE 521

3(2+1)

Importance and significance of testing and types of tests. Testing of agricultural machines like: M.B. Plough, Disc Plough, Rotavator, Cultivator, Disc Harrow, Seed cum fertilizer drill & planters. Manual and power operated Weeders, reaper, thresher and chaff cutter. Combine harvesters. Plant protection machines. Testing of farm tractor – Tractor test codes: BIS: ISO: OECD and Nebraska.

Suggested Readings

1. BIS test codes for farm machines and tractors
2. ISO test code for farm machines and tractor
3. Nebraska tractor test code
4. OECD tractor test code
5. RNAM test codes for farm machines
6. Testing manual, CIAE, Bhopal.

Agricultural Mechanization and Management

FMPE 621

3 (2+1)

Concept and objectives of farm mechanization, its importance myths and concept meaningful and appropriate mechanization. Importance in developed and objective developing countries, mechanization of operation and process in Indian Agriculture; need, impact and research trends. Relationship between farm mechanization and crop yield for a farming district in India. General effect of farm size in relation of mechanization individual. Farmers mechanization problems. Mechanization management in relation to overall farm management. Estimation of operating costs. Use of efficiency standards. Requirement of good management of labour and machinery. Choice of requirement, capital investment for machines. Labour requirement and machinery cost. Economics performance of agricultural machines. Capacity, concept for predicting capacity of row crop machines. Field efficiency & factors affecting field efficiency. Quality performance and performance testing problem related to its power performance. Tractor power, tractor power measurement & tractor engine performance. PTO performance, drawbar performance & fuel consumption. Power requirement problem related to PTO, SRAF, DBPAP. Operator performance, amount, value and labour cost determination

Machinery selection: Size selection, Replacement of machine, Timeliness of operation, optimum width and problem related to it Power selection; selecting proper power level and problem related to it

Practical

1. Estimation of horse power per hectare of country and of different states.
2. Study of latest development of different agricultural equipment and implements in India and other developing countries.
3. Size selection of agricultural machinery.
4. Experimental determination of field capacity of different farm machines.
5. Study of farm mechanization in relation to crop yield.
6. Determination of optimum machinery system for field crop and machine constraints

Suggested Readings

1. Culpin, C, Profitable farm Mechanization, Lock Wood & Sons, London, 1996
2. Hunt, D, Farm Power and Machinery Management, Lows State University Press, USA, 1979
3. Carville LA. Selecting Farm Machinery. Louisiana Cooperative Extension Service Pub. 1980.