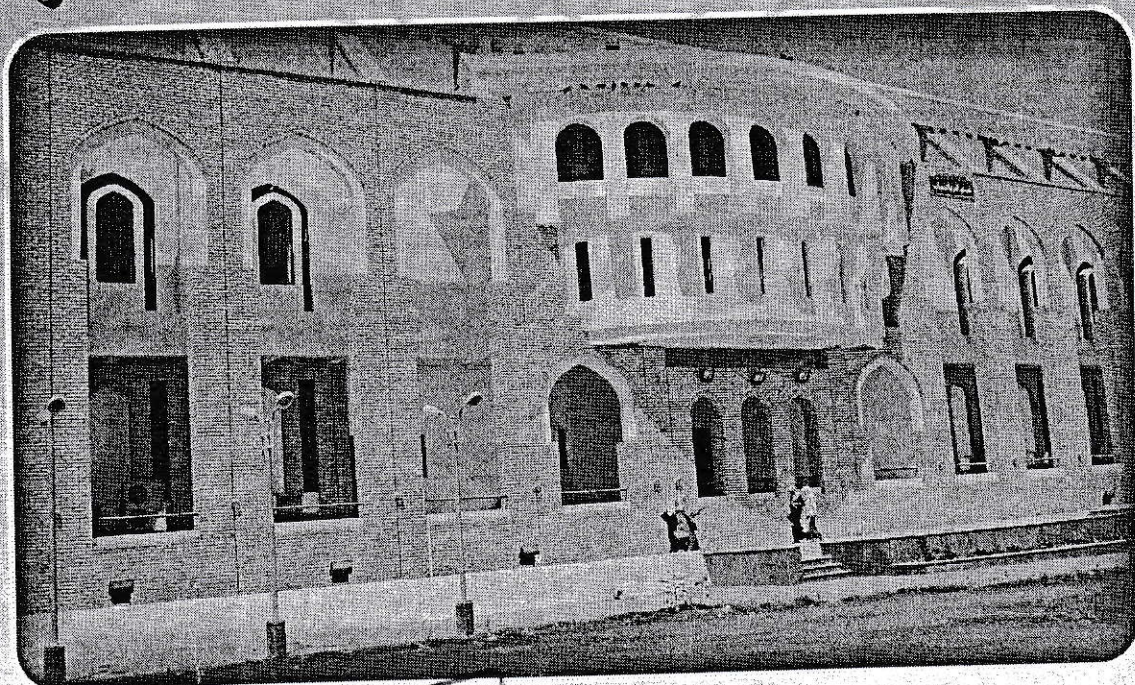




وزارة التعليم العالي والبحث العلمي
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جامعة الكوفة
مبنى الكوفة

Estimation of The Losses During The Mechanical Harvesting For Wheat crop variety of Tomouz

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Abstract

Three farming experiments have been done to harvest the wheat crop variety of Tomouz in Basrah governorate/Al-Qurna. The Pma harvester, of 4.2m for the worked designed width. The study contains three separate experiments each of which has been done by the use of random complete block design (R.C.B.D.) via three factors: the harvester speed, the speed of reel and the height of the crop cutting. In the first experiment the harvester speed is 1.8km\hour as well as two cutting height for the crop (35, 25) cm and three reel speeds (18, 16, 14) r.p.m have been used. In the second experiment the harvester speed is 3.5km\hour and two cutting height for the crop (35,25)cm besides three reel speeds(26,24,22)r.p.m have been used. In third experiment the harvester speed is 4.5km\hour as well as two cutting height for the crop (35, 25)cm and three reel speeds (34,32,30)r.p.m have been used. This study is to find the harmonized relations, between the harvester speed and the reel speed, which give a minimum amount of loss in the cutting unit. This study has been done, also, to examine the effect of these three factors on the loss happened in different harvester units. The results show the following:

- 1- The first experiment gives best relation when the harvester speed is 1.8km\hour and the reel speed is 14 r.p.m(0.82m\sec.) within minimum loss for the cutting unit that reaches 1.9% .
- 2- The second experiment gives best relation when the harvester speed is 3.5km\hour and the reel speed is 22 r.p.m(1.29m\sec.) within minimum loss for the cutting unit that reaches 2.5% .
- 3- The third experiment gives best relation when the harvester speed is 4.5km\hour and the reel speed is 30 r.p.m(1.76m\sec.) within minimum loss for the cutting unit that reaches 3.3% .
- 4- Increasing the speed of the harvester leads to increase the amount of loss: in the cutting unit. The speed of 1.8k\hour gives a minimum amount of loss that reaches: 2.3% in the cutting unit, while the speed of 4.5km/hour gives a maximum amount of loss which reaches: 3.94% in the cutting unit.
- 5- A minimum amount of loss for the total crop at 1.8km./hour the percentage reaches 4.2% and a maximum amount of loss for the total crop at 4.5km./hour the percentage reaches 6.7% .



*Part of M.Sc thesis for the second author.