

Thesis Title	Effects of Soybean Reaper on Harvesting Losses of Chiang Mai 60 Variety		
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Abstract

Study on the effect of the soybean reaper on Chiang Mai 60 soybean losses was carried out at Mae Hai Agricultural Research Station and Training Center , Faculty of Agricultural , Chiang Mai University during December , 1997 to April , 1998 . There were two sets of experiments. The first one was to find out the suitable time for harvesting soybean by the soybean reaper . The header loss was the indicator . The design of experiment was factorial in Randomized Complete Block with three replications. Factor A were two harvesting methods which were harvesting by soybean reaper and harvesting by labors. Factor B were five harvesting times which were 14 days , 7 days before and after the full maturity and at the full maturity. Thus , there were ten treatments with 3 replications in the first set of experiment . The other experiment was to evaluate and compare the capacity of the soybean reaper to labors . The experiment was laid out in Completely Random Design with 3 replications.

From the first experiment , it was found that the full maturity or 101 days after 50% of soybean emergence was the most suitable time for harvesting when using the soybean reaper. This harvesting time gave the least header loss, which was 12.75% of total yield . However, the most suitable time for harvesting by labors was 7 days after the

full maturity or 108 days after 50% of soybean emergence. This indicated that the appropriate harvesting time for soybean reaper was different from that for labor.

The results from the second experiment indicated that the soybean reaper's capacity and efficiency were higher than labors'. The soybean reaper's capacity was 1.14 rais per hour whereas labors' capacity was 0.05 rai per hour . In case of efficiency , the soybean reaper had 78.76% whereas labors had 73.84% . It was also found that harvesting 125.55 rais per year with soybean reaper would have the same cost as using manual labor. The pay back period for the machine was 1.78 to 5.14 years when the hiring rate were 150 to 200 baths per rai and the working area were 150 to 300 rais per year.