

### Abstract:

New production system, reaping and regrowth system (RRS) using automatic reaping harvester and rail system, was developed for lettuce and some leaf vegetables. With this system labor saving and better efficiency of harvest works should be achieved in lettuce and some leaf vegetable production. Simultaneously the products harvested could be distributed directly as cut-vegetables and packing works also might be simplified. A rail system developed for tea plantation was introduced into the plastic house and set up along the cultivation bed. The harvesting system we used was automatic reaping harvester developed from the tea harvester moving on the railways. With this system, upper leaves could be reaped off at a specific height precisely, allowing the plants to redeveloping new leaves or shoots for successive harvest. Vegetable jute (*Corchorus olitorius* L.), sweet basil (*Ocimum basilicum* L.), leaf lettuce (*Lactuca sativa* L.) was cultivated under protected condition. The influences of the planting density and reaping height for each vegetable on the yield and quality of the produce were investigated. The efficiency of this harvest system was also evaluated as the time used for harvest. Higher yield was obtained with higher planting density and the time required for harvesting unit area of each vegetable with this system was markedly reduced in this system to 1/100 or less compared with conventional cultivation method. For leaf lettuce culture, reaping at 13 cm from the base resulted in higher yield. Total of 15 harvests of lettuce could be obtained with planting distance of 10 x 10 cm. We concluded RRS should be feasible for leaf vegetables with high harvest efficiency. Further research is needed on this system for application to other vegetables and produce sterilization and packaging works.