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## 2 Cropping systems using field crops in unheated plastic house at paddy field

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### Abstract

In Korea, the single span unheated plastic house cultivated crops from autumn to spring of the following year, removed the plastic film and frame, cultivated rice, set up a plastic house again and cultivated crops. The crops in the greenhouse are utilized mainly for the production of leaf vegetables such as lettuce, leek, and fruit vegetables such as strawberry, watermelon, oriental melon, etc. and raising high income. Because, the production of these crops has characteristics requiring a lot of labor and it is difficult to produce horticultural crops at unheated plastic houses as the rural population ages. Therefore, we conducted a test to develop a crop planting system to cultivate crops in single span unheated plastic houses, although the utilization of labor is less than that of horticultural crops. The prior cropping cultivated three cultivars of sweet potatoes early, the second produced cultivated sweet potatoes, corn and soybeans. In the cultivation of the previous cropping, the sweet potatoes were harvested on the 113th day after planting on March 30th, the yield was 822 kg/10a for Pungwonmi, 1,377 kg/10a for Jinhongmi, 1,483 kg/10a for the Dahomi. Because of differences, the yield of Pungwonmi cultivar was less than that other cultivars and the yield of open field cultivations, we will expect further research. In the cultivation of the succeeding crops sweet potatoes were planted on July 27 and harvested 110 days later and investigated. The product yield of Pungwonmi cultivar was 1,024 kg/10a, and the Jinhongmi, Dahomi cultivars were not at economic level for sale and were necessary to review. In succeeding-crops, corn tested the Ilmichal cultivar, seeded on 27th July, harvested on October 11th. The day of silking was 45 days after sowing, the yield was 1,156 kg/10a, the goods rate was 100% level. The beans in the succeeding cultivation crop were sowed on 27th July, the early maturing of the varieties coming to Hwangeumol and Saeol cultivar, on 17th October, the late maturing soybean Daewonkong cultivar were harvested on October 21st. The yield of early maturing two cultivars was 214 kg/10a, Daewonkong was 257 kg/10a, and 100 seeds weight which were more than the early maturing beans were also heavy. When calculating these incomes price-wise according to the harvest time, we were able to consider the income in the order of corn, sweet potato and soybean from the second term crop. Various studies such as varieties, mulching method, moisture management, control environment management, etc. are considered necessary to develop cropping systems with sweet potato and field crops in future unheated plastic house.

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