

Evaluation on the Productivity of Plug Seedling and Common Used Media Applied to Machine Transplanting for Vegetables

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Abstract

Plug seedlings have the advantage of uniform growth and high survival rate after transplanting. Therefore, automatic plug system was being emphasized by the government. However, growers are used to plant traditional seedlings and questioning about the superiority of plug seedlings. In addition, a lots of workers are needed when transplanting is proceeded. So breeding healthy plug seedlings suitable for machine transplanting is very important for vegetable production. One of the objective of this experiment was to compare the productivity of plug seedlings with field sown seedling of cabbage, chinese cabbage, kohlrabi and cauliflower in Chi-nan substation and Alien county of Kaohsiung. Another objective of the experiment was to study the efficiency of common used media on 448 cell plug for onion which is a weak rooting crop.

The result showed that survival rate of plug seedlings was superior to those of field sown seedlings for all of the vegetables in the two experiments. The yield increased varied from 14.6% to 24.9% in cabbage and kohlrabi; but decreased about 21% and 31.8% for cauliflower in chinan and Alien, respectively. Yield of field sown seedling for chinese cabbage was 9.4% higher than that of plug seedlings in Chinan substation. However in Alien, the plug seedings increased 1.2% than that of field sown seedling. The result of onion seedling experiment showed that the plug media of King Mandy #2 and #3 were better than the Japanese made medium. Improved Tao #2 was the worst of them. King Mandy #2 has the best effect in seedling stage with highest seed germinating rate (94.2%), seedling survival rate (86.4%) and seedling height (17.1cm). Among the four media used in this experiment, the Japanese made medium (72%) had better coagulated-oneness rate than other media as treated by TB-1 solidization reagent. Therefore, this Japanese made medium is suggested to be used in onion automatic transplanting extension programs and the other three media are suitable for traditional cultivation.

Key words : vegetables 、 plug seedling 、 productivity 、 medium 、 solidization reagent