

# Effect of Staking Tygpe and Plant Numbers per Hole on Yield, Bean Quality and Profit of Pole Bean (*Phaseolous vulgaris* L.) Cultivation

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## Abstract

Pole bean is mainly cultivated in Kao-Ping area in spring or autumn. In spring crop, because of serious insect pests and diseases damage and the effect of high temperature during late harvest period, the yield is generally low. There are three conventional crossed bamboo staking types with four bean plants together per hole are generally used by the farmers in this area. The bamboo material is getting expensive and hard to get. Thus, the purposes of this experiment were to study the feasibilify of using erect metallic tube staking with single net to replace bamboo stake, and the effect of number of plants per hole on yield and quality of bean. A pole bean variety "Taichung 1" was used with four staking types and six planting densities. The experiment was conducted at Chinan Experimental Branch Station in autumn of 1993 and spring of 1994. The experimental results were summarized as follows.

The production of pole bean in autumn crop was better than that in spring crop including yield, length of bean, and rate of qualified tender pod. Yield from the treatment of erect metallic tube staking with single net combine with more than 4 plants per hole was higher than other conventional staking types.

By using erect metallic tube staking with single net and planted 20 plants per hole had the highest yield, they were 4.25, 13.97 ton/ha for spring and autumn respectively. For the rate of qualified bean, a significant difference was found only in autumn crop. For the other characteristics, such as pod color, pest damage rate, length and weight of pod, no significant differences were found among the treatments. For profit it was found that production costs were higher than production values for all treatments in spring and

autumn crops, except the treatment cultivated by erect metallic tube staking with single net.

It is concluded that pole bean should be planted in autumn in Kao-Ping area which has higher yield and quality. No production profit will obtain in spring crop regardless of any staking type and plant density, but low net income can be gained as cultivated by erect metallic tube staking with single net and 16 ~ 20 plants per hole in autumn crop.

Key words: Pole bean, Staking, Plant density, Yield, Quality, Production profit.

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