HORTICULTURE NOTES NO. 36

HOW TO MAINTAIN HIGH PRODUCTION OF ASPARAGUS BEANS

LIN GUANG-SHIUNG & ABRAHAM W. SUN. R.O.C (on Taiwan) Agriculture Technical Mission to Papua New Guinea, P.O. Box 4043, Lae, Papua New Guinea

ABSTRACT

Asparagus or Snake beans are a common vegetable grown by many Papua New Guineans. Leaves, tender pods and beans are edible and to increase their yield, new methods of harvesting and prunning are outlined for farmers to adopt.

KEYWORDS: *Asparagus bean, Prunning, Roc Mission*

INTRODUCTION

Asparagus bean (*Vigna sesquipedalis* Fruwirth), commonly known as Snake Bean, in Papua New Guinea (PNG) is a popular vegetable widely grown and accepted by the local people. When growing in small gardens and using traditional methods, the tender pod yields are lower due to the short harvest duration. The R.O.C. (on Taiwan) Agricultural Technical Mission to PNG did an experimental planting at Bubia model farm where the methods of picking tender pods and the need to prune the old flowering axes were demonstrated to some farmers. These management techniques proved that the yield of tender pods can be doubled compared to the traditional methods. The increase in yields was due to the same inflorescence been maintained to give three successful harvests of tender bean pods and the bean plants being encouraged to flower repeatedly. The improved methods are described below.

FRUITING CHARACTERISTICS

Asparagus beans are botanically classified in the legume family. They are indeterminate climbing plants. Staking is necessary to support the climbing as well as to permit good ventilation within the rows of plants. Top-clipping is practiced in field management to encourage development of side branches when the climbing vines reach up to two (2) meters high. The inflorescences occur as racemes at the axil with a long flowering axis where opposite flowers are attached. The oldest flowers are at the base of the inflorescence and the youngest are at the apex. When the first pair of fruits have developed to full length, the second pair is still small, while the third pair exist as flower buds not yet open (Fig. 1, 2 & 3).

PICKING TENDER PODS

PNG farmers generally pick the tender pods by hand. The method is by pulling and twisting the pedicels to detach the pods from the flowering axis. This method is more likely to injure the delicate neighbouring young fruits and flower buds. Once the neighbouring fruits or flower buds are damaged, the number of fruits will be reduced in this inflorescence. The introduced method of picking tender pods at Bubia was by cutting the pods and leaving 0.5 cm of the pedicels with a snub-nosed scissors or sharp knife. It is essential to avoid damage to the neighbouring fruits or flower buds. This method ensure the survival of the succeeding fruit in an inflorescence (Fig 4, 5,6 & 7).

PRUNNING OLD FLOWERING AXIS

After harvesting the tender pods three times from an inflorescence, normally there are no more flower buds occuring and the old flowering axis will die back. The axil leaf buds then start breaking at the node where the old flowering axis is attached. (Figure 8).

In order to encourage early shooting of the axil leaf buds, a technique of pruning the old flowering axes has been introduced and demonstrated by

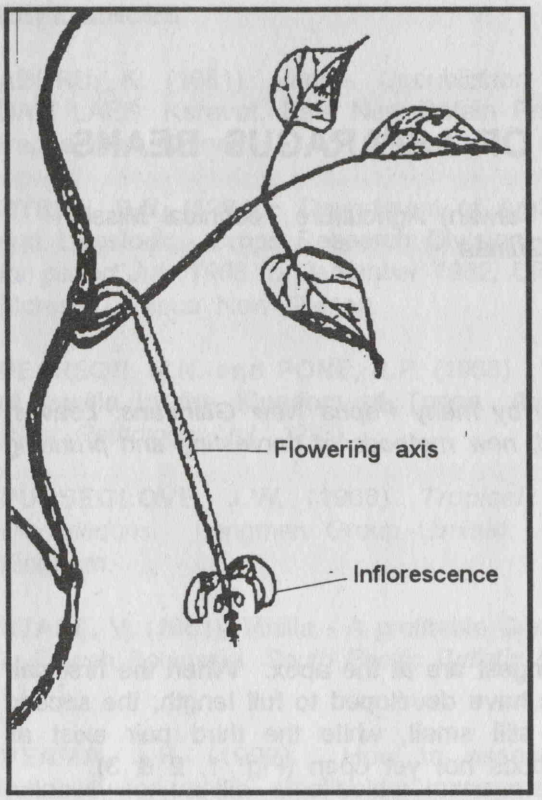

Diagram 1: **Flowers & Inflorescence of *asparagus beans.***

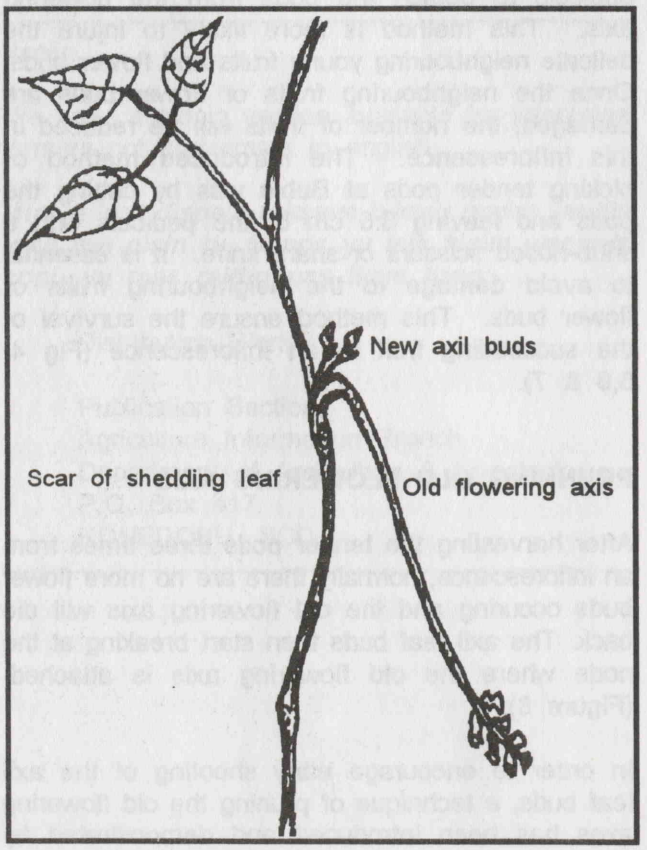

Diagram 3: **The occurrence of axil leaf buds of asparagus bean after the old flowering axis drying back**

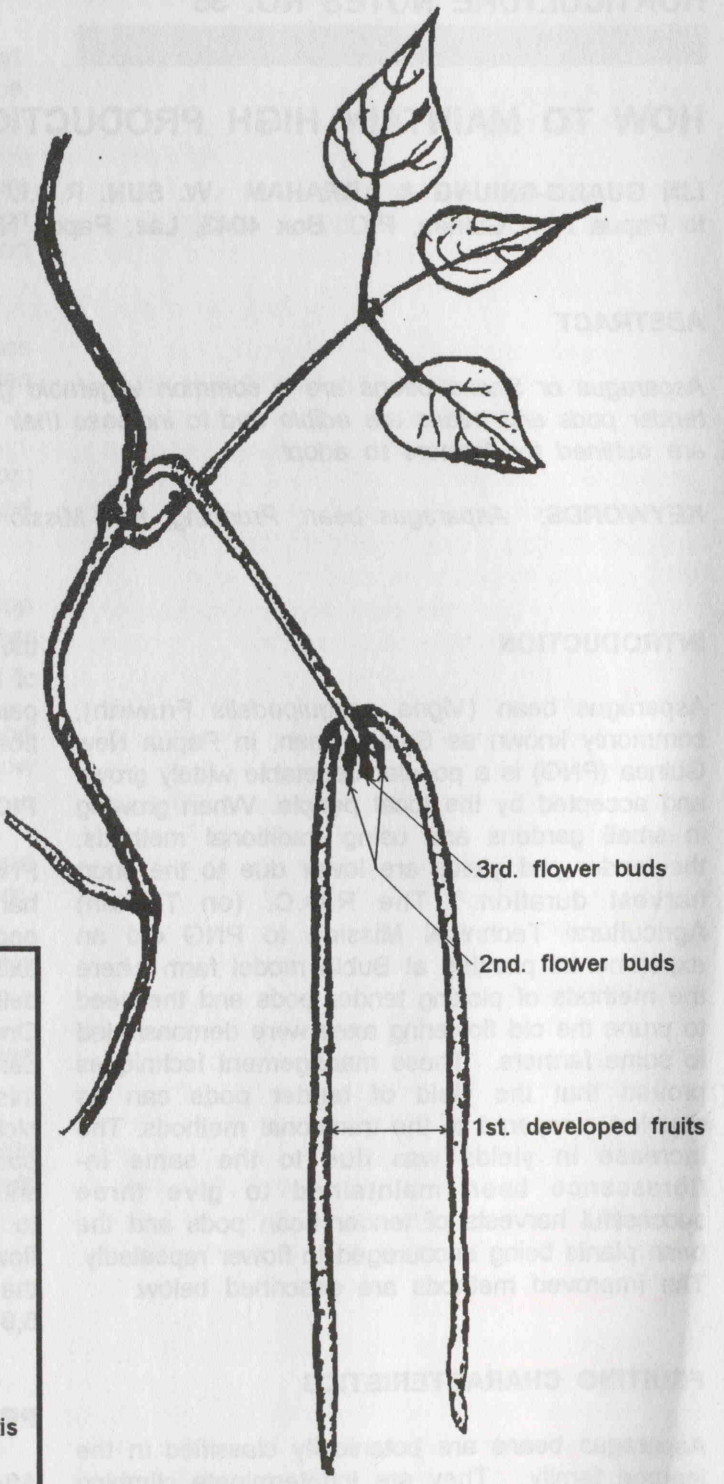

Diagram 2: **Fruiting characteristics of asparagus bean**

Figure 1: First pair of Tender pods fully developed

Figure 1: Cutting the tender pod and remaining 0.5cm to the pedicel with snub-nosed scissors.

Figure 3: The neighbouring flower dubs start breaking after picking the 1st. pair of asparagus bean pods in the same inflorescence

Figure 4: The succeeding flowers in an inflorescence of asparagus bean.

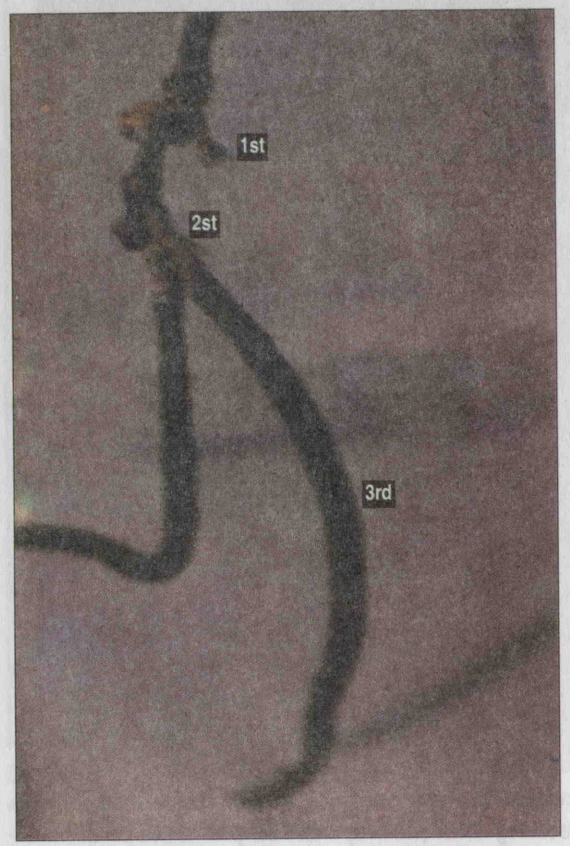

Figure 5: The succeeding fruits in an inflorescence of asparagus.

Figure 6: Cutting the flower axis to 1.0cm to the axil to encourage the axil leaf bud developing.

Figure 7: A new branch and inflorescence have developed start flowering after pruning the old.

Figure 8: The new fruits have developed after pruning the old flowering axis

the R.O.C. at Bubia. The method of pruning was by cutting the old flower axes to 1 cm to the axil with a snub-nosed scissors or sharp knife after the final harvesting of an inflorescence (Fig. 9). After the old flowering axes has been pruned, the axillary leaf buds start to grow and then develop into new fruit bearing branches. The flowers of the new inflorescence occur after two weeks (Fig. 10 & 11).

CONCLUSION

The traditional method of picking tender pods of asparagus beans is performed by hand but some of the neighbouring buds are injured during the operation. The old methods allows for only two or three pods to be harvested from one inflorescence. In contrast the improved method avoids the damage and save all the neighbouring flower buds. Subsequently this permits six pods to be harvested from one inflorescence, thus increasing the yield.

The other method of increasing the yield was by pruning the old flowering axes to encourage the early shooting of axillary buds. These buds then developed into new fruiting branches and provide tender pods continuously. The harvesting duration is prolonged.

The introduced techniques save all the fruits in one inflorescence and prolong the harvesting duration of individuals plants from 3 months to 6 months. Therefore, the yield increased from 3kg to 6kg per plant.

FURTHER INFORMATION

R.O.C (on Taiwan) Agriculture Technical Mission to Papua New Guinea.
P.O. Box 4043, Lae, Papua New Guinea
Tel; (675) 475 113
Fax: (675) 475 1145