EVALUATION OF YIELD DIFFERENCES DUE TO CONTINUOUS USE OF VINE CUTTINGS FOR PROPAGATION OF SWEET POTATO (Ipomoea batata)

Y.D.Jayasooriya
Regional Agricultural Research Centre, Makandura

Introduction

Sweet potato is a popular tuber crop in Sri Lanka. Its tubers, are an important source of food. They are usually eaten boiled or baked; also used for canning,dehydrating, flour manufacture and as a source of starch, glucose, syrup, and alcohol. After harvesting the crop vines can be used as a fodder for livestock.

The vegetative parts of the vine are usually used as planting materials. However, farmers have a common belief that the continuous use of the vegetative cuttings for propagation, leads to a reduction in tuber yields. Thus once in two to three seasons t y tend to plant their field with tubers as the source of planting materials, which increase their nursery costs. Nevertheless it has not yet been established whether the physiological maturity of the

cuttings has a yield reduction effect. Therefore an experiment was conducted to verify the common belief of the farmers.

Materials and Methods

Three local cultivars, Wariyapola, Bentota-A and Divulapitiya were used in this experiment. Cuttings were planted on ridges (18 cm high) at a spacing of 60x24 cm. One cutting per hill, was vertically planted. The crop was fertilized with Urea, Concentrated Super Phosphate and Muriate of Potash at a rate of 120, 120, 180 Kg/ha (departmental recommendation) respectively.

Results and Discussion

Yield fluctuations observed in yala 1984 taking a variety of generations are shown in figure 1. Tuber yield data (figure 1) with respect to Wariyapola, Bentota-A and Divulapitiya cultivars show that the yield fluctuations observed, do not show any significant loss of yield with advancement of the generation.

Similar trends were also observed in Maha 84/85 and the yield data relevant to that season is given in figure 2. Subsequent observations during yala

1985, also were similar to those observations made during maha 1985/86 and they are given in figures 3 and 4.

Thus the general analysis of tuber yield data from four (04) seasons field experimentation with 3 cultivars do not confirm the general belief that sweet potato tuber yields decline when cuttings (vegetative) are used continuously in field planting. The crop was harvested at 3 1/2 months maturity. The generations tested did not show any significant difference in yield, upto the 7 th generation and no interaction between variety and the generation was observed.

Conclusion

Experimental findings show that the general belief on the continuous use of sweet potato vine cuttings in propagation of sweet potato to be including a reduction in tuber yields, is incorrect.

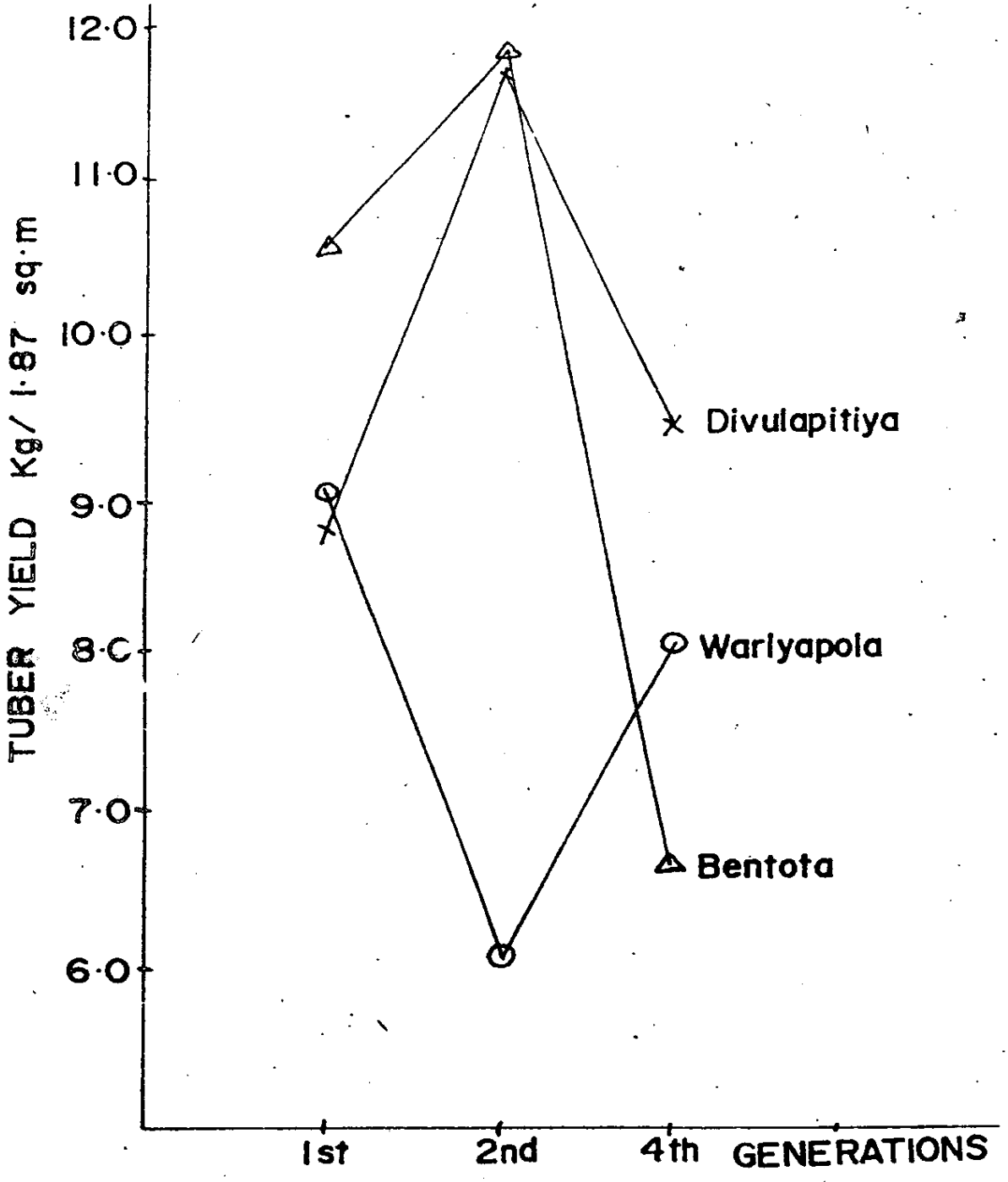

Fig.1 : The fluctuation of Sweet Potato tuber Yields, over four cultivation seasons compared with 1984 Yala Season.

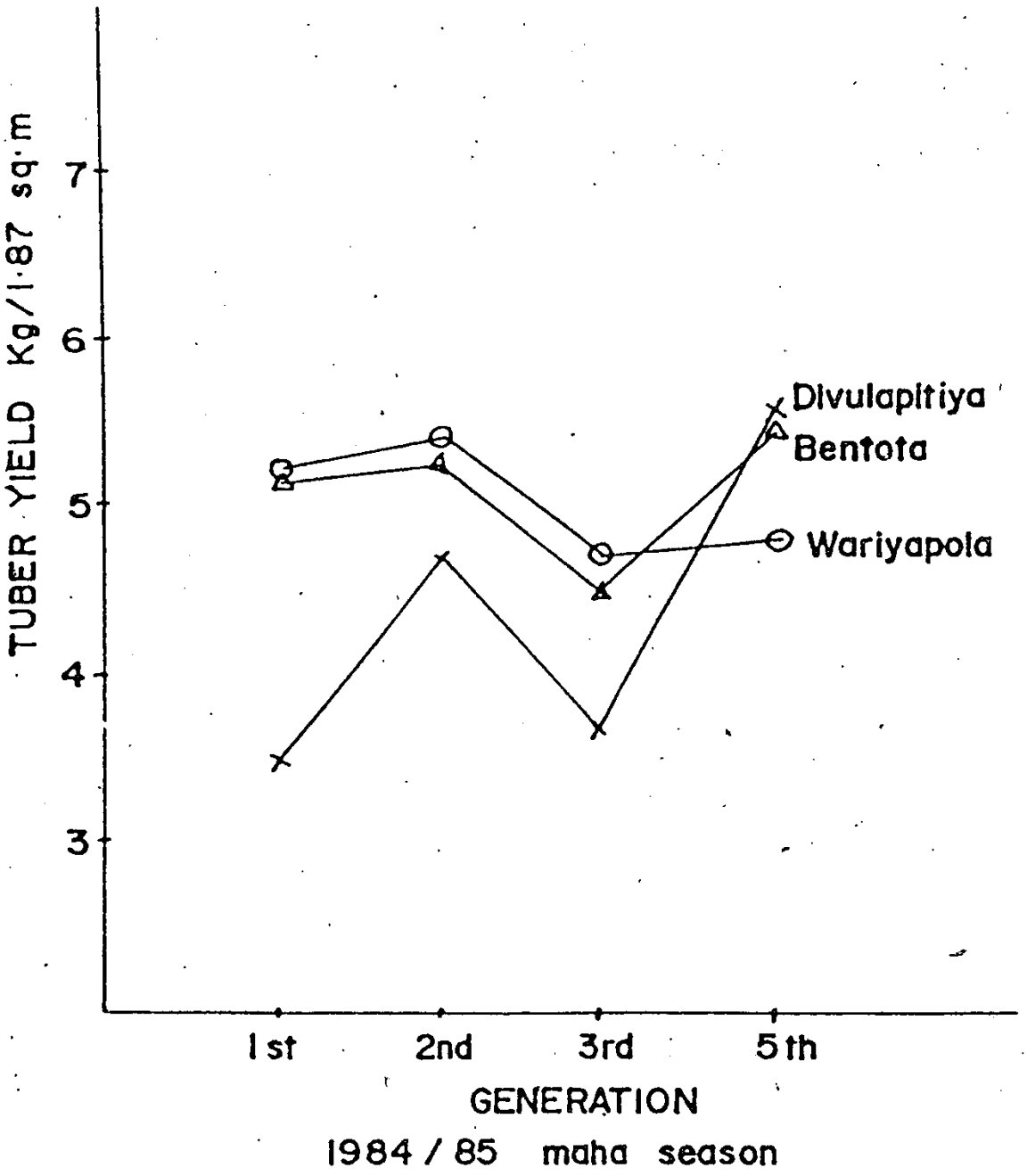

Fig. 2 The fluctuation of tuber yield of three sweet potato cultivars, when planting materials from four different generations were used (1984/85 Maha Season)

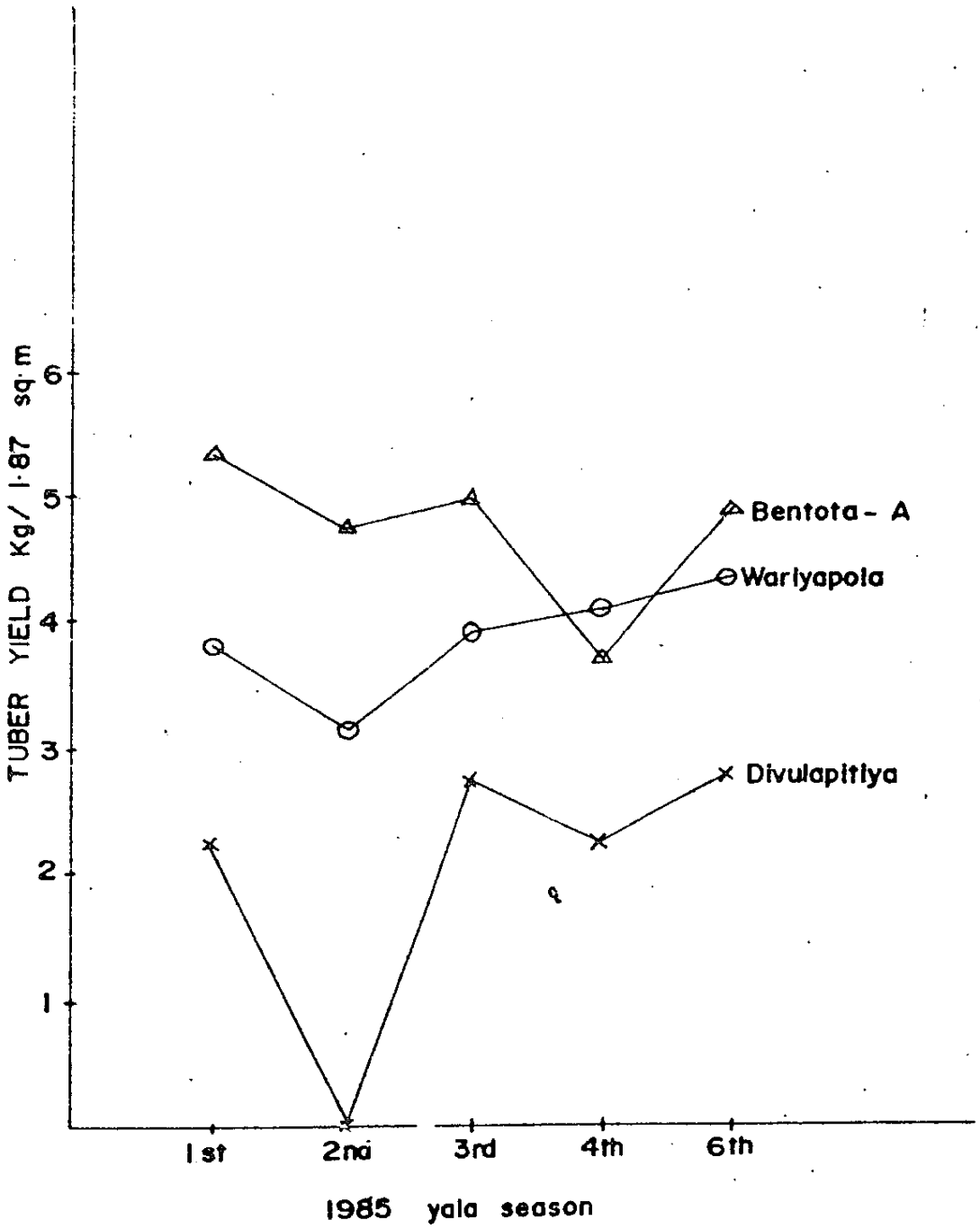

Fig.3 : Fluctuation of tuber yields in Sweet Potato, when Planting materials were used from different generations. (1985 Yala Season)

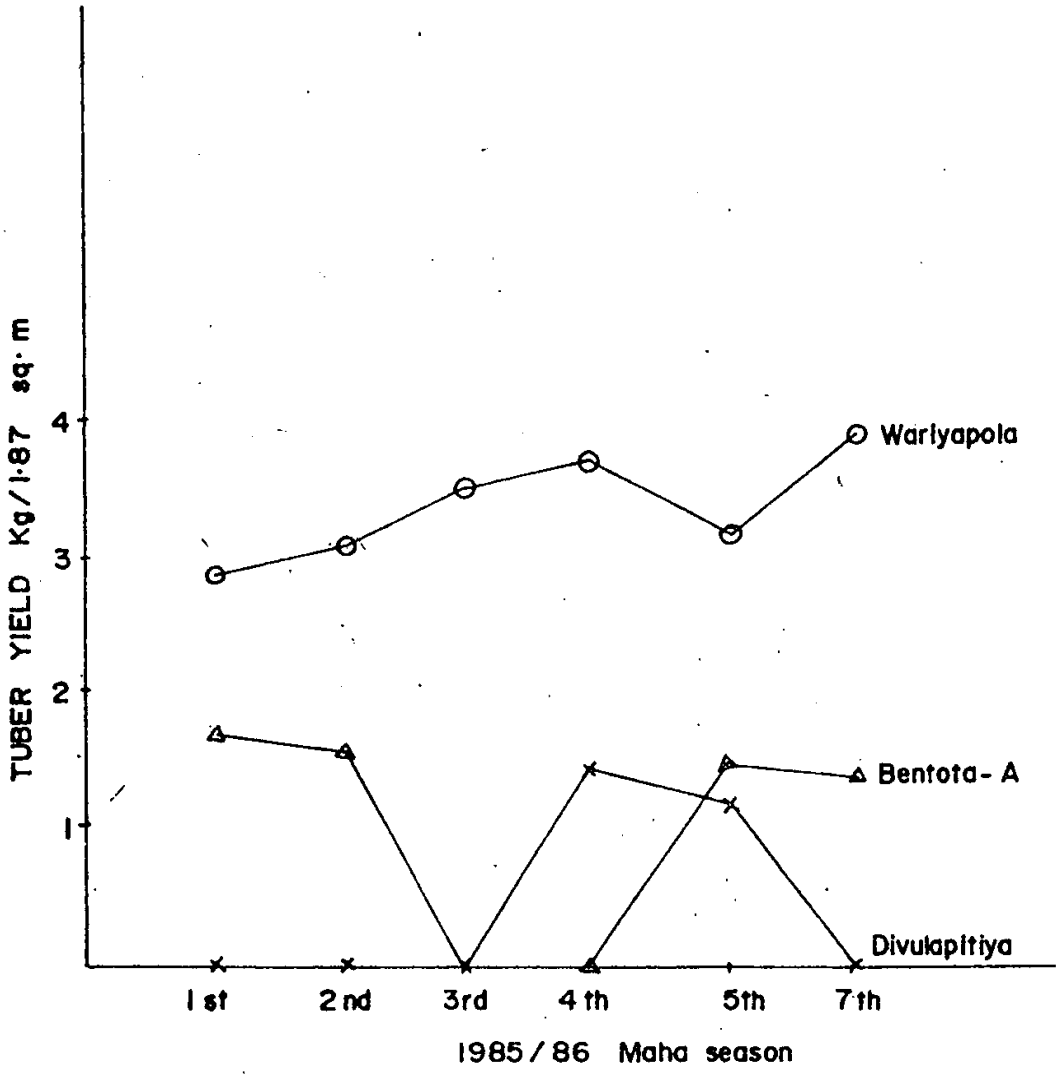

Fig.4 : Fluctuation of tuber yields when planting materials from different generations were used (1985/86 Maha Season)