
PROJECT: Asian Vegetable Demonstration Plot**Project Officers: G. Owens, M. Traynor, P. Hopkinson, D. Alchin and K. Bui**Location: Melon Patch, Territory Produce Freight Management, Humpty Doo

Objectives:

- *To demonstrate the difference in productivity that can be gained by using best practice vegetable growing methods.*
- *To create an attitude change in the Asian vegetable growers by demonstrating the ease of implementing best practice vegetable growing methods.*
- *To create an aspiration to match published production figures by adopting such practices.*
- *To change the behaviour of Asian vegetable growers adopting such practices.*

Introduction:

On-farm demonstration plots for displaying best practice farming systems have been used in the Asian vegetable growing community for a number of years with mixed success. Those farmers near or associated with the collaborating growers gained from the trial. However, adoption was limited.

In an attempt to increase the awareness of the whole group it was decided to try and locate a demonstration plot at a central location that the majority of the growers visited at least once a week in the vegetable season. A 100m² site was selected at the Melon patch just outside Territory Produce Freight Management (TPFM) transport depot for receiving, cooling and consolidation.

A crop of bitter melon was planted using local and best practice methods and the whole process was open to grower observation and comment.

Method:

The demonstration was set up to contrast the two methods of growing one of the major Asian vegetables. The vegetable selected was an open-pollinated local selection of bitter melon, a climbing cucurbit common throughout Asia.

The plot comprised of four rows, each 30 m in length. Plants were spaced at 2-m intervals and the rows 3 m apart for vehicle access.

The vines were directed up a vertical trellis constructed of star pickets, wire and nylon net. Two rows were set up to reflect an average of local growing practices. The other two were set up to a best practice system.

Local practices included individual drippers at the base of the melon plants, weekly side dressing of high analysis NPK fertiliser and mounded bare soil.

The best practice system included plastic mulch on the soil, drip tape and twice-weekly fertiliser injection, based on the current DPIF recommendation for fertigation of cucurbits. It was monitored weekly using petiole sap analysis.

The crop was harvested at least twice a week.

Yield results and fertiliser inputs were periodically updated on a white board located at the demonstration area and close to the roadway used by the growers.

Results and Discussion:

The difference in the growth rates of the two systems was obvious from day one. The best practice system grew much more quickly than the local practice system and covered the same size trellis in

dense and lush growth by week six. The other plants looked small, stunted, with smaller leaf size and open canopy, even though they were getting similar nutrition. The difference was pointed out to growers as they went past the plot to unload their produce.

This approach of having the demonstration out in the open was very effective as growers could see the fertiliser on the ground and the growth and fruit production in the crop. The growers were invited to view pest and disease control as it happened in the crop and to discuss fertiliser application and crop rotation strategies.

The trial produced the predicted result with the yield on the best practice system of 21.1 t/ha from 12 weeks production. The yield from the rows using local growing methods was 8.65 t/ha. At current prices this equates to an increase in income of \$21,175/ha for slightly higher establishment and input costs. Not all of this increase in yield is marketable but it substantially increases the margin available in the crop.

The key technical finding was the pattern of production and growth cycles of the plants illustrated in Figure 1. The first production peak at 11 weeks was the strongest fruiting obtained. It is this crop that the local growers miss out on as the plants grown under the local systems do not achieve the leaf area needed to fill the first fruit load.

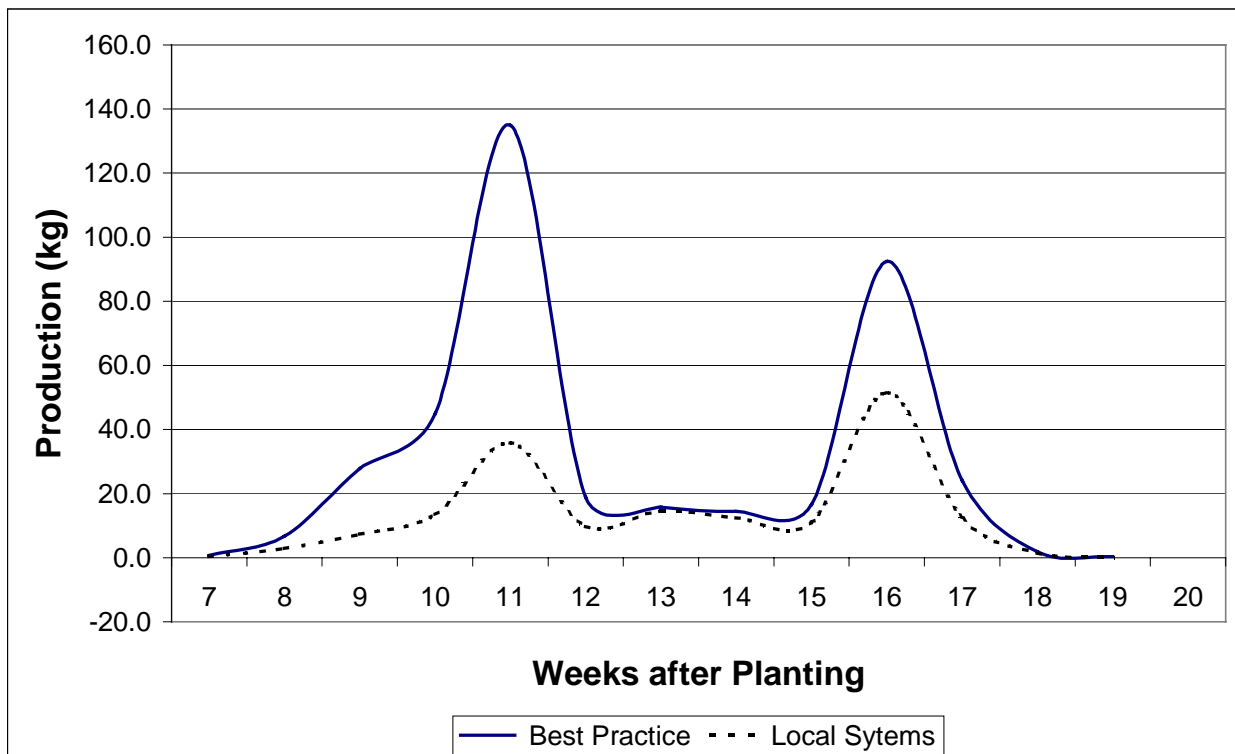


Figure 1. Asian vegetable demonstration plot for 2000

As the growth of the crop grown under local practices caught up to the best practice system the amount of fruit produced in the fruiting cycle started to even out. This has in the past given growers a false sense of achievement as they know they can get a “good” stand of bitter melon eventually. What they did not realise was the amount of first fruit they missed.

The demonstration met some of its objectives. There has been an increase in the number of growers picking up some of the components of the best practice system. It clearly demonstrated that there was no secret to the increased potential yields that were available to each grower. The final report presented to the Asian Vegetable Association stressed the value of adoption of the best practice system and was received positively by the group.

Future Activities:

The demonstration plot at the Melon Patch and TPFM has become a focal point for vegetable growers to look at the best practice systems and should be used in the future to demonstrate green manure crops and other aspects of sustainable vegetable growing systems in the Top End. It is a neutral place where growers feel comfortable to attend workshops, which will include any future demonstration crops and provides a constant reminder for improvements that can be made without the growers having to deviate from their current routines.

Acknowledgements:

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PROJECT: Vegetable Management Trial 2000

Project Officers: M. Darcey, M. Gosbee, M. Traynor, E. Maroulis and P. Hopkinson

Location: CPHRF

Objective:

- *To demonstrate the yield and quality advantages of the DPIF vegetable 'package' which includes plastic mulch, 'T' tape, cover crops, hybrid varieties and fertigation.*
- *To improve the adoption of more sustainable and profitable vegetable production techniques through quantifiable treatment effects.*

Background:

DPIF has invested significant resources in developing a management package to produce vegetables in the Darwin region. The 'package' includes the use of a cover crop in rotation with the vegetable crop, the use of plastic mulch and 'T' tape into which the crop is sown and the use of hybrid vegetable varieties, which are expected to produce greater yields. Due to a change in growers entering the industry and a significant shift in commodities grown the 'package' has not been widely adopted.

DPIF has conducted regular demonstration plots on growers' properties but little emphasis has been placed on the profitability of adopting the 'package' or new technology.

Method:

- Treatments
- Plus and minus plastic mulch with 'T' tape
- Open pollinated (OP) versus hybrid okra variety

Both treatments were repeated in cover crop and non-cover crop situations. Therefore:

1. Traditional No plastic mulch and drip irrigation
Variety -open pollinated local selection (Clemson's Spineless)
2. Traditional H No plastic mulch and drip irrigation
Variety – selected hybrid (Spring Pearl)
3. Package Plastic mulch and 'T' tape irrigation
Variety -open pollinated local selection (Clemson's Spineless)