

VEGETABLE AND ROOT CROPS RESEARCH TRIALS IN NORTHERN NAMIBIA: PROGRESS REPORT

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INTRODUCTION

In 1993, at the first annual research planning meeting of the Division of Plant Production Research, a decision was taken to initiate horticultural research in the Northern Communal Areas. Because of the perennial rivers present in the Kavango and Caprivi regions potential exists there for irrigated vegetable production for home consumption and various levels of commercialization. Informal surveys in the two regions show considerable interest among the residents in both kinds of production. Government research efforts in the form of simple applied experiments need to be conducted to support the development. The North Central Regions (NCRs - Omusati, Ohangwena, Oshikoto and Oshana) have the greatest need for vegetable availability due to their large population. Reason exists, therefore, to foster home garden production and limited small-scale commercial production in the NCRs also.

Horticultural production is, by its nature, intensive. This contrasts sharply with the extensive farming and cropping systems of tradition in Northern Namibia. Practical experience with vegetable experiments and appropriate skills training have been very limited among available research technicians. Therefore, a comprehensive approach to vegetable research and development was needed to promote the emergence of an appropriate system of production. Furthermore, not all of the needs for effective experimentation were apparent in 1993.

APPROACH TAKEN

1993: Design of simple tomato, onion, cabbage, carrot, and pumpkin and squash cultivar trials by planting date trials using commercially available cultivars.

1994: First implementation of those designs at the Bagani and Mashare Research stations.

Establishment of a National Horticulture Research Working Group.

Research protocol modified.

One-day training for research technicians conducted.

1995: Implementation of trials. Ogongo College and Mannheim Research station also planted trials.

Design of sweet melon cultivar trials.

Participation of a hired research technician in a five-month SADC/SACCAR sponsored vegetable production training course at the Asian Vegetable Research and Development Centre, (AVRDC) Tanzania.

Conduct informal producer surveys in the Kavango and Caprivi Regions.

Further modification of protocol. Cultivars chosen were modified.

Pest management and fertility programmes were developed.

Nomination of two research technicians for the 1996 offering of the AVRDC course.

Development of a research project for cassava and sweet potatoes in the Caprivi and the Kavango as a component of the SACCAR project: The Southern Africa Root Crops Research Network (SARRNET).

Objectives

1. Collection of baseline data on cassava and sweet potato production in Northern Namibia including identification of methods, extent of production and constraints of root crop production in communal areas.
2. Collection, documentation and evaluation of local sweet potato and cassava germplasm.
3. Establishment of multiplication and test centres (Bagani and Mashare).
4. Training of national staff working in root crops research.
5. Development of the national root and tuber crops programme.

Activities

1. Collection of existing germplasm initial characterization began.
2. Baseline survey designed.
3. Importation and planting for multiplication of drought resistant sweet potato cultivars and cultivars from South Africa.
4. Initial plantings and multiplications at Bagani.
5. Two technicians trained in root crops research techniques (Tanzania).

Receipt of true potato seed from the International Potato Centre (CIP), Peru. Three plantings made at Mashare and one at Bagani.

Two Master of Science degree scholarships awarded: One in insect pest management and the other in allelopathic suppression of nematodes.

1996: Root Crops.

Initial characterization of locally collected and exotic germplasm conducted in January.

Vegetable trials.

PRELIMINARY RESULTS

Extent of replication and simultaneous planting at the multiple locations in the vegetable cultivar trials was inadequate to allow meaningful statistical analysis.

However, some data are presented in Figures 1 and 2 for tomatoes at Bagani. The tomato harvest from the October 1994 planting (Figure 1) showed some separation of cultivars in their early productivity. Floradade, Rodade, Moneymaker (not illustrated) and Rotam IV began production later than P1072, FMX 785 and Empire. Empire, particularly, showed considerable early yield of fruit that was maintained throughout the harvest period. All cultivars declined sharply in production after 156 days after seeding. The harvest period was seven weeks long for the longest producing cultivars which were P1072, FMX 785 and Empire.

Yield per plant for all cultivars except Empire was low at less than two kg per plant (Figure 2). Empire produced an average of approximately 2.25 kg per plant. At just over 23,000 plants per hectare, the yield of Empire was approximately 52 tons (extended). Fruit size of Floradade, Rotam IV, FMX 785 and P1072 was smaller than those published by seed companies in their catalogues.

Pest and disease problems were numerous, including nematodes, red spider mite, rust mite, American bollworm, leaf miner, plusia looper, termites and early blight.

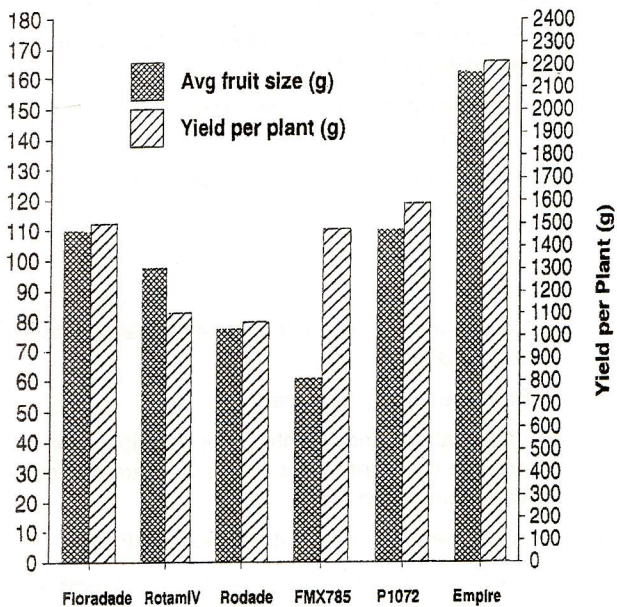


Figure 1. Yield of six cultivars of tomatoes over the harvest period from February to March 1995 of the October 1994 planting at Bagani

CONCLUSIONS

Because of the short harvest period and small size of fruit, low yields were produced per plant. Pest infestations were severe and probably caused the early decline in production and small fruit size.

Competence in the conduct of vegetable research trials is being gained by the Division of Plant Production Research. Identification of pests and diseases and experience with their activity, damage and management have been very useful for developing recommendations for small-scale vegetable growers. Experiences gained have also formed a large part of the input to the first Namibian agricultural extension handbook which is currently under production.

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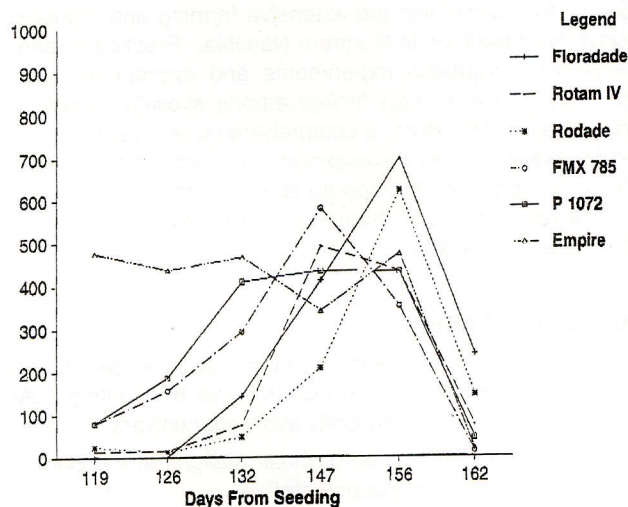


Figure 2. Total yield and average fruit size of six cultivars of tomatoes from the October 1994 planting at Bagani