DISCUSSION 2

Prof. Harland :

Dr. Yen's paper is now open for discussion.

Mr. Williams :

Dr. Yen, in our paper we made fairly prolific references to your work in the Pacific, and on your collections of sweet potatoes throughout the world. I would like to ask you, if you detected, in your collection of Asiatic and Pacific origin any trend towards a change to pin homostyly in the sweet potato as compared with collections from the Americas.

Dr. Yen :

No, I am afraid not. In the larger collection no skewed types of distribution were detected. We do not have any significant distribution geography-wise in the character.

Dr. Hernandez :

Dr. Yen, I would like to ask you first what percentage of the seedlings have carotene pigment in the fleshy roots.

Dr. Yen :

I have forgotten the exact percentage but what I can tell you is that we had high coloration in many clones.

Dr. Hernandez :

How high is the highest you would estimate.

Dr. Yen :

I would rather not quote from memory.

Dr. Hernandez :

Do you think that our genetic range of variability is higher in your collection than are normally obtained in a good progeny of seedlings ?

Dr. Yen :

I would say 'Yes it is.' But what comes out of the addition of more varieties to the collection is the kind of distribution which we get. We were formerly inclined to get normal distribution with the means just shifted. Now, with the greater collection, we have a rather altered situation where in some characters we are getting a kind of a skewing. Then you really see something of difference.

Dr. Jelliffe :

I feel somewhat out of my waters as I am a Pediatrician, but children live on root crops and I thought that I could comment briefly on Dr. Yen's excellent paper in which he introduced the dimension which I think I would like to emphasise and re-emphasise. He mentioned a particular community in New Guinea where they lived almost exclusively on sweet potatoes and he stressed the fact that these people, their protein intake and indeed their intake of all nutrients virtually are dependent on the quality of sweet potato. I would just like to introduce the note here, that in relation to the prime problems of human malnutrition which exists in young children, the same principle applies all over the world or in all developing and less fortunate parts of the world. I would like to re-emphasise the principle which Dr. Yen has stressed. When one thinks of the selection of particular types of food crops, including root crops one should bear in mind the fact that they may be the sole source of most of the nutrients for adults, and particularly for children. Therefore, when one comes to selecting a particular characteristic, I would suggest that the

nutrient content, and in particular protein content and the amino acid composition, should be kept perhaps more to the forefront of our thoughts than perhaps has been the case in the past.

Dr. Magoon :

Dr. Yen, regarding some of the breeding procedures that you have listed re vegetative mutants, which are commonly distributed in sweet potato, would you think that we can advantageously increase their number through irrigation methods or possibly through the use of chemical mutagens ?

Dr. Yen :

The role of chemical mutants I avoided because I have never worked with them. But surely this is a possibility.

Prof. Harland :

The point raised by Dr. Jelliffe seems to be so important that I think that the meeting would be interested to know something about the possible range of protein content in the collection which Dr. Yen has made. It is probably the largest collection ever made in the world. Also, has he any information about the amino acid composition of the protein.

Dr. Yen :

I am very sorry Dr. Harland that we have not done any work in this collection of ours on protein, amino acid, or any crude protein figure with nitrogen or anything else.

Dr. Martin :

I would like to ask two questions. The first question is — Where is your collection currently located, and if people were interested in getting examples, where could they get information about variability and so on ? And where could they get actual materials ?

Dr. Yen :

The location of this collection is at present in Auckland, New Zealand. It is maintained in a glass house. This is because of the difficulty of storing tubers and getting them at all in some of the varieties. We have had to adopt this technique of vegetative maintenance. The actual obtaining of these is quite simple. I do not think that we have missed out as yet on anyone who wants material. For example, if you ask for some compatibility group we could not give it to you, but, if you asked for certain types of sweet potato we could send them and this has been done now, I think, for seven years.

Dr. Martin :

The other question I have refers to an unusual morphological feature in the sweet potato. In open pollinated or breeding progenies, a new type of vine occurs. It climbs like a Morning Glory, and of course, this trait has not found a use in the western world. But I wonder if, in your collection of sweet potato, you have run into this in fields of mixed varieties.

Dr. Yen :

I could describe all kinds of curiosities in this species, which I collected as cultivars. As far as climbing is concerned, we have a number which will climb when they get older. I say when it gets older, meaning that it may just be a coincidence, but it may be time of growth, or response to cold temperature. But certainly at the later stages of growth we get quite a few varieties showing a twining character. However, we have one from Ecuador which has a climbing propensity throughout from the start. We have tried it on stakes but we still had to help it up. In my field work among native peoples I have struck quite a few individual vines which climb right up a fence. But I do not know why. We tried to use this character in the variation study. However, we were unable to do this because there is a low frequency of plants that showed definite ability to climb.