Diversity of Food Beans in Kenya

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In order to have the consumers' preferences in Kenya in beans (*Phaseolus vulgaris* L.) more clearly outlined and to survey the variation existing in local food bean material, 997 seed samples from plants selected in farmers' fields and from agricultural shows were investigated and classified on the basis of colour, size and shape. For the classification a new number system was used to enable easy data transfer to punch cards. This exercise was primarily carried out to aid in setting the goals for a breeding and selection programme. Of the 997 samples the ten most common types were identified, and among those the Rose coco occurred most frequently with 36.5%, second were the Canadian wonder types with 13.1%, followed by a Red haricot with 9.2%, Mwezi moja with 9.0% and Mwitemania with 2.4%. The types differed considerably, indicating that consumers' preferences are very flexible. Personal communications lead to the same conclusion. Therefore a breeding and selection programme has, within certain wide limits, allowance to rank characters like disease and drought resistance higher in importance than seed type.

The common bean, *Phaseolus vulgaris* L., with its centre of original distribution in Central and South America, reached Europe during the 16th century and spread to the coastal parts of Africa with Portuguese merchants likely early during the 17th century (Gentry, 1969; Greenway, 1945). Probably beans have been cultivated in East Africa for the last 300 years although existing records date back to only the turn of the 19th century (Mukunya and Keya, 1975). As in western Uganda (Leakey, 1970) the wealth of local names for bean types provides evidence of its long establishment as a cultivated crop. A similar indication is given by the appreciable variation in local bean types. Westphal (1974) observed that food beans in Ethiopia vary greatly in size, shape and colour: Oblong, ellipsoid, globular and kidney-shaped types occur commonly, white, purple, black, yellow and brown seeds are found, and types with combinations of black and white, brown and black, cream and purple, red and brown, cream and buff, and grey-brown and cream are not exceptional. He recognized 33 different seed types from his collection which he divided into the two main groups of beans with monocoloured and with variegated testae, and further subdivided on the basis of colour pattern, size, shape, etc.

Seed characteristics are of great interest to the consumer whose preferences vary from area to area. In Panama, for example, large red kidney beans are popular, and in Venezuela black beans are preferred (C.I.A.T., 1975). According to Leakey (1970) East Africans prefer large-seeded mottled cultivars. Mukunya and Keya (1975) stated that in Kenya the outstanding cultivars are the Canadian wonder, a late maturing type most common in Central Province, the Rose coco, a medium maturing cultivar of Western, Central and Eastern Province, and the Mwezi moja, an early maturing cultivar common in the drier lower altitude areas.
such as Machakos and Kitui Districts. Information on consumers’ preferences is needed when a breeding and selection programme is started and in this respect Mukunya and Keya’s (1975) statement is useful. However, it was observed that within the Canadian wonder and Mwezi moja types seed colour and size differences exist and that the so-called Rose coco beans show a wide range of colours, colour patterns, shapes and sizes, which enjoy special and different preferences. It was further learnt from farmers and extension staff of the Kenya Ministry of Agriculture that most if not all bean types grown are acceptable, even light coloured small-seeded ones and that for instance the medium-sized Red haricot beans are highly esteemed in Embu District as they colour the food they are cooked with attractively. Mbugua (personal communication) had observed that a type called Mwitemania, which resembles the pinto bean, ranked very high in preference among the Kenyan beans. Because of the observed differences and the somewhat contradictory information on consumers’ preferences the scale of food bean types present in Kenya was surveyed and the range of preferences established as follows.

**MATERIALS AND METHODS**

The following seed samples were used for the investigation:

I. 108 single plant selections from farms in Machakos District
II. 205 single plant selections from farms in Embu District
III. 50 single plant selections from farms in Kisii District
IV. 50 single plant selections from farms in Kakamega District
V. 113 single plant selections from farms in Kiambu District
VI. 48 seed samples from the 1975 Nairobi Agricultural Show
VII. 108 seed samples from the 1975 Kakamega Agricultural Show
VIII. 126 seed samples from the 1976 Embu Agricultural Show
IX. 189 seed samples from the 1976 Nairobi Agricultural Show
Total: 997 seed samples from Kenya’s main bean-growing areas.

The samples were examined and seeds of the different types were kept as specimens for description which was based on colour, size and shape. To make the description of the types short and transferable to punch cards as used by Zeven (1973), number values were given to particular colour, size and shape groups.

The new classification method distinguished:

a. Three main groups:
   (1) Monocoloured beans
   (2) Variegated beans
   (3) Zebra beans, with zebra-like stripes on the seed coat

b. Ten different colour groups: (The detailed studies of Prakken [1970, 1972 and 1974] were consulted for the selection of the groups.)

(1) white
(2) cream
(3) grey
(4) yellow
(5) green
(6) pink
(7) red
(8) brown
(9) purple
(10) black