COLLECTING CROPS IN ZAMBIA

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In June-July 1982 a multi-crop collecting expedition was carried out in Zambia. This was the third collecting mission, a follow-up of two previous missions in 1980 and 1981, fielded by the IBPGR in collaboration with the Department of Agriculture and Water Development of Zambia.

Area surveyed - exploration route

The Northwestern Province and part of Luapula and Northern Province were surveyed. The region explored is within the high rainfall zone and part of the plateau region of Zambia, covered by a secondary forest. The main staple crops grown are maize, finger millet, sorghum, cassava and Phaseolus beans.

This region is less favourable than other parts of Zambia for the cultivation of maize, cotton and tobacco. Vegetables are grown around dwellings in compound gardens while the main fields are further away at variable distances. The presence of forested areas and of tsetse flies, especially in the northwest, makes it difficult for the farmers to settle down properly and carry out the various farming and animal husbandry activities smoothly.

The Government is establishing settlement schemes to group the farmers and provide them with the basic security, health centre and materials to improve the agricultural standard and encourage them to remain and develop the region.

Collecting started from Solwez and continued to Mwinilunga Districts through Kasempa, Kabompo and Zambezi Districts on one hand, and from Kasama to Mporokoso and Kaputa Districts through Luwingu Kawambwa Districts on the other hand (Fig. 1).

Sampling

The objective was to collect as much diversity as possible. Both biased and random sampling were used to collect the germplasm depending on information available and land utilization. Random sampling was predominant. Sampling and sample size depended on the cooperation of the farmers. Fields, backyard gardens as well as stores, markets and drying grounds were sampled. Sampling was generally along roads and tracks. The importance of crops varied from one ethnic group to the other.

Diversity collected

A total of 526 samples was collected with maize, millet, beans, sorghum, cowpea and groundnut constituting the principal diversity (see Table 1 for list of samples collected).

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Maize

Maize is grown in all the districts visited and is the staple food in Solwezi and thereabouts but it is a cash crop in Kasempa. White grained types are preferred. Variation in the size of the cob, the grain and the colour was observed. Some local types are high-yielding without fertilizer and are preferred to improved exotic types. Early maturing types "Kahila" or "Kapila", usually grown between November and February, were also collected. "Kanjilimini", a maize plant without tassel, was collected at Mbereshi (38 km west of Kawambwa). At Lwamakanda (27 km southwest of Solwezi) a high-yielding type called "Pioneer" which sometimes has three cobs per plant, was collected.

"Popcorn" with small yellow grains was collected on two occasions.

Maize flour is used to prepare a porridge or "Nschima" (hard porridge) also called "ugali".

Sorghum

It is the staple food in Kasempa and the surrounding areas but a cash crop in other parts. More than six types were found at Makinga; they varied in grain colour, glume colour, stalk height, time of planting and duration of cycle as well as usage. Some were tall with a sweet stalk ("Nagongo") and late-maturing. Others had red or white small grains, or were medium in size and had white or black glumes. Long panicles, semi-compact or compact types were observed. Sorghum is planted (generally broadcast) after the emergence of maize on the same field thus controlling the weeds. Birds (quelea) and stem-borers reduce the yield in the sorghum production areas. Sorghum is usually used for making beer, bread and hard porridge.

Finger millet

Two types, varying in colour (white or red), number of fingers and grain size were usually collected. They apparently mature at the same time and were often found in mixture. They are used to brew a very strong beer.

Beans

A great diversity (based on maturity time, size and colour of grain) was found in french beans in all the areas visited. Along with the common red, white or black grains, some purple, green or yellow beans varying in maize (big, medium or small) and shape (long, round or flat) were collected. Climbing, semi-bushy spreading and erect types were collected. Fields are usually planted with mixture of many types and they are harvested and sold as such. Some types cook fast and are preferred, such as "Pembela"; "Kimbalama" is usually planted at the end of the rains. Young leaves of bean plants are picked and used as vegetables.

Cowpea

Cowpeas are mostly grown in the Zambezi area. Various sizes and grain colour were collected. Small seeds in thin pods were observed as well as erect or bushy types.

Groundnut

A red type ("makulu red") with small or big grains, is commonly grown in most of the districts visited. Some white and red types which generally had very big nuts called "Chipata" were collected.

Bambara groundnut

These are usually grown in the Zambezi and Kabompo areas in a mixture of creamish white-eyed and creamish black-eyed bold grains. Some black grains with white eyes were also found.

Cucurbitaceae

A high degree of variability was observed in this family, which is often used as a vegetable. A spiny wild cucumber called "lusili", the leaves of which are eaten and highly appreciated, was collected along with various types of squashes, pumpkins and water melon. The leaves of these are also eaten.

Hibiscus sabdariffa

A type of spiny roselle, which usually has small fruits, was collected.

Castor seeds

These are usually used as hair tonic; three types of castor seeds were collected, viz: small dark brown seeds in a small fruit on a tree with small leaves, big black, or big red seeds in a big fruit on a large-leafed tree. All trees grow as perennials.

Velvet beans

Two types were collected: dark green and black-coloured grains. Commonly called "cocoa" or "coffea" they are fried, pounded, sieved, mixed with sugar and used as a hot drink.

Amaranthus

Only A. hybridus, the yellow-green type called "lenga-lenga" or "mulengo", was collected. It was found as a common garden weed, the young leaves of which are used as a relish called "mulembwe". It did not show much variability.

Cassava

Mostly grown around the Kabompo area, this is planted for more than a year before harvesting. Bitter and sweet types are grown but the yield is low. Soft tubers are preferred.

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Table 1. List of Samples Collected

Scientific names	No. of samples collected	Scientific names	No. of samples collected
Zea mays	73	Cayanus cajan	5
Sorghum bicolor	43	Amaranthus sp.	9
Eleusine coracana	40	Manihot sp.	12
Pennisetum sp.	10	Pisum sp.	6
Phaseolus sp.	82	Glycine max	2
Vigna sp.	40	Triticum sp	2
Voandzea subterraneae	22	Corchorus sp.	2
Arachis hypogea	37	Carnavalia ensiformis	1
Curcubitaceae	45	Coffea sp	
Ricinus communis	12	Gossypium sp.	3
Hibiscus sp.	17	Nicotiana tabacum	6
Sesamum sp.	7	Pachyrrhirus erosus	2
Helianthus annuus	10	Crotalaria juncea	1
Solanum sp.	11	Stizolobium sp	4
Oryza sativa	7	Unknown	1
Abelmoschus esculentus	7	Dioscorea sp	5
		TOTAL	526

RESUME

Une mission de collecte de matériel de plusieurs plantes cultivées a eu lieu en Zambie en juin-juillet 1982 pour récolter des échantillons de maïs, de mil, de haricots, de sorgho, de doliques et d'arachides. Au total, 526 échantillons ont été collectés dans les champs et les potagers familiaux ainsi que dans les magasins, marchés et aires de séchage. Cette mission de collecte fait suite à celles de 1980 et 1981; toutes trois ont été organisées conjointement par le CIRP et le Département du développement des terres et des eaux de Zambie.

RESUMEN

Durante los meses de junio y julio de 1982 se llevó a cabo una misión en Zambia con objeto de recoger múltiples cultivos: maíz, mijo, frijoles, sorgo, caupí y Arachis. En total se obtuvieron 526 muestras tomadas en terrenos y huertos, así como en almacenes, mercados y secaderos. Se trata de la tercera misión de recolección después de dos realizadas en 1980 y 1981. La misión es una actividad conjunta del Consejo Internacional de Recursos Fitogenéticos (CIRF) y el Departamento de Agricultura y Fomento de Aguas de Zambia.

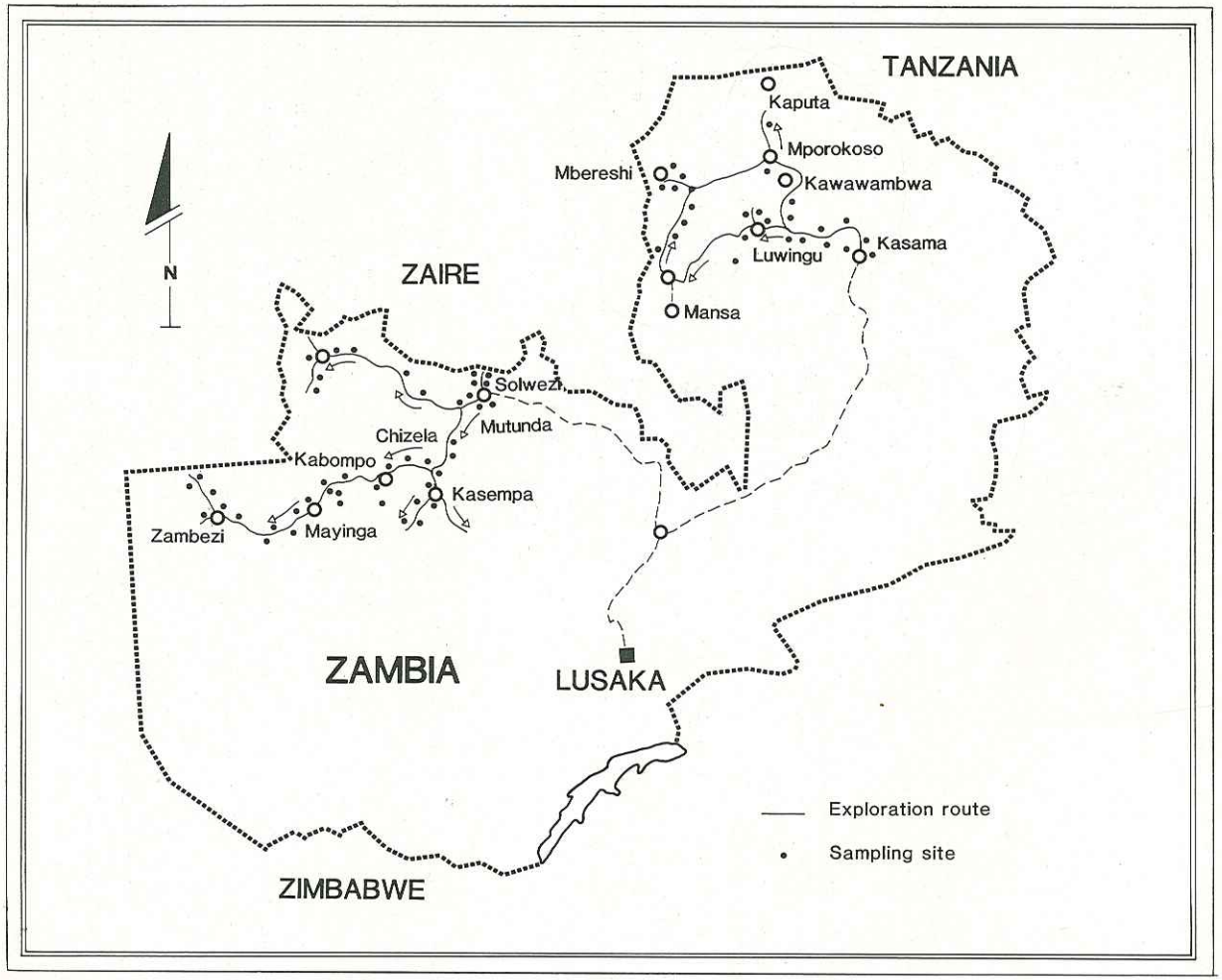

Fig. 1. Exploration route and sampling sites in Zambia