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# Collecting in Zimbabwe

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## Introduction

Zimbabwe may be considered in 3 parts: highveld, which lies between 1200 and 1500 m, comprises about 25% of the country; middleveld between 900 and 1200 m comprises about 40% of the country; and lowveld is land below 900 m. Most of the lowveld is in the Limpopo and Sabi valleys.

Toll and Gwarazimba (1983) collected a total of 2068 samples of 58 species in Zimbabwe in 1982; their report also describes the climate and geography of the country. Further samples were collected between March and June 1985 from previously uncollected areas. Visits were made on several occasions to different places when seed was mature, and 1533 samples were obtained, of which 807 were from farmers' fields, 502 were from the International Trade Fair at Bulawayo and 224 were from the Harare Agricultural Show (Table 1).

## Cereals

The principal summer cereal crops are sorghum, finger millet, pearl millet and maize, and the winter ones are wheat and barley. Only improved cultivars of wheat and barley are grown, and maize hybrids have almost entirely replaced traditional cultivars.

Most farmers grow traditional sorghum (Sorghum bicolor) landraces, which are very tall, flower late and produce large loose panicles. Considerable variation for panicle shape, size and compactness was observed amongst the samples collected. Sorghums of the race guinea, with open and drooping panicle branches, and clasping glumes partly enclosing the

pearly white grain, were the most common. The race kafir, which is indigenous to southern Africa, was also common. Most of the other races and their intermediate forms were also found (Mushonga and Appa Rao, 1985). Broadly, there are 2 distinct types: white grain types with corneous endosperm for food; and red grain types with soft endosperm for brewing beer. Cultivars grown for food are more variable than those used for brewing. Improved red-grain (e.g. Red Swazi A. and Framida) and white grain sorghum cultivars and hybrids from South Africa are becoming popular even in communal areas.

Only traditional cultivars of finger millet (Eleusine coracana) are grown in Zimbabwe; they vary in spike size, shape and compactness, and grain characters in addition to flowering time, plant height and tillering. Intermediate forms between wild and cultivated finger millets are also common in farmers' fields, suggesting that finger millet may have evolved to a considerable extent in Zimbabwe (Appa Rao and Mushonga, 1985).

A few samples of pearl millet (Pennisetum glaucum, syn. P. americanum) were obtained from the Bulawayo Trade Fair, but it was not possible to collect in Matabeleland, although the crop is widely grown in this area. Pearl millet is grown as a sole crop or mixed with sorghum, cowpea or cucurbits, often in back yard gardens. Typically the cultivars are very tall with long cylindrical spikes, but medium thick spikes with short bristles and a few with long bristles were also found. The grain is of medium size and grey, with partly corneous endosperm. Most of the samples

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Table 1. Germplasm collected from Zimbabwe during 1985

Crop (cultivated)	Field samples	International Trade Fair, Bulawayo	Harare Agricultural Show	Total
Pearl millet	222	76	44	342
Sorghum	414	248	71	733
Finger millet	119	47	16	182
Groundnut	5	48	25	78
Bambara groundnut	4	25	30	59
Cowpea	17	37	15	67
<u>Phaseolus</u>	2	1	4	7
Cucurbits	9	2	-	11
Watermelon	11	-	-	11
Rice	3	1	-	8
<u>Capsicum</u>	1	-	-	8
Castor	-	1	-	1
Sunflower	-	16	15	31
Other	-	-	2	2
Total	807	502	224	1533
Wild relatives of 11 species				

were of the race typhoides. A few intermediate forms with shattering spikelets were found around Buhara, but no Pennisetum species which cross with cultivated pearl millet were found.

#### Grain legumes

Groundnut (Arachis hypogaea) is grown in Zimbabwe mostly for domestic consumption, but also for confectionary uses and export. Most of the communal farmers, who produce the major part of the crop, grow traditional short-season Spanish and Valencia cultivars under rainfed conditions, while commercial farmers grow long-season improved cultivars with irrigation. The former usually retain most of their produce for home consumption and seed, and sell the surplus.

Improved cultivars of Phaseolus vulgaris are grown mainly for export. Cowpea is commonly grown mixed with sorghum or millet. There was some variation in size, shape and colour of seeds amongst traditional cultivars.

#### Cucurbits

A range of cucurbits are grown in

sorghum and millet fields and in back yards almost throughout the country; their variability was described by Toll and Gwarazimba (1983). The leaves, flowers and fruits may be eaten raw or cooked. In some areas, cucurbits are commonly used as staple food especially before sorghum or millet is ready for harvest. The cucurbits vary in size, shape, colour presence or absence of spines and several other characters.

#### Wild relatives

Pennisetum setaceum and P. orientale are grown mainly as ornamental plants. A few plants found elsewhere may be escapes from cultivation. P. purpureum grows wild along stream and river banks and on bunds in fields. Solanum spp. grow wild on disturbed soils and along road sides. The fruits are relatively large and yellow with large spines. The leaves are eaten and the fruit may have medicinal properties. Sesamum grows wild as a weed especially in the lowveld. Though uniculm types are common, profusely branching types are also found.

#### Suggestions for future work

Millet growing areas have yet to be

explored in Matabeleland, and wild relatives of sorghum and pearl millet need to be collected in the Zambezi, Limpopo and Sabi Valleys. Wild Eleusine grows abundantly throughout much of the highveld and middleveld and needs to be collected. The cereal germplasm collected in 1982 has been evaluated (Appa Rao et al., 1986), but that collected in 1985 has yet to be. All the germplasm collected is conserved in the new cold store at Research and Specialist Services (R&SS), Harare. Seed

viability needs to be monitored.

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#### Resume

1.533 échantillons, soit 342 de mil à chandelles, 733 de sorgho, 182 de mil à doigts, 78 d'arachides, 59 de pois de terre, 67 de niébé, 7 Phaseolus, 11 Cucurbita, 11 melons d'eau, 8 de riz, 8 de Capsicum, 1 de ricin, 31 de tournesol, 2 divers et 11 espèces sauvages parentes d'espèces cultivées, ont été collectés au Zimbabwe en 1986.

#### Resumen

1533 muestras de semilla, comprendiendo 342 de Pennisetum spp., 733 de sorgo, 182 de Eleusine, 78 de cacahuete, 59 de bambarra, 67 de Vigna subterranea, 7 de Phaseolus, 11 de calabaza, 11 de sandía, 8 de arroz, 8 de pimienta, 1 de ricino, 31 de girasol, otras 2 y 11 parentes silvestres, fueron recogidos en Zimbawe en 1986.