

# Collecting in Baluchistan, Pakistan

N.I. Hashmi <sup>1/</sup>, L.J.M. van Soest <sup>2/</sup>, A.R. Rao <sup>3/</sup>  
M. Mesken <sup>4/</sup> and Zahoor Ahmad <sup>1/</sup>

## INTRODUCTION

Although in the past, some plant collecting expeditions have been organized in Pakistan, the province of Baluchistan has not been included in these efforts. This paper reports on a mission to that province. Its objectives were:

- (a) to collect in an important part of the Central Asian Gene Centre on behalf of the newly established PARC genebank in Islamabad. The introduction of improved varieties of some crops, e.g. wheat, sorghum, rice and several vegetables, threatens the local germplasm. These genetic resources therefore need to be urgently collected and preserved; and
- (b) to make new germplasm available to plant breeders. High priority was given to the collection of cereals, pulses, oilseeds, fodder crops and several vegetables.

## ORGANIZATION AND COLLECTING ROUTES

The expedition was organized by the Plant Genetic Resources/Plant Introduction Division of the Pakistan Agricultural Research Council (PARC), Islamabad, Pakistan; and the Foundation of Agricultural Plant Breeding (SVP), Wageningen, The Netherlands. Financial support was provided mainly by the IBPGR, Rome.

From the Pakistani side the organization was in the hands of Dr. N.I. Hashmi, whereas Ir. M. Mesken was the Dutch coordinator of the project.

To ensure efficient collecting, two teams of three scientists each were in the field from 21 May to 13 June 1981. Team 1 was led by Dr. N.I. Hashmi and later on by Dr. A.R. Rao. Team 2 was led by Ir. L.J.M. Van Soest with the collaboration of Dr. A. Zahoor.

Team 1 mainly collected in the north and northwestern parts of Baluchistan along the borders of Afghanistan up to Iran (Fig. 1), and 293 samples were collected from 88 different sites. The second team collected mainly in northeast and central Baluchistan (Fig. 1) and 501 samples were collected from 93 different sites. Approximately 8 000 km were

---

<sup>1/</sup> Pakistan Agricultural Research Council, Islamabad, Pakistan.

<sup>2/</sup> Foundation of Agricultural Plant Breeding (SVP), Wageningen. Presently: German-Netherlands Potato Department in FAL, Braunschweig-Volkenröde, Federal Republic of Germany.

<sup>3/</sup> Department of Botany, University of Agriculture, Faisalabad, Pakistan.

<sup>4/</sup> Foundation of Agricultural Plant Breeding (SVP), Wageningen, The Netherlands.

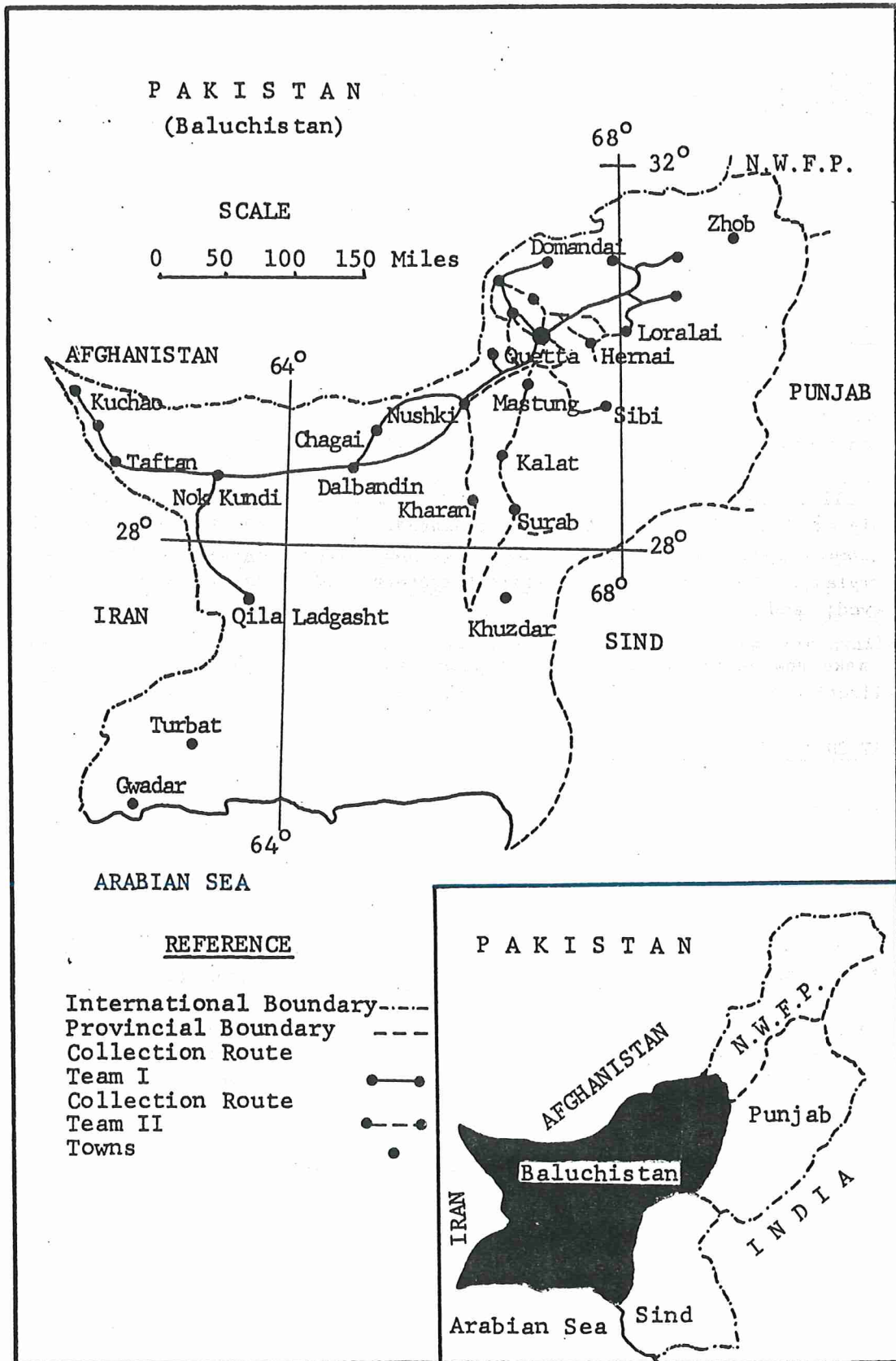


Fig. 1 Baluchistan collection routes of Teams 1 and 2.

covered by the two teams; Team 1 travelling approximately 4 600 km and Team 2 ca. 3 400 km. As such, the two teams collected in four of the five agro-climatic zones of Baluchistan, covering altitudes from 190 to 2 410 m. No collections were made in the southern desert zone of the province.

#### MATERIAL COLLECTED

As can be seen from Table 1, the expedition was not single-crop oriented but collected all available germplasm from Baluchistan except for fruit trees. In general, seeds only were collected and it was not possible to collect vegetative propagules of crops like onions etc.

Table 1 shows that more than 50 percent of the collections are cereals, and wheat predominated. Maize, sorghum and millet accessions assembled under cereals are mainly used as fodder crops in Baluchistan.

Vegetables and pulses constituted the second important group of the collected germplasm. As a result of sampling in different agro-climatic zones and the wide range of altitudes, the expedition was able to collect a wide range of vegetables.

Oilseed crops, spices, cash crops and fodder and other miscellaneous crops were infrequently samples but include some valuable material.

Finally, some wild progenitors of wheat, barley, tobacco and safflower were also collected.

All collections have been initially divided into two portions, one to be retained for storage and increase at the PARC genebank in Pakistan and the other half sent to SVP, Wageningen. After increase the accessions will be duplicated at various genebanks involved in germplasm evaluation work.

#### GENETIC EROSION

The degree of the genetic erosion in the exploration area was not considered very high except in a few pockets. The phenomenon mainly depended on the recently exploited sources of irrigation water resulting in a switch-over from subsistence to commercial farming. As a result, some of the primitive local varieties have gone out of cultivation. In areas where water is available in sufficient quantity at nearly no cost the farmers have introduced improved varieties and new crops.

In several areas, old cultivars of cereals and other crops are being replaced by fruit plants. This was observed particularly in areas around Quetta, Panjpai, Mastung, Pishin and Urak. Due to the availability of water from the surrounding mountains all the crops grown in the Harnai area happened to be improved varieties.



Table 1. Plant Material Collected during the Baluchistan Expedition

<u>Crops and Species</u>	<u>Team 1</u>	<u>Team 2</u>	<u>Total</u>
CEREALS			
Wheat	121	164	285
Barley	49	45	94
Maize	34	26	60
Sorghum	9	41	50
Millet	1	3	4
Rice	-	4	4
VEGETABLES			
Onion	5	18	23
Carrot	1	7	8
Spinach	-	9	9
Pea	-	8	8
Tomato	-	2	2
Lady Finger	2	7	9
Sponge Gourd	1	7	8
Cucumber	2	4	6
Radish	2	9	11
Citrullus "Tinda"	1	1	2
Melon (Water, Sweet, Musk)	25	27	52
Red Pepper	2	1	3
Leek	-	1	1
Gourds (different types)	2	3	5
Turnip	-	2	2
Foeniculum	-	2	2
Unclassified	1	1	2
PULSES			
Black Gram	1	11	12
Lentil	-	3	3
Mung bean	1	2	3
Chickpea	-	1	1
Mat bean	-	4	4
SPICES			
Cumin	24	17	41
Coreander	-	5	5
Unclassified	-	1	1

Table 1 (cont'd)

<u>Crops and Species</u>	<u>Team 1</u>	<u>Team 2</u>	<u>Total</u>
WILD SPECIES			
<u>Aegilops</u> spp.	-	9	9
<u>Hordeum</u> spp.	-	4	4
<u>Secale</u> spp.	-	2	2
Wild tobacco	-	1	1
Wild safflower	-	3	3
Grasses	-	3	3
Wild clover	-	1	1
OILSEEDS			
<u>Brassica</u> spp.	-	18	18
<u>Descurainia sophia</u>	-	6	6
<u>Eruca</u>	-	5	5
Sesame	-	5	5
Unclassified	-	1	1
MISCELLANEOUS CROPS			
Tobacco	9	1	10
Safflower	-	1	1
<u>Papaver</u>	-	1	1
Lucerne	-	4	4
	<hr/>	<hr/>	<hr/>
	293	501	794
	=====	=====	=====

RESUME

En 1981, le CIRPG a financé la récolte de souches génétiques dans la province du Baloutchistan. Ces prospections ont été exécutées conjointement par des instituts des Pays-Bas et du Pakistan.

RESUMEN

En 1981, el CIRF financió la recogida de germoplasma en la provincia de Baluchistán. Esta operación se llevó a cabo como empresa conjunta entre los Institutos de Países Bajos y del Pakistán.