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**PARC / NETHERLANDS PLANT COLLECTING
EXPEDITION TO BALUCHISTAN 1981**

INTERIM REPORT



PLANT INTRODUCTION AND GENETIC RESOURCES DIVISION

**PAKISTAN AGRICULTURAL RESEARCH COUNCIL
ISLAMABAD
JUNE, 1981**

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Interim Report
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PAKISTAN AGRICULTURAL RESEARCH COUNCIL/NETHERLANDS

PLANT COLLECTING EXPEDITION TO BALUCHISTAN 1981

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INTRODUCTION

In the past some plant collecting expeditions have been organised in Pakistan. However, the province of Baluchistan has not been included in these exploration efforts. The major objectives of the present expedition can be summarized as follows :

- 1) to collect plant genetic resources in an important part of the Central Asian Gene Centre where virtually no crop collections have been made previously. The newly established PARC Genebank in Islamabad, is determined to preserve the plant genetic resources of Pakistan and as such interested to collect in Baluchistan,
- 2) the introduction of improved varieties of some crops like wheat, sorghum, rice and several vegetables threatens genetic erosion of the local germplasm. Therefore these genetic resources need to be collected and preserved urgently,

1/ Pakistan Agricultural Research Council, Islamabad, Pakistan. 2/ Foundation of Agricultural Plant Breeding (SVP), Wageningen. Presently: German-Netherlands Potato Department in the FAL, Braunschweig-Volkenrode Federal Republic of Germany. 3/ Department of Botany, University of Agriculture, Faisalabad, Pakistan 4/ Foundation of Agricultural Plant Breeding (SVP), Wageningen The Netherlands.

3) to make new germplasm available to plant breeders, high priority was given to collection of cereal crops, pulses, oilseed crops, fodder crops and several vegetables.

ORGANISATION and COLLECTING ROUTES

The expedition was organized by the following two institutions :

- the Plant Genetic Resources/Plant Introduction Division of the Pakistan Agricultural Research Council (PARC), Islamabad, Pakistan,
- the Foundation of Agricultural Plant Breeding (SVP), Wageningen, The Netherlands.

The financial support was provided mainly by 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.

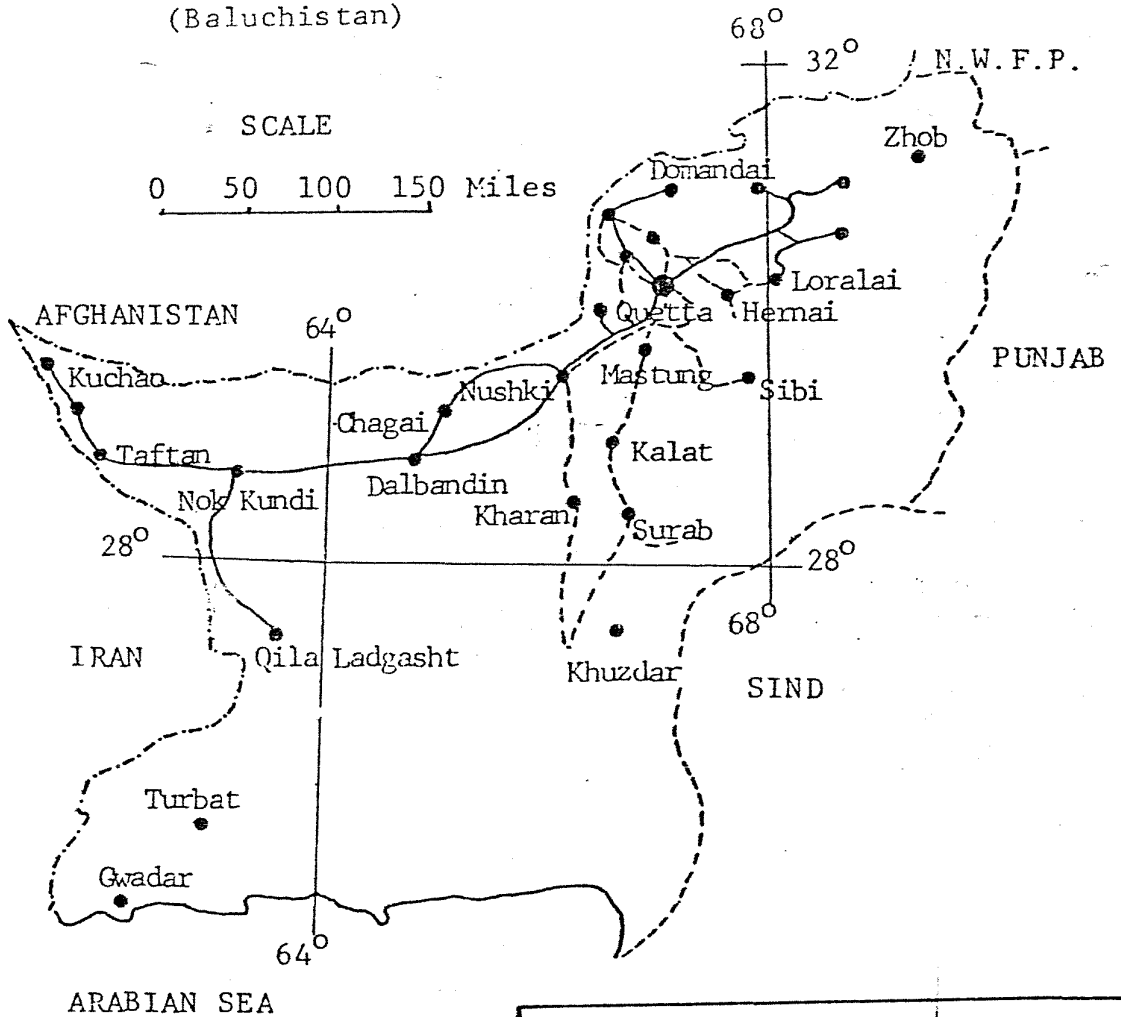
To ensure efficient collecting, two teams of 3 scientists each were in the field from May 21 upto June 13. Team I was led by Dr. N.I. Hashmi and later on by Dr. A.R. Rao. Team II was led by Ir. L.J.M. van Soest with the collaboration of Dr. A. Zahoor.

Team I mainly collected in the north and north-western parts of Baluchistan along the borders of Afghanistan upto Iran (map), 293 samples were collected from 88 different sites. The second team collected mainly in north-east and central Baluchistan (map); 501 samples were collected from 93 different sites. Approximately 8000 km were covered by the two teams; team I doing approximately 4600 km and

PAKISTAN
(Baluchistan)

SCALE

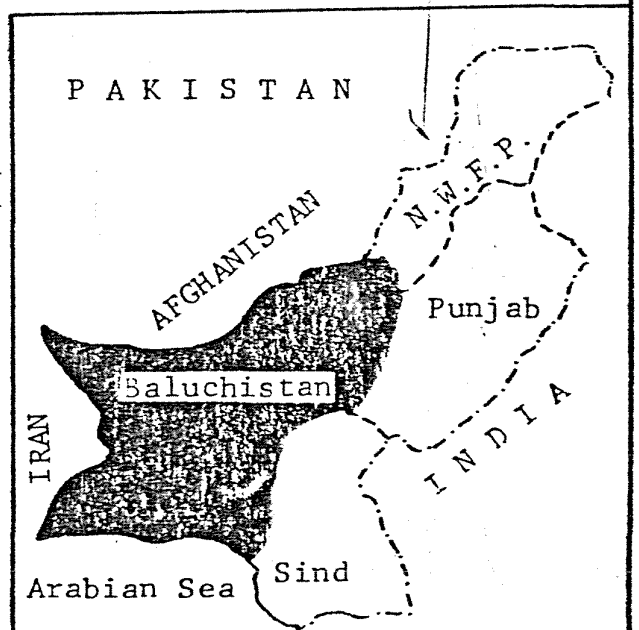
0 50 100 150 Miles



REFERENCE

- International Boundary - - - - -
- Provincial Boundary - - - - -
- Collection Route
- Team I ●
- Collection Route
- Team II ●
- Towns ●

Fig.1. Collection Routes of Team I and II.



team II c.a. 3400 km. As such the two teams collected in 4 of the 5 agro-climatic zones of Baluchistan, covering altitudes from 190 to 2410 m. No collections were made in the southern desert zone of the province.

MATERIAL COLLECTED

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

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

Vegetables and pulses constitute 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 vegetables.

The collections of oilseed crops, spices, cash crops and fodder and other miscellaneous crops were infrequently sampled but include some valuable material.

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

All collections have been initially split 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 shall be duplicated

TABLE I.

PLANT MATERIAL COLLECTED DURING THE
BALUCHISTAN EXPEDITION.

<u>CROPS AND SPECIES</u>	<u>TEAM I</u>	<u>TEAM II</u>	<u>TOTAL</u>
<u>CEREALS</u>			
Wheat	121	164	285
Barley	49	45	94
Maize	34	26	60
Sorghum	9	41	50
Millet	1	3	4
Rice	-	4	4
<u>VEGETABLES</u>			
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 Peper	2	1	3
Leek	-	1	1
Gourds (different types)	2	3	5
Turnip	-	2	2
Foeniculum	-	2	2
Unclassified	1	1	2

Contd:....P/5.

	<u>TEAM I</u>	<u>TEAM II</u>	<u>TOTAL</u>
<u>PULSES</u>			
Black Gram	1	11	12
Lentil	-	3	3
Mung bean	1	2	3
Chickpea	-	1	1
Mat bean	-	4	4
<u>SPICES</u>			
Cumin	24	17	41
Coreander	-	5	5
Unclassified	-	1	1
<u>WILD SPECIES</u>			
Aegilops spp	-	9	9
Hordeum spp	-	4	4
Secale spp	-	2	2
Wild tobacco	-	1	1
Wild safflower	-	3	3
Grasses	-	3	3
Wild clover	-	1	1
<u>OILSEEDS</u>			
Brassica Spp	-	18	18
Descurania sophia	-	6	6
Eruca	-	5	5
Sesame	-	5	5
Unclassified	-	1	1
<u>MISCELLANEOUS CROPS</u>			
Tobacco	9	1	10
Safflower	-	1	1
Papaver	-	1	1
Lucerne	-	4	4
Total:	<u>293</u>	<u>501</u>	<u>794</u>

at various genebanks involved in germplasm evaluation work.

GENETIC EROSION

The magnitude of the genetic erosion in the exploration area was not considered as very high except few pockets. This phenomenon mainly depended on the recently exploited sources of irrigation water resulting in a switch-over from subsistence to commercial farming. As such 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 introduced improved varieties and new crops.

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

CONCLUSION

In relatively a short period of field work, the PARC/ Netherlands expedition to Baluchistan collected 794 samples of over 40 crops. These were collected from 181 sites spread over an area of 900 x 150 km of north, north-western and central Baluchistan located in four different agro-climatic zones of this province.