

STATUS OF PLANT GENETIC RESOURCES AT CENTRAL ARID ZONE RESEARCH INSTITUTE

Compiled by

M.M. Roy

R.K. Bhatt

V.K. Manga

M.P. Rajora

Anjali Pancholy



भाकृअनुप
ICAR

CENTRAL ARID ZONE RESEARCH INSTITUTE

(Indian Council of Agricultural Research)

JODHPUR - 342 003, RAJASTHAN, INDIA

Status of Plant Genetic Resources at Central Arid Zone Research Institute

Compiled by

M.M. Roy

R.K. Bhatt

V.K. Manga

M.P. Rajora

Anjali Pancholy

Central Arid Zone Research Institute

(Indian Council of Agricultural Research)

Jodhpur-342 003 (Rajasthan)

2012

Published by

Director
Central Arid Zone Research Institute
Jodhpur 342003
Ph.: 91-0291-2786584 (O), 91-0291-2788484 (R)
Fax: +91-0291-2788706
E-mail: director@cazri.res.in
Website: http://www.cazri.res.in

Compiled by : M.M. Roy, R.K. Bhatt, V.K. Manga, M.P. Rajora, Anjali Pancholy

Citation: Roy, M.M., Bhatt, R.K., Manga, V.K., Rajora, M.P., Pancholi, Anjali 2012. Status of Plant Genetic Resources of Central Arid Zone Research Institute, CAZRI, Jodhpur, India. 90p.

November, 2012

DTP : S.B. Sharma

Printed at : Evergreen Printers, Jodhpur

भाकृअनुप
ICAR

डॉ. अनिल कुमार सिंह
उप महानिदेशक (प्रा सं प्रा)
Dr. Anil Kumar Singh
Deputy Director General (NRM)

भारतीय कृषि अनुसंधान परिषद
कृषि अनुसंधान भवन–II, पूसा, नई दिल्ली 110 012
INDIAN COUNCIL OF AGRICULTURAL RESEARCH
KRISHI ANUSANDHAN BHAVAN-II, PUSA, NEW DELHI - 110 012
Ph. : 91-11-25848364 (O), 25843496, 25849786 (R)
Fax : 91-11-25848366
E-mail : aksingh@icar.org.in; aks_wtc@yahoo.com

Foreword

Plant genetic resources (PGR) are the most important components of agro-biodiversity. They play a significant role in the development of new cultivars and restructuring of the existing ones that lack one or the other attributes. Thus they contribute enormously towards achieving the objectives of food security and poverty alleviation, environment protection and sustainable development. Rich plant genetic diversity is available in the Indian arid zone in terms of both numbers of species and within the species. The local communities and farmers of the region have sustained these resources which they domesticated, used, conserved and made available to meet the ever increasing needs of the present and future generations. It assumes great significance because of its adaptability to harsh environmental conditions and being storehouse of genes of stress tolerance. Genetic information of crop varieties is crucial for the development of heat, drought, salinity, pests and diseases-resistant, fast-growing, high-yielding new varieties; necessary to reduce food insecurity in the changing scenario.

As part of its research activities during the last five decades, CAZRI has been able to collect, introduce, evaluate and identify highly potential indigenous and exotic germplasm of agricultural crops, horticultural crops, trees, shrubs and grasses. The CAZRI, Jodhpur and at its Regional Research Stations (Jaisalmer, Bikaner and Pali) presently having large biodiversity of the major arid cultivated legumes (mothbean, clusterbean, mungbean, cowpea and horse gram), pearl millet, grasses (*Cenchrus ciliaris, C. setigerus, Panicum, Lasiurus sindicus, Cymbopogon* etc.), range legumes, medicinal plants, shrubs and trees (*Prosopis, Acacia, Tecomella, Salvadora* etc.) and some lithophytes and psammophytes. These available genetic resources need to be conserved and documented. The genetic resources collected, generated and maintained at the Institute and its four regional stations have been compiled in the form of this bulletin for further studies and effective utilization in future variety development programmes. I am sure this compilation of genetic resources would help in its proper maintenance and utilization in plant improvement programmes, to increase productivity of arid lands and ensure food and nutritional security to the human and livestock of the region.

(A. K. Singh)

September, 2012

Preface

The hot Indian arid zone covering an area of 3.2 lakh km^2 is lying in the states of Rajasthan, Gujarat, Haryana, Andhra Pradesh and Karnataka of which 62% lies in Rajasthan. The genetic diversity occurring in this region assumes great significance in view of its adaptability to harsh environmental conditions forming a storehouse of genes of stress tolerance. The Indian arid zone is the primary center of origin of many plant species like moth bean (*Vigna aconitifolia*), horse gram–kulthi (*Macrotyloma uniflorum*), bael (*Aegle marmelos*), kundri (*Coccinia indica*), and guggul (*Commiphora wightii*), and secondary center of origin of cluster bean (*Cyamopsis tetragonoloba*). Rich diversity for pearl millet (*Pennisetum glaucum*) is also found in the region. About 106 species of grasses are found in western Rajasthan. As a result Rajasthan desert is also known as the primary center of genetic diversity of grasses. The endemic grasses like *Lasiurus sindicus*, *Cenchrus ciliaris, Cenchrus setigerus, Panicum antidotale, Dichanthium annulatum* etc. and tree species like *Tecomella undulata, Prosopis cineraria, Acacia nilotica, Acacia senegal, Salvadora oleoides, Salvadora persica* and shrubs like *Capparis decidua, Ziziphus nummularia, Calligonum polygonoides, Haloxylon salicornicum* and *Calotropis procera* are some of the economically important species. Since the establishment of the Central Arid Zone Research Institute, several explorations were made to collect germplasm of important indigenous tree species, such as *Prosopis cineraria, Salvadora* and *Acacia* spp, and agricultural crops like moth bean, guar and pearl millet, and horticultural crops like *Ziziphus maurtiana, Punica granatum, Phoenix dactylifera, Annona squamosa, Cordia myxa, Carissa carandas, Emblica officinalis, Aegle marmelos,* and *Capparis decidua* and conserved at CAZRI, Jodhpur.

The institute has four regional stations viz., Pali, Jaisalmer and Bikaner in Rajasthan and Kukum-Bhuj in Gujarat, situated under different agro ecological and topographical conditions. These stations also maintain a good collection of local and introduced germplasm suitable to their agro climatic conditions. To strengthen the genetic base of plant genetic resources at CAZRI, Jodhpur, exotic trees and shrub species were also introduced from various iso-climatic regions of the world. These exotic species owe their origin to Israel, Australia, USA, Russia, Chile Peru, Sudan, Kenya, Argentina, Zimbabwe etc. Documentation of the available genetic resources is essential for its proper and efficient management. The present bulletin is a compilation of information on plant germplasm collected, generated, utilized and maintained at CAZRI and its regional research stations.

Editors

Contents

INTRODUCTION

Plant genetic resources (PGR), a part of human heritage, are the most important components of biodiversity. The PGR includes modern cultivars, cultivated plant species/varieties, landraces, breeding lines and genetic stocks, wild and weedy types. The enormous genetic diversity created over millennia through natural forces and complemented by the diversity present in wild relatives of crops, allows organisms to adapt to the changing environmental conditions. This diversity forms a source of raw material for enhancing crop productivity through plant breeding. It is also a source of variety of foods, medicines and raw materials consumed all over the world by the people. Genetic resources thus can be reckoned among the society's most valuable raw material. Any reduction in the diversity of resources, through loss of a species or a genetic line represents an irreversible loss of a unique resource, which narrows society's scope for responding to new problems and opportunities. Genetic variation, once considered unlimited, is eroding fast as modern cultivars are replacing traditional cultivars over large areas, and natural habitats of wild relatives of cultivated species are being destroyed by human activities. Thus crop genetic diversity must be conserved to combat new pests and diseases, and to produce better adapted varieties for the changing environments. The plant genetic resources can contribute significantly in achieving goals of food security, poverty alleviation, environmental protection and sustainable development.

The Indian hot arid zone occupies an area of 3.2 lakh km^2, mostly lies in Rajasthan, Gujarat, Haryana, Andhra Pradesh and Karnataka. The hot desert regions have abundance of sunshine, land and soils. Water is the primary limiting factor for the sustainability of the biodiversity. Low and erratic rainfall combined with high temperatures adversely affect arid zone plant biodiversity. The Thar desert, lying between 24°-29°N latitude and 70°-76°E longitude, and in contrast to other deserts of the world has highest population density and wealth of endowments in the form of several useful plant species and livestock breeds with proven production potential that have evolved over the years in harsh climatic conditions. Vegetation in arid region is a unique blend of multipurpose trees, shrubs, annual and perennial range-legumes and range grasses. Rich crop diversity is available in the Indian arid zone in terms of both numbers of species, genotypes and ecotypes. Contrary to the other hot deserts of the world, the Thar supports a large human and animal population and exhibits spectacular floral and faunal biodiversity. A testimony to this fact is the documentation of about 682 species of higher plants, 68 of mammals, 300 of birds, 23 of lizards and 25 of snakes in the desert, some of these being endemic to the area. Western arid/semi-arid region including Rajasthan, Gujarat as well as Saurashtra region, possess rich agro-biodiversity of pearl millet, sorghum, wheat (drought and salinity tolerant types), guar, mothbean, cowpea, black gram, mung bean, brassicas, sesame, chilies, cucurbitaceous vegetables, minor vegetables and fruits (*Capparis aphyla, C. decidua,* ber), *Citrus*, range grasses, legumes and spice crops (coriander, fenugreek, ajwain and garlic).

During the last century, the Thar has witnessed staggering growth in human and livestock population. This has exerted great pressure on the natural resources. The once extensive grasslands have been diverted for cultivation and development purposes. Change of focus from animal husbandry to agriculture, developmental activities, impact of tourism and modern communication systems among other factors have contributed to change in ecological pattern. To cater the requirements of food and fodder and industrial growth, large areas have been brought under cultivation, mostly at the cost of marginal range and grazing lands. Over grazing of pastures and grasslands has led to deterioration in the quality of grazing resources and some of the most renowned grass species are facing destruction. Fast depletion of vegetation cover exposed lands to degradation through erosion, reducing their productivity irreversibly. It has greatly affected the eco-system dynamics as a whole.

Over the past 10,000 years crop plants have proliferated an innumerable number of locally adapted genotypes. These landraces and folk varieties of indigenous and peasant agriculture have been the genetic reservoir for the plant breeders. The Thar has the richest plant biodiversity. It has been a repository of grasses of high nutritive value. The endemic grasses like *Lasiurus sindicus*, *Cenchrus ciliaris, Cenchrus setigerus, Panicum antidotale, Dichanthium annulatum* etc. and tree species like *Tecomella undulata, Prosopis cineraria, Acacia. nilotica, Acacia senegal, Salvadora oleoides, Salvadora persica* and shrubs like *Capparis decidua, Ziziphus nummularia, Calligonum polygonoides, Haloxylon salicornicum* and *Calotropis procera,* are the lifeline of desert ecosystem. Some of the economically important species are at the alarming stage and there is urgent need to collect and conserve the diverse genetic materials. To strengthen the genetic base of plant genetic resources at CAZRI, Jodhpur, exotic trees and shrub species were also introduced from various iso-climatic regions of the world. These exotic species owe their origin to Israel, Australia, USA, Russia, Chile Peru, Sudan, Kenya, Argentina, Zimbabwe etc. These include 112 Eucalyptus species, 75 *Acacia* species and 90 miscellaneous species. *Eucalyptus camaldulensis, E. terminalis, Acacia albida, A. tortilis, A. bivenosa, A. ampliceps, A. eriopoda, Colophospermum mopane, Dichrostychus nutans, Prosopis sp (Peruvian), P. alba, P. chilensis, Hardwickia binata, Simmondsia chinensis,* and *Pongamia pinnata* have shown promise in the arid region. Explorations were also made to collect germplasm of important indigenous tree species such as *Prosopis cineraria, Salvadora* and *Acacia* spp and large number of plant genetic resources have been collected and conserved at the institute.

In horticultural crops, germplasm has been collected from various parts of arid region and evaluated, and cultivars of *Ziziphus maurtiana, Punica granatum, Phoenix dactylifera, Annona squamosa, Cordia myxa, Carissa carandas, Emblica officinalis, Aegle marmelos, Capparis decidua* have been recommended for cultivation.

In case of agricultural crops, pearl millet (*Pennisetum glaucum* (L.) R. Br. germplasm has been collected through several explorations from different districts of Rajasthan and also from ICRISAT, Hyderabad and All India Coordinated Pearl millet Improvement Project. Selection in germplasm and its

utilization in breeding programmes led to the development of elite breeding materials, including male sterile lines, inbred restorers, broad based composites and open pollinated varieties. Pearl millet open pollinated varieties, CZP 87 and CZP 9603 have been identified for release, while OPVs CZ-IC 923 and CZP 9802 have been released and notified for cultivation. Moth bean (*Vigna aconitifolia*), germplasm was collected from moth bean growing belt of Rajasthan. Germplasm material was also obtained through NBPGR, New Delhi. Mutation breeding led to the development of several early maturing moth bean lines. RMM-12, single stemmed, early maturity mutant of RMO-40 (INGR No. 04095), and CZM-32 a drought tolerant mutant of Jadia (INGR No. 01924) have been registered with NBPGR.

In clusterbean (*Cyamopsis tetragonoloba*), germplasm collected from various parts and obtained from NBPGR has been evaluated. Genotype 2470/12 (Maru Guar) a selection, from germplasm collections of NBPGR was notified for general cultivation. Using mutation breeding a determinate mutant GDM 1 has been identified from FS-277 and registered with NBPGR, (Reg. No. INGR 04037).

Economy of the hot Thar Desert is closely linked with the raising of livestock, which mainly depends upon the native rangelands for their sustenance. Buffel grass (*Cenchrus ciliaris*), birdwood grass (*Cenchrus setigerus*), sewan (*Lasiurus sindicus*) and gramna (*Panicum antidotale*) are the main pasture species dominating in the region.

Rajasthan desert is known as the primary center of genetic diversity of grasses, comprising many of primitive and wild forms. About 106 species of grasses are found in western Rajasthan. At the Central Arid Zone Research Institute, Jodhpur a sizeable genetic stock derived from different habitats is being maintained and has been studied for various morphological and genetic aspects of variation. Wide range of genetic variation was observed in the characteristics contributing to forage yield, forage quality and under ground biomass. Promising stocks of grasses identified are: CAZRI 75, CAZRI 358, CAZRI 2221, (IC No. 198675), CAZRI 2178 (IC No. 198632) and CAZRI 585 of *Cenchrus ciliaris*, and CAZRI 76 of *Cenchrus setigerus.*

The PGR are finite and vulnerable to losses. Genetic variation, once considered unlimited, is fast eroding as modern cultivars replace traditional cultivars over large areas, and natural habitats of wild relatives of cultivated species are being destroyed. Natural calamities, land and crop conversions, mechanization of agriculture, deforestation, developmental activities such as electricity projects, road laying, urbanization and environmental pollution (loss of pollinators) are further aggravating the situation. Many of the landraces and primitive cultivars have already vanished and some are on the verge of it due to their abandonment by farmers in lieu of high yielding varieties. The remaining ones are genetically deteriorating gradually due to hybridization, selection or genetic drift. Global warming resulting from climate change, is affecting the climate sensitive sector like agriculture leading to genetic erosion. As a result the value of genetic resources for food and agriculture will increase in the near future. In order to adapt to climate change, plants and animals important for food security will need to

adjust to abiotic changes such as heat, drought, floods and salinity. As climate change brings new pest and diseases, new sources of resistances will be required by crop varieties. Genetic diversity, that is currently underutilized, may become more useful in times to come.

Botanical gardens have remained *ex situ* centers of conservation of germplasm. Since its inception, botanical garden at this Institute has conserved large number of medicinal, ornamental, succulents, endangered, threatened and rare plant species of this arid region as well as obtained from other iso-climatic regions of the world.

The four regional stations viz., Pali, Jaisalmer, and Bikaner in Rajasthan and Kukum Bhuj in Gujarat, of the institute are situated under different agro ecological and topographical conditions. These stations are also maintaining good collection of local and introduced germplasm suitable to their agro climatic conditions. A good germplasm collection of mehndi (*Lawsonia inermis* L.) at Pali, *Acacia jacquemontii, Calligonum polygonoides* and *Haloxylon salicornicum* at RRS Bikaner; *Commiphora wightii, Citrullus colocinthus, Cordia myxa, Opuntia ficus-indica, Phoenix dactylifera, Ziziphus mauritiana* and *Citrullus lanatus* at RRS Jaisalmer and *Clitoria ternatea* at RRS Bhuj is being maintained.

There is a national mechanism for registration of the potentially valuable germplasm with unique traits to facilitate their documentation and use in basic research and crop improvement. Several important lines identified for unique characteristics of trees, agricultural and horticultural crops and grasses have been registered/deposited under this system. These include CZMS 44A (INGR 99010), CZP 9603 (IC312284) and CZI 9621 (IC 553265) of pearl millet, RMM-12 (INGR No. 04095), and CZM-32 (INGR No. 01924) of moth bean, GDM 1 (Reg. No. INGR 04037) of guar and CAZRI 2221 (IC 198675) and CAZRI 2178 (IC 198632) of *Cenchrus ciliaris*.

This bulletin comprises the compilation of plant germplasm resources collected, generated, maintained and utilized at CAZRI and its regional research stations.

Plant Genetic Resources Maintained at the Central Arid Zone Research Institute, Jodhpur and its Regional Research Stations

Owing to diversified habitats, Indian arid zone has rich genetic wealth of native types. Several rare species are found here and many of them are endemic to the region. The Indian arid zone is the primary center of origin of many plant species like moth bean (*Vigna aconitifolia*), horse gram–kulthi (*Macrotyloma uniflorum*), Bael (*Aegle marmelos*), Kundri (*Coccinia indica*), and Guggal (*Commiphora wightii*), and secondary center of origin of cluster bean (*Cyamopsis tetragonoloba*). Rich diversity for pearl millet (*Pennisetum glaucum*) is also found in this region. During the last five decades of its establishment, Central Arid Zone Research Institute through its research activities, has surveyed, collected and documented rich genetic wealth of native species that exist in the region. During the period it has also introduced and evaluated several plant species from the iso-climatic regions of the world to broaden genetic base of the plant material. Many of these have shown promise in the arid region. These include local and introduced plant material of agricultural crops, horticultural crops, trees, shrubs, grasses, legumes, medicinal and ornamental plants, beside rare and endangered species. A brief description of important species is given below.

AGRICULTURAL CROPS

The arid zone is characterized by extremes of climate, low and erratic rainfall, high temperatures, high evapo-transpiration and recurring droughts. The agriculture is mostly rainfed. The main crops of this region are bajra, moth, mung, and guar. Crop diversity in this region is well represented by developed cultivars and landraces or folk varieties in different agro ecological regions.

Bajra (Pearl millet)

Botanical Name : *Pennisetum glaucum* L. R. Br. Emend. L. Stuntz
Family : Poaceae
Subfamily : Panicoideae
Tribe : Paniceae

Pennisetum glaucum traditionally a dry land crop is primarily cultivated for grain purpose. It is probably the only cereal crop that can be cultivated under arid climatic conditions of the arid region and can provide grain for human and stover for livestock. The dual purpose nature of pearl millet offers both food and fodder security in the arid and semi-arid parts of the country. In India it is grown in 9.3 m hectare, with a contribution of 3.9% to the total food grain production. Major pearl millet growing states are Rajasthan, Maharashtra, Gujarat, Uttar Pradesh and Haryana. Rajasthan alone constitutes about 47% of the area and contributes about 36% of the production of the crop in the country with an average productivity of about 721 kg ha^{-1} (2001-2009 period). In western Rajasthan, ~75% of the pearl millet area is still under local varieties.

CAZRI, Jodhpur is constantly endeavoring to develop high yielding, early maturing varieties/hybrids of pearl millet adapted to arid climatic conditions of the region. In this effort germplasm has been collected from various districts of Rajasthan.

CZ-IC 923 Released in 1996

CZP 9603 Identified 2001 (IC 312284)

CZP 9802 Released 2002

CZMS 44A Male sterilie line (INGR 99010)

Indigenous and exotic germplasm has also been obtained from organizations like, All India Coordinated Pearl Millet Improvement Project, Mandor Jodhpur and ICRISAT, Hyderabad. This germplasm has been evaluated and utilized in breeding programmes. Our efforts have resulted in the development of open pollinated varieties; CZ-IC 923, CZP 9603 and CZP 9802; a number of male sterile lines (seed parents) and restorer inbreds. Many of these have been registered with the Plant Germplasm Registration Committee, NBPGR, New Delhi. During the breeding process a number of elite breeding material of pearl millet have also been generated.

These elite breeding material including ms lines, restorers, maintainer lines and open pollinated varieties are being maintained and also conserved in the medium term storage facility of the NBPGR Regional Station Jodhpur. A list of the collections and improved material is given in the annexure.

CZI 9621 Inbred Restorer (IC 553265)

Moth Bean (Dew Bean)

Botanical Name : (*Vigna aconitifolia* (Jacq.) Marechal),
Family : Leguminosae
Subfamily : Papilionoideae

Vigna aconitifolia is one of the most important arid legumes, known for its tolerance to high atmospheric temperature and soil moisture deficit. Consequently it is cultivated by the marginal and sub-marginal farmers of the arid regions in 70% area. It is cultivated on plains, on sand dunes and also in different combinations with crops, trees, horticultural crops and grasses. In Rajasthan, it is grown in about 12.2 lac hectares, of which 93% area is confined to 12 arid districts. It is characterized with trailing and spreading prostrate growth habit, which may help to prevent early depletion of soil moisture. Besides, as a source of food, fodder and green manure, it is also used in a variety of local dishes and snacks. Breeding work at CAZRI, Jodhpur, has led to the development of varieties of moth bean, that have been released for cultivation in the arid regions

CAZRI Moth-1: It was released in 1999 for cultivation in Rajasthan, Haryana, Gujarat, and Maharshtra. It has semi-spreading growth habit, matures in 72 days and produces grain yield of 3.5-4.0 q ha^{-1} with grain protein of 25% and inbuilt YMV resistance.

CAZRI Moth- 2: It is the first variety resulting from hybridization (*Jadia* x RMO-40). It was released for cultivation in 2003. It has semi-erect growth habit, matures in 65-67 days, produces grain yield of 7-8 q ha^{-1} and tolerates YMV.

CAZRI Moth- 1

CAZRI Moth- 2

CAZRI Moth- 3: This variety was released for cultivation in 2005**.** It is an erect, early maturing drought hardy variety that escapes YMV. It has heavy podding behavior. It matures in 62-64 days with grain yield potential of 9-10 q ha^{-1}.

RMM-12 (INGR 04095): It is an unbranched, erect, 50 days maturing line, registered as a new genetic material with NBPGR. Line CZM 32 (INGR 01924) of moth bean has also been registered with NBPGR.

CAZRI MOTH - 3

RMM - 12

Guar (Clusterbean)

Botanical Name : *Cyamopsis tetragonoloba* (L.) Taub.
Family : Leguminosae
Subfamily : Papilionoideae

Cluster bean (*Cyamopsis tetragonoloba)* commonly known as guar, is an annual and self-pollinated *Kharif* legume grown mainly in India, Pakistan and United States. In India, guar is being grown in arid and semi-arid areas of north-western states mainly in Rajasthan, Gujarat, Haryana, Punjab, some parts of UP and MP. It is mainly used for feed, green fodder, vegetable, green manuring and gum extraction from seed. It has a great industrial value due to the presence of gum (Galactomannan) in its endosperm. Guar gum has several diversified uses in textile industry, food processing, cosmetics, mining, pharmaceutical, explosives, petroleum, well drilling and oil industries etc. Guar gum and its derivatives are in great demand in the world market. Indian contribution is about 80% to the worlds' total guar production. In India it is cultivated on 24 lakh ha, with more than 80% of the area in Rajasthan. Being drought hardy, it is grown mainly under rainfed conditions in India. For best growth, guar requires full sunshine, flashing rainfalls that are moderately frequent and well-drained soil. The crop is sown after the first rains in July and harvested in late October. After World War II, the crop has emerged as an effective source of industrial guar gum, as a result it has achieved the status of industrial crop of export potential. There are more than 150 guar gum industries operating in India. Green pods of guar are also used for vegetable purpose in the early stage. A large number of germplasm lines of guar have been collected from Rajasthan and also obtained through NBPGR. Evaluation of germplasm led to the isolation of 2470/12, a promising line. Later this was released as Maru Guar in 1986. Promising germplasm lines are being maintained at CAZRI Jodhpur.

Green gram (Mung bean)

Botanical Name : *Vigna radiata* (L.) R. Wilczek
Family : Leguminosae
Subfamily : Papilionoideae

Vigna radiata is of ancient cultivation in India. It was introduced early into Southern China, Indochina and Java. Though not an arid legume, but due to short growth period of 65-70 days, characterized with drought escape mechanism, it has come up as an arid pulse crop. It is suitable for multiple and relay cropping and can also be used as green manure crop. In India green gram occupies an area of about 3 million hectares with a production of 0.25 million tones. Some of the germplasm has been collected from the arid regions and is being maintained at CAZRI, Jodhpur.

RANGE GRASSES

Rajasthan desert is known as the primary center of plant genetic diversity, comprising many of primitive and wild forms. About 106 species of grasses are found in western Rajasthan. The grassland cover of Indian arid zone with particular reference to western part of Rajasthan is of *Dichanthium-Cenchrus-Lasiurus* type. Buffel grass (*Cenchrus ciliaris*), dhaman grass (*Cenchrus setigerus*), sewan (*Lasiurus sindicus*) and gramna (*Panicum antidotale*) are the main pasture species dominating in the arid region. At the Central Arid Zone Research Institute, Jodhpur a sizeable genetic stock of grasses collections is being maintained as derived from different habitats. Sewan is called as 'King' of desert grasses which survives under extreme arid conditions. Buffel grass or Anjan grass is adapted to a wide range of soil and climatic conditions. Bird Wood Grass or Dhaman is tolerant to heat and drought. Karad occurs in wide range of soils but mainly on black soils. Blue Panic often found on sand dunes and excellent sand binder and drought resistant perennial grass adapted to a variety of soils and climatic conditions. Economy of the hot Thar Desert is closely linked with the raising of livestock which mainly depends upon the native rangelands for their sustenance. The arid zone pasture grasses exists considerable variability for various growth and quality traits. The extant of variation is high between as well as within species. The conservation efforts are needed to preserve the biodiversity of grasslands of arid zone.

Sewan

Botanical Name : *Lasiurus sindicus* (Henr.)
Family : Poaceae
Subfamily : Panicoideae
Tribe : Andropogoneae

Lasiurus sindicus is a native grass of India and found predominantly in arid zones of Rajasthan, extending to the parts of Haryana and Punjab. It is also distributed in Arabia, Africa, Nigeria, Ethiopia, Egypt and Pakistan. This grass naturally grows on extensive areas in far west of Rajasthan desert. The grass comes well in sandy soils. It is one of the dominant species of *Dichanthium-Cenchrus–Lasiurus* type grass cover of India. It survives under extreme arid conditions and gives high forage yield. The grass is extremely drought resistant and thrives even in very low rainfall regions receiving 100 mm to 300 mm annually and has moderate tolerance to salinity. It is highly nutritive and palatable to the livestock. Tharparkar breed of cattle of western Rajasthan is dependent on this grass. Under natural conditions crude protein (CP) ranges from 5.9 to 6.7%. The grass produces 5 to 7.5 t ha^{-1} dry matter yield. A collection of this species is maintained at CAZRI, Jodhpur and regional research station, Jaisalmer. This species needs more collection from different sites of the arid regions of Rajasthan.

Anjan grass (Buffel grass)

Botanical Name : (*Cenchrus ciliaris* L.)
Family : Poaceae
Subfamily : Panicoideae
Tribe : Paniceae

Cenchrus ciliaris is commonly known as 'dhaman' in Rajasthan and 'anjan' in other parts of India, is considered as a very drought resistant species. It grows in Tropical and South Africa, Mediterranean region, Pakistan, India (hotter and drier parts); introduced in Australia and America. It is one of the prominent grass species of *Dichanthium – Cenchrus- Lasiurus* grass cover of India. It is perennial with large ecotypes adapted to a wide range of soil and climatic conditions and can be cultivated in areas receiving rainfall from 150 to 1250 mm annually. The grass has been successfully established on dry sandy to stony soils in arid and sandy-to-sandy loam in semi-arid parts of India. It can also grow on deep basaltic soils and on red lateritic soils. It is very palatable when young, and remains fairly palatable at maturity. It is one of the best forage grasses for semi-arid areas in the sub-tropics and tropics. Crude protein percent varies from 6 to 10%. The varieties like Marwar Anjan, Bundel Anjan, CAZRI 358, Biloela and Molopo give 40 to 45 q ha^{-1} dry matter. Depending on the soil moisture 3 to 4 cuts can be

obtained from August to April. Seed productivity is 10-60 kg ha^{-1}. Large number of collections of this species is being maintained at CAZRI, Jodhpur.

Dhaman grass (Bird Wood Grass)

Botanical Name : *Cenchrus setigerus* (Vahl)
Family : Poaceae
Subfamily : Panicoideae
Tribe : Paniceae

Cenchrus setigerus commonly known as 'moda dhaman' in Rajasthan and bird wood grass in Australia. It is a native of Africa from the Nile valley to red sea and eastward through Arabia to India. It is more adapted to arid and semi-arid condition. It is extremely tolerant to heat and drought and grow in areas of low rainfall making it excellent for improvement of low rainfall grazing lands. It is palatable to all kinds of livestock and can be propagated from seeds and may be used for renovating the denuded pastures or establishment of sown pasture. The grass is either grazed or cut and fed to livestock *ed lib* or turned into hay. Crude protein content of dry matter varies from 5 to 12%. High yielding varieties of *C. setigerus* cv. Marwar dhaman (CAZRI 76) produce about 4.0 to 5.0 t ha^{-1} of green forage from 2 to 3 cutting during August to April in arid regions. The yield becomes double in semi-arid regions. The dry matter varies from 4 to 20 q ha^{-1}.

Karad (Kail Grass)

Botanical Name : *Dichanthium annulatum* (Forsk) Stapf
Family : Poaceae
Subfamily : Panicoideae
Tribe : Andropogoneae

Dichanthium annulatum commonly known as 'karad' in Rajasthan and Marval, Palwan and Zinjoo elsewhere, distributed in Tropical and N. Africa, Orient, China, Australia, Pacific Islands, India (throughout). This grass commonly occurs throughout the plains and hills of India with wide range of adaptations from low rainfall areas to heavy rainfall. It grows in a wide range of soils but prefers black soils. Its main growing season is rainy but also grows during spring season with low yield. In Rajasthan it occurs mainly in the rainfall regions of $\geq$ 350 mm. It evades or endures drought well (White, 1968). The plant grows to a height of 75 cm at maturity stage. It is regarded as an excellent fodder plant and highly valued pasture of high quality, vigour and productivity. An average hay production of 33 q ha^{-1} can be expected from a good *D. annulatum* stand. It is one of the best and most valuable fodder grasses of the region.

Gramna (Blue Panic)

Botanical Name : *Panicum antidotale* (Retz.)
Family : Poaceae
Subfamily : Panicoideae
Tribe : Paniceae

Panicum antidotale found in Arabia, Afghanistan, Ceylon, Australia, Pakistan (Sind), India (Upper Gangetic Plains, Punjab, Maharashtra, Gujarat, Rajasthan). Blue panic popularly known as 'gramna' in Rajasthan is a tall perennial grass, reaching 1.5 m high from a creeping, often stout and thick root stock. It is often found on sand dunes and excellent sand binder and drought resistant perennial grass adapted to a variety of soils and climatic conditions. It is a very productive grass that can serve as a good source of fodder supply either as hay or silage. On the livestock farms of the tropical and sub-tropical countries this can be a good fodder source through out the year because of its wider adaptability, persistency, high productivity and good seeding capacity. It can be either grazed or cut and fed to the livestock. It shows that the grass is highly nutritive when cut at pre flowering stage. The grass is palatable to all kinds of livestock. However, it is not liked in mature stage as the stem becomes hard and woody.

Murat

Botanical Name : *Panicum turgidum* (Forsk.)
Family : Poaceae
Subfamily : Panicoideae
Tribe : Paniceae

Panicum turgidum distributed in Tropical Africa, Egypt, Cyprus, S. Palestine, S. Persia, Pakistan (Sind), India (Gujarat and Rajasthan). Grown on sand dunes and sandy plains in open rangelands and cultivated fields of Thar Desert of Rajasthan and Gujarat. A common and characteristic species, often playing an important role in colonizing shifting sand dunes under 100-250 mm annual rainfall. Green fodder productivity ranges from 50 to 75 q ha^{-1} with 20 to 30 q ha^{-1} dry matter. Although hard and woody, young stems serve as an excellent nutritive camel fodder. It has 59% dry matter at flowering and CP 4.9%.

Aparajita

Botanical Name : *Clitoraia ternatea*
Family : Fabaceae
Subfamily : *Faboideae*
Tribe : *Phaseoleae*
Subtribe : *Clitoriinae* also placed in *Papilionaceae*

Clitoria ternatea, commonly called as aparajita, butterfly pea and bluepea. It is widespread throughout humid and sub-humid lowlands of Asia. It is a perennial herbaceous vigorous, persistent creeper or vine plant grows in variety of soils. Its flowers are blue and leaves elliptic and obtuse. However there are some varieties with white flowers. It is widely used as ornamental and cover crop. It is having fodder value and used as sole and along with other pasture crops. It has been successfully grown with grasses (*Pennisetum purpureum*, *Panicum maximum, Dichanthium sps, Cenchrus ciliaris* and other grass species. It is highly palatable. It produces 2-6 t ha^{-1} dry matter. Traditional it is used as Ayurvedic medicine as nootropic, antistress, anxiolytic, antidepressant, anticonvulsant, tranquilizing and sedative agent.

TREES AND SHRUBS

Trees and shrubs of arid region are important source of food, fodder, timber, fuel wood and other economic products for people residing the region. The most common tree species of this region are *Prosopis cineraria, Tecomella undulata, Acacia senegal, Salvadora oleoides, S. persica, Acacia nilotica* and *Anogeissus rotundifolia* and small trees and shrubs like *Calligonum polygonoides, Acacia jacquemontii, Balanites aegyptica, Calotropis procera, Capparis decidua, Ziziphus nummularia, Haloxylon salicornicum* and *Calotropis procera.* Though native species are best adapted to the harsh conditions of this region, these are slow growing, at least during the early years. Till end of seventies, no planned explorations were undertaken for collection of germplasm of arid zone trees and its use for genetic improvement. Exploratory surveys to collect germplasm of *Prosopis cineraria, Acacia senegal* and *Tecomella undulata* were made in 1984, 1986 and 1991 and *Salvadora oleoides* in 2003. A collection of germplasm of *Prosopis cineraria, Tecomella undulata, Salvadora oleoides, Acacia nilotica,* and *Acacia senegal* is maintained at CAZRI, Jodhpur. Since local species have slow growth rate, it was felt necessary to introduce tree species with higher growth rate from isoclimatic regions of the world. These include 112 Eucalyptus species, 75 Acacia species and 90 miscellaneous ones. *Eucalyptus camaldulensis, E. terminalis, Acacia albida, A. tortilis, A. bivenosa, A. ampliceps, A. eriopoda, Colophospermum mopane, Dichrostychus nutans, Prosopis sp (Peruvian), P. alba, P. chilensis, Hardwickia binata, Simmondsia chinensis,* and *Pongamia pinnata* have shown promise in the arid region.

TREES

Kumat (Gum Arabic)

Botanical Name : *Acacia senegal* (Linn.) Willd
Family : Leguminosae
Sub-family : Mimosoideae

Acacia senegal is native to semi-desert regions of Sub-Saharan Africa, as well as Oman, Pakistan, and northwestern India (Rajasthan, Punjab, Saurashtra, Delhi). It grows to a height of 5-12 m, with a trunk up to 30 cm in diameter. It is one of the dominant multipurpose tree species of Indian arid zone as it grows on poor, sandy soil in natural stands as well as plantations. The gum from this tree forms the true

gum-arabic of commerce. It exudes from the stem in cold weather and is sold often mixed with the gum of other species of Acacia. Its gum is used by confectionaries as well as pharmaceutical industries; pods are well relished by sheep and goat; and boiled and dehydrated seeds are consumed by local people as vegetable. This is most suitable for large scale afforestation programme in the region.

Israeli Babool (Umbrella Thorn)

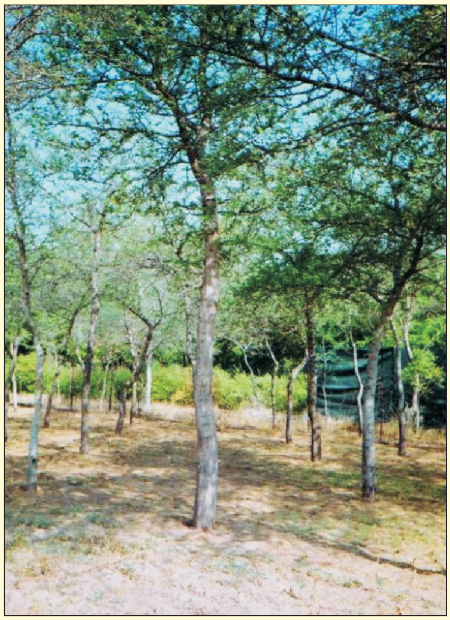
Botanical Name : *Acacia tortilis* (Forsk.) Hayne.
Family : Leguminosae
Subfamily : Mimosoideae

Acacia tortilis is also known as *Umbrella Thorn* and *Israeli babool.* It is a medium to large canopied tree native primarily to the savanna and Sahel of Africa (especially Sudan), but also occurring in the Middle East. *A. tortilis* tends to grow in areas where temperatures vary from 0 to 50°C and rainfall is anywhere from about 100–1000 mm year^{-1}. In extreme arid conditions, it may occur as a small, wiry bush. It grows up to 21 m in height. The plant is known to tolerate high alkalinity, drought, high temperatures, sandy and stony soils, strongly sloped rooting surfaces and sand blasting. Also, plants older than 2 years have been observed to be somewhat frost resistant. The *A. tortilis* is also emerging as an important species in the battle fields to 'green the deserts', as it is one of few trees to tolerate very harsh, arid environments.

Babool (*Acacia albida*)

Botanical Name : *Faidherbia albida* (Del.) A. Chev.
Family : Leguminosae
Subfamily : Mimosoideae

Acacia albida also known as *Faidherbia albida*, native to Africa's dry Savannas and riverine basins, is most valuable plant of the Sahel Zone. In India, it was introduced in 1966 and was recommended for its planting in agroforestry systems in Peninsular India in late seventies. Seeds from plus trees from natural stands are presumed to produce genetically superior plants.



Desi Babool (Ulla Thorn)

Botanical Name : *Acacia nilotica* (L.) ex Del.
Family : Leguminosae
Subfamily : Mimosoideae

Acacia nilotica is one of about 135 thorny African Acacia species found in Pakistan, India (Rajasthan, Punjab, Delhi, Saurastra). Variation is considerable among nine subspecies presently recognized, three occurring in the Indian subcontinent and six throughout Africa (Brenan 1983.) They are distinguished by the shape and pubescence of pods and the habit of the tree. *Acacia nilotica* is easy to recognize by its bright yellow flowers in round heads, straight stipular spines often slightly deflexed, and dark indehiscent pods compressed over the seeds. Flowering is prolific, and can occur a number of times in a season. Often only about 0.1% of flowers set pods. In India this species is used extensively on degraded saline/alkaline soils, growing on soils up to pH 9, with a soluble salt content below 3%. It also grows well when irrigated with tannery effluent, and colonizes waste heaps from coal mines. The bark and the pods are used for tanning. The leaves are used as a fodder for goats and camels. A gum obtained from this plant (though not true gum Arabic) is used as gum Arabic. The wood is used for fuel, building purposes, tent pegs and also for spokes, wheels, oil process, tent-pegs and other agricultural implements. The gum is used in native medicines.

Babool

Botanical Name : *Acacia raddiana* (Savi).
Family : Leguminosae
Subfamily : Mimosoideae

Acacia raddiana is a short desert tree with an impressive umbrella shape: a single non-branched trunk, which at a certain height (1-3 m) suddenly branches into a broad and flat crown. The bark is brown-reddish. The tree grows deep roots. It grows in places where there is water at great depths and utilizes water stores that other plants cannot take advantage of it. It is found mostly in the beds of seasonal streams in the desert. The tree belongs to the Mimosaceae family, Leguminosae. The young leaves and branches are glabrous. The leaves are alternate, bipinnate. There are several nectaries on the leaf axis. *A. raddiana* blooms mainly from October to December, also in March-April. The flowers are light yellow, arranged densely in small globules, like other members of the genus.

Albizia (Kala siris)

Botanical Name : *Albizzia amara* (Boivin)
Family : Leguminosae
Subfamily : Mimosoideae

Albizzia amara is a small to moderate-sized, much-branched deciduous tree with smooth, dark green, scaly bark. It resembles the acacias but lacks thorns. Its root system is shallow and spreading. The leaves are pinnately compound, with 15-24 pairs of small, linear leaflets, on 6-15 pairs of pinnae. The yellow, fragrant and globose flowers are in clusters. They develop when the tree is almost leafless. *A. amara*, a strong light-demander, is intolerant of shade, very hardy and shows marked resistance to drought. It has a wide distribution in Africa, occurring from Sudan and Ethiopia southwards to Zimbabwe, Botswana and the Transvaal, growing mainly in sandy woodlands. In India, it is one of the characteristic trees of the dry regions of Tamil Nadu, Andhra Pradesh and Karnataka. It reproduces very freely from coppice; it produces a large number of coppice shoots in the first instance, producing as many as 50-100 shoots. Artificially, the best method is through direct seeding. Seed pretreatment involves immersion in boiling water for 5 minutes followed by soaking for 12 hours. The treated seed can be then sown and will germinate within 7-10 days with 80% germination.

Mopane

Botanical Name : *Colophospermum mopane* (J. Kirk ex Benth.)
Family : Leguminosae
Subfamily : Caesalpinioideae

Colophospermum mopane grows in hot, dry, low-lying areas, 200 to 1,150 metres in elevation, in the far northern parts of southern Africa, South Africa, Zimbabwe, Mozambique, Botswana, Zambia, Namibia, Angola and Malawi. The tree only occurs in Africa and is the only species in genus *Colophospermum*. The species name *mopane* is taken from the local name for the tree. It is a small tree, rarely taller than 10 m under Indian hot arid conditions. The natural regeneration of the species is tremendous and profuse when rainfall is <200 mm annually. It is found growing in alkaline (high lime content) soils which are shallow and not well drained. It also grows in alluvial soils (soil deposited by rivers). Its distinctive butterfly-shaped leaf and thin, flimsy seed pod make it easy to identify.

Leaves of *C. mopane* are eaten fresh or dry by livestock and wild animals. Crude protein content in green leaves is around 15%. The wood is also an excellent fuel, burns slowly and gives off very good heat with little ash. Mopane wood is one of southern Africa's heaviest timbers and is difficult to work because of its hardness. This also makes it termite resistant.

Eucalyptus

Botanical Name : *Eucalyptus microtheca* (F. Muell)
Family : Myrtaceae
Subfamily : Myrtoideae

Eucalyptus microtheca is an evergreen tree, native to Australia, up to 10 m tall, rarely more. The bark varies, it can be smooth and white or gray to rough, fibrous, gray to gray-black. Juvenile leaves are alternate, lance shaped, green to gray-green in color. Adult leaves are lance shaped and dull green or gray-green in color. Leaves are 4-8 inches long. Inconspicuous creamy white flowers are followed by woody capsules. It is the second most widely distributed species in Australia.

Eucalyptus

Botanical Name : *Eucalyptus brevifolia* (F. Muell)
Family : Myrtaceae
Subfamily : Myrtoideae

Eucalyptus brevifolia, a small tree, usually 6-12 m tall and 20-40 cm in diameter, often with a short, crooked trunk. The dry branches should make good firewood and the wood can be used for posts and rail material. It can provide light shade and low shelter. Relatively slow growing perennial, occurs in northwestern Australia within the latitudinal range 15-20°S at elevations between 100-700 m. It can be found on a range of topography including plains, rocky low hills and ridges and on the top of dissected plateau.

Anjan Tree

Botanical Name : *Hardwickia binata* (Roxb.)
Family : Leguminosae
Subfamily : Caesalpinioideae

Hardwickia binata is a robust tree of hot, dry, rocky regions; thrives best on deep sandy loam soils and with 500 mm rainfall but also grows on shallow, rocky skeletal soils and with as low as 250 mm rain fall. It is a moderate-sized to large tree, up to 24-30 m tall, girth 1.8-3 m with a clean cylindrical bole up to 12-15 m with graceful and drooping slender branches. The stout taproot penetrates rocky soils well. It is easy to propagate by direct seeding and is valuable for good quality fodder and fuel, and as a hard, strong timber.

Kiawe

Botanical Name : *Prosopis pallida* (Humb. & Bonpl. ex Willd.) Kunth
Family : Leguminosae
Subfamily : Mimosoideae

Prosopis pallida syn. *Prosopis limensis* has the common names kiawe, huarango and American carob, as well as "bayahonda". It is a thorny legume, native to Columbia, Ecuador and Peru, particularly drier areas near the coast. While threatened in its native habitat, it is considered an invasive species in many other places. The kiawe is a spreading bush or moderately sized tree, bearing spines, spikes of greenish-yellow flowers, and long pods filled with small brown seeds. It reproduces by production of large numbers of easily dispersed seeds, as well as suckering to create thick monotypic stands that shade out nearby competing plants. It survives well in dry environments due to a long taproot. It is so efficient at extracting moisture from soil that it can kill nearby plants by depriving them of water. It can be found in areas where other plants do not grow, such as sandy, dry, degraded slopes, salty soils, disturbed areas, and rocky cliffs. The tree grows quickly and can live for over a millennium. Its hard wood is a source of long-burning firewood and charcoal. Kiawe pods can be used as livestock fodder, ground into flour, sweetened into molasses or turned into beer. The light yellow flowers attract bees.

Khejari

Botanical Name : *Prosopis cineraria* (Linn.) Druce
Family : Leguminosae
Subfamily : Mimosoideae

Prosopis cineraria is a species of flowering tree in the pea family, Fabaceae, that is native to arid portions of Western and South Asia, including Afghanistan, Iran, India (Rajasthan, Delhi, Gujarat, Madhya Pradesh, Haryana). Oman, Pakistan, Saudi Arabia, the United Arab Emirates, and Yemen. This multipurpose tree has played an important role in the rural economy of Western Rajasthan as it provides fodder, fuel, vegetable fruits etc. and widely cultivated as agroforestry tree under which the grain yield and forage biomass production of the field crops improved. The pods are eaten as vegetable and values as fodder. The leaves locally known as 'loong' are much valued as a fodder of goats. The bark is powdered and mixed with flour during scarcity of food and famine. The wood is hard, but of inferior quality and hence used for rough wood-work in villages. No wonder that this tree has been described as “Kalp-Taru” of Thar Desert (Purohit and Khan, 1980). This multipurpose tree, however, suffers from relatively slow growth. Wide range of variability is available particularly for growth habit, canopy area, fodder yield, spiny habit etc. which offers a vast scope for selection of fast growing, spine less and high - yielding genotypes. A regular programme on genetic improvement of *P. cineraria* was initiated at Central Arid Zone Research Institute, Jodhpur in 1983. Subsequently, detailed surveys and germplasm collection from arid parts of Rajasthan and Gujarat were undertaken during 1986 and 1991 when seeds from 70 and 79 plus trees were collected and utilized for nursery studies and establishing progeny trials.

Mitha Jal

Botanical Name : *Salvadora oleoides* (Decne)
Family : Salvadoraceae

Salvadora oleoides is a small bushy evergreen facultative halophyte tree found in India and Pakistan and southern Iran. In India it is more abundant in sand dune of arid regions (Punjab, Delhi, Uttar Pradesh, Gujarat, Rajasthan). Its fruits are relished by the inhabitants of the desert, its leaves are fed to cattle and seeds contain 35-47% solid fat.

Rohida (Thar Teak)

Botanical Name : *Tecomella undulata* (Sm.) Seem
Family : Bignoniaceae

Distribution of *Tecomella undulata* is restricted to the drier parts of the Arabia, southern Pakistan and northwest India up to an elevation of 1200 meters. In Pakistan it is found in Baluchistan and Sindh. In India, it occurs naturally in Maharashtra, Madhya Pradesh, Uttar Pradesh, Gujarat, Rajasthan, Punjab and Haryana. The species is mainly found to occur in western parts of Rajasthan. In other states its population is scanty and very rare. In Rajasthan, *Tecomella undulata* is found in Barmer, Jaisalmer, Jodhpur, Pali, Ajmer, Nagaur, Bikaner, Churu and Sikar districts. It is a deciduous or nearly evergreen tree of arid and semi-arid regions. It occurs on flat and undulating areas including gentle hill slopes and sometimes also in ravines. It is well adapted to drained loamy to sandy loam soil having pH 6.5-8.0. The species thrives very well on stabilized sand dunes, which experience extreme low and high temperatures. It grows in areas of scanty rainfall (annual 150-500mm) and high temperature (35-48°C). It can withstand extreme low temperature (0°C to −2°C) during winter and high temperature (48°C to 50°C) in summers. The tree is a strong light demander. It is drought, frost, fire and wind hardy. At the time of flowering (December-February) it produces beautiful showy flowers in yellow, orange and red colours. Three types of flower bearing trees can be observed near to each other in the same vicinity.

Presently it is one of the most important desert timber tree species. Last three- four decades have witnessed large scale export of its carved furniture. The seeds are very light and papery and easily get wind dispersed. The plant is very useful locally. The leaves are eaten by cattle and goats; the bark is used in indigenous medicines; the wood is used in furniture; since it is soft, tough and durable. It takes a good polish. The wood is also used for Persian wheels, furniture, lacquered toys, seeds are used against abscess. The flower is the state flower of Rajasthan.

SHRUBS

Mexican holdback

Botanical Name : *Caesalpinia mexicana* (A. Gray)
Family : Leguminosae
Subfamily : Caesalpinioideae

Caesalpinia mexicana is a species of flowering plant in the pea family, Fabaceae. Mexican *Caesalpinia* is a small evergreen tree or large shrub, reaching a height of 3-4.6 m and a spread of 1.8-3 m. Leaves are bipinnately-compound and dark green. Mexican *Caesalpinia* is cultivated as an ornamental because of its showy flowers, lush, fine-textured foliage, and drought tolerance.

Guggul (Mukul Myrrh Tree)

Botanical Name : *Commiphora wightii* (Arn.) Bhandari
Family : Burseraceae

Commiphora wightii is a flowering plant in the family Burseraceae. The centres of origin of commiphora spp. are the arid regions of South Africa, namely, Somalia, Medagascar, Botswana, Kenya and Zimbabwe and Asia: Sindh, Bluchistan in Pakistan. It is also found in the mountains of Niger, Tanzania, Welo, Yemen, Arab Republic and Namibia. In India it is found in Rajasthan, Gujarat, Madhya Pradesh, Karnataka and other low rainfall areas of south India. In Rajasthan it is widely distributed in the regions of Jaisalmer and Ajmer, whereas moderately in Jodhpur, Barmer and Bikaner. It generally grows in association with trees like 'Thor', 'Mitha Jal' and 'Ker'. It prefers arid and semi-arid climates and is tolerant of poor soil. It is a much branched shrub or dwarf tree with crooked and knotty branches

ending in sharp spines. The plant seldom grows higher than 4 meter. The leaves are simple or trifoliate, the leaflets ovate, 1–5 cm long, 0.5–2.5 cm broad, irregularly toothed. It is gynodioecious, with some plants bearing bisexual and male flowers, and others with female flowers. The individual flowers are red to pink, with four small petals. Guggul is sought for its gummy resin, which is harvested from the plant's bark through the process of tapping. In India and Pakistan, guggul is cultivated commercially. The resin of the plant, known as *gum guggulu*, has a fragrance similar to that of myrrh and is commonly used in incense and perfumes. Guggul can be purchased in a loosely packed form called *dhoop*, an incense from India, which is burned over hot coals. This produces a fragrant, dense smoke. The burning coals which let out the smoke are then carried around to different rooms and held in all corners for a few seconds. This is said to drive away evil spirits as well as remove the evil eye from the home and its family members. The resin has been used for centuries as part of India's traditional medicine called Ayurveda.

The list of traditional uses for guggul is extensive. It has been indicated for healing bone fracture to inflammation, arthiritis, cardio vascular conditions, obesity and lipid disorders. Several other external and internal uses for guggul have been described in folk lore and ethno medicine as well. Although, several therapeutic uses were indicated for guggul, the Indian gum resin was namely used for treating various types of arthiritis. Ayurvedic physicians extensively used guggul for treating arthiritis and related conditions for centuries.

Poor techniques associated with tapping of gum resin and adverse climatic conditions have led to the total destruction of the plants, in its natural habitat, and now it is fighting for survival. According to the I.U.C.N. red data book dealing with threatened plants this tree has been mentioned as vulnerable due to over exploitation.

Mehandi (Henna)

Botanical Name : *Lawsonia inermis* (L.)
Family : Lythraceae
Subfamily : Caesalpinioideae

Lawsonia inermis is a perennial tall shrub to small tree, 2-6 m high indigenous to North Africa. The plant has been introduced widely throughout the tropics and sub-tropics as an ornamental (as a fragrant hedge), and as a commercial crop. In Rajasthan, Sojat and adjoining regions of Pali district contribute

over ninety percent of henna production in the country and India is the largest exporter of henna. Henna cultivation in the region is rainfed with no use of fertilizers and pesticides. It is a glabrous, multi-branched with spine tipped branch lets, which are green when young but red with age. The woody shrub has longevity for many years with regeneration capacity when coppiced. Both seed and stem cuttings can be used for its propagation. Henna is used mostly for colouring dying and staining. Henna dry leaf powder is also used as a cosmetic dye for hair, skin and nails.

Jojoba

Botanical Name : *Simmondsia chinensis* (Link) Schneid
Family : Simmondsiaceae

Simmondsia chinensis is a shrub native to the Sonoran and Mojave deserts of Arizona, California and Mexico. Jojoba plants are of industrial importance for oil (liquid wax) equivalent to highly prized sperm whale oil. The plant has also been used to combat and prevent desertification in the Thar Desert in India. Jojoba grows to 1–2 metres tall, with a broad, dense crown. The leaves are opposite, oval in shape, 2–4 cm long and 1.5–3 cm broad, thick waxy glaucous gray-green in colour. The flowers are small, greenish-yellow, with 5–6 sepals and no petals. Each plant is single-sex, either male or female with hermaphrodites being extremely rare. Jojoba foliage provides year-round food opportunity for many animals, including deer, javelina, bighorn sheep and livestock. The nuts are eaten by squirrel, rabbits, other rodents, and larger birds.

HORTICULTURE CROPS

Khajur (Date Palm)

Botanical Name : *Phoenix dactylifera* L.
Family : Arecaceae
Subfamily : Coryphoideae

Phoenix dactylifera is cultivated for its edible sweet fruits. Although its place of origin is unknown because of long cultivation, it probably originated from lands around the Persian Gulf. Its trees are semi vigorous having spreading growth habit. It flowers in February to March. Fresh fruits can be harvested in July. The fruits are dark red in colour at doka stage with crispy pulp and dark brown at pind stage. The fruit is oblong shaped with round apex. The fruits are sweet and are relished fresh in season. A germplasm of 20 cultivars was collected from Abohar and also introduced from USA, Iraq, Afghanistan, Saudi Arabia etc. under UNDP funded programme. Variety Muscat-2 is emerging as a potential date palm variety because its fruits are shiny with attractive red colour and sweet taste. Another cultivar, Halawy has been found to be ideal for arid conditions due to early fruit maturity. A new date palm cultivar developed from zygotic seedlings, and named as "CAZRI New Selection -1" is tall and vigorous in growth and attains good height and spread. It flowers during January-February. The fruit is oblong, elliptical with obtuse apex and golden yellow. Fruits are very sweet, less fibrous and astringent. Variety CAZRI New Selection-1 is indeed an early maturing and sweet genotype.

Bael (Stone Apple)

Botanical Name : *Aegle marmelos* (L.)
Family : Rutaceae
Subfamily : Aurantioideae

Aegle marmelos is an important medicinal plant. Cultivars Laljeet Sambhipuri, Dhara road, CAZRI selection K. B.-10, Ayodhya and Faizabadi local were introduced in 1983-1984. Under arid conditions, cultivars Laljeet Sambhipuri, CAZRI selection and Faizabadi local are performing well. The fruit weight ranges from 1.5 to 2.0 kg and yield from 50 to 60 kg per plant. Propagation by 'T' budding has been found to be best (gives 60-70% success). July–August is the optimum time for budding. Tasty and delicious squash, nectar, murba, jam and powder of bael etc. can be prepared from its fruits.

Karonda

Botanical Name : *Carissa carandas* (L.)
Family : Apocynaceae
Subfamily : Rauvolfioideae

Carissa carandas is an evergreen spiny shrub of family. Due to hardy habit, it can be grown on a wide range of soils in tropical and subtropical climate. It also grows well on wasteland of dry areas. Twenty seven collections were made from hilly areas of Maharashtra and Rajasthan. Genetic variability was observed in plant growth, fruit size, shape and colour of fruit. Karonda seedlings start fruiting in third year. On the basis of fruit colour, karonda can be classified as green fruited, pink fruited or white fruited. However, the differences are not much in shape and size of fruits from all the three varieties. Karonda can be easily propagated by seed and to raise seedlings, the fresh seeds are sown in the nursery in the month of August or September under good management, seedling become ready in 6-8 months for plantation. Propagation of is also possible through hardwood cutting and inarching. Softwood grafting is also successful and is very useful technique for *in-situ* in dry areas. Air layering is quite successful, is done in the beginning of monsoon. Rooted layers are obtained after 3-4 months of layering. In karonda, cuttings are difficult to root. The 'T' budding in the month of November and March gives 60 to 80% success. One year old rootstock raised from wild seedling is suitable for budding.

Ker

Botanical Name : *Capparis decidua* (Forsk) Edgew
Family : Capparaceae

Capparis decidua is widely distributed in Northeast Africa, Arabia, Upper Egypt, Nabia, Cordofon, Ethiopia, Somalia, Iraq, Socotra, S. Persia, Bluchistan, Pakistan (Sind) and India (Punjab, U.P., Madhya Pradesh, Gujarat, Southern parts of Deccan Peninsula). It is a common plant of desert found on rocks,

gravel and sandy plains of exposed habitats. The plant flowers twice a year, but profusely so only in the beginning of summers. A densely branched spinus shrub or a small tree in dry arid region. The tender shoots relieve toothache; unripe fruits are consumed as pickles and vegetables. Immature fruits are stored after marketed. Wood is tough, light, bitter and not touched by white ants; used as firewood as it burns quickly. It is difficult to root. The seedling population is quite variable. Twenty five collections were made from western Rajasthan survey and are being evaluated for growth, yield and quality attributes in arid region. Plants can be propagated through hard wood and semi hardwood cuttings with the treatment of Indole butyric acid (1000 to 5000 ppm).

Pomegranate

Botanical Name : *Punica granatum* (L.)
Family : Lythraceae

Thirty five cultivars of pomegranate *(Punica granatum)* have been introduced at CAZRI, Jodhpur for evaluation. Selection from locally grown plants in Jalore district of Rajasthan was made and named as cv. Jalore Seedless. The cultivar is evergreen, soft seeded, high yielding, and having pink to red colour fruits with sweet and pleasant flavor. The arils are deep pink to deep red in colour. Average yield per plant is 20 to 25 kg under basin irrigation system and 30 to 35 kg under drip irrigation. The cultivar is best suited to arid conditions. Pomegranate is propagated by stem cutting (semi hard wood) with treatment of cutting with 1000 ppm IBA. The third week of February to first week of March is the optimum time for planting. After six months, the rooted cuttings are ready for transplanting in the field.

Aonla

Botanical Name : *Emblica officinalis* Gaertn.
Family : Phyllanthaceae

Emblica officinalis is a very promising fruit crop for arid region**.** Besides being hardy in nature, it is salt tolerant and can be grown successfully in saline soil and irrigated conditions. CAZRI has introduced cultivars such as Krishna, Kanchan, NA-7, Banarsi, Francis and Chakaiya. The varietal evaluation reveale that cv. Kanchan gives about 40- 50 kg fruits in 7th year

80-100 kg fruits in 9th year. Cultivar Krishna is having bigger size fruits and gives 20-30 kg yield per plant (CAZRI, 1994). Fruits of Krishna and Kanchan mature from 26th December onward. Aonla fruits have medicinal properties and contain maximum vitamin C and can be easily preserved by preparing murabba, jam, squash and aonla candy etc.

Ber

Botanical Name : *Ziziphus mauritiana* (Lamk.)
Family : Rhamnaceae

Ziziphus mauritiana is a small, evergreen, much branched tree or a large shrub widely spread in warm countries; India (throughout). A wide variety of germplasm consisting of 74 cultivars was collected and evaluated for economic trial. Early fruit ripening cultivars viz. Gola, Sev and Mundia were recommended for cultivation under unirrigated areas having less than 500 mm rainfall. Sev, Gola and Mundia can tolerate salinity in irrigation water upto 6.0, 4.5 and 2.5 dS m^{-1}, respectively. Cultivar Sev and Gola budded on four different rootstocks i.e. *Ziziphus rotundifolia*, *Z. nummularia*, *Z. spina-christi* and Tikadi revealed that performance of Z. *rotundifolia* was the best. Propagation techniques at CAZRI are such that the seedlings are ready for budding in 90 days and buddings are ready for out planting in 120 days. The seedlings are raised in polythene tubes (open at both ends) and budded in the nursery. Based on this technology about 30 ber nurseries are operating in and around Jodhpur which have supplied about 4 million ber seedlings till now. CAZRI is maintaining 25 varieties/genotypes of *Z. mauritiana* at Jodhpur and also at its regional stations.

Bougainvillea

Botanical Name : *Bougainvillea* spp
Family : Nyctaginaceae
Tribe : Bougainvilleevae

The *Bougainvillea* belongs to the family Nyctaginaceae. Three species of Bougainvillea namely *B. spectabilis*, *B. glabra* and *B. peruviana* are considered to be of horticultural importance. Some botanists also list *B.buttiana*, a natural hybrid between, *B. peruviana* and *B. glabra* as a separate species. There are numerous cultivars developed in Bougainvillea, which have mainly arisen as, a result of bud sprouts, or as seedling variations as a result of chance crossing in our country. In India, the work on development of new Bougainvillea cultivars was taken up initially by some horticulturists and now systematic research work on the subject is being done by various Agricultural, Horticultural and Botanical Research Institutes. Some of the popular Bougainvillea cultivars developed in India are Dr. R. R. Pal, Mary Palmer, Princess Margaret Rose, Shubra, Scarlet Queen, Louisewathen, Enid Lancaster, Scarlet Glory, Mrs. H.C. Buck, Partha, Trinidad, Sachidananda, Srinivasa, Dr. B.P. Pal, Wajid Ali Shah. Begum Sikander, Mary Palmer Special, Spring Festival, Rao etc. The I.A.R.I., New Delhi is also the International Registration Authority for Bougainvilleas, and they have recently brought out a checklist of more than 300 different cultivars.

Aloe Vera

Botanical Name : *Aloe vera (L.) Burm. F.*
Family : Xanthorrhoeaceae

Aloe vera is succulent plant probably originated in northern Africa. Although the natural range of *Aloe vera* is not clear but as the species has been widely cultivated throughout the world. The species is widely naturalised elsewhere, occurring in temperate and tropical regions of Australia, Barbados, Belize, Nigeria, Paraguay and the United States.

Aloe vera is a stemless or very short-stemmed succulent plant growing to 60-100 cm tall, spreading by offsets. The leaves are thick and fleshy, green to grey-green, with some varieties showing white flecks on the upper and lower

surfaces. The margin of the leaf is serrated and has small white teeth. The flowering occurred in summer on a spike up to 90 cm tall. The *Aloe vera* forms arbuscular mycorrhiza, a symbiosis that allows the plant better access to mineral nutrients in soil.

Preparations made from the plant *Aloe vera* are known as "aloe vera" and mainly used for cosmetic and medicine pupose like soothing, moisturizing, and healing. Aloe vera gel is used as an ingredient in commercially available lotions, yogurt, beverages, and some desserts.

Matira (Water melon)

Botanical Name : *Citrullus lanatus* (Thunb.) Matsum. & Nakai

Family : Cucurbitaceae

It is an important cucurbitaceous plant originated in southern Africa. Its fruit called *watermelon*, which has a thick exocarp and fleshy center (mesocarp and endocarp). In India watermelon is known as tarbuj, tarmuj, kalinda, kalindi and matira in different parts of India. It is a major river-bed crop of Uttar Pradesh, Rajasthan, Gujarat, Maharashtra and Andhra Pradesh. As a common summer season crop, it is grown from the lower Himalayan region to southern parts of India, Punjab, Haryana, Karnataka, Assam, West Bengal, Orissa, Himachal Pradesh, Uttar Pradesh, Tamil Nadu and Rajasthan being major watermelon growing states.

It requires hot dry climate and a long growing season preferably with warmer days and cooler nights. It cannot withstand frost or very low temperatures. Higher temperatures are beneficial during ripening. Arid regions of Rajasthan are best suited for production of quality fruits. It may be grown on a wide variety of soils. Sandy loams are best for early crop, while loams have high-yielding potential. Alluvial river-beds are also good for watermelon. Large germplasm of this crop was evaluated and maintained at RRS, Jaisalmer.

UNDERUTILIZED PLANT SPP.

White Cordia (Mexican Olive)

Botanical Name : *Cordia boissieri* A. DC.
Family : Boraginaceae
Subfamily : Cordioideae

Cordia boissieri is a species of flowering shrub or small tree in the borage family, Boraginaceae. Its native range extends from southern Texas in the United States south to central Mexico. Common names include Anacahuita, Mexican Olive, White Cordia, and Texas Wild Olive. *C. boissieri* reaches a height of 5-7 m, with a symmetrical round crown 3-5 m in diameter. The ovate leaves are 9-18 cm long and 5-9 cm wide. It is evergreen but will lose leaves if it suffers frost damage. The white, funnel-shaped flowers are 3-5 cm across and are present on the tree throughout the year. The leaves are used to alleviate rheumatism and pulmonary illness. The wood is used as firewood and for carpentry. Anacahuita is cultivated as an ornamental for its compact size and showy flowers.

Guayacan

Botanical Name : *Guaiacum coulteri* A. Gray
Family : Zygophyllaceae
Subfamily : Larreoideae

Guaiacum coulteri is a species of flowering plant in the caltrop family, Zygophyllaceae, that is native to western Mexico and Guatemala. This is evergreen, slow-growing shrub or small tree, is native to the gravelly plains of western Mexico. The dark green, pinnately compound leaves may drop during periods of cold or drought. Intense blue flowers occur from April through September in response to rain. Slow growing, it may eventually reach 25 ft tall, although drought and frost damage will often keep it considerably smaller. It is extremely drought tolerant, but some additional moisture will encourage flowering. It has antidiabetic properties.

Bigi-tope

Botanical Name : *Mammillaria bocasana* Poselger
Family : Cactaceae
Subfamily : Cactoideae

Mammillaria bocasana is a fast-growing cactus covered with clusters of silky white hairs, with each cluster surrounding a yellow-to-red hooked spine. Common names are snowball cactus; powder-puff cactus; fishhooks. Origin in Central Mexico (San Luis Potosi, Zacatecas, Queretaro states). Stem is blue-green, up to 6 cm in diameter, spherical, sometimes becoming somewhat cylindrical. Spines are radial 30-50, white, hair-like, 8-20 mm long, one (occasionally two) hooked. Centrals 1-7, reddish brown, 5-10 mm long. Flower are funnel-form, creamy white to pinkish, 13 - 22 mm long, up to 15 mm in diameter, in spring and summer. Fruit are cylindrical, rosy-pink to red, 2-5 cm long in summer.

Balata tree

Botanical Name : *Manilkara hexandra* (Roxb.) Dubard
Family : Sapotaceae
Tribe : Sapoteae

Manilkara hexandra is native to much of south Asia (China: Hainan and southern Guangxi provinces; the Indian Subcontinent: Bangladesh, India and Sri Lanka; Indo-China: Cambodia, Myanmar, Thailand and Vietnam. *M. hexandra* is a slow-growing evergreen tree that grows in tropical and temperate forests. It grows 40 to 80 feet tall and 1 to 3 meters in circumference. The bark is grayish black and rough. The wood is very hard, heavy, and very durable, weighing 70 pounds per cubic foot. The bark colour ranges from dark pink to dark purple. It is used for heavy structural work, gate posts, and big beams. It is used as rootstock for *M. zapota*, the latter being grafted on the former, and its fruit is edible.

Bara Gokhru

Botanical Name : *Pedalium murex* (Linn.)
Family : Pedaliaceae

Pedalium murex is commonly found in Deccan and in some parts of Ceylon and Gujarat and in the coastal areas of southern India. It is about 15 to 40 cm in height, having four angle spiny brownish colour fruits (1-2 cm). The fruits are rich in flavonoids, sapogenin and soluble proteins. An infusion extract prepared using cold water from the leaves, stems and fruits of *P. murex* is demulcent, diuretic and also found to be useful in the treatment of disorders of urinary systems such as gonorrhea, dysuria, incontinence of urine, etc.

Apart from the species listed and described above, a large number of collections of species like *Anogeissus rotundifolia, Caesalpinia coriaria, Prosopis juliflora, P. chilensis, Acacia jacquemontii, Haloxylon salicornicum, H. recurvum, Aloe vera, Calotropis procera, Withania somnifera, Coccinia grandis, Ficus carica, Opuntia ficus-indica,* and *Citrullus lanatus* are being maintained at CAZRI Jodhpur and its regional stations. A collection of several other medicinal, ornamental, succulents, rare and endangered species is also being maintained in the botanical garden of the Institute. The details of germplasm maintained at CAZRI, Jodhpur and its regional stations; Pali, Jaisalmer, Bikaner and Bhuj are given in the tables.

SUMMARY

Vegetation in the arid region is a unique blend of drought hardy and high temperature tolerant crops, multipurpose trees, shrubs, perennial grasses legumes and medicinal plants. Western arid/semi-arid region including Rajasthan, Gujarat as well as Saurashtra region, possess rich diversity for pearl millet, sorghum, wheat (drought and salinity tolerant types), guar, mothbean, cowpea, blackgram, mungbean, Brassicae, sesame, chilli, cucurbitaceous vegetables, minor vegetables and fruits (*Capparis aphyla, C. deciduas,*), ber, *Citrus*, spice crops (coriander, fenugreek, ajwain and garlic), forage grasses like *Lasiurus sindicus*, *Cenchrus ciliaris, Cenchrus setigerus, Panicum antidotale, Dichanthium annulatum* etc. and tree species like *Tecomella undulata, Prosopis cineraria, Acacia. nilotica, Acacia Senegal, Salvadora oleides, Salvadora persica,* and shrubs like *Capparis decidua, Ziziphus nummularia, Calligonum polygonoides, Haloxylon salicornicum* and *Calotropis procera.* Some of these economically important species are at the alarming stage and there is urgent need to collect and conserve the diverse genetic materials. To strengthen the genetic base of plant genetic resources at CAZRI, Jodhpur, exotic trees and shrub species were also introduced from various iso-climatic regions of the world. These include 112 Eucalyptus species, 75 Acacia species and 90 miscellaneous species. Explorations were also made to collect germplasm of important indigenous tree species such as *Prosopis cineraria, Salvadora* and *Acacia* spp and large number of plant genetic resources have been collected and conserved at the Central Arid Zone Research Institute, Jodhpur. In horticultural crops, germplasm of *Ziziphus mauritiana, Punica granatum, Phoenix dactylifera, Annona squamosa, Cordia myxa, Carissa carandas, Emblica officinalis, Aegle marmelos, Capparis decidua* have been collected and evaluated. In case of agricultural crops, germplasm of Pearl millet (*Pennisetum glaucum* (L.) R. Br. has been collected through several explorations from different districts of Rajasthan. Similarly germplasm of Guar, Moth bean, Horse gram and Cowpea have been collected and utilized in breeding programme. The botanical garden at CAZRI, Jodhpur has conserved large number of medicinal, ornamental, succulents, endangered, threatened and rare plant species not only of this region but also from other isoclimatic regions of the world.

Genetic variation, once considered unlimited, is fast eroding as modern cultivars replace traditional cultivars over large areas, and natural habitats of wild relatives of cultivated species are being destroyed due to natural calamities, urbanization and environmental pollution. Many of the landraces and primitive cultivars have already vanished and some are on the verge of it due to their abandonment by farmers in lieu of high yielding varieties. Global warming resulting from climate change, is affecting the climate sensitive sector like agriculture leading to genetic erosion. As climate change brings new pest and diseases, new sources of resistances will be required by crop varieties. Genetic diversity, that is currently underutilized, may become more attractive in times to come. As a result the value of genetic resources for food and agriculture will increase in the near future. The genetic diversity of the arid region further assumes greater significance in view of its adaptability to harsh climatic conditions and being the storehouse of genes for stress tolerance.

Germplasm at CAZRI, Jodhpur

Pearl millet (*Pennisetum glaucum*)

S. No.	Accession/germplasm	Collection Site/ Breeding Method	Year of collection /selection	Location
1.	CZI 9621 (IC 553265)	Pedigree selection	1996	MTS
2.	CZI 9625	Pedigree selection	1996	MTS
3.	CZI 98/2	Pedigree selection	1998	MTS
4.	CZI 98/4	Pedigree selection	1998	MTS
5.	CZI 99/2	Pedigree selection	1999	MTS
6.	CZI 99/8	Pedigree selection	1999	MTS
7.	CZI 99/1604	Pedigree selection	1999	MTS
8.	CZI 2000/2	Pedigree selection	2000	MTS
9.	CZI 2000/3	Pedigree selection	2000	MTS
10.	CZI 2000/7	Pedigree selection	2000	MTS
11.	CZI 2000/12	Pedigree selection	2000	MTS
12.	CZI 2000/13	Pedigree selection	2000	MTS
13.	CZI 2000/14	Pedigree selection	2000	MTS
14.	CZI 2000/16	Pedigree selection	2000	MTS
15.	CZI 2000/19	Pedigree selection	2000	MTS
16.	CZI 2004/ 3	Pedigree selection	2004	MTS
17.	CZI 2004/5	Pedigree selection	2004	MTS
18.	CZI 2004/6	Pedigree selection	2004	MTS
19.	CZI 2004/7	Pedigree selection	2004	MTS
20.	CZI 2004/8	Pedigree selection	2004	MTS
21.	CZI 2004/9	Pedigree selection	2004	MTS
22.	CZI 2004/12	Pedigree selection	2004	MTS
23.	CZI 2004/14	Pedigree selection	2004	MTS
24.	CZI 2005/ 1	Pedigree selection	2005	MTS
25.	CZI 2005/2	Pedigree selection	2005	MTS
26.	CZI 2005/3	Pedigree selection	2005	MTS
27.	CZI 2005/4	Pedigree selection	2005	MTS
28.	CZI 2005/7	Pedigree selection	2005	MTS
29.	CZI 2005/9	Pedigree selection	2005	MTS
30.	CZI 2005/10	Pedigree selection	2005	MTS
31.	CZI 2005/13	Pedigree selection	2005	MTS
32.	CZI 2005/14	Pedigree selection	2005	MTS
33.	CZI 2005/16	Pedigree selection	2005	MTS
34.	CZI 2005/17	Pedigree selection	2005	MTS
35.	CZI 2005/18	Pedigree selection	2005	MTS
36.	CZI 2005/19	Pedigree selection	2005	MTS
37.	CZI 2005/20	Pedigree selection	2005	MTS
38.	CZI 2005/21	Pedigree selection	2005	MTS
39.	CZI 2005/22	Pedigree selection	2005	MTS
40.	CZI 2005/23	Pedigree selection	2005	MTS

41.	H77/29-2	HAU, Hisar	2004	MTS
42.	ICMR 356	ICRISAT	2004	MTS
43.	ICMP 451	ICRISAT	2004	MTS
44.	IP 3732	ICRISAT	2004	MTS
45.	CZI 9621 MT	Pedigree selection	2006	MTS
46.	CZI 9621 SSP1	Pedigree selection	2007	MTS
47.	CZI 2002/15	Pedigree selection	2002	MTS
48.	CZI 2002/19	Pedigree selection	2002	MTS
49.	CZI 2002/21	Pedigree selection	2002	MTS
50.	CZI 1672-2	Pedigree selection	1996	MTS
51.	CZI 962MT	Pedigree selection	1996	MTS
52.	CZI 2007/1	Pedigree selection	2007	MTS
53.	CZI 2007/3	Pedigree selection	2007	MTS
54.	CZI 2007/6	Pedigree selection	2007	MTS
55.	CZI 2007/8	Pedigree selection	2007	MTS
56.	CZI 2007/11	Pedigree selection	2007	MTS
57.	CZI 2007/12	Pedigree selection	2007	MTS
58.	CZI 2000/6	Pedigree selection	2000	MTS
59.	CZI 2000/22	Pedigree selection	2000	MTS
60.	CZI 2000/24	Pedigree selection	2000	MTS
61.	CZI 2002/3	Pedigree selection	2002	MTS
62.	CZI 2002/6	Pedigree selection	2002	MTS
63.	CZI 2002/8	Pedigree selection	2002	MTS
64.	CZI 2002/17	Pedigree selection	2002	MTS
65.	CZI 2003/6	Pedigree selection	2003	MTS
66.	CZI 2005/6	Pedigree selection	2005	MTS
67.	CZI 2005/15	Pedigree selection	2005	MTS
68.	CZI 2007/2	Pedigree selection	2007	MTS
69.	CZI 2007/4	Pedigree selection	2007	MTS
70.	CZI 2007/5	Pedigree selection	2007	MTS
71.	CZI 2007/7	Pedigree selection	2007	MTS
72.	CZI 2007/9	Pedigree selection	2007	MTS
73.	CZI 2007/10	Pedigree selection	2007	MTS
74.	CZI 2007/13	Pedigree selection	2007	MTS
75.	CZI 9621A4	Pedigree selection	2007	MTS
76.	CZI 9623A4	Pedigree selection	1996	MTS
77.	CZI 99/4	Pedigree selection	1999	MTS
78.	CZI 2000/15	Pedigree selection	2000	MTS
79.	CZI 2000/20	Pedigree selection	2000	MTS
80.	CZI 2002/5	Pedigree selection	2002	MTS
81.	CZI 2002/21	Pedigree selection	2002	MTS
82.	CZI 2003/1	Pedigree selection	2003	MTS
83.	CZI 2003/8	Pedigree selection	2003	MTS
84.	CZI 2008/2	Pedigree selection	2008	MTS
85.	CZI 2008/4	Pedigree selection	2008	MTS
86.	CZI 2008/5	Pedigree selection	2008	MTS
87.	CZI 2008/6	Pedigree selection	2008	MTS

88.	CZI 2008/9	Pedigree selection	2008	MTS
89.	CZI 2008/10	Pedigree selection	2008	MTS
90.	CZP 9603 IC 312284	Pedigree selection	2000	MTS
91.	CZMS 44AINGR 99010	Backcrossing	1989	NBPGR
92.	CZI 2010/1	Pedigree selection	2010	MTS
93.	CZI 2010/2	Pedigree selection	2010	MTS
94.	CZI 2010/3	Pedigree selection	2010	MTS
95.	CZI 2010/4	Pedigree selection	2010	MTS
96.	CZI 2010/5	Pedigree selection	2010	MTS
97.	CZI 2010/6	Pedigree selection	2010	MTS
98.	CZI 2010/7	Pedigree selection	2010	MTS
99.	CZI 2010/8	Pedigree selection	2010	MTS
100.	CZI 2010/9	Pedigree selection	2010	MTS
101.	CZI 2010/10	Pedigree selection	2010	MTS
102.	CZI 2010/11	Pedigree selection	2010	MTS
103.	CZI 2010/12	Pedigree selection	2010	MTS
104.	CZI 2010/13	Pedigree selection	2010	MTS
105.	CZI 2010/14	Pedigree selection	2010	MTS
106.	CZI 2010/15	Pedigree selection	2010	MTS
107.	CZI 2010/16	Pedigree selection	2010	MTS
108.	CZMS 1A Male sterile line, dwarf	Backcrossing	2009	MTS
109.	CZMS 2A Male sterile line, dwarf	Backcrossing	2009	MTS
110.	CZMS 3A Male sterile line, dwarf	Backcrossing	2009	MTS
111.	CZMS 4A Male sterile line	Backcrossing	2009	MTS
112.	CZMS 5A Male sterile line	Backcrossing	2009	MTS
113.	CZMS 6A Male sterile line	Backcrossing	2009	MTS
114.	CZMS 7A Male sterile line	Backcrossing	2009	MTS
115.	CZMS 8A Male sterile line (A4)	Backcrossing	2009	MTS
116.	CZMS 9A Male sterile line (A4)	Backcrossing	2009	MTS
117.	CZMS 10A Male sterile line (A4)	Backcrossing	2009	MTS
118.	CZMS 11A Male sterile line (A4)	Backcrossing	2009	MTS
119.	CZMS 12A Male sterile line (A4)	Backcrossing	2009	MTS
120.	CZMS 13A Male sterile line	Backcrossing	2009	MTS
121.	CZMS 14A Male sterile line	Backcrossing	2009	MTS
122.	CZMS 15A Male sterile line (A4)	Backcrossing	2009	MTS
123.	CZMS 16A Male sterile line (A4)	Backcrossing	2009	MTS
124.	CZMS 17A	Backcrossing	2011	MTS
125.	CZMS 18A	Backcrossing	2011	MTS
126.	CZMS 19A	Backcrossing	2011	MTS
127.	CZMS 20A	Backcrossing	2011	MTS
128.	CZMS 21A	Backcrossing	2011	MTS
129.	CZMS 22A	Backcrossing	2011	MTS
130.	CZP 9603	Recurrent mass sel	1996	MTS
131.	CZP2K-1	Recurrent mass sel	2001	MTS
132.	CZP2K-3	Recurrent mass sel	2003	MTS
133.	CZP2K-9	Recurrent mass sel	2009	MTS
134.	CZP2K-11	Recurrent mass sel	2011	MTS

135.	CZP2K-3 I	Recurrent mass sel	2005	MTS
136.	CBI 801	Pedigree selection	2008	Seed store
137.	CBI 802	Pedigree selection	2008	Seed store
138.	CBI 803	Pedigree selection	2008	Seed store
139.	CBI 804	Pedigree selection	2008	Seed store
140.	CBI 805	Pedigree selection	2008	Seed store
141.	CBI 806	Pedigree selection	2008	Seed store
142.	CBI 807	Pedigree selection	2008	Seed store
143.	CBI 808	Pedigree selection	2008	Seed store
144.	CBI 809	Pedigree selection	2008	Seed store
145.	CBI 810	Pedigree selection	2008	Seed store
146.	CBI 811	Pedigree selection	2008	Seed store
147.	CBI 812	Pedigree selection	2008	Seed store
148.	CBI 813	Pedigree selection	2008	Seed store
149.	CBI 814	Pedigree selection	2008	Seed store
150.	CBI 815	Pedigree selection	2008	Seed store
151.	CBI 816	Pedigree selection	2008	Seed store
152.	CBI 818	Pedigree selection	2008	Seed store
153.	CBI 819	Pedigree selection	2008	Seed store
154.	CBI 820	Pedigree selection	2008	Seed store
155.	CBI 821	Pedigree selection	2008	Seed store
156.	CBI 822	Pedigree selection	2008	Seed store
157.	CBI 823	Pedigree selection	2008	Seed store
158.	CBI 824	Pedigree selection	2008	Seed store
159.	CBI 825	Pedigree selection	2008	Seed store
160.	CBI 826	Pedigree selection	2008	Seed store
161.	CBI 827	Pedigree selection	2008	Seed store
162.	CBI 828	Pedigree selection	2008	Seed store
163.	CBI 829	Pedigree selection	2008	Seed store
164.	CBI 830	Pedigree selection	2008	Seed store
165.	CBI 831	Pedigree selection	2008	Seed store
166.	CBI 832	Pedigree selection	2008	Seed store
167.	CBI 833	Pedigree selection	2008	Seed store
168.	CBI 834	Pedigree selection	2008	Seed store
169.	CBI 835	Pedigree selection	2008	Seed store
170.	CBI 836	Pedigree selection	2008	Seed store
171.	CBI 837	Pedigree selection	2008	Seed store
172.	CBI 838	Pedigree selection	2008	Seed store
173.	CBI 839	Pedigree selection	2008	Seed store
174.	CBI 840	Pedigree selection	2008	Seed store
175.	CBI 841	Pedigree selection	2008	Seed store
176.	CBI 842	Pedigree selection	2008	Seed store
177.	CBI 843	Pedigree selection	2008	Seed store
178.	CBI 844	Pedigree selection	2008	Seed store
179.	CBI 845	Pedigree selection	2008	Seed store
180.	CBI 846	Pedigree selection	2008	Seed store
181.	CBI 847	Pedigree selection	2008	Seed store

182.	CBI 848	Pedigree selection	2008	Seed store
183.	CBI 849	Pedigree selection	2008	Seed store
184.	CBI 850	Pedigree selection	2008	Seed store
185.	CBI 851	Pedigree selection	2008	Seed store
186.	CBI 852	Pedigree selection	2008	Seed store
187.	CBI 853	Pedigree selection	2008	Seed store
188.	CBI 854	Pedigree selection	2008	Seed store
189.	CBI 855	Pedigree selection	2008	Seed store
190.	CBI 856	Pedigree selection	2008	Seed store
191.	CBI 857	Pedigree selection	2008	Seed store
192.	CBI 858	Pedigree selection	2008	Seed store
193.	CBI 859	Pedigree selection	2008	Seed store
194.	CBI 860	Pedigree selection	2008	Seed store
195.	CBI 861	Pedigree selection	2008	Seed store
196.	CBI 862	Pedigree selection	2008	Seed store
197.	CBI 863	Pedigree selection	2008	Seed store
198.	CBI 864	Pedigree selection	2008	Seed store
199.	CBI 865	Pedigree selection	2008	Seed store
200.	CBI 866	Pedigree selection	2008	Seed store
201.	CBI 867	Pedigree selection	2008	Seed store
202.	CBI 868	Pedigree selection	2008	Seed store
203.	CBI 869	Pedigree selection	2008	Seed store
204.	CBI 870	Pedigree selection	2008	Seed store
205.	CBI 871	Pedigree selection	2008	Seed store
206.	CBI 872	Pedigree selection	2008	Seed store
207.	CBI 873	Pedigree selection	2008	Seed store
208.	CBI 874	Pedigree selection	2008	Seed store
209.	CBI 875	Pedigree selection	2008	Seed store
210.	CBI 876	Pedigree selection	2008	Seed store
211.	CBI 877	Pedigree selection	2008	Seed store
212.	CBI 878	Pedigree selection	2008	Seed store
213.	CBI 879	Pedigree selection	2008	Seed store
214.	CBI 880	Pedigree selection	2008	Seed store
215.	CBI 881	Pedigree selection	2008	Seed store
216.	CBI 882	Pedigree selection	2008	Seed store
217.	CBI 883	Pedigree selection	2008	Seed store
218.	CBI 883	Pedigree selection	2008	Seed store
219.	CBI 884	Pedigree selection	2008	Seed store
220.	CBI 885	Pedigree selection	2008	Seed store
221.	CBI 886	Pedigree selection	2008	Seed store
222.	CBI 887	Pedigree selection	2008	Seed store
223.	CBI 888	Pedigree selection	2008	Seed store
224.	CBI 889	Pedigree selection	2008	Seed store
225.	CBI 890	Pedigree selection	2008	Seed store
226.	CBI 891	Pedigree selection	2008	Seed store
227.	CBI 892	Pedigree selection	2008	Seed store
228.	CBI 893	Pedigree selection	2008	Seed store

229.	CBI 901	Pedigree selection	2008	Seed store
230.	CBI 902	Pedigree selection	2008	Seed store
231.	CBI 903	Pedigree selection	2008	Seed store
232.	CBI 904	Pedigree selection	2008	Seed store
233.	CBI 905	Pedigree selection	2008	Seed store
234.	CBI 906	Pedigree selection	2008	Seed store
235.	CBI 907	Pedigree selection	2008	Seed store
236.	CBI 908	Pedigree selection	2008	Seed store
237.	CBI 909	Pedigree selection	2008	Seed store
238.	CBI 910	Pedigree selection	2008	Seed store
239.	CBI 911	Pedigree selection	2008	Seed store
240.	CBI 912	Pedigree selection	2008	Seed store
241.	CBI 913	Pedigree selection	2008	Seed store
242.	CBI 914	Pedigree selection	2008	Seed store
243.	CBI 915	Pedigree selection	2008	Seed store
244.	CBI 916	Pedigree selection	2008	Seed store
245.	CBI 917	Pedigree selection	2008	Seed store
246.	CBI 918	Pedigree selection	2008	Seed store
247.	CBI 919	Pedigree selection	2008	Seed store
248.	CBI 920	Pedigree selection	2008	Seed store
249.	CBI 921	Pedigree selection	2008	Seed store
250.	CBI 922	Pedigree selection	2008	Seed store
251.	CBI 923	Pedigree selection	2008	Seed store
252.	CBI 924	Pedigree selection	2008	Seed store
253.	CBI 925	Pedigree selection	2008	Seed store
254.	CBI 926	Pedigree selection	2008	Seed store
255.	CBI 927	Pedigree selection	2008	Seed store
256.	CBI 928	Pedigree selection	2008	Seed store
257.	CBI 929	Pedigree selection	2008	Seed store
258.	CBI 930	Pedigree selection	2008	Seed store
259.	CBI 931	Pedigree selection	2008	Seed store
260.	CBI 932	Pedigree selection	2008	Seed store
261.	Barmer pop	ICRISAT	2003	Seed store
262.	E Raj pop	ICRISAT	2003	Seed store
263.	W Raj pop	ICRISAT	2003	Seed store
264.	ICMA 843 Male sterile line	ICRISAT	2009	Seed store
265.	ICMA 88004 Male sterile line	ICRISAT	2009	Seed store
266.	ICMA 91444 Male sterile line	ICRISAT	2009	Seed store
267.	ICMA 92777 Male sterile line	ICRISAT	2009	Seed store
268.	ICMA 93333 Male sterile line	ICRISAT	2009	Seed store
269.	ICMA 94555 Male sterile line	ICRISAT	2009	Seed store
270.	ICMA 95111 Male sterile line	ICRISAT	2009	Seed store
271.	ICMA 95444 Male sterile line	ICRISAT	2009	Seed store
272.	ICMA 98333 Male sterile line	ICRISAT	2009	Seed store
273.	ICMA 96333 Male sterile line	ICRISAT	2009	Seed store
274.	ICMA 94222 Male sterile line	ICRISAT	2009	Seed store
275.	ICMA 97444 Male sterile line	ICRISAT	2009	Seed store

276.	ICMA 97111 Male sterile line	ICRISAT	2009	Seed store
277.	ICMA 96666 Male sterile line	ICRISAT	2009	Seed store
278.	ICMA 95555 Male sterile line	ICRISAT	2009	Seed store

MTS=Mid term Storage

Guar *(Cyamopsis tetragonoloba)*

Sr. No.	Accession/germplasm	Collection Site/ Breeding Method	Year of collection /selection	Location
1.	CAZRI 1 - 37	selection from NBPGR Germplasm	2009-2010	MTS
2.	CAZRI 1 - 48	Segregants of PNB x Suvidha	2009-2010	MTS
3.	CAZRI 1 - 48	Stabilized breeding lines from various crosses	2009-2010	MTS
4.	INGR 04037 Determinate plant type	Mutant form FS-277	2004	MTS

Mung bean (*Vigna radiate*)

S. No.	Accession/germplasm	Collection Site/ Breeding Method	Year of collection /selection	Location
1.	CAZRI 1 to 53	Mutants of K-851,S-8, RMG-267 through gamma rays	2009-2010	MTS
2.	CZMSP-2	Selection from CAZRI Germplasm	2009-2010	MTS
3.	CZMSP-4 to CZMSP-20	Selection from CAZRI Germplasm	2009-2010	MTS
4.	CZMSP-23	Selection from CAZRI Germplasm	2009-2010	MTS
5.	S-8 (C)	Selection from CAZRI Germplasm	2009-2010	MTS
6.	K-851 (C)	Selection from CAZRI Germplasm	2009-2010	MTS
7.	CZM-1	Selection from CAZRI Germplasm	2009-2010	MTS
8.	102	Selection from NATP Germplasm	2009-2010	MTS
9.	120	Selection from NATP Germplasm	2009-2010	MTS
10.	130	Selection from NATP Germplasm	2009-2010	MTS
11.	141	Selection from NATP Germplasm	2009-2010	MTS
12.	OPY-143	Selection from NATP Germplasm	2009-2010	MTS

13.	OPY-144	Selection from NATP Germplasm	2009-2010	MTS
14.	OPY-147	Selection from NATP Germplasm	2009-2010	MTS
15.	OPY-151	Selection from NATP Germplasm	2009-2010	MTS
16.	OPY-154	Selection from NATP Germplasm	2009-2010	MTS
17.	OPY-159	Selection from NATP Germplasm	2009-2010	MTS
18.	OPY-163	Selection from NATP Germplasm	2009-2010	MTS
19.	OPY-165	Selection from NATP Germplasm	2009-2010	MTS
20.	OPY-161	Selection from NATP Germplasm	2009-2010	MTS
21.	OPY-166	Selection from NATP Germplasm	2009-2010	MTS
22.	OPY-168	Selection from NATP Germplasm	2009-2010	MTS
23.	OPY-169	Selection from NATP Germplasm	2009-2010	MTS
24.	OPY-173	Selection from NATP Germplasm	2009-2010	MTS
25.	OPY-175	Selection from NATP Germplasm	2009-2010	MTS

Moth bean (*Vigna aconitifolia)*

S. No.	Accession/germplasm	Collection Site/ Breeding Method	Year of collection /selection	Location
1.	INGR 01924 Drought tolerant	Mutant of Jadia	2001	MTS
2.	INGR 04095 Single stemmed, early maturity	Mutant of RMO-40	2004	MTS
3.	IC 39631	NBPGR	2004	Seed store
4.	IC 39653	NBPGR	2004	Seed store
5.	IC 39655	NBPGR	2004	Seed store
6.	IC 39656	NBPGR	2004	Seed store
7.	IC 39657	NBPGR	2004	Seed store
8.	IC 39659	NBPGR	2004	Seed store
9.	IC 39673	NBPGR	2004	Seed store
10.	IC 39674	NBPGR	2004	Seed store
11.	IC 39675	NBPGR	2004	Seed store
12.	IC 39676	NBPGR	2004	Seed store
13.	IC 39677	NBPGR	2004	Seed store
14.	IC 39678	NBPGR	2004	Seed store

15.	IC 39680	NBPGR	2004	Seed store
16.	IC 39681	NBPGR	2004	Seed store
17.	IC 39682	NBPGR	2004	Seed store
18.	IC 39683	NBPGR	2004	Seed store
19.	IC 39684	NBPGR	2004	Seed store
20.	IC 39686	NBPGR	2004	Seed store
21.	IC 39687	NBPGR	2004	Seed store
22.	IC 39688	NBPGR	2004	Seed store
23.	IC 39690	NBPGR	2004	Seed store
24.	IC 39693	NBPGR	2004	Seed store
25.	IC 39694	NBPGR	2004	Seed store
26.	IC 39696	NBPGR	2004	Seed store
27.	IC 39698	NBPGR	2004	Seed store
28.	IC 39699	NBPGR	2004	Seed store
29.	IC 39700	NBPGR	2004	Seed store
30.	IC 39701	NBPGR	2004	Seed store
31.	IC 39703	NBPGR	2004	Seed store
32.	IC 39704	NBPGR	2004	Seed store
33.	IC 39705	NBPGR	2004	Seed store
34.	IC 39706	NBPGR	2004	Seed store
35.	IC 39707	NBPGR	2004	Seed store
36.	IC 39708	NBPGR	2004	Seed store
37.	IC 39709	NBPGR	2004	Seed store
38.	IC 39710	NBPGR	2004	Seed store
39.	IC 39711	NBPGR	2004	Seed store
40.	IC 39715	NBPGR	2004	Seed store
41.	IC 39716	NBPGR	2004	Seed store
42.	IC 39717	NBPGR	2004	Seed store
43.	IC 39718	NBPGR	2004	Seed store
44.	IC 39719	NBPGR	2004	Seed store
45.	IC 39721	NBPGR	2004	Seed store
46.	IC 39722	NBPGR	2004	Seed store
47.	IC 39723	NBPGR	2004	Seed store
48.	IC 39724	NBPGR	2004	Seed store
49.	IC 39725	NBPGR	2004	Seed store
50.	IC 39726	NBPGR	2004	Seed store
51.	IC 39727	NBPGR	2004	Seed store
52.	IC 39728	NBPGR	2004	Seed store
53.	IC 39729	NBPGR	2004	Seed store
54.	IC 39730	NBPGR	2004	Seed store
55.	IC 39731	NBPGR	2004	Seed store
56.	IC 39732	NBPGR	2004	Seed store
57.	IC 39733	NBPGR	2004	Seed store
58.	IC 39734	NBPGR	2004	Seed store
59.	IC 39735	NBPGR	2004	Seed store
60.	IC 39736	NBPGR	2004	Seed store
61.	IC 39738	NBPGR	2004	Seed store

62.	IC 39739	NBPGR	2004	Seed store
63.	IC 39741	NBPGR	2004	Seed store
64.	IC 39742	NBPGR	2004	Seed store
65.	IC 39743	NBPGR	2004	Seed store
66.	IC 39744	NBPGR	2004	Seed store
67.	IC 39745	NBPGR	2004	Seed store
68.	IC 39746	NBPGR	2004	Seed store
69.	IC 39747	NBPGR	2004	Seed store
70.	IC 39748	NBPGR	2004	Seed store
71.	IC 39749	NBPGR	2004	Seed store
72.	IC 39751	NBPGR	2004	Seed store
73.	IC 39752	NBPGR	2004	Seed store
74.	IC 39754	NBPGR	2004	Seed store
75.	IC 39755	NBPGR	2004	Seed store
76.	IC 39756	NBPGR	2004	Seed store
77.	IC 39757	NBPGR	2004	Seed store
78.	IC 39758	NBPGR	2004	Seed store
79.	IC 39759	NBPGR	2004	Seed store
80.	IC 39760	NBPGR	2004	Seed store
81.	IC 39763	NBPGR	2004	Seed store
82.	IC 39764	NBPGR	2004	Seed store
83.	IC 39765	NBPGR	2004	Seed store
84.	IC 39766	NBPGR	2004	Seed store
85.	IC 39767	NBPGR	2004	Seed store
86.	IC 39768	NBPGR	2004	Seed store
87.	IC 39769	NBPGR	2004	Seed store
88.	IC 39770	NBPGR	2004	Seed store
89.	IC 39771	NBPGR	2004	Seed store
90.	IC 39772	NBPGR	2004	Seed store
91.	IC 39773	NBPGR	2004	Seed store
92.	IC 39775	NBPGR	2004	Seed store
93.	IC 39776	NBPGR	2004	Seed store
94.	IC 39777	NBPGR	2004	Seed store
95.	IC 39778	NBPGR	2004	Seed store
96.	IC 39779	NBPGR	2004	Seed store
97.	IC 39780	NBPGR	2004	Seed store
98.	IC 39781	NBPGR	2004	Seed store
99.	IC 39782	NBPGR	2004	Seed store
100.	IC 39783	NBPGR	2004	Seed store
101.	IC 39784	NBPGR	2004	Seed store
102.	IC 39785	NBPGR	2004	Seed store
103.	IC 39786	NBPGR	2004	Seed store
104.	IC 39787	NBPGR	2004	Seed store
105.	IC 39788	NBPGR	2004	Seed store
106.	IC 39789	NBPGR	2004	Seed store
107.	IC 39790	NBPGR	2004	Seed store
108.	IC 39791	NBPGR	2004	Seed store

109.	IC 39792	NBPGR	2004	Seed store
110.	IC 39793	NBPGR	2004	Seed store
111.	IC 39794	NBPGR	2004	Seed store
112.	IC 39795	NBPGR	2004	Seed store
113.	IC 39796	NBPGR	2004	Seed store
114.	IC 39797	NBPGR	2004	Seed store
115.	IC 39799	NBPGR	2004	Seed store
116.	IC 39800	NBPGR	2004	Seed store
117.	IC 39801	NBPGR	2004	Seed store
118.	IC 39802	NBPGR	2004	Seed store
119.	IC 39804	NBPGR	2004	Seed store
120.	IC 39805	NBPGR	2004	Seed store
121.	IC 39806	NBPGR	2004	Seed store
122.	IC 39807	NBPGR	2004	Seed store
123.	IC 39808	NBPGR	2004	Seed store
124.	IC 39809	NBPGR	2004	Seed store
125.	IC 39811	NBPGR	2004	Seed store
126.	IC 39812	NBPGR	2004	Seed store
127.	IC 39813	NBPGR	2004	Seed store
128.	IC 39814	NBPGR	2004	Seed store
129.	IC 39815	NBPGR	2004	Seed store
130.	IC 39816	NBPGR	2004	Seed store
131.	IC 39818	NBPGR	2004	Seed store
132.	IC 39819	NBPGR	2004	Seed store
133.	IC 311396	NBPGR	2004	Seed store
134.	IC 311398	NBPGR	2004	Seed store
135.	IC 311399	NBPGR	2004	Seed store
136.	IC 311400	NBPGR	2004	Seed store
137.	IC 311412	NBPGR	2004	Seed store
138.	IC 311413	NBPGR	2004	Seed store
139.	IC 311415	NBPGR	2004	Seed store
140.	IC 311416	NBPGR	2004	Seed store
141.	IC 311423	NBPGR	2004	Seed store
142.	IC 311427	NBPGR	2004	Seed store
143.	IC 311429	NBPGR	2004	Seed store
144.	IC 311434	NBPGR	2004	Seed store
145.	IC 311435	NBPGR	2004	Seed store
146.	IC 311436	NBPGR	2004	Seed store
147.	IC 311439	NBPGR	2004	Seed store
148.	IC 311447	NBPGR	2004	Seed store
149.	IC 311448	NBPGR	2004	Seed store
150.	IC 311450	NBPGR	2004	Seed store
151.	IC 323451	NBPGR	2004	Seed store
152.	IC 323997	NBPGR	2004	Seed store
153.	IC 324006	NBPGR	2004	Seed store
154.	IC 325753	NBPGR	2004	Seed store
155.	IC 325813	NBPGR	2004	Seed store

156.	IC 325826	NBPGR	2004	Seed store
157.	IC 325849	NBPGR	2004	Seed store
158.	IC 329037	NBPGR	2004	Seed store
159.	IC 329040	NBPGR	2004	Seed store
160.	IC 329044	NBPGR	2004	Seed store
161.	IC 329051	NBPGR	2004	Seed store
162.	IC 329077	NBPGR	2004	Seed store
163.	IC 333124	NBPGR	2004	Seed store
164.	IC 333125	NBPGR	2004	Seed store
165.	IC 333139	NBPGR	2004	Seed store
166.	IC 333212	NBPGR	2004	Seed store
167.	IC 370469	NBPGR	2004	Seed store
168.	IC 370471	NBPGR	2004	Seed store
169.	IC 370476	NBPGR	2004	Seed store
170.	IC 370508	NBPGR	2004	Seed store
171.	IC 370517	NBPGR	2004	Seed store
172.	IC 370533	NBPGR	2004	Seed store
173.	IC 370546	NBPGR	2004	Seed store
174.	GK/RM-66	-	2004	Seed store
175.	KRR/AK-71	-	2004	Seed store
176.	KRR/AK-75	-	2004	Seed store
177.	KRR/AK-77	-	2004	Seed store
178.	KRR/AK-79	-	2004	Seed store
179.	KRR/AK-81	-	2004	Seed store
180.	PNB-70	-	2004	Seed store

Sewan grass (*Lasiurus sindicus*)

S. No.	Accession/ germplasm	Collection Site/ Breeding Method	Year of collection /selection	Location
1.	CAZRI 2363	Jalwali, Bikaner	2001	Field CAZRI
2.	CAZRI 2364	Kolayat, Bikaner	2003	Field CAZRI
3.	CAZRI 2365	CIAH, Bikaner	2003	Field CAZRI
4.	CAZRI 2366	CIAH, Bikaner	2003	Field CAZRI
5.	CAZRI 2367	CAZRI, Bikaner	2003	Field CAZRI
6.	CAZRI 2368	Padamsar, Bikaner	2003	Field CAZRI
7.	CAZRI 2369	Bichhwal, Bikaner	2003	Field CAZRI
8.	CAZRI 295	Local, Jodhpur	1957	Field CAZRI
9.	CAZRI 311	CRF, CAZRI, Jaisalmer	1960	Field CAZRI
10.	CAZRI 312	CRF, CAZRI, Jaisalmer	1960	Field CAZRI
11.	CAZRI 313	CRF, CAZRI, Jaisalmer	1960	Field CAZRI
12.	CAZRI 314	CRF, CAZRI, Jaisalmer	1960	Field CAZRI
13.	CAZRI 315	CRF, CAZRI, Jaisalmer	1960	Field CAZRI
14.	CAZRI 316	CRF, CAZRI, Jaisalmer	1960	Field CAZRI
15.	CAZRI 317	CRF, CAZRI, Jaisalmer	1960	Field CAZRI
16.	CAZRI 318	CRF, CAZRI, Jaisalmer	1960	Field CAZRI
17.	CAZRI 319	CRF, CAZRI, Jaisalmer	1960	Field CAZRI

18.	CAZRI 320	CRF, CAZRI, Jaisalmer	1960	Field CAZRI
19.	CAZRI 321	CRF, CAZRI, Jaisalmer	1960	Field CAZRI
20.	CAZRI 322	CRF, CAZRI, Jaisalmer	1960	Field CAZRI
21.	CAZRI 323	CRF, CAZRI, Jaisalmer	1960	Field CAZRI
22.	CAZRI 324	CRF, CAZRI, Jaisalmer	1960	Field CAZRI
23.	CAZRI 351	Mohangarh, Jaisalmer	1958	Field CAZRI
24.	CAZRI 352	Mohangarh, Jaisalmer	1958	Field CAZRI
25.	CAZRI 353	Mohangarh, Jaisalmer	1958	Field CAZRI
26.	CAZRI 354	Barmer	1960	Field CAZRI
27.	CAZRI 399	CR Farm, CAZRI, Jodhpur	-	Field CAZRI
28.	CAZRI 553	Gadra Road, Barmer	1963	Field CAZRI
29.	CAZRI 565	Mawa Area, Pokaran	1963	Field CAZRI
30.	CAZRI 1230	CAZRI, Jodhpur	1976	Field CAZRI
31.	CAZRI 1240	Shergarh, Jodhpur	-	Field CAZRI
32.	CAZRI 1242	Shergarh, Jodhpur	-	Field CAZRI
33.	CAZRI 1244	Chaba-Suwalia, Jodhpur	-	Field CAZRI
34.	CAZRI 1250	Shergarh, Jodhpur	-	Field CAZRI
35.	CAZRI 1251	Shergarh, Setrawa, Jodhpur	-	Field CAZRI
36.	CAZRI 1253	Khetolai, Jaisalmer	-	Field CAZRI
37.	CAZRI 10-1	-	-	Field CAZRI
38.	CAZRI 10-3	-	-	Field CAZRI
39.	CAZRI 10-4	-	-	Field CAZRI
40.	CAZRI 10-5	-	-	Field CAZRI
41.	CAZRI 10-6	-	-	Field CAZRI
42.	CAZRI 10-10	-	-	Field CAZRI
43.	CAZRI 20-1	-	-	Field CAZRI
44.	CAZRI 20-3	-	-	Field CAZRI
45.	CAZRI 20-4	-	-	Field CAZRI
46.	CAZRI 20-5	-	-	Field CAZRI
47.	CAZRI 20-9	-	-	Field CAZRI
48.	CAZRI 20-10	-	-	Field CAZRI
49.	CAZRI 20-12	-	-	Field CAZRI
50.	CAZRI 20-14	-	-	Field CAZRI
51.	CAZRI 30-1	-	-	Field CAZRI
52.	CAZRI 30-2	-	-	Field CAZRI
53.	CAZRI 30-3	-	-	Field CAZRI
54.	CAZRI 30-4	-	-	Field CAZRI
55.	CAZRI 30-5	-	-	Field CAZRI
56.	CAZRI 30-7	-	-	Field CAZRI
57.	CAZRI 40-2	-	-	Field CAZRI
58.	CAZRI 1639	-	-	Field CAZRI
59.	CAZRI 1831	Mohangarh, Jaisalmer	1988	Field CAZRI
60.	CAZRI 1846	Ramgarh, Jaisalmer	1988	Field CAZRI
61.	CAZRI 1857	Badabagh, Jaisalmer	1988	Field CAZRI
62.	CAZRI 1952	Mohangarh, Jaisalmer	1988	Field CAZRI
63.	CAZRI 2148	IC 198602	1995	Field CAZRI
64.	CAZRI 2152	IC 198606	1995	Field CAZRI

65.	CAZRI 2153	IC 198607	1995	Field CAZRI
66.	CAZRI 2156	IC 198610	1995	Field CAZRI
67.	CAZRI 2157	IC 198611	1995	Field CAZRI
68.	CAZRI 2160	IC 198614	1995	Field CAZRI
69.	CAZRI 2161	IC 198615	1995	Field CAZRI
70.	CAZRI 2167	IC 198621	1995	Field CAZRI
71.	CAZRI 2173	IC 198627	1995	Field CAZRI
72.	CAZRI 2180	IC 198634	1995	Field CAZRI
73.	CAZRI 2183	IC 198637	1995	Field CAZRI
74.	CAZRI 2184	IC 198638	1995	Field CAZRI
75.	CAZRI 2188	IC 198642	1995	Field CAZRI
76.	CAZRI 2190	IC 198644	1995	Field CAZRI
77.	CAZRI 2196	IC 198650	1995	Field CAZRI
78.	CAZRI 2202	IC 198656	1995	Field CAZRI
79.	CAZRI 2209	IC 198663	1995	Field CAZRI
80.	CAZRI 2212	IC 198666	1995	Field CAZRI
81.	CAZRI 2223	IC 198677	1995	Field CAZRI
82.	CAZRI 2228	IC 198682	1995	Field CAZRI

Anjan grass (Buffel grass) (*Cenchrus ciliaris*)

S. No.	Accession/germplasm	Collection Site/ Breeding Method	Year of collection/ selection	Location
1.	CAZRI 75	Brisbane, Australia	1957	Field CAZRI
2.	CAZRI 220	IARI, New Delhi	1958	Field CAZRI
3.	CAZRI 223	IARI, New Delhi	1958	Field CAZRI
4.	CAZRI 225	IARI, New Delhi	1958	Field CAZRI
5.	CAZRI 226	IARI, New Delhi	1958	Field CAZRI
6.	CAZRI 231	Solapur	1958	Field CAZRI
7.	CAZRI 262	IARI	1957	Field CAZRI
8.	CAZRI 277	IARI, New Delhi	1959	Field CAZRI
9.	CAZRI 287	CR Farm, CAZRI, Jodhpur	1958	Field CAZRI
10.	CAZRI 288	USA/Dehradun	1958	Field CAZRI
11.	CAZRI 303	Beriganga, Jodhpur	-	Field CAZRI
12.	CAZRI 308	Beriganga, Jodhpur	-	Field CAZRI
13.	CAZRI 325	Gadra Road, Barmer	1958	Field CAZRI
14.	CAZRI 327	Pali	1958	Field CAZRI
15.	CAZRI 350	CR, Farm, CAZRI, Jodhpur	1959	Field CAZRI
16.	CAZRI 355	Gadra Road, Barmer	1960	Field CAZRI
17.	CAZRI 356	Gadra Road, Barmer	1960	Field CAZRI
18.	CAZRI 357	Gadra Road, Barmer	1960	Field CAZRI
19.	CAZRI 358	Gadra Road, Barmer	1960	Field CAZRI
20.	CAZRI 359	Gadra Road, Barmer	1960	Field CAZRI
21.	CAZRI 360	Gadra Road, Barmer	1960	Field CAZRI
22.	CAZRI 362	Gadra Road, Barmer	1960	Field CAZRI
23.	CAZRI 388	CR Farm, CAZRI, Jodhpur	1961	Field CAZRI
24.	CAZRI 392	CR Farm, CAZRI, Jodhpur	1961	Field CAZRI

25.	CAZRI 393	Australia	1961	Field CAZRI
26.	CAZRI 400	-	-	Field CAZRI
27.	CAZRI 401	-	-	Field CAZRI
28.	CAZRI 402	-	-	Field CAZRI
29.	CAZRI 421	Barmer	1961	Field CAZRI
30.	CAZRI 426	Gadra Road, Barmer	-	Field CAZRI
31.	CAZRI 427	-	-	Field CAZRI
32.	CAZRI 428	-	-	Field CAZRI
33.	CAZRI 429	-	-	Field CAZRI
34.	CAZRI 505	CSIRO, Australia	-	Field CAZRI
35.	CAZRI 506	CSIRO, Australia	-	Field CAZRI
36.	CAZRI 507	CSIRO, Australia	-	Field CAZRI
37.	CAZRI 531	IARI, New Delhi	1963	Field CAZRI
38.	CAZRI 541	Harianghata, W.B.	-	Field CAZRI
39.	CAZRI 551	Gadra Road, Barmer	1963	Field CAZRI
40.	CAZRI 552	Gadra Road, Barmer	1963	Field CAZRI
41.	CAZRI 571	Chandan, Jaisalmer	1963	Field CAZRI
42.	CAZRI 572	Gopalpura	-	Field CAZRI
43.	CAZRI 573	Jaswantgarh	1964	Field CAZRI
44.	CAZRI 574	Mawa area, Pokaran	1963	Seed store
45.	CAZRI 576	Mawa area, Pokaran	1963	Seed store
46.	CAZRI 577	Chandan, Jaisalmer	1963	Seed store
47.	CAZRI 578	Chandan, Jaisalmer	1963	Seed store
48.	CAZRI 580	Mawa area, Pokaran	1964	Seed store
49.	CAZRI 581	Mawa area, Pokaran	-	Field CAZRI
50.	CAZRI 582	Mawa area, Pokaran	1963	Seed store
51.	CAZRI 584	Mawa area, Pokaran	1963	Seed store
52.	CAZRI 585	Pokaran area II	1963	Field CAZRI
53.	CAZRI 586	Pokran area, Road Side	1963	Seed Store
54.	CAZRI 588	-	-	Seed store
55.	CAZRI 589	-	-	Seed store
56.	CAZRI 657	Udramsar area, Bikaner	1964	Seed store
57.	CAZRI 1106	Jodhpur	1975	Seed store
58.	CAZRI 1123	Jodhpur	1975	Field CAZRI
59.	CAZRI 1263	RMSC Samdari, Barmer	-	Seed store
60.	CAZRI 1414	Jhansi	1981	Seed store
61.	CAZRI 2162	IC 198616	1995	Field CAZRI
62.	CAZRI 2163	IC 198617	1995	Field CAZRI
63.	CAZRI 2164	IC 198618	1995	Field CAZRI
64.	CAZRI 2170	IC 198624	1995	Field CAZRI
65.	CAZRI 2171	IC 198625	1995	Field CAZRI
66.	CAZRI 2172	IC 198626	1995	Field CAZRI
67.	CAZRI 2177	IC 198631	1995	Field CAZRI
68.	CAZRI 2178	IC 198632	1995	Field CAZRI
69.	CAZRI 2185	IC 198639	1995	Field CAZRI
70.	CAZRI 2186	IC 198640	1995	Field CAZRI
71.	CAZRI 2205	IC 198659	1995	Field CAZRI

72.	CAZRI 2217	IC 198671	1995	Field CAZRI
73.	CAZRI 2221	IC 198675	1995	Field CAZRI
74.	CAZRI 2224	IC 198678	1995	Field CAZRI
75.	CAZRI 2225	IC 198679	1995	Field CAZRI
76.	CAZRI 2226	IC 198680	1995	Field CAZRI
77.	CAZRI 2229	IC 198683	1995	Field CAZRI
78.	IGFRI 3108	IGFRI, Jhansi	-	Field CAZRI

Dhaman grass (Bird Wood Grass) (*Cenchrus setigerus*)

S. No.	Accession/ germplasm	Collection Site/Breeding Method	Year of collection / selection	Location
1.	CAZRI 1	IARI	-	Field CAZRI
2.	CAZRI 76	Australia	1957	Field CAZRI
3.	CAZRI 175	Beriganga, Jodhpur	1957	Field CAZRI
4.	CAZRI 296	Local	1957	Field CAZRI
5.	CAZRI 348	Gadra Road, Barmer	1958	Field CAZRI
6.	CAZRI 403	-	-	Field CAZRI
7.	CAZRI 404	-	-	Field CAZRI
8.	CAZRI 410	-	-	Field CAZRI
9.	CAZRI 411	-	-	Field CAZRI
10.	CAZRI 412	Pali Area	1961	Field CAZRI
11.	CAZRI 413	Pali Area	1961	Field CAZRI
12.	CAZRI 414	Pali Area	1961	Field CAZRI
13.	CAZRI 415	Pali Area	1961	Field CAZRI
14.	CAZRI 416	Pali Area	1961	Field CAZRI
15.	CAZRI 417	Pali Area	1961	Field CAZRI
16.	CAZRI 418	Pali Area	1961	Field CAZRI
17.	CAZRI 419	Pali Area	1961	Field CAZRI
18.	CAZRI 420	Pali Area	1961	Field CAZRI
19.	CAZRI 550	Barmer	1963	Field CAZRI
20.	CAZRI 569	Gopalpura	1964	Field CAZRI
21.	CAZRI 1187	Ecology Section, CAZRI, Jodhpur	1975	Field CAZRI
22.	CAZRI 1188	Ecology Section, CAZRI, Jodhpur	1975	Field CAZRI
23.	CAZRI 1189	Ecology Section, CAZRI, Jodhpur	1975	Field CAZRI
24.	CAZRI 1190	Ecology Section, CAZRI, Jodhpur	1975	Field CAZRI
25.	CAZRI 1191	Ecology Section, CAZRI, Jodhpur	1975	Field CAZRI
26.	CAZRI 1192	Ecology Section, CAZRI, Jodhpur	1975	Field CAZRI
27.	CAZRI 1193	Ecology Section, CAZRI, Jodhpur	1975	Field CAZRI
28.	CAZRI 1194	Ecology Section, CAZRI, Jodhpur	1975	Field CAZRI
29.	CAZRI 1195	Ecology Section, CAZRI, Jodhpur	1975	Field CAZRI
30.	CAZRI 1196	Ecology Section, CAZRI, Jodhpur	1975	Field CAZRI
31.	CAZRI 1197	Ecology Section, CAZRI, Jodhpur	1975	Field CAZRI
32.	CAZRI 1198	Ecology Section, CAZRI, Jodhpur	1975	Field CAZRI
33.	CAZRI 1199	Ecology Section, CAZRI, Jodhpur	1975	Field CAZRI
34.	CAZRI 1200	Ecology Section, CAZRI, Jodhpur	1975	Field CAZRI
35.	CAZRI 1201	Ecology Section, CAZRI, Jodhpur	1975	Field CAZRI

36.	CAZRI 1202	Ecology Section, CAZRI, Jodhpur	1975	Field CAZRI
37.	CAZRI 1203	Ecology Section, CAZRI, Jodhpur	1975	Field CAZRI
38.	CAZRI 1204	Ecology Section, CAZRI, Jodhpur	1975	Field CAZRI
39.	CAZRI 1205	Ecology Section, CAZRI, Jodhpur	1975	Field CAZRI
40.	CAZRI 1207	Ecology Section, CAZRI, Jodhpur	1975	Field CAZRI
41.	CAZRI 1281	Hisar	1977	Field CAZRI

Burda (*Cymbopogon jwarancusa*)

S. No.	Accession/germplasm	Collection Site/ Breeding Method	Year of collection / selection	Location
1.	CAZRI 396	Sardarshahar, Churu	1961	Field CAZRI
2.	CAZRI 397	Beriganga, Jodhpur	1961	Field CAZRI
3.	CAZRI 608	-	-	Field CAZRI
4.	CAZRI 609	-	-	Field CAZRI
5.	CAZRI 610	-	-	Field CAZRI
6.	CAZRI 828	Beechwal, Bikaner	1968	Field CAZRI
7.	CAZRI 829	Sojat, Pali	1968	Field CAZRI
8.	CAZRI 830	Maulasar Area	1968	Field CAZRI
9.	CAZRI 831	Sridungargarh	1968	Field CAZRI

Gramna (Blue Panic) (*Panicum antidotale*)

S. No.	Accession/ germplasm	Collection Site/ Breeding Method	Year of collection / selection	Location
1.	CAZRI 28	IARI	-	Field CAZRI
2.	CAZRI 29	IARI	-	Field CAZRI
3.	CAZRI 237	Solapur	1958	Field CAZRI
4.	CAZRI 297	Local, Jodhpur	1957	Field CAZRI
5.	CAZRI 328	Pali	1958	Field CAZRI
6.	CAZRI 329	Pali	1958	Field CAZRI
7.	CAZRI 330	Pali	1958	Field CAZRI
8.	CAZRI 331	Pali	1958	Field CAZRI
9.	CAZRI 332	Pali	1958	Field CAZRI
10.	CAZRI 333	Pali	1958	Field CAZRI
11.	CAZRI 335	Pali	1958	Field CAZRI
12.	CAZRI 336	Pali	1958	Field CAZRI
13.	CAZRI 337	Pali	1958	Field CAZRI
14.	CAZRI 339	Pali	1958	Field CAZRI
15.	CAZRI 341	Pali	1958	Field CAZRI
16.	CAZRI 345	Pali	1958	Field CAZRI
17.	CAZRI 346	Pali	1958	Field CAZRI
18.	CAZRI 347	Pali	1958	Field CAZRI
19.	CAZRI 377	Pathankot	1961	Field CAZRI
20.	CAZRI 378	Barmer	1961	Field CAZRI
21.	CAZRI 379	Karnal	1961	Field CAZRI

22.	CAZRI 380	Jaisalmer	1961	Field CAZRI
23.	CAZRI 381	Pokaran	1961	Field CAZRI
24.	CAZRI 382	Local, Jodhpur	1961	Field CAZRI
25.	CAZRI 383	Local, Jodhpur	1961	Field CAZRI
26.	CAZRI 384	Local, Jodhpur	1961	Field CAZRI
27.	CAZRI 385	Local, Jodhpur	1961	Field CAZRI
28.	CAZRI 543	Haringhata, W.B.	1963	Field CAZRI
29.	CAZRI 615	Churu Area	1964	Field CAZRI
30.	CAZRI 616	Churu Area	1964	Field CAZRI
31.	CAZRI 617	Churu Area	1964	Field CAZRI
32.	CAZRI 618	Lawan Area, Pokaran	1963	Field CAZRI
33.	CAZRI 619	Bhiniyana, Pokaran	1963	Field CAZRI
34.	CAZRI 620	Lawan Area, Pokaran	-	Field CAZRI
35.	CAZRI 621	Lawan Area, Pokaran	-	Field CAZRI
36.	CAZRI 622	Lawan Area, Pokaran	-	Field CAZRI
37.	CAZRI 625	-	-	Field CAZRI
38.	CAZRI 626	Chandan, Jaisalmer	1963	Field CAZRI
39.	CAZRI 627	-	-	Field CAZRI
40.	CAZRI 628	Lawan Area, Pokaran	1963	Field CAZRI
41.	CAZRI 637	Gadra Nursey, Barmer	1964	Field CAZRI
42.	CAZRI 1238	Dechu, Jodhpur	-	Field CAZRI
43.	CAZRI 1239	Dechu, Jodhpur	-	Field CAZRI
44.	CAZRI 2146	IC 198600	1995	Field CAZRI
	Panicum turgidum			
1.	CAZRI 2155	IC 198609	1995	Field CAZRI

Aprajita (*Clitoria ternatea*)

S. No.	Accession/germplasm	Collection Site/ Breeding Method	Year of collection / selection	Location
1.	CAZRI 466	CSIRO, Australia	-	Seed store
2.	CAZRI 468	CSIRO, Australia	-	Field CAZRI
3.	CAZRI 752	-	-	Field CAZRI
4.	CAZRI 1428 (ILO-13)	Jhansi	1981	Field CAZRI
5.	CAZRI 1433 (7-3)	Jhansi	1981	Seed store
6.	CAZRI 1439 (8-1)	Jhansi	1981	Seed store
7.	CAZRI 1440 (1530)	Jhansi	1981	Field CAZRI
8.	CAZRI 1441 (1531)	Jhansi	1981	Field CAZRI
9.	CAZRI 1446 (IGFRI 173-1)	Jhansi	1981	Field CAZRI
10.	CAZRI 1452 (IGFRI 23-1)	Jhansi	1981	Seed store

Dolichos *(Lablab purpureus)*

S. No.	Accession/germplasm	Collection Site/ Breeding Method	Year of collection /selection	Locaton
11.	CAZRI 1258	IARI	-	Field CAZRI
12.	CAZRI 1461	Jodhpur	1981	Field CAZRI
13.	CAZRI 1462	Jodhpur	1981	Field CAZRI
14.	CAZRI 40-10	-	-	Field CAZRI

Trees in Genetics & Breeding Section, Division III

S. No.	Species	Accession/ Germplasm	Collection site	Collection/ plantationYear	Location
Acacia albida					
1.	*Acacia albida*	EC 232578	Mali	1988	Field DIV-III
2.	*Acacia albida*	EC 232579	Cameroun	1988	Field DIV-III
3.	*Acacia albida*	EC 232581	Mali	1988	Field DIV-III
4.	*Acacia albida*	EC 232582	Niger	1988	Field DIV-III
5.	*Acacia albida*	EC 232583	Niger	1988	Field DIV-III
6.	*Acacia albida*	EC 232584	Senegal	1988	Field DIV-III
7.	*Acacia albida*	EC 232585	Senegal	1988	Field DIV-III
Acacia senegal					
1.	*Acacia senegal*	EC 87/7490	Niger	1988	Field DIV-III
2.	*Acacia senegal*	EC 87/7493	Mali	1988	Field DIV-III
3.	*Acacia senegal*	EC 87/7497	Mali	1988	Field DIV-III
4.	*Acacia senegal*	EC 87/7499	Mali	1988	Field DIV-III
5.	*Acacia senegal*	EC 87/7500	Senegal	1988	Field DIV-III
6.	*Acacia senegal*	-	Sudan	1988	Field DIV-III
7.	*Acacia senegal*	-	Rajasthan	1988	Field DIV-III
Acacia tortilis* sub-sp *raddiana					
1.	*Acacia tortilis* sub-sp *raddiana*	EC 86/6240	-	1988	Field DIV-III
2.	*Acacia tortilis* sub-sp *raddiana*	EC 87/7504	-	1988	Field DIV-III
3.	*Acacia tortilis* sub-sp *raddiana*	EC 87/7503	-	1988	Field DIV-III
4.	*Acacia tortilis* sub-sp *raddiana*	Jodhpur local	Jodhpur	1988	Field DIV-III
5.	*Acacia tortilis* sub-sp *raddiana*	Jodhpur local	Jodhpur	1988	Field DIV-III
Prosopis cineraria					
6.	*Prosopis cineraria*	PC 304	Nagaur	1988	NBPGR, Jodhpur
7.	*Prosopis cineraria*	PC 316	Churu	1988	NBPGR, Jodhpur
8.	*Prosopis cineraria*	PC 249	Jaisalmer	1988	NBPGR, Jodhpur
9.	*Prosopis cineraria*	PC 216	Jalore	1988	NBPGR, Jodhpur
10.	*Prosopis cineraria*	PC 264	Jodhpur	1988	NBPGR, Jodhpur

11.	*Prosopis cineraria*	PC 206	Barmer	1988	NBPGR, Jodhpur
12.	*Prosopis cineraria*	PC 274	Tonk	1988	NBPGR, Jodhpur
13.	*Prosopis cineraria*	PC 284	Jaipur	1988	NBPGR, Jodhpur
14.	*Prosopis cineraria*	PC 301	Sikar	1988	NBPGR, Jodhpur
15.	*Prosopis cineraria*	PC 297	Jhunnu	1988	NBPGR, Jodhpur
16.	*Prosopis cineraria*	PC 321	Bikaner	1988	NBPGR, Jodhpur
Salvadora oleoides					
1.	*Salvadora oleoides*	CZSO 193	Bhilwara	2003	Field DIV-III
2.	*Salvadora oleoides*	CZSO 194	Mangrol	2003	Field DIV-III
3.	*Salvadora oleoides*	CZSO 195	Didhwa	2003	Field DIV-III
4.	*Salvadora oleoides*	CZSO 196	Wav	2003	Field DIV-III
5.	*Salvadora oleoides*	CZSO 197	Gangotri	2003	Field DIV-III
6.	*Salvadora oleoides*	CZSO 198	Kukma	2003	Field DIV-III
7.	*Salvadora oleoides*	CZSO 200	Bhuj	2003	Field DIV-III
8.	*Salvadora oleoides*	CZSO 201	Nokhniya	2003	Field DIV-III
9.	*Salvadora oleoides*	CZSO 202	Loriya	2003	Field DIV-III
10.	*Salvadora oleoides*	CZSO 203	Loriya	2003	Field DIV-III
11.	*Salvadora oleoides*	CZSO 204	Loriya	2003	Field DIV-III
12.	*Salvadora oleoides*	CZSO 206	Mankua	2003	Field DIV-III
13.	*Salvadora oleoides*	CZSO 207	Bhandai	2003	Field DIV-III
14.	*Salvadora oleoides*	CZSO 208	Deshalpar Gunthali	2003	Field DIV-III
15.	*Salvadora oleoides*	CZSO 209	Koteshwar	2003	Field DIV-III
16.	*Salvadora oleoides*	CZSO 210	Kaniya Bay	2003	Field DIV-III
17.	*Salvadora oleoides*	CZSO 211	Aamradi	2003	Field DIV-III
18.	*Salvadora oleoides*	CZSO 212	Samakhiali	2003	Field DIV-III
19.	*Salvadora oleoides*	CZSO 213	Navalgarh	2003	Field DIV-III
20.	*Salvadora oleoides*	CZSO 214	Navalgarh	2003	Field DIV-III
21.	*Salvadora oleoides*	CZSO 215	Lakhtar	2003	Field DIV-III
22.	*Salvadora oleoides*	CZSO 216	Vitalgarh	2003	Field DIV-III
23.	*Salvadora oleoides*	CZSO 217	Vitalgarh	2003	Field DIV-III
24.	*Salvadora oleoides*	CZSO 218	Lilki	2003	Field DIV-III
Tecomela undulata					
25.	*Tecomela undulata*	Mogra,	TU 3	-	NBPGR, Jodhpur
26.	*Tecomela undulata*	Jodhpur	F	-	NBPGR, Jodhpur
27.	*Tecomela undulata*	Haikhla,	TU 189	-	NBPGR, Jodhpur
28.	*Tecomela undulata*	Kathari, Bar	TU 35	-	NBPGR, Jodhpur
29.	*Tecomela undulata*	Kaludi, Bar	TU 60	-	NBPGR, Jodhpur
30.	*Tecomela undulata*	Rawatsar, Bar	TU 74	-	NBPGR, Jodhpur
31.	*Tecomela undulata*	Kaludi, Bar	TU 59	-	NBPGR, Jodhpur
32.	*Tecomela undulata*	Chohtan, Bar	TU 109	-	NBPGR, Jodhpur
33.	*Tecomela undulata*	Rawatsar, Bar	TU 81	-	NBPGR, Jodhpur
34.	*Tecomela undulata*	Salonre ka tila, Bar	TU 95	-	NBPGR, Jodhpur
35.	*Tecomela undulata*	Chohtan, Bar	TU 106	-	NBPGR, Jodhpur

Henna (*Lawsonia inermis*) in Genetics & Breeding Section, Division III

S. No.	Species	Collection site	Accession/ Germplasm	Collection Plantation Year	Location
Lawsonia inermis					
1.	*Lawsonia inermis*	Amirgarh	-	2002	DIV-III
2.	*Lawsonia inermis*	Anand	-	2002	DIV-III
3.	*Lawsonia inermis*	Dhanduka	-	2002	DIV-III
4.	*Lawsonia inermis*	Khedbrahm	-	2002	DIV-III
5.	*Lawsonia inermis*	Kothara	-	2002	DIV-III
6.	*Lawsonia inermis*	Malav	-	2002	DIV-III
7.	*Lawsonia inermis*	Malpur	-	2002	DIV-III
8.	*Lawsonia inermis*	SKN Nagar	-	2002	DIV-III
9.	*Lawsonia inermis*	Sarotra	-	2002	DIV-III
10.	*Lawsonia inermis*	Sidhpur	-	2002	DIV-III
11.	*Lawsonia inermis*	Vasada	-	2002	DIV-III
12.	*Lawsonia inermis*	Ajmer	-	2002	DIV-III
13.	*Lawsonia inermis*	Bikaner	-	2002	DIV-III
14.	*Lawsonia inermis*	Jobner	-	2002	DIV-III
15.	*Lawsonia inermis*	Jodhpur	-	2002	DIV-III
16.	*Lawsonia inermis*	Jadia	-	2002	DIV-III
17.	*Lawsonia inermis*	Pali	-	2002	DIV-III
18.	*Lawsonia inermis*	Panchotiya	-	2002	DIV-III
19.	*Lawsonia inermis*	Sojat	-	2002	DIV-III
20.	*Lawsonia inermis*	Wav	-	2002	DIV-III

Trees in Silva Section, Division II

S. No.	Species	Collection site	Accession/ Germplasm	Collection Plantation Year	Location
***Acacia* species**					
1.	*Acacia albida*	Senegal	EC 01193/83	1990	Silva Section
2.	*Acacia catechu*	Chennai	-	1973	Acacia Block A,B,C
3.	*Acacia coriacea*	UK	-	1984	Acacia Block A,B,C
4.	*Acacia estrophiolata*	Australia	-	1984	Acacia Block A,B,C
5.	*Acacia giraffae*	Zimbabwe	-	1965	Acacia Block A,B,C
6.	*Acacia leucophloea*	-	-	1962	Acacia Block A,B,C
7.	*Acacia nilotica*	-	-	1989	Acacia Block A,B,C
8.	*Acacia nilotica*	-	-	1973	Acacia Block A,B,C
9.	*Acacia nilotica*	-	-	1990	Silva Section
10.	*Acacia nilotica*	Dera Ismail Khan, Pakistan	EC 1160	1985	Silva section
11.	*Acacia nilotica*	Muzaffargarh, Pakistan	EC 1171	1985	Silva section

12.	*Acacia nilotica*	Sindh, Pakistan	EC 1177	1985	Silva section
13.	*Acacia nilotica*	Gujarat, Pakistan	EC 1178	1985	Silva section
14.	*Acacia nilotica*	Hissar	EC 1081	1984	Silva section
15.	*Acacia nilotica*	Pune	EC 1083	1984	Silva section
16.	*Acacia nilotica*	Akola	EC 1084	1984	Silva section
17.	*Acacia nilotica*	Pune	EC 1070	1984	Silva section
18.	*Acacia nilotica*	Itawah	EC 1069	1984	Silva section
19.	*Acacia nilotica*	Pune	EC 1071	1984	Silva section
20.	*Acacia nilotica*	Pune	EC 1082	1984	Silva section
21.	*Acacia nilotica (Adstringens)*	Sudan	EC 01112/83	1990	Silva Section
22.	*Acacia nilotica (Tomentosa)*	Senegal	EC 01413/84	1990	Silva Section
23.	*Acacia nilotica var. cupressiformis*	Pali	-	1985	Silva section
24.	*Acacia planiforns*	-	-	1981	Acacia Block A,B,C
25.	*Acacia raddiana*	-	-	1962	Acacia Block A,B,C
26.	*Acacia raddiana*	-	-	1973	Acacia Block A,B,C
27.	*Acacia raddiana*	Senegal	EC 01040/82	1990	Silva Section
28.	*Acacia raddiana*	Senegal	EC 1040	1984	Silva section
29.	*Acacia raddiana*	Senegal	EC 1041	1984	Silva section
30.	*Acacia raddiana*	Israel	EC 1013	1984	Silva section
31.	*Acacia senegal*	-	-	1963	Acacia Block A,B,C
32.	*Acacia senegal*	-	-	1980	Acacia Block A,B,C
33.	*Acacia senegal*	Sudan	EC 01332/84	1990	Silva Section
34.	*Acacia senegal*	Senegal	EC 01385/84	1990	Silva Section
35.	*Acacia senegal*	Pakistan	EC 1172	1985	Silva section
36.	*Acacia senegal*	Pakistan	EC 1173	1985	Silva section
37.	*Acacia senegal*	Tharparkar, Pakistan	EC 1174	1985	Silva section
38.	*Acacia senegal*	Tharparkar, Pakistan	EC 1175	1985	Silva section
39.	*Acacia senegal*	Jodhpur	-	1985	Silva section
40.	*Acacia senegal*	Senegal	EC 1036	1984	Silva section
41.	*Acacia senegal*	Senegal	EC 1035	1984	Silva section
42.	*Acacia suberosa*	Australia	-	1981	Acacia Block A,B,C
43.	*Acacia suberosa*	Australia	-	1978	Acacia Block A,B,C
44.	*Acacia suberosa*	-	-	2004	Acacia Block A,B,C
45.	*Acacia tortilis*	-	-	1961	Acacia Block A,B,C
46.	*Acacia tortilis*	-	-	1973	Acacia Block A,B,C
47.	*Acacia tortilis*	Kenya	-	1981	Acacia Block A,B,C
48.	*Acacia tortilis*	Israel	-	1981	Acacia Block A,B,C
49.	*Acacia tortilis*	-	-	1981	Acacia Block A,B,C
50.	*Acacia tortilis*	Zimbabwe	-	1981	Acacia Block A,B,C
51.	*Acacia tortilis*	Israel	EC 01012/81	1990	Silva Section
52.	*Acacia tortilis (spirocarpa)*	UK	-	198	Acacia Block A,B,C

53.	*Acacia tortilis (spirocarpa)*	UK	-	1984	Acacia Block A,B,C
54.	*Acacia tortilis (Spirocarpa)*	Sudan	EC 01045/82	1990	Silva Section
55.	*Acacia tortilis (Spirocarpa)*	Yeman	EC 01509/85	1990	Silva Section
56.	*Acacia tortilis var. raddiana*	Sudan	EC 01159/83	1990	Silva Section
57.	*Acacia tortilis*	-	-	1962	Acacia Block A,B,C
***Eucalyptus* species**					
58.	*Eucalyptus papuana*	Israel	-	1964	Eucalyptus Block A,B,C, D
59.	*Eucalyptus urophylla*	-	-	1973	Eucalyptus Block A,B,C, D
60.	*Eucalyptus argillacea*	Canbara, Austraila	EC 155534	1986	Eucalyptus Block A,B,C, D
61.	*Eucalyptus argillacea*	Australia	-	1984	Eucalyptus Block A,B,C, D
62.	*Eucalyptus brevifolia*	Israel	-	1965	Eucalyptus Block A,B,C, D
63.	*Eucalyptus brevifolia*	Australia	-	1964	Eucalyptus Block A,B,C, D
64.	*Eucalyptus brevifolia*	Israel	EC 171722	1971	Eucalyptus Block A,B,C, D, Silva section
65.	*Eucalyptus brookwayi*	Central Australia	-	1962	Eucalyptus Block A,B,C, D
66.	*Eucalyptus camaldulensis*	-	-	1987	Eucalyptus Block A,B,C, D
67.	*Eucalyptus camaldulensis*	-	-	1988	Eucalyptus Block A,B,C, D
68.	*Eucalyptus camaldulensis*	Australia	EC 171720	1986	Eucalyptus Block A,B,C, D
69.	*Eucalyptus camaldulensis*	Australia		1986	Eucalyptus Block A,B,C, D
70.	*Eucalyptus camaldulensis*	Australia	EC 171723	1986	Eucalyptus Block A,B,C, D
71.	*Eucalyptus compaspe*	Australia	-	1964	Eucalyptus Block A,B,C, D
72.	*Eucalyptus coolabah*	Australia	-	1961	Eucalyptus Block A,B,C, D
73.	*Eucalyptus coolabah*	BH	-	1961	Eucalyptus Block A,B,C, D
74.	*Eucalyptus coolabah*	Australia	-	1986	Eucalyptus Block A,B,C, D
75.	*Eucalyptus cornuta*	Western Australia	-	1988	Eucalyptus Block A,B,C, D
76.	*Eucalyptus cornuta*	Australia	-	1986	Eucalyptus Block A,B,C, D
77.	*Eucalyptus ebbanoensis*	Australia	-	1964	Eucalyptus Block A,B,C, D, Silva section

78.	*Eucalyptus intertexta*	Australia	-	1961	Eucalyptus Block A,B,C, D
79.	*Eucalyptus intertexta*	Australia	-	1986	Eucalyptus Block A,B,C, D
80.	*Eucalyptus intertexta*	Australia	-	1964	Eucalyptus Block A,B,C, D
81.	*Eucalyptus microteheca*	UK	-	1965	Eucalyptus Block A,B,C, D
82.	*Eucalyptus microtheca*	Australia	-	1982	Eucalyptus Block A,B,C, D
83.	*Eucalyptus microtheca*	FRI, Dehradun	-	1967	Eucalyptus Block A,B,C, D
84.	*Eucalyptus microtheca*	Carnarvon basin, Western Australia	-	1983	Provenance trial, silva section
85.	*Eucalyptus microtheca*	Gascoyne region, Western Australia	-	1983	Provenance trial, silva section
86.	*Eucalyptus microtheca*	Murchison region, Western Australia	-	1983	Provenance trial, silva section
87.	*Eucalyptus microtheca*	Pilbara region, Western Australia	-	1983	Provenance trial, silva section
88.	*Eucalyptus microtheca*	Pilbara region, Western Australia	-	1983	Provenance trial, silva section
89.	*Eucalyptus microtheca*	Pilbara region, Western Australia	-	1983	Provenance trial, silva section
90.	*Eucalyptus microtheca*	Kimbwerley, Western Australia	-	1983	Provenance trial, silva section
91.	*Eucalyptus microtheca*	New castle, Northern Territory Australia	-	1983	Provenance trial, silva section
92.	*Eucalyptus microtheca*	Barkleys table lands, Central Australia	-	1983	Provenance trial, silva section
93.	*Eucalyptus microtheca*	Alice Springs, Australia	-	1983	Provenance trial, silva section
94.	*Eucalyptus microtheca*	Marree Oodnadatta, Southern Australia	-	1983	Provenance trial, silva section
95.	*Eucalyptus microtheca*	Mt. Queens lands, Australia	-	1983	Provenance trial, silva section

96.	*Eucalyptus microtheca*	Queens lands, Australia	-	1983	Provenance trial, silva section
97.	*Eucalyptus microtheca*	Queens lands, Australia	-	1983	Provenance trial, silva section
98.	*Eucalyptus microtheca*	Queens lands, Australia	-	1983	Provenance trial, silva section
99.	*Eucalyptus microtheca*	South West Queens lands, Australia	-	1983	Provenance trial, silva section
100.	*Eucalyptus microtheca*	Queens lands, Australia	-	1983	Provenance trial, silva section
101.	*Eucalyptus microtheca*	Queens lands, Australia	-	1983	Provenance trial, silva section
102.	*Eucalyptus microtheca*	Central Queens lands, Australia	-	1983	Provenance trial, silva section
103.	*Eucalyptus microtheca*	Queens lands, Australia	-	1983	Provenance trial, silva section
104.	*Eucalyptus microtheca*	Western Australia	-	1983	Provenance trial, silva section
105.	*Eucalyptus ochrophloia*	Australia	-	1962	Eucalyptus Block A,B,C, D
106.	*Eucalyptus oleosa*	UK	-	1961	Eucalyptus Block A,B,C, D
107.	*Eucalyptus oleosa*	UK	-	1974	Eucalyptus Block A,B,C, D
108.	*Eucalyptus pachyphylla*		-	1972	Eucalyptus Block A,B,C, D
109.	*Eucalyptus papuana*	Western Australia	-	1967	Eucalyptus Block A,B,C, D
110.	*Eucalyptus papuana*	Australia	-	1975	Eucalyptus Block A,B,C, D
111.	*Eucalyptus populnea*	Australia	-	1961	Eucalyptus Block A,B,C, D
112.	*Eucalyptus pruinosa*	Canbara, Austraila	EC 155535	1986	Eucalyptus Block A,B,C, D
113.	*Eucalyptus pruinosa*	Australia	-	1984	Eucalyptus Block A,B,C, D
114.	*Eucalyptus stricklandii*	Western Australia	-	1967	Eucalyptus Block A,B,C, D
115.	*Eucalyptus terminalis*	Australia	-	1962	Eucalyptus Block A,B,C, D
116.	*Eucalyptus terminalis*	Australia	-	1971	Eucalyptus Block A,B,C, D
117.	*Eucalyptus tessellaris*	Australia	-	1961	Eucalyptus Block A,B,C, D
118.	*Eucalyptus tessellaris*	UK	-	1973	Eucalyptus Block A,B,C, D
119.	*Eucalyptus urophylla*	Western Australia	-	1961	Eucalyptus Block A,B, C, D

***Propsopis* species**					
120.	*Propsopis liflora*	USA	-	1983	Block A, Silva section
121.	*Propsopis liflora*	Arizona, USA	-	1965	Block A, Silva section
122.	*Propsopis liflora*	NBRI, India	-	1994	Block A, Silva section
123.	*Propsopis liflora*	NBRI, India	-	1994	Block A, Silva section
124.	*Propsopis liflora*	Venezuela	-	1966	Block B, Silva Section
125.	*Propsopis liflora*	Israel	-	1979	Block C, Silva Section
126.	*Propsopis liflora*	Israel	-	1983	Block C, Silva Section
127.	*Propsopis liflora*	Israel	-	1979	Block C, Silva Section
128.	*Propsopis liflora*	Chile	-	1988	Block C, Silva Section
129.	*Propsopis liflora*	Chile	-	1988	Block C, Silva Section
130.	*Propsopis liflora*	Venezuela	-	1988	Block C, Silva Section
131.	*Propsopis liflora*	Venezuela	-	1988	Block C, Silva Section
132.	*Propsopis liflora*	Israel	-	1988	Block C, Silva Section
133.	*Propsopis liflora*	Israel	-	1988	Block C, Silva Section
134.	*Propsopis liflora*	Arizona, USA	-	1988	Block C, Silva Section
135.	*Propsopis liflora*	Arizona, USA	-	1988	Block C, Silva Section
136.	*Propsopis liflora*	Mexico	-	1988	Block C, Silva Section
137.	*Prosopis liflora*	Israel	-	1965	Block A, Silva section
138.	*Prosopis liflora*	Mexico	EC 01214/83	1990	Silva Section
139.	*Prosopis liflora comayagua*	Honduras	EC 257603	1989	Block A, Silva section
140.	*Prosopis lifora*	Darya Khan, Pakistan	EC 1235	1985	Silva section
141.	*Propsopis liflora*	Mexico	-	1988	Block C, Silva Section
142.	*Propsopis tamarugo*	Chile	-		Block A, Silva section
143.	*Propsopis alba*	Chile	EC 146235	1977	Block A, Silva section
144.	*Propsopis alba*	Brazil	EC 52640	1964	Block A, Silva section
145.	*Propsopis alba*		EC 146236	1970	Block A, Silva section
146.	*Prosopis alba*	USA	EC 146234	1983	Block A, Silva section
147.	*Prosopis alba*	Israel	-	1966	Block B, Silva Section
148.	*Prosopis alba*		-	1981	Block C, Silva Section
149.	*Prosopis alba*		-	1982	Block C, Silva Section
150.	*Prosopis alba*		-	1981	Block C, Silva Section
151.	*Prosopis alba*		-	1981	Block C, Silva Section
152.	*Prosopis alba*	Chile	-	1985	Block C, Silva Section
153.	*Prosopis albida*	Senegal	EC 1198	1985	Silva section
154.	*Prosopis chilensis*	Chile	EC 01420/84	1990	Silva Section
155.	*Prosopis chilensis*	Chile	EC 1161	1985	Silva section
156.	*Prosopis cineraria*	India	-	1962	Indegenous Block A&B
157.	*Prosopis cineraria*	India	-	1990	Silva Section
158.	*Prosopis cineraria*	Islamkot, Pakistan	EC 1179	1985	Silva section
159.	*Prosopis cineraria*	Pakistan	EC 1182	1985	Silva section

160.	*Prosopis cineraria*	Darya Khan, Pakistan	EC 1183	1985	Silva section
161.	*Prosopis flexuosa*	Chile	EC 01585/86	1990	Silva Section
162.	*Prosopis glandulosa var. torreyana*	Mexico	EC 01213/83	1990	Silva Section
163.	*Prosopis pallida*	Peru	EC 01336/84	1990	Silva Section
164.	*Prosopis pallida*	Pakistan	EC 1119	1985	Silva section
165.	*Prosopis pallida*	Latin America	EC 1122	1985	Silva section
166.	*Prosopis pallida*	Latin America	EC 1123	1985	Silva section
167.	*Prosopis pallida*	Latin America	EC 1124	1985	Silva section
168.	*Prosopis pallida*	Latin America	EC 1126	1985	Silva section
169.	*Prosopis pallida*	Peru	EC 1127	1985	Silva section
170.	*Prosopis pallida*	Peru	EC 1156	1985	Silva section
171.	*Prosopis siliquastrum*	-	-	1981	Block C, Silva Section
172.	*Prosopis siliquastrum*	-	-	1981	Block C, Silva Section
173.	*Prosopis tamarugo*	Chile	EC 01503/85	1990	Silva Section
Simmondsia chinensis					
174.	*Simmondsia chinensis*	Mexico	EC 157597	1984	Provenance trial, Silva section
175.	*Simmondsia chinensis*	Mexico	EC 159607	1984	Provenance trial, Silva section
176.	*Simmondsia chinensis*	Delhi	EC 158210	1984	Provenance trial, Silva section
177.	*Simmondsia chinensis*	Mexico	EC 33198	1984	Provenance trial, Silva section
178.	*Simmondsia chinensis*	CAZRI Jodhpur	-		Provenance trial, Silva section
179.	*Simmondsia chinensis*	-	EC 33198	1987	Provenance trial, Silva section
180.	*Simmondsia chinensis*	-	EC 33205	1987	Provenance trial, Silva section
181.	*Simmondsia chinensis*	-	EC 99691	1987	Provenance trial, Silva section
182.	*Simmondsia chinensis*	Australia	EC 124381	1987	Provenance trial, Silva section
183.	*Simmondsia chinensis*	-	L5P2 Local No. 4/86	1984	Silva Section
184.	*Simmondsia chinensis*	-	L11P43 Local No. 4/86	1984	Silva Section
185.	*Simmondsia chinensis*	-	L7P61 Local No10/86	1984	Silva Section
186.	*Simmondsia chinensis*	-	L6P46 Local No. 10/86	1984	Silva Section

Other trees and shrubs					
187.	*Tamarix articulata*	India	-	1981	Indegenous Block A&B
188.	*Tecomella undulata*	India	-	1962	Indegenous Block A&B
189.	*Wild cassia spp.*	India	IW 4689	1983	Block A, Silva section
190.	*Ziziphus nummularia*	India	-	1962	Indegenous Block A&B
191.	*Ziziphus spinachristi*	Israel	-	1962	Block A, Silva section
192.	*Ziziphus spinachristi*	USA	-	1983	Block A, Silva section
193.	*Adansonia digitata No.- 2*	Nigeria	-	1983	Block A, Silva section
194.	*Adansonia digitata*	Western, Australia	-	1969-70	Block A, Silva section
195.	*Aegle marmelos*	India	-	1963	Indegenous Block A&B
196.	*Ailanthus excelsa*	India	-	1989	Indegenous Block A&B
197.	*Albizia amara*	India	-	1962	Indegenous Block A&B
198.	*Albizia amara*	India	-	1962	Indegenous Block A&B
199.	*Anogeissus rotundifolia*	India	-	1994	Indegenous Block A&B
200.	*Atriplex repanda*	Chile	EC 01513/86	1990	Silva Section
201.	*Atypia herbert smithila*	Nicaragua	EC 257589	1989	Indegenous Block A&B
202.	*Azadirachta indica*	India	-	1962	Indegenous Block A&B
203.	*Baunia racemosa*	India	-	1962	Indegenous Block A&B
204.	*Boswellia serrata*	India	-	1974	Indegenous Block A&B
205.	*Caesalpinia coriaria*	Venezuela	-	1966	Block B, Silva Section
206.	*Caesalpinia velutina*	Guatemala	EC 257591	1989	Indegenous Block A&B
207.	*Cercis siliguestrum*	-	-	1976	Block A, Silva section
208.	*Colophospermum mopane*	Zimbabwe	-	1963	Block B, Silva Section
209.	*Combretum articulatum*	Zimbabwe	-	1963	Block B, Silva Section
210.	*Commiphora mukul*	India	-	1962	Indegenous Block A&B
211.	*Cordia gharaf*	India	-	1989	Indegenous Block A&B
212.	*Cordial gharaf*	Brazil	-	1966	Block B, Silva Section
213.	*Crescentia alata*	India	-	1990	Indegenous Block A&B
214.	*Crescentia alata*	Honduras	EC 257592	1989	Indegenous Block A&B

215.	*Dalbergia multiflora*	Chennai	-	1966	Block B, Silva Section
216.	*Flueggea suffruticosa*	India	-	1963	Indegenous Block A&B
217.	*Grewia populifolia*	India	-	1963	Indegenous Block A&B
218.	*Grewia spp.*	India	-	1990	Indegenous Block A&B
219.	*Hardwickia binata*	India	-	1962	Indegenous Block A&B
220.	*Holoptelea integrifolia*	India	-	1962	Indegenous Block A&B
221.	*Kigelia pinnata*	India	-	1972	Indegenous Block A&B
222.	*Moringa aptera*	Israel	-	1967	Block A, Silva section
223.	*Peltophorum africanum*	India	-	1975	Block A, Silva section
224.	*Salvadora oleoides*	India	-	1973	Indegenous Block A&B
225.	*Salvadora spp.*	India	-	1990	Indegenous Block A&B

Fruit crops at Horticulture Block, Division II

S. No.	Species	Accession/ genotypes/ variety	Year of collection/plantation	Location
1.	*Aegle marmelos* (Bael)	Dhara Road	1986	Hort. Block
2.	*Aegle marmelos*	Laljeet sambhipuri	1986	Hort. Block
3.	*Aegle marmelos*	Faizabadi Local	1986	Hort. Block
4.	*Aegle marmelos*	Ayodhya	1986	Hort. Block
***Carissa carandas* (Karonda)**				
1.	*Carissa carandas* (Karonda)	CAZRI-K-2000	2000	Hort. Block
2.	*Carissa carandas*	CAZRI-K-2012	2001	Hort. Block
3.	*Carissa carandas*	CAZRI-K-2011	2001	Hort. Block
4.	*Carissa carandas*	CAZRI-K-2021	2002	Hort. Block
5.	*Carissa carandas*	Pant Manohar	2002	Hort. Block
6.	*Carissa carandas*	CAZRI-K-2022	2002	Hort. Block
7.	*Carissa carandas*	CZK 2000-1 High yielding, pinkish white peel	2007	Hort. Block
8.	*Carissa carandas* (Karonda)	CZK 2001-17 High yielding, purplish green peel	2007	Hort. Block CAZRI
9.	*Carissa carandas* (Karonda)	CAZRI-K-2031	2003	Hort. Block
Citrus species				
1.	*Citrus aurantifolia* (Sour lime)	Kagzi lime	1990	Hort. Block
2.	*Citrus latifolia* (Persian lime)		2004	Hort. Block
3.	*Citrus* spp. (Kinnow)		2006	Hort. Block

***Coccinia grandis* (Kundru)**				
1.	*Coccinia grandis* (Kundru)	IIVR Sel-1	2008	Hort. Block
2.	*Coccinia grandis* (Kundru)	IIVR Sel-2	2008	Hort. Block
3.	*Coccinia grandis* (Kundru)	IIVR Sel-3	2008	Hort. Block
4.	*Coccinia grandis* (Kundru)	IIVR Sel-4	2008	Hort. Block
***Cordia myxa* (Lasoda)**				
1.	*Cordia myxa* (Lasoda)	CAZRI-G-2011	2001	Hort. Block
2.	*Cordia myxa*	CAZRI-G-2012 High Yielding	2001	Hort. Block
3.	*Cordia myxa*	CAZRI-G-2013	2001	Hort. Block
4.	*Cordia myxa*	CAZRI-G-2014	2001	Hort. Block
5.	*Cordia myxa*	CAZRI-G-2021 High Yielding	2002	Hort. Block
6.	*Cordia myxa*	CAZRI-G-2022	2002	Hort. Block
7.	*Cordia myxa*	CAZRI-G-2023	2002	Hort. Block
8.	*Cordia myxa*	CAZRI-G-2025 High Yielding	2002	Hort. Block
9.	*Cordia myxa*	CAZRI-G-2026 High Yielding	2002	Hort. Block
10.	*Cordia myxa*	CAZRI-G-2051	2005	Hort. Block
11.	*Cordia myxa*	CAZRI-G-2061	2006	Hort. Block
12.	*Cordia myxa*	CAZRI-G-2062	2006	Hort. Block
***Emblica officinalis* (Aonla)**				
1.	*Emblica officinalis* (Aonla)	Francis	1986	Hort. Block
2.	*Emblica officinalis*	Chakiaya	1986	Hort. Block
3.	*Emblica officinalis*	Banarasi	1986	Hort. Block
4.	*Emblica officinalis*	Kanchan	1986	Hort. Block
5.	*Emblica officinalis*	Krishna	1986	Hort. Block
6.	*Emblica officinalis*	NA7	1992	Hort. Block
7.	*Emblica officinalis*	NA10	2006	Hort. Block
8.	*Emblica officinalis*	Anand-2	2004	Hort. Block
***Ficus carica* (Fig)**				
1.	*Ficus carica* (Fig)	Black Ischia	2002	Hort. Block
2.	*Ficus carica*	CAZRI-F-209	2009	Hort. Block
3.	*Ficus carica*	Dinkar	2010	Hort. Block
4.	*Ficus carica*	Puna	2010	Hort. Block
5.	*Grewia subinaequalis* (Phalsa)	Local collection	1996	Hort. Block
***Opuntia ficus-indica* (Prickly pear)**				
1.	*Opuntia ficus-indica* (Prickly pear)	Clone-1270	1996	Hort. Block
2.	*Opuntia ficus-indica*	Clone 1308	1996	Hort. Block
3.	*Opuntia ficus-indica*	Clone 1271	1996	Hort. Block

4.	*Opuntia ficus-indica*	Clone 1287	1996	Hort. Block
5.	*Opuntia ficus-indica*	EC 668322	2010	Hort. Block
6.	*Opuntia ficus-indica*	EC 668323	2010	Hort. Block
7.	*Opuntia ficus-indica*	EC 668327	2010	Hort. Block
8.	*Opuntia ficus-indica*	EC 668336	2010	Hort. Block
9.	*Opuntia ficus-indica*	EC 668337	2010	Hort. Block
10.	*Opuntia ficus-indica*	EC 668339	2010	Hort. Block
11.	*Opuntia ficus-indica*	EC 668340	2010	Hort. Block
12.	*Opuntia ficus-indica*	EC668341	2010	Hort. Block
13.	*Opuntia ficus-indica*	ROSALISA	2010	Hort. Block
14.	*Opuntia ficus-indica*	IQ-26/10 Red san cono	2010	Hort. Block
15.	*Opuntia ficus-indica*	LYRIA(THORNY)	2010	Hort. Block
16.	*Opuntia ficus-indica*	IQ-26/10 ARL SPINELESS	2010	Hort. Block
17.	*Opuntia ficus-indica*	IQ-26/10 RED SAN CONO	2010	Hort. Block
18.	*Opuntia ficus-indica*	Hillitello White	2010	Hort. Block
19.	*Opuntia ficus-indica*	Cristallina (Thorny)	2010	Hort. Block
20.	*Opuntia ficus-indica*	Seedless Santamargreta balice	2010	Hort. Block
21.	*Opuntia ficus-indica*	IQ-26/10Blue hoto	2010	Hort. Block
22.	*Opuntia ficus-indica*	IQ-26/10 Allerian	2010	Hort. Block
23.	*Opuntia ficus-indica*	IQ-26/10 PLYPOLY	2010	Hort. Block
***Phoenix dactyliphera* (Date palm)**				
1.	*Phoenix dactyliphera* (Date palm)	Halawy Early, sweet in doka stage	1980	Hort. Block
2.	*Phoenix dactyliphera*	Shamran	1980	Hort. Block
3.	*Phoenix dactyliphera*	Khadrawy	1980	Hort. Block
4.	*Phoenix dactyliphera*	Barhee Sweet in doka stage	1980	Hort. Block
5.	*Phoenix dactyliphera*	Zahidi	1980	Hort. Block
6.	*Phoenix dactyliphera*	Hayani	1980	Hort. Block
7.	*Phoenix dactyliphera*	Pakistan	1980	Hort. Block
8.	*Phoenix dactyliphera*	Umshok	1980	Hort. Block
9.	*Phoenix dactyliphera*	Muscat-2 Early, sweet at Doka stage, purple colored	1980	Hort. Block
10.	*Phoenix dactyliphera*	Bikaner	1980	Hort. Block
11.	*Phoenix dactyliphera*	Nagar Hilali	1980	Hort. Block

***Psidium guajava* (Guava)**				
1.	*Psidium guajava* (Guava)	L-49	2006	Hort. Block
2.	*Psidium guajava* (Guava)	Allahabad Safeda	2006	Hort. Block
***Punica granatum* (Pomegranate)**				
1.	*Punica granatum* (Pomegranate)	Jalore Seedless Soft seeded	1981	Hort. Block
2.	*Punica granatum*	Ganesh	1986	Hort. Block
3.	*Punica granatum*	Jodhpuri Red	1985	Hort. Block
4.	*Punica granatum*	Dholka	1985	Hort. Block
5.	*Punica granatum*	G137	1986	Hort. Block
6.	*Punica granatum*	P26	1986	Hort. Block
7.	*Punica granatum*	P23	1986	Hort. Block
8.	*Punica granatum*	Basein Seedless	1986	Hort. Block
9.	*Punica granatum*	Gulsha Red	1986	Hort. Block
10.	*Punica granatum*	GKVK	1986	Hort. Block
11.	*Punica granatum*	Mridula	2005	Hort. Block
12.	*Punica granatum*	Arakta	2008	Hort. Block
13.	*Punica granatum*	Sinduri	2008	Hort. Block
***Ziziphus mauritiana* (Ber)**				
1.	*Ziziphus mauritiana*	CAZRI Gola Early	1979	Hort. Block
2.	*Ziziphus mauritiana*	Chhuhara	1978	Hort. Block
3.	*Ziziphus mauritiana*	Bagwadi	1978	Hort. Block
4.	*Zizyphus mauritiana*	Jogia	1978	Hort. Block
5.	*Zizyphus mauritiana*	Mundia	1978	Hort. Block
6.	*Zizyphus mauritiana*	Seb Med. early	1978	Hort. Block
7.	*Zizyphus mauritiana*	Dandan	1978	Hort. Block
8.	*Zizyphus mauritiana*	Thornless	1978	Hort. Block
9.	*Zizyphus mauritiana*	Banarsi Karaka	1978	Hort. Block
10.	*Zizyphus mauritiana*	Kaithli	1978	Hort. Block
11.	*Zizyphus mauritiana*	Banarasi Pebandi	1978	Hort. Block
12.	*Zizyphus mauritiana*	Aliganj	1978	Hort. Block
13.	*Zizyphus mauritiana*	Sanaur-5	1978	Hort. Block
14.	*Zizyphus mauritiana*	ZG-3	1978	Hort. Block
15.	*Zizyphus mauritiana*	Kali	1978	Hort. Block
16.	*Zizyphus mauritiana*	Katha	1978	Hort. Block
17.	*Zizyphus mauritiana*	Umran	1978	Hort. Block
18.	*Zizyphus mauritiana*	Rashmi	1978	Hort. Block
19.	*Zizyphus mauritiana*	Illaichi	1978	Hort. Block
20.	*Zizyphus mauritiana*	Gola (Early)	1978	Hort. Block
21.	*Zizyphus mauritiana*	Maharwali	1978	Hort. Block
22.	*Zizyphus mauritiana*	Tikadi Fruit fly resistant	1978	Hort. Block

23.	*Zizyphus mauritiana*	F1 (SebxKatha) Better shelf life	1983	Hort. Block
24.	*Zizyphus mauritiana*	F1 (SebxTkadi) Fruit fly resistant	*1983*	Hort. Block
25.	*Ziziphus mauritiana*	BC1, SebxTikadi Fruit fly resistant	1986	Hort. Block

Aloe vera

S. No.	Accession/ Geramplasm No.	Collection site	Year of Collection	Location
1.	10	Churu	2002	Botanical garden
2.	11	Ratangarh, Churu	2002	Botanical garden
3.	12	Shivbari, Bikaner,	2002	Botanical garden
4.	13	Sagar village-1, Bikaner	2002	Botanical garden
5.	14	Sagar-2, Bikaner	2002	Botanical garden
6.	15	Sagar, Bikaner	2002	Botanical garden
7.	16	Bikaner nokha road, Bikaner	2002	Botanical garden
8.	17	Bhinasar, Bikaner	2002	Botanical garden
9.	18	Gangashahar-1, Bikaner	2002	Botanical garden
10.	19	Gangashahar-2, Bikaner	2002	Botanical garden
11.	20	Ciah. Campus, Bikaner	2002	Botanical garden
12.	21	Ciah. Campus, Bikaner	2002	Botanical garden
13.	22	Udasar, Bikaner	2002	Botanical garden
14.	23	Udasar, Bikaner	2002	Botanical garden
15.	24	Laxmangarh, Sikar	2002	Botanical garden
16.	25	Mehlla bisaytan, Sikar	2002	Botanical garden
17.	26	Badusar bagri-1, Sikar	2002	Botanical garden
18.	27	Badusar-2, Sikar	2002	Botanical garden
19.	28	Gadisar, Jaisalmer	2003	Botanical garden
20.	29	Jaisalmer-1, Jaisalmer	2003	Botanical garden
21.	30	Jaisalmer-2,Jaisalmer	2003	Botanical garden
22.	31	Jaisalmer-3,Jaisalmer	2003	Botanical garden
23.	32	Barabagh,Jaisalmer	2003	Botanical garden
24.	33	Ramnagar,Jaisalmer	2003	Botanical garden
25.	34	Barmer college,Barmer	2003	Botanical garden
26.	35	Jasai,Barmer	2003	Botanical garden
27.	36	Nimbdi,Barmer	2003	Botanical garden
28.	37	Chohtan nursery,Barmer	2003	Botanical garden
29.	38	Alamsar,Barmer	2003	Botanical garden
30.	39	Pipar,Jodhpur	2003	Botanical garden
31.	41	Merta,Nagaur	2003	Botanical garden
32.	42	Pushkar,Ajmer	2003	Botanical garden
33.	43	Pisangan,Ajmer	2003	Botanical garden
34.	44	Mangaliyawas -1,Ajmer	2003	Botanical garden
35.	45	Mangaliyawas -2,Ajmer	2003	Botanical garden
36.	46	Beawar-1,Ajmer	2003	Botanical garden
37.	47	Beawar-2,Ajmer	2003	Botanical garden
38.	48	Bakrawas,Ajmer	2003	Botanical garden

39.	49	Masuda,Ajmer	2003	Botanical garden
40.	50	Begliawas, masuda,Ajmer	2003	Botanical garden
41.	51	Bandanwara,Ajmer	2003	Botanical garden
42.	52	Jajod, laxmangarh,Sikar	2003	Botanical garden
43.	53	Badausar-1,Sikar	2003	Botanical garden
44.	54	Badausar-2,Sikar	2003	Botanical garden
45.	55	Ganganagar-1,Ganganagar	2003	Botanical garden
46.	56	Ganganagar- 2,Ganganagar	2003	Botanical garden
47.	57	Onway abohar,Ganganagar	2003	Botanical garden
48.	58	Bhadrajun,Jalore	2004	Botanical garden
49.	59	Ahore 1,Jalore	2004	Botanical garden
50.	60	Ahore 2,Jalore	2004	Botanical garden
51.	61	Ahore-3,Jalore	2004	Botanical garden
52.	62	Safarda,Jalore	2004	Botanical garden
53.	63	Keshwana 1, Jalore	2004	Botanical garden
54.	64	Keshwana 2, Jalore	2004	Botanical garden
55.	65	Khural saila, Jalore	2004	Botanical garden
56.	66	Bhinmal, Jalore	2004	Botanical garden
57.	67	Jalore-1, Jalore	2004	Botanical garden
58.	68	Jalore-2, Jalore	2004	Botanical garden
59.	69	Harji, Jalore	2004	Botanical garden
60.	70	Khanpur, Jalore	2004	Botanical garden
61.	71	Sawidar, Jalore	2004	Botanical garden
62.	72	Joganadi, javia, Jalore	2004	Botanical garden
63.	73	Jaswant pura, Jalore	2004	Botanical garden
64.	74	Manpura, Sirohi	2004	Botanical garden
65.	75	Mt. Abu 1, Sirohi	2004	Botanical garden
66.	76	Mt. Abu 2, Sirohi	2004	Botanical garden
67.	77	Sirohi, Sirohi	2004	Botanical garden
68.	79	Sirohi, KVK, Sirohi	2004	Botanical garden
69.	80	Jayal, Nagaur	2004	Botanical garden
70.	81	Jayal kabristhan, Nagaur	2004	Botanical garden
71.	82	Sherani aabaad, Nagaur	2004	Botanical garden
72.	83	Kathanti, Nagaur	2004	Botanical garden
73.	84	Jadan, Pali	2005	Botanical garden
74.	85	Dhrl, Jamnagar	2007	Botanical garden
75.	86	Vankia, dhrl-1, Jamnagar	2007	Botanical garden
76.	87	Vankia, dhrl-2, Jamnagar	2007	Botanical garden
77.	88	Balachadi, jodiya, Jamnagar	2007	Botanical garden
78.	89	Hadiana, jodiya, Jamnagar	2007	Botanical garden
79.	90	Jodiya, Jamnagar	2007	Botanical garden
80.	91	Jodiya, cost, bandav, Jamnagar	2007	Botanical garden
81.	92	Jodiya, creek, Jamnagar	2007	Botanical garden
82.	93	Jamnagar-1, Jamnagar	2007	Botanical garden
83.	94	Rawalsar- Jamnagar-2, Jamnagar	2007	Botanical garden
84.	95	Samor, khumbaliya, Jamnagar	2008	Botanical garden
85.	96	Goinj, khumbaliya, Jamnagar	2008	Botanical garden

86.	97	Goinj, chundeshwar, Jamnagar	2008	Botanical garden
87.	98	Salaya, khumbaliya, Jamnagar	2008	Botanical garden
88.	99	Khumbaliya, Jamnagar	2008	Botanical garden
89.	100	Danta, khumbaliya, Jamnagar	2008	Botanical garden
90.	101	Vadatara,khumbaliya,Jamnagar	2008	Botanical garden
91.	102	Hadapur,khumbaliya,Jamnagar	2008	Botanical garden
92.	103	Kuranga, dwarka, Jamnagar	2008	Botanical garden
93.	104	Gorinja, dwarka-1, Jamnagar	2008	Botanical garden
94.	105	Gorinja, dwarka-2, Jamnagar	2008	Botanical garden
95.	106	Bet dwarka, okha,Jamnagar	2008	Botanical garden
96.	107	Datrana, khumbaliya-1, Jamnagar	2008	Botanical garden
97.	108	Datrana, khumbaliya-2, Jamnagar	2008	Botanical garden
98.	109	Datrana, khumbaliya-3, Jamnagar	2008	Botanical garden
99.	110	Beraja, khumbaliya, Jamnagar	2008	Botanical garden
100.	111	Nanaasota, khumbaliya, Jamnagar	2008	Botanical garden
101.	112	Moa asota, kalyanpur, Jamnagar	2008	Botanical garden
102.	113	Ran, kalyanpur, Jamnagar	2008	Botanical garden
103.	114	Limbri, kaiyanpura, Jamnagar	2008	Botanical garden
104.	115	Umrapur, Kachch	2008	Botanical garden
105.	116	Ratapur, rapar, Kachch	2008	Botanical garden
106.	117	Rapar, silari, Kachch	2008	Botanical garden
107.	119	Kanmal, rapar, Kachch	2008	Botanical garden
108.	120	Shiv lakha, bachau, Kachch	2008	Botanical garden
109.	121	Lilpar, rapar, Kachch	2008	Botanical garden
110.	122	Trabhu, rapar, Kachch	2008	Botanical garden
111.	123	Kudajampar, rapar, Kachch	2008	Botanical garden
112.	124	Kakarwa, bachau, Kachch	2008	Botanical garden
113.	125	Kunjipura, Kachch	2008	Botanical garden
114.	126	Sikrapura euro factory, Kachch	2008	Botanical garden
115.	127	Amardi, bachau, Kachch	2008	Botanical garden
116.	128	Chandrani (anjar tk), Kachch	2008	Botanical garden
117.	129	Nagor, bhuj, Kachch	2008	Botanical garden
118.	130	Kottai, bhuj, Kachch	2008	Botanical garden
119.	131	Reladi, Kachch	2008	Botanical garden
120.	132	Kukma, bhuj-1, Kachch	2008	Botanical garden
121.	133	Kukma, bhuj-2, Kachch	2008	Botanical garden
122.	134	Moti ryan, mandvi-1, Kachch	2008	Botanical garden
123.	135	Moti ryan, mandvi, Kachch	2008	Botanical garden
124.	135	Moti ryan, mandvi-2, Kachch	2008	Botanical garden
125.	1(NBPGR)	Chauhatan, Barmer	2003	Botanical garden
126.	2 (NBPGR)	Kilchhu deora, Jaipur	2003	Botanical garden
127.	3 (NBPGR)	Phulera, Jaipur	2003	Botanical garden
128.	4 (NBPGR)	Didwana, Nagaur	2003	Botanical garden
129.	5 (NBPGR)	Saran, Nagaur	2003	Botanical garden
130.	6 (NBPGR)	Jodhpur-1, Jodhpur	2003	Botanical garden
131.	7 (NBPGR)	Jodhpur-2, Jodhpur	2003	Botanical garden
132.	8 (NBPGR))	Jodhpur-3, Jodhpur	2003	Botanical garden

Guggal (*Commiphora wightii*)

S.No.	Accession/ Germplasm No.	Collection site District	Year of collection	Location
1.	1	Vadvaj Sirohi-1, Sirohi	2007	Botanical garden
2.	2	Kukma-3, Gujarat	2007	Botanical garden
3.	3	Ranitonk 2-2,Gujarat	2007	Botanical garden
4.	4	SKN-1,Gujarat	2007	Botanical garden
5.	5	SKN-2,Gujarat	2007	Botanical garden
6.	6	Survey-3,Gujarat	2007	Botanical garden
7.	7	Survey-5,Gujarat	2007	Botanical garden
8.	8	RELDI,Gujarat	2008	Botanical garden
9.	9	Sirohi,Sirohi	2009	Botanical garden
10.	10	Dholavira,Gujarat	2009	Botanical garden
11.	11	Dholavira-2,Gujarat	2009	Botanical garden
12.	12	Site-1,Gujarat	2009	Botanical garden
13.	13	Site-2,Gujarat	2009	Botanical garden
14.	14	Gujarat-10,Gujarat	2009	Botanical garden
15.	15	Gujarat-20,Gujarat	2009	Botanical garden
16.	16	Gujarat-30,Gujarat	2009	Botanical garden
17.	17	Beriganga-2,Jodhpur	2009	Botanical garden
18.	18	Beriganga-25,Jodhpur	2009	Botanical garden
19.	19	Beriganga-0,Jodhpur	2009	Botanical garden
20.	20	Beriganga-1,Jodhpur	2009	Botanical garden
21.	21	Badabag-2,Jaisalmer	2009	Botanical garden
22.	22	Tahiyat,Jaisalmer	2009	Botanical garden
23.	23	Belangri,Sirohi	2009	Botanical garden
24.	24	Jaisalmer-2,Jaisalmer	2009	Botanical garden
25.	25	Badabag-3,Jaisalmer	2009	Botanical garden
26.	26	Nakoda,Barmer	2009	Botanical garden
27.	27	Saradhana,Pali	2010	Botanical garden
28.	28	Viratra,Barmer	2010	Botanical garden
29.	29	Kiradu,Barmer	2010	Botanical garden
30.	30	Hansu,Barmer	2010	Botanical garden
31.	31	Rawatra,Barmer	2010	Botanical garden
32.	32	Kolar,Jalore	2010	Botanical garden
33.	33	Vadvaj Sirohi-1,Sirohi	2010	Botanical garden
34.	34	Kambeswar Mahdev Temple, Pali	2010	Botanical garden
35.	35	Mahakaleshwar Mahadeo Temple-Rajgarh, Ajmer	2011	Botanical garden
36.	36	Kishangarh, Ajmer	2011	Botanical garden
37.	37	India Bridge, Khawada, Bhuj	2011	Botanical garden
38.	38	Kantaliya,Pali	2010	Botanical garden
39.	39	Nana,Pali	2010	Botanical garden
40.	40	Kharada,Pali	2010	Botanical garden
41.	41	Perva,Pali	2010	Botanical garden
42.	42	Moolsagar,Jaisalmer	2010	Botanical garden
43.	43	Nahiyon ki Dhani,Barmer	2010	Botanical garden

44.	44	Akal Fossil Park,Jaisalmer	2010	Botanical garden
45.	45	Kukada,Rajsamand	2011	Botanical garden
46.	46	Ramgarh,Ajmer	2011	Botanical garden
47.	47	Shivpura,Ajmer	2011	Botanical garden
48.	48	Mangliawas,Ajmer	2011	Botanical garden
49.	49	Taragarh,Ajmer	2011	Botanical garden
50.	50	Makupura,Ajmer	2011	Botanical garden
51.	51	Tilora,Ajmer	2011	Botanical garden
52.	52	Kharkedi,Ajmer	2011	Botanical garden
53.	53	Kot,Jhunjhunun	2011	Botanical garden
54.	54	Khandela-2,Sikar	2011	Botanical garden
55.	55	Sedhara,Pali	2011	Botanical garden
56.	56	Aanjana,Rajsamand	2012	Botanical garden
57.	57	Charbhuja,Rajsamand	2012	Botanical garden
58.	58	Kuathal, Rajsamand	2012	Botanical garden

Nursery Block (Species collected from various places in India during (1975-1990)

1.	*Albezzia lebbeck*
2.	*Annona squamosa*
3.	*Bougainvellea spectabilis*
4.	*Cassia fistula*
5.	*Cordia myxa*
6.	*Delonix regia*
7.	*Eucalyptus sp.*
8.	*Hibiscus malvaviscum*
9.	*Holeoptelia integrefolia*
10.	*Manihot esculenta*
11.	*Moringa oleifera*
12.	*Morus alba*
13.	*Nerium indicum*
14.	*Nyctanthes arbortristis*
15.	*Polyalthea longifolia*
16.	*Psidium guajava*
17.	*Simarouba glauca*
18.	*Syzygium cumini*
19.	*Tabernemontana divaricata*
20.	*Bursera penicillata*
21.	*Cestrum nocturnum*
22.	*Dichrostachys cineraria*
23.	*Ficus elastica*
24.	*Guaiacum coulteri*
25.	*Mitragyna parviflora*
26.	*Plumeria acuminata*
27.	*Pseuderanthemum*
28.	*Pseuderanthemum sp.*
29.	*Rose variety*

30.	*Russelia equesetifolia*
31.	*Sanchizia nobilis*
32.	*Acacia nilotica var*
33.	*Acacia tortilis*
34.	*Aegle marmelos*
35.	*Albezia lebbeck*
36.	*Albizia amara*
37.	*Anogeissus pendula*
38.	*Anogeissus rotundifolia*
39.	*Balanites aegyptiaca*
40.	*Bauhinia racemosa*
41.	*Carissa carandus*
42.	*Cassia javanica*
43.	*Cercidium floridum*
44.	*Clerodendrum falcata*
45.	*Clerodendrum phlomoides*
46.	*Cordia myxa*
47.	*Ficus benghalensis*
48.	*Holoptelea integrifolia*
49.	*Parkinsonia aculeata*
50.	*Pithecellobium dulce*
51.	*Prosopis cineraria*
52.	*Prosopis liflora*
53.	*Simondsia chinensis*
54.	*Tamarindus indica*
55.	*Terminalia arna*
56.	*Ziziphus mauritiana*

Germplasm maintained at Desert Botanical Garden, CAZRI, Jodhpur

Plants species having economic and medicinal values collected from Western Rajasthan (1996-2010) maintained at Desert Botanical garden

S. No.	Species
1.	*Acacia senegal*
2.	*Achyranthes aspera*
3.	*Adhathoda vasica*
4.	*Aegle marmelos*
5.	*Azadirachta indica*
6.	*Balanites aegyptiaca*
7.	*Caeselpenia cristata*
8.	*Capparis decidua*
9.	*Cassia angustifolia*
10.	*Cassia auriculata*
11.	*Ficus racemosa*
12.	*Hibiscus rosa-sinensis*
13.	*Jatropha curcas*
14.	*Jatropha gossipifolia*
15.	*Lawsonia inermis*
16.	*Melia azedirachta*
17.	*Pedalium murex*
18.	*Pereskiopsis valutena*
19.	*Plumbago zeylanica*
20.	*Punica granatum*
21.	*Salvadora persica*
22.	*Sansiviera cylindrica*
23.	*Sarcostema acidum*
24.	*Sebestenia cordifolia*
25.	*Sida cordifolia*
26.	*Tecomella undulata*
27.	*Terminalia bellerica*
28.	*Tinospora cordifolia*
29.	*Tylophora indica*

Other medicinal plants

S. No.	Species
1.	*Aergyria indica*
2.	*Argemone mexicana*
3.	*Asparagus racemosus*
4.	*Barleria acanthoides*
5.	*Barleria prionitis*
6.	*Boerhaavia diffusa*
7.	*Bryophyllum sp.*
8.	*Calotropis gigantea*
9.	*Calotropis procera*
10.	*Catharanthus roseus*
11.	*Cocculus pendulus*
12.	*Crotolaria burhia*
13.	*Datura innoxia*
14.	*Datura metal*
15.	*Emblica officinalis*
16.	*Ephedra foliata*
17.	*Euphorbia hirta*
18.	*Grewia tenax*
19.	*Jasminum sambac*
20.	*Jasminum sambac*
21.	*Leptadaenia retuculata*
22.	*Maytenus emarginata*
23.	*Murraya koenigii*
24.	*Nyctanthes arbortristis*
25.	*Ocimum zeylanicum*
26.	*Pegnum harmala*
27.	*Phyllanthus amarus*
28.	*Rauvolfia tetraphylla*
29.	*Sarcostemma acidum*
30.	*Urgenia indica*
31.	*Vetiveria zizanoides*
32.	*Vitex trifolia*
33.	*Withania somnifera*

Bougainvillea varieties collected from various places in India (1975-2009)

S. No.	Species
1.	Alok
2.	Blondis
3.	Bougainvillea spectabilis
4.	Brilliant
5.	Dr R R Pal
6.	Dr Rao
7.	Elizabeth
8.	Garnet Glory
9.	Glady's Hapburm
10.	Gloriosus
11.	Golden Glow
12.	Joe
13.	Lady Hope

14.	Magnifica
15.	Mahatma Gandhi
16.	Versicolour
17.	Manohar Chandra Varigated
18.	Mary Palmer
19.	Million dollor
20.	Mrs Fraser
21.	Mrs Delux Perry
22.	Mrs Mentales
23.	Mrs R B Carrick
24.	Padmi
25.	Partha
26.	Poultoni special
27.	Profusion
28.	Purple prince
29.	Rosea fuschea
30.	Ruaraka
31.	Scarlet Glory
32.	Sensation
33.	Shubhra
34.	Turley's Special
35.	Sonnet
36.	Splender
37.	Spring Festival
38.	Summer Time
39.	Superba
40.	Thimma
41.	Mery palmer special
42.	Mrs. Butt
43.	New red
44.	Partha sarthy
45.	Scarlet 'O' Hara
46.	Scarlet queen
47.	Star
48.	Zullu queen

Succulent plants from various places in India (1975-1990)

1.	*Agave sp*
2.	*Borazicactus samaipatanus*
3.	*Cereus hexagonus*
4.	*Cereus jamacaru*
5.	*Euphorbia caducifolia*
6.	*Hylocereus undatus*
7.	*Hylocerus triangular*
8.	*Myrtilocactus geomterizans*
9.	*Opuntia cylindrica*
10.	*Opuntia dillenii*
11.	*Opuntia ficus-indica*
12.	*Opuntia fulgida*
13.	*Opuntia martolensis*
14.	*Opuntia microdasys*
15.	*Opuntia microdasys var. albespina*
16.	*Opuntia microdasys var. pallida*
17.	*Opuntia salmiana rufida*
18.	*Pereskiopsis valutena*
19.	*Sarcostema acidum*
20.	*Trichacerus pachanoi*

Ornamental plants collected from various places in India (1975-1990)

S. No.	Species
1.	*Acalypha sps*
2.	*Bambusa arundinacea*
3.	*Caselpinia pulcherima*
4.	*Croton sp.*
5.	*Dracaena sp.*
6.	*Melingtonia hortensis*
7.	*Pancratium sp.*
8.	*Peltophorum pterocarpum*
9.	*Phoenix sylvestris*
10.	*Pseudoeranthimum reticulata*
11.	*Pseudoeranthimum sp.*
12.	*Sansevieria sp.*
13.	*Thevetia peruviana*

Nursery Block (Species collected from various places in India during (1975-1990)

	Nursery Block
57.	*Albezzia lebbeck*
58.	*Annona squamosa*
59.	*Bougainvellea spectabilis*
60.	*Cassia fistula*
61.	*Cordia myxa*
62.	*Delonix regia*
63.	*Eucalyptus sp.*
64.	*Hibiscus malvaviscum*
65.	*Holeoptelia integrefolia*
66.	*Manihot esculenta*
67.	*Moringa oleifera*
68.	*Morus alba*
69.	*Nerium indicum*

70.	*Nyctanthes arbortristis*
71.	*Polyalthea longifolia*
72.	*Psidium guajava*
73.	*Simarouba glauca*
74.	*Syzygium cumini*
75.	*Tabernemontana divaricata*
76.	*Bursera penicillata*
77.	*Cestrum nocturnum*
78.	*Dichrostachys cineraria*
79.	*Ficus elastica*
80.	*Guaiacum coulteri*
81.	*Mitragyna parviflora*
82.	*Plumeria acuminata*
83.	*Pseuderanthemum*
84.	*Pseuderanthemum sp.*
85.	*Rose variety*
86.	*Russelia equesetifolia*
87.	*Sanchizia nobilis*
88.	*Acacia nilotica var*
89.	*Acacia tortilis*
90.	*Aegle marmelos*
91.	*Albezia lebbeck*

92.	*Albizia amara*
93.	*Anogeissus pendula*
94.	*Anogeissus rotundifolia*
95.	*Balanites aegyptiaca*
96.	*Bauhinia racemosa*
97.	*Carissa carandus*
98.	*Cassia javanica*
99.	*Cercidium floridum*
100.	*Clerodendrum falcata*
101.	*Clerodendrum phlomoides*
102.	*Cordia myxa*
103.	*Ficus benghalensis*
104.	*Holoptelea integrifolia*
105.	*Parkinsonia aculeata*
106.	*Pithecellobium dulce*
107.	*Prosopis cineraria*
108.	*Prosopis liflora*
109.	*Simondsia chinensis*
110.	*Tamarindus indica*
111.	*Terminalia arna*
112.	*Ziziphus mauritiana*

Germplasm at RRS, Bikaner

Trees and Shrubs

Sr. No.	Accession/ Germplasm	Collection Site	Year of collection	Location
Acacia jacquemontii				
1.	CZBAJ-1	Fattuwala (Bikaner)	2002	Field, RRS Bikaner
2.	CZBAJ-2	Fattuwala (Bikaner)	2002	Field, RRS Bikaner
3.	CZBAJ-3	Jorbeer (Bikaner)	2002	Field, RRS Bikaner
4.	CZBAJ-4	Jorbeer (Bikaner)	2002	Field, RRS Bikaner
5.	CZBAJ-5	Jorbeer (Bikaner)	2002	Field, RRS Bikaner
6.	CZBAJ-6	Jalwali (Bikaner)	2002	Field, RRS Bikaner
7.	CZBAJ-7	Jorbeer (Bikaner)	2002	Field, RRS Bikaner
8.	CZBAJ-8	Jorbeer (Bikaner)	2002	Field, RRS Bikaner
9.	CZBAJ-10	Jalwali (Bikaner)	2002	Field, RRS Bikaner
10.	CZBAJ-11	Jalwali (Bikaner)	2002	Field, RRS Bikaner
11.	CZBAJ-13	Karnisar (Bikaner)	2002	Field, RRS Bikaner
12.	CZBAJ-14	Karnisar (Bikaner)	2002	Field, RRS Bikaner
13.	CZBAJ-15	Karnisar (Bikaner)	2002	Field, RRS Bikaner
14.	CZBAJ-16	Karnisar (Bikaner)	2002	Field, RRS Bikaner
15.	CZBAJ-17	Barju (Bikaner)	2002	Field, RRS Bikaner
16.	CZBAJ-18	Barju (Bikaner)	2002	Field, RRS Bikaner
17.	CZBAJ-21	Lakhusar (Bikaner)	2002	Field, RRS Bikaner
18.	CZBAJ-22	Nursar (Bikaner)	2002	Field, RRS Bikaner
19.	CZBAJ-26	Birdhwal(Sriganganagar	2002	Field, RRS Bikaner
20.	CZBAJ-29	Birdhwal(Sriganganagar)	2002	Field, RRS Bikaner
21.	CZBAJ-30	Rayawali(Sriganganagar	2002	Field, RRS Bikaner
22.	CZBAJ-32	Suratgarh (Sriganganagar)	2002	Field, RRS Bikaner
23.	CZBAJ-33	Mokalsar(Sriganganagar)	2002	Field, RRS Bikaner
24.	CZBAJ-34	Mokalsar(Sriganganagar)	2002	Field, RRS Bikaner
25.	CZBAJ-36	Malkisarl(Sriganganagar	2002	Field, RRS Bikaner
Calligonum polygonoides				
1.	CZBCP-1	Siyasar minor (Bikaner)	2002	Field, RRS Bikaner
2.	CZBCP-3	Dundi (Bikaner)	2002	Field, RRS Bikaner
3.	CZBCP-4	Dantor (Bikaner)	2002	Field, RRS Bikaner
4.	CZBCP-5	Karmisar (Bikaner)	2002	Field, RRS Bikaner
5.	CZBCP-6	Karmisar (Bikaner)	2002	Field, RRS Bikaner
6.	CZBCP-7	Karmisar (Bikaner)	2002	Field, RRS Bikaner
7.	CZBCP-8	Karmisar (Bikaner)	2002	Field, RRS Bikaner
8.	CZBAJ-9	Beechwal (Bikaner)	2002	Field, RRS Bikaner
9.	CZBCP-11	Beechwal (Bikaner)	2002	Field, RRS Bikaner
10.	CZBCP-12	Beechwal (Bikaner)	2002	Field, RRS Bikaner
11.	CZBCP-13	Beechwal (Bikaner)	2002	Field, RRS Bikaner
12.	CZBCP-14	Norangdesar (Bikaner)	2002	Field, RRS Bikaner
13.	CZBCP-15	Norangdesar (Bikaner)	2002	Field, RRS Bikaner

14.	CZBCP-16	Norangdesar (Bikaner)	2002	Field, RRS Bikaner
15.	CZBCP-17	Sharen (Bikaner)	2002	Field, RRS Bikaner
16.	CZBCP-22	Punrasar (Bikaner	2002	Field, RRS Bikaner
17.	CZBCP-23	Punrasar (Bikaner	2002	Field, RRS Bikaner
18.	CZBCP-30	Mundsar (Bikaner)	2002	Field, RRS Bikaner
19.	CZBCP-33	KuchorAguani (Bkn)	2002	Field, RRS Bikaner
20.	CZBCP-35	Masuri-Jamsar (Bikaner)	2002	Field, RRS Bikaner
21.	CZBCP-39	Sajaldesar (Churu)	2002	Field, RRS Bikaner
22.	CZBCP-53	Dhannasar (Hanumangarh	2002	Field, RRS Bikaner
23.	CZBCP-54	Dhannasar (Hanumangarh)	2002	Field, RRS Bikaner
24.	CZBCP-55	Hardesar (Churu)	2002	Field, RRS Bikaner
25.	CZBCP-56	BadiSawai (Churu)	2002	Field, RRS Bikaner
26.	CZBCP-57	Gorabdesar (Churu)	2002	Field, RRS Bikaner
27.	CZBCP-58	Bawanwali (Bikaner)	2002	Field, RRS Bikaner
28.	CZBCP-59	Bawanwali (Bikaner)	2002	Field, RRS Bikaner
29.	CZBCP-60	Bajju (Bikaner)	2002	Field, RRS Bikaner
30.	CZBCP-61	Bajju (Bikaner)	2002	Field, RRS Bikaner
31.	CZBCP-62	RD 931 (Bikaner)	2002	Field, RRS Bikaner
32.	CZBCP-63	RD 931 (Bikaner)	2002	Field, RRS Bikaner
Haloxylon recurvum				
1.	CZBHR-1 IC558577	Suratgarh (Sriganganagar	2001	Field, RRS Bikaner
2.	CZBHR-2 IC558578	Suratgarh (Sriganganagar)	2001	Field, RRS Bikaner
3.	CZBHR-3 IC558579	Anupgarh (Sriganganagar)	2003	Field, RRS Bikaner
Haloxylon salicornicum				
1. z	CZBHS-1 IC558545	Khajuwala (Bikaner)	2001	Field, RRS Bikaner
2.	CZBHS-2 IC 558546	Khajuwala (Bikaner	2001	Field, RRS Bikaner
3.	CZBHS-3 IC 558547	Madodiggi (Bikaner)	2001	Field, RRS Bikaner
4.	CZBHS-4 IC 558548	Khajuwala-Pugal 7 km	2001	Field, RRS Bikaner
5.	CZBHS-5	Khajuwala-Pugal 3 km	2001	Field, RRS Bikaner
6.	CZBHS-6 IC 558549	Pugalout (Bikaner)	2001	Field, RRS Bikaner

7.	CZBHS-7	Pugal (Bikaner)	2001	Field, RRS Bikaner
8.	CZBHS-8	Pugal (Bikaner)	2001	Field, RRS Bikaner
9.	CZBHS-9 IC558550	Pugal (Bikaner)	2001	Field, RRS Bikaner
10.	CZBHS-10	Pugal Forest site (Bikaner)	2001	Field, RRS Bikaner
11.	CZBHS-11	Pugal Forest site (Bikaner)	2001	Field, RRS Bikaner
12.	CZBHS-12	RD 682 (Bikaner)	2001	Field, RRS Bikaner
13.	CZBHS-13 IC558551	RD 682 (Bikaner	2001	Field, RRS Bikaner
14.	CZBHS-14	RD 682 (Bikaner	2001	Field, RRS Bikaner
15.	CZBHS-15 IC558552	Karmisar(Bikaner)	2001	Field, RRS Bikaner
16.	CZBHS-16 IC558553	Fattuwala(Bikaner)	2001	Field, RRS Bikaner
17.	CZBHS-17	Fattuwala (Bikaner)	2001	Field, RRS Bikaner
18.	CZBHS-18	16 chak Fattuwala	2001	Field, RRS Bikaner
19.	CZBHS-19 IC558554	16 chak Fattuwala	2001	Field, RRS Bikaner
20.	CZBHS-20	16 chak Fattuwala	2001	Field, RRS Bikaner
21.	CZBHS-21 IC558555	Near 16 chak (Bikaner)	2001	Field, RRS Bikaner
22.	CZBHS-22	Near 16 chak(Bikaner)	2001	Field, RRS Bikaner
23.	CZBHS-23 IC558556	Fattuwala to Ranjitpura (Bikaner)	2001	Field, RRS Bikaner
24.	CZBHS-24	Fattuwala to Ranjitpura	2001	Field, RRS Bikaner
25.	CZBHS-25	Fattuwala to Ranjitpura	2001	Field, RRS Bikaner
26.	CZBHS-26	Ranjitpura–Raiwala (Bikaner)	2001	Field, RRS Bikaner
27.	CZBHS-27 IC558557	Ranjitpura -Raiwala	2001	Field, RRS Bikaner
28.	CZBHS-28	RD-12, (Bikaner)	2001	Field, RRS Bikaner
29.	CZBHS-29	RD-12, Forest area (Bikaner)	2001	Field, RRS Bikaner
30.	CZBHS-30 IC558558	RD-12, Forest area(Bikaner)	2001	Field, RRS Bikaner
31.	CZBHS-31 IC558559	Rawavala (Bikaner)	2001	Field, RRS Bikaner
32.	CZBHS-32	Thaichat (Jaisalmer)	2002	Field, RRS Bikaner
33.	CZBHS-33 IC558560	Thaichat (Jaisalmer)	2002	Field, RRS Bikaner
34.	CZBHS-34	Thaichat (Jaisalmer)	2002	Field, RRS Bikaner
35.	CZBHS-35	Thaichat (Jaisalmer)	2002	Field, RRS Bikaner
36.	CZBHS-36	Bhojka (Jaisalmer)	2002	Field, RRS Bikaner
37.	CZBHS-37 IC558561	Bkojka (Jaisalmer)	2002	Field, RRS Bikaner
38.	CZBHS-38	Bhojka (Jaisalmer)	2002	Field, RRS Bikaner
39.	CZBHS-39 IC558562	Khajuwala (Bikaner)	2002	Field, RRS Bikaner
40.	CZBHS-40 IC558563	Bhojka (Jaisalmer)	2002	Field, RRS Bikaner

41.	CZBHS-41 IC558564	Sipla (Jaisalmer)	2002	Field, RRS Bikaner
42.	CZBHS-42 IC558565	Sipla (Jaisalmer)	2002	Field, RRS Bikaner
43.	CZBHS-43	Sudasari(Jaisalmer)	2002	Field, RRS Bikaner
44.	CZBHS-44 IC558566	Sudasari (Jaisalmer)	2002	Field, RRS Bikaner
45.	CZBHS-45	Sudasari (Jaisalmer)	2002	Field, RRS Bikaner
46.	CZBHS-46 IC558567	Sam (Jaisalmer)	2002	Field, RRS Bikaner
47.	CZBHS-47 IC558568	Sam (Jaisalmer)	2002	Field, RRS Bikaner
48.	CZBHS-48	Sam (Jaisalmer)	2002	Field, RRS Bikaner
49.	CZBHS-49	Siyasar Minor (Bikaner)	2002	Field, RRS Bikaner
50.	CZBHS-50	Siyasar Minor (Bikaner)	2002	Field, RRS Bikaner
51.	CZBHS-51 IC558569	Rojri Sriganganagar	2003	Field, RRS Bikaner
52.	CZBHS-52 IC 558570	Rojri (Sriganganagar	2003	Field, RRS Bikaner
53.	CZBHS-53	Rojri (Sriganganagar	2003	Field, RRS Bikaner
54.	CZBHS-54 IC558571	Chinu (Jaisalmer)	2002	Field, RRS Bikaner
55.	CZBHS-55	Chinu (Jaisalmer)	2002	Field, RRS Bikaner
56.	CZBHS-56	Chinu (Jaisalmer)	2002	Field, RRS Bikaner
57.	CZBHS-57 IC558572	Askandra (Jaisalmer)	2002	Field, RRS Bikaner
58.	CZBHS-58	Askandra (Jaisalmer	2002	Field, RRS Bikaner
59.	CZBHS-59 IC558573	Nachna (Jaisalmer	2002	Field, RRS Bikaner
60.	CZBHS-60	Nachna (Jaisalmer	2002	Field, RRS Bikaner
61.	CZBHS-61 IC558574	Nachna (Jaisalmer	2002	Field, RRS Bikaner
62.	CZBHS-63 IC558575	Nachna (Jaisalmer	2002	Field, RRS Bikaner
63.	CZBHS-65 IC558576	Aita (Jaisalmer)	2002	Field, RRS Bikaner

Germplasm at RRS Jaisalmer

Pasture grasses

S. No.	Species	CAZRI / IC / EC Code	Location
1.	*Lasiurus sindicus*	CAZRI 30-5	In field RRS, Jaisalmer
2.	*Lasiurus sindicus*	JSM-1 Semi-erect	In field RRS Jaisalmer
3.	*Lasiurus sindicus*	JSM-2 Erect	In field RRS Jaisalmer
4.	*Lasiurus sindicus*	JSM-3, Erect	In field RRS Jaisalmer
5.	*Lasiurus sindicus*	JSM-4, Semi- erect	In field RRS Jaisalmer
6.	*Lasiurus sindicus*	JSM-5, Semi- erect	In field RRS Jaisalmer
7.	*Lasiurus sindicus*	JSM-6, Semi- erect	In field RRS Jaisalmer
8.	*Lasiurus sindicus*	JSM-7, Semi- erect	In field RRS Jaisalmer
9.	*Lasiurus sindicus*	JSM-8, Tall Erect	In field RRS Jaisalmer
10.	*Lasiurus sindicus*	JSM-9, Semi- erect	In field RRS Jaisalmer
11.	*Lasiurus sindicus*	JSM-10, Semi-erect	In field RRS Jaisalmer
12.	*Lasiurus sindicus*	Local collection	Botanical Garden, RRS, Jaisalmer
13.	*Panicum antidotale*	CAZRI 621	In field RRS Jaisalmer
14.	*Panicum antidotale*	CAZRI 617	In field RRS Jaisalmer
15.	*Panicum antidotale*	CAZRI 616	In field RRS Jaisalmer
16.	*Panicum antidotale*	CAZRI 615	In field RRS Jaisalmer
17.	*Panicum antidotale*	CAZRI 385	In field RRS Jaisalmer
18.	*Panicum antidotale*	CAZRI 380	In field RRS Jaisalmer
19.	*Panicum antidotale*	CAZRI 347	In field RRS Jaisalmer
20.	*Panicum antidotale*	CAZRI 333	In field RRS Jaisalmer
21.	*Panicum antidotale*	CAZRI 247	In field RRS Jaisalmer
22.	*Panicum antidotale*	CAZRI 28	In field RRS Jaisalmer
23.	*Panicum antidotale*	Local collection	Botanical Garden, RRS, Jaisalmer
24.	*Cenchrus ciliaris*	Local collection	Botanical Garden, RRS, Jaisalmer

Water melon (Matira) (*Citrullus lanatus* var. *lanatus)*

S. No.	CAZRI / IC / EC Code	Collection site	Year	Location
1.	IC-373555	NBPGR RRS, Jodhpur	2009	In Short term storage
2.	DRB-653	NBPGR RRS, Jodhpur	2009	In Short term storage
3.	DRB-654	NBPGR RRS, Jodhpur	2009	In Short term storage
4.	DRB-656	NBPGR RRS, Jodhpur	2009	In Short term storage
5.	DRB-659	NBPGR RRS, Jodhpur	2009	In Short term storage
6.	DRB-660	NBPGR RRS, Jodhpur	2009	In Short term storage
7.	DRB-661	NBPGR RRS, Jodhpur	2009	In Short term storage
8.	DRB-662	NBPGR RRS, Jodhpur	2009	In Short term storage
9.	DRB-663	NBPGR RRS, Jodhpur	2009	In Short term storage
10.	DRB-664	NBPGR RRS, Jodhpur	2009	In Short term storage
11.	DRB-669	NBPGR RRS, Jodhpur	2009	In Short term storage
12.	DRB-671	NBPGR RRS, Jodhpur	2009	In Short term storage
13.	DRB-673	NBPGR RRS, Jodhpur	2009	In Short term storage
14.	DRB-674	NBPGR RRS, Jodhpur	2009	In Short term storage
15.	DRB-675	NBPGR RRS, Jodhpur	2009	In Short term storage

16.	DRB-676	NBPGR RRS, Jodhpur	2009	In Short term storage
17.	DRB-677	NBPGR RRS, Jodhpur	2009	In Short term storage
18.	DRB-678	NBPGR RRS, Jodhpur	2009	In Short term storage
19.	DRB-679	NBPGR RRS, Jodhpur	2009	In Short term storage
20.	DRB-682	NBPGR RRS, Jodhpur	2009	In Short term storage
21.	DRB-684	NBPGR RRS, Jodhpur	2009	In Short term storage
22.	SKNK-711	RAU, Mandor, Ju	2009	In Short term storage
23.	SKNK-712	RAU, Mandor, Ju	2009	In Short term storage
24.	SKNK-102	RAU, Mandor, Ju	2009	In Short term storage
25.	SKNK-112	RAU, Mandor, Ju	2009	In Short term storage
26.	SKNK-136	RAU, Mandor, Ju	2009	In Short term storage
27.	SKNK-138	RAU, Mandor, Ju	2009	In Short term storage
28.	SKNK-140	RAU, Mandor, Ju	2009	In Short term storage
29.	SKNK-653	RAU, Mandor, Ju	2009	In Short term storage
30.	SKNK-665	RAU, Mandor, Ju	2009	In Short term storage
31.	SKNK-679	RAU, Mandor, Ju	2009	In Short term storage
32.	SKNK-680	RAU, Mandor, Ju	2009	In Short term storage
33.	SKNK-683	RAU, Mandor, Ju	2009	In Short term storage
34.	GK-1	RAU, Mandor, Ju	2009	In Short term storage
35.	EC-677131	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
36.	EC-677150	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
37.	EC-677151	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
38.	EC-677152	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
39.	EC-677153	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
40.	EC-677154	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
41.	EC-677155	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
42.	EC-677156	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
43.	EC-677157	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
44.	EC-677158	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
45.	EC-677159	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
46.	EC-677160	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
47.	EC-677161	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
48.	EC-677162	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi

49.	EC-677163	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
50.	EC-677164	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
51.	EC-677165	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
52.	EC-677166	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
53.	EC-677167	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
54.	EC-677168	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
55.	EC-677169	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
56.	EC-677170	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
57.	EC-677171	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
58.	EC-677172	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
59.	EC-677173	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
60.	EC-677174	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
61.	EC-677175	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
62.	EC-677176	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
63.	EC-677177	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
64.	EC-677178	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
65.	EC-677179	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
66.	EC-677180	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
67.	EC-677181	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
68.	EC-677182	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
69.	EC-677183	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
70.	EC-677184	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
71.	EC-677185	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
72.	EC-677186	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi

73.	EC-677187	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
74.	EC-677188	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
75.	EC-677189	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
76.	EC-677190	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
77.	EC-677191	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
78.	EC-677192	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
79.	EC-677193	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
80.	EC-677194	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
81.	EC-677195	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
82.	EC-677196	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
83.	EC-677197	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
84.	EC-677198	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
85.	EC-677199	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
86.	EC-677200	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
87.	EC-677201	Georgia, USA Through NBPGR	2010	Gene Bank NBPGR New Delhi
88.	LRM-151	Sikar (Rajasthan)	2010	In Short term storage
89.	LRM-152	Sikar (Rajasthan)	2010	In Short term storage
90.	LRM-153	Sikar (Rajasthan)	2010	In Short term storage
91.	LRM-154	Sikar (Rajasthan)	2010	In Short term storage
92.	LRM-155	Sikar (Rajasthan)	2010	In Short term storage
93.	LRM-156	Sikar (Rajasthan)	2010	In Short term storage
94.	LRM-157	Sikar (Rajasthan)	2010	In Short term storage
95.	LRM-158	Sikar (Rajasthan)	2010	In Short term storage
96.	LRM-159	Sikar (Rajasthan)	2010	In Short term storage
97.	LRM-160	Sikar (Rajasthan)	2010	In Short term storage
98.	LRM-161	Sikar (Rajasthan)	2010	In Short term storage
99.	LRM-162	Sikar (Rajasthan)	2010	In Short term storage
100.	LRM-164	Sikar (Rajasthan)	2010	In Short term storage
101.	LRM-165	Sikar (Rajasthan)	2010	In Short term storage
102.	LRM-166	Sikar (Rajasthan)	2010	In Short term storage
103.	LRM-167	Sikar (Rajasthan)	2010	In Short term storage
104.	LRM-168	Sikar (Rajasthan)	2010	In Short term storage
105.	LRM-169	Sikar (Rajasthan)	2010	In Short term storage
106.	LRM-170	Sikar (Rajasthan)	2010	In Short term storage

Trees

S. No.	Species	CAZRI / IC / EC Code	Collection site	Location
1.	*Acacia jaquemontii*	-	-	Field RRS, Jaisalmer
2.	*Acacia senegal*	EC 87/7490	Niger	Field, RRS Jaisalmer
3.	*Acacia senegal*	EC 87/7493	Mali	Field, RRS Jaisalmer
4.	*Acacia senegal*	EC 87/7497	Mali	Field, RRS Jaisalmer
5.	*Acacia senegal*	EC 87/7499	Mali	Field, RRS Jaisalmer
6.	*Acacia senegal*	EC 87/7500	Senegal	Field, RRS Jaisalmer
7.	*Simmondsia chinensis*	-	-	Field RRS, Jaisalmer
8.	*Tecomella undulata*	-	-	Field RRS, Jaisalmer
9.	*Albezia lebbeck*	-	-	Botanical garden, RRS Jaisalmer
10.	*Azadirachta indica*	-	-	Botanical garden, RRS Jaisalmer
11.	*Cassia angustifolia*	-	-	Field RRS, Jaisalmer
12.	*Colophospermum mopane*	-	-	Botanical garden, RRS Jaisalmer
13.	*Corchorus depressus*	-	-	Botanical garden, RRS Jaisalmer
14.	*Eucalyptus sp*	-	-	Botanical garden, RRS Jaisalmer
15.	*Leucenea leucocephala*	-	-	Botanical garden, RRS Jaisalmer
16.	*Prosopis cineraria*	-	-	Botanical garden, RRS Jaisalmer
17.	*Salvadora oleiodes*	-	-	Botanical garden, RRS Jaisalmer
18.	*A. tortilis*	-	-	Botanical garden, RRS Jaisalmer
19.	*Acacia jacmontii*	-	-	Botanical garden, RRS Jaisalmer

Shrubs

S. No.	Species	Collection site	Location MTS / DIV / FIELD
1.	*Bougainvillea*	-	Botanical garden, RRS Jaisalmer
2.	*Caparis decidua*	-	Botanical garden, RRS Jaisalmer
3.	*Cassia angustifolia*	-	Field RRS, Jaisalmer
4.	*Commiphora wightii*	Kukuma-Bhuj, Gujarat	Guggal Block, RRS, Jaisalmer
5.	*Commiphora wightii*	Bhind-Morena, Chhatisgarh	Guggal Block, RRS, Jaisalmer
6.	*Commiphora wightii*	Akal, Rajasthan	Guggal Block, RRS, Jaisalmer
7.	*Commiphora wightii*	Kali Dungar, Rajasthan	Guggal Block, RRS, Jaisalmer
8.	*Commiphora wightii*	Thaiyat, Rajasthan	Guggal Block, RRS, Jaisalmer
9.	*Commiphora wightii*	Kailana, Rajasthan	Guggal Block, RRS, Jaisalmer
10.	*Commiphora wightii*	Jaisalmer, Rajasthan	Guggal Block, RRS, Jaisalmer

11.	*Commiphora wightii* (2000-2010)	Dantiwara, Gujarat	Guggal Block, RRS, Jaisalmer
12.	*Commiphora wightii*	Mangaliawas, Rajasthan	Guggal Block, RRS, Jaisalmer
13.	*Commiphora wightii*	-	Field RRS, Jaisalmer
14.	*Corchorus depressus*	-	Botanical garden, RRS Jaisalmer
15.	*Lawsonia alba*	-	Botanical garden, RRS Jaisalmer
16.	*Ziziphus nimularia*	-	Botanical garden, RRS Jaisalmer
17.	*Ziziphus rotundifolia*	-	Botanical garden, RRS Jaisalmer
18.	*Grewia subinaequalis* (Phalsa)	Local collection (1996)	Field RRS, Jaisalmer

Fruits

S. No.	Species	Accessions/Collection site	Year	Location
***Aegle marmelos* (Bael)**				
1.	*Aegle marmelos*	Dhara Road	1986	Field RRS, Jaisalmer
2.	*Aegle marmelos*	Laljeet sambhipuri	1986	Field RRS, Jaisalmer
3.	*Aegle marmelos*	Faizabadi Local	1986	Field RRS, Jaisalmer
4.	*Aegle marmelos*	Ayodhya	1986	Field RRS, Jaisalmer
***Carissa carandas* (Karonda)**				
1.	*Carissa carandas*	CAZRI-K2000	2000	Field RRS, Jaisalmer
2.	*Carissa carandas*	CAZRI-K2011	2001	Field RRS, Jaisalmer
3.	*Carissa carandas*	CAZRI-K2012	2001	Field RRS, Jaisalmer
4.	*Carissa carandas*	CAZRI-K2021	2002	Field RRS, Jaisalmer
5.	*Carissa carandas*	Pant Manohar	2002	Field RRS, Jaisalmer
6.	*Carissa carandas*	CAZRI-K2022	2002	Field RRS, Jaisalmer
7.	*Carissa carandas*	CZK 2000-1	2007	Field RRS, Jaisalmer
8.	*Carissa carandas*	CZK 2001-17	2007	Field RRS, Jaisalmer
9.	*Carissa carandas*	CAZRI-K-2031	2003	Field RRS, Jaisalmer
Citrus aurantifolia				
1.	*Citrus aurantifolia*	Kagzi lime	1990	Field RRS, Jaisalmer
2.	*Citrus latifolia*	Persian lime	2004	Field RRS, Jaisalmer
3.	*Citrus* spp.	Kinnow	2006	Field RRS, Jaisalmer
***Cordia myxa* (Lasoda)**				
1.	*Cordia myxa*	CAZRI-G2011	2001	Field RRS, Jaisalmer
2.	*Cordia myxa*	CAZRI-G2012 High Yielding	2001	Field RRS, Jaisalmer
3.	*Cordia myxa*	CAZRI-G2013	2001	Field RRS, Jaisalmer
4.	*Cordia myxa*	CAZRI-G2014	2001	Field RRS, Jaisalmer
5.	*Cordia myxa*	CAZRI-G2021 High Yielding	2002	Field RRS, Jaisalmer
6.	*Cordia myxa*	CAZRI-G2022	2002	Field RRS, Jaisalmer
7.	*Cordia myxa*	CAZRI-G2023	2002	Field RRS, Jaisalmer

8.	*Cordia myxa*	CAZRI-G2025 High Yielding	2002	Field RRS, Jaisalmer
9.	*Cordia myxa*	CAZRI-G2026 High Yielding	2002	Field RRS, Jaisalmer
10.	*Cordia myxa*	CAZRI-G2051	2005	Field RRS, Jaisalmer
11.	*Cordia myxa*	CAZRI-G2061	2006	Field RRS, Jaisalmer
12.	*Cordia myxa*	CAZRI-G2062	2006	Field RRS, Jaisalmer
***Emblica officinalis* (Aonla)**				
1.	*Emblica officinalis*	Francis	1986	Field RRS, Jaisalmer
2.	*Emblica officinalis*	Chakiaya	1986	Field RRS, Jaisalmer
3.	*Emblica officinalis*	Banarasi	1986	Field RRS, Jaisalmer
4.	*Emblica officinalis*	Kanchan	1986	Field RRS, Jaisalmer
5.	*Emblica officinalis*	Krishna	1986	Field RRS, Jaisalmer
6.	*Emblica officinalis*	NA7	1992	Field RRS, Jaisalmer
7.	*Emblica officinalis*	NA10	2006	Field RRS, Jaisalmer
8.	*Emblica officinalis*	Anand-2	2004	Field RRS, Jaisalmer
***Ficus carica* (Fig)**				
1.	*Ficus carica*	Black Ischia	2002	Field RRS, Jaisalmer
2.	*Ficus carica*	CAZRI-F-209	2009	Field RRS, Jaisalmer
3.	*Ficus carica*	Dinkar	2010	Field RRS, Jaisalmer
4.	*Ficus carica*	Puna	2010	Field RRS, Jaisalmer
***Coccnia grandis* (Kundru)**				
1.	*Coccnia grandis*	IIVR Sel-1	2008	Field RRS, Jaisalmer
2.	*Coccnia grandis*	IIVR Sel-2	2008	Field RRS, Jaisalmer
3.	*Coccnia grandis*	IIVR Sel-3	2008	Field RRS, Jaisalmer
4.	*Coccnia grandis*	IIVR Sel-4	2008	Field RRS, Jaisalmer
***Phoenix dactylifera* (Date Palm)**				
1.	*Phoenix dactylifera*	Deglet Noor		Field RRS, Jaisalmer
2.	*Phoenix dactylifera*	Shamran		Field RRS, Jaisalmer
3.	*Phoenix dactylifera*	Barhee		Field RRS, Jaisalmer
4.	*Phoenix dactylifera*	Bayani		Field RRS, Jaisalmer
5.	*Phoenix dactylifera*	Khadrawy		Field RRS, Jaisalmer
6.	*Phoenix dactylifera*	Umshok		Field RRS, Jaisalmer
7.	*Phoenix dactylifera*	Hayani		Field RRS, Jaisalmer
8.	*Phoenix dactylifera*	Medjool		Field RRS, Jaisalmer
9.	*Phoenix dactylifera*	Migraf		Field RRS, Jaisalmer
10.	*Phoenix dactylifera*	Saidy		Field RRS, Jaisalmer
11.	*Phoenix dactylifera*	Khalash		Field RRS, Jaisalmer
12.	*Phoenix dactylifera*	Halawi		Field RRS, Jaisalmer
13.	*Phoenix dactylifera*	Muscat-2		Field RRS, Jaisalmer
14.	*Phoenix dactylifera*	Abdul rahman		Field RRS, Jaisalmer
15.	*Phoenix dactylifera*	Dayani		Field RRS, Jaisalmer
16.	*Phoenix dactyliphera*	Halawy Early, sweet in doka stage	1980	Field RRS, Jaisalmer

17.	*Phoenix dactyliphera*	Shamran	1980	Field RRS, Jaisalmer
18.	*Phoenix dactyliphera*	Khadrawy	1980	Field RRS, Jaisalmer
19.	*Phoenix dactyliphera*	Barhee Sweet in doka stage	1980	Field RRS, Jaisalmer
20.	*Phoenix dactyliphera*	Zahidi	1980	Field RRS, Jaisalmer
21.	*Phoenix dactyliphera*	Hayani	1980	Field RRS, Jaisalmer
22.	*Phoenix dactyliphera*	Pakistan	1980	Field RRS, Jaisalmer
23.	*Phoenix dactyliphera*	Umshok	1980	Field RRS, Jaisalmer
24.	*Phoenix dactyliphera*	Muscat-2 Early,sweet at Doka stage, purple colored	1980	Field RRS, Jaisalmer
25.	*Phoenix dactyliphera*	Bikaner	1980	Field RRS, Jaisalmer
26.	*Phoenix dactyliphera*	Nagar Hilali	1980	Field RRS, Jaisalmer
***Psidium guajava* (Guava)**				
1.	*Psidium guajava* (Guava)	L-49	2006	Field RRS, Jaisalmer
2.	*Psidium guajava* (Guava)	Allahabad Safeda	2006	Field RRS, Jaisalmer
***Punica granatum* (Pome granate)**				
1.	*Punica granatum*	Jalore Seedless Soft seeded	1981	Field RRS, Jaisalmer
2.	*Punica granatum*	Ganesh	1986	Field RRS, Jaisalmer
3.	*Punica granatum*	Jodhpuri Red	1985	Field RRS, Jaisalmer
4.	*Punica granatum*	Dholka	1985	Field RRS, Jaisalmer
5.	*Punica granatum*	G137	1986	Field RRS, Jaisalmer
6.	*Punica granatum* (Pome granate)	P26	1986	Field RRS, Jaisalmer
7.	*Punica granatum*	P23	1986	Field RRS, Jaisalmer
8.	*Punica granatum*	Basein Seedless	1986	Field RRS, Jaisalmer
9.	*Punica granatum*	Gulsha Red	1986	Field RRS, Jaisalmer
10.	*Punica granatum*	GKVK	1986	Field RRS, Jaisalmer
11.	*Punica granatum*	Mridula	2005	Field RRS, Jaisalmer
12.	*Punica granatum*	Arakta	2008	Field RRS, Jaisalmer
13.	*Punica granatum*	Sinduri	2008	Field RRS, Jaisalmer
***Ziziphus mauritiana* (Ber)**				
1.	*Ziziphus mauritiana*	CAZRI Gola Early	1979	Field RRS, Jaisalmer
2.	*Ziziphus mauritiana*	Chhuhara	1978	Field RRS, Jaisalmer
3.	*Ziziphus mauritiana*	Bagwadi	1978	Field RRS, Jaisalmer
4.	*Ziziphus mauritiana*	Jogia	1978	Field RRS, Jaisalmer
5.	*Ziziphus mauritiana*	Mundia	1978	Field RRS, Jaisalmer
6.	*Ziziphus mauritiana*	Seb Med. early	1978	Field RR S, Jaisalmer
7.	*Ziziphus mauritiana*	Dandan	1978	Field RR S, Jaisalmer
8.	*Ziziphus mauritiana*	Thornless	1978	Field RR S, Jaisalmer
9.	*Ziziphus mauritiana*	Banarsi Karaka	1978	Field RR S, Jaisalmer
10.	*Ziziphus mauritiana*	Kaithli	1978	Field RR S, Jaisalmer
11.	*Ziziphus mauritiana*	Banarasi Pebandi	1978	Field RR S, Jaisalmer

12.	*Ziziphus mauritiana*	Aliganj	1978	Field RR S, Jaisalmer
13.	*Ziziphus mauritiana*	Sanaur-5	1978	Field RR S, Jaisalmer
14.	*Ziziphus mauritiana*	ZG-3	1978	Field RR S, Jaisalmer
15.	*Ziziphus mauritiana*	Kali	1978	Field RR S, Jaisalmer
16.	*Ziziphus mauritiana*	Katha	1978	Field RR S, Jaisalmer
17.	*Ziziphus mauritiana*	Umran	1978	Field RR S, Jaisalmer
18.	*Ziziphus mauritiana*	Rashmi	1978	Field RR S, Jaisalmer
19.	*Ziziphus mauritiana*	Illaichi	1978	Field RR S, Jaisalmer
20.	*Ziziphus mauritiana*	Gola (Early)	1978	Field RR S, Jaisalmer
21.	*Ziziphus mauritiana*	Maharwali	1978	Field RR S, Jaisalmer
22.	*Ziziphus mauritiana* (Ber)	Tikadi Fruit fly resistant	1978	Field RR S, Jaisalmer
23.	*Ziziphus mauritiana*	F1 (SebxKatha) Better shelf life	1983	Field RR S, Jaisalmer
24.	*Ziziphus mauritiana*	F1(SebxTkadi) Fruit fly resistant	*1983*	Field RR S, Jaisalmer
25.	*Ziziphus mauritiana*	BC1 (Seb x Tikadi) Fruit fly resistant	1986	Field RR S, Jaisalmer
***Opuntia ficus-indica* (Prickly pear)**				
1.	*Opuntia ficus-indica*	Clone-1270	1996	Field RR S, Jaisalmer
2.	*Opuntia ficus-indica*	Clone 1308	1996	Field RR S, Jaisalmer
3.	*Opuntia ficus-indica*	Clone 1271	1996	Field RR S, Jaisalmer
4.	*Opuntia ficus-indica*	Clone 1287	1996	Field RR S, Jaisalmer
5.	*Opuntia ficus-indica*		2010	Field RR S, Jaisalmer
6.	*Opuntia ficus-indica*	EC 668323	2010	Field RR S, Jaisalmer
7.	*Opuntia ficus-indica*	EC 668327	2010	Field RR S, Jaisalmer
8.	*Opuntia ficus-indica*	EC 668336	2010	Field RR S, Jaisalmer
9.	*Opuntia ficus-indica*	EC 668337	2010	Field RR S, Jaisalmer
10.	*Opuntia ficus-indica*	EC 668339	2010	Field RR S, Jaisalmer
11.	*Opuntia ficus-indica*	EC 668340	2010	Field RR S, Jaisalmer
12.	*Opuntia ficus-indica*	EC668341	2010	Field RR S, Jaisalmer
13.	*Opuntia ficus-indica*	ROSALISA	2010	Field RR S, Jaisalmer
14.	*Opuntia ficus-indica*	IQ-26/10 Red san cono	2010	Field RR S, Jaisalmer
15.	*Opuntia ficus-indica*	LYRIA(Thorny)	2010	Field RR S, Jaisalmer
16.	*Opuntia ficus-indica*	IQ-26/10 ARL spineless	2010	Field RR S, Jaisalmer
17.	*Opuntia ficus-indica*	IQ-26/10 RED SAN CONO	2010	Field RR S, Jaisalmer
18.	*Opuntia ficus-indica*	Hillitello White	2010	Field RR S, Jaisalmer
19.	*Opuntia ficus-indica*	Cristallina (Thorny)	2010	Field RR S, Jaisalmer
20.	*Opuntia ficus-indica*	Seedless Santamargreta balice	2010	Field RR S, Jaisalmer
21.	*Opuntia ficus-indica*	IQ-26/10Blue hoto	2010	Field RR S, Jaisalmer
22.	*Opuntia ficus-indica*	IQ-26/10 Allerian	2010	Field RR S, Jaisalmer
23.	*Opuntia ficus-indica*	IQ-26/10 PLYPOLY	2010	Field RR S, Jaisalmer

Other species maintained

S. No.	Species	Accessions/ Collection site	Location
1.	*Agave americana*	-	Botanical garden, RRS Jaisalmer
2.	*Aloe vera* (Meetha and khara landraces) (2002-2009)	Western Rajasthan & Gujarat	Botanical garden, RRS Jaisalmer
3.	*Calotropis procera*	-	Botanical garden, RRS Jaisalmer
4.	*Citrullus colocithis*	-	Botanical garden, RRS Jaisalmer
5.	*Cocimum zeylanicum*	-	Botanical garden, RRS Jaisalmer
6.	*Opuntia dillenii*	-	Botanical garden, RRS Jaisalmer
7.	*Opuntia ficus-indica*	-	Botanical garden, RRS Jaisalmer
8.	*Pongamia pinnata*	-	Botanical garden, RRS Jaisalmer

Rare, endangered and threatened plant species

S. No.	Species	Location
1.	*Acacia jaquemontii*	RRS Jaisalmer
2.	*Barlaria acanthoide*	RRS Jaisalmer
3.	*Blepharis sindicus*	RRS Jaisalmer
4.	*Caraluma edulis*	RRS Jaisalmer
5.	*Cassia angustifolia*	RRS Jaisalmer
6.	*Cassia italica*	RRS Jaisalmer
7.	*Commiphora wightii*	RRS Jaisalmer
8.	*Cymbopogon jwarancus*	RRS Jaisalmer
9.	*Datura metal*	RRS Jaisalmer
10.	*Dipicady erythre*	RRS Jaisalmer
11.	*Glossonema varians*	RRS Jaisalmer
12.	*Simmondsia chinensis*	RRS Jaisalmer
13.	*Tecomella undulata*	RRS Jaisalmer
14.	*Tinospora cordifolia*	RRS Jaisalmer
15.	*Withania somnifera*	RRS Jaisalmer

Germplasm at RRS Pali

Henna (*Lawsonia inermis* L.)

Sr. No.	Accession/germplasm	Collection Site/	Year of collection /selection	Location
1.	S-1	Sojat, vill. Siyata	1997	Field. RRS, Pali
2.	S-2 to S6	Sojat, vill. Pachunda	1997	Field. RRS, Pali
3.	S-7 Early, high flowering, broad leaves, thornless, high leaf yield	Sojat, vill. Pachunda	1997	Field. RRS, Pali
4.	S-8 Tall, late, low flowering, broad green leaves, 2-3 leaves per node, green capsules, few secondary branches, thornless, high leaf yield	Sojat, vill. Pachunda	1997	Field. RRS, Pali
5.	S-9	Sojat, vill. Pachunda	1997	Field. RRS, Pali
6.	S-10 Tall, muraliya type secondary branching, thorny tips, small leaves, ash green leaf colour, no flowering, drought tolerant	Sojat	1997	Field. RRS, Pali
7.	S-11	Sojat	1997	Field. RRS, Pali
8.	S-12 to S14	Sojat, vill. Dadiya	1997	Field. RRS, Pali
9.	S-15 Muraliya type sec. branching, thorny tips, small leaves, ash green leaf colour, poor flowering, drought tolerant	Sojat, vill. Sewaj	1997	Field. RRS, Pali
10.	S-16 Muraliya type sec. branching, thorny tips, small leaves, ash green leaf colour, no flowering, drought tolerant	Sojat, vill. Sewaj	1997	Field. RRS, Pali
11.	S-17 to S20 Low leaf yield	Sojat, vill. Sewaj	1997	Field. RRS, Pali
12.	S-21 Broad leaves, slender stem, good flowering, thornless, high leaf yield	Sojat, vill. Bagawas	1997	Field. RRS, Pali
13.	S-22 Broad leaves, slender stem, moderate flowering, thornless, high leaf yield	Sojat, vill. Bagawas	1997	Field. RRS, Pali

Germplasm at RRS Bhuj

Aprajita *(Clitoria ternatea)*

S. No.	Accession/ Germplasm	Collection Site	Year of collection	Location
1.	CAZRI466	CAZRI, Jodhpur	2009	RRS, Bhuj
2.	CAZRI 468	CAZRI, Jodhpur	2009	RRS, Bhuj
3.	CAZRI 752	CAZRI, Jodhpur	2009	RRS, Bhuj
4.	CAZRI 1428	CAZRI, Jodhpur	2009	RRS, Bhuj
5.	CAZRI 1433	CAZRI, Jodhpur	2009	RRS, Bhuj
6.	CAZRI 1439	CAZRI, Jodhpur	2009	RRS, Bhuj
7.	CAZRI 1440	CAZRI, Jodhpur	2009	RRS, Bhuj
8.	CAZRI 1441	CAZRI, Jodhpur	2009	RRS, Bhuj
9.	IGFRI 23	IGFRI, Jhansi	2009	RRS, Bhuj
10.	IGFRI 73	IGFRI, Jhansi	2009	RRS, Bhuj
11.	IGFRI 94	IGFRI, Jhansi	2009	RRS, Bhuj
12.	IGFRI 173	IGFRI, Jhansi	2009	RRS, Bhuj
13.	JHC 94	IGFRI, Jhansi	2009	RRS, Bhuj






CENTRAL ARID ZONE RESEARCH INSTITUTE

(Indian Council of Agricultural Research)

JODHPUR - 342 003, RAJASTHAN, INDIA

Tel. : +91-291-2786584 Fax : +91-291-2788706

Website : http://www.cazri.res.in