

# USDA PEANUT Mini Core Catalog

Part-1 of 3



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# *USDA Peanut Mini Core Catalog*

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# 1. Introduction

The USDA ARS Plant Genetic Resources Conservation Unit (PGRCU) in Griffin, GA (USA) maintains a large *Arachis* germplasm collection which consisted of 9,321 cultivated peanut and 655 wild species, when this project was initiated. The germplasm collection is derived of lines collected from 102 different countries around the world with approximately 44% collected in South America where peanut originated. The cultivated peanut collection is solely maintained as seed with each seed accession divided into two samples which are stored at 4C and -18C. The 4C samples are maintained at 25% relative humidity and are primarily used to distribute seeds to requestors worldwide, whereas the -18C are stored in hermetically sealed bags for long term storage/preservation (Barkley et al, 2016).

In 2013, a large-scale project to comprehensively catalog the core and mini core collection was initiated. Core collections are subsets of approximately 10% of the total germplasm collection and consist of accessions that represent the majority of the diversity with little genetic redundancy. The USDA peanut core collection was derived by Holbrook et al (1993) after an evaluation of all the USDA cultivated peanut germplasm. The mini core was developed later (Holbrook et al, 2005) to help researchers evaluate traits of importance on a smaller more manageable subset. This project set out to phenotype and genotype the entire core collection to facilitate better use of the germplasm collection and uncover novel properties of each accession. Further, this evaluation was undertaken to associate molecular markers to important agronomic traits for rapid selection in breeding.

The entire core/mini core collection was planted in 2013 – 2015 at the University of Florida Institute of Food and Agricultural Sciences (UF/IFAS) Plant Science Research and Education Unit in Citra, Florida using an augmented design with replications. The mostly widely grown normal and high oleic commercial varieties (crop years 2011 – 2013) from each market type (runner, Spanish, Virginia, and Valencia) were planted in conjunction with the core and mini core. These were chosen in consultation with the USA peanut breeders to provide direct comparisons of important agronomic traits such as yield and grade within the same environmental parameters. During this project, pictures were taken to document unique traits of each accession and this catalog represents the considerable effort from the entire team with the goal of comprehensively cataloging the core collection in its entirety. Here we present a catalog of pictures from the USDA peanut mini core collection.

## **2. Acknowledgements**

We gratefully acknowledge Dr Roy Pittman for all the big out of the box ideas and all the laughs, you are truly missed and imparted an undying passion for working with peanut. We sincerely thank all the crew especially Jim Boyer at the Plant Science Research and Education Unit with the Institute of Food and Agricultural Sciences at the University of Florida for their help with the day to day management of this large scale grow out. The authors also want to thank The Peanut Foundation (TPF), the Georgia Peanut Commission, and Florida Peanut Producers for their support, without which this work would not have been possible.

### 3. Accessions list by GRIN taxonomy

Table 3.1 Summary of accessions by GRIN taxonomy

| GRIN taxonomy  | Accessions |
|--|------------|
| <i>Arachis hypogaea</i> L.   | 88         |
| <i>Arachis hypogaea</i> L. subsp. <i>fastigiata</i> Waldron var. <i>fastigiata</i> Krapov. & W. C. Greg. | 15         |
| <i>Arachis hypogaea</i> L. subsp. <i>fastigiata</i> Waldron var. <i>vulgaris</i> Harz                    | 4          |
| <i>Arachis hypogaea</i> L. subsp. <i>hypogaea</i> var. <i>hypogaea</i>                                   | 2          |
|  | 109        |

**Passport Information Key** (adapted from the USDA-ARS U.S. National Plant Germplasm System for peanut - <https://npgsweb.ars-grin.gov/gringlobal/crop?id=86>)

**Accession ID:** refers to the Plant Introduction (PI) number associated with the USDA –ARS GRIN database for peanut.

**Accession Name:** refers to the local name given or referenced to when entered into the germplasm repository

**Taxonomy:** refers to the botanical description – all peanut accessions are the alleotetraploid *Arachis hypogaea* L.; however, some are further classified into subspecies *fastigiata* with 2 varieties (var. *fastigiata* or var. *vulgaris*) or subspecies *hypogaea* with var. *hypogaea*.

**Country of Origin:** country from where the entry was collected or donated from, if unknown NA (not available)

**Grin Market Type:** refers to one of 4 market-types of peanut classified by USDA – Valencia, Spanish, Runner or Virginia. This classification based on uses – taste, oil content, roasting characteristics, etc.



# Passport Information

**Accession ID:** PI 152146

**Accession Name:** Turkestan B

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Uruguay

**Grin Market Type:** Virginia



# Passport Information

**Accession ID:** PI 155107

**Accession Name:** LE 39 ACEITERO FED

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Uruguay

**Grin Market Type:** Spanish



# Passport Information

Accession ID: PI 157542

Accession Name: CC553

Taxonomy: *Arachis hypogaea* L.

Country of Origin: China

Grin Market Type: Virginia



# Passport Information

**Accession ID:** PI 158854

**Accession Name:** CC559

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** China

**Grin Market Type:** Mixed





## Passport Information

**Accession ID:** PI 159786

**Accession Name:** CC334

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Senegal

**Grin Market Type:** Virginia



# Passport Information

Accession ID: PI 162655

Accession Name: 117

Taxonomy: *Arachis hypogaea* L.

Country of Origin: Uruguay

Grin Market Type: Virginia



# Passport Information

**Accession ID:** PI 162857

**Accession Name:** American

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Sudan

**Grin Market Type:** Virginia



# Passport Information

Accession ID: PI 196622

Accession Name: CC802

Taxonomy: *Arachis hypogaea* L.

Country of Origin: Côte d'Ivoire

Grin Market Type: Virginia







## Passport Information

**Accession ID:** PI 196635

**Accession Name:** CC270

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Madagascar

**Grin Market Type:** Virginia



# Passport Information

**Accession ID:** PI 200441

**Accession Name:** TAIWAN KOTSUBU NO

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Japan

**Grin Market Type:** Spanish



# Passport Information

**Accession ID:** PI 240560

**Accession Name:** Natal Common

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** South Africa

**Grin Market Type:** Spanish



# Passport Information

**Accession ID:** PI 259617

**Accession Name:** NO 15233

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Cuba

**Grin Market Type:** Valencia



# Passport Information

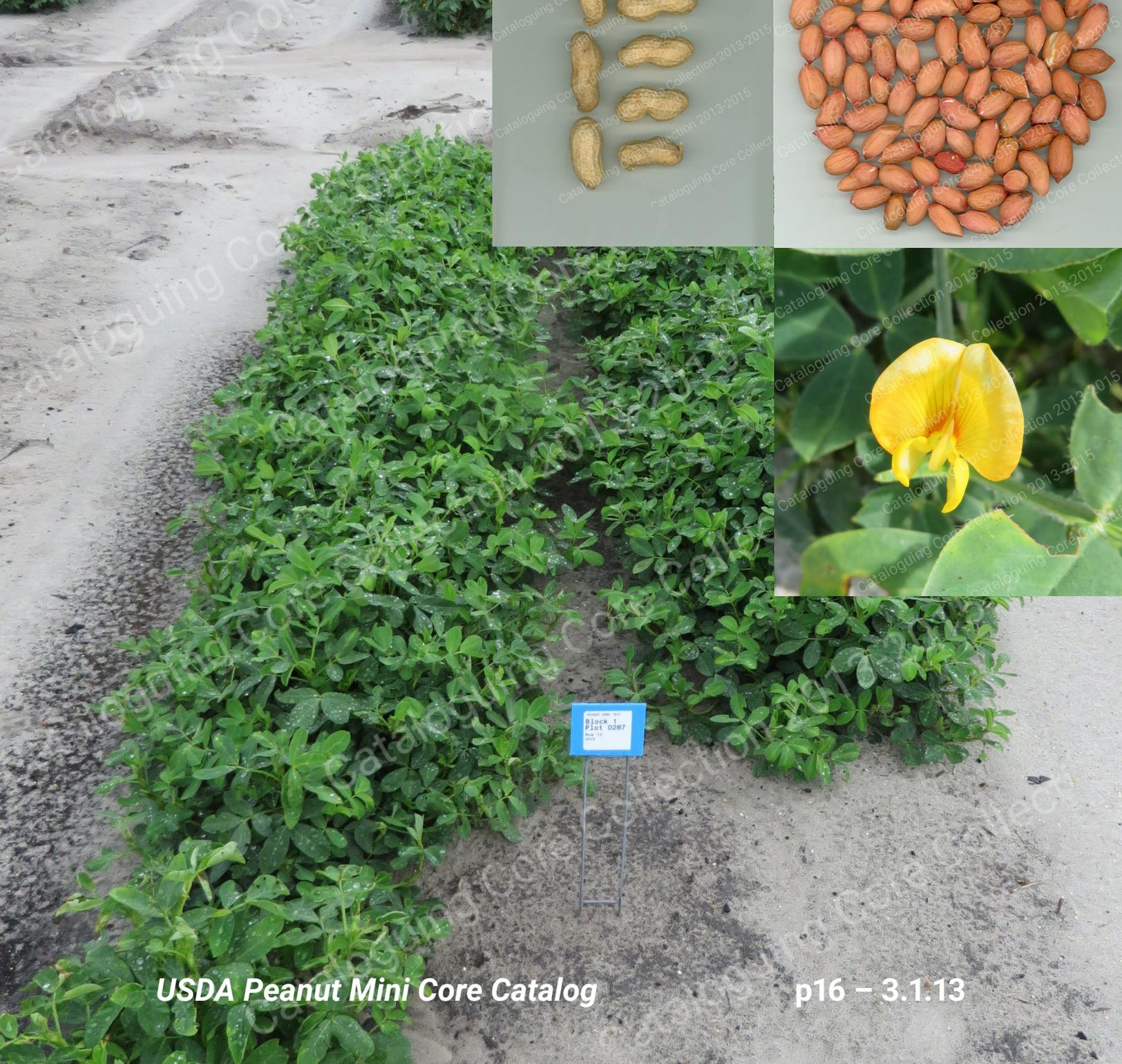
**Accession ID:** PI 259658

**Accession Name:** NO 15599

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Cuba

**Grin Market Type:** Virginia



# Passport Information

Accession ID: PI 259836

Accession Name: CC546

Taxonomy: *Arachis hypogaea* L.

Country of Origin: Malawi

Grin Market Type: Valencia



# Passport Information

**Accession ID:** PI 259851

**Accession Name:** CC277

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Malawi

**Grin Market Type:** Spanish



# Passport Information

**Accession ID:** PI 262038

**Accession Name:** CC408

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Brazil

**Grin Market Type:** Valencia





# Passport Information

Accession ID: PI 268586

Accession Name: SB41

Taxonomy: *Arachis hypogaea* L.

Country of Origin: Zambia

Grin Market Type: Virginia



# Passport Information

**Accession ID:** PI 268696

**Accession Name:** BC205

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** South Africa

**Grin Market Type:** Spanish



# Passport Information

**Accession ID:** PI 268755

**Accession Name:** SB117

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Zambia

**Grin Market Type:** Spanish



# Passport Information

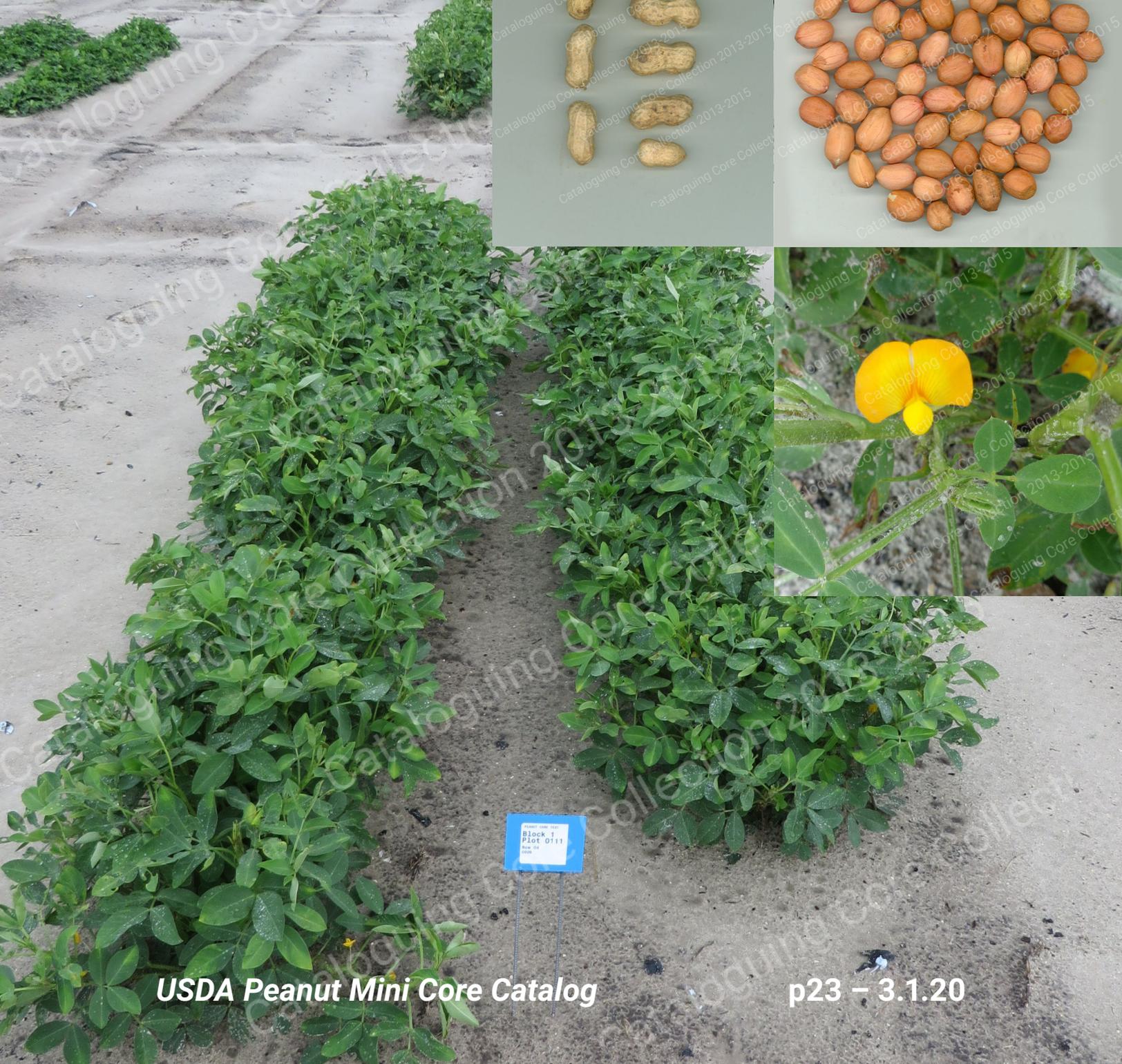
**Accession ID:** PI 268806

**Accession Name:** SB152

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Zambia

**Grin Market Type:** Spanish



# Passport Information

**Accession ID:** PI 268868

**Accession Name:** BC42

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Sudan

**Grin Market Type:** Virginia





## Passport Information

**Accession ID:** PI 268996

**Accession Name:** AR12

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Zambia

**Grin Market Type:** Virginia



# Passport Information

**Accession ID:** PI 270786

**Accession Name:** CC485

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Zambia

**Grin Market Type:** Spanish



Block 1  
Plot 0222

# Passport Information

**Accession ID:** PI 270905

**Accession Name:** LARGE MANYEMA

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Zambia

**Grin Market Type:** Virginia





# Passport Information

**Accession ID:** PI 270907

**Accession Name:** CC433

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Zambia

**Grin Market Type:** Virginia





## Passport Information

**Accession ID:** PI 270998

**Accession Name:** CC468

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Zambia

**Grin Market Type:** Spanish



# Passport Information

**Accession ID:** PI 271019

**Accession Name:** CC579

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Zambia

**Grin Market Type:** Spanish



# Passport Information

**Accession ID:** PI 274193

**Accession Name:** CC208

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Bolivia

**Grin Market Type:** Runner



# Passport Information

Accession ID: PI 288146

Accession Name: CC516

Taxonomy: *Arachis hypogaea* L.

Country of Origin: India

Grin Market Type: Spanish



# Passport Information

**Accession ID:** PI 288210

**Accession Name:** CC526

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** India

**Grin Market Type:** Virginia





## Passport Information

**Accession ID:** PI 290536

**Accession Name:** CC233

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** India

**Grin Market Type:** Valencia



# Passport Information

**Accession ID:** PI 290560

**Accession Name:** CC221

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** India

**Grin Market Type:** Spanish





# Passport Information

**Accession ID:** PI 290566

**Accession Name:** CC227

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** India

**Grin Market Type:** Valencia



# Passport Information

Accession ID: PI 290594

Accession Name: CC230

Taxonomy: *Arachis hypogaea* L.

Country of Origin: India

Grin Market Type: Virginia



# Passport Information

**Accession ID:** PI 290620

**Accession Name:** CC223

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Argentina

**Grin Market Type:** Spanish



# Passport Information

Accession ID: PI 292950

Accession Name: CC728

Taxonomy: *Arachis hypogaea* L.

Country of Origin: South Africa

Grin Market Type: Virginia



# Passport Information

**Accession ID:** PI 295250

**Accession Name:** CC540

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Israel

**Grin Market Type:** Virginia



# Passport Information

**Accession ID:** PI 295309

**Accession Name:** CC541

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Israel

**Grin Market Type:** Virginia



# Passport Information

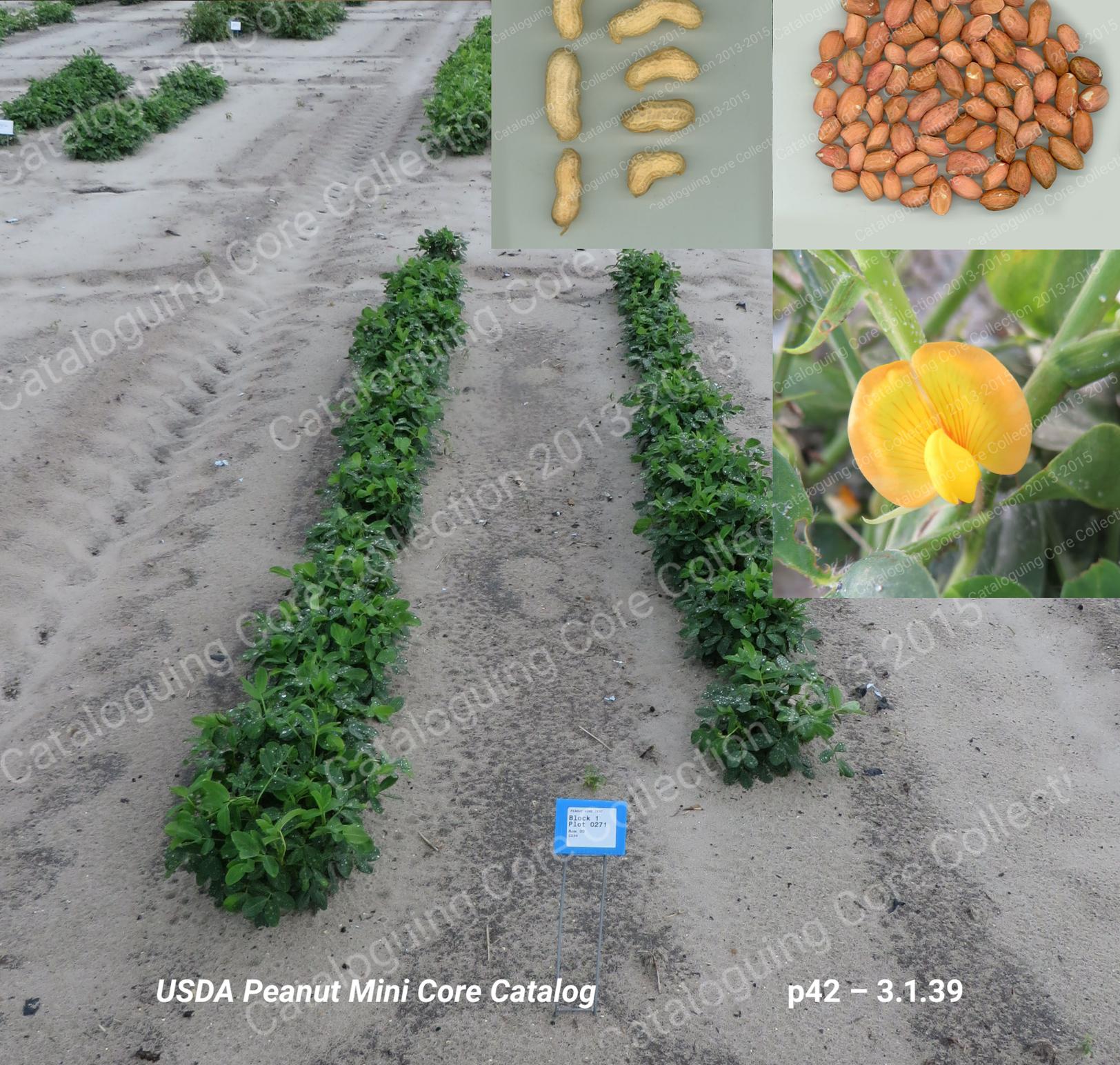
**Accession ID:** PI 295730

**Accession Name:** CC008

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** India

**Grin Market Type:** Valencia



# Passport Information

**Accession ID:** PI 296550

**Accession Name:** CC534

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Israel

**Grin Market Type:** Virginia



Block 1  
Plot 0110  
Row 01  
Line C40



# Passport Information

Accession ID: PI 296558

Accession Name: CC535

Taxonomy: *Arachis hypogaea* L.

Country of Origin: Israel

Grin Market Type: Virginia



# Passport Information

**Accession ID:** PI 298854

**Accession Name:** CC342

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** South Africa

**Grin Market Type:** Virginia



# Passport Information

Accession ID: PI 313129

Accession Name: 0101

Taxonomy: *Arachis hypogaea* L.

Country of Origin: NA

Grin Market Type: Valencia



# Passport Information

**Accession ID:** PI 319768

**Accession Name:** CC529

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Israel

**Grin Market Type:** Virginia



# Passport Information

Accession ID: PI 319770

Accession Name: CC800

Taxonomy: *Arachis hypogaea* L.

Country of Origin: Israel

Grin Market Type: Mixed





## Passport Information

**Accession ID:** PI 323268

**Accession Name:** 11

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Pakistan

**Grin Market Type:** Virginia



# Passport Information

**Accession ID:** PI 325943

**Accession Name:** MANI

**Taxonomy:** *Arachis hypogaea* L.

**Country of Origin:** Venezuela

**Grin Market Type:** Valencia

