

UNITED STATES DEPARTMENT OF AGRICULTURE  
Agricultural Research Service  
Washington, D.C.

and

AGRICULTURAL RESEARCH CENTER  
Washington State University  
Pullman, Washington

and

IDAHO AGRICULTURAL EXPERIMENT STATION  
University of Idaho  
Moscow, Idaho

and

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION  
North Dakota State University  
Fargo, North Dakota

id: 8729

Alias Name: CA9783152

CA

NOTICE OF RELEASE OF 'SIERRA' CHICKPEA

The Agricultural Research Service of the United States Department of Agriculture, the Washington Agricultural Research Center, the Idaho Agricultural Experiment Station and the North Dakota Agricultural Experiment Station announce the release and naming of a large-seeded cream-colored chickpea (*Cicer arietinum* L.), 'Sierra.' Sierra was developed by the U.S. Department of Agriculture, Grain Legume Genetics and Physiology Research Unit at Pullman, Washington, in cooperation with the College of Agriculture, Agricultural Research Center of Washington State University. Sierra, selection number CA9683152, originated as an F<sub>3</sub> selection from progenies from the cross Dwelley//FLIP85-58/Spanish White made by F.J. Muehlbauer in 1992.

Sierra was yield tested in eastern Washington, northern Idaho, North Dakota and South Dakota for a total of ten site-years over three years of testing. It outyielded 'Dwelley' and 'Sanford' in eight of the ten yield tests (Table 1). Sierra outyielded 'Dwelley', the current industry standard, by an average of 10% over the three years (1258 vs. 1146 pounds/acre) in the most likely regions for production of this cultivar. Sierra also performed better than Dwelley and Sanford at locations in North Dakota and South Dakota. Sierra has good resistance to ascochyta blight caused by *Ascochyta rabiei* (Pass.) Labr. a common chickpea disease in most production areas.

Plants of Sierra averaged 21 inches tall and had an upright habit with simple (unifoliate) type leaves. Flowering begins at about 14 inches above the soil surface and commences about 46 days

after planting depending on climatic conditions. Crop maturity is 2-3 days earlier than Dwelley or Sanford and generally about 110 days after planting. Seeds of Sierra average 61.4 grams per 100 seeds which is equivalent to 740 seeds per pound. Seed size is similar to Dwelley but larger than Sanford. Seeds of Sierra are light-cream colored and lighter than Dwelley and Sanford.

Breeder seed of Sierra will be maintained by the Washington State Crop Improvement Association. Foundation seed will be available from the Washington State Crop Improvement Association, Washington State University, Pullman, Washington, 99164.

Release date for publicity purposes shall be effective on the date of final signature of the release notice.

Genetic material of this release will be deposited in the National Plant Germplasm System where it will be available for research purposes, including development and commercialization of new varieties/cultivars. Plant variety protection will be pursued for this variety.

It is requested that appropriate recognition be made if this germplasm contributes to the development of a new breeding line or cultivar.

\_\_\_\_\_  
Director, Agricultural Research Center  
Washington State University

\_\_\_\_\_  
Date

\_\_\_\_\_  
Director, Idaho Agricultural Experiment Station  
University of Idaho

\_\_\_\_\_  
Date

\_\_\_\_\_  
Director, North Dakota Agricultural Experiment Station  
North Dakota State University

\_\_\_\_\_  
Date

\_\_\_\_\_  
Administrator, Agricultural Research Service  
U.S. Department of Agriculture

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Date

Table 1. Yield (pounds / acre) of **Sierra** compared to the **Dwelley**, and **Sanford** checks at locations in Washington, Idaho, North Dakota and South Dakota, 1998-2000.

<b>Location</b>	<b>Year</b>	<b>Dwelley</b>	<b>Sanford</b>	<b>Sierra</b>
Pullman, WA	1998	960	744	1008
Walla-Walla, WA	1999	310	330	500
Pullman, WA	1999	1567	1377	1582
Walla-Walla, WA	2000	1862	1733	1766
Pullman, WA	2000	1303	1327	1477
Genesee, ID	2000	1388	958	1470
Moscow, ID	2000	974	1037	909
Minot, ND	2000	685	797	1199
Williston, ND	2000	1235	1222	1401
Wall, SD	2000	1177	1185	1268
<b>Mean over locations and years</b>		<b>1146</b>	<b>1071</b>	<b>1258</b>

**REQUEST FOR RELEASE OF CA9783152 CAFÉ TYPE KABULI CHICKPEA**

Cooperating Agencies: USDA-ARS, WSU, U of I and OSU

**A. General Situation:**

1. Need for variety. The chickpea industry is in need of an improved ascochyta blight resistant Café type variety with seeds that are lighter colored than Dwelley, with improved resistance to ascochyta blight and higher yields. This release will fill that need for a high quality, blight resistant variety with exceptionally large and cream colored seeds. The variety will likely replace Kabuli chickpeas currently in use including 'Sanford', 'Dwelley' and 'Evans'. This new variety will make available to producers an improved Café type of chickpea that is in demand domestically and in the Spanish market. There have been complaints that varieties such as Sanford, Dwelley and Evans are somewhat dark colored. CA9783152 is lighter and should fill this need.

2. Uses. The variety is a large seeded Café type that will be used domestically and for export. This type is used for canning in the U.S. and in the packaging trade in international markets.

3. To supplant. This release is intended to supplant the commonly grown Sanford, Dwelley and Evans varieties. CA9783152 is larger seeded, earlier to flower than Sanford and Dwelley and appears to have better resistance to ascochyta blight.

**B. Identification:**

- |    |                              |  |
|----|------------------------------|--|
| 1. | <u>Genus and species.</u>    | <i>Cicer arietinum</i> L.  |
| 2. | <u>Selection number.</u>     | CA9783152  |
| 3. | <u>Proposed name.</u>        | undecided  |
| 4. | <u>Pedigree.</u>             | X92C016 Dwelley//FLIP85-58/Spanish White F <sub>8</sub> selection from a bulk population that had been screened in the ascochyta blight nursery. |
| 5. | <u>Other identification.</u> | none   |

**C. Description:**

1. Plant. Plants of CA9783152 are tall and upright with a simple (unifoliate) leaf structure. Plants average 21 inches tall (51 cm) with podding beginning at about 14 inches above ground level.

2. Seed. Seeds of CA9783152 are "ramshead" shaped, wrinkled and weighed an average of 61.4 grams per 100 seeds in tests in 1999, which is equivalent to 740 seeds per pound. This size is essentially the same as Dwelley, but larger than Sanford and Evans. In 2000, seed size of CA9783152 was somewhat larger than Dwelley and averaged 53.5 grams per 100 seeds compared to 50.7 for Dwelley. Seeds of CA9783152 are lighter in color than Dwelley and Sanford and therefore should have more appeal for the canning industry and also for the package trade.

#### D. Testing history

1. Years and locations. Yield trials were established at three locations in over the past two years including Pullman and Walla-Walla, WA and Genesee, ID. Because of late planting and poor emergence the trial at Genesee, ID had to be abandoned. The trial at Walla-Walla also had inadequate stands in 1999 and the yields were highly variable. Only the Pullman location in 1999 provided good yield data for comparing CA9783152 to check entries. A Preliminary yield trial was conducted at Pullman in 1998 that included CA9783152. CA9783152 was included in the ascochyta blight screening nursery in 1999 and 2000 at Spillman Farm

2. Yields in comparison with existing varieties (Tables 1, 3 and 4). In summary, yields of CA9783152 were better than the checks; Dwelley, Sanford and Evans in 1999, but the differences were not significant. In 2000 at the three locations, yields were significantly better than Sanford and Evans and slightly better than Dwelley.

#### 3. Evaluation of quality characteristics.

a. General characteristics – Seed size is slightly larger than Dwelley and significantly larger than Sanford and Evans (Tables 2 and 4).

b. Taste panel evaluation – none

c. Uniformity of size and color – very good

d. Cooking trials indicate similar cooking times as Sanford and Dwelley

d. Canning tests – being conducted

4. Resistance to diseases. The bulk population used to select CA9783152 was screened in the ascochyta blight nursery for several generations and seed was harvested from plants that survived the disease and used for further screening in subsequent years. The evaluation of CA9783152 in 1999 appeared to indicate improved resistance to ascochyta blight when compared to Dwelley

(Table 5); however, in evaluations for blight resistance in 2000 the scores for CA9783152 and Dwelley were similar. Based on survival through several years of bulk population screening, the selection appears to have good resistance to the disease.

5. Emergence characteristics. Excellent. Stands have not been a problem.

6. Flowering and Maturity. CA9783152 flowered 46 days after planting in 1999 compared to 50, 49 and 46 days for Dwelley, Sanford and Evans, respectively. CA9783152 flowered in 57 days after planting in 2000 compared to 61 days for Dwelley. Maturity is 2-3 days earlier than Dwelley.

7. Weaknesses. None apparent.

E. **Seed Source, Status and Increase Procedure.**

1. The procedure being used to develop Breeder seed is from individual plant progeny rows that have been selected for uniformity of the plants and seed.

2. Seed was increased at Brawley, CA during the winter of 1999-2000 and also at Walla-Walla during the summer of 2000. About three acres of CA9783152 is currently on increase under irrigation at Brawley and will provide Breeder seed for planting in the spring (2001). Stands are good and we expect to get a fairly sizeable increase and hope to return 4,000 to 5000 pounds of Breeder seed, which will be planted this coming spring to produce Foundation seed. Foundation seed will be available to producers in spring 2002.

3. Based on the amount of seed available, small quantities of seed is available for commercial samples.

F. **Other Comments**. Producers should readily accept this variety because it appears to have slightly better resistance to ascochyta blight when compared to Dwelley and Sanford. The variety has larger seeds and is earlier to flower and mature when compared to Dwelley. Earlier flowering and maturity are desirable. The earliness, improved seed color and apparent improved resistance to blight are overriding factors in the proposal to release CA9783152.

G. Probable date for official release would be June 2001.

H. Plant Variety Protection is not recommended.