200500007

No.

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

U.S. Government, as represented by the Secretary of Agriculture

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY [illegible] FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC [illegible]SHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE R[illegible] EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPO[illegible] OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE [illegible] OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED [illegible]ANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

COWPEA

'Whippersnapper'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this twentieth day of [illegible]tember, in the year two thousand and seven.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of [illegible]

REPRODUCE LOCALLY. *Include form number and date on all reproductions* — Form Approved - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER: The U.S. Government as represented by the Secretary of Agriculture

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME: (US 905)

3. VARIETY NAME: WhipperSnapper

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*: 2700 Savannah Highway, Charleston, South Carolina 29414

5. TELEPHONE *(include area code)*: 843-402-5300

6. FAX *(include area code)*: 843-573-4715

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PVPO NUMBER: 200500007
FILING DATE: OCTOBER 13, 2004

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*: U. S. Government

8. IF INCORPORATED, GIVE STATE OF INCORPORATION: N//A

9. DATE OF INCORPORATION: N//A

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*

Richard J. Brenner
Deputy Assistant Administrator
USDA, ARS, OTT
5601 Sunnyside Ave, Rm 4-1156
Beltsville, MD 20705-5131

Richard L. Fery (Technical Rep. of ARS)
2700 Savannah Highway
Charleston, South Carolina 29414

FEES RECEIVED
FILING AND EXAMINATION FEES: $ 3,652.00 DATE 10/13/04
CERTIFICATION FEE: $ 768.00 DATE 8/6/07

11. TELEPHONE *(include area code)*: 301-504-6905

12. FAX *(include area code)*: 301-504-5060

13. E-MAIL:

14. CROP KIND *(Common Name)*: cowpea

16. FAMILY NAME *(Botanical)*: Leguminosae

15. GENUS AND SPECIES NAME OF CROP: Vigna unguiculata

17. IS THE VARIETY A FIRST GENERATION HYBRID? ☐ YES ☒ NO

18. DOES THE VARIETY CONTAIN ANY TRANSGENES? *(OPTIONAL)*
☐ YES ☒ NO
IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERICALIZATION. _____

19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)
- a. ☒ Exhibit A. Origin and Breeding History of the Variety
- b. ☒ Exhibit B. Statement of Distinctness
- c. ☒ Exhibit C. Objective Description of Variety
- d. ☒ Exhibit D. Additional Description of the Variety *(Optional)*
- e. ☒ Exhibit E. Statement of the Basis of the Owner's Ownership
- f. ☒ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)*
- g. ☒ Filing and Examination Fee ($3,652), made payable to "Treasurer of the United States" *(Mail to the Plant Variety Protection Office)*

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act)*
☐ YES *(If "yes", answer items 21 and 22 below)* ☒ NO *(If "no", go to item 23)*

21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES?
☐ YES ☐ NO
IF YES, WHICH CLASSES? ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ YES ☐ NO
IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS.
☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED
(If additional explanation is necessary, please use the space indicated on the reverse.)

23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?
☐ YES ☒ NO
IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. *(Please use space indicated on reverse.)*

24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT *(PLANT BREEDER'S RIGHT OR PATENT)*?
☐ YES ☒ NO
IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. *(Please use space indicated on reverse.)*

25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER		SIGNATURE OF OWNER	
Richard L. Fery		R J Brenner	
NAME *(Please print or type)*		NAME *(Please print or type)*	
Richard L. Fery		Richard J. Brenner	
CAPACITY OR TITLE	DATE	CAPACITY OR TITLE	DATE
Research Geneticist	Sept. 29, 2004	Assistant Administrator	10/12/2004

(See reverse for instructions and information collection burden statement)

ST-470 (04-03) designed by the Plant Variety Protection Office using Word 2002.

INSTRUCTIONS

200500007

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to **reproduce** the variety, or for tuber reproduced varieties verification that a viable *(in the sense that it will reproduce an entire plant)* tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for $3,652 ($432 filing fee and $3,220 examination fee), payable to "Treasurer of the United States" *(See Section 97.6 of the Regulations and Rules of Practice.)* Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfiled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of $432 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office
Telephone: (301) 504-5518
FAX: (301) 504-5291
Homepage: http://www.ams.usda.gov/science/pvpo/pvp.htm

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and provide evidence that name has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, 10301 Baltimore Avenue, Suite 401 NAL Building, Beltsville, MD 20705. Telephone: (301) 504-5682 http://www.ams.usda.gov/lsg/seed.htm.

ITEM

19a. Give:
(1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified

19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:

(1) identify these varieties and state all differences objectively;
(2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.

19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.

19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, *etc.*

19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.

20. If "Yes" is specified *(seed of this variety be sold by variety name only, as a class of certified seed)*, the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. *(See Regulations and Rules of Practice, Section 97.103).*

23. *See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.*

24. *See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.*

22. CONTINUED FROM FRONT *(Please provide a statement as to the limitation and sequence of generations that may be certified.)*

23. CONTINUED FROM FRONT *(Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)*

24. CONTINUED FROM FRONT *(Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)*

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. *(See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)*

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

Exhibit A: <u>Origin and Breeding History of the Variety</u> 200500007

'WhipperSnapper' is the product of a pedigree-type breeding program initiated in 1988. The initial cross involved UCR-204 and 87-161-2. UCR-204 is a snap-type cowpea germplasm line released by the University of California at Riverside in 1986; it was developed at the Indian Agricultural Research Institute, New Delhi, India, and was evaluated in India as breeding line No. 779. UCR-204 is an early maturing, photo-insensitive and high-yielding line, but its immature pods exhibit a considerably lighter green color than is traditional for U.S. snap cultivars. Also, UCR-204 seeds have a brown eye color pattern rather than the solid cream color pattern that is traditional for U.S. snap cultivars. The paternal parent 87-161-2 is a sister line of the snap-type variety Bettersnap (Attachment 1 to Exhibit A), which was released by the USDA in 1994. Following the last hybridization, intense election pressure was applied in the F_2 through the F_8 generations for the following horticultural characteristics: plant habit (erect), earliness (days to harvest), pod placement (above foliage), pod shape (straight to slightly curved), pod length (long), color of immature pod (green), pod fill (minimal seed abortion), seed shape (kidney), seed coat pattern (solid, no eye, and no secondary color), fresh seed color (cream), texture of dry testa (smooth), seed size (small to medium), seed germination, hardness of seed coat (dry seed must imbibe water readily), snap (immature pods) yield, and seed yield. 'WhipperSnapper' originated from a bulked F_8 population grown in 1996. It was evaluated as US-905 throughout the southern U.S. as an entry in the 1998, 1999, and 2000 Regional Southernpea Cooperative Trials. Six generations of 'WhipperSnapper' were observed for evidence of uniformity and stability; no variants or off-types were observed.

Attachment 1. Fery, R. L., and P. D. Dukes. 1995. 'Bettersnap' southernpea. *HortScience* 30(6):1318-1319.

Reprints from JOURNAL OF THE AMERICAN SOCIETY FOR HORTICULTURAL SCIENCE, Vol. 30(6), October 1995
A Publication of the American Society for Horticultural Science, Alexandria, VA 22314

HORTSCIENCE 30(6):1318–1319. 1995.

2005000007

'Bettersnap' Southernpea

Richard L. Fery[1] and Philip D. Dukes[2]
U.S. Vegetable Laboratory, Agricultural Research Service, U.S. Department of Agriculture, 2875 Savannah Highway, Charleston, SC 29414-5334

Additional index words. cowpea, *Vigna unguiculata*, nematode resistance, *Meloidogyne* spp., virus resistance, disease resistance

'Bettersnap' is a new edible podded southernpea [*Vigna unguiculata* (L.) Walp.] cultivar that was approved for release in Jan. 1994 by the Agricultural Research Service, U.S. Dept. of Agriculture. 'Bettersnap' is well-adapted for production throughout the southern United States, where it can be expected to produce excellent yields of edible pods or snaps. It is resistant to root knot, a severe root disease incited by several species of the root-knot nematode, and blackeye cowpea mosaic and southern bean mosaic viruses, serious viral pathogens of southernpea in the United States.

Origin

'Bettersnap' is the result of a conventional, recurrent, backcross breeding procedure to transfer the dominant *Rk* gene for resistance to root-knot nematodes from 'Mississippi Cream' into the snap-type cultivar Snapea (Fig. 1). 'Snapea', released by the Univ. of Florida in 1964 (Lorz and Halsey, 1964), is susceptible to root-knot nematodes. 'Snapea' long has been used by the southernpea industry in the United States for the production of the immature green pods used for the snap component of the popular mixed packs of fresh peas and green snaps. 'Bettersnap' originated from a bulked F_4 population derived from the fifth backcross.

Description

'Bettersnap' plantings are more uniform in appearance than plantings of 'Snapea' planted with currently available seed stocks. The plant habit is a high bush, with few pods touching the ground (Fig. 2). The flowers are white. No red or purple pigmentation occurs on stems, branches, petioles, or peduncles. Pod set is concentrated, and the pods are borne scattered above the foliage. Mature pods are pendant from the peduncles, and each peduncle typically produces two pods. A typical pod is slightly curved, 27 cm long, and contains 16 peas (Fig. 3). Pod color is dark green at the harvestable snap stage [Munsell (1990) rating: 5 GY 4/6], yellow at the green-shell maturity stage [Munsell (1990) rating: 7.5 Y 8.5/4], and light straw when dry [Munsell (1990) rating: 2.5 Y 8.5/4].

Results of replicated field tests conducted in Charleston, S.C., indicate that 'Bettersnap' has the same maturity and high yield potential as 'Snapea'. [No significant differences ($P \leq 0.05$) were identified in 2 years of testing.] The cultivar is homozygous for the *Rk* gene that conditions a high level of resistance to root-knot nematodes (Fery and Dukes, 1980). Tests conducted at Oregon State Univ. using enzyme-linked immunosorbent assay methodology indicate that 'Bettersnap' is resistant to

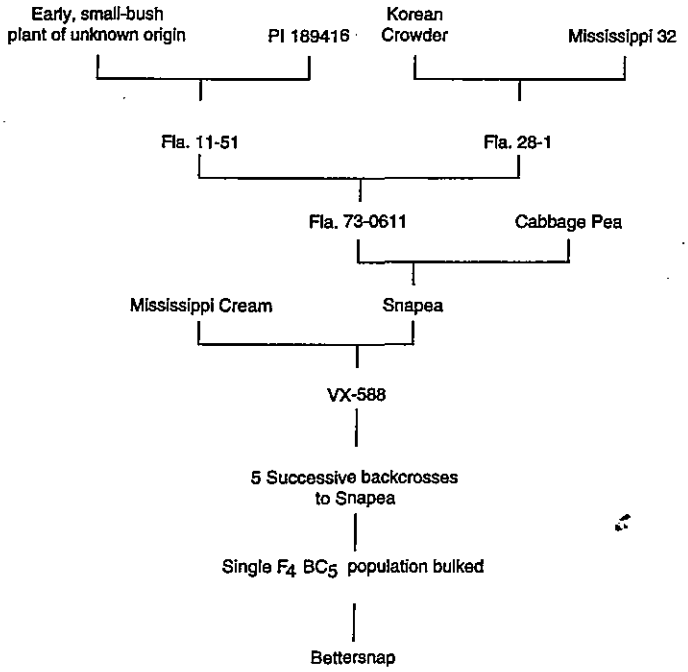

Fig. 1. Pedigree of 'Bettersnap' southernpea.

Fig. 2. Single 'Bettersnap' southernpea plant. Note the high bush plant habit, the pendant attachment of pairs of mature pods to peduncles, and the placement of pods sufficiently above the foliage as not to touch the ground.

Received for publication 16 Feb. 1995. Accepted for publication 26 June 1995. We acknowledge the assistance of R.O. Hampton, Agricultural Research Service, U.S. Dept. of Agriculture, Dept. of Plant Pathology, Oregon State Univ., Corvallis, for characterizing the reaction of 'Bettersnap' to blackeye cowpea mosaic and southern bean mosaic viruses. We also gratefully acknowledge the assistance of Agricultural Research Technicians F.P. Maguire, R.B. Cuthbert, II, and E.L. Corley, Jr. The cost of publishing this paper was defrayed in part by the payment of page charges. Under postal regulations, this paper therefore must be hereby marked *advertisement* solely to indicate this fact.
[1]Research Geneticist.
[2]Research Plant Pathologist (retired).

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blackeye cowpea mosaic and southern bean mosaic viruses (R.O. Hampton, unpublished data). Observations of natural epiphytotics indicate that the cultivar also is resistant to scab (*Cladosporium vignae* Gardner) and cercospora leaf spot (*Cercospora cruenta* Sacc.). 'Bettersnap', like its recurrent parent 'Snapea', is susceptible to fusarium wilt, and caution should be exercised in fields where the soilborne causal pathogen *Fusarium oxysporum* Schlecht. f. *tracheiphilum* (E. F. Sm.) Synd. & Hans. is known to occur.

'Bettersnap' is suitable for use as a cream-type southernpea. Pods not harvested for use as snaps are suitable for later harvest of either fresh-shell or dry peas. The fresh peas have a cream color [Munsell (1990) rating: 5 Y 8.5/4] and a kidney shape. Dried peas are tan [Munsell (1990) rating: 2.5 Y 8/4] and have a smooth seedcoat. Seed size is medium (21.0 g/100 fresh peas; 12.4 g/100 dry peas).

'Bettersnap' is recommended as a home-garden cultivar for spring, midseason, and fall plantings throughout the southern United States. It also should be considered for use as an alternative to snap bean (*Phaseolus vulgaris* L.) cultivars in many of the southern states. Unlike snap bean cultivars, 'Bettersnap' produces large yields of pods in hot summer months. 'Bettersnap' is particularly recommended for trial as a commercial processing cultivar for canned and frozen southernpea products. 'Bettersnap' will perform well in all areas where 'Snapea' has been grown successfully.

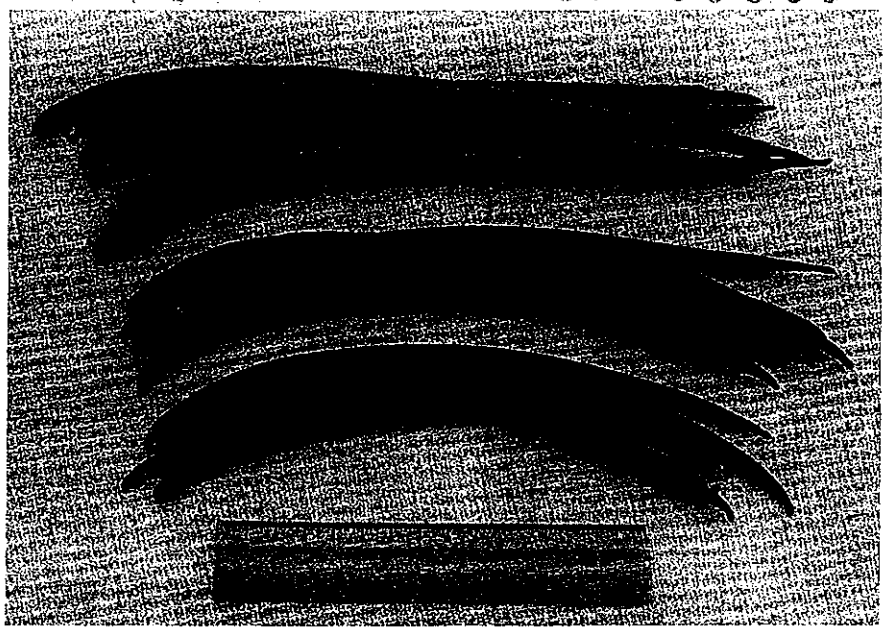


Fig. 3. Pods of 'Bettersnap' southernpea.

Availability

'Bettersnap' breeder's seed has been released to seed producers. Small trial samples of breeder's seed are available from R.L.F. for distribution to all interested research personnel.

Literature Cited

Fery, R.L. and P.D. Dukes. 1980. Inheritance of root-knot resistance in the cowpea [*Vigna unguiculata* (L.) Walp.]. J. Amer. Soc. Hort. Sci. 105:671–674.

Lorz, A.P. and L.H. Halsey. 1964. Snapea, A new cream-type southern pea. Univ. Florida Agr. Expt. Sta. Circ. S-160, Gainesville.

Munsell Color. 1990. Munsell book of color: Glossy finish collection. Munsell Color, Baltimore.

Exhibit B: <u>Statement of Distinctness</u> 200500007

'WhipperSnapper' was developed for use as a dual-purpose variety that can be used to produce both snaps (edible pods) and fresh-shell peas. 'WhipperSnapper' is most similar to 'Bettersnap' and 'Snapea', the only other two snap-type varieties developed in the United States. 'WhipperSnapper' differs from 'Bettersnap' is its reaction to root-knot nematodes (*Meloidogyne* spp.); 'WhipperSnapper' is susceptible (*rk/rk*) and 'Bettersnap' is resistant (*Rk/Rk*). 'WhipperSnapper' differs from 'Bettersnap' in several important horticultural traits (see Attachment 1 to Exhibit D); it produces smaller seed (e.g., an average of 9.2 grams per 100 dry seeds vs. 11.3 grams per 100 dry seeds in four years of replicated testing at Charleston, SC), it matures earlier (e.g., an average of 62.5 days to dry pod maturity vs. 65.2 days to dry pod maturity in four years of testing at Charleston, SC), and it has greater yield potential (e.g., 19% greater dry seed yield in four years of replicated testing at Charleston, SC). 'WhipperSnapper' also produces a much higher quality seed than 'Bettersnap' ('Bettersnap' seeds have a tendency to split). 'WhipperSnapper' differs from 'Snapea' in several traits; the pods are borne above the foliage ('Snapea' pods at borne at foliage level), the pods have distinct constrictions between the peas ('Snapea' pods have slight constrictions), the color of mature pods is an attractive yellow (the mature 'Snapea' pod color is green), and the peas are much smaller (e.g., an average of 9.2 grams per 100 dry peas in our tests vs. a published report of 15.5 grams per 100 dry peas (Burgoon, A.C. 1986. A descriptive list of cowpea varieties. Cowpea Nwsltr. 1(2):7-14)).

Exhibit C

FORM APPROVED: OMB NO. 40-R3822

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
BELTSVILLE, MARYLAND 20705

OBJECTIVE DESCRIPTION OF VARIETY
(Cowpea)

INSTRUCTIONS: See Reverse

NAME OF APPLICANT(S)
The U.S. government as represented by the Secretary of Agriculture

VARIETY NAME OR TEMPORARY DESIGNATION
WhipperSnapper

ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code)
1400 Independence Ave., S.W.
Washington, D.C. 20250-0302

FOR OFFICIAL USE ONLY
PVPO NUMBER
200500007

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0|6|9] or [0|9]) when number is either 99 or less.

1. PLANT HABIT AT GREEN SHELL STAGE: [1] 1 = ERECT 2 = SEMIERECT 3 = PROCUMBENT 4 = PROSTRATE

2. PLANT SIZE: [5|2] CM. HIGH AT MATURITY

3. STEM COLOR: [1] 1 = GREEN 2 = PURPLE

4. NODE COLOR: [1] 1 = GREEN 2 = PURPLE

5. FOLIAGE: [2] 1 = OPEN 2 = COMPACT

6. LEAF COLOR (See Reverse): [2] 1 = LIGHT GREEN 2 = MEDIUM GREEN 3 = DARK GREEN

7. LEAF SURFACE: [1] 1 = SMOOTH 2 = BLISTERED [1] 1 = DULL 2 = GLOSSY

8. FLOWER COLOR (See Reverse) [4] 1 = PURPLE 2 = LAVENDER 3 = TINGED 4 = WHITE

9. FIRST FLOWERING [4|2] NUMBER OF DAYS

10. POD:

[2] PLACEMENT: 1 = BELOW FOLIAGE 2 = ABOVE FOLIAGE 3 = AT FOLIAGE LEVEL

[2] LOCATION: 1 = SCATTERED 2 = BUNCHED

[2|5] CM. LONG [0|7] MM. WIDE

[2] CURVATURE: 1 = STRAIGHT 2 = CURVED

[3] CONSTRICTIONS: 1 = NONE 2 = SLIGHT 3 = DEEP

[2] SURFACE (*Green shell maturity*): 1 = DULL. 2 = GLOSSY

[5] COLOR (*Green shell maturity*): 1 = SILVER-GREEN 2 = GREEN 3 = LIGHT PURPLE 4 = DARK PURPLE 5=YELLOW

[2] COLOR (*Dry maturity*): 1 = WHITE 2 = STRAW 3 = DRAB 4 = PURPLE

[2] CROSS SECTION (*Green shell stage-width/height*): 1 = (1: <) 2 = (1: >) 3 = (1:1)

11. SEED:

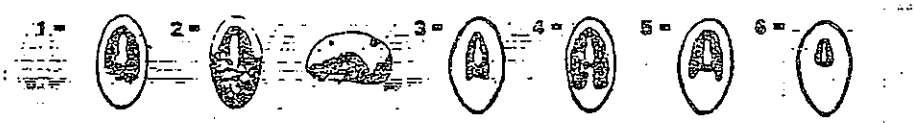
[14] NUMBER OF SEEDS PER POD

[1] SHAPE (*See Reverse*): 1 = KIDNEY 2 = OVATE TO OVOID 3 = CROWDER 4 = GLOBOSE 5 = RHOMBOID

[0|8] MM. LONG

[0|4] MM. WIDE

[6] HILAR EYE TYPE:



SPECKLED BLOTCH NARROW BIG SMALL VERY SMALL

[2|4|5] GM. PER 1000 SEEDS

[2] COAT: 1 = WRINKLED 2 = SMOOTH

[1] COLOR PATTERN: 1 = SINGLE COLOR 2 = PATTERNED 3 = MARBLED 4 = SPECKLED

[8] PRIMARY COLOR (*Single color or basic color*): 1 = PURPLE 2 = BLACK 3 = DULL BLACK 4 = BLUE 5 = RED 6 = COFFEE 7 = MAROON 8 = BUFF OR CLAY 9 = PINK 0 = WHITE

SECONDARY COLORS PRODUCING THE PATTERN, MARBLING OR SPECKLING (Enter a zero in boxes where the colors do not identify the secondary colors.):

[0] 1 = PURPLE	[0] 2 = BLACK	[0] 3 = DULL BLACK	[0] 4 = BLUE	[0] 5 = RED
[0] 6 = COFFEE	[0] 7 = MAROON	[0] 8 = BUFF	[0] 9 = PINK	[0] 0 = WHITE

2005 0007

12. DISEASE (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

0 FUSARIUM WILT Vursarium Wilt	1 ROOT KNOT NEMATODE	0 CHARCOAL ROT	0 ZONATE LEAF SPOT
0 RED LEAF SPOT	0 POWDERY MILDEW	0 COWPEA CHLOROTIC MOTTLE VIRUS	0 SOUTHERN BEAN MOSAIC VIRUS
0 BEAN YELLOW MOSAIC VIRUS	0 CUCUMBER MOSAIC VIRUS	0 BEAN POD MOTTLE VIRUS	0 SOYBEAN CYST NEMATODE
0 COWPEA YELLOW MOSAIC VIRUS	0 BACTERIAL CANKER	0 CERCOSPORA LEAF-SPOT	0 STING NEMATODE
0 RUST	0 SOUTHERN BLIGHT	0 ROOT ROT	0 OTHER *(Specify)* _____

13. INSECT (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

0 MEXICAN BEAN BEETLE	0 COWPEA APHID	0 COWPEA CURCULIO	0 STINK BUGS
0 LESSER CORNSTALK BORER	0 EUROPEAN CORNBORER	0 CORN EARWORM	0 BEET ARMYWORM
0 THRIPS	0 SERPENTINE LEAF MINERS	0 OTHER *(Specify)* _____	

14. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant size	Bettersnap	Plant habit	Bettersnap
Pod size	Bettersnap	Plant pigmentation	Bettersnap
No. days to maturity	Bettersnap	Seed coloration	Bettersnap

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for completing this form:

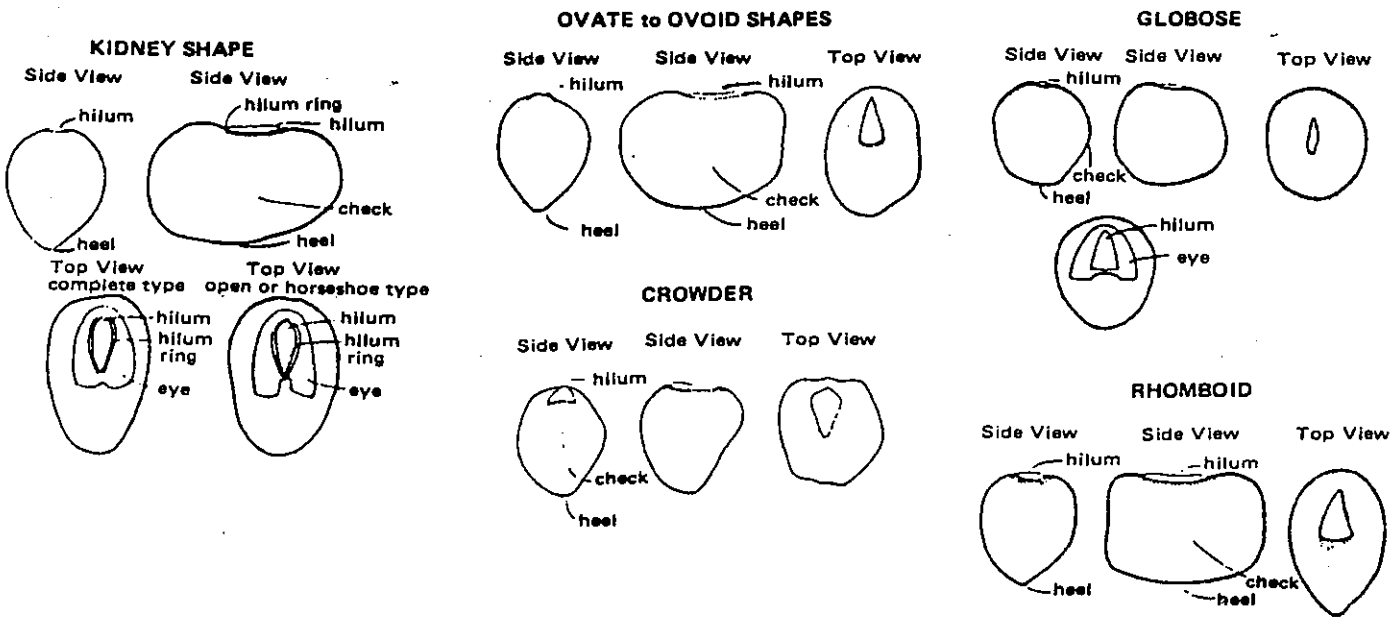
1. C. V. Piper, 1912, Agricultural Varieties of Cowpea and Related Species, U.S.D.A., Bulletin No. 229.
2. L. L. Ligon, 1958, Characteristics of Cowpea Varieties, Oklahoma State University, Bulletin B-518.
3. W. J. Spillman and W. J. Sando, 1929, Mendelian Factors in the Cowpea, papers of the Michigan Academy of Science, Arts and Letters, Vol. XI.

LEAF COLOR: Any recognized color chart may be used to determine the leaf color of the described variety. The following cowpea varieties may be used as a guide to identify colors listed:

1. Light Green - Texas Cream 40 2. Medium Green - Big Boy
3. Dark Green - California Blackeye #5.

FLOWER COLOR: White flower should be treated with a one percent solution of hydrochloric acid to determine if anthocyanin is present. If color appears as a result of the test, classify as tinged.

TERMS USED TO DESCRIBE SHAPES:



8

Exhibit D: Additional Description of the Variety

'WhipperSnapper' is a southernpea, *Vigna unguiculata* (L.) Walp., developed for use as a dual-purpose cultivar that can be used to produce both snaps (edible pods) and fresh-shell peas. It is the product of a breeding program to incorporate the superior yield and seed characteristics of Asian "vegetable cowpeas" into American snap-type southernpeas.

'WhipperSnapper' has a compact, erect plant habit. The leaf color is a dull medium green and the leaf surface is smooth. There is no red or purple pigmentation on stems, branches, petioles or peduncles. Flower color is white, but the back and the lower center portion of the inside of the standard are yellow.

'WhipperSnapper' pods are borne in a bunched fashion above the foliage. Ready-to-harvest pods are attached to the peduncles in a pendant manner. Each peduncle most commonly produces two pods, but the cultivar has a tendency to produce greater numbers of pods per peduncle in some seasons. In a 2001 planting for example, 36% of the 'WhipperSnapper' peduncles produced 3 pods, 6% produced 4 pods, and 1% produced 5 pods.

Typical ready-to-harvest 'WhipperSnapper' snaps are green colored and slightly curved at the attachment end. Typical mature green pods (green shell maturity stage) suitable for fresh-shell harvest exhibit an attractive yellow color, are 25 cm long, and contain 14 peas. The hulls of the mature-green pods are loose around the peas and the constrictions are deep (pea locations in unshelled pods are quite obvious). Mature-green pods are extremely easy to shell. Fresh peas are cream-colored, kidney-shaped, and weigh 24.5 gm per 100 peas. Dry pods exhibit a light straw color. Dry peas have a smooth seed coat and a tan color.

Replicated dry-pod-harvest field studies were conducted at Charleston, SC, in 1997, 1998, 2000, and 2001 to compare the maturity, seed size, and yield characteristics of 'WhipperSnapper' and 'Bettersnap' (Attachment 1 to Exhibit D). The results of these studies indicated that 'WhipperSnapper', on average, is 2.7 days earlier than 'Bettersnap', produces seeds that are 7.1% smaller (9.2 gm per 100 dry seed), and has a 19% greater yield potential. Additionally, the results of these studies clearly indicated that the quality of 'WhipperSnapper' seed is excellent and much superior to that of 'Bettersnap'. 'Bettersnap' seed coats have a tendency to split, and this undesirable trait, in addition to being a seed production problem for seedsmen, limits the usefulness of 'Bettersnap' as either a fresh-shell or dry-shell cultivar.

A replicated field study was conducted at Charleston, SC, in 1999 to compare the maturity, pod, and yield characteristics of 'WhipperSnapper' and 'Bettersnap' when harvested as snaps (Attachment 2 to Exhibit D). The study was seeded on June 2, and predominantly sieve size No. 2 snaps (5.75 to 7.34 mm in width) were harvested five times between July 21 and August 2. The average date to first harvest for 'WhipperSnapper' was 49.4 days (0.6 days earlier than 'Bettersnap'). The average width (6.37 mm), height (7.64 mm), and length (24 cm) of 'WhipperSnapper' pods were not significantly different than those of 'Bettersnap' pods. However, the total 'WhipperSnapper' yield of snaps (10,468 kg per ha) was 62% greater than the total 'Bettersnap' yield of snaps. In 2000, an unreplicated field study was conducted at Jefferson

City, MO, to evaluate the potential of 'WhipperSnapper' to produce snaps. This study, planted on June 3 and harvested 12 times between August 21 and September 20, produced a total snap yield (9,514 kg per ha) similar to that observed in the Charleston, SC, study.

Replicated field studies conduced at Calhoun, LA, in 1999, 2000, and 2001 demonstrated that a commercial reel-type snap-bean harvester can be used to mechanically harvest snaps from 'WhipperSnapper' plants. The yields produced by this single-harvest mechanized procedure were relatively consistent from year-to-year (average snap yield of 1,111 kg per ha).

Attachment 1. *Table 1.* Number of days to dry-pod harvest, weight per 100 dry peas, and dry pea yield for 'WhipperSnapper' and 'Bettersnap' southernpeas grown in spring trails, Charleston, S.C., 1997, 1998, 2000, and 2001.

Attachment 2. *Table 2.* Number of days to harvest, pod length, pod diameter, and fresh pod (snap) yield for 'WhipperSnapper' and 'Bettersnap' southernpea grown in a spring trial, Charleston, SC, 1999.

Table 1. Number of days to dry-pod harvest, weight per 100 dry peas, and dry pea yield for 'WhipperSnapper' and 'Bettersnap' southernpeas grown in spring trials, Charleston, S.C., 1997, 1998, 2000, and 2001[z].

Cultivar	Days to dry pod harvest (no.)	Wt./100 dry peas (g)	Dry pea yield ($kg \cdot ha^{-1}$)
	Trial 1 - 1997		
WhipperSnapper	65.0 b[y]	8.6 b	1,018 a
Bettersnap	66.6 a	10.6 a	601 b
	Trial II - 1998		
WhipperSnapper	58.6 b	9.8 b	738 a
Bettersnap	60.9 a	11.9 a	751 a
	Trial III - 2000		
WhipperSnapper	64.0 b	9.0 b	620 a
Bettersnap	67.8 a	11.6 a	545 a
	Trial IV - 2001		
WhipperSnapper	65.0 b	8.6 b	531 a
Bettersnap	67.6 a	10.4 a	386 a
	Combined analysis of all trials		
WhipperSnapper	62.5 b[NS]	9.2 b[NS]	714 a[**]
Bettersnap	65.2 a	11.3 a	598 b

[z]Spring 1997, 1998, 2000, and 2001 trials planted on 2 June, 27 May, 1 June, and 5 June, respectively. The experimental design of each trial was a randomized complete block with 5 (1997, 2001) or 10 replications (1998, 2000). Each plot was space-planted, 18 hills per plot, three seeds per hill, 30 cm between hills, and 102 cm between rows. Results of combined analyses of all trials indicated a significant cultivar x trial interaction for dry pea yield. Consequently, results are presented for both single trial and combined analyses to aid interpretation.

[y]Mean separation within columns and trials by Student-Newman-Keuls multiple range test, $P \leq 0.05$.

[NS, **]Nonsignificant or significant interaction between cultivar and trial at $P \leq 0.01$.

Table 2. Number of days to harvest, pod length, pod diameter, and fresh pod (snap) yield for 'WhipperSnapper' and 'Bettersnap' southernpeas grown in a spring trial, Charleston, S.C., 1999[z].

Cultivar	Days to first harvest (no.)	Pod diameter Width (mm)	Pod diameter Height (mm)	Pod length (cm)	Fresh pod (snap) yield ($kg \cdot ha^{-1}$)
WhipperSnapper	49.4 a[y]	6.37 a	7.64 a	24.0 a	10,468 a
Bettersnap	50.0 a	6.46 a	7.53 a	23.4 a	6,474 b

[z]Trial planted on 2 June 1999. The experimental design was a randomized complete block with 10 replications. Each plot was space-planted, 18 hills per plot, three seeds per hill, 30 cm between hills, and 102 cm between rows. The trial was harvested on 21 July, 23 July, 25 July, 28 July, 30 July, and 2 August. Each harvest was planned so that most of the harvested fresh pods were commercial sieve size no. 2 (5.75 to 7.34 mm in width).
[y]Mean separation within columns by Student-Newman-Keuls multiple range test, $P \leq 0.05$.

Plant Variety Invention Report

Variety: WhipperSnapper

Species: *Vigna unguiculata* (southernpea, cowpea)

1. Was this variety developed in cooperation with a university experiment station or other organization? What resources were contributed by the cooperator (e.g. technicians, breeders, land, facilities, services, test data, etc.)? List all cooperator employees who were directly involved in the breeding and selection of this material.

All breeding and selection work leading up to the selection of the snap-type advanced breeding line US-905 (the experimental designation for 'WhipperSnapper') was conducted at the U.S. Vegetable Laboratory, Charleston, SC. All off-site work with 'WhipperSnapper' cited in the draft release notice was conducted post-development.

After a set of homogenous, advanced generation, snap-type breeding lines was developed, the assistance of two cooperating institutions (Louisiana Agricultural Experiment Station, Calhoun, LA; Lincoln University, Jefferson City, MO) was enlisted to conduct studies to evaluate the consumer acceptance traits of snap-type southernpeas and to determine if the new snap-type lines could be harvested with commercial reel-type snap-bean harvesting equipment. The basic rational for soliciting the assistance of these cooperators was to develop a data base that could be used to broaden of the appeal of a new snap-type southernpea variety. For example, we wanted to document that market gardeners could use snap-bean harvesting equipment to harvest southernpea snaps and fresh-shell pods for fresh-market outlets and commercial food processors could use domestically-grown, mechanically-harvested southernpea snaps rather than hand-harvested southernpea snaps imported from Mexico (or domestically-grown snap bean pods) in their processed products.

The mechanical harvest work by Dr. Blair Buckley at the LSU AgCenter site in Calhoun, LA, was conducted over a period of three years. Except for providing seed, there was no direct ARS involvement in these trials. The studies were conducted on LSU land, LSU equipment was used, and all of the experimental procedures were executed by LSU personnel. Dr. Buckley provided data that clearly demonstrates that reel-type snap-bean harvesting equipment can be used to harvest the USDA snap-type southernpea breeding lines. These data were not the basis of the ultimate selection of US-905 for release as a named variety.

The consumer acceptance work was conducted by Dr. Dyremple Marsh at Lincoln University in Jefferson City, MO. Dr. Marsh conducted multiple years of field trials with the USDA snap-type breeding lines. Except for providing seed, there was no ARS involvement in the field trials conducted by Lincoln University. All of the studies

conducted by Dr. Marsh utilized Lincoln University facilities, equipment, and personnel. The quantity and quality of data provided by Dr. Marsh were limited. His data did confirm the results of the "snap" yield study conducted by USDA researchers in Charleston, SC. None of the data collected by Lincoln University researchers were instrumental in the ultimate selection of US-905 for release as a named variety.

2. Enter the complete draft text of the proposed release notice.

NOTICE OF RELEASE OF 'WHIPPERSNAPPER', A DUAL-PURPOSE SOUTHERNPEA FOR THE PRODUCTION OF BOTH SNAPS AND FRESH-SHELL PEAS.

The Agricultural Research Service of the U. S. Department of Agriculture, the LSU AgCenter, and the Lincoln University Cooperative Extension Service announce the release of WHIPPERSNAPPPER southernpea [*Vigna unguiculata* (L.) Walp.]. WHIPPERSNAPPPER was developed for use as a dual-purpose cultivar that can be used to produce both snaps (edible pods) and fresh-shell peas. WHIPPERSNAPPER was developed by Dr. Richard L. Fery, Research Geneticist, U. S. Vegetable Laboratory, Charleston, SC; Dr. Blair Buckley, Associate Professor of Horticulture, Calhoun Research Station, Calhoun, LA; and Dr. Dyremple B. Marsh, Associate Administrator for Extension, Lincoln University, Jefferson City, MO.

WHIPPERSNAPPER is the product of a pedigree-type breeding program initiated in 1988. The initial cross involved UCR-204 and 87-161-2. UCR-204 is a snap-type cowpea germplasm line released by the University of California at Riverside in 1986; it was developed at the Indian Agricultural Research Institute, New Delhi, India, and was evaluated in India as breeding line No. 779. UCR-204 is an early maturing, photo-insensitive and high-yielding line, but its pods exhibit a considerably lighter green color than is traditional for U.S. snap cultivars. Also, UCR-204 seeds have a brown eye color pattern rather than the solid cream color pattern that is traditional for U.S. snap cultivars. The paternal parent 87-161-2 is a sister line of the snap-type cultivar Bettersnap, which was released by the USDA in 1994. WHIPPERSNAPPER originated from a bulked F_8 population grown in 1996. It was evaluated as US-905 throughout the southern U.S. as an entry in the 1998, 1999, and 2000 Regional Southernpea Cooperative Trials.

WHIPPERSNAPPER has a compact, erect plant habit. The leaf color is a dull medium green and the leaf surface is smooth. There is no red or purple pigmentation on stems, branches, petioles or peduncles. Flower color is white, but the back and the lower center portion of the inside of the standard are yellow. Pods are borne in a bunched fashion above the foliage. Ready-to-harvest pods are attached to the peduncles in a pendant manner. Each peduncle most commonly produces two pods, but the cultivar has a tendency to produce greater numbers of pods per peduncle in some seasons. In a 2001 planting for example, 36% of the WHIPPERSNAPPER peduncles produced 3 pods, 6% produced 4 pods, and 1% produced 5 pods. Typical ready-to-harvest WHIPPERSNAPPER snaps are green colored and slightly curved at the attachment end.

Typical mature green pods suitable for fresh-shell harvest exhibit an attractive yellow color, are 25 cm long, and contain 14 peas. The hulls of the mature-green pods are loose around the peas and the constrictions are deep (pea locations in unshelled pods are quite obvious). Mature-green pods are extremely easy to shell. Fresh peas are cream-colored, kidney-shaped, and weigh 24.5 gm per 100 peas. Dry pods exhibit a light straw color. Dry peas have a smooth seed coat.

Replicated dry-pod-harvest field studies were conducted at Charleston, SC, in 1997, 1998, 2000, and 2001 to compare the maturity, seed size, and yield characteristics of WHIPPERSNAPPER and 'Bettersnap'. The results of these studies indicated that WHIPPERSNAPPER, on average, is 2.7 days earlier than 'Bettersnap', produces seeds that are 7.1% smaller (9.2 gm per 100 dry seed), and has a 19% greater yield potential. Additionally, the results of these studies clearly indicated that the quality of WHIPPERSNAPPER seed is excellent and much superior to that of 'Bettersnap'. 'Bettersnap' seed coats have a tendency to split, and this undesirable trait, in addition to being a seed production problem for seedsmen, limits the usefulness of 'Bettersnap' as either a fresh-shell or dry-shell cultivar.

A replicated field study was conducted at Charleston, SC, in 1999 to compare the maturity, pod, and yield characteristics of WHIPPERSNAPPER and 'Bettersnap' when harvested as snaps. The study was seeded on June 2, and predominantly sieve size No. 2 snaps (5.75 to 7.34 mm in width) were harvested five times between July 21 and August 2. The average date to first harvest for WHIPPERSNAPPER was 49.4 days (0.6 days earlier than 'Bettersnap'). The average width (6.37 mm), height (7.64 mm), and length (24 cm) of WHIPPERSNAPPER pods were not significantly different than those of 'Bettersnap' pods. However, the total WHIPPERSNAPPER yield of snaps (10,468 kg per ha) was 62% greater than the total 'Bettersnap' yield of snaps. In 2000, an unreplicated field study was conducted at Jefferson City, MO, to evaluate the potential of WHIPPERSNAPPER to produce snaps. This study, planted on June 3 and harvested 12 times between August 21 and September 20, produced a total snap yield (9,514 kg per ha) similar to that observed in the Charleston, SC, study.

Replicated field studies conduced at Calhoun, LA, in 1999, 2000, and 2001 demonstrated that a commercial reel-type snap-bean harvester can be used to mechanically harvest snaps from WHIPPERSNAPPER plants. The yields produced by this single-harvest mechanized procedure were relatively consistent from year-to-year (average snap yield of 1,111 kg per ha).

WHIPPERSNAPPER is recommended for use by home gardeners for production of both snaps and fresh-shell peas. The new cultivar can be used to produce abundant quantities of snaps during seasons too hot for successful culture of snap-bean cultivars. The mature-green pods are long, exhibit an attractive yellow color, and are extremely easy to shell. The ease-of-shelling trait is important to home gardeners because most home gardeners must shell their harvest by hand. WHIPPERSNAPPER is also recommended for trial by market gardeners to produce snaps, mature-green pods, and fresh-shell peas for sale in farmers' markets. Additionally, WHIPPERSNAPPER has

potential for use as a mechanically-harvested source of snaps for use by food processors in mixed packs of peas and snaps.

A limited quantity of WHIPPERSNAPPER breeder's seed is available for *pro rata* distribution to *bona fide* southernpea seed producers who make a written request by February 3, 2004. Additionally, small trial samples of breeder's seed are available for distribution to all interested research personnel. Address all requests for seed to Dr. Richard L. Fery, U. S. Vegetable Laboratory, 2700 Savannah Highway, Charleston, SC 29414-5334. Genetic material of this release will be deposited in the National Plant Germplasm System where it will be available for research purposes, including the development and commercialization of new cultivars. It is requested that appropriate recognition of source be given when this germplasm contributes to research or development of a new breeding line or cultivar.

3. Who is expected to use the released plant material and how will they use it? What public or private organizations have requested this material for research, breeding or testing purposes? Have you consulted with any commodity groups?

If marketed properly, 'WhipperSnapper' has considerable potential for use as a home garden variety, a fresh-market variety, and a processing variety.

Traditionally, home gardeners in the southern United States have grown southernpeas to produce fresh-shell peas and immature, fresh pods or snaps. Southernpea seed production for the home garden market in the southern United States is considerably greater than seed production for commercial agriculture.

'WhipperSnapper' has potential for use as a fresh-market variety. Mature-green southernpea pods (unshelled pods containing fully developed fresh peas) and shelled fresh peas are marketed throughout the south as a fresh vegetable, and are a major source of income for many small, fresh-market vegetable farmers.

'WhipperSnapper' also has potential for use as a mechanically-harvested source of snaps for use by food processors in mixed packs of peas and snaps. Traditionally, food processors have included a small portion of southernpea snaps in their processed products, but the procurement cost of the hand-harvested southernpea snaps often forces processors to either substitute mechanically-harvested snap-bean snaps or produce and import hand-harvested southernpea snaps from Mexico.

No private organizations have requested 'WhipperSnapper' seed for research, breeding or testing purposes.

The ARS Laboratory at Lane, OK, requested and was provided seed (for research purposes only) of several snap-type southernpea breeding lines (including US-905) for testing in a post-harvest research project.

Seed companies that specialize in growing and marketing southernpea seed and the membership in the principal southernpea commodity group (National Cowpea Improvement Association) are aware of the ARS efforts to develop snap-type southernpea varieties. Aspects of this research effort were addressed during formal presentations at 1999 and 2003 annual meetings of the National Cowpea Improvement Association. A poster presented at the 2002 ARS Technology Showcase in Fort Pierce, FL, included a discussion of this research. The research was also discussed at the 2003 Southeast Vegetable and Fruit Exposition, Greensboro, NC. The ARS breeder has discussed the pending release of a snap-type cultivar with representatives of several seed and food processing companies. All of the commercial seedsmen have expressed an interest in the material, especially in the possibility of obtaining an exclusive arrangement to market/produce a snap-type variety. There is an interest in a southernpea cultivar that has the potential for production of snaps for food processing companies.

4. List any publications and/or public use of this plant material. Has the material been provided to anyone outside of USDA for field-testing purposes? Have seeds, cuttings, fruit or other materials been sold to cooperators? If so, give date(s).

The following published abstracts contain information about the snap-type southernpea breeding efforts at the U. S. Vegetable Laboratory:

- Fery, R. L., J. A. Thies, and P. D. Dukes, Sr. 1999. Development of new southernpea cultivars: An update on the USDA effort. HortScience 34:838. (Abstr.)

- Fery, R., B. Buckley, and D. Marsh. 2002. Development of dual-purpose cowpea [*Vigna unguiculata* (L.) Walp.] cultivars for production of both snaps and fresh-shell peas. Abstracts of the XXVIth International Horticultural Congress, Toronto, Canada, 11-17 August 2002. (Abstr.)

- Fery, R. L. 2002. Development of improved southernpea varieties for the southern United States: An update of the USDA effort. p. 53. In: J. Schultheis (ed.). North Carolina Vegetable Growers Assoc. 2002 Yearbook - Vol. IV., North Carolina Vegetable Growers Assoc., Inc., Raleigh, NC (Proc. Southeast Vegetable & Fruit Exp, Greensboro, NC, 2-3 December 2002). (Abstr.)

- Fery, R. L., and J. A. Thies. 2003. Development of improved southernpea cultivars for home gardens and the food freezing and fresh market industries. HortScience 38:1298. (Abstr.)

'WhipperSnapper' seed was provided to each cooperator in the Regional Southernpea Cooperative Trials for field testing in 1998, 1999, and 2000. Except for ARS scientists located at Charleston, SC, all of the cooperators in these trials are employees of land-

grant universities. The general instructions to the cooperators contains the following statement: "All of the entries in the (year) trials are unreleased breeding lines. Each cooperator accepts these materials with the understanding that they cannot be used for any purpose other than growing the trial. Any other use, e.g., seed increase or parental use, is not permitted without consent of the scientist who developed the line." The annual reports of the trails contains the following statement on the cover sheet: "Not for publication, even in part, without the consent of author and cooperator whose lines and data are concerned."

No seeds, cuttings, fruit or other materials derived from 'WhipperSnapper' plants been provided to any private company for any purpose.

No seeds, cuttings, fruit or other materials derived from 'WhipperSnapper' plants been sold by cooperators.

5. Explain how protection will facilitate technology transfer, that would otherwise not occur if the variety is publicly released. Does the variety have any special characteristics that would make protection desirable (e.g., niche market use, transgenic, incorporates proprietary technology, incorporates third party IP).

The snap-type southernpea is clearly a "nick market" type crop. The market for this variety class of southernpea at present is rather limited as compared to the other variety classes of horticultural southernpeas (i.e., cream, crowder, pinkeye, blackeye, and field pea variety classes). There is probably not sufficient market potential to justify a significant investment by a seed company to market 'WhipperSnapper' without the protection of some type of exclusive marketing agreement with ARS. All of the leading southernpea seed companies are small companies. Several commercial seed companies have expressed an interest in obtaining access to a "protected" snap-type variety; none of these companies has expressed a preferential interest in a publicly-released snap-type variety.

There are just five public institutions (and no private companies) that have an active southernpea breeding program (ARS, Texas A&M University, University of Arkansas, Louisiana State University, and the University of California). Except possibly the University of Arkansas, all of these programs have protected (PVPC) variety releases in recent years.

The ARS southernpea breeding program in Charleston, SC, has released a total of 16 southernpea varieties since 1980. The single release that has enjoyed the most wide acceptance was the green cotyledon, pinkeye-type variety Charleston Greenpack. This specific cultivar was developed via a CRADA with a private seed company, and this contractual agreement resulted the variety being protected (PVPC) and the company being granted an exclusive agreement to market the variety. This company was quite successful in marketing the variety, and 'Charleston Greenpack' is now the leading southernpea variety used by the frozen food industry. The success enjoyed by

'Charleston Greenpack' is due in large measure to the marketing effort of the private seed company holding the exclusive marketing rights to the variety.

The public southernpea breeding programs in the United States are now seeking PVP for most of their newly released varieties. The markets for the various classes of southernpea varieties are limited (i.e., niche markets) , and it is unlikely that any small seed company is willing to devote the resources needed to successfully market a "non-exclusive" ARS-developed variety. This is especially true for a snap-type variety because this variety class of southernpea clearly addresses a limited "niche" market.

6. Is there an international market for this variety? If so, in what countries? Have you sent the variety to anyone outside of the U.S. for testing or breeding? Is so, provide country(s) and date(s).

'WhipperSnapper' was developed for use by home gardeners and farmers in the southern United States. There is no known use for this specific variety in international markets. However, it should be noted that cowpeas (vegetable cowpeas, yardlong beans) are grown extensively in some parts of the world (e.g., Africa and Asia) for production of fresh pods. 'WhipperSnapper' is only the third snap-type southernpea variety to be developed and released in the United ('Snapea' was released by the University of Florida in 1964; 'Bettersnap' was released by ARS in 1994).

'WhipperSnapper' has not be sent to anyone outside the U.S. for testing or breeding.

Name and Affiliation of all Potential Breeders:

Richard L. Fery
Research Geneticist
U. S. Vegetable Laboratory
ARS, USDA
Charleston, SC

Blair Buckley
Associate Professor of Horticulture
Louisiana Agricultural Experiment Station
LSU AgCenter
Calhoun Research Station
Calhoun, LA

Dyremple Marsh
Associate Administrator for Extension
Lincoln University
Jefferson City, MO

[Note: Dr. Marsh is now Associate Dean for Extension, College of Agriculture and Related Sciences, Delaware State University, Dover, DE.]

Name, Location and Phone Number of ARS Breeder submitting this request:

Richard L. Fery
U. S. Vegetable Laboratory
2700 Savannah Highway
Charleston, SC 294145334
Phone: (843) 402-5321

Date: November 24, 2003

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

Application is required in order to determine if a plant variety protection certificate is to be issued *(7 U.S.C. 2421)*. The information is held confidential until the certificate is issued *(7 U.S.C. 2426)*.

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
The U.S. government as represented by the Secretary of Agriculture	US 905	WhipperSnapper
4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*	5. TELEPHONE *(Include area code)*	6. FAX *(Include area code)*
1400 Independence Ave., S.W. Washington, D.C., 20250-0302 USA	301-504-6905	301-504-5060
	7. PVPO NUMBER 200500007	

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain. [X] YES [ ] NO

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? If no, give name of country. [X] YES [ ] NO

10. Is the applicant the original owner? [X] YES [ ] NO If no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?
[ ] YES [ ] NO If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?
[ ] YES [ ] NO If no, give name of country

11. Additional explanation on ownership *(Trace ownership from original breeder to current owner. Use the reverse for extra space if needed)*:

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 0.1 hour per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

EXHIBIT F
DECLARATION REGARDING DEPOSIT

NAME OF OWNER (S)	ADDRESS *(Street and No. or RD No., City, State, and Zip Code and Country)*	TEMPORARY OR EXPERIMENTAL DESIGNATION
The U.S. government as represented by the Secretary of Agriculture	1400 Independence Ave., S.W. Washington, D.C., 20250-0302 USA	US 905
		VARIETY NAME WhipperSnapper
NAME OF OWNER REPRESENTATIVE (S)	ADDRESS *(Street and No. or RD No., City, State, and Zip Code and Country)*	FOR OFFICIAL USE ONLY
Richard L. Fery Research Leader	U.S. Vegetable Laboratory 2700 Savannah Highway Charleston, SC 29414 USA	PVPO NUMBER 200500007

I do hereby declare that during the life of the certificate a viable sample of propagating material of the subject variety will be deposited, and replenished as needed periodically, in a public repository in the United States in accordance with the regulations established by the Plant Variety Protection Office.

Richard L. Fery
Signature

7/12/2007
Date