No. 201000095

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Virginia Tech Intellectual Properties, Inc.

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 years from the date of this grant, subject to the payment of the required fees and periodic replenishment of viable basic seed of the variety in a public repository as provided by LAW, the right to exclude others from selling the variety, or offering it for sale, or reproducing it, or importing it, or exporting it, or conditioning it for propagation, or stocking it for any of the above purposes, or using it in producing a hybrid or different variety therefrom, to the extent provided by the PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'MFS-541'

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 sixteenth day of July, in the year* ***two thousand and twelve.***

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

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
Virginia Tech Intellectual Properties, Inc.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME
V00-3636

3. VARIETY NAME
MFS-541

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
2200 Kraft Drive, Suite 1050

Blacksburg VA 24060

5. TELEPHONE *(include area code)*
540-951-9374

6. FAX *(include area code)*
540-951-5292

FOR OFFICIAL USE ONLY

PVPO NUMBER
#201000095

FILING DATE
1/14/2010

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

8. IF INCORPORATED, GIVE STATE OF INCORPORATION
Virginia

9. DATE OF INCORPORATION
June 20, 1985

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*
Dr. Katy Martin Rainey
Crop and Soil Environmental Sciences, 509 Latham Hall
Virginia Tech University
Blacksburg VA 24061

FEES RECEIVED

FILING AND EXAMINATION FEES:
$ 4,382.00
DATE 11/14/2010

CERTIFICATION FEE:
$
DATE

11. TELEPHONE (Include area code)
540-231-6496

12. FAX (Include area code)
540-231-3431

13. E-MAIL
kmrainey@vt.edu

14. CROP KIND *(Common Name)*
Soybean

16. FAMILY NAME *(Botanical)*
Leguminosae

15. GENUS AND SPECIES NAME OF CROP
Glycine max

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 COMMERCIALIZATION. _____

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. ☑ Exhibit F. Declaration Regarding Deposit
- g. ☑ Voucher Sample *(3,000 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)*
- h. ☑ Filing and Examination Fee ($4,382), 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 ONLY 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)*
☐ UNDECIDED

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
Mark Coburn

NAME *(Please print or type)*
Mark Coburn

CAPACITY OR TITLE
President

DATE
12-18-09

SIGNATURE OF OWNER

NAME *(Please print or type)*

CAPACITY OR TITLE

DATE

#201000095

(See reverse for instructions and information collection burden statement)

GENERAL INSTRUCTIONS: 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, F; (3) for a tuber reproduced variety, 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; and (4) payment by credit card or check drawn on a U.S. bank for $4,382 ($518 filing fee and $3,864 examination fee), payable to "Treasurer of the United States" *(See Section 97.6 of the Regulations and Rules of Practice)*. **NEW:** With the application for a seed reproduced variety **or by direct deposit soon after filing**, the applicant must provide at least 3,000 viable untreated seeds of the variety *per se*, and for a hybrid variety at least 3,000 untreated seeds of each line necessary to **reproduce** the variety. Partial applications will be held in the PVPO for not more than 90 days; then returned to the applicant as un-filed. 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 payment by credit card or check payable to "Treasurer of the United States" in the amount of $768 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

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.)*

Plant Variety Protection Office
Telephone: (301) 504-5518 **FAX:** (301) 504-5291
General E-mail: PVPOmail@usda.gov
Homepage: http://www.ams.usda.gov/science/pvpo/PVPindex.htm

SPECIFIC INSTRUCTIONS:

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and **provide evidence** that the permanent name of the application variety (even if it is a parental, inbred line) has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: U.S. Department of Agriculture, Agricultural Marketing Service, Livestock and Seed Programs, **Seed Regulatory and Testing Branch**, 801 Summit Crossing Place, Suite C, Gastonia, North Carolina 28054-2193 Telephone: (704) 810-8870. 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 replicated 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).)*

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, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program (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).

201000095

Exhibit A
Origin and Breeding History of MFS-541

The experimental designation of MFS-541 was V00-3636. It originated as F_4 selection from a cross of SS 516(3) x V93-0687. (V93-0687 backcrossed three times to SS516). The F_4 generation was obtained via single seed descent. Subsequent generations were selected for yield, maturity, adaptation, seed size, and quality traits. V93-0687 is an experimental small seeded breeding line developed by the Virginia Agricultural Experiment Station, and is F_5 selection of Camp x PI 399118. Camp is a small seeded public variety, PI 399118 is small seeded.

Variety MFS-541 has been reproduced and judged distinct, uniform, and stable for the past 3 generations for all traits described in Exhibit C. No variants or off-types have been observed within this variety,

201000095

Exhibit B
Statement of Distinctness of MFS-541

Variety MFS-541 has been approved for release by the Virginia Agricultural Experiment Station Crop Germplasm Release Committee. MFS-541 is a small-seeded cultivar suitable for the manufacture of natto, and is superior in yield and maturity to MFS-591, the current natto cultivar produced in the Mid Atlantic region. MFS-541 yields an average of 5.9 bu/acre higher than MFS-591, which is the primary justification for its release. MFS 541 is generally adapted to all areas in Virginia where soybeans are grown, though it has not been tested extensively in the Tidewater area. Yields are less than standard cultivars (86% of Hutcheson), but premium prices are paid for natto soybeans.

MFS-541 is most similar to variety MFS-591, but has larger seeds. Seed size of MFS-541 is 9g/100 seeds versus 8g/100 seeds of MFS-591.

The examiner also found the following difference when comparing the PVP descriptions: 'MFS-541' differs from 'MFS-591' in hila color (gray vs. buff, respectively).

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REPRODUCE LOCALLY. Include form number and date on all reproductions.

Form Approved OMB NO 0581-0055

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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.

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

EXHIBIT

OBJECTIVE DESCRIPTION OF VARIETY
Soybean (*Glycine max* (L.) Merr.)

NAME OF APPLICANT (S)	TEMPORARY OR EXPERIMENTAL DESIGNATION	VARIETY NAME
Virginia Tech Intellectual Properties	VOO-36036	MFS-541
ADDRESS (Street and No. or RD No., City, State, Zip Code, and Country) 2200 Kraft Dr. Blacksburg, VA 24060		FOR OFFICIAL USE ONLY PVP NUMBER #201000095

PLEASE READ ALL INSTRUCTIONS CAREFULLY:

Place the appropriate number that describes the varietal character of this variety in the spaces below.

Place a zero in the first box (e.g., [0][9][9] or [0][9]) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used _____. Please answer all questions for your variety; lack of response may delay progress of your application.

A. MORPHOLOGY:

Seed Shape:

[1] 1 = Spherical (L/W, L/T, and T/W ratios ≤1.2)

2 = Spherical-Flattened (L/W ratios> 1.2; L/T ratios ≤ 1.2)

3 = Elongate (L/W ratios > 1.2; T/W ratios ≤ 1.2)

4 = Elongate-Flattened (L/T ratios ≥ 1.2; L/W ratios ≥ 1.2)

Seed Coat Color:

* [1] 1 = Yellow 2 = Green 3 = Brown 4 = Black 5 = Other (Please specify) _____

Seed Coat Luster:

[2] 1 = Dull 2 = Shiny

Seed Size:

* [0][9].[0] grams/100 seeds (rounded to the nearest decimal (00.0))

Hilum Color:

* [4] 1 = Buff 2 = Yellow 3 = Brown 4 = Gray 5 = Imperfect Black 6 = Black
7 = Other (Please specify) _____

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A. MORPHOLOGY: (continued)

Cotyledon Color:

* [1] 1 = Yellow 2 = Green

Seed Protein Peroxidase Activity:

* [ ] 1 = Low 2 = High

Hypocotyl Color:

* [ ] 1 = Green ('Evans' or 'Davis') 2 = Green with Bronze Band below cotyledons ('Woodworth' or 'Tracy') 3 = Light Purple below Cotyledons ('Beeson' or 'Pickett 71') 4 = Dark Purple extending to unifoliolate leaves ('Hodgson', 'Coker', or 'Hampton 266A')

Leaf Shape:

[3] 1 = Lanceolate 2 = Oval 3 = Ovate 4 = Other (Please specify) _____

Flower Color:

* [2] 1 = White 2 = Purple 3 = White with a Purple Throat

Pod Color:

* [1] 1 = Tan 2 = Brown 3 = Black

Pubescence Color:

* [1] 1 = Gray 2 = Brown (Tawny) 3 = Light Tawny

Plant Habit:

* [1] 1 = Determinate 2 = Semi-determinate 3 = Indeterminate 4 = Intermediate

Maturity Group:

* [8] 1 = 000 2 = 00 3 = 0 4 = I 5 = II
6 = III 7 = IV 8 = V 9 = VI 10 = VII
11 = VIII 12 = I 13 = X 14 = XI 15 = XII

Maturity Subgroup:

* [4] Please enter a value from 0-9

B. DISEASE REACTIONS: 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

NOTE: Failure to supply information for at least 5 of the following disease reactions will result in significant delay in the examination process. Items denoted by and asterisk are the disease reactions most useful in the examination process.

Bacterial

* [0] Bacterial Pustule (*Xanthomonas campestris* pv. *glycines* (Nakano) Dye)
* [0] Bacterial Blight (*Pseudomonas syringae* pv. *glycinea* (Coerper) Young, Dye, & Wilkie)
* [0] Wildfire Blight (*Pseudomonas syringae* pv. *tabaci* (Wolf & Foster) Young, Dye, & Wilkie)

Fungal

* [0] Brown Spot (*Septoria glycines* Hemmi)
* [0] Frogeye Leaf Spot (*Cercospora sojina* Hara)

[ ] race 1 [ ] race 3 [ ] race 5 [ ] race 7
[ ] race 2 [ ] race 4 [ ] race 6 [ ] Important: Any other races tested (Please specify)_____

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B. DISEASE REACTIONS: (continued)

- [0] Target Spot (*Corynespora cassiicola* (Berk. & Curt.) Wei)
- [0] Downy Mildew (*Peronspora trifoliorum* var. *manchurica* (Naum.) Syd. Ex Gäum)
- [0] Powdery Mildew (*Microsphaera diffusa* Cke. & Pk.)
- [0] Brown Stem Rot (*Phialophora gregata* (Allington & Chamberlain) W. Gams.)
- * [0] Stem Canker (*Diaporthe phaseolorum* (Cke. & Ell.) Sacc. var. caulivora Athow & Caldwell)
- * [0] Pod and Stem Blight (*Diaporthe phaseolorum* (Cke. & Ell.) (Sacc. var. *sojae* (Lehman) Wehm.)
- [0] Purple Seed Stain (*Cercospora kikuchii* (T. Matsu. & Tomoyasu) Gardener)
- [0] Rhizoctonia Root Rot (*Rhizoctonia solani* Kühn)
- [0] Asian Soybean Rust (*Phakospora pachyrhizi* Sydw. (a.k.a. *Phakospora pachyrhizia* Sydw.))
- [0] Other rust (Please specify) _____

Specify the gene(s) coding for reaction to Phytophthora Root Rot.

- [ ] *Rps1* (Williams)
- [ ] *Rps1-a* (Mukden)
- [ ] *Rps1-b* (Sanga)
- [ ] *Rps1-c* (Arksoy)
- [ ] *Rps1-d* (PI 103.091)
- [ ] *Rps1-e* (PI 172.907)
- [ ] *Rps1-k* (Kingwa)
- [ ] *Rps2* (CNS)
- [ ] *Rps3-a* (PI 171.442)
- [ ] *Rps3-b* (PI 172.901)
- [ ] *Rps3-c* (PI 340.046)
- [ ] *Rps4* (PI 86.050)
- [ ] *Rps5* (PI 91.160)
- [ ] *Rps6* (Altona)
- [ ] *Rps7* (Harosoy)
- [ ] *Rps?* (Nezumisaya, OX939, OX940)

*Phytophthora Root Rot (*Phytophthora sojae* (Kaufmann & Gerdemann))

- [ ] race 1
- [ ] race 2
- [ ] race 3
- [ ] race 4
- [ ] race 5
- [ ] race 6
- [ ] race 7
- [ ] race 8
- [ ] race 9
- [ ] race 10
- [ ] race 11
- [ ] race 12
- [ ] race 13
- [ ] race 14
- [ ] race 15
- [ ] race 16
- [ ] race 17
- [ ] race 18
- [ ] race 19
- [ ] race 20
- [ ] race 21
- [ ] race 22
- [ ] race 23
- [ ] race 24
- [ ] race 25
- [ ] race 26
- [ ] race 27
- [ ] race 28
- [ ] race 29
- [ ] race 30
- [ ] race 31
- [ ] race 32
- [ ] race 33
- [ ] race 34
- [ ] race 35
- [ ] race 36
- [ ] race 37
- [ ] race 38
- [ ] race 39
- [ ] race 40
- [ ] race 41
- [ ] race 42
- [ ] race 43
- [ ] race 44
- [ ] race 45
- [ ] Important: Any other races tested (Please specify) _____

- [ ] Bud Blight (Tobacco Ringspot Virus)
- [ ] Yellow Mosaic (Bean Yellow Mosaic Virus)
- * [ ] Cowpea Mosaic (Cowpea Chlorotic Virus)
- [ ] Pod Mottle (Bean Pod Mottle Virus)
- * [ ] Seed Mottle (Soybean Mosaic Virus)

Nematode

*Soybean Cyst Nematode (*Heterodera glycines* Ichinohe)

- [0] race 1
- [0] race 2
- [0] race 3
- [0] race 4
- [0] race 5
- [0] race 6
- [0] race 9
- [0] race 14
- [ ] Important: Any other races tested (Please specify) _____

B. DISEASE REACTIONS: (continued)

- [0] Lance Nematode (*Hoplolaimus columbus* Sher)
- [0] Southern Root Knot Nematode (*Meliodogyne incognita* (Kofoid & White) Chitwood)
- [0] Northern Root Knot Nematode (*Meliodogyne hapla* Chitwood)
- [0] Peanut Root Knot Nematode (*Meliodogyne arenaria* (Neal) Chitwood)
- [0] Reniform Nematode (*Rotylenchus reniformus* Linwood & Olivera)
- [0] Javanese Nematode (*Meliodogyne javanica* (Treub) Chitwood)
- [ ] Important: Other Nematodes tested (Please specify) _____

C. PHYSIOLOGICAL RESPONSES: 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

- [0] Iron Chlorosis on Calcareous Soil
- [0] Phosphorus
- [0] Boron
- [0] Aluminum
- [0] Salt
- [0] Drought

[ ] Important: Other (Please specify) _____

D. INSECT REACTIONS: 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

- [0] Mexican Bean Beetle (*Epilachna varivestis* Mulsant)
- [0] Soybean Aphid (*Aphis glycines* Matsamura)
- [0] Potato Leaf Hopper (*Empoasca fabae* (Harris))
- [ ] Important: Other (Please specify) _____

E. HERBICIDE REACTIONS: 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

- [0] Metribuzin
- [0] Bentazone
- [0] Sulfonylurea
- * [0] Glyphosate
- [0] Glufosinate
- [0] Pendimethalin
- [0] Important: Other (Please specify) _____

F. TRANSGENIC COMPOSITION:

Has the development of the subject variety included the insertion of genetic material from an organism other than a soybean, or, the removal of genetic material from the application variety?

If yes, please complete the following information requests*. Use additional pages if necessary. ☐ Yes ☑ No

1. Please state the vector's name:
2. Please state the vector components:
3. Please describe the genetic material successfully transferred into the subject variety:
4. Please describe the insertion protocol:

* A literature citation(s) explaining the four information requests above may be an acceptable alternative to completion of the "Transgenic Composition" portion of this form.

G. BIOCHEMICAL MARKERS:

Please describe any additional genetic and/or biochemical information which you believe will be helpful in further describing the subject variety here (e.g., Single Nucleotide Polymorphisms (SNPs), Simple Sequence Repeats (SSRs), Restriction Fragment Length Polymorphisms (RFLPs), Isozyme characterization, etc.). Use additional pages if necessary.

H. STATISTICAL DATA FOR APPLICATION AND CITED MOST SIMILAR VARIETIES:

Please provide paired comparison data and appropriate statistical test (e.g. LSD. Std. error, ANOVA, Mann-Whitney *U*-test or Kruskal-Wallis Test, etc.) value (95 or > probability level).

Variety	No. of days Maturity	Plant height (cm)	% Linoleic acid	% Oleic acid	% Linolenic acid	% Other fatty acids (specify)	% Total oil	% Protein (Plant dried down to ___%)
Application Variety Year/Location 1								
2007/4 locs Virginia	44.5	85.2	n/a	n/a	n/a	n/a	n/a	40.0
Year/Location 2								
2006/4 locs Virginia	46.7	82.3						47.1
Cited Most Similar Variety Year/Location 1	MFS-591							
2007/4 locs Virginia	52.5	82.3						42.5
Year/Location 2								
2006/4 locs Virginia	60.4	71.1						47.4

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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
Virginia Tech Intellectual Properties, Inc.	V00-3636	MFS-541
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)*
2200 Kraft Drive, Suite 1050 Blacksburg, VA 24060	(540) 951-9374	(540) 951-5292
	7. PVPO NUMBER #201000095	

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? [ ] **YES** [X] **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?
[X] **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)*:

Ownership of "MFS-541" was transferred from the Virginia Tech Agricultural Experiment Station to Virginia Tech Intellectual Properties, Inc.

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.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program (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 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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Form Approved OMB NO 0581-0055

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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
Virginia Tech Intellectual Properties, Inc.	2200 Kraft Drive, Suite 1050 Blacksburg, Virginia 24060	V00-3636
		VARIETY NAME MFS-541
NAME OF OWNER REPRESENTATIVE (S)	ADDRESS *(Street and No. or RD No., City, State, and Zip Code and Country)*	FOR OFFICIAL USE ONLY
Mark Coburn	2200 Kraft Drive, Suite 1050 Blacksburg, Virginia 24060	PVPO NUMBER #201000095

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.

Mark Coburn — Signature

12-21-09 — Date