No. 7300101

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Cornell University Agricultural Experiment Station

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED 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 seventeen 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, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CLASS CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

ALFALFA

'Saranac AR'

PLANT VARIETY PROTECTION OFFICE · U.S. DEPARTMENT OF AGRICULTURE

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 *this* 26th *day of* July *in the year of our Lord one thousand nine hundred and* seventy-nine

Attest:

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

Secretary of Agriculture

FORM GR-470
(12-15-72)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

FORM APPROVED
OMB NO. 40-R3712

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

1. VARIETY NAME OR TEMPORARY DESIGNATION 'Saranac AR'	2. KIND NAME Alfalfa	FOR OFFICIAL USE ONLY PV NUMBER 73101
3. GENUS AND SPECIES NAME Medicago sativa	4. FAMILY NAME *(Botanical)* Leguminosae	FILING DATE 6·18·73 / TIME 11 A.M.
	5. DATE OF DETERMINATION 11 October 1972	FEE RECEIVED $ 250.00 / $ 250.00 / $ 250.00 / BALANCE DUE $ — / $ — / $ —
6. NAME OF APPLICANT(S) Cornell University Agricultural Experiment Station	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)* Cornell University Ithaca, New York 14853	8. TELEPHONE AREA CODE AND NUMBER 607-256-5420

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)*	10. STATE OF INCORPORATION	11. DATE OF INCORPORATION
State Agricultural Experiment Station	New York	1888

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:

R. P. Murphy
Department of Plant Breeding and Biometry
Cornell University
Ithaca, New York 14853 Telephone 607-256-3101

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

[X] 13A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*

[X] 13B. Exhibit B, Botanical Description of the Variety

[X] 13C. Exhibit C, Objective Description of the Variety

[X] 13D. Exhibit D, Data Indicative of Novelty

[X] 13E. Exhibit E, Statement of the Basis of Applicant's Ownership

14A. Does the applicant(s) specify that seed of this variety be sold by variety name only as a class of certified seed? *(See Section 83(a). (If "Yes," answer 14B and 14C below.)* [X] YES [ ] NO

14B. Does the applicant(s) specify that this variety be limited as to number of generations? [X] YES [ ] NO

14C. If "Yes," to 14B, how many generations of production beyond breeder seed? [X] FOUNDATION [ ] REGISTERED [X] CERTIFIED

The applicant declares that a viable sample of basic seed of this variety will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable.

The undersigned applicant(s) of this sexually-reproduced novel plant variety believes that the variety is distinct, uniform, and stable as required in Section 41 and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant is informed that false representation herein can jeopardize protection and result in penalties.

March 23, 1976
(DATE)

J. F. [illegible]
(SIGNATURE OF APPLICANT)

(DATE)

Assoc DIRECTOR
(SIGNATURE OF APPLICANT)

13A. Exhibit A

Origin and Breeding History of the Variety

1. 'Saranac AR' originated from research in the Department of Plant Breeding and Biometry, Cornell University Agricultural Experiment Station, New York State College of Agriculture, Cornell University, Ithaca, New York. Selections were made during 1971 and 1972 in the released germ plasm seed from the Plant Science Research Division, Agricultural Research Service, United States Department of Agriculture designated Beltsville 2-An4.

2. Plants from this germ plasm were tested for anthracnose resistance and bacterial wilt resistance in the laboratory and selections made. Plants from this germ plasm were also tested in the field for bacterial wilt resistance, winter survival and similarity to the cultivar, 'Saranac', and selections made.

3. One hundred and fifty parent clones were interpollinated to produce Breeder seed of this cultivar.

4. The within cultivar uniformity and stability is similar to that for 'Saranac' except for reaction to the anthracnose disease. See Exhibit C which presents the reaction to the anthracnose disease for the Certified generation (2 generations beyond Breeder seed). The within cultivar uniformity and stability for other characters meets the requirements for alfalfa cultivars such as 'Saranac', 'Iroquois', 'Vernal' and 'Lahontan'.

13B. Exhibit B

Botanical Description of the Variety

'Saranac AR' is typical of *Medicago sativa* except for the small percentage of plants with some degree of variegated flower colors. The seed pods are coiled.

The growth characters are similar to those of the cultivar, 'Saranac'.

13C. Exhibit C

Objective Description of the Variety

'Saranac AR' is very similar to 'Saranac' except it is resistant to the anthracnose disease caused by *Colletotrichum trifolii* and has fewer plants with variegated flowers. Ten to 15% of the plants of 'Saranac AR' show some degree of variegation whereas the proportion is 15 to 20% in 'Saranac'. The levels of bacterial wilt resistance and winter survival for 'Saranac AR' are similar to those for 'Saranac'. Information on yield show these two cultivars to be very similar in vigor and production in the absence of the anthracnose disease.

13D. Exhibit D

Data Indicative of Novelty ('Saranac AR' 73101)

Novelty is based on the specific combination of the characteristics and performance of 'Saranac' with a high level of resistance to the anthracnose disease caused by *Colletotrichum trifolii*. The most similar cultivar is Saranac.

In breeding this cultivar the selection was directed toward the characteristics of 'Saranac' except for resistance to the anthracnose disease. In the absence of this disease, we cannot distinguish 'Saranac AR' from 'Saranac'. This is a distinct novelty of important agricultural value.

Quantitative data on reaction to the anthracnose disease:

Cultivar	Average Severity Index
Saranac	4.84
Saranac AR	2.67
LSD (P=.05)	.48

*Range 0 none to 5 severe or dead
Courtesy U.S. Regional Pasture Laboratory, 1975, State College, Pa. (greenhouse)

Enclosure 2

Data from anthracnose test on varieties included in the 1974 Alfalfa Variety Test sponsored by NE-74 Regional Research Project (Courtesy U.S. Regional Pasture Research Laboratory).

Variety	Anthracnose Score (0=immune to 5=dead)
Saranac AR	2.67
Arc	2.68
Ramsey	3.64
Agate	3.81
TitÁn	4.18
Aztec	4.40
530	4.59
520	4.62
Honeoye	4.64
Victoria	4.68
Multileaf	4.78
Iroquois	4.81
Saranac	4.84
Kodiak	4.88
Bonus	4.98

This test was conducted in a plant growth chamber and at a very high level of infection. Data recorded on 4/7/75.

13D. Exhibit D

Data Indicative of Novelty

Novelty is based on the specific combination of the characteristics and performance of 'Saranac' with a high level of resistance to the anthracnose disease caused by *Colletotrichum trifolii*. See Exhibit C item 12.

In breeding this cultivar the selection was directed toward the characteristics of 'Saranac' except for resistance to the anthracnose disease. In the absence of this disease, we cannot distinguish 'Saranac AR' from 'Saranac'. This is a distinct novelty of important agricultural value. Other cultivars known to us that are similar to 'Saranac' include 'Thor' and 'Anchor'. 'Saranac AR' may be distinguished from them by its resistance to the anthracnose disease.

13E. Exhibit E

Statement of Applicant's Ownership

The Cornell University Agricultural Experiment Station is the owner of 'Saranac AR'.

FORM APPROVED. OMB NO. 40-R3712

FORM GR 470-32
(3/75)

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

EXHIBIT C

OBJECTIVE DESCRIPTION OF VARIETY

Alfalfa (Medicago sativa L. complex)

NAME OF APPLICANT(S)
Cornell University Agricultural Experiment Station

ADDRESS (*Street and No., or R.F.D. No., City, State, and Zip Code*)
Department of Plant Breeding and Biometry
New York State College of Agriculture and Life Sciences
Cornell University, Ithaca, New York 14853

VARIETY NAME OR TEMPORARY DESIGNATION
Saranac AR

FOR OFFICIAL USE ONLY
PVPO NUMBER
73101

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|8|9] or [0|9]) when number is either 99 or less or 9 or less.

NOTE: For single plant data a minimum of 100 plants is suggested

1. PRIMARY AREA OF ADAPTATION

[3] 1 = NORTHWEST 2 = NORTHCENTRAL 3 = NORTHEAST 4 = SOUTHEAST 5 = SOUTHWEST 6 = SOUTHERN PLAINS 7 = INTERMOUNTAIN

INDICATE AREA WHERE TEST WAS CONDUCTED. FURTHER EXPLANATION CAN GO IN COMMENTS AT THE END OF THE FORM.

[3] AREA TESTED

2. WINTER HARDINESS

[5] 1 = NON-HARDY (Mesa Sirsa) 3 = INTERMEDIATE NON-HARDY 5 = MODERATELY HARDY (Saranac) 7 = HARDY (Vernal) 9 = EXTREMELY HARDY (Norseman)

[2] SOURCE OF INFORMATION: 1 = ANTICIPATED 2 = MEASURED

[3] AREA TESTED

3. FALL GROWTH HABIT

[5] 1 = ERECT (Mesa Sirsa) 3 = SEMIERECT (DuPuits) 5 = INTERMEDIATE (Saranac) 7 = SEMIDECUMENT (Vernal) 9 = DECUMBENT (Norsement)

[3] AREA TESTED

4. RECOVERY AFTER FIRST SPRING CUTTING

[3] 1 = VERY FAST (Mesa Sirsa) 3 = FAST (Saranac) 5 = INTERMEDIATE 7 = SLOW (Vernal) 9 = VERY SLOW (Norseman)

[3] AREA TESTED

5. FLOWERING DATE (FIRST SPRING GROWTH)

[0|3] DAYS EARLIER THAN . . . . . [4]
[0|0] DAYS LATER THAN . . . . . [3]

1 = MESA SIRSA 2 = LAHONTAN 3 = SARANAC 4 = VERNAL 5 = NORSEMAN

[3] AREA TESTED

6. CROWN TYPE

[7] 1 = SPREADING ROOTS 3 = SPREADING RHIZOMES (Teton) 5 = BROAD (Vernal) 7 = INTERMEDIATE (Saranac) 9 = NARROW (Mesa Sirsa)

[3] AREA TESTED

7. PLANT COLOR

[4] 3 = DARK GREEN (Weevichek) 5 = GREEN (Vernal) 7 = LIGHT GREEN (Ranger)

[3] AREA TESTED

8. HAIRINESS

[| |] % PLANTS WITH PUBESCENT STEMS

[| |] % PLANTS WITH PUBESCENT PODS

9. POD SHAPE

[0|9|5] % PLANTS WITH TIGHT COILS [0|0|5] % PLANTS WITH LOOSE COILS [0|0|0] % PLANTS WITH SICKLE PODS (less than 1 coil)

12. DISEASE, INSECT, AND NEMATODE RESISTANCE: (Enter resistance of submitted and check cultivars. Circle check cultivars used.)

INSECT	CULTIVAR	% RESISTANT PLANTS	AVG. SEVERITY INDEX (ASI)	ASI LSD .05	TEST, YEAR & LOCATION 4/
OTHER	(SUBMITTED)				
	(RES. CK.)				
	(SUS. CK.)				

NEMATODE	CULTIVAR	% RESISTANT PLANTS	INDEX (ASI)	ASI LSD .05	TEST, YEAR & LOCATION 4/
STEM NEMATODE	(SUBMITTED)				
	(RES. CK.) LAHONTAN				
	(SUS. CK.) RANGER				
NORTHERN ROOT KNOT NEMATODE	(SUBMITTED)				
	(RES. CK.) NEV. SYN. XX				
	(SUS. CK.) LAHONTAN				
SOUTHERN ROOT KNOT NEMATODE	(SUBMITTED)				
	(RES. CK.) MOAPA 69				
	(SUS. CK.) LAHONTAN				
OTHER	(SUBMITTED)				
	(RES. CK.)				
	(SUS. CK.)				

13. INDICATE A VARIETY THAT MOST CLOSELY RESEMBLES THE VARIETY SUBMITTED FOR THE FOLLOWING CHARACTERS:

CHARACTER	VARIETY	CHARACTER	VARIETY
AREA OF ADAPTATION	Saranac	PLANT HEIGHT	Saranac
RECOVERY AFTER CUTTING	Saranac	WINTER HARDINESS	Saranac

REFERENCES

Barnes, D.K., and C.H. Hanson, An Illustrated Summary of Genetic Traits in Tetraploid and Diploid Alfalfa, ARS Technical Bul. 1370.
Barnes, D.K., et al, Standard Tests to Characterize Pest Resistance in Alfalfa Varieties. ARS-NC-19, September 1974.
Nittler, L.W., G.W. McKee, and J.L. Newcomer, Principles and Methods of Testing Alfalfa Seed for Varietal Purity. New York Agricultural Experiment Station Bul. 807.
USDA Agricultural Handbook No. 424.

COMMENTS

1. Observations on first flower are subjective and variable with degree of infestation of insect pests and weather damage.

2. Data under item 10; measurements made on approximately 35 seedlings grown in soil after 30 days as per Nittler et al, 1964.

12. DISEASE, INSECT, AND NEMATODE RESISTANCE: (Enter resistance of submitted and check cultivars. Circle check cultivars used.)

DISEASE	CULTIVAR	% RESISTANT PLANTS	AVG. SEVERITY INDEX (ASI)	ASI LSD .05	TEST, YEAR & LOCATION 4/
OTHER	(SUBMITTED)				
	(RES. CK.)				
	(SUS. CK.)				
OTHER	(SUBMITTED)				
	(RES. CK.)				
	(SUS. CK.)				
INSECT	**CULTIVAR**	**% SEEDLING SURVIVAL**	**AVG' SEVERITY INDEX (ASI)**	**ASI LSD .05**	**TEST, YEAR & LOCATION 4/**
PEA APHID	(SUBMITTED)				
	(RES. CK.) KANZA				
	(SUS. CK.) RANGER				
SPOTTED ALFALFA APHID	(SUBMITTED)				
	(RES. CK.) KANZA				
	(SUS. CK.) RANGER				
INSECT	**CULTIVAR**	**% DEFOLIATION**	**AVG. SEVERITY INDEX (ASI)**	**ASI LSD .05**	**TEST, YEAR & LOCATION 4/**
ALFALFA WEEVIL	(SUBMITTED)				
	(RES. CK.) ARK				
	(SUS. CK.) VERNAL				
INSECT	**CULTIVAR**	**% RESISTANT PLANTS**	**EMERGED ADULTS PER PLANT**	**EMERGED LSD .05**	**TEST, YEAR & LOCATION 4/**
ALFALFA SEED CHALCID	(SUBMITTED)				
	(RES. CK.) LAHONTAN				
	(SUS. CK.) SONORA				
INSECT	**CULTIVAR**	**% RESISTANT PLANTS**	**AVG. SEVERITY INDEX (ASI)**	**ASI LSD .05**	**TEST, YEAR & LOCATION 4/**
POTATO LEAF-HOPPER	(SUBMITTED)				
	(RES. CK.)				
	(SUS. CK.)				
OTHER	(SUBMITTED)				
	(RES. CK.)				
	(SUS. CK.)				

4/ Give: The institution in charge of test, (2) year, and (3) location of test. Describe test procedure if it differs from procedure suggested in ARS-NC-19, September 1974.

10. GIVE ITEM LENGTH FREQUENCY DISTRIBUTION FOR SUBMITTED AND 1 TO 5 STANDARD VARIETIES 1/

VARIETY NAME	STEM LENGTH FREQUENCY DISTRIBUTION 2/											AVERAGE STEM LENGTH
	0 – 5 mm. %	6 – 10 mm. %	11 – 15 mm. %	16 – 20 mm. %	21 – 30 mm. %	31 – 40 mm. %	41 – 50 mm. %	51 – 60 mm. %	61 – 70 mm. %	71 – 80 mm. %	81 + mm. %	
Saranac AR		68.1		28.4	2.7	0.6	0.0	0.0	0.0	0.0	0.0	10.30
Lahontan		19.8		48.9	20.4	7.7	2.3	0.0	0.2	0.2	0.0	18.10
Saranac		69.7		24.8	4.8	0.5	0.0	0.0	0.0	0.0	0.0	10.00
Iroquois		71.7		23.8	3.8	0.2	0.0	0.2	0.0	0.0	0.0	9.80
Vernal		82.5		14.6	2.5	0.0	0.2	0.0	0.0	0.0	0.0	8.60

11. FLOWER COLOR 3/ (DETERMINE COLOR ON FRESHLY OPENED FLOWERS)

0 8 6 % PURPLE 0 1 4 % VARIEGATED 0 0 0 % YELLOW 0 0 0 % CREAM 0 0 0 % WHITE

12. DISEASE, INSECT, AND NEMATODE RESISTANCE: (Enter resistance of submitted and check cultivars. Circle check cultivars used.)

DISEASE	CULTIVAR	% RESISTANT PLANTS	AVG. SEVERITY INDEX (ASI)	ASI LSD .05	TEST, YEAR & LOCATION 4/
BACTERIAL WILT	Saranac AR (SUBMITTED)	33.3	1.17	.35	Cornell University, 1975, Ithaca, N.Y. Field
	(RES. CK.) VERNAL	29.3	1.35		
	(SUS. CK.) NARRAGANSETT				
ANTHRACNOSE	Saranac AR (SUBMITTED)		2.67	.48	U.S. Regional Pasture Research Laboratory, 1975, State College, Pa. Greenhouse
	(RES. CK.) ARC		2.68		
	(SUS. CK.) SARANAC		4.84		
COMMON LEAF SPOT	(SUBMITTED)				
	(RES. CK.) RAMSEY				
	(SUS. CK.) RANGER				
DOWNY MILDEW	(SUBMITTED)				
	(RES. CK.) SARANAC				
	(SUS. CK.) KANZA				
PHYTOPHTHORA ROOT ROT	(SUBMITTED)				
	(RES. CK.) AGATE				
	(SUS. CK.) SARANAC				
OTHER	(SUBMITTED)				
	(RES. CK.)				
	(SUS. CK.)				

1/ Preferred standards: Saranac, Vernal, Norseman, Lahontan, Mesa Sirsa. Twelve hours light at 25° C with 20,000 lux of cool white florescent; 2,000 lux of incandescent filament light and twelve hours darkness at 5°C.

2/ From cotyledonary node to tip of stem 20 days after planting.

3/ For further clarification consult USDA Agricultural Handbook No. 424.

4/ Give: The institution in charge of test, (2) year, and (3) location of test. Describe test procedure if it differs from procedure suggested in ARS-NC-19, September 1974.

United States Department of Agriculture
Agricultural Research Service
Northern Plains Area National Seed Storage Laboratory
1111 South Mason Street
Fort Collins, CO 80521-4500
Telephone: 970 495-3200
Fax: 970 221-1427

February 14, 1997

Marian R. Minnifield, Secretary
Plant Variety Protection Office
NAL Building, Room 500
10301 Baltimore Boulevard
Beltsville, Maryland 20705-2351

Subject: Expired PVPO's; disposition of

1. The following expired PVPO's have been transfered to the NPGS. Our records have been changed accordingly.

Serial Number		PVP Number
101862	01	PVP 7800029
102219	01	PVP 7800010
102675	01	PVP 7800088
102676	01	PVP 7400011
103506	01	PVP 7800084
103507	01	PVP 7900016
103508	01	PVP 7800082
103840	01	PVP 7900017
103842	01	PVP 7900067
104549	01	PVP 7700106
104551	01	PVP 7100046
314988	01	PVP 9500276
101863	01	PVP 7800026
102222	01	PVP 7800078
102226	01	PVP 7800091
101854	01	PVP 7200134
102214	01	PVP 7605014
102216	01	PVP 7900011
102217	01	PVP 7800095
102218	01	PVP 7800093
102220	01	PVP 7800097
102221	01	PVP 7800042

United States Department of Agriculture
Agricultural Research Service
Northern Plains Area National Seed Storage Laboratory
1111 South Mason Street
Fort Collins, CO 80521-4500
Telephone: 970 495-3200
Fax: 970 221-1427

102673	01	PVP 7800059
103502	01	PVP 7800096
103503	01	PVP 7800074
103509	01	PVP 7900044
103510	01	PVP 7900047
103838	01	PVP 7500042
103843	01	PVP 7300101
101859	01	PVP 7200132
102227	01	PVP 7700085
103511	02	PVP 7800028
103839	01	PVP 7900049
103845	01	PVP 7900048
104548	02	PVP 7800057
104550	01	PVP 7800024

Sincerely,

GENE KEYS
Data Coordinator