No. 7500042

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

North American Plant Breeders

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 (542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

ALFALFA

'Nugget'

U.S. 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 Nugget (tested as RP DC-5)	2. KIND NAME Alfalfa	FOR OFFICIAL USE ONLY PV NUMBER 7500042
3. GENUS AND SPECIES NAME Medicago sativa	4. FAMILY NAME *(Botanical)* Leguminacea	FILING DATE 12.16.74 / TIME 10:30 A.M.
	5. DATE OF DETERMINATION 1967	FEE RECEIVED $250.00 $250.00 $250.00 / BALANCE DUE $ — $ — $ —
6. NAME OF APPLICANT(S) North American Plant Breeders	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)* ~~P. O. Box 991~~ P.O. Box 2955 ~~1120 Marshall Street~~ 5201 Johnson Dr. ~~Little Rock, Arkansas 72203~~ Mission, KS 66205 K.E.	8. TELEPHONE AREA CODE AND NUMBER (501) 374-1652
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)* Partnership	10. STATE OF INCORPORATION Connecticut	11. DATE OF INCORPORATION March 9, 1973

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

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
- [ ] 13C. Exhibit C, Objective Description of the Variety **Form to be supplied by PVPO when the final draft is completed, approved and printed.**
- [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.)* [ ] YES [x] 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.

November 25, 1974
(DATE)

(SIGNATURE OF APPLICANT)
North American Plant Breeders
B.W.A. Greengrass, General Manager

(DATE)

(SIGNATURE OF APPLICANT)

RECEIVED DEC 16 '74

INSTRUCTIONS

GENERAL: Send an original copy of the application, exhibits and $250.00 fee to U.S. Dept. of Agriculture, Agricultural Marketing Service, Grain Division, 6525 Belcrest Road, Hyattsville, Maryland 20782. (See Section 180.175 of the regulations and rules of practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

5 Insert the date the applicant determined that he had a new variety based on the definition in Section 41 (a) of the Act and decision is made to increase the seed.

13a First, give the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method. Second, give the details of subsequent stages of selection and multiplication. Third, indicate the type and frequency of variants during reproduction and multiplication and state how these variants may be identified. Fourth, provide evidence on stability.

13b First, give any special characteristics of the seed and of the plant as it passes through the seedling stage, flowering stage and the fruiting stage. Second, describe the mature plant and compare it with a similar commercial variety grown under the same conditions, and indicate the differences.

13c A supplemental form will be furnished by the PVPO to describe in detail a variety for each kind of seed.

13d Provide complete data indicative of novelty. Seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty may be submitted. Seeds submitted may be sterile.

13e Indicate whether applicant is the actual breeder, the employer of the breeder, the owner through purchase or inheritance, etc.

AMENDED EXHIBIT A

Nugget: Origin and Breeding History

Nugget is a 4-clone cultivar combining Flemish and Northern hardy types with two parent clones selected directly from Vernal and one each from Alfa and Tuna following two cycles of recurrent selection for bacterial wilt and pea aphid resistance and other desirable characters.

Parent clones were selected following rigorous clonal, polycross, and S_1 testing for bacterial wilt and pea aphid resistance in nurseries at Ames, Iowa, commencing in 1960. Parental selections were also evaluated for seedling vigor, winter hardiness, fall growth habit, seed yield and forage yield in clonal, polycross, singlecross and S_1 tests at Ames, Iowa; Caldwell, Idaho; Hamel, Minnesota; and Princeton, Illinois from 1963.

Breeder seed of Nugget is produced by intercrossing the two single crosses Vernal 0.076 x Vernal 0.080 and Alfa 0.192 x Tuna 0.027. The intercrossing is carried out in an isolated increase in the Pacific Northwest by mixing equal amounts of viable seed of the two single-crosses. Foundation seed is produced only from breeders seed, while certified seed can be produced from either breeders or foundation seed. Seed produced from certified seed will not be recognized as Nugget.

Stability of the cultivar is assured since all commercial seed will trace to the original breeders seed produced at Sunnyside, Washington, and Nampa, Idaho, in 1971 and 1972 in two separate fields both under supervision of the respective Crop Improvement associations. This breeders seed which is sufficient for the life of the variety is held in cold storage by NAPB. It is confirmed that during seed production no variants, beyond the limits defined under Exhibit C, have been found and that the multiplication procedure will ensure that the seed being sold as Nugget will not have shifted in characteristics beyond accepted limits for alfalfa varieties.

ADDENDUM TO EXHIBIT A

NUGGET - - UNIFORMITY

It is also confirmed that:

"NUGGET MEETS PRESENTLY ACCEPTABLE LEVELS OF UNIFORMITY FOR ALFALFA VARIETIES."

NORTH AMERICAN PLANT BREEDERS

Aug 1 1978.
Date

Giles E. Dixon
Research Director

EXHIBIT B

Botanical Description of Nugget

Nugget is an upright growing cultivar which exhibits good seedling vigor, and as compared to Vernal and Saranac, recovers a little quicker after cutting, begins growth earlier in the spring and is less fall dormant. Since Nugget contains both Flemish-type and Northern hardy-type (Vernal) germplasm more variation for plant type is observed in a stand on spaced planted nursery as compared to a pure Flemish-type or hardy-type variety. Some plants have the larger hollow stems with large leaves typical of Flemish alfalfas while other plants have more numerous and smaller solid stems with smaller leaves. Bacterial wilt resistance is slightly higher than Vernal but below Titan. Pea aphid resistance is much better than the susceptible varieties Vernal and Ranger but below Anchor.

Nugget tolerance to yellowing caused by the potatoe leafhopper is better than Saranac but below Titan. Winter survival is about equal to Anchor and Vernal and much better than Saranac and Apex.

Forage yield of Nugget is better than Vernal and is similar to Anchor and Titan. Seed yield is about equal to Saranac.

Nugget begins blooming five to six days earlier than Vernal and one to two days later than Alfa. Flowers are from light blue to medium purple with many variegated, some cream and very few white and yellow.

BILL OF SALE AND ASSIGNMENT

KNOW ALL MEN BY THESE PRESENTS that AGRIPRO BIOSCIENCES INC., a Delaware corporation (hereinafter referred to as "Seller"), pursuant to that certain Asset Purchase Agreement of even date herewith by and between Seller and AGR ACQUISITION CORPORATION, a Delaware corporation (hereinafter referred to as "Buyer") and for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, does hereby grant, bargain, sell, assign, convey and deliver unto Buyer, all of Seller's right, title and interest in and to the plant varieties owned/registered by Seller and more particularly set forth on Exhibit A attached hereto for which PVP Certificates have been issued by or may be pending before the U. S. Department of Agriculture.

TO HAVE AND TO HOLD UNTO PURCHASER, its successors and assigns forever.

IN WITNESS WHEREOF, Seller has executed this Bill of Sale and Assignment as of the 30th day of June, 1994.

AGRIPRO BIOSCIENCES INC.

BY: W. A. Zama

Title: President

STATE OF KANSAS, COUNTY OF JOHNSON

Before me, the undersigned, a Notary Public of the State and County aforesaid, personally appeared W. A. ZAMA with whom I am personally acquainted (or proved to me on the basis of satisfactory evidence) and who, upon oath, acknowledged himself to be the PRESIDENT of Agripro Biosciences Inc., the within named bargainor, a corporation, and that he as such PRESIDENT, being authorized so to do, executed the foregoing instrument for the purposes therein contained by signing the name of the corporation by himself as PRESIDENT.

WITNESS my hand and Notarial Seal at office the day and year above written.

Alma M. Weaver
Notary Public

My Commission Expires:
June 22, 1998

ALMA M. WEAVER
NOTARY PUBLIC
STATE OF KANSAS
My Appt. Exp. June 22, 1998

State of Delaware

Office of the Secretary of State

I, EDWARD J. FREEL, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF "AGR ACQUISITION CORPORATION", CHANGING ITS NAME FROM "AGR ACQUISITION CORPORATION" TO "AGRIPRO SEEDS, INC.", FILED IN THIS OFFICE ON THE THIRTIETH DAY OF JUNE, A.D. 1994, AT 4:30 O'CLOCK P.M.

A CERTIFIED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE NEW CASTLE COUNTY RECORDER OF DEEDS FOR RECORDING.

Edward J. Freel

SECRETARY OF STATE

2394087 8100

944121584

AUTHENTICATION: 7169071

DATE: 07-01-94

CERTIFICATE OF AMENDMENT
OF
CERTIFICATE OF INCORPORATION
OF
AGR ACQUISITION CORPORATION

AGR Acquisition Corporation, a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware,

DOES HEREBY CERTIFY:

FIRST: that the Board of Directors of said corporation, by the unanimous written consent of its members filed with the minutes of the Board, adopted a resolution proposing and declaring advisable the following amendment to the Certificate of Incorporation of said corporation:

RESOLVED, that the Certificate of Incorporation of this corporation be amended by changing the Article thereof numbered "ARTICLE I" so that, as amended, said Article shall be and read as follows:

"ARTICLE I

Name

The name of the corporation (hereinafter called the 'Corporation') is Agripro Seeds, Inc."

SECOND: That in lieu of a meeting and vote of stockholders, the sole shareholder of the corporation has given unanimous written consent to said amendment in accordance with the provisions of Section 228 of the General Corporation Law of the State of Delaware.

THIRD: That the aforesaid amendment was duly adopted in accordance with the applicable provisions of Sections 242 and 228 of the General Corporation Law of the State of Delaware.

FOURTH: That the capital of said corporation shall not be reduced under or by reason of said amendment.

IN WITNESS WHEREOF, said AGR Acquisition Corporation has caused this certificate to be signed by Gary T. Hancock, its President, and attested by Ann Steelman, its Secretary, this 30th day of June, 1994.

AGR ACQUISITION CORPORATION

BY: Gary T. Hancock
Gary T. Hancock, President

ATTEST:

BY: Ann Steelman
Ann Steelman, Secretary

FORM APPROVED. OMB NO. 40-R3712

FORM GR 470-32 (2-75)

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): North American Plant Breeders

ADDRESS (*Street and No., or R.F.D. No., City, State, and Zip Code*): ~~P. O. Box 991 Little Rock, Arkansas 72203~~

VARIETY NAME OR TEMPORARY DESIGNATION: Nugget

FOR OFFICIAL USE ONLY

PVPO NUMBER: 7500042

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

All except # 5

[ ] 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.

[ ] AREA TESTED 1,2,3,4,6,7

2. WINTER HARDINESS

[7] 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

[2] AREA TESTED

See tables in Nugget application

3. FALL GROWTH HABIT

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

[2] 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)

[2] AREA TESTED

5. FLOWERING DATE (FIRST SPRING GROWTH)

[ ][ ] DAYS EARLIER THAN . . . . . [ ] 1 = MESA SIRSA; 2 = LAHONTAN; 3 = SARANAC; 4 = VERNAL; 5 = NORSEMAN

[ ][ ] DAYS LATER THAN . . . . . [ ]

[ ] AREA TESTED

6. CROWN TYPE

[6] 1 = SPREADING ROOTS; 3 = SPREADING RHIZOMES (Teton); 5 = BROAD (Vernal); 7 = INTERMEDIATE (Saranac); 9 = NARROW (Mesa Sirsa)

[2] AREA TESTED

7. PLANT COLOR

[5] 3 = DARK GREEN (Weevlchek); 5 = GREEN (Vernal); 7 = LIGHT GREEN (Ranger)

[2] AREA TESTED

8. HAIRINESS

[ ][ ][ ] % PLANTS WITH PUBESCENT STEMS

[0][6][6] % PLANTS WITH PUBESCENT PODS

9. POD SHAPE

5

[0][8][7] % PLANTS WITH TIGHT COILS

[0][1][3] % PLANTS WITH LOOSE COILS

[0][0][0] % PLANTS WITH SICKLE PODS (Less than 1 coil)

REVISED EXHIBIT D SUMMARY STATEMENT

NOVELTY OF NUGGET ALFALFA

Nugget is most similar to Vernal. The most obvious difference between Nugget and Vernal is in resistance to pea aphid. Enclosed is Table 14 from the application made in November 1974 to the National Certified Alfalfa Variety Review Board. This data shows Vernal to have 2% resistance to pea aphid while Nugget has 26% resistance in these comparisons.

On the average, Nugget also begins growth earlier in the spring than Vernal. Enclosed is Table 16 from the previous application for certification.

EXHIBIT E

Statement of the Basis of Applicant's Ownership

The variety was bred by employees of W. R. Grace and Company in 1967. Ownership of the variety was successively transferred to The Rudy-Patrick Company of Kansas City, Missouri (now called Melthor, Inc.), from The Rudy-Patrick Company to IPB Corporation (now called The Rudy-Patrick Company), and from IPB Corporation (now called The Rudy-Patrick Company) to North American Plant Breeders, the present owners.

TABLE 3

1972 Alfalfa Fall Dormancy Trial*

University of Minnesota

1972 Data

Entry	Seed Lot #	Number of plants in each class** 1	2	3	4	5	6	7	8	9	Average Score
Ranger	Minn 2449					1	22	59	14	0	6.90
Vernal (VCC72)	Minn 2570					4	11	46	40	5	7.30
Saranac (SCC72)	Minn 2573				1	4	14	59	16	1	6.93
LSD 5% level											.33
CV											3.8%

* Seeded May 23, 1972 and thinned to 1 plant per 10-12 inches of row. Five replications, 20' row per plot. Plants clipped on Sept. 7, 1972. Fall dormancy readings made October 11, 1972.

** Fall dormancy scored as 1 to 9; 1 = 16" or higher, 2 = 14"-16", 3 = 12"-14", 4 = 10"-12", 5 = 8"-10", 6 = 6"-8", 7 = 4"-6", 8 = 2"-4", 9 = 0"-2".

Your entry(ies)

RP DC5 Minn. 2560	Nugget					1	6	46	51	5	7.49

Mailed November 6, 1972

~~Dr. Johnny Thomas~~

Laddie J. Elling

cc: Duane M. Smith

TABLE 4

1974 Spaced Plant Nursery[1], NAPB Ames, Iowa

Fall Dormancy

	1975 Data (height in inches)[2] Number of Plants in Each Category																			1975
Entry	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Average
Apollo	1	5	6	8	10	12	16	15	17	26	10	30	12	15	8	4	1	0	0	9.5
Atlas	0	2	1	5	5	16	23	33	15	29	17	25	6	9	6	3	0	0	1	10.1
Olympic	0	2	1	3	6	10	9	20	9	28	15	37	11	22	6	2	5	3	1	10.6
Victor	0	4	2	1	4	14	8	14	14	29	20	27	7	9	4	3	1	0	0	9.8
Nugget	0	1	3	5	6	8	8	16	10	30	17	13	10	6	1	1	0	0	0	9.4
Citation	0	1	4	5	6	10	17	27	18	17	20	18	7	6	3	0	0	0	0	9.4
Titan	0	0	4	6	9	20	15	25	14	18	15	10	6	7	2	2	0	0	0	8.7
Anchor	0	1	1	3	2	7	10	20	15	22	17	17	5	11	4	0	0	0	0	9.8
Vernal	1	5	5	9	13	19	25	24	20	22	16	15	4	2	2	1	0	1	0	8.2
Saranac	0	0	1	3	7	12	10	26	18	39	24	37	14	9	6	1	3	0	0	10.1

1 Seeded 5-14-74 and thinned to 12" spacing June '74.

2 1975 cut September 2, read October 14, average of 178 plants per variety.

TABLE 5

Fall dormancy of alfalfa varieties in forage trials

Entry	NAPB Ames, Iowa[1] 10-22-74	NAPB Ames, Iowa[1] 10-14-75	NAPB Ames, Iowa[1] 10-22-74	NAPB Ames, Iowa[1] 10-14-75	NAPB Ames, Iowa[1] 10-15-75	NAPB Brookston[2] Indiana 10-28-75	Univ.Neb.[2] Mead 10-6-75	Texas A & M[1] Bushland 10-15-75	Univ. Wisc.[1] Janesville 10-22-75
Apollo	6.12	11.6	6.0	14.1	5.9	5.4	---	11.4	7.62
Atlas	---	---	6.5	14.1	6.4	4.0	---	13.0	---
Olympic	7.32	13.7	6.5	14.1	7.3	2.2	4.25	13.4	9.35
Victor	7.20	13.6	6.5	14.1	6.6	3.0	5.00	14.6	8.26
Nugget	5.6	12.4	5.4	12.7	5.0	8.0	---	---	---
Citation	6.1	12.2	5.6	14.1	4.9	6.0	5.00	---	---
Anchor	5.4	13.2	5.6	13.2	5.4	6.4	---	9.1	---
Titan	4.5	11.9	4.8	12.0	5.0	7.8	---	9.5	---
Vernal[3]	4.4	9.8	4.7	11.3	---	5.4	5.75	9.1	6.12
Saranac	7.0	14.0	6.7	14.3	5.7	5.2	4.75	10.6	8.06
Agate	5.2	11.6	4.8	12.2	4.9	8.4	---	8.3	---
LSD 5%		1.9		.8		1.25			
C. V.		11.9		4.9		19.5			
Seeded	4-74		5-74		4-75	4-75	4-74	8-74	5-75

[1] Height in inches

[2] Higher ratings indicate less fall growth

[3] Left out of data from 1975 seedings. Seed received as certified Vernal does not have Vernal fall dormancy characteristics.

TABLE 6

Crown Width of Alfalfa Varieties at Ames, Iowa

Variety	Av. Width[1] Inches	No. Plants
Anchor	4.78	139
Nugget	4.48	130
Citation	4.22	156
Apollo	4.05	195
Atlas	4.73	199
Olympic	4.34	185
Victor	4.79	158
Titan	4.94	160
Saranac	3.89	207

Seeded in 30" rows May 1974 and thinned to one plant per foot. Measured October 31, 1975.

TABLE 7

Pod Shape and Pubescence of NAPB Alfalfa Varieties, October 1975, Warden, Washington

Variety	% Plants With[1] Pubescent Pods	% Plants With Tight Pods	% Plants With Loose Pods	% Plants With Sickle Pods
Anchor	89	86	14	0
Nugget	66	87	13	0
Citation	86	90	10	0
Apollo	82	88	12	0
Atlas	77	82	18	0
Olympic	79	81	19	0
Victor	93	84	16	0

1 1-4 rating, 1 = most hair 1 + 2 = % pubescent pods

TABLE 19

Bloom Note on Alfalfa Varieties at Hutchinson, Kansas

Variety	% Flowering[1]
Titan	27
Anchor	39
Vernal	23
Saranac	42
Apollo	33
Atlas	48
Victor	52
Olympic	38
Citation	61
Nugget	47
Agate	27
Kanza	25

1 First cutting made 5-20-75, bloom note taken 7-1-75 in forage plots

TABLE 20

1975 Seed Yield of alfalfa varieties at Warden, Washington[1]

Entry	% of checks[1]
Apollo	128
Atlas	132
Olympic	135
Victor	81
Nugget	135
Citation	134
Anchor	79
Vernal	85
Saranac	98
Titan	137
Agate	100
LSD 5%	45.9
C. V.	69.4

Checks average lbs/acre = 629

1 Checks are Titan, Anchor, Vernal and Saranac

Seeded May 1974 in 44" rows at 2 lbs/acre

Phytophthora Root Rot

~~AMES — Not Not Tested~~

TOO high SUSJ and Res ✓

Potato leaf hopper

— NOT STD ✓

TABLE 17

1974 Spaced Plant Nursery, NAPB Ames, Iowa

Leafhopper Yellowing Tolerance[1]

Entry	% resistance[2]	Average Severity[2] Index	Number of plants rated
Apollo	59	3.40	178
Atlas	38	3.95	133
Olympic	65	3.31	175
Victor	56	3.38	146
Nugget	45	3.83	120
Citation	55	3.48	154
Titan	53	3.52	144
Anchor	16	4.63	128
Vernal	55	3.56	163
Saranac	37	3.97	201
Ranger	24	4.16	186
Weevlchek	87	2.70	198

1 Seeded 5-14-74 and thinned to 12" spacing June '74, ratings made 8-27-75.

2 Procedures used are those described in ARS-NC-19, 1-9 rating, 1-3 counted as resistant. Lower ASI ratings are most desirable.

TABLE 18

Leafhopper yellowing tolerance of alfalfa varieties in NAPB forage trials[1]

Entry	Ames, Iowa 7-17-74	Ames, Iowa 7-6-75	Ames, Iowa 7-17-74	Ames, Iowa 7-6-75	Ames, Iowa 8-28-75	Brookston, Ind. 7-1-75	Brookston, Ind. 8-13-75	Brookston, Ind. 8-13-75	Brookston, Ind. 6-26-75	Brookston, Ind. 8-25-75	Average
Apollo	4.8	3.2	3.6	3.8	3.2	3.0	6.0	5.8	4.2	2.8	4.0
Anchor	5.2	4.8	5.0	5.0	4.0	7.4	7.4	6.8	4.2	4.4	5.4
Atlas	--	--	4.0	4.6	3.4	--	--	3.8	3.0	3.4	--
Olympic	4.8	4.2	4.0	5.0	2.8	6.2	5.8	4.4	2.6	2.8	4.3
Victor	4.4	3.0	3.2	4.2	2.8	5.8	7.2	5.6	3.6	2.4	4.2
Nugget	5.2	4.0	3.8	4.4	2.6	6.2	7.2	6.4	3.6	4.8	4.8
Citation	5.0	3.8	4.0	4.2	2.6	6.4	6.6	3.6	2.8	2.6	4.2
Vernal[2]	5.0	3.8	4.0	4.6	--	5.6	4.6	3.6	--	--	--
Saranac	5.4	5.2	4.6	5.0	4.0	7.5	8.2	5.6	3.6	2.4	5.2
Titan	4.2	3.0	3.6	4.0	2.0	4.4	4.6	3.6	2.0	2.2	3.4
Agate	5.6	5.3	4.2	5.0	4.2	3.8	6.6	7.0	4.4	4.0	5.0
Seeded	4-74		5-74		4-75	4-74		5-74	4-75		

1 Lower numbers indicate less yellowing

2 Left out of data from 1975 seedings. Seed received as certified Vernal does not have Vernal fall dormancy characteristics.

TABLE 15

Phytophthora Resistance of Apollo Alfalfa in NAPB Trials

Entry	Ames 1974[1] Phytophthora Nursery % Resistant Plants	Brookston, Indiana % Stand 7-21-74	74-85-01-01[2] % Stand 5-14-75
Apollo	58.8	72	96
Anchor	9.1	30	62
Nugget	--	24	28
Citation	--	30	64
Agate	54.5	64	92
Saranac	8.7	18	24
Titan	--	22	56
Ramsey	--	42	62
Vernal	--	28	62
LSD .05	14.3	17.14	36.8
C. V.	21.8	14.38	35.8
Replications	12	5	5

1 Procedures used are those desctibed in ARS - NC-19

2 Forage trial seeded April 18, 1974, with 100% stands. May rains kept ground saturated for three weeks. Phytophthora root rot severely depleted stands.

TABLE XIV

Pea Aphid Resistance of Nugget Alfalfa

Entry	NAPB Ames, Iowa 1969 % Resistance[1]	NAPB Ames, Iowa 1972 % Resistance[1]	Average of Two Tests
Nugget Breeders	36.04	17.02	26.53
Vernal (Susceptible Check)	2.53	2.01	2.27
Kanza (Resistant Check)	--	48.27	--
Apex (Resistant Check)	68.1	--	--

[1] Replicated greenhouse trials, resistance = % plants surviving 5-6 week very heavy artifical infestation. Aphids introduced 7 days after planting and periodically for 3 - 4 weeks.

TABLE 16

Pea Aphid Resistance of Nugget and Citation alfalfa in NAPB Ames, Iowa, Greenhouse Tests[1]

Entry	Test 1		Test 2		Test 3		Test 4		Test 5		Average	
Citation	38.8		65.6		61.8		32.5		36.9		47.1	
Nugget	10.5	11	26.4	24	23.8	22	10.7		- -		17.9	
Kanza KCC 72	41.8	46	49.3	45	48.5	45	23.4	← too low	32.4	← too low	39.1	CRAPOCA
Vernal VCC 72	0.0	00	1.4	01	2.3	02	0.8		3.2		1.9	
Ranger	5.3		4.3		4.6		0.3		9.9		4.9	
Dawson DCC 72	- -		7.5		21.4		5.6		- -		11.5	
Seeded	11-14-72		11-27-72		12-21-72		1-17-73		2-23-7			
Final Count	12-27-72		1-18-73		1-31-73		2-21-73		4-11-7			
Comment	Good Test		Good Test		Good Test		Very severe Test		Fair Test			

[1] Each test replicated, 55 seeds per plot, pea aphids added 7 days after seeding and periodically thereafter.

Resistance = Number survivors at final count divided by stand at 7 days.

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
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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

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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

LAW OFFICES

BURCH, PORTER & JOHNSON

130 NORTH COURT AVENUE

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R. PORTER FEILO

CHAS. N. BURCH 1866-1938
H. D. MINOR 1866-1947
CLINTON H. MCKAY 1869-1943
JESSE E. JOHNSON, JR. 1913-1980
JOHN S. PORTER 1909-1990

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July 25, 1994

Ms. Ann Zempolich
Plant Variety Protection Office
U. S. Department of Agriculture
500 NAL Building
10301 Baltimore Boulevard
Beltsville, MD 20705

Re: Agripro Biosciences Inc. Sale of PVPs to AGR Acquisition Corporation (which has changed its name to Agripro Seeds, Inc.)

Dear Ms. Zempolich:

I am enclosing herewith the Bill of Sale and Assignment wherein Agripro Biosciences Inc. has sold and assigned all of its right, title and interest in and to the PVPs listed on the attachment to the Bill of Sale to AGR Acquisition Corporation and hereby request that your records be changed to show the new owner as Agripro Seeds, Inc., the new name of AGR Acquisition Corporation. It is our understanding that the attachment was generated by someone in your office and forwarded to Agripro Biosciences Inc. at its request, and was subsequently forwarded to our office as attorneys for the purchaser in connection with the sale transaction.

As I indicated to you in our several previous telephone conversations, AGR Acquisition Corporation changed its corporate name to Agripro Seeds, Inc. the same date as the closing of the sale. I am enclosing herewith a copy of the Certificate of Amendment filed by the Delaware Secretary of State wherein the corporate name is changed.

If I counted correctly, there are 149 PVP certificates listed on the attachment to the Bill of Sale and Assignment. I am enclosing a check in the amount of $3,725.00 payable to United States Treasury in payment of the $25.00 per certificate fee to change the owner's name on your records.

THIS DOCUMENT HAS A COLORED BACKGROUND — NOT A WHITE BACKGROUND THIS DOCUMENT HAS A COLORED BACKGROUND

HELENA

HELENA CHEMICAL COMPANY
Suite 3200 – Clark Tower
5100 Poplar Avenue
Memphis, Tennessee 38137

DATE 7-8-94

CHECK NUMBER 22406

PROTECTION AMOUNT

PAY EXACTLY 3725 00 CTS

PAY THIS AMOUNT $3,725.00

PAY TO THE ORDER OF United States Treasury

HELENA CHEMICAL COMPANY
by

AUTHORIZED SIGNATURES

FORM APPROVED. OMB NO. 40-R3712

FORM GR 470-32 (2-75)

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): North American Plant Breeders

ADDRESS (*Street and No., or R.F.D. No., City, State, and Zip Code*): ~~P. O. Box 991~~ ~~Little Rock, Arkansas 72203~~

VARIETY NAME OR TEMPORARY DESIGNATION: Nugget

FOR OFFICIAL USE ONLY

PVPO NUMBER: 7500042

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 All except # 5 [ ] 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. [ ] AREA TESTED 1,2,3,4,6,7	
2. WINTER HARDINESS [7] 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	[2] AREA TESTED See tables in Nugget application	
3. FALL GROWTH HABIT [7] 1 = ERECT (Mesa Sirsa) 3 = SEMIERECT (DuPuits) 5 = INTERMEDIATE (Saranac) 7 = SEMIDECUMENT (Vernal) 9 = DECUMBENT (Norsement)	[2] 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)	[2] AREA TESTED	
5. FLOWERING DATE (FIRST SPRING GROWTH) [ ][ ] DAYS EARLIER THAN . . . . . [ ] 1 = MESA SIRSA 2 = LAHONTAN 3 = SARANAC 4 = VERNAL [ ][ ] DAYS LATER THAN . . . . . [ ] 5 = NORSEMAN	[ ] AREA TESTED	
6. CROWN TYPE [6] 1 = SPREADING ROOTS 3 = SPREADING RHIZOMES (Teton) 5 = BROAD (Vernal) 7 = INTERMEDIATE (Saranac) 9 = NARROW (Mesa Sirsa)	[2] AREA TESTED	
7. PLANT COLOR [5] 3 = DARK GREEN (Weevlchek) 5 = GREEN (Vernal) 7 = LIGHT GREEN (Ranger)	[2] AREA TESTED	

8. HAIRINESS

[ ][ ][ ] % PLANTS WITH PUBESCENT STEMS

[0][6][6] % PLANTS WITH PUBESCENT PODS

9. POD SHAPE

[0][8][7] % PLANTS WITH TIGHT COILS

[0][1][3] % PLANTS WITH LOOSE COILS

[0][0][0] % PLANTS WITH SICKLE PODS (Less than 1 coil)

5

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. %	

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

0 8 7 % PURPLE 0 1 2 % VARIEGATED 0 0 1 % YELLOW _ _ _ % CREAM _ _ _ % 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	(SUBMITTED)	46	1.87		Univ. Minnesota 1972
	(RES. CK.) VERNAL	42	2.00		
	(SUS. CK.) NARRAGANSETT	0	4.32	.38	
ANTHRACNOSE	(SUBMITTED)				
	(RES. CK.) ARC				
	(SUS. CK.) SARANAC				
COMMON LEAF SPOT	(SUBMITTED)				
	(RES. CK.) RAMSEY				
	(SUS. CK.) RANGER				
DOWNY MILDEW	(SUBMITTED)				
	(RES. CK.) SARANAC				
	(SUS. CK.) KANZA				
PHYTOPHTHORA ROOT ROT	(SUBMITTED)	Susceptible			See Table 15
	(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.

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)	18			Ames, Iowa 1972-73
	(RES. CK.) KANZA	39			
	(SUS. CK.) RANGER	5			
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)	45	3.83		Ames, Iowa 1975 Table 17, also see Table 18
	Weevlchek (RES. CK.)	87	2.70		
	Ranger (SUS. CK.)	16	4.16		
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.

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	Vernal	PLANT HEIGHT	Anchor
RECOVERY AFTER CUTTING	Anchor	WINTER HARDINESS	Vernal

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

DEC 1 1975