No. 9500101

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Dairyland Seed Company, Inc.

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 EIGHTEEN 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 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.)

ALFALFA

'Magnum IV'

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 twenty-eighth day of May in the year of our Lord one thousand nine hundred and ninety-nine.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

CE LOCALLY. *Include form number and edition date on all reproductions.* OMB APPROVED NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE DIVISION

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(INSTRUCTIONS ON REVERSE)

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 APPLICANT(S) (as it is to appear on the Certificate): Dairyland Seed Company
2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO.: DS9101
3. VARIETY NAME: Magnum IV
4. ADDRESS (street and no. or R.F.D. no., city, state, and ZIP): ~~3570 Hwy H~~ P.O. Box 958 AAA 4 Oct 1996 per phone conv. West Bend, WI 53095
5. PHONE (include area code): 800 236-0163

FOR OFFICIAL USE ONLY

PVPO NUMBER: 950010

FILING: Date: MARCH 9, 1995 Time: ☐ A.M. ☒ P.M.

FEES RECEIVED: Filing and Examination Fee: $ 2325.00 Date: MARCH 9, 1995

Certificate Fee: $ 300.00 Date: 1/25/99

6. GENUS AND SPECIES NAME: Medicago sativa L.
7. FAMILY NAME *(Botanical)*: Leguminosae
8. CROP KIND NAME *(Common Name)*: Alfalfa
9. DATE OF DETERMINATION: 10/93
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.): corporation
11. IF INCORPORATED, GIVE STATE OF INCORPORATION: Wisconsin
12. DATE OF INCORPORATION: 12-1963
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
~~Tom Strachota~~
~~Dairyland Seed Company~~
~~3570 Hwy H~~
~~West Bend, WI 53095~~
Michael Velde
9728 S. Clinton Corners Rd.
Clinton WI 53525-9728
AAA (per letter) 26 Dec 1996
PHONE (include area code): ~~800 236 0163~~ 6086762237 AAA (per letter) 14 Jun 1999

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow INSTRUCTIONS on reverse)*
   a. ☒ Exhibit A, Origin and Breeding History of the Variety
   b. ☒ Exhibit B, Novelty Statement
   c. ☒ Exhibit C, Objective Description of Variety
   d. ☐ Exhibit D, Additional Description of Variety
   e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership
   f. ☒ Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office 3-6-95
   g. ☒ Filing and Examination Fee ($2,325) made payable to "Treasurer of the United States"

15. 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) of the Plant Variety Protection Act)* ☐ YES *(If "YES," answer items 16 and 17 below)* ☒ NO *(If "NO," skip to item 18 below)*

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☐ YES ☐ NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
   ☐ YES (If "YES," through ☐ Plant Variety Protection Act ☐ Patent Act. Give date: _____).
   ☒ NO

19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
   ☒ YES (If "YES," GIVE NAMES OF COUNTRIES AND DATES) United States 4/94 Argentina 10/94
   ☐ NO

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) 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(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT (Owner(s))	CAPACITY OR TITLE	DATE
Thomas J. Strachota	CHIEF EXECUTIVE OFFICER	3-6-95
SIGNATURE OF APPLICANT (Owner(s))	CAPACITY OR TITLE	DATE

SD-470 (06-93) *Editions of Forms LS-470 (3/86) and CSSD-470 (5/89) are to be destroyed.*

CONTINUED ON REVERSE

9500101

EXHIBIT A

Magnum IV is a twenty two clone synthetic variety developed by Dairyland Research International. Parent plants were selected out of forage yield plots and/or disease nurseries, These parent plants were progeny tested for one or more of the following traits: Forage yield, stand persistence, forage quality, resistance to bacterial wilt, Fusarium wilt, Phytophthora root rot, anthracnose (Race 1), Verticillium wilt, Aphanomyces root rot (Race 1), spotted alfalfa aphid and pea aphid. The percentage of parent plants trace back to MNP-D1 (5). Answer (10), Apollo (5), MNP-B1 (Syn. 2) (10) Thor (5) Tempo(5) and Dairyland Experimentals (60). Dairyland Experimentals trace back T9-571-39, A19-616, A19-616 x MNB1(Ph)-6, 84 Kansas-24, MS-1W(Ph)-2, A19-657 x MNB1 (PH)-6, Ph Flem-13-335. Parent plants were planted in isolation and interpollinated by honey, leaf cutter and bumble bees in Sloughouse CA in 1989-1991 to produce Syn. 1 as Breeder seed. Seed from parent plants were equally bulked to produce Breeder seed. Magnum IV appears to be uniform and stable with no variants observed for three years.

EXHIBIT B

Magnum IV is most similar to the variety Saranac.

Magnum IV is a novel variety because of its high resistance to bacterial wilt (54), Fusarium wilt (78), Phytophthora root rot (56), resistance to anthracnose (Race1) (34), pea aphid (42), spotted alfalfa aphid (19), stem nematode (34), Verticillium wilt (44) and moderate resistance to Aphanomyces root rot (Race 1) (26), blue alfalfa aphid (26) spotted alfalfa aphid (19) and northern root knot nematode (26); whereas Saranac has moderate resistance to bacterial wilt (21) and is susceptible to Phytophthora root rot (3) and anthracnose (1). No other fall dormancy 4 alfalfa has this combination of disease, insect and nematode resistance.

The flower color is approximately 92 % purple and violet, 8% variegated. Magnum IV's winter injury rating is significantly better than Saranac and numerous other varieties (note enclosed data).

Magnum IV provides a combination of forage yield, winter injury tolerance, disease, insect and nematode resistance superior to that of Saranac and numerous other alfalfa cultivars (note enclosed data).

Agronomic Data for Magnum IV

Phytophthora Root Rot

Variety	Syn. Gen	%R	# of Plants	ASI	LSD .05	Lab
Magnum IV	3	50.0	360	--	4.25	Dairyland Research
Saranac	3	3.1	360	--		International, Clinton, WI; 1993 Laboratory

Scoring system used: Resistant: healthy, disease free seedlings; Susceptible: stunted or dead seedlings

Anthracnose(Race1)

Variety	Syn. Gen	%R	# of Plants	ASI	LSD .05	Lab
Magnum IV	3	32.0	120	--	5.80	Dairyland Research
Saranac	3	1.0	115	--		International, Clinton, WI; 1993 Laboratory

Scoring system used: Resistant: healthy, disease free seedlings; Susceptible: lesioned or dead seedlings

FORM APPROVED: OMB NO. 0581-0055

EXHIBIT C
(Alfalfa)

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK AND SEED DIVISION
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MARYLAND 20705

OBJECTIVE DESCRIPTION OF VARIETY

ALFALFA *(Medicago sativa* sensu Gunn et al.*)*

NAME OF APPLICANT(S)	TEMPORARY DESIGNATION	VARIETY NAME
Dairyland Seed Company	DS9101	Magnum IV

ADDRESS *(Street and No., or R.F.D. No., City, State, and Zip Code)*
3570 Hwy H
West Bend, WI 53095

FOR OFFICIAL USE ONLY
PVPO NUMBER
9500101

PLEASE READ ALL INSTRUCTIONS CAREFULLY: Place numbers in the boxes to designate the expressions which are characteristic of the commerical generations of the application variety. Data for quantitative plant characters should be based on a minimum of 100 plants. Include leading zeros when necessary (e.g., [0 8 9]) for quantitative data. Comparative data should be determined from varieties entered in the same trial. Plant color may be precisely designated by using any recognized color chart, e.g., The Munsell Plant Tissue Color Charts.

1. WINTERHARDINESS:

[7] CLASS:

1 = Very Non-Winterhardy (CUF 101)
2 = Non-Winterhardy (Moapa 69)
3 = Intermediately Non-Winterhardy (Mesilla)
4 = Semi-Winterhardy (Lahontan)
5 = (Du Puits)
6 = Moderately Winterhardy (Saranac)
7 = (Ranger)
8 = Winterhardy (Vernal)
9 = Extremely Winterhardy (Norseman)

TEST LOCATION: _____

2. FALL DORMANCY:

FALL DORMANCY (DETERMINED FROM SPACED PLANTINGS)

TESTING INSTITUTION AND LOCATION	DATE OF LAST CUT	DATE REGROWTH SCORED	REGROWTH SCORE OR AVERAGE HEIGHT				LSD .05
			APPLICATION VARIETY	CHECK VARIETIES*			
				Ranger	Saranac	DuPuits	
Dairyland Research Clinton, WI	9/92	10/92	8.00	6.30	8.30	10.50	1.10

* CUF 101, Moapa 69, Mesilla, Lahontan, Du Puits, Saranac, Ranger, Vernal, or Norseman as appropriate.

Specify scoring system used: Fall growth in inches

[5] Fall Growth Habit (Determined from Fall Dormancy Trials)

1 = Erect (CUF 101)
3 = Semierect (Mesilla)
5 = Intermediate (Saranac)
7 = Semidecumbent (Vernal)
9 = Decumbent (Norseman)

3. RECOVERY AFTER FIRST SPRING CUT (In Southwest, first cut after March 21):

[3]

1 = Very Fast (CUF 101)
3 = Fast (Saranac)
5 = Intermediate (Ranger)
7 = Slow (Vernal)
9 = Very Slow (Norseman)

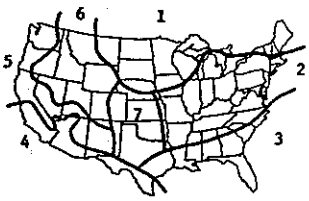
TEST LOCATION: Clinton, WI

4. AREAS OF ADAPTATION IN U.S. (Where tested and proven adapted):

[1] Primary Area of Adaptation

[2] [6] Other Areas of Adaptation

1 = North Central
2 = East Central
3 = Southeast
4 = Southwest
5 = Moderately Winterhardy Intermountain
6 = Winterhardy Intermountain
7 = Great Plains
8 = Other *(Specify)* _____



5. FLOWERING DATE (When 10% of plants possess open flowers at time of first spring cut):

[0 3] Days Earlier Than . . . . . [4]

Same As . . . . . [3]

[0 3] Days Later Than . . . . . [2]

1 = CUF 101
2 = Mesilla
3 = Saranac
4 = Vernal
5 = Norseman

TEST LOCATION: Clinton, WI

9500101

6. PLANT COLOR (Determined from healthy regrowth 3 weeks after first spring cut, controlling leafhoppers if necessary):

[3] 1 = Very Dark Green (524) 2 = Dark Green (Vernal) 3 = Light Green (Ranger)

COLOR CHART VALUE (Specify chart used; Munsell Color Charts 7.5GY):

APPLICATION VARIETY: 7/10

VERNAL: 6/10

TEST LOCATION: Clinton, WI

7. CROWN TYPE (Determined from spaced plantings):

[2] Noncreeping Types: 1 = Broad (Vernal) 2 = Intermediate (Saranac) 3 = Narrow (CUF 101)

Creeping Types: 4 = Creeping Rooted (Rangelander) 5 = Rhizomatous (Rhizoma)

8. FLOWER COLOR (Determine frequency of plants for each color class as defined by USDA Agricultural Handbook No. 424 (Barnes 1972), allowing all plants in plot to flower):

[092] % Purple and Violet (Subclasses 1.1 to 1.4)

[008] % Variegated Other Than Blue (Subclasses 2.1, 2.2, 2.5 to 2.9)

[000] % Cream (Class 3)

[000] % Blue (Subclasses 2.3 and 2.4)

[000] % Yellow (Subclasses 4.1 to 4.4)

[000] % White (Class 5)

TEST LOCATION: Homedale, ID

9. POD SHAPE (Determine frequency of plants with the following pod shapes produced on well cross-pollinated racemes):

[050] % Tightly Coiled (One or more coils, center more or less closed)

[045] % Loosely Coiled (One or more coils, center conspicuously open)

[005] % Sickle (Less than 1 coil)

TEST LOCATION: Homedale, ID

10. PEST RESISTANCE: Provide in the appropriate column, trial data for application variety, and resistant (R) and susceptible (S) check varieties, synthetic generation tested, average severity index scores (ASI), least significant difference statistics (LSD .05), the institution in charge of test, year, and location of test, and whether test is a field or laboratory evaluation. Describe scoring system, and any test procedure which differs from standard methods proposed by Elgin (1982). Trial data from other test years or locations should be presented whenever available on a separate document as Exhibit D.
Seeds of the check varieties and germplasm lines listed below can be obtained from the USDA Field Crops Laboratory, Bldg. 001, Rm. 335, BARC-West, Beltsville, MD 20705. Although comparisons with check varieties listed below are preferred, comparisons with any appropriate check variety recommended by Elgin (1982) may be presented.

A. DISEASE RESISTANCE: DISEASE	VARIETY	SYN. GEN. TESTED	PERCENT RESISTANT PLANTS	NUMBER OF PLANTS TESTED	ASI	ASI LSD .05	INSTITUTION, YEAR, LOCATION, FIELD OR LABORATORY
Anthracnose, Race 1 (*Colletotrichum trifolii*)	Application	2	33.66	120	--	-	Dairyland Research, 1992 Clinton, WI Laboratory
	~~Arc (R)~~ Saranac AR		45.00	105	--		
	Saranac (S)		00.00	130	--		
	SCORING SYSTEM: Resistant: healthy, disease free seedlings; Susceptible:lesioned or dead seedling						
Anthracnose, Race 2 (*Collectotrichum trifolii*)	Application						
	Saranac AR (R)						
	Arc (S)						
	SCORING SYSTEM:						
Bacterial Wilt (*Corynebacterium insidiosum*)	Application	2	53.61	115	2.62	.32	Dairyland Research 1992, Clinton, WI Laboratory
	Vernal (R)		42.00	100	2.61		
	Narragansett (S)		00.00	100	4.57		
	SCORING SYSTEM: Plants scored 0-5, 0+1=Resistant						
Common Leafspot (*Pseudopeziza medicaginis*)	Application						
	MSA-CW3AN3 (R)						
	Ranger (S)						
	SCORING SYSTEM:						

10. A. PEST RESISTANCE (Continued):

DISEASE	VARIETY	SYN. GEN. TESTED	PERCENT RESISTANT PLANTS	NUMBER OF PLANTS TESTED	ASI	ASI LSD .05	INSTITUTION, YEAR, LOCATION, FIELD OR LABORATORY
Downy Mildew *(Peronospora trifoliorum)*	Application						
Isolate, if known:	Saranac (R)						
	Kanza (S)						
	SCORING SYSTEM:						
Fusarium Wilt *(Fusarium oxysporum f. medicaginis)*	Application	2	78.00	110	1.50	.40	Dairyland Resear 1994, Clinton, WI Laboratory
W	~~Moapa 69 (R)~~ Agate		54.00	105	3.15		
	~~Narragansett (R)~~ MN GN-1		00.00	110	5.00		
	SCORING SYSTEM: Plants scored 0-5, 0+1=Resistant						
Phytophthora Root Rot *(Phytophthora megasperma f. medicaginis)*	Application	2	55.68	105	--	--	Dairyland Researc 1993, Clinton, WI Laboratory
	Agate (R)		43.00	100	--		
	Saranac (S)		00.00	100	--		
	SCORING SYSTEM: Resistant:healthy, disease free seedlings; Susceptible:stunted or dead seedlings						
Verticillium Wilt *(Verticillium alboatrum)*	Application	2	43.94	100	2.24	.40	Dairyland Researc 1993, Clinton, WI Laboratory
	Vertus (R)		40.00	100	2.26		
	Saranac (S)		2.26	100	4.20		
	SCORING SYSTEM:						
Other *(Specify)* Aphanomyces Root Rot (Race 1)	Application	2	26.49	120	3.10	.40	Dairyland Researc 1993, Clinton, WI Laboratory
	(R) WAPH-1		50.00	115	2.23		
Aphanomyces euteiches	(S) Agate		00.00	115	4.10		
	SCORING SYSTEM:						
Other *(Specify)*	Application						
	(R)						
	(S)						
	SCORING SYSTEM:						

B. INSECT RESISTANCE:

INSECT	VARIETY	SYN. GEN. TESTED	PERCENT DEFOLIATION	DEFOLIATION IN PERCENT OF RESISTANT CHECK	ASI	ASI LSD .05	INSTITUTION, YEAR, LOCATION, FIELD OR LABORATORY
Alfalfa Weavil *(Hypera postica)*	Application						
	Arc (R)			100			
	Saranac (S)						
	SCORING SYSTEM:						

10. B. INSECT RESISTANCE (Continued): 9500101

INSECT	VARIETY	SYN. GEN. TESTED	PERCENT SEEDLING SURVIVAL	NUMBER OF SEEDLINGS TESTED	ASI	ASI LSD .05	INSTITUTION, YEAR, LOCATION, FIELD OR LABORATORY
Blue Alfalfa Aphid *(Acyrthosiphon kondoi)*	Application	2	26.13	130	3.86	.30	Dairyland Researc 1993, Sloughhouse, CA Laboratory
	CUF 101 (R)		55.00	120	2.65		
	~~PA-1 (S)~~ Caliverde		00.00	120	4.60		
	SCORING SYSTEM: Plants scored 1-5, 1+2+3=Resistant						
Pea Aphid *(Acyrthosiphon pisum)*	Application	2	42.00	150	2.40	.40	Dairyland Researc 1994 Sloughhouse, CA Laboratory
	~~Kanza (R)~~ CUF101		55.00	171	2.10		
	~~Ranger (S)~~ Moapa69		6.76	170	4.10		
	SCORING SYSTEM:						
Spotted Alfalfa Aphid *(Therioaphis maculata)* *Biotype, if known:*	Application	2	19.17	130	3.80	.36	Dairyland Rsearch 1993 Sloughhouse, CA Laboratory
	~~Kanza (R)~~ CUF101		60.00	100	2.00		
	~~Ranger (S)~~ Caliverde		00.00	100	4.80		
	SCORING SYSTEM: Plants scored 1-5, 1+2=Resistant						

INSECT	VARIETY	SYN. GEN. TESTED	PERCENT RESISTANT PLANTS	NUMBER OF PLANTS TESTED	ASI	ASI LSD .05	INSTITUTION, YEAR, LOCATION, FIELD OR LABORATORY
Potato Leafhopper Yellowing *(Empoasca fabae)*	Application						
	MSA-CW3An3 (R)						
	Ranger (S)						
	SCORING SYSTEM:						
Other *(Specify)*	Application						
	(R)						
	(S)						
	SCORING SYSTEM:						

C. NEMATODE RESISTANCE:

NEMATODE	VARIETY	SYN. GEN. TESTED	PERCENT RESISTANT PLANTS	NUMBER OF PLANTS TESTED	ASI	ASI LSD .05	INSTITUTION, YEAR, LOCATION, FIELD OR LABORATORY
Northern Root Knot *(Meloidogyne hapla)*	Application	1	26.13	105	2.45	.62	Dairyland Research, 1992' Clinton, WI Laboratory
	Nev. Syn. XX (R)		90.00	100	1.30		
	~~Lahontan (S)~~ ApolloII		7.47	100	3.29		
	SCORING SYSTEM: Plants scored 1-4, 1=Resistant						

10. C. NEMATODE RESISTANCE (Continued):

NEMATODE	VARIETY	SYN. GEN. TESTED	PERCENT RESISTANT PLANTS	NUMBER OF PLANTS TESTED	ASI	ASI LSD .05	INSTITUTION, YEAR, LOCATION, FIELD OR LABORATORY
Southern Root Knot *(Meloidogyne incognita)*	Application						
	Moapa 69 (R)						
	Lahontan (S)						
	SCORING SYSTEM:						
Stem Nematode *(Ditylenchus dipsaci)*	Application	1	34.10	112	3.10	.36	Crop Characteristi 1992,Northfield,M Laboratory
	~~Lahontan (R)~~ Vernema		65.00	115	2.50		
	Ranger (S)		9.59	110	3.70		
	SCORING SYSTEM:						
Other *(Specify)*	Application						
	(R)						
	(S)						
	SCORING SYSTEM:						

11. INDICATE THE VARIETY THAT MOST CLOSELY RESEMBLES THE APPLICATION VARIETY FOR EACH OF THE FOLLOWING CHARACTERS:

CHARACTER	VARIETY	CHARACTER	VARIETY
Winterhardiness	Ranger	Plant Color	Ranger
Recovery After 1st Cut	Saranac	Crown Type	Saranac
Area of Adaptation	Ranger	Combined Disease Resistance	GH777
Flowering Date	Saranac	Combined Insect Resistance	Magnum III

REFERENCES

Barnes, D.K. 1972. A System for Visually Classifying Alfalfa Flower Color. U.S. Dep. Agric. Handb. 424. 18 pp. (Note: Greenish cast of plate 6, A and B is an artifact of printing, actual colors a blend of yellow and white.)

Elgin, J.H., Jr., (ed.). 1982. Standard Tests to Characterize Pest Resistance in Alfalfa Cultivars. U.S. Dep. Agric. Tech. Bull. (In Press).

Gunn, C.R., W.H. Skrdla, and H.C. Spencer. 1978. Classification of Medicago sativa L. using legume characters and flower colors. U.S. Dep. Agric. Tech. Bull. 1574. 84 pp.

Munsell Color Co. 1977. Munsell Plant Tissue Color Charts. Munsell Color Co., Inc. Baltimore.

NOTE: Any additional descriptive information and supporting documentation may be provided as Exhibit D.

Exh. D AAA 20Dec1996

9500101

IOWA TABLE 2. ALFALFA VARIETIES AND EXPERIMENTAL STRAINS

FIELD 1, 1992-93

LOCATION: 8 MILES WEST OF AMES — SOIL: NICOLLET LOAM, WEBSTER SILTY CLAY LOAM

DESIGN: 9 X 9 QUADRUPLE LATTICE — PLANTED: MAY 9, 1991

PLOT SIZE: 3' X 12', 5 ROWS — CUTTINGS: 4 IN 1992, 3 IN 1993

			ADJUSTED YIELD OF DRY MATTER (T/A)					
		WINTER						
		INJURY	1992	1993				1992-93
ENTRY	SOURCE	<1>	<2>	5-31	7-6	8-20	TOTAL	AVERAGE
DS9101*	DAIRYLAND RESEARCH	3.7	7.33	1.29	1.18	1.16	3.62	5.48
DS9105*	DAIRYLAND RESEARCH	5.2	7.41	1.03	1.14	1.22	3.38	5.39
DS9102*	DAIRYLAND RESEARCH	5.2	7.32	1.11	1.11	1.13	3.35	5.34
ABI 9012*	ABI	4.7	7.23	1.18	1.10	1.13	3.42	5.32
ABI 9022*	ABI	4.8	7.12	1.22	1.12	1.19	3.54	5.32
EVOLUTION	JACQUES SEED CO.	4.5	7.16	1.15	1.11	1.12	3.38	5.27
ABI 9033*	ABI	5.2	7.20	1.11	1.05	1.18	3.34	5.27
ALPINE	BIO-PLANT RESEARCH	4.3	7.36	1.17	1.04	0.95	3.16	5.27
ABI 8939*	ABI	5.6	7.16	1.02	1.08	1.10	3.21	5.19
645	ICI SEEDS	4.7	7.04	1.10	1.11	1.09	3.30	5.16
TARGET II	NAYLOR SEEDS/EPLEY BROS. HYBRIDS, INC.	4.9	7.23	1.04	1.09	0.95	3.08	5.16
5246	PIONEER HI-BRED INTL., INC.	5.0	7.16	1.02	1.06	1.06	3.14	5.15
WEBFOOT	GREAT LAKES HYBRIDS, INC.	3.0	6.83	1.32	1.13	1.00	3.45	5.15
JADE	NC+ HYBRIDS	4.9	7.18	1.06	1.04	0.99	3.09	5.14
MAGNUM III	DAIRYLAND SEED CO.	5.6	7.45	0.88	1.02	0.92	2.83	5.14
NORDIC	ICI SEEDS	5.5	7.01	1.10	1.08	1.09	3.27	5.14
GREEN FIELD	PETERSON SEED CO.	4.9	6.99	1.09	1.10	1.08	3.27	5.13
630	ICI SEEDS	5.6	7.25	0.92	1.05	1.01	2.97	5.12
APOLLO SUPREME	AMERICA'S ALFALFA	4.8	6.91	1.17	1.04	1.09	3.29	5.10
HYLAND	BIO-PLANT RESEARCH	5.4	6.98	1.03	1.10	1.08	3.21	5.10
MBS 2131*	MBS, INC.	5.3	7.24	0.92	1.01	1.01	2.94	5.09
PATRIOT	AGRIGENE SEED CO.	6.0	7.17	0.92	1.08	0.94	2.93	5.05
QUANTUM	RENK SEED CO.	5.3	6.93	1.05	1.03	1.05	3.11	5.02
TRIDENT II	CARGILL HYBRID SEEDS	5.6	6.99	0.93	1.01	1.02	2.96	4.97
RAMROD	BIO-PLANT RESEARCH	4.5	6.85	1.10	1.00	0.97	3.08	4.96
ABI 9025*	ABI	5.7	6.88	0.97	1.00	1.04	3.01	4.95
VIKING 1	NORTHRUP SEED CO.	6.0	7.03	0.87	1.04	0.99	2.88	4.95
88-5*	W-L RESEARCH	3.9	6.30	1.25	1.13	1.15	3.52	4.92
DAWN	AGRIPRO	6.1	7.09	0.81	1.05	0.90	2.77	4.92
STINE 9227	STINE SEED CO.	5.7	6.96	0.91	0.98	0.98	2.88	4.92
DART	AGRIPRO	5.3	6.92	0.94	1.02	0.92	2.88	4.90
89-30*	W-L RESEARCH	6.2	7.02	0.83	1.01	0.86	2.71	4.86
MORE	MBS, INC.	6.4	7.22	0.74	0.96	0.81	2.51	4.86
MULTIKING 1	NORTHRUP KING CO.	5.1	6.84	0.98	1.01	0.88	2.87	4.85
PERRY	NEBRASKA AES & USDA	4.9	6.87	1.00	0.99	0.84	2.83	4.85
PRISM	BEACHLEY HARDY	7.8	7.50	0.56	0.91	0.74	2.22	4.85
AGGRESSOR	AMERICA'S ALFALFA	6.4	6.88	0.86	1.01	0.94	2.81	4.84
VERNAL	WISCONSIN AES (8-90-967)	3.2	6.41	1.34	1.00	0.92	3.27	4.83
WL 323	GROWMARK, INC. (FS SEEDS)	7.6	7.52	0.48	0.94	0.70	2.11	4.83
MULTISTAR	FFR COOPERATIVE	6.4	7.13	0.79	0.95	0.77	2.51	4.81

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IOWA TABLE 2. (CONTINUED)

ENTRY	SOURCE	WINTER INJURY <1>	ADJUSTED YIELD OF DRY MATTER (T/A) 1992 <2>	1993 5-31	1993 7-6	1993 8-20	1993 TOTAL	199 AVE
DK133	DEKALB PLANT GENETICS	7.4	7.41	0.55	0.93	0.69	2.18	4
MULTI-PLIER	JACQUES SEED CO.	6.8	7.06	0.79	0.93	0.80	2.53	4
W90-VSX*	UNIVERSITY OF WISCONSIN	5.9	6.92	0.88	0.91	0.86	2.65	4
WEBFOOT MPR	GREAT LAKES HYBRIDS, INC.	7.0	7.33	0.62	0.87	0.78	2.28	4
AS-BG*	ALLIED SEED	6.2	6.97	0.77	0.98	0.84	2.59	4
6500	WILSON HYBRIDS, INC.	6.3	6.89	0.83	0.98	0.87	2.68	4
ALLEGRO	LYNKS SEEDS	7.2	7.24	0.56	0.96	0.80	2.31	4
PRECEDENT	WYFFELS HYBRIDS	7.6	7.44	0.53	0.92	0.69	2.13	4
2833	CIBA SEEDS	6.5	7.02	0.77	0.95	0.75	2.46	4
9047N*	MBS, INC.	6.7	7.16	0.65	0.85	0.79	2.28	4
AS-BF*	ALLIED SEEDS	5.5	6.94	0.80	0.94	0.76	2.49	
IMPACT	PETERSON SEED CO.	5.8	6.70	0.85	0.96	0.91	2.72	
BOLT ML	JUNG FARMS	8.0	7.27	0.43	0.96	0.71	2.09	
GH 755	GOLDEN HARVEST/J.C. ROBINSON SEED CO.	6.5	6.83	0.71	0.95	0.86	2.52	4.67
MEDALLION	ALLIED SEED CO.	5.5	6.55	1.00	0.97	0.82	2.79	4.67
90-135*	W-L RESEARCH	6.3	6.87	0.69	0.94	0.82	2.45	4.66
FLAGSHIP 75	FONTANELLE HYBRIDS & HERITAGE SEEDS	6.2	6.89	0.78	0.97	0.68	2.43	4.65
GUARDSMAN	THE SEXAUR CO.	6.3	6.64	0.86	0.95	0.82	2.64	4.65
ZENITH	ICI SEEDS	7.3	7.24	0.53	0.86	0.65	2.04	4.64
GH 777	GOLDEN HARVEST/GOLDEN SEED CO.	7.6	7.28	0.47	0.85	0.67	2.00	4.63
90-111*	W-L RESEARCH	5.3	6.59	0.84	0.95	0.85	2.64	4.62
UN 74	UNION SEED CO.	7.6	7.29	0.43	0.84	0.62	1.89	4.59
WL 317	GROWMARK, INC. (FS SEEDS)	5.3	6.48	0.97	0.91	0.81	2.69	4.59
AS-G*	ALLIED SEEDS	7.2	6.97	0.57	0.91	0.69	2.16	4.57
ALFALEAF	OTTILIE R.O. SEED	7.4	7.27	0.45	0.84	0.56	1.85	4.56
SARANAC	NEW YORK AES (NY 86-14)	6.1	6.76	0.76	0.87	0.71	2.34	4.56
COLADE	CHEMGRO	6.8	6.70	0.71	0.93	0.76	2.39	4.55
IMINATOR	LACROSSE SEED CORP.	6.5	6.75	0.68	0.90	0.78	2.36	4.55
END	CENEX/LAND O' LAKES	6.3	6.66	0.66	0.90	0.80	2.37	4.52
ACY	THE GENESIS GROUP	7.5	7.09	0.44	0.85	0.64	1.92	4.51
ORE	SPANGLER BROTHERS SEED CO.	7.7	6.90	0.49	0.89	0.69	2.07	4.49
IEVA	ALLIED SEEDS	8.0	7.01	0.41	0.87	0.61	1.89	4.45
143*	W-L RESEARCH	7.0	6.71	0.64	0.87	0.64	2.15	4.43
72	UNION SEED CO.	7.6	7.01	0.49	0.78	0.55	1.83	4.41
25	DEKALB PLANT GENETICS	7.9	7.06	0.37	0.79	0.52	1.68	4.37
ANAC AR	NEW YORK AES (NY 86-16)	6.7	6.65	0.68	0.80	0.58	2.06	4.36
ARRON VR	GREAT PLAINS RESEARCH	7.3	6.62	0.54	0.85	0.60	1.99	4.30
EY	KANSAS AES & USDA	6.6	6.53	0.66	0.77	0.63	2.05	4.29
322 HQ	GROWMARK, INC. (FS SEEDS)	7.4	6.49	0.53	0.92	0.59	2.04	4.27
52	CIBA SEEDS	9.0	7.02	0.18	0.74	0.36	1.28	4.15
-D*	ALLIED SEED	9.0	6.05	0.17	0.77	0.26	1.20	3.62
ERIMENT MEAN		6.1	6.99	0.82	0.97	0.85	2.63	4.81
ST SIGNIFICANT DIFFERENCE (0.05)		1.4	0.38	0.30	0.12	0.18	0.54	0.34
COEFFICIENT OF VARIATION		16.4	3.9	25.9	8.9	15.2	14.4	5.0
RELATIVE EFFICIENCY OF LATTICE (%)		143	135	180	128	175	183	171

<1> 5-4-93 Winter injury rating: 1=none, 3=25% of plants dead or extremely weak, 5=50%, 7=75%, 9=100% dead.

<2> Total of four harvests: May 28, June 28, August 1, and September 4.

* Experimental strain

?

also: No Subject Variety

HEAD TO HEAD FORAGE YIELD SUMMARY
MAGNUM IV

VARIETY	TONS	%VER	# OF HARV	LOCATIONS TESTED
Magnum IV	146.25	119	84	Parma ID; Ames IA; E. Lansing MI; Rose MN; Mead NE; Arl, River, Marsh WI
Magnum III	147.41	120		
Vernal	123.27			
Magnum IV	28.76	108	17	Rose MN; Rock PA; Marsh WI
Magnum III-Wet	29.76	111		
Vernal	26.74			
Magnum IV	16.65	110	10	Lake MI; Morris,Lamb MN
5262	16.49	109		
Vernal	15.18			
Magnum IV	110.81	116	68	Arco ID; Ames IA; E. Lansing, Lake,MIRose Morris, Lamb MN; Mead NE
5264	106.34	111		
Vernal/Agate	95.60			
Magnum IV	79.15	121	41	Parma ID; Ames IA; Mead NE
5364	75.80	116		
Vernal	65.52			
Magnum IV	107.12	114	68	Arco ID; Ames IA; E. Lansing, LakeMI;Rose, Morris, Lamb MN; Mead NE; Rock, Land PA; Jackson OH; River,Marsh WI
5454	105.77	112		
Vern/Agate/Oneida	94.03			
Magnum IV	129.29	118	73	Parma, Arco ID; Ames IA; E. Lansing MI; Rock PA; Arl, River WI
WL322HQ	118.85	109		
Vern/Agate/Oneida	109.35			
Magnum IV	14.36	120	8	E. Lansing MI
WL252HQ	13.76	115		
Vernal	11.94			

MAGNUM IV(Cont)

Magnum IV Evolution Vernal	61.80 60.38 55.11	112 110	28	Ames IA; Rose MN; River, Arl, Marsh, WI
Magnum IV Avalanche+Z Vernal	17.30 16.50 13.87	125 119	12	Ames IA
Magnum IV DK133 Vern/Agate/Oneida	146.07 137.38 128.25	114 107	82	Arco ID; Ames IA; E. Lansing, Lake MI; Rose, Morris, Lamb, MN; Mead NE; Rock PA; Jack OH; River, Marsh, Arl WI
Magnum IV Legendairy Vernal	75.34 69.94 62.20	121 112	47	Ames IA; E. Lansing MI; Rose MN; Mead NE; Ithaca NY; River, Marsh WI
Magnum IV Vernal	196.22 166.17	118	114	Parma ID; Ames IA; E. Lansing, Lake MI; Rose, Morris, Lamb MN; Mead NE; Ithaca NY; Jack OH; River, Marsh, Arl WI

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EXHIBIT E

Magnum IV was developed by Dr. Paul Sun, Lorilea Reible, Michael Velde and Scott Hulbert , the Alfalfa Breeding Department at Dairyland Research. All rights to the variety have been given to Dairyland Seed Company as a condition of employment.

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

9500101

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

FORM APPROVED - OMB NO. 0581-0055 EXPIRES: 12-31-96

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

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 APPLICANT(S): Dairyland Seed Company

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER: DS9101

3. VARIETY NAME: MagnumIV

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*: P.O. Box 958, West Bend, WI 53095

5. TELEPHONE *(include area code)*: 1-800-236-0163

6. FAX *(include area code)*: 1-414-626-2281

7. PVPO NUMBER: 9500101 ~~LAA~~ 30 Dec 1996 (sphalm.)

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

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

10. Is the applicant the original breeder? If no, please answer the following:

a. If original rights to variety were owned by individual(s): Is (are) the original breeder(s) a U.S. national(s)? If no, give name of country _____ ☒ YES ☐ NO

b. If original rights to variety were owned by a company: Is the original breeder(s) U.S. based company? If no, give name of country _____ ☐ YES ☐ NO

11. Additional explantion on ownership *(If needed, use reverse for extra space)*:

PLEASE NOTE:

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

. 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.

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.

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

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

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