UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
EAST LANSING, MICHIGAN

MICHIGAN ASSOCIATION OF CONSERVATION DISTRICTS
CADILLAC, MICHIGAN

and

MICHIGAN DEPARTMENT OF NATURAL RESOURCES
LANSING, MICHIGAN

NOTICE OF RELEASE OF ALCONA GERMPLASM DILLENIUS' TICK-TREFOIL TESTED CLASS OF NATURAL GERMPLASM

The U.S. Department of Agriculture Natural Resources Conservation Service (NRCS), Michigan Association of Conservation Districts (MACD), and the Michigan Department of Natural Resources (MDNR) announce the release of a tested ecotype of Dillenius' tick-trefoil (*Desmodium glabellum* (Michx.) DC.) for the Great Lakes region.

As a tested release, this plant will be referred to as Alcona Germplasm Dillenius' tick-trefoil to document its original collection location. It has been assigned the NRCS accession number 9055415.

This alternative release procedure is justified because there is an immediate need for native legumes as alternatives for non-native species.

Collection Site Information: Seed was collected in August 1988 by William Semeyn at R 7 E, T 28 N, Section 14, Alcona County, Michigan. The collection site was on a west-facing shoreline in MLRA 94A, PHZ 5A at an elevation of 218 m (715 feet). The mean annual precipitation was 74 cm (29 inches). The original plants were grown from this seed then transplanted into evaluation plots.

Description: Alcona Germplasm Dillenius' tick-trefoil is a multi-stemmed, native perennial legume that grows up to 12 dm (47 in) tall. Stems are erect to somewhat prostrate and nearly glabrous to sparsely pubescent. The petioled, trifoliate leaves are 10 – 25 cm (4 – 10 in) long. Leaflets are lanceolate, entire (not toothed), appressed-hairy above that generates a rougher texture than the sparsely villous and paler underside. Stipules are slender. The flowers are pink to purple, 6 – 13 mm (¼ - ½ in) long, and loosely clustered in terminal and axillary racemes. The fruit pods contain 1 to 5 segmented units covered with hooked hairs.

Method of Selection: Forty-nine collections of tick-trefoil (various species) were assembled from 8 states and 16 Major Land Resource Areas. Seeds from each collection were planted in the greenhouse for preliminary observation of growth characteristics in 1989. In 1990 plants from 40 of the collections were placed in propagation beds for a 2-year evaluation of survival, vigor, seed weight, plant height and width, bloom period, disease resistance, foliage production, and flower abundance. Five accessions, including Alcona Germplasm, were selected for further evaluation based on early and late season ranking summaries.

Advanced evaluations were completed in 1992 on the five remaining accessions. The Alcona collection and two other accessions were selected for increase due to their superior survival, emergence, vigor , and

foliage abundance. See the attached *Data to Support Release of Alcona Germplasm Dillenius' tick-trefoil* for additional information.

Environmental Impact Assessment: Alcona Germplasm Dillenius' tick-trefoil is a selection of naturally occurring germplasm and has been unaltered. Alcona Germplasm did not meet the assessment of a plant which could become invasive based on the environmental evaluation process adopted by the NRCS Plant Materials Program.

Anticipated Conservation Use: Alcona Germplasm is intended for use in wildlife food plots as an alternative to introduced plant species. Seed from Desmodium species is used as a food source by several upland gamebirds and songbirds.

Anticipated Area of Adaptation: The species range is throughout northern North America. The anticipated area of use is within the Great Lakes region, which is well within the species range. Alcona Germplasm inhabits dry, sandy, open woods and slightly shaded areas.

Availability of Plant Materials: Generation 1 (G1), equivalent to Foundation Seed, will be maintained by the USDA NRCS Rose Lake Plant Materials Center and made available in limited quantities to interested parties for increase purposes.

References:

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Signatures for release of:

Alcona Germplasm Dillenius' tick-trefoil (*Desmodium glabellum* (Michx.) DC.)

John A. Bricker, State Conservationist United States Department of Agriculture Natural Resources Conservation Service East Lansing, Michigan	Date
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DATA TO SUPPORT RELEASE OF ALCONA GERMPLASM DILLENIUS' TICK-TREFOIL

In 1988, seed from 49 accessions of various Desmodium species was field collected from 8 states and assembled at the Rose Lake Plant Materials Center. Each accession was grown in the greenhouse for preliminary observation the following year. In 1990, 40 accessions were transplanted into field plots arranged in a randomized, complete block for an initial 2-year evaluation period. Data for the initial evaluation period has been summarized in Tables 1 – 4. The early-maturing (Table 2) Alcona Germplasm was selected for advanced trials because of its excellent survival and early vigor in '90 and '91 (Tables 1 and 3), and its outstanding early foliage, flower and seed production in '91 (Table 3). Ranking for early season, late season and overall performance are summarized in Table 4.

The advanced trial was completed in 1992 with the data summarized in Tables 5 and 6. Due to its overall early performance (Table 5), Alcona Germplasm was selected for increase and release. In Tables 1 – 6 Accession 9055415 (Alcona Germplasm Dillenius' Tick-Trefoil) is listed in bold text.

Table 1. Performance summary of *Desmodium spp*. for 1990

Accession Number	Survival (%)	Vigor [1/]		Disease Damage [2/]	Plant Size (cm)		Seed Weight (grams)	
		7/17	9/13		Width	Height	Total	Ave./Plant
9055087	94	3	4	3	76	92	218	15
9055399	94	5	5	2	40	35	93	6
9055401	94	4	4	2	39	47	57	4
9055402	94	5	4	1	55	58	54	4
9055403	0							
9055406	60	2	4	3	80	98	83	28
9055407	100	5	4	2	66	55	89	18
9055408	88	5	4	1	47	55	79	6
9055409	94	6	3	1	65	61	37	2
9055410	88	6	4	1	49	48	30	2
9055412	56	5	4	1	44	81	25	3
9055414	100	5	3	1	39	41	11	1>
9055415	**100**	**3**	**5**	**2**	**46**	**42**	**17**	**1**
9055416	100	5	3	1	47	57	0	0
9055418	40	5	4	1	27	70	5	3
9055419	75	4	4	1	57	63	4	1
9055420	100	5	4	1	28	29	37	2
9055421	81	5	4	1	32	28	3	1>
9055422	92	5	4	1	31	27	29	2
9055423	100	5	4	1	23	27	9	1>
9055424	100	4	4	1	35	34	17	3
9055425	100	5	4	1	37	38	41	4
9055427	63	5	4	3	58	91	68	7
9055428	75	3	4	2	46	75	106	9
9055429	100	5	3	1	59	58	153	10
9055430	100	5	3	1	47	58	102	6
9055431	100	5	3	1	65	55	27	2
9055433	100	7	3	1	39	84	11	1
9055434	88	6	3	1	43	41	12	1>
9055435	100	5	3	1	57	55	109	7
9055436	88	5	3	1	65	65	89	6
9055437	88	5	4	1	48	56	22	2
9055438	88	5	3	1	56	67	12	4
9055439	86		3	1	56	62	56	4
9055440	53	6	5	2	62	34	0	0
9055441	83	5	5	1	74	90	46	9
9055442	88	5	3	1	63	68	50	4
9055443	10	5	3	1	65	61	174	11
9055444	100	5	3	1	70	62	111	7
9055447	100	5	4	2	40	83	6	2
Mean	87.7		3.7	1.33	49.4		52.3	5

[1/] Rating on date indicated: 1=excellent; 3=good; 5=fair; 7=poor; 9=very poor

[2/] Rating: 1=no damage; 3=slight damage; 5=intemediate damage; 7=severe damage; 9=very severe damage

Table 2. Summary of *Desmodium spp.* 1990 and 1991 bloom periods

Accession Number	Bloom Dates	
	1990	1991
9005087	8/26 – 9/11	7/09 – 9/11
9055399	8/09 – 8/19	6/26 – 7/20
9055401	8/06 – 8/19	8/06 – 9/15
9055402	9/11 – 9/17	8/06 – 9/11
9055403		
9055406	8/26 – 9/04	8/06 – 9/01
9055407	8/06 – 8/19	6/25 – 8/04
9055408	8/26 – 9/11	7/09 – 9/11
9055409	9/11 – 9/17	8/06 – 9/11
9055410	8/19 – 9/11	7/03 – 9/11
9055412	9/11 – 9/17	8/06 – 9/11
9055414	9/11 – 9/17	7/03 - 9/11
9055415	**7/17 – 8/19**	**6/25 – 8/01**
9055416	8/26 – 9/17	8/01 – 8/04
9055418	8/19 – 9/04	7/09 – 9/11
9055419	8/19 – 9/17	8/06 – 9/11
9055420	8/06 – 9/11	7/03 – 9/11
9055421	8/06 – 8/26	7/03 – 8/01
9055422	8/09 – 8/26	7/03 – 9/01
9055423	8/07 – 9/11	7/03 – 9/11
9055424	8/19 – 9/04	6/25 – 8/01
9055425	8/19 – 9/11	7/03 – 9/01
9055427	8/09 – 9/11	7/09 – 8/01
9055428	8/09 – 9/17	7/03 – 9/01
9055429	8/26 – 9/11	8/01 – 9/11
9055430	8/26 – 9/17	8/01 – 9/11
9055431	9/11 – 9/17	8/06 – 9/11
9055433	9/11 – 9/17	8/01 – 9/11
9055434	9/11 – 9/17	7/03 – 9/11
9055435	9/04 – 9/11	7/03 – 9/11
9055436	9/11 – 9/17	8/06 – 9/11
9055437	8/19 – 9/17	7/09 - 9/11
9055438	8/26 – 9/17	7/09 - 9/11
9055439	9/04 – 9/17	8/06 - 9/11
9055440	8/19 - 8/26	7/03 – 8/01
9055441	9/11 – 9/17	8/06 - 9/11
9055442	9/11 – 9/11	7/09 - 9/11
9055443	8/26 – 9/11	8/06 - 9/11
9055444	8/26 – 9/11	8/06 - 9/11
9055447	8/19 – 8/26	6/25 – 8/01

Table 3. Performance summary of *Desmodium spp*. for 1991

Accession Number	Survival (%)	Vigor [1/]				Disease Damage [2/]		Foliage Abundance [1/]			Flower Abundance [3/]		Seed Production [4/]	
	Sept	May	July	Aug	Sept	Aug	Sept	May	Aug	Sept	Aug	Sept	Aug	Sept
9005087	88	4	3	3	4	3	3	2	2	3	1-4	13-2		13-1
9055399	88	8	4	4	4	3	2	3	3	4	12-4	12-4	9-3	12-3
9055401	94	8	4	4	4	3	3	3	3	4	14-4	15-5	13-3	15-5
9055402	88	8	5	3	3	3	2	3	3	3		13-3		13-2
9055403	0													
9055406	60	5	2	4	3	3	3	9	3	3		3-3		3-2
9055407	100	5	3	3	3	2	2	3	3	3	5-3	5-3	4-2	5-2
9055408	88	8	4	3	3	3	2	3	3	3	3-3	14-3		14-2
9055409	94	8	4	3	3	2	2	3	3	3		14-4		14-3
9055410	94	8	4	3	3	2	2	3	3	3	5-3	15-3	2-2	15-3
9055412	63	8	5	3	3	3	2	3	3	3		10-4		10-3
9055414	94	7	4	3	2	2	2	3	3	3	2-4	12-3		12-3
9055415	**94**	**3**	**2**	**3**	**4**	**3**	**3**	**2**	**2**	**3**	**15-2**	**15-2**	**15-1**	**15-1**
9055416	100	8	5	4	4	2	2	4	4	4	2-4	2-4	1-4	2-4
9055418	40	8	5	4	4	3	2	4	4	4	1-4	2-4	1-2	3-4
9055419	75	7	4	4	3	2	2	4	4	2		3-4		3-3
9055420	94	8	5	3	5	3	3	3	3	5	13-4	15-4	9-4	15-4
9055421	75	6	5	3	5	3	2	3	3	4	12-4	12-4	9-4	12-4
9055422	100	7	5	4	4	3	3	4	4	5	12-4	11-4	10-4	11-5
9055423	75	8	5	4	5	3	2	4	4	4	11-4	8-4	8-4	8-4
9055424	100	7	4	3	4	3	3	4	3	4	5-4	5-4	5-3	5-4
9055425	100	8	5	3	4	3	2	3	3	4	11-4	11-4	10-4	10-4
9055427	50	6	3	4	4	3	3	3	3	4	7-3	7-3	3-2	7-3
9055428	63	4	3	3	4	3	3	3	3	3	11-4	11-4	10-2	11-3
9055429	94	7	4	3	2	2	1	3	3	2	1-3	14-3	1-3	14-3
9055430	94		4	3	3	2	1	4	2	3	1-4	12-3	1-4	12-3
9055431	88	7	3	4	3	2	2	4	4	3		13-3		13-2
9055433	100	8	5	3	3	3	2	3	3	3	4-5	8-3		8-3
9055434	94	8	4	3	3	2	2	3	3	3	1-4	14-3	1-3	14-4
9055435	100	7	4	3	3	2	3	3	3	3	1-4	16-3		16-3
9055436	88	7	4	3	3	2	2	4	3	2		14-2		14-3
9055437	81	7	4	3	2	1	1	3	3	2	2-4	13-2	2-4	13-3
9055438	88	8	4	2	2	1	1	4	3	2	2-4	13-2	1-4	12-3
9055439	93	7	4	3	3	2	2	3	3	2		14-2		14-3
9055440	33	9	5	5	6	3	3	4	4	5	4-4	4-4	4-4	4-4
9055441	83	7	4	2	2	1	2	2	2	2		5-3		5-3
9055442	100	7	4	3	2	2	2	3	3	3	1-5	15-3		15-3
9055443	94	7	4	3	3	2	2	3	3	2		15-3		15-3
9055444	94	8	4	3	3	2	2	3	3	2		14-3		14-3
9055447	100	6	5	3	3	3	4	3	3	4	3-2	3-3	3-2	3-4

[1/] Rating: 1=excellent; 3=good; 5=fair; 7=poor; 9=very poor

[2/] Rating; 1=no damage; 3=slight damage; 5=intermediate damage; 7=severe damage; 9=very severe damage

[3/] a-b a = number of plants flowering;
b = flower production rating for flowing plants: 1=excellent; 3=good; 5=fair; 7=poor; 9=very poor

[4/] a-b a = number of plants producing seed
b = seed production rating for producing plants: 1=excellent; 3=good; 5=fair; 7=poor; 9=very poor

Table 4. Ranking summaries of *Desmodium spp*. over the initial 2-year evaluation period [1/]

Accession Number	Early Season [2/] Ranking	Late Season [3/] Ranking	Overall [4/] Ranking
9005087	2	2	1
9055399	21	18	19
9055401	11	18	21
9055402	33	25	31
9055403	36	36	36
9055406	4	21	16
9055407	5	5	2
9055408	23	18	20
9055409	28	26	26
9055410	26	23	22
9055412	36	36	36
9055414	15	21	18
9055415	**1**	**14**	**5**
9055416	29	36	36
9055418	36	36	36
9055419	20	29	33
9055420	33	24	32
9055421	18	30	23
9055422	36	33	34
9055423	35	34	35
9055424	14	26	27
9055425	32	16	27
9055427	8	31	11
9055428	3	11	4
9055429	17	4	8
9055430	26	6	14
9055431	6	35	25
9055433	30	16	23
9055434	23	32	30
9055435	7	12	9
9055436	21	13	17
9055437	16	15	15
9055438	31	8	11
9055439	10	6	3
9055440	36	36	36
9055441	18	1	6
9055442	9	3	7
9055443	12	9	10
9055444	12	10	11
9055447	23	26	27

[1/] Performance is based on periodic evaluations for vigor, foliage production, disease resistance, survival, flowering characteristics and relative seed production.

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[2/] Based on performance data collected May through June 1990 and 1991

[3/] Based on performance data collected August through September 1990 and 1991

[4/] Based on performance data over the entire 2-year trial

Table 5. June performance summaries of *Desmodium spp.* in the 1992 advanced trials

Accession Number	Survival (%)	Vigor [1/]	Foliage Production [1/]	Insect Damage [2/]	Disease Damage [2/]	Rank [3/]
9005087	81	3	3	1	1	3
9055415	**81**	**2**	**2**	**1**	**1**	**1**
9055428	69	2	2	1	1	2
9055441	44	3	3	1	1	5
9055442	88	4	3	1	1	4

[1/] Rating (rounded to nearest whole number): 1=excellent; 3=good; 5=fair; 7=poor; 9=very poor

[2/] Rating (rounded to nearest whole number): 1=no damage; 3=slight damage; 5=intermediate damage; 7=severe damage; 9=very severe damage

[3/] Based on ratings for survival, vigor, foliage production, and disease and insect resistance

Table 6. July performance summaries of *Desmodium spp*. in the 1992 advanced trials

Accession Number	Survival (%)	Vigor [1/]	Foliage Production [1/]	Insect Damage [2/]	Disease Damage [2/]	Plant (cm.)		Rank [3/]
						Height	Width	
9005087	**88**	**1.6**	**1.6**	**1**	**1**	**88.7**	**134.4**	**2**
9055415 [4/]	81	2.2	2.4	1	2	69.6	104.0	5
9055428	56	1.4	1.7	1	1	112.1	149.1	1
9055441	56	1.7	1.9	1	1	59.6	76.6	4
9055442	88	1.6	1.7	1	1	56.7	73.7	3

[1/] Rating: 1=excellent; 3=good; 5=fair; 7=poor; 9=very poor

[2/] Rating: 1=no damage; 3=slight damage; 5=intermediate damage; 7=severe damage; 9=very severe damage

[3/] Based on ratings for survival, vigor, foliage production, and disease and insect resistance

[4/] Initiated seed set and currently undergoing seasonal decline