UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
NORMAN A. BERG NATIONAL PLANT MATERIALS CENTER
BELTSVILLE, MARYLAND

NOTICE OF RELEASE OF MID-ATLANTIC GERMPLASM FLORIDA PASPALUM SELECTED PLANT MATERIAL

The USDA-Natural Resources Conservation Service (NRCS) announces the naming and release of Mid-Atlantic germplasm Florida paspalum, *Paspalum floridanum.* Mid-Atlantic germplasm Florida paspalum has been assigned the Accession number 9094217. This release will be referred to as Mid-Atlantic germplasm and is released as a selected plant materials class of certified seed.

This alternative release procedure is justified because of the need for a Middle Atlantic ecotype of Florida paspalum that has application for soil stabilization, filter strips, wildlife food and cover, and forage in a variety of soils including poorly drained to well drained soils. Currently no Florida paspalum releases are commercially available in the Mid-Atlantic. Florida paspalum has relatively large smooth seed with high germination and seedling vigor, providing a distinct advantage over many other warm-season grasses that are available.

Collection Site Information:

Accession # 9094217 is a composite of 9 accessions collected in New Jersey, Maryland and Delaware from the years 1995 to 2000. Table 1 list the collection information for these 9 accessions. Accessions were identified as *Paspalum floridanum (*Hitchcock, A.S. 1950).

Table 1. Collection Site Information

Collector	Accession	Date	State	County	Site Description
NJPMC	9082604	Oct-00	NJ	Cape May	Ferry Rd at at end of Garden State Pkwy
NJPMC	9082605	Oct-00	NJ	Cape May	Ferry Rd at R.R. crossing, high and dry
NJPMC	9094200	Oct-00	NJ	Cape May	Field 22 unmowed strip of grass
NJPMC	9094201	Oct-00	NJ	Cape May	Fishing Creek and Bayshore Ave.
N. Melvin	9078762	Oct-97	MD	Queen Anne	US Rt. 301 0.5 mile NE of US 50 junction
N. Melvin	9078765	Oct-97	DE	Kent	DE Rt. 8 ~4 miles E of Marydel, in field ditch
N. Melvin	9078766	Oct-97	MD	Talbot	Route 33 at Newcomb P.O. ~8 mile w of Easton
G. Meyer	9078742	Sep-95	MD	Talbot	St Michaels
Swartz/Melvin	9078743	Oct-95	DE	Sussex	Bethany Beach

Description:

Paspalum floridanum Michx., Florida paspalum, is a native warm-season (C_4) perennial bunch grass. It is tall, ranging in height from 4 to 8 feet and spreads from short, thick rhizomes or seed. Leaf sheaths and leaf blades range in color from dark green to a bluish, chalky cast with short coarse hairs or hairless. The leaf blades are firm, flat or folded, up to 3/4” wide and 20” long,

with a dense tuft of long hairs immediately above the ligule. The seed heads have 2 to 6 branches with half-rounded smooth seeds that occur in pairs. Seeds are crowded along the branches. Florida paspalum begins blooming in mid August and continues as new shoot and seed heads form, until the first frost. Seed begins maturing in mid September and continues into mid to late October. With seeds continuing to mature for over a month, timing of seed harvest is never ideal, but allows for two harvests if the first harvest is cut early and high. Later seed heads are usually somewhat shorter and many can be avoided if the first harvest is cut high.

Florida paspalum is palatable in the leafy stage of growth and becomes less palatable as the plant blooms and matures. Paspalum is widely adapted and readily grows on disturbed areas such as road ditches as well as on sandy or poorly drained sites. Florida paspalum's native range is from Pennsylvania and New Jersey south to Florida, west to Missouri, Oklahoma and Texas. It is adapted to most eastern US soils and is commonly found growing in low, moist, grassy areas, and forest openings.

The large smooth seed of Florida paspalum can be seeded with most seed drills or it can be broadcast seeded into a firm seed bed and firmly packed. A seeding depth of ¼" to ¾" is recommended. Florida paspalum establishes readily from seed with little to no stratification, after two to four years of storage. Seedling vigor is excellent and readily establishes in the first growing season. Seeding recommendations are 6 to 8 pounds PLS per acre for pure stands and should be adjusted for mixed stands. There are approximately 91,000 seeds/lb.

Efforts to improve the species through breeding have not been attempted because of its complex cytology and unknown reproductive behavior. It has a high number of chromosomes, ranging from 2n=120 to 180. Further research has indicated that this species does not reproduce sexually and either some unique chromosome restoring mechanism or a form of apomixis is involved. (Burson, B.L., Jessup, R.W. 2006). In personal correspondence, Byrun Bursun indicated that Florida paspalum appears to reproduce both apomictically and sexually.

Current available material is limited to Harrison Florida paspalum select germplasm release from East Texas.

Method of Breeding and Selection:
Accessions were collected from Maryland, New Jersey and Delaware. In 2005, ten accessions were planted in 30 foot rows with plugs planted one foot apart and on 48" row centers to accommodate our cultivation equipment. Plants were irrigated only once following planting and were fertilized with 50 lbs N/acre. Accessions were evaluated for overall performance, disease, and seed production. Nine accessions were selected that performed exceptionally well and one accession was removed due to smaller size and poor vigor. The nine remaining accessions exhibited relatively uniform height and bloom time, with some variation in leaf color and basal width between accessions. From this breeder block, seed was harvested from each accession in 2006. To establish a foundation seed production field, equal numbers of plugs were grown from seed that was collected from each accession in the breeder block. The foundation field was established in the spring of 2008 with 2979 plugs with accessions randomly distributed and planted one foot apart and on 48" row centers. Seed is bulked and will be distributed as selected germplasm.

Plants were sent in April and May of 2008 to 5 other Plant Materials Centers (PMC) for evaluation and adaptation information. The observations recorded by these centers are summarized in table 2. Plant survival was excellent in all locations except West Virginia. The plants in WV were grown on very poorly drained soil that has a history of problems with frost heaving of young plants. This frost heaving was likely the cause of the poorer survival in WV. Vigor was good to excellent in all locations. Seed was produced in most locations in 2008 and is expected in all locations in 2009. The inter-center evaluations indicate that this release is widely adapted to a wide range of climatic and soil conditions and is well adapted in the release area of the mid-Atlantic region.

Table 2. Inter-center Observational Studies

PMC	Evaluation Date	% Stand	Vigor (1-10)*	Drought Tolerance (1-10)*	Insect Problems (1-10)*	Disease Problems (1-10)*	Seed Production (1-10)*	Plant Height (inches)
GAPMC	06/17/08	100	3	-	-	-	-	-
	08/14/08	100	3	5	3	5	3	20
MDPMC	09/17/08	100	2	1	1	1	1	49
	08/04/09	100	1	ample precip.	1	1	Anthesis	68
MIPMC	07/01/08	100	3	-	-	-	-	-
	09/01/08	100	1	-	1	1	3	16
	06/04/09	100	1	-	-	-	-	7
	08/05/09	100	1	ample precip.	1	1	none to date	25
NJPMC	09/01/08	83**	3	1	1	1	3	24
	05/04/09	83**	3	-	-	-	-	9
	07/31/09	83**	1	1	1	1	Anthesis	48
NYPMC	10/20/08	100	2	-	1	2	3	34
	08/04/09	100	1	-	1	2	-	34
WVPMC	08/05/09	56	3	ample precip.	1	1	Anthesis	30
	08/25/09	56	3	ample precip.	1	1	3	72

* Subjective ratings, where 1 = excellent; 3 = good; 5 = average; 7 = fair; 10 = none
* * Plants lost due to poor storage conditions prior to planting.

Ecological Considerations and Evaluation:
An Environmental Evaluation (attached) of this release was done as directed by policy. The resulting determination indicated that there are no limitations for its use.

Primary Conservation Use:
This germplasm release is suited for soil stabilization and filter strips as well as wildlife food and cover on soils with poor drainage and can be used as a replacement for reed canary grass. This germplasm release also has shown good drought tolerance on well drained soils.

Secondary Conservation Use:
Florida paspalum has considerable promise for use as livestock forage. One of the nine accessions that comprise the Mid-Atlantic germplasm Florida paspalum release was included the Native Warm-Season Grass Forage Variety Trial at the NPMC. The forage trial results for the years 2007 and 2008 are summarized in Table 3. In the trial the Florida paspalum exhibited excellent vigor and drought tolerance. Stand establishment was excellent, and would have been

Table. 3 Forage Trial Results

Species/Variety	Forage Yield (lb/acre)								Stand %	
	----------2007----------				----------2008----------					
	July 9	Sept. 6	Nov 8	Total	June 6	July 25	Sept. 22	Total	6/07	7/08
Eastern Gamagrass										
'Highlander'	2213	959	270	**3442**	4891	4982	2248	**12120**	73	91
'Meadowcrest'	1766	937	171	**2873**	3981	4949	2155	**11090**	85	99
'Verl'	2001	735	129	**2864**	4377	4365	2274	**11015**	60	86
'Pete'	1457	780	140	**2377**	3942	3839	2079	**9861**	77	89
Switchgrass										
'Carthage'	6997	2679	115	**9790**	3417	4504	1844	**9764**	90	100
'Shawnee'	4585	1974	107	**6666**	3650	4266	1603	**9523**	71	96
'Blackwell'	4060	1742	77	**5879**	3555	4340	1413	**9313**	76	95
'Cave in Rock'	4732	2174	57	**6963**	3297	4153	1569	**9019**	75	86
'Kanlow'	5263	2963	78	**8303**	2322	4399	1907	**8632**	66	80
'Shelter'	2207	1345	55	**3608**	3036	3566	1189	**7796**	60	87
Hightide Germplasm	2543	688	61	**3293**	1047	3165	1222	**5428**	63	68
Florida Paspalum										
MD unreleased 9078766	3003	2363	307	**5672**	1209	5657	2188	**9053**	86	93
Coastal Panicgrass										
'Atlantic'	5894	3360	679	**9934**	2420	4580	1854	**8849**	76	79
Indiangrass										
'Osage'	3190	1203	111	**4503**	1840	3849	1420	**7108**	90	93
NY unreleased	1337	634	24	**1995**	2115	3880	1088	**7083**	79	94
'Americus'	2874	1500	152	**4525**	1614	3894	1557	**7065**	92	91
Southlow Michigan Germplasm	1061	341	11	**1412**	2394	3260	932	**6586**	67	86
Suther Germplasm	2569	1244	93	**3906**	1556	3629	1231	**6416**	89	99
'NE-54'	1766	559	61	**2386**	1802	3287	866	**5955**	87	96
'Rumsey'	2041	768	61	**2869**	1720	2997	874	**5590**	90	85
MD unreleased	1143	588	45	**1776**	1256	2801	1083	**5140**	87	90
'Holt'	864	221	nh[1/]	**1085**	1511	2536	775	**4821**	83	90
Big Bluestem										
'Niagara'	838	306	6	**1149**	3377	2998	525	**6899**	77	95
Suther Germplasm	1051	944	94	**2089**	2034	3781	780	**6594**	76	86
'Rountree'	1185	530	23	**1737**	2265	3047	984	**6295**	86	98
Southlow Michigan Germplasm	643	204	3	**849**	1718	3469	678	**5864**	62	85
Little Bluestem										
'Aldous'	1742	624	44	**2410**	1317	2985	1072	**5374**	86	86
'Cimarron'	3279	1234	74	**4587**	710	2948	992	**4640**	82	76
'Camper'	1992	542	30	**2564**	1092	2547	917	**4556**	81	80
Southlow Michigan Germplasm	849	195	24	**1068**	1076	2548	609	**4234**	74	87
'Blaze'	982	275	11	**1268**	889	2159	881	**3562**	79	83
Coastal Little Bluestem										
Dune Crest Germplasm	603	402	56	**1060**	917	2060	606	**3583**	80	95
Mean (all varieties)	2398	1094	102	**3591**	2261	3607	1294	**7151**	78	89
LSD1/ (0.05)	1413	505	95	**1705**	1240	913	517	**2033**	16	15
% CV2/	42	33	42	**34**	39	18	28	**20**	15	12

1/ = least significant difference test at 5% level of probability; 2/ = coefficient of variation

100% if it were not for a heavy rainfall after seeding that eroded soil and seed from one of the Florida paspalum plots. The dry matter yield of the Florida paspalum was comparable to switchgrass and exceeded indiangrass, big bluestem, and little bluestem. Dry matter yield was higher than gamagrass in 2007 but lower in 2008.

Area of Adaptation:
This release is recommended for planting throughout the Mid-Atlantic U.S. from New Jersey and Pennsylvania south to North Carolina.

Management:
Control weeds in the first growing season by mowing over plants or cultivating between rows. Unlike other warm-season grasses, Florida paspalum has strong aggressive growth in the first year that can be enhanced with good moisture and nutrient availability. The application of nitrogen during establishment will allow for rapid growth that is highly competitive against weeds. Mowing or burning in early spring will allow light to reach the plants and soil to encourage early growth.

Availability of Plant Materials:
Original germplasm material may be obtained through the Norman A. Berg National Plant Materials Center, Beltsville MD, 301-504-8175

References:

Burson, B.L., Jessup, R.W. 2006. Variation in DNA content of Florida paspalum accessions [abstract]. Southern Branch American Society of Agronomy. Paper No. 1.

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Hitchcock, A.S. 1950. Manual of The Grasses of the United States. U.S. Government Printing Office, Washington D.C.

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Signatures for release of:

Mid-Atlantic Germplasm Florida paspalum
Paspalum floridanum

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