DUNE PLANTING

WHEN: SUNDAY NOV. 9
11:00 AM
WHERE: POINT PLEASANT BEACH
MUNICIPAL BEACH AT MARYLAND AVE.

SPONSORED BY *C.R.A.B.*
CITIZENS RIGHT TO ACCESS BEACHES

IN CONJUCTION WITH THE BOROUGH OF POINT PLEASANT BEACH, POINT PLEASANT BEACH ENVIRONMENTAL COMMISSION, POINT PLEASANT BEACH HIGH SCHOOL ENVIRONMENTAL CLUB AND POINT PLEASANT BOROUGH HIGH SCHOOL ENVIRONMENTAL CLUB

FOR MORE INFORMATION CONTACT:

C.R.A.B.
Citizens' Right to Access Beaches
732-361-CRAB (2722) • www.crabnj.org
P.O. Box 1064 • Point Pleasant Beach, NJ 08742

MARYLAND AVE MUNICIPAL BEACH DUNE PLANTING PROJECT
November 9, 2008

PROJECT OVERVIEW:
Restore Dune area along the southern dune line of the Maryland Ave. Municipal Beach in Point Pleasant Beach. Project will include replacement of dune fencing and planting of dune grass supplied by the County of Ocean and the Borough of Point Pleasant Beach along the 25ft. Environmental Buffer area. Planting in accordance with local and State DEP regulations using the guidelines from the *Coastal Research Center* (attached). At this point we will have approximately 300 dune grass plugs to plant and 2 rolls of fencing to install.

PROJECT TIME/ DATE INFORMATION:
DATE: NOVEMBER 9, 2008 RAIN OR SHINE
(In the event of severe inclement weather as we experienced recently we will postpone until the following Sunday)
TIME: 11AM.
We will begin installing fencing earlier (9:30 am). Anyone available to help with the fencing….see you then!

PROJECT PARTICIPANTS:
Project sponsored by Citizens' Right to Access Beaches C.R.A.B. as a community project in conjunction with the Borough of Point Pleasant Beach, The Point Pleasant Beach Environmental Commission, Point Pleasant Beach High School Environmental Club, and Point Pleasant Borough High School Environmental Club. All interested members of the public are invited to participate.

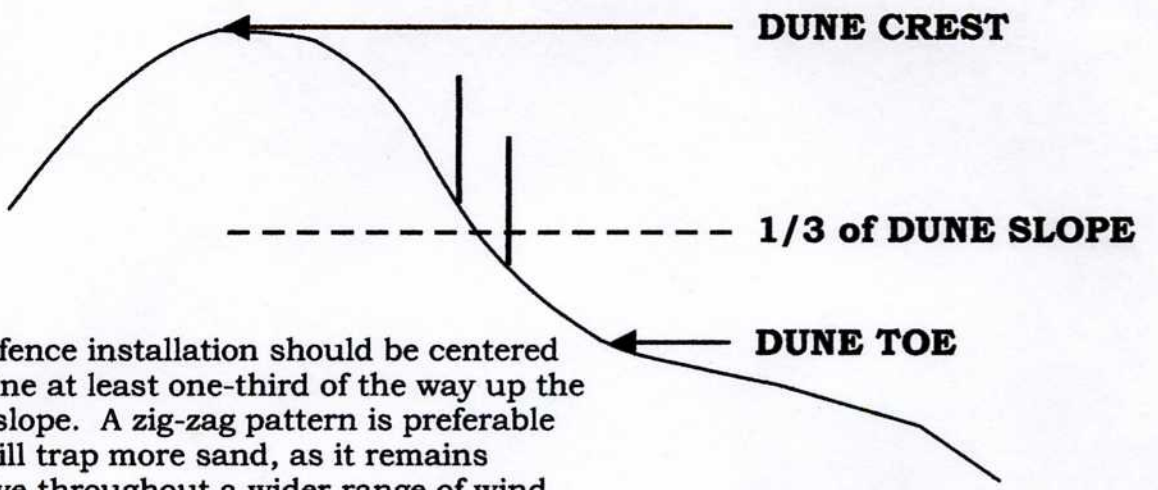
EQUIPMENT:
C.R.A.B. will provide approximately 20 garden spades, work gloves, fencing staples/nails and have available some rakes, shovels, posthole diggers, hammers. Participants are encouraged to bring their own garden spades to assist in planting.

Bottled water and refreshments will be available for all volunteers.

If you have any questions please contact C.R.A.B. at 732- 361-2722

Thank you for your interest and support.

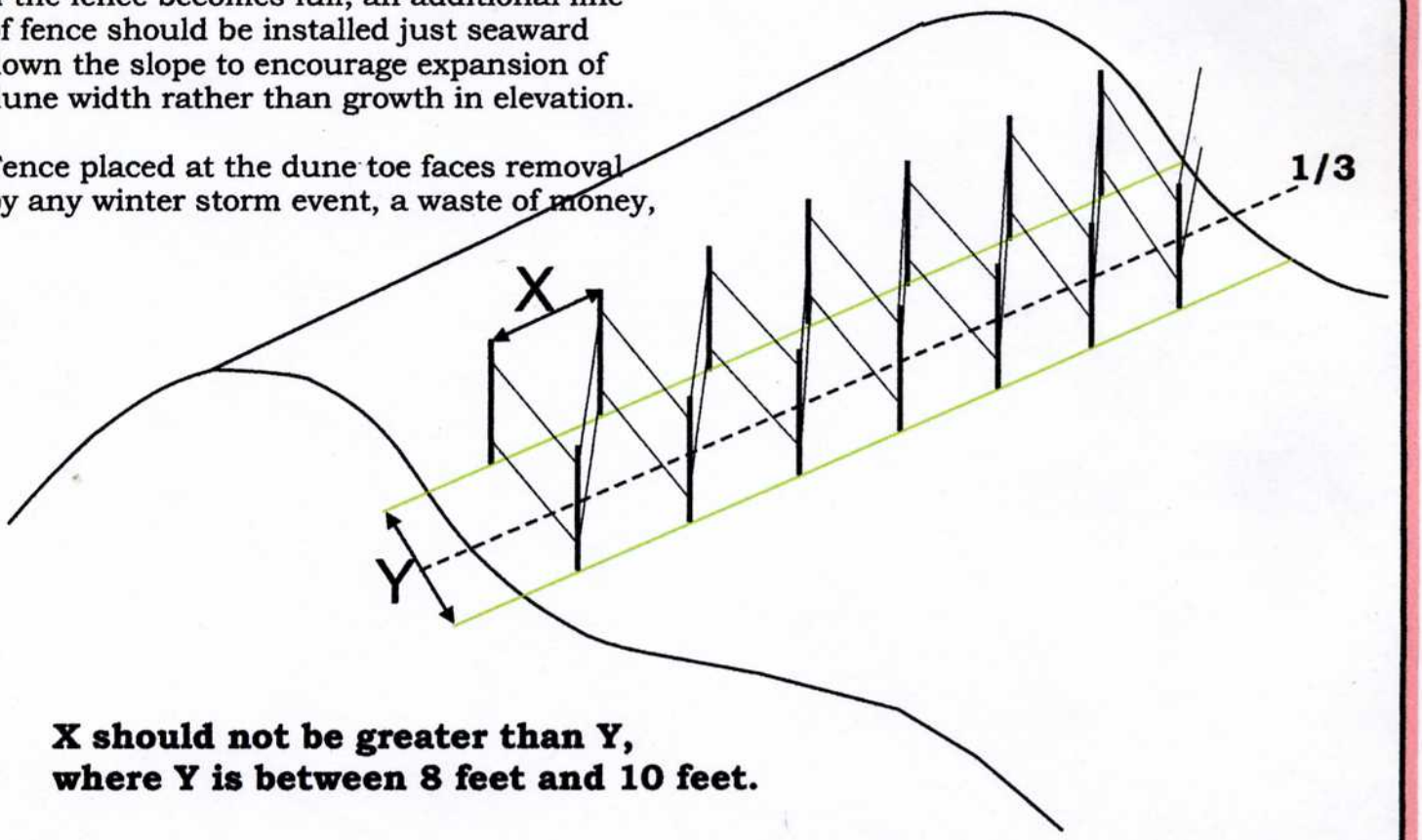
Optimal Dune Fence Placement
(Initial Fence Placement)



Dune fence installation should be centered on a line at least one-third of the way up the dune slope. A zig-zag pattern is preferable and will trap more sand, as it remains effective throughout a wider range of wind directions. The zig-zag pattern should be implemented as shown below.

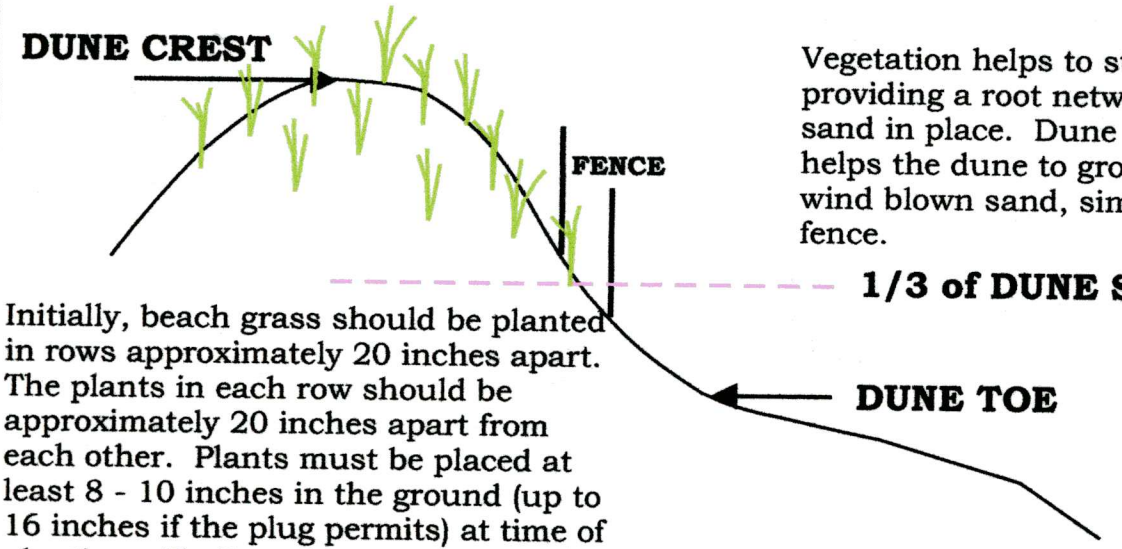
If the fence becomes full, an additional line of fence should be installed just seaward down the slope to encourage expansion of dune width rather than growth in elevation.

Fence placed at the dune toe faces removal by any winter storm event, a waste of money,



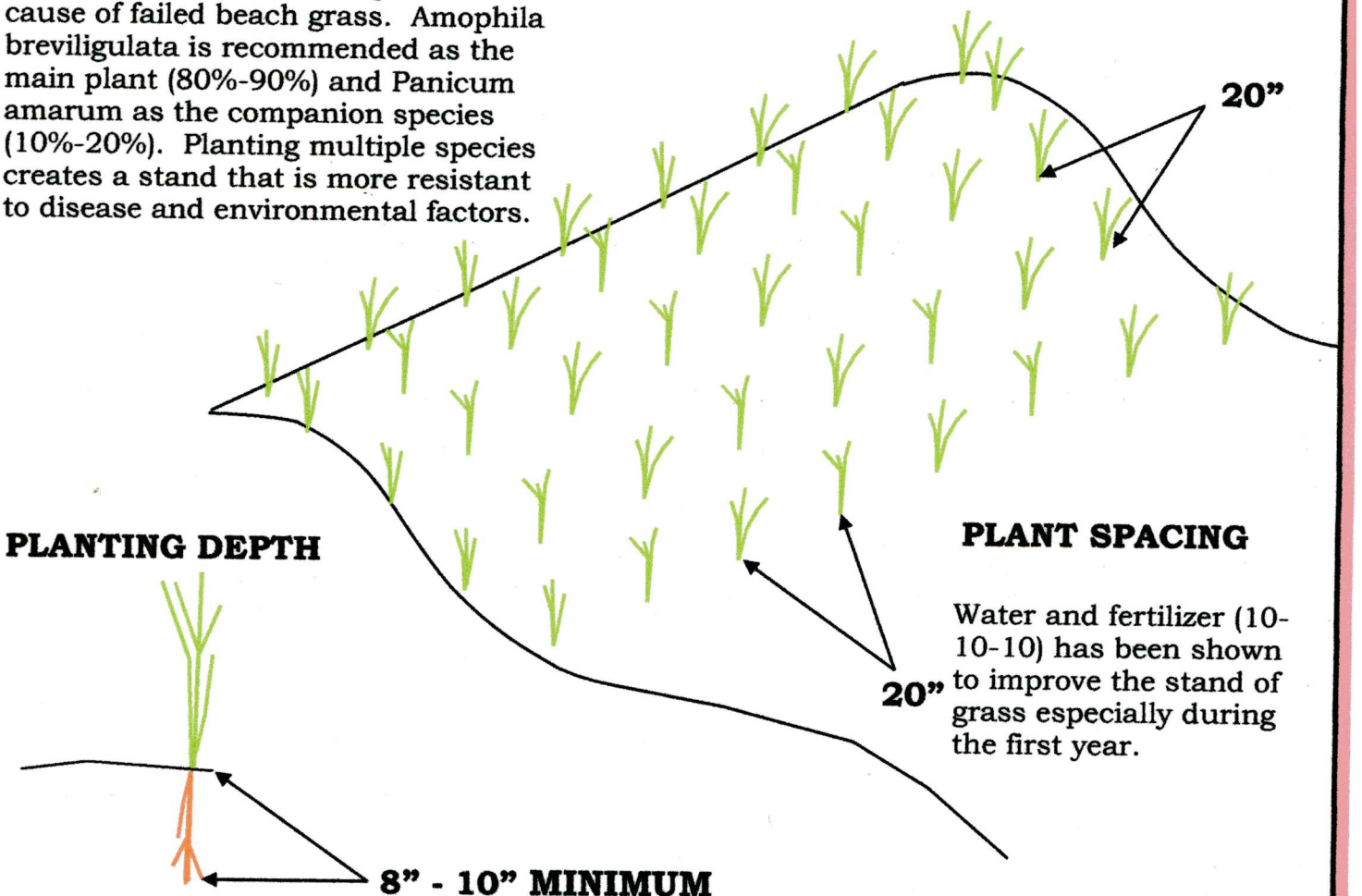
X should not be greater than Y, where Y is between 8 feet and 10 feet.

Optimal Beach Grass Planting
(Initial Planting)



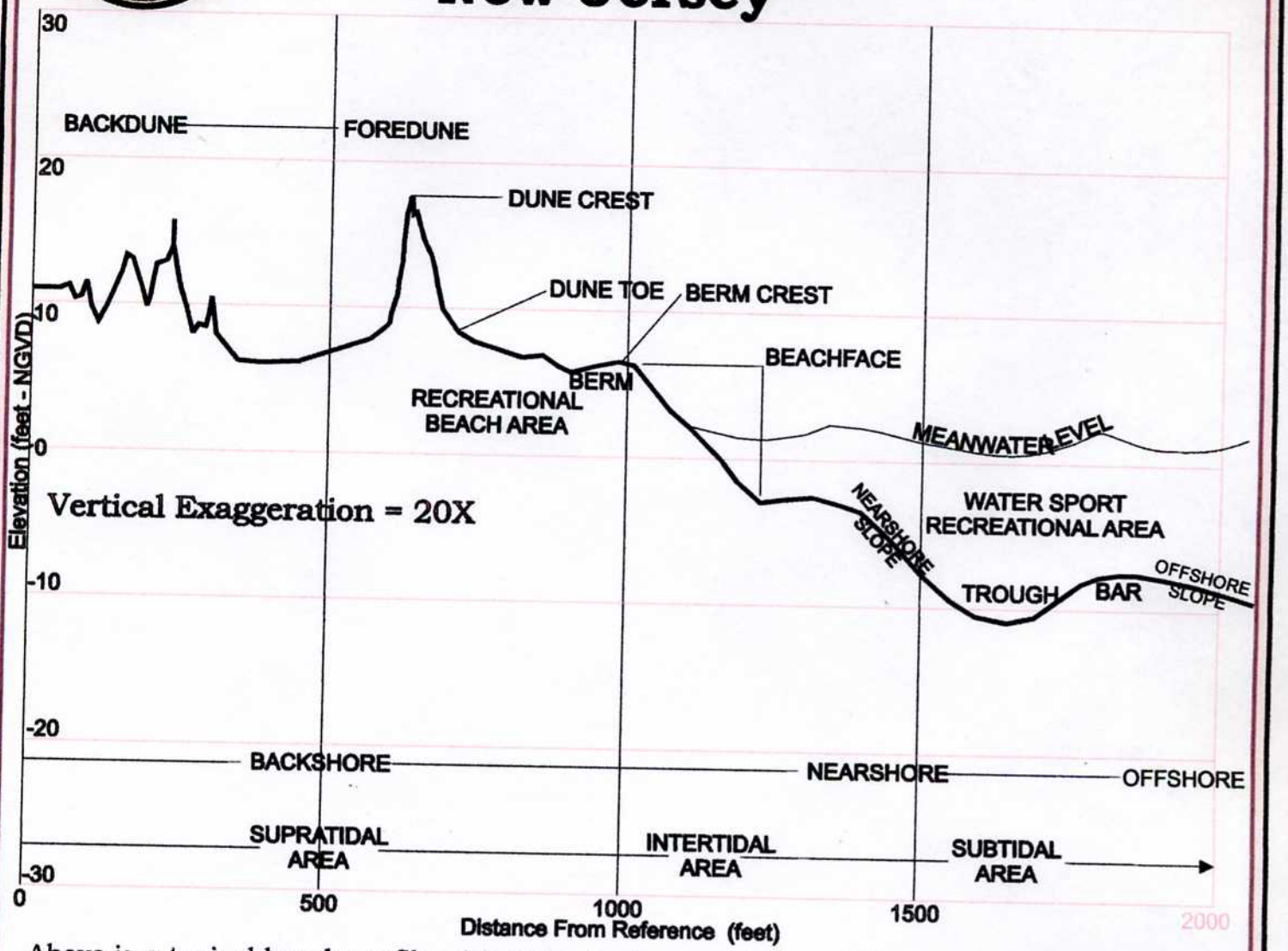
Vegetation helps to stabilize dunes by providing a root network to hold the sand in place. Dune vegetation also helps the dune to grow by trapping wind blown sand, similar to a dune fence.

Initially, beach grass should be planted in rows approximately 20 inches apart. The plants in each row should be approximately 20 inches apart from each other. Plants must be placed at least 8 - 10 inches in the ground (up to 16 inches if the plug permits) at time of planting. Shallow planting is the #1 cause of failed beach grass. Amophila breviligulata is recommended as the main plant (80%-90%) and Panicum amarum as the companion species (10%-20%). Planting multiple species creates a stand that is more resistant to disease and environmental factors.

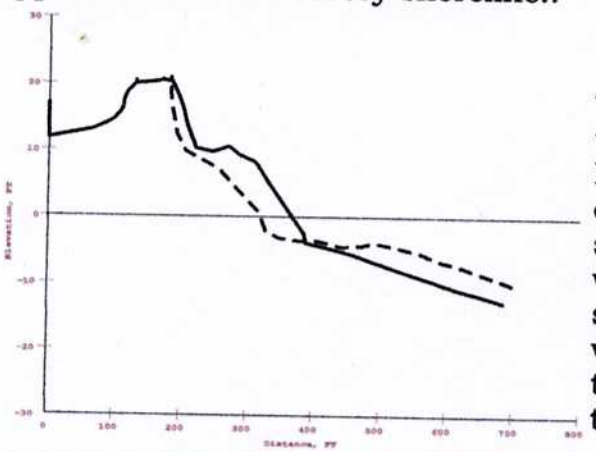


Water and fertilizer (10-10-10) has been shown to improve the stand of grass especially during the first year.

Typical Beach Profiles in New Jersey



Above is a typical beach profile with major features and zones labeled. No beach will show every aspect of this diagram at all times, but it illustrates all important features that appear on the New Jersey shoreline..



Seasonal Variations

The pair of profiles to the left show some of the typical seasonal beach profile changes. The dashed line profile is the result of a winter season, where ocean conditions moved material offshore. The solid line profile is the result of a summer season, where ocean conditions moved sand onshore. The summer profile has a well developed berm and wider beach and dune, while the winter profile has this beach material present in the offshore region of the profile.

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Plant Fact Sheet

AMERICAN BEACHGRASS

Ammophila breviligulata Fern.

Plant Symbol = AMBR

Contributed by: USDA NRCS Plant Materials Program

USDA NRCS National Plant Materials Center
Beltsville, MD

Uses
American beachgrass is the predominant plant species utilized along the Atlantic and Great Lakes coastlines for initial stabilization of frontal sand dunes. It has also been utilized on extreme, non-dune sites, some having high salinity levels and droughty conditions, for erosion control and initial cover.

Status
Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status (e.g. threatened or endangered species, state noxious status, and wetland indicator values).

Description
American beachgrass is a leafy, spreading, strongly rhizomatous grass, producing up to of 100 stems per clump annually. This cool season perennial grass species will spread up to 6-10 feet annually by subsurface rhizomes. It will grow to 2 or 3 feet tall, tolerating annual over-topping accumulations of sand up to a foot. The leaves have deeply furrowed upper surfaces and smooth undersides. The long narrow leaves may become rolled or folded when exposed to intense heat, excessive sunlight, or drying winds.

Another moisture conservation attribute of American beachgrass is that the rough upper leaf surface, containing gas exchange openings (stomata), will orient itself away from winds. The seedhead emerges in late July or August as a spike-like cluster at the tips of long stalks. This multi-flowered panicle extends about ten inches above the leaves. Seed production is usually poor.

Adaptation and Distribution
This grass is a native of the mid-Atlantic coastal region from Maine to North Carolina and the Great Lakes. It will grow on sandy or other course textured soils on inland sites with or without high salinity, given that supplemental fertilizers are applied. This grass does not tolerate much soil moisture before it begins showing signs of stress.

For a current distribution map, please consult the Plant Profile page for this species on the PLANTS Website.

Establishment
Vegetative establishment of American beachgrass, with dormant stem divisions, from October 15 to April 1, is effective. Seed production is sparse so it is not normally considered as an establishment option. Beachgrass culms must be planted at least 8 inches deep. This prevents plants from drying out, as well as being blown out by the wind. A tiling or ditching spade is an excellent tool for opening the planting hole.

For erosion control and cover applications, two or more 18 to 24 inch long stems are mechanically or hand placed, 18 to 24 inches apart, per planting hole. If the site is exposed to severe wind erosion, spacing needs to be reduced to 12 inches and rows staggered. Utilizing an 18" spacing will require 38,720 culms per acre.
For nursery production, the soil should be well worked prior to planting. Single stems (12" to 18" long) should be planted one foot apart in rows, spaced wider than 30 inches to match cultivation equipment. Mechanical planting equipment is most productive under these site conditions for areas greater than 1/2 acre.

Management
Properly applied fertilizer is the key to good vigorous initial growth of newly established stands of American beachgrass. Applications providing

between 30 and 60 lbs. of nitrogen per acre annually are adequate. These annual fertilizer amounts are more effective if split into a spring and early summer application. The spring application should be applied at least 30 days after establishment, but no earlier than April 1. Once the stand is established, the rate of fertilizer applied can be reduced by half, or applied only when the stand appears to be weakening.

Pedestrian or vehicular traffic that bends or breaks the culms will seriously damage or kill the plants. On frontal dunes, areas devoid or with declining communities pose the threat of blowout. Replanting stands of beachgrass where openings or voids have developed should be an annual maintenance procedure, and exlusion of traffic with fencing is strongly advised.

Cultivars, Improved, and Selected Materials (and area of origin)

There are two named varieties available for conservation purposes: 'Cape' (Massachusetts), and 'Hatteras.' 'Cape' was selected and developed by the Cape May PMC then released to the commercial market in 1971. 'Hatteras' is an older variety, released by the North Carolina Agricultural Experiment Station in the early 1960's. It is better adapted for southern climates. 'Cape' is considered the industry's standard, and has been proven to out perform all other varieties for conservation applications from Maine to North Carolina. Foundation stock of 'Cape' is available to commercial nurseries from the Cape May PMC in New Jersey. Certified material is available to the public from numerous commercial nurseries.

Prepared By & Species Coordinator:
USDA NRCS Plant Materials Program

Edited: 31Jan2002 JLK; 30may06jsp

For more information about this and other plants, please contact your local NRCS field office or Conservation District, and visit the PLANTS Web site<http://plants.usda.gov> or the Plant Materials Program Web site <http://Plant-Materials.nrcs.usda.gov>

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Plant Guide

BITTER PANICUM

Panicum amarum Ell.

Plant Symbol = PAAM2

Contributed by: USDA NRCS Golden Meadow Plant Materials Center

USDA-NRCS Golden Meadow Plant Materials Center

Alternate Names

Bitter panicgrass, bitter beachgrass, coastal panicgrass, *Chasea amara* (Elliott) Nieuwl., *Panicum amaroides* Scribn. & Merr., *Panicum amarulum* (Hitchc. & Chase) P.G. Palmer, *Panicum amarum* Elliot var. minor Vasey. Varieties include *P. amarum* Ell. var. amarulum and *P. amarum* Ell. var. amarum.

Uses

Erosion control: The principal use for bitter panicum is in coastal dune erosion control, however it may have a role in stabilizing other dry, sterile areas such as roadsides and minespoils.

Bitter panicum is recommended for beach dune enhancement and stabilization on coastal beaches and barrier islands. It is an ideal dune plant. The above ground portion of the plant reduces wind velocity allowing sand to drop out of the wind stream and accumulate. The below ground portion of the plant stabilizes and holds the sand in place with an extensive fibrous root and rhizome system.
Livestock and forage: Bitter panicum is consumed by cattle, sheep, and goats. This grass has a low-medium browse and grazing palatability and a medium protein potential. It is a favorite forage of livestock in some areas and was eliminated along some portions of the Texas barrier islands by grazing. When livestock are removed, this grass reestablishes rapidly.

Ethnobotanic: A warm infusion of *Panicum sp.* (panicgrass) leaves was taken by the Creek Indians for fevers, especially those caused by malaria. It was also used for 'rabbit sickness', muscular cramps, cough, dry throat, noisy chest and as a bath for 'gopher-tortoise sickness' by the Mikasuki Seminole. Stems were used for padding the inside of Cherokee moccasins.

Wildlife Use: Bitter panicum can provide cover and/or habitat for song birds, water fowl and small mammals.

Status

This plant is listed as Threatened in Connecticut with state protection status. Please consult the PLANTS Web site and your State Department of Natural Resources for changes on this plant's current status (e.g. threatened or endangered species, state noxious status, and wetland indicator values).

Description

General: Grass Family (Poaceae). Bitter panicum is a native, perennial, rhizomatous, warm-season grass growing to a height of 4-8 feet with a growth habit ranging from erect to prostrate to decumbent. The leaves are 1/4 to 1/2 inch wide, 7 to 20 inches long, smooth without hair, and bluish in color. A robust grass, it spreads slowly from short, strong rhizomes or by rooting from lower nodes of plant stems (culms) to form open clumps. The inflorescence is a narrow panicle 12 to 15 inches in length that is contracted in maturity. Flowering begins in September and continues through December. Bitter panicum is a hexaploid (2n=54), consequently, seeds are consistently sterile. Small quantities of poor quality seed are produced on compact clusters 6 to 12 inches long and 2 to 4 inches wide. Reproduction is vegetative by lateral tillering from established plants. Plants can spread from an aggressive, scattered system of rhizomes, but the stands are rather open.

Distribution: The native range and distribution of bitter panicum is along the coastal beach system of the north central Gulf of Mexico basin. It is also distributed throughout the East and lower Midwest; it can be found along the Atlantic Ocean and the Gulf of Mexico from Connecticut to northeastern Mexico. It is also found as an introduction in a few inland

locations in New Mexico, North Carolina, and West Virginia, as well as in the Bahamas and Cuba. For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Habitat: Bitter panicum grows on coastal dunes, in interdunal swales, overwash sands, wet sandy soils, low fertility soils, and the margins of swamps. On coastal dunes, it is most likely found in the lower foredune slopes of the frontal zone, which is closest to the ocean and supports mainly grasses and other herbaceous plants tolerant of exposure to salt spray. It also occurs on dune crests, as well as in the backshore area near dunes and on both the leeward and the windward slopes of dunes or dune ridges. It favors exposed areas where windblown sand accumulates.

In the southeastern U.S., bitter panicum is equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%). In the northeast and the southern plains it usually occurs in non-wetlands (estimated probability 67%-99%), and is only occasionally found on wetlands (estimated probability 1%-33%).

Adaptation
Bitter panicum is an early colonizing species that can tolerate the harsh environment of the dune system which is subject to salt spray, storm surges, occasional inundation, high temperatures, low soil moisture and fertility, sand abrasion, and smothering by drifting sand. It is adapted to very dry, sterile sites and can flourish on fertile, well drained soils. It is better adapted for transplanting than seaoats (*Uniola paniculata*). In areas of heavy sand accumulation, only a small fraction of the entire plant may be exposed.

It can withstand periods of extended drought and is somewhat winter hardy. Year long growth can occur where sand is actively accumulating, but winter cover is sparser. This grass does not perform well in shade and prefers a soil pH of 5.0-7.5.

Plant Production
Bitter panicum is established from container grown or bare root plant materials. Most any plant container size can be used successfully. Propagation for container production is accomplished by plant divisions or cuttings. Rhizomes or stem nodes are used for cuttings. Sand to sandy loam potting medium is preferred, however, sand peat mix or other prepared soil mixes can be used successfully. When propagating from stem cuttings, prepare stem sections with two nodes per cutting. Cuttings are placed vertically in the container with both nodes buried in the medium.

Establishment
Generally, no site preparation is required when planting bitter panicum. Freshly dug bareroot shoots (tillers) and rooted or unrooted stem cuttings can be used in plantings. Container grown plants have been proven to be more reliable in establishing stands.

Field plantings are established by planting on 2 to 5 feet centers between plants. Spacing is dependent on the protective cover desired, but a 2 foot spacing is frequently used. Place plants 8 to 10 inches deep or deeper in moist soil. Bury unrooted stems end to end in trenches 4 to 6 inches deep and 2 to 3 feet apart leaving the top 6 to 10 inches of the stem exposed. Unrooted cuttings can also be planted 3 to a hole.

Bitter panicum can be established in the fall with rooted cuttings. It can be planted in late winter or early spring, although success has been noted when planting young tillers in late spring, if a rainy season is more likely to occur then, as in some regions of distribution. Containerized plants can be planted year around if moisture is adequate; however, better establishment may be achieved by planting in late winter or early spring.

This grass can grow on low fertility soils, however, if fertilization is desired place a slow release tablet with each plant while planting or broadcast a balanced fertilizer such as 13-13-13 after planting.

Management
During establishment, restrict traffic and livestock grazing. All sites should be allowed to establish the first year, prior to any grazing. Once grazing is started, do not graze lower than 4 to 6 inches. Apply fertilizer according to soil test recommendations. Application of fertilizer may be split. Bitter panicum has a high fire tolerance, making it tolerable to controlled burns.

Pests and Potential Problems
There are no known serious pests of bitter panicum.

Environmental Concerns
There are no known serious environmental concerns.

Cultivars, Improved, and Selected Materials (and area of origin)
'Fourchon' originated from a native stand of bitter panicum found growing on a coastal beach in Lafourche Parish, Louisiana. It was selected for its vigorous growth, persistence after storm events, and

performance in stabilizing dunes enhanced or created with sand fencing structures. Fourchon bitter panicum has been tested and has proven performance in plantings on coastal beaches of Mississippi and Louisiana. For more information on the availability and use of Fourchon bitter panicum, contact the Natural Resources Conservation Service, Golden Meadow Plant Materials Center.

Other cultivars include 'Northpa' (NC) and 'Southpa' (FL) both of which have a vigorous rhizomatous growth habit and rapid spread rate. Plant materials are available from commercial sources.

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Edited: 30jan06 jsp; 25may06jsp

For more information about this and other plants, please contact your local NRCS field office or Conservation District, and visit the PLANTS Web site<http://plants.usda.gov> or the Plant Materials Program Web site <http://Plant-Materials.nrcs.usda.gov>

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Plant Fact Sheet

RUGOSA ROSE

Rosa rugosa Thunb.

Plant Symbol = RORU

Contributed by: USDA NRCS New York State Office and New Jersey State Office

William Skaradek
USDA NRCS Cape May Plant Materials Center
Cape May Court House, New Jersey

Uses
Traditionally used for its beautification qualities, rugosa rose's value as an erosion control type plant has recently expanded to include sand dune stabilization. Its ability to withstand salt spray makes it a good choice to plant on sand dunes and roadsides. With its thorny stems, this shrub can be strategically established at locations to direct pedestrians between the sand dunes. The ripe fruits (hips) this plant produces are high in vitamin C, and can be made into teas, jams and jellies. To a lesser degree, this species offers some food and cover to deer, and small birds and mammals.

Status
Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status (e.g. threatened or endangered species, state noxious status, and wetland indicator values).

Invasiveness
This plant is considered noxious in some states. This plant may be invasive in some regions or habitats and may displace desirable vegetation if not properly managed. Please consult with your local NRCS Field Office, Cooperative Extension Service office, or state natural resource or agriculture department regarding its status and use. Invasive information is also available from the PLANTS Web site at plants.usda.gov.

Description
This erect, many branched, introduced, leafy shrub will grow to a height of four or five feet. The deciduous compound leaves are dark green and lustrous. The stout stems are densely covered with fine thorns and develop colonies from underground stems after a few years. The two to three inch diameter flowers will range from white to purple. Single blooms emerge all summer long. The flowers give rise to tomato-like red hips which range in size from ½ inch to 1½ inch in diameter. Heavy fruiting usually begins the second year after establishment.

Adaptation and Distribution
Rugosa rose is a native of China, but has a wide range of adaptability. Its best performance is on sandy, light textured soils, but it will do well on medium textured soils. This rose will not tolerate poorly drained sites. It is well adapted to coastal environments.

Rugosa rose is distributed primarily throughout the Northeast. For a current distribution map, please consult the Plant Profile page for this species on the PLANTS Website.

Establishment
For successful establishment on roadbanks and sand dunes, vegetative establishment techniques are required. One year old bare-root seedlings or rooted cuttings are typically adequate for planting most sites; but where establishment is critical, container-grown 1 year old plants are recommended. All potentially competing vegetation should be removed or controlled prior to planting, unless it is critical to site stability.

For optimum nursery production, standard raised bed propagation techniques can be utilized. After soil temperatures reach the 40s in fall, but before dropping into the 30s, apply a maximum of 3 grams pure live seed (PLS) per square foot area of bed to attain adequate production of quality seedlings. For the over-winter period, these beds should be mulched. Time released fertilizers, applied in late spring, have yielded the best growth results under nursery environments. Hardwood cuttings harvested during the dormant season, placed in a heated bench, work well to start rooted cuttings.

Management
Periodic removal of older stems can improve the appearance of rugosa rose stands.

Environmental Concerns
There is some concern that this rose is becoming naturalized at the expense of native species. Where native roses occur in local stands, rugosa rose should be used with discretion.

Cultivars, Improved, and Selected Materials (and area of origin)
Many improved horticultural varieties are grown for beautification purposes. Only one cultivar has been selected and released specifically for use on sand dune stabilization. That cultivar is 'Sandy' (DE, MD, MA, NJ) which was released in 1992 by the Cape May PMC. 'Sandy' is a polycross of twelve separate collections. Foundation seed and seed orchard stock can be obtained by commercial nurseries from the Cape May PMC. This released conservation variety and others are available from various commercial nurseries for use by the public.

Control
Please contact your local agricultural extension specialist or county weed specialist to learn what works best in your area and how to use it safely. Always read label and safety instructions for each control method. Trade names and control measures appear in this document only to provide specific information. USDA, NRCS does not guarantee or warranty the products and control methods named, and other products may be equally effective.

Prepared By & Species Coordinators:
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Chris Miller, Mid Atlantic Plant Materials Specialist USDA NRCS New Jersey State Office, Somerset, New Jersey

Edited: 13May2002 JLK; 060809 jsp

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