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East Texas Plant Materials Center

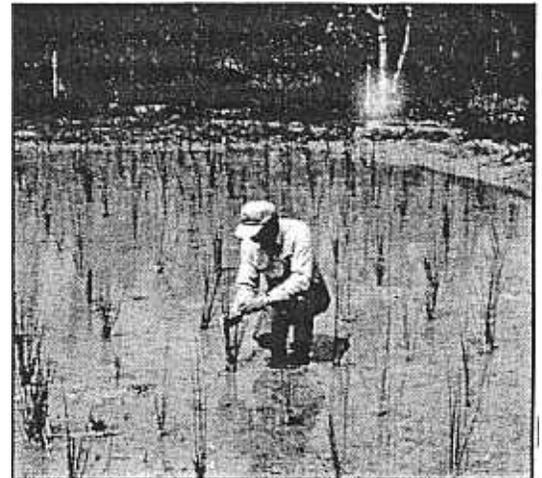
November 1996

Spacing of Softstem bulrush (*Scirpus validus*) and Soft rush (*Juncus effusus*) in Constructed Wetlands

Interest in aquatic plants has increased in recent years. This interest is due in part to the increased awareness and beneficial uses of aquatic plants.

However, basic information about the growth and management of aquatic plants is still limited for some species. The East Texas Plant Materials Center has begun studies on certain aquatic plants including Softstem bulrush and soft rush.

One such study was initiated in 1994. Softstem bulrush (*Scirpus validus*) and soft rush (*Juncus effusus*) were planted on June 8, 1994. The planting site (a constructed wetland) was maintained at a 3 - 5 inch depth using fresh water. No nutrients were added. The plants were then monitored for stem growth, height, and canopy closure throughout the summer with notes being taken on 6/29/94 and 9/20/94. Below are the results of the study:



Species	Spacing	# of new stems grown 6/08-6/29	# of new stems grown 6/29-9/20	Avg. ht. cms. 9/20	% Surv.
Juncus **	2'	19.5	29	64	100
Juncus	3'	15.4	15	57	92
Juncus	4'	18.6	23	35	84
Scirpus **	2'	2.8	40	99	77
Scirpus	3'	2.8	22	92	90
Scirpus	4'	2.5	33.5	86.7	80

****Notes:** *Juncus* plants were 4" potted materials. *Scirpus* plants were single bare rooted plants.

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Results:

1. In all three spacings, the softstem bulrush grew the fewest number of stems for the first three weeks, then consistently grew more stems than the soft rush plants.
2. The percent survival levels of the 4" potted soft rushes was 84% - 100% while the bare rooted softstem bulrush ranged from 77% - 90%.
3. Both species are vigorous rhizome producers.
4. A 3' x 3' spacing of either species provided stem canopy closure the first growing season.
5. Canopy closure on the 2' x 2' spacing occurred earlier than the 3' x 3' spacing.
6. The softstem bulrush was dormant during the winter months while the soft rush was actively growing.
7. Other aquatic species were able to establish naturally in the wide 4' x 4' spacing.

Conclusions:

1. From observations in this study, potted materials result in higher survival rates.
2. A combination of softstem bulrush and soft rush will provide year round growth and increased biological activities.
3. A 3' x 3' spacing of either species is recommended to obtain stem canopy closure during the first growing season. This spacing would require approximately 4,585 plants per acre.
4. Canopy closure can be attained quickly by regularly applying nutrients to constructed wetlands.

For additional information concerning these species, please contact the East Texas Plant Materials Center, P.O. Box 13000, SFA Station, Nacogdoches, Tx. 75961. Phone/FAX:(409) 564-4873