

Guidelines for Establishing Conservation Tree and Shrub Plantings

Establishing tree and shrub plantings in the Great Plains is usually more than a one year commitment. Certifying that trees/shrubs are planted does not mean they are established. Replanting, watering, weed control, livestock exclusion, and animal damage control are necessary components in establishing tree/shrub plantings. Usually a minimum of 2-5 years of maintenance is needed after the initial planting to get the trees or shrubs off to a good start so they can adequately compete for available space. We have to consider the purpose for which the planting is intended in our establishment evaluation. Will the number of surviving trees/shrubs provide good wildlife cover, erosion control, livestock protection, or adequate timber/firewood supply? Below are establishment guidelines that are developed to assist field office staffs in making tree/shrub establishment determinations.

- I. Tree planting (612), Wildlife Upland Habitat Management (645), CP-3 (Timber/Firewood/Scour land), CP-4 (Wildlife Plantings), CP-13 (Filter Strip), CP-14 (Bottomland Hardwoods Wetland Establishment).

Criteria:

1. Tree/shrub plantings are considered established when survival for the entire planting equals or exceeds 70 percent after three growing seasons.
- II. Field Windbreak (392), Farmstead and Feedlot Windbreak (380), Hedgerow Planting (442), CP-5 (Field Windbreak).

Criteria:

1. Tree and shrub plantings are considered established when:
 - a) One or two row plantings - minimum of 90 percent survival overall at the end of the third growing season without any gaps that would deter the function of the windbreak according to the discretion of the inspector.
 - b) Multi-row plantings (3 or more rows) - after the third growing season, a minimum of 80 percent survival overall. If mortality is concentrated creating a significant gap, it is at the discretion of the inspector whether that gap would require replanting to maintain the integrity of the windbreak.

Procedure:

1. Certification of tree and shrub establishment should be performed no earlier than August of the third growing season after initial planting.
2. Replanting during the first three years should be discussed and agreed-to in writing in the plan or contract, so the landowner is fully aware of the third growing season establishment objective. An inventory of replanting needs

during annual status reviews will help the landowner accomplish the establishment objective.

3. A random sampling procedure can be used, sampling 10 percent of the area or a minimum of 100 trees for smaller plantings.

Example: 3,000 trees planted ($3,000 \times 0.10$) = 300 trees to be checked. 500 trees planted (500×0.10) = 50 trees; however, a minimum of 100 trees need to be checked.

Suggested method: Distribute your sample plots throughout the planted area using linear plots by number of trees (e.g. checking survival of 10 trees or shrubs per linear plot).

Example: 300 trees sampled, 10 trees checked per linear plot with 30 plots distributed throughout planting. The number of trees per plot would be variable with consideration given to getting a representative sample throughout the planting.

4. The inspector should use good professional judgment and be flexible in determining whether the planting is established and will serve the purpose for which it is intended.
5. Higher survival standards may be required on critical areas of a particular planting whether for timber, wildlife, or erosion control. Concentrated blocks of mortality may need to be replanted even though the percent overall survival has been attained if the function of the planting is greatly reduced. Flexibility is needed when blocks of mortality were caused by circumstances beyond the producers control such as, soil, planting design, or other site factors. (e.g. calcareous soils, wrong tree or shrub species for soil, feedlot runoff).

Guidelines for Stand Evaluation of Herbaceous Plantings

The following is a technique that can be used as a tool to help determine the acceptability of herbaceous stands. This is only a working tool. The final decision will ultimately require professional judgment by the responsible technician.

An objective means of determining herbaceous stand density is desirable for documentation and reference purposes. Stand density can be determined accurately and in a short period of time by using a frame count technique. Correct seedling identification is essential to ensure accuracy.

Fields to be sampled should have gone through at least two growing seasons to ensure that the seedlings are well established. Sampling is easiest to carry out in the fall after the frost has burned the other plants down and the warm-season grasses have turned red. The cool-season grasses will also show up well in the fall.

On marginal stands, the decision to manage or reseed must be made at the end of the third season after planting the grass. This will allow adequate time to reestablish a cover crop and reseed before expiration in the case of a 10 year contract.

An entire field may be evaluated or a portion of a field. When an evaluation is conducted on a portion of a field, the area must be carefully delineated on a map. In those cases, use grid paper on which to illustrate the field. Plot those areas of the field that have an adequate stand. Evaluate the remaining areas to determine the plant density. If reseeding is necessary, it may not include the entire acreage. When areas of adequate stands are small and irregularly shaped, it may be easier to replant the entire field.

A standard range clipping frame will be used as the sampling unit (24" x 11.5"). All seeded plants with the root crown located within the frame will be counted. Each seedling and any sprouted rhizomes from that seedling are counted as one plant.

The number of sample points required depends on stand uniformity. A minimum of 10 sample points per 10 acres of field size is adequate on a uniform stand. A minimum of 10 sample points are needed for fields of less than 10 acres in size. A pre-determined number of steps will be taken diagonal or perpendicular to the drill rows. The size of the field will determine the number of sample points to be taken and the pre-determined number of steps between sample points. The frame is placed at the toe of the foot on the final step. The frame should be placed in a consistent manner, perpendicular to the drill rows.

If the stand is spotty and includes skipped areas, then more samples are required. Ten samples per 10 acres of field is only a starting point. Enough counts must be made so a representative sample is obtained. If the field has had a different cropping history prior to seeding, such as half wheat and half sorghum, the sampling should be stratified and the average plant densities kept separate for these two areas. The same would hold true for significantly different soils or topography. In

these situations, it is likely that more than the minimum number of sample units would be required to accurately determine plant density.

The technician must not be biased by heavy or thin stands, but needs to sample equally in a systematic manner. It works well to select a landmark on the horizon to walk towards in a straight line. The sampling pattern should be such that a “representative” plant density is obtained. Avoid sampling double seeded areas such as end rows and turn around areas.

Stand density is determined by dividing the total number of seedlings counted by the total number of sample points or frames. Acceptable stands are those with an average of two or more plants per frame. Stands with plant density of 1.0 to 2.0 plants per frame are considered marginal and will probably require the use of extensive management practices to thicken the stand (fire, weed control, mowing, etc.). Stands with one or less plants per frame are not acceptable and will require replanting. These density requirements are applicable to stands that are predominately rhizomatous species. The stand density requirements should be double for stands composed of predominately bunch-type species.

Evaluate both plant vigor and weed competition visually while making sample counts. These observations are necessary for adequate documentation and to use in making appropriate management decisions. Plant vigor is reflected by size and form of the plant and its parts in relation to age and environment. Indications of vigorous seedlings are numerous and lengthy rhizome development seed head production, and volume and color of foliage. Weed competition is indicated by the amount of vegetation present that was not seeded. It may be in the form of grassy weeds, broadleaf or shrubby species. The presence or absence of weeds may dramatically affect the management recommendation made to the cooperator. List the common names of the weedy species present. Indicate in the comment section whether weed control measures were applied, what method(s) were used, etc.

Recommendations to the cooperator may be recorded in the appropriate section on the Stand Evaluation Worksheet or on the CPA-6 in the conservation plan. Copies of the blank worksheet may be made as necessary.

Attach the completed Stand Evaluation Worksheet along with any grid maps to the appropriate ECS-4, Grass Seeding Form. This information will then be filed in the appropriate conservation plan folder.

The information obtained from sampling plant density can be used as a reference point when making management decisions. Other factors should also be considered, such as climatic conditions during the establishment period, producer’s management capabilities, and available equipment. A seeding with a plant count of less than two will be managed differently than a seeding with a plant count greater than six. If “spot” reseeding is deemed necessary because of a non-uniform stand, the grid sketch diagram indicating how the field was sampled should indicate the areas to be reseeded. The stand evaluation worksheet should be used as a management tool as well as a means of documentation.

Program CRP Owner Tom Brown

Operator Same Ident. No. E-148

County Angwathere

1. Type of Seeding: Native Grass

2. Seedbed Preparation: Kind of Seedbed Stubble
(clean, stubble, mulched, etc.)

Planned: Kind Sorghum Row Spacing 20" Height 18"

Applied: Kind _____ Row Spacing _____ Height _____

Recommended Seeding Date: _____ Date Seeded: _____

Mulch Planned: Kind _____ Rate _____ Date _____

Mulch Applied: Kind _____ Rate _____ Date _____

Chemical(s) Planned: _____ Rate _____ Date _____

Chemical(s) Applied: _____ Rate _____ Date _____

3. Fencing Required (feet) None Installed (feet) _____

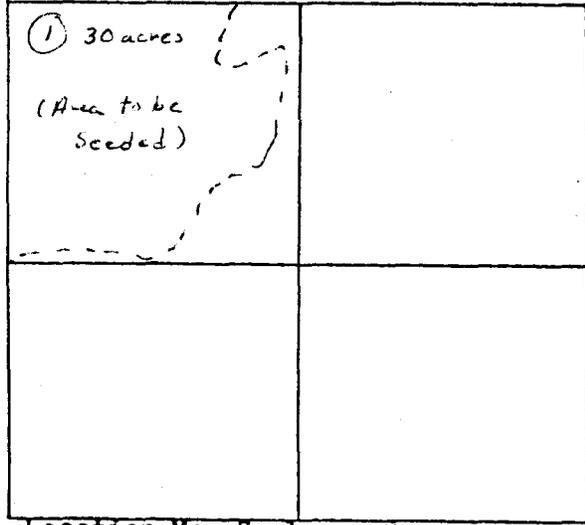
4. Seeding: See back side for seeding mix and fertilizer requirements.

Seeding Method: Drill

Approved Seeding Dates: Dec. 1 To May 15

Acres Seeded: 30 ac. - Fld. #1 Seeded: May 5, 1986
(Also enter field numbers)

(Apply Field No. To Sketch)



Location Map Scale 6" = 1 mi

Legal Description:
Sec. NE-6 T. 15 R. 6
 SCS Representative:
 Layout By Sam T. Man
 Date Feb. 21, 1986
 Checked By S.T.M.
 Date 5/12/86

Producer's Statement:
 The design of this practice has been discussed with me and I concur with the design. I intend to apply it as designed.

Thomas Brown
 (Signature)
2/21/86
 (Date)

NOTE: Attach an additional sheet if needed for additional guidance. Substitutions in seed mixtures are not allowed without prior approval of the Soil Conservation Service.

	PLANNED						APPLIED			Remarks	
	(1) Species	(2) Variety	(3) Lbs. PLS/ Acre	(4) % of Mix	(5) PLS Lbs./ Acre	(6) Acres	(7) Total PLS Lbs.	(8) Bulk Lbs. Seeded	(9) PLS*		(10) Total PLS Lbs. Seeded
SEED	Big Bluestem	Kaw	6.0	35	2.1	30	105.0	175	60	105.0	
	Little Bluestem	Aldous	4.0	20	.8	↓	24.0	45	55	24.75	
	Indiangrass	Osage	6.0	20	1.2		36.0	63	58	36.54	
	Switchgrass	Blackwell	3.0	5	.15		4.5	7	72	5.04	
	Sideoats grama	El Reno	6.0	15	.9		27.0	52	52	27.02	
	Western Whtgr.	Barton	10.0	5	.5		15.0	24	65	15.6	
							$366 \div 30 = 12.2$ Bulk pounds / Acre				

FERTILIZER	PLANNED				APPLIED			Remarks
	Kind	Rate per Acre (Available)	Acres	Total Lbs. Fertilizer Planned (Available)	Bulk Lbs. Applied	Percent Available	Total Available Applied	

* PLS (pure live seed) from seed tag
or
$$\frac{((\% \text{ Germ.} + \% \text{ Firm Seed}) \times \text{Purity})}{100}$$

Producer's Statement:
I certify that I have seeded 30
acres as described on this form and
in accordance with specifications.

Thomas Brown
Signature
5/8/86
Date

- (1) To be obtained from specifications.
- (2) May be obtained from Plant Materials Technical Notes.
- (3) To be obtained from specifications.
- (4) To be obtained from specifications after on-site investigation of needs.
- (5) Multiply columns 3 and 4 and enter in column 5.
- (6) Acres to be seeded.
- (7) Multiply columns 5 and 6 and enter in column 7.
- (8) Enter bulk pounds actually seeded.
- (9) Enter PLS (pure live seed) obtained from seed tag.
- (10) Multiply columns 8 and 9 and enter in column 10. (Column 10 should equal or exceed column 7 or an appropriate adjustment made in the mixture.)

