

Appendix 1 - Planting rates for seeding and sprigging in Texas, Zone 4

Name	Variety / Cultivar	Seeding rates are pounds pure live seed (PLS) per acre - 3/, 5/, 6/	Southern Counties ONLY	Northern Counties ONLY	Entire Zone 4	Native (N) or Introduced (I)	Season of growth	Adaptation by Major Land Resource					Seeding Dates 7/, 8/	Soil 9/				Comments 10/			
								86A	86B	87A	87B	133B		150A	152B	Coarse	Moderately Coarse		Medium	Moderately Fine	Fine
PERENNIAL GRASSES 1/, 4/																					
Bahiagrass	Pensacola, Tifton 9	12.0 - 15.0			X	I	W	X	X	X	X	X	X	X	X	10/1 - 6/1	X	X	X	X	Best adapted to the high rainfall areas of East Texas and the Coast Prairie. Adapted to a wide variety of soils with pH of 5.5 - 7.0; not recommended on soils with pH > 7.0, or soils with > 40" of sand at the surface unless in areas of >55" annual rainfall. It performs better than coastal bermudagrass on wet soils, but is not as drought tolerant as coastal.
Bahiagrass	Argentine	12.0 - 15.0	X			I	W	X	X	X	X	X	X	X	X	9/1 - 6/1					Same as above; however, Argentine is more susceptible to ergot.
Seeded Bermudagrass	common; hulled	2.3 - 6.0			X	I	W	X	X	X	X	X	X	X	X	2/15 - 6/1 3/1 - 6/1 8/15 - 9/30	X	X	X	X	Best adapted to well and moderately well drained soils, optimum pH 5.5 - 8.0. Not recommended on deep or very deep sands, or areas flooded for long duration. Less drought tolerant than hybrid bermudagrass.
Seeded Bermudagrass	common; unhulled	3.0 - 8.0			X	I	W	X	X	X	X	X	X	X	X	2/15 - 6/1 3/1 - 6/1 8/15 - 9/30	X	X	X	X	Same as above
Seeded Bermudagrass	Cheyenne	3.0 - 8.0	X					X	X	X	X	X	X	X	X	2/15 - 6/1 8/15 - 9/30	X	X	X	X	Released in 1989 for turf and reclamation, adapted to moderate to well drained soils in the SE and Gulf Coast. Has produced lower yields than other seeded varieties in variety trials at Overton, TX.
Seeded Bermudagrass	Giant	3.0 - 8.0			X	I	W	X	X	X	X	X	X	X	X	2/15 - 6/1 3/1 - 6/1 8/15 - 9/30	X	X	X	X	Adaptation similar to common, wider leaves, slightly higher productivity than common. Stands have tended to thin out over time.
Seeded Bermudagrass	Guyman	3.0 - 8.0		X		I	W	X	X	X	X	X	X	X	X	3/1 - 6/1					Soil adaptation similar to common. Cold tolerance similar to Tifton 44.
Seeded Bermudagrass	Ranchero Frio	3.0 - 8.0	X			I	W	X	X	X	X	X	X	X	X	2/15 - 6/1 8/15 - 9/30					Mixture of Cheyenne and giant. Adaptation same as common. Produced less than Texas Tough and Tierra Verde in variety trials at Overton, TX.
Seeded Bermudagrass	Texas Tough	3.0 - 8.0			X	I	W	X	X	X	X	X	X	X	X	2/15 - 6/1 3/1 - 6/1 8/15 - 9/30	X	X	X	X	Mixture of common hulled, common unhulled, and giant bermudagrass. Adaptation same as common. Most productive seeded variety in 3 year trial at Overton, TX.
Seeded Bermudagrass	Tierra Verde	3.0 - 8.0			X	I	W	X	X	X	X	X	X	X	X	2/15 - 6/1 3/1 - 6/1 8/15 - 9/30	X	X	X	X	Similar mixture to Texas Tough. Adaptation same as common. Production slightly less than Texas Tough in Overton variety trials.
Hybrid Bermudagrass 2/	Alicia	w/ sprigging machine 12 - 20 Bu/ac 15 - 25 cu.ft. broadcast 24 - 40 Bu/ac 30 - 50 cu.ft.			X	I	W	X	X	X	X	X	X	X	X	1/15 - 6/1 8/15 - 9/30	X	X	X	X	Adaptation similar to coastal, but less winter hardy and recovers slower than coastal after severe winter. Yield is usually less than coastal. Good for erosion control, provides quicker cover than coastal, but forage is usually lower in quality than coastal. Somewhat susceptible to rust.
Hybrid Bermudagrass 2/	Brazos	w/ sprigging machine 12 - 20 Bu/ac 15 - 25 cu.ft. broadcast 24 - 40 Bu/ac 30 - 50 cu.ft.			X	I	W	X	X	X	X	X	X	X	X	1/15 - 6/1 8/15 - 9/30	X	X	X	X	Production is similar to higher than coastal on adapted soils. Cold tolerance similar to coastal. Usually higher digestibility than coastal.
Hybrid Bermudagrass 2/	Coastal	w/ sprigging machine 12 - 20 Bu/ac 15 - 25 cu.ft. broadcast 24 - 40 Bu/ac 30 - 50 cu.ft.			X	I	W	X	X	X	X	X	X	X	X	1/15 - 6/1 8/15 - 9/30	X	X	X	X	Best adapted to moderately to well drained sandy to loamy soils, but will persist on clayey soils. Moderate cold tolerance.
Hybrid Bermudagrass 2/	Coastcross -1 and Tifton 68	w/ sprigging machine 12 - 20 Bu/ac (15 - 25 cu.ft.) broadcast 24 - 40 Bu/ac (30 - 50 cu.ft.)	X			I	W	X	X	X	X	X	X	X	X	1/15 - 6/1 8/15 - 9/30	X	X	X	X	Soil adaptation same as coastal, but both lack cold tolerance, which limits their use to coastal areas of Texas. Both have good disease resistance and produce higher quality forage than coastal. Coastcross primarily spreads by above ground stolons, only occasionally produces rhizomes. Tifton 68 only produces stolons.
Hybrid Bermudagrass 2/	Grazer	w/ sprigging machine 12 - 20 Bu/ac (15 - 25 cu.ft.) broadcast 24 - 40 Bu/ac (30 - 50 cu.ft.)	X			I	W	X	X	X	X	X	X	X	X	1/15 - 6/1 8/15 - 9/30	X	X	X	X	Adaptation similar to coastal, but less winter hardy. Short growth habit results in lower total production than coastal, but quality is better than coastal. Best used as pasture not hay.

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								86A	86B	87A	87B	133B		150A	152B	Coarse	Moderately Coarse		Medium	Moderately Fine	Fine
PERENNIAL GRASSES 1/, 4/																					
Hybrid Bermudagrass 2/	Jiggs	w/ sprigging machine 12 - 20 Bu/ac 15 - 25 cu.ft. broadcast 24 - 40 Bu/ac 30 - 50 cu.ft.			X	I	W	X	X	X	X	X	X	1/15 - 6/1 8/15 - 9/30	X	X	X	X	Adapted to a wide range of soils, faster establishment and higher production potential than coastal on most soils, especially clayey soils. Forage quality similar to coastal. Cold tolerance may be less than coastal. Jiggs is susceptible to rust.		
Hybrid Bermudagrass 2/	Tifton 44	w/ sprigging machine 12 - 20 Bu/ac 15 - 25 cu.ft. broadcast 24 - 40 Bu/ac 30 - 50 cu.ft.	X			I	W	X	X	X	X	X	1/15 - 6/1	X	X	X	X	Soil adaptation and total production similar to coastal, better cold tolerance, earlier spring growth and later fall growth than coastal.			
Hybrid Bermudagrass 2/	Tifton 78	w/ sprigging machine 12 - 20 Bu/ac (15 - 25 cu.ft.) broadcast 24 - 40 Bu/ac (30 - 50 cu.ft.)	X			I	W	X	X	X	X	X	1/15 - 6/1 8/15 - 9/30	X	X	X	X	Soil adaptation similar to coastal, much less cold tolerant than coastal. It establishes and spreads faster than coastal. Spring growth starts earlier than coastal. Immune to rust.			
Hybrid Bermudagrass 2/	Tifton 85	w/ sprigging machine 12 - 20 Bu/ac 15 - 25 cu.ft. broadcast 24 - 40 Bu/ac 30 - 50 cu.ft.				X	I	W	X	X	X	X	1/15 - 6/1 8/15 - 9/30	X	X	X	X	Soil adaptation similar to coastal, but slightly less cold tolerant. Higher production potential, and better forage quality than coastal. Performs better than coastal on sandy soils. Earlier spring growth and later fall growth than coastal.			
Hybrid Bermudagrass Propagated by tops 2	Alicia, Jiggs, Tifton 85	5 - 7 bales				X	I	W	X	X	X	X	5/15 - 6/1 5/30 - 6/15 8/15 - 9/15	X	X	X	X	Mature tops are not usually available until the end of May. They must be planted into moist soils and packed immediately after planting			
Bermudagrass	Sod Mulch	260 cubic yd/ac				X	I	W	X	X	X	X	Year round	X	X	X	X	Bermudagrass sprigs and stolons scraped up with topsoil and spread and packed to a thickness of 2 inches. Usually used on disturbed sites that would be hard to get seed or sprigs established.			
Bluestem, little	Aldous, Cimarron, Native mix	3.4				X	N	W	X	X	X	X	2/15 - 5/1	X	X	X	X	Aldous and Cimarron are best adapted to all upland soils in the Claypan and Southern Blackland areas of Texas. May be used for Pollinator Habitat plantings.			
Bluestem, big	Earl, Kaw, local harvest	6.0				X	N	W	X	X	X	X	2/15 - 5/1 3/1 - 5/15	X	X	X	X	Best adapted to deep loamy fertile upland sites receiving at least 25" of rainfall annually. May be used for Pollinator Habitat plantings.			
Bluestem, yellow	K.R., T-587	1.2 - 2.0				X	I	W	X	X	X	X	2/15 - 5/1 3/1 - 5/15	X	X	X	X	Best adapted to moderately to well drained loamy to clayey soils with 20 inches or more annual rainfall. O.W. T-587 will freeze out north of the Red River. Optimum pH 5.5 - 7.5. K.R. not recommended in 133B or 152B			
Bluestem, yellow	Medio	1.0 - 2.0				X	I	W	X	X	X	X	2/15 - 5/1 3/1 - 5/15	X	X	X	X	Same comments as K.R			
Bluestem, yellow	Plains, WW Spar	1.8 - 2.0	X			I	W	X	X	X	X	X	3/1 - 5/15	X	X	X	X	Best adapted to loamy soils in the northern half of Texas in areas that receive 18 or more inches of annual precipitation. Optimum pH 5.5 - 7.5			
Bluestem, yellow	WW B. Dahl	1.2 - 2.0	X			I	W	X	X	X	X	X	3/1 - 5/15	X	X	X	X	Range same as WW Spar. Soil adaptation well to moderately well drained sandy loam to clay loam, adapted to alkaline soils or wet sites. Stays vegetative longer than other O.W. bluestems			
Bluestem, yellow	WW Ironmaster	1.8 - 2.0	X			I	W	X	X	X	X	X	3/1 - 5/15	X	X	X	X	Same range as WW Spar, but should only be used on calcareous soils deficient in Fe.			
Buffalograss: burs	Texoka	8.0				X	N	W	X	X	X	X	2/15 - 5/1 3/1 - 5/15	X	X	X	X	Primarily used in bottomland locations			
Buffalograss: dehulled		3.0				X	N	W	X	X	X	X	2/15 - 5/1 3/1 - 5/15	X	X	X	X	Primarily used in bottomland locations			
Bristlegrass: Plains	Kika 648 Germplasm	2	X			N	W						2/1 - 5/1; 9/1 - 11/1	X	X	X	X	Planted only in a mix with streambed bristlegrass, mix is available commercially as Catrina Blend; Plant 1/8 to 1/4 inch deep			
Bristlegrass: Streambed	Kika 677 Germplasm, Kika 819 Germplasm, Kika 820 Germplasm	3	X			N	W						2/1 - 5/1; 9/1 - 11/1	X	X	X	X	Planted only in a mix with streambed bristlegrass, mix is available commercially as Catrina Blend; Plant 1/8 to 1/4 inch deep			
Dallisgrass		15.0				X	I	W	X	X	X	X	2/15 - 4/15 3/1 - 4/15	X	X	X	X	Best adapted to moist fertile loamy to clayey soils, primarily bottomlands in east Texas and Gulf Coast. Ergot can be a problem.			
Dropseed: sand	Borden County Germplasm	1.0				X	N	W	X				2/15 - 5/1 3/1 - 5/15	X	X	X	X	Plant no deeper than 1/8" deep on fine texture soil, no deeper than 1/2" deep on coarse textured soil			
Dropseed: tall		1.0				X	N	W	X	X	X	X	2/15 - 5/1 3/1 - 5/16	X	X	X	X	Adapted to clay and clay loam sites. Prolific seed producer			

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								86A	86B	87A	87B	133B	150A	152B	Seeding Dates 7/, 8/					
															Soil 9/					
PERENNIAL GRASSES 1/, 4/																				
Eastern gamagrass	Nacogdoches	10.0			X	N	W	X	X	X	X	X	X	X	11/15 - 1/15 Not Stratified 2/15 - 5/15 Stratified	X	X	X	X	Adapted to most soils in areas of Texas that receive more than 25 inches of rainfall. Not recommended on deep or very deep sandy soils. May be used for Pollinator Habitat plantings.
Eastern gamagrass	Local harvest	20.0			X	N	W	X	X	X	X	X	X	X	11/15 - 1/15 Not Stratified 2/15 - 5/15 Stratified	X	X	X	X	Adapted to moist well to moderately well drained loamy to clayey sites throughout Texas except for the South Texas Plains. May be used for Pollinator Habitat plantings.
False Rhodesgrass	Kinney Germplasm	1.0	X			N	W						X		2/1 - 5/1; 9/1 - 11/0	X	X	X	X	Plant 1/8 to 1/4 inch deep, planting too shallow is better than too deep Quail, dove and turkey eat Florida paspalum seed. May be used for Pollinator Habitat plantings. Plant no deeper than 1/2 inch
Florida paspalum	Harrison Germplasm	8.0			X	N	W	X	X	X	X	X	X	X	12/1 - 6/1		X	X	X	
Gramma: Hairy	Chaparral Germplasm	2.0	X			N	W						X		2/1 - 5/1; 9/1 - 11/1	X	X	X	X	Plant no deeper than 1/4 inch
Gramma: Sideoats	Haskell, El Reno, Vaughn	4.5				N	W	X	X						12/1 - 6/1	X	X	X	X	Adapted to a wide range of soils and climatic conditions but prefers medium or coarse soil.
Gramma: Slender	Dilley Germplasm	8.0	X			N	W					X			2/1 - 5/1; 9/1 - 11/2	X	X	X	X	Plant no deeper than 1/4 inch
Gramma: Texas	Atascosa Germplasm	10.0	X			N	W					X			2/1 - 5/1; 9/1 - 11/3	X	X	X	X	Plant no deeper than 1/4 inch
Indiangrass, yellow	Lometa	4.5			X	N	W	X	X	X	X	X	X	X	2/15 - 5/1 3/1 - 5/15	X	X	X	X	Adapted to soils from sands to clays in areas of Texas that receive at least 22 inches of annual precipitation. Best adapted to loamy soils. May be used for Pollinator Habitat plantings.
Johnsongrass		10.0			X	I	W	X	X	X	X	X	X	X	2/15 - 5/1 3/1 - 5/15	X	X	X	X	Adapted to most soils. Best adapted to clay soils
Kleingrass	Selection-75	1.5 - 2.0			X	I	W	X	X	X	X	X	X	X	2/15 - 5/1 3/1 - 5/15	X	X	X	X	Adapted to all areas of Texas, receiving at least 20 inches of rainfall annually. May winter kill in the northern and northwestern counties of the state. Best adapted to loamy to clayey soils in central, eastern, and southeastern Texas. Should not be used as forage for horses, sheep, or goats
Kleingrass	Verde	1.7 - 2.0			X	I	W	X	X	X	X	X	X	X	2/15 - 5/1 3/1 - 5/15	X	X	X	X	Same as above, but larger seeded
Lovegrass, weeping	common, Ermelo, Renner	1.5			X	I	W	X	X	X	X	X	X	X	2/15 - 5/1 3/1 - 5/15	X	X			Best adapted to sandy soils in areas of Texas receiving 16 inches or more annual rainfall. Moderate cold tolerance
Lovegrass, Wilman	common, Palar	1.5			X	I	W	X	X	X	X	X	X	X	3/1 - 5/1 3/1 - 5/15	X	X	X		Soil adaptation similar to weeping lovegrass. Wilman is less cold tolerant, but more palatable than other lovegrass. Only plant south of Lamar County
Pappusgrass: Pink	Maverick Germplasm	3.0	X			N	W						X		8/15-10/15	X	X	X	X	Plant 1/8 to 1/4 inch deep
Pappusgrass: Whiplash	Webb Germplasm	3.0	X			N	W						X		8/15-10/16	X	X	X	X	Plant 1/8 to 1/4 inch deep
Purpletop Tridens, <i>Tridens flavus</i>	Common	2 - 6			X	N	W	X	X	X	X	X	X	X	2/15 - 5/1 3/1 - 5/15	X	X	X	X	May be used for Pollinator Habitat plantings.
Switchgrass	Alamo	2.0			X	N	W	X	X	X	X	X	X	X	2/15 - 5/1 3/1 - 5/15	X	X	X	X	Adapted to most soils in areas of Texas receiving at least 25 inches of precipitation annually. Tolerates poor drainage
Switchgrass	Local harvest	3.5			X	N	W	X	X	X	X	X	X	X	2/15 - 5/1 3/1 - 5/15	X	X	X	X	Same as above
Velvet rosettegrass	Pilgrim Germplasm	3.0			X	N	W						X		12/1 - 6/1	X	X	X		Plant no deeper than 1/2 inch
PERENNIAL GRASSES 1/, 4/ Wildrye: Virginia, <i>Elymus virginicus</i>	Omaha, Kinchaffoonee Germplasm, Common, Local Ecotype	12			X	N	C	X	X	X	X	X	X	X	9/1 - 10/15	X	X	X	X	Best suited to bottomlands. Should be planted 1/4 to 1/2 inches. Suitable to be included in irpollinator habitat .
Wildrye: Canada, <i>Elymus canadensis</i>	Lavaca Select Germplasm, Common, Local Ecotype	12			X	N	C	X	X	X	X	X	X	X	9/1 - 10/15	X	X	X	X	Best suited to uplands. Should be planted 1/4 to 1/2 inches. Suitable to be included in irpollinator habitat .
Windmillgrass: shortspike	Welder Germplasm	0.5	X			N	W					X	X		2/1 - 5/1; 9/1 - 11/1	X	X	X	X	Plant 1/8 to 1/4 inch deep, planting too shallow is better than too deep
Windmillgrass: Hooded	Mariah Germplasm	0.7	X			N	W					X	X		2/1 - 5/1; 9/1 - 11/2	X	X	X	X	Plant 1/8 to 1/4 inch deep, planting too shallow is better than too deep

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								86A	86B	87A	87B	133B		150A	152B	Coarse	Moderately Coarse		Medium	Moderately Fine	Fine
Annual Legumes:																					
Clover, rose	Overton R18	10.0 - 15.0			X	I	C	X	X	X	X	X	X	9/15 - 11/30	X	X	X	X	Adapted to most soils with pH 5.5 - 8.0 and good drainage. Medium maturity, low bloat potential, good cold tolerance.		
Clover, subterranean	Karridale, Denmark	15.0 - 18.0			X	I	C	X	X					9/15 - 11/30	X	X	X		Adapted to loamy to clayey soils with pH 5.5 - 7.3 and fair drainage. Early to late maturity, medium bloat potential, fair cold tolerance.		
Clover, subterranean	Clare, Nuba	15.0 - 18.0	X			I	C	X		X	X			9/15 - 11/30	X	X	X		Adapted to loamy to clayey soils with pH 7.0 - 8.0 and fair drainage. Medium maturity, medium bloat potential, poor cold tolerance.		
Clover, white	Durana, Patriot, LA S-1, Regal, Osceola	3.0 - 4.0			X	I	C	X	X	X	X	X	X	9/15 - 11/30	X	X	X		Weak perennial, adapted to loamy to clayey soils (usually bottomlands) with pH 5.5 - 7.5 and fair/poor drainage. Late/perennial maturity, medium bloat potential, good cold tolerance.		
Cowpea	Iron & Clay, Red Ripper	40.0			X	I	W	X	X	X	X	X	X	4/1 - 6/15	X	X	X	X	Adapted to well drained soils pH range of 5.5 - 7.0. Drought tolerant. Red Ripper better adapted to sandier soil than Iron & Clay. Does not bloat		
Lablab	Rio Verde, Ronqai	30.0 - 50.0			X	I	W	X	X	X	X	X	X	3/15 - 5/1	X	X	X		Adapted to moderately well to well drained soils pH range of 4.5 - 7.8. Not as drought tolerant as cowpea, does not bloat		
Lepedeza, commor	Kobe, Korean	25.0			X	I	W	X	X	X	X	X	X	3/15 - 4/30	X	X	X	X	Adapted to well drained soils throughout East and southeast Texas. Optimum pH range is 5.0 - 6.5. Tends to be squeezed out by vigorously growing warm season grasses in highly fertilized situations. Korean less tolerant of soil acidity.		
Partridge pea	Comanche	13.4			X	N	W	X	X	X	X	X	X	3/1 - 6/1	X	X	X		Adapted to sands and sandy loams receiving > 19 inches of annual rainfall.		
Soybean	Tyrone	50.0 - 60.0			X	I	W	X	X	X	X	X	X	3/1 - 6/1	X	X	X	X	Adapted to well drained soils, pH range is 5.5 - 8.0. Drought tolerant when used for forage. Hay is difficult to cure, and if grazed no regrowth occurs. Best used for silage		
Caley pea, Singletary pea	common	35.0			X	I	C	X	X	X	X	X	X	9/15 - 11/30	X	X	X		Adapted to loamy to clayey soils with pH 5.5 - 8.0 and fair/poor drainage. Medium maturity, fair cold tolerance. Grazing should be discontinued in late spring to avoid seed toxicity and allow reseeding		
Sweetclover	Hubam (white)	12.0			X	I	C	X	X	X	X	X	X	9/15 - 11/30 3/15 - 4/1				X	Both white and yellow sweet clovers are biennial. Adapted to well drained clay to clay loam, optimum pH range 6.5 - 7.5. The use of low coumarin varieties is recommended to reduce problems associated with this plant		
Vetch, hairy	common	15.0 - 20.0			X	I	C	X	X	X	X	X	X	9/1 - 10/15	X	X	X	X	Adapted to well drained soils with pH 5.0 - 8.0. Late maturity, low bloat potential, good cold tolerance. Cattle develop muscular problem when grazing vetch, especially when seeds are forming. Rotating to a pasture that does not contain vetch will minimize this problem		
Winterpea, Austrian	Granger, Fenn, Melrose	35.0			X	I	C	X	X	X	X	X	X	9/1 - 10/15	X	X			Adapted to loam to sandy loam soils with pH 6.0 - 8.0 and good drainage. Medium maturity, fair/good cold tolerance. Best used w/small grain for silage, does not tolerate grazing very well		
Annual Forbs:																					
Rio Grande clammyweec	Zapata Germplasm	8.0	X			I	C				X			3/1 - 5/1 9/1 - 11/1	X	X	X	X	Use as part of a forb/legume mix		
Hookers Plantain	STN-561 Germplasm	5.0	X			I	C				X			9/1 - 12/15	X	X	X	X	Planted on in a mix with redseed plantain, mix is available commercially as Divot Tallow Weed Blend		
Redseed Plantain	STN-496 Germplasm	5.0	X			I	C				X			9/1 - 12/16	X	X	X	X	Planted on in a mix with redseed plantain, mix is available commercially as Divot Tallow Weed Blend		

Appendix 1 - Planting rates for seeding and sprigging in Texas, Zone 4A - FOOTNOTES:

- 1/ Species are listed by common name and where applicable by released cultivar or variety. Planting rates are shown as by PLS.
- 2/ Conversion factors: 3.5 bushels of tops = 1 bale; 7 bushels of sprigs = 1 bale; 1.25 cubic feet = 1 bushel; 1 bushel sprigs = about 15 pounds.
- 3/ PLS = Pure Live Seed. To compute PLS from seed analysis information: Percent PLS = (% germination + % hard [dormant] seed) X % pure seed. Seeding rate in PLS pounds divided by % PLS will give you the bulk seeding rate needed to get the right amount of pure live seed. **Where a seeding rate range is provided the planner will recommend a rate based on purpose of the seeding, site conditions, site productivity, potential weed pressure, future management planned, etc.**
- 4/ Local harvest may be used when seeding species of unknown or common variety, or natural stands. Local harvested seed should have its geographic origin within 200 miles north, 300 miles south, 100 miles east and 200 miles west of the site where it will be planted. It is also desirable that locally harvested seed be used on soils of the same texture as soils where seed was harvested.
- 5/ The TZ (tetrazolium salt) test can be used for the germination factor in figuring PLS if the dealer furnishes the seed tag or other proof the test was run by a reputable seed lab.
- 6/ Seed rates listed above are for broadcast planting; drill planting rates may be reduced by up to 20% at the planner's discretion. Seeding rates for row planting (spacing 21 - 40 inch) of any of the species in the table will be determined by using 1/3 of the broadcast rate, for spacing 20 inch or less use drilled rate.
- 7/ See county climate data below for average (70% chance) last freeze and first freeze dates for each Resource Team. Field office personnel should use these dates as a guide, and not initiate planting of warm season species earlier than 2 weeks before the spring date, unless otherwise noted in the Table. Seeding dates for warm season species will not be extended to less than 6 weeks before the fall date, unless otherwise noted in the Table. **Any further variance outside the dates below must be approved in writing from the State Resource Conservativinist. ONLY Southern counties can use the earliest spring dates and the fall planting dates listed for some warm season plants.**
- 8/ The optimum planting depth for sprigs & tops is 1.0 to 3.0 inches, small seeded (>35000 seed per pound) species is 1/8 to 1/4 inch, large seeded species 3/4 to 1.0 inches unless it is otherwise noted for the individual species.
- 9/ Soil groups are based on the following textures: Coarse - Coarse sand, Sand, Fine sand, Very fine sand, Loamy coarse sand, Loamy sand, Loamy fine sand and Loamy very fine sand; Moderately Coarse - Sandy loam, Coarse sandy loam and fine sandy loam; Medium - Very fine sandy loam, Loam, Silt loam and silt; Moderately Fine - Clay loam, Sandy clay loam and Silty clay loam; Fine - Sandy clay, silty clay and clay.
- 10/ Additional information on adaptation is available in species specific NRCS Job Sheets, Texas Cooperative Extension Service publications, Texas Agricultural Experiment Station publications, and from the references listed on the reference sheet.

County Climate Data

County	Last Spring Freeze Date	First Fall Freeze Date	Northern County	Southern County
Delta	2/28	12/2	X	
Lamar	2/28	12/2	X	
Red River	2/28	12/2	X	
Hopkins	3/1	11/27	X	
Rains	3/1	11/27	X	
Wood	3/1	11/27	X	
Bowie	3/3	11/24	X	
Cass	3/3	11/24	X	
Marion	3/3	11/24	X	
Camp	3/8	11/24	X	
Franklin	3/8	11/24	X	
Gregg	3/8	11/24	X	
Morris	3/8	11/24	X	
Titus	3/8	11/24	X	
Upshur	3/8	11/24	X	
Henderson	2/28	11/30	X	
Van Zandt	2/28	11/30	X	
Harrison	2/27	11/30	X	
Panola	2/27	11/30	X	
Anderson	2/26	12/6	X	
Freestone	2/26	12/6	X	
Cherokee	2/23	12/2	X	
Smith	2/23	12/2	X	
Rusk	2/23	12/2	X	
Nacogdoches	2/27	11/27	X	
Sabine	2/27	11/27	X	
San Augustine	2/27	11/27	X	
Shelby	2/27	11/27	X	
Angelina	2/25	12/3	X	
Houston	2/25	12/3	X	
Polk	2/25	12/3	X	
San Jacinto	2/25	12/3	X	
Trinity	2/25	12/3	X	
Jasper	3/4	11/22	X	
Newton	3/4	11/22	X	
Tyler	3/4	11/22	X	
Brazos	2/11	12/18		X
Grimes	2/11	12/18		X
Robertson	2/11	12/18		X
Waller	2/11	12/18		X
Galveston	2/12	12/16		X
Harris	2/12	12/16		X
Montgomery	2/12	12/16		X
Hardin	2/13	12/10		X
Liberty	2/13	12/10		X
Chambers	1/31	12/28		X
Jefferson	1/31	12/28		X
Orange	1/31	12/28		X
Leon	2/16	12/10		X
Madison	2/16	12/10		X
Walker	2/16	12/10		X

Spring last freeze dates, most restrictive date within the team for 70% occurrence of 28 degrees F.
Based on NRCS county weather data

Fall first freeze dates, most restrictive date within the team for 70% occurrence of 28 degrees F.
Based on NRCS county weather data