512 Pasture and Hay Planting / 550 Range Planting

Guidance Document

Pacific Islands Area
October 2021

	Name	Cultivars	Zone	Elevation Range (ft)	Rainfall Range (in)	pH Range	Quality	Toxicity	Estimated Yield	Compatible Species	Planting Rate	HWRA Score	Notes	More Info
Grass	*Cenchrus ciliaris* Buffel grass	'T4464' 'Gayndah' 'Biloela' 'Nueces' 'Molopo'	Low - Med, Dry	0-1000' 0-1500' 0-3000'	12-35"	7–8	Young plants are more palatable than old. Buffel is generally less palatable than Megathyrsus maximus. CP: 6-16% IVDMD 50-60%	Has oxalates but rarely a problem.	Yields depend greatly on soil fertility and growing conditions. Annual yields in Hawaii are generally in the range of 1800-2500 lb/ac	Cenchrus ciliaris is a particularly aggressive grass, due to extensive root system competing with associated species for water and nutrients. Grasses: Heteropogon contortus, Chloris spp, Megathyrsus maximus. Legumes: Desmanthus virgatus, Leucaena leucocephala, Macroptilium atropurpureum, Stylosanthes scabra.	5 lb PLS/ac	19	Significant differences in performance among varieties at different elevations. Variety must be chosen carefully. Drought tolerant, fire adapted, moderately salt tolerant, fresh seed has high dormancy, up to 1 year.	https://www.feedipedia.org/node/482 https://www.tropicalforages.info/text/entities/cenchrus_ciliaris.htm https://scholarspace.manoa.hawaii.edu/bitstream/10125/53567/CtahrpsExtCirc380.pdf
Grass	*Cenchrus purpureus (sprigged)* Napier grass, Elephant grass		Low-Med, Moist-Wet	0-3000'	40-180"	4.5–8.2	Palatable to all classes of stock when in young and leafy stage. Livestock avoid stem in grazed areas. Even when harvested Napier grass is chopped for ease of feeding out, stock try to select leaf from the leaf-stem mixture. CP: 10-20% IVDMD 68-74%	Has oxalates but rarely a problem.	Yields depend on cultivar, soil fertility, moisture, temperature and management. DM yields of 1-4 t/ac/yr common. More frequent cuts (up to 45 days) give less dry matter, but better leaf production than infrequent cuts.	Competes vigorously with other species with adequate fertility and moisture. Grasses: Not sown with other grasses. Legumes: Normally not sown with legumes, but will grow with vigorous twining legumes such as Neonotonia wightii and Centrosema molle, or with Leucaena leucocephala.	50 cu. ft./ac	16	Seed generally not commercially available. Very tall grass with thick stems. Roots readily from nodes.	https://www.feedipedia.org/node/395 https://www.tropicalforages.info/text/entities/cenchrus_purpureus__hybrids.htm
Grass	*Chloris gayana* Rhodes grass		Low-Med,Dry-Moist	0-3000'	25-45"	5.5-7.5	Young growth is very palatable, but after the plants have seeded they are less attractive. CP: 3-17% IVDMD: 40-80%	No record of toxicity	DM yields generally range from about 2-5.5 t/ac, depending on variety, soil fertility, environmental conditions, and cutting frequency. Yields in the second year may be double those of the establishment year, depends on management and environmental conditions.	Grows well with temperate and tropical legumes, by virtue of its open stoloniferous ground cover. Grasses: Cenchrus ciliaris, lower growing Megathyrsus maximus cultivars (e.g. Petrie, Gatton), Setaria sphacelata. Legumes: Centrosema molle, Desmodium uncinatum, Leucaena leucocephala, Neonotonia wightii, Macroptilium atropurpureum, Stylosanthes guianensis, Trifolium repens.	5 lb PLS/ac	Not rated	Seed is very small, often coated to improve distribution.	https://www.feedipedia.org/node/480 https://www.tropicalforages.info/text/entities/chloris_gayana.htm
Grass	*Cynodon dactylon (seeded or sprigged)* Bermuda grass, Manienie	Giant Varieties 'NK-37'	Low-Med, Dry-Wet	0-3000'	20-170"	4.5–8.5	It is very palatable if kept short in growth and fertilized. Excellent grazing for geese, ducks, goats, sheep, cattle. CP: 3-20% IVDMD: 40-69%	No record of toxicity	Annual dry matter yields vary from about 2 t/ac in low input systems to 4-6 t/ac with good management.	particularly in fertile soils, and only aggressive legumes are capable of forming an association with it. Grasses: Generally not planted with other grasses. Legumes: Arachis glabrata, A. pintoi, Neonotonia wightii, Stylosanthesspp, Trifolium incarnatum repens, Vicia villosa.	5 lb PLS/ac or 50 cu. ft./ac or 1000-1500 lb sprigs/ac	22	Susceptible to armyworm, spittle bug, nematodes and rusts.	https://www.feedipedia.org/node/471 https://www.tropicalforages.info/text/entities/cynodon_dactylon.htm
Grass	*Cynodon nlemfuensis (sprigged)* Stargrass, Puerto Rican	'Florico'	Med, Moist	0-3000'	35-70"	4.5 - 8	Stargrass is most nutritious when grazed every 4–5 weeks. Under good management with about a 4-week rotation. Quality declines significantly when old, acceptability to cattle declines rapidly beyond about 5-week regrowth. CP: 6-16%, IVOMD: 55-60% Local reports (Hawaii), this species not palatable to horses.	Potential of prussic acid toxicity if fertilized. confirmed cases of prussic acid poisoning are not common.	Annual dry matter yields vary from about 2 t/ac in low input systems to 4-6 t/ac with good management.	Grows well with tropical legumes, by virtue of its open stoloniferous ground cover. Grasses: Cenchrus ciliaris, Megathyrsus maximus. Legumes: Centrosema molle, Desmodium spp, Leucaena leucocephala, Neonotonia wightii, Macroptilium atropurpureum, Stylosanthes spp, Trifolium repens.	50 cu. ft./ac or 1000-1500 lb sprigs/ac	Not rated	Recommended spacing for planted stolons is 3' x 3'. These grasses are mostly propagated using either sprigs (above-ground stems) or stolons (runners) at a minimum of 1 t/ha on less than a 1 m grid. Drought tolerant. No commercial seed available.	https://www.tropicalforages.info/text/entities/cynodon_spp.htm https://www.cabi.org/isc/datasheet/86155 https://www.ctahr.hawaii.edu/oc/freepubs/pdf/LM-6.pdf

IVOMD/IVDMD= "digestibility"

50 cu. ft = about 1 full size (5 ftx7 ft) pickup truck bed filled to the top of the bed

	Name	Cultivars	Zone	Elevation Range (ft)	Rainfall Range (in)	pH Range	Quality	Toxicity	Estimated Yield	Compatible Species	Planting Rate	HWRA Score	Notes	More Info
Grass	*Cynodon plectostachyus (sprigged)* Stargrass	'South Point'	Low-Med, Dry/Moist	0-3000'	20-60"	4.5 - 8	Stargrass is most nutritious when grazed every 4–5 weeks. Under good management with about a 4-week rotation. Quality declines significantly when old, acceptability to cattle declines rapidly beyond about 5-week regrowth. CP: 6-16%, IVOMD: 55-60% Local reports (Hawaii), this species not palatable to horses.	Potential of prussic acid toxicity if fertilized. confirmed cases of prussic acid poisoning are not common.	Annual dry matter yields vary from about 2 t/ac in low input systems to 4-6 t/ac with good management.	Compatiblity: These are very vigorous grasses that, unmanaged, can overgrow associated legumes. However, they are not very shade tolerant, and can be shaded out by taller grasses and trees. Companion: Usualy not planted with other grasses. Legumes: Arachis pintoi, Centrosema molle, Stylosanthes spp, Trifolium repens.	50 cu. ft./ac or 1000-1500 lb sprigs/ac	Not rated	It is drought tolerant and can also withstand temporary flooding. Good tolerance of salinity and alkaline soils. Competes well with other grasses and weeds. High tolerance of grazing and trampling by large herbivores.	https://www.tropicalforages.info/text/entities/cynodon_spp.htm https://www.feedipedia.org/node/468 https://www.ctahr.hawaii.edu/oc/freepubs/pdf/LM-6.pdf
Grass	*Dactylis glomerata* Orchard grass	Latar' late-maturing 'Paiute' (drought hardy) 'Potomac'	High, Moist	3000-7000'	40-100"	4.5 - 8.2	Highly palatable in vegetative stage. Declines once goes to seed. CP: 15-20% IVDMD: 52-78%	No record of toxicity	Orchard grass alone: 1-3 tons/ac/year. Grown with legumes: 3-5 tons/ac/year	Grows well with Cenchrus clandestinus, Bromus spp., Trifolium repens, Vicia spp, Lotus spp and Meliolotus spp.	10 lb PLS/ac 4-6 lb PLS/ac with a legume	18	Helps reduce bloat in bloat prone pastures. Thrives under rotational grazing with 4 inch stubble height. TLSB resistant	https://www.nrcs.usda.gov/Internet/FSE_PLANTMATERIALS/publications/mtpmctn11287.pdf https://plants.usda.gov/DocumentLibrary/factsheet/pdf/fs_dagl.pdf https://www.feedipedia.org/node/466
Grass	*Digitaria eriantha (sprigged)* Pangola grass, Digitgrass	Mealani' (high elevation) 'Pangola'	Med, Moist-Wet	20-3500' 60-70 dF Avg Ann Temp	50-120"	4.3 - 8.5	As with other grasses, nutritive value varies with age of material, soil fertility, and genotype. Most genotypes are very palatable, particularly when young and are preferred to common pangola. Palatability may not be as good in soils of low fertility. CP: 5-14% IVDMD 45-70%	No record of toxicity.	DM yields vary with fertility, genotype, and environmental and management conditions, but normally range from about 4.5 to 9 t/ac.	Grasses: Usually not planted with other grasses. Legumes: In the wet tropics, vigorous stoloniferous species such Arachis pintoi or Desmodium spp are successful with the pangola types. Trifolium repens and T. subterraneum are more appropriate companions for the sub-tropically adapted tufted types.	50 cu. ft./ac	Not rated	Tolerates short-duration heavy grazing by cattle and sheep. Pangola types must be planted vegetatively. Limited cool season growth in pangola types. Susceptible to Two Lined Spittle Bug.	https://www.tropicalforages.info/text/entities/digitaria_eriantha.htm https://www.feedipedia.org/node/461 https://www.ctahr.hawaii.edu/oc/freepubs/pdf/LM-4.pdf
Grass	*Hemarthria altissima* Limpograss	'Big Alta' 'Greenalta' 'Redalta'	Med, Wet	20-3000' 60-80 dF Avg Ann Temp	60-200"	5.5 - 6.5	Palatability varies. It is highly palatable and is valued as a fodder grass. 'Floralta' and 'Bigalta' are both more palatable than 'Redalta' and 'Greenalta', and 'Bigalta' is more palatable than 'Floralta'. CP: 3-7% IVDMD: 40-70%	No toxicity reported.	Dry matter yields range between 5 and 11 tons/ac/year. Dry-matter yields can be increased by increasing harvest interval and nitrogen fertilization. 'Floralta' is higher yielding than 'Bigalta' or 'Redalta'.	There may be issues with compatibility with some species because there is evidence of allelopathic properties due to root exudates. Grasses: Normally not planted with other grasses. Legumes: Lotus uliginosus (pedunculatus), Trifolium repens, Vigna parkeri.	50 cu. ft./ac or 1 ton sprigs/ac	Not rated	It is not a good seed producer. Seed generally not commercially available. Tolerates low pH (down to 5.5) and water logging. Does not tolerate prolonged dry periods. 6" stubble height, graze at 12-18 in.	https://www.tropicalforages.info/text/entities/hemarthria_altissima.htm
Grass	*Ischaemum polystachyum (sprigged)* Baron Goto grass		Low-Med, Wet	20-2500'	100-200"	No info	CP: 14.3%, CF:17.35%	No toxicity reported.	1500 lb/ac	Brachiaria mutica, Vigna spp, other long trailing legumes adapted to wet environments	50 cu. ft./ac	20	Little data available on forage quality and yield. Grass has aggressive nature and will climb trees. TLSB resistant	https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.680.7371&rep=rep1&type=pdf
Grass	*Lolium perenne* Perennial ryegrass	'Linn' Tetraploid varieties	Med-High, Moist	1500-7000' 65-87dF Avg Ann Temp	40-100"	6 - 7.0	Perennial ryegrass is a palatable and nutritious forage for all classes of livestock and most wild ruminants. Older plants can become tough and unpalatable, especially during hot dry weather. CP: 9.1-18% IVDMD: 71-88%	Ryegrass staggers' caused by an endophyte that may infect this grass.	Perennial ryegrass yields from pure stands grown in western Washington average from 4-5 tons per acre	Grows well with Cenchrus clandestinus, Dactylis glomerata, Bromus spp., Trifolium repens, Vicia spp, Lotus spp and Meliolotus spp.	In mixtures: 5-10 lb PLS/ac In pure stands: 20 lbs PLS/ac	15	Graze at 8-10 in, Stubble height: 2". Recommended only in mixes due to possible to keep toxin levels low.	https://www.fs.fed.us/database/feis/plants/graminoid/lolperp/all.html https://www.perennia.ca/wp-content/uploads/2018/04/forage-grasses-perennial-ryegrass.pdf

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Grass	*Lolium multiflorum* Italian or Annual ryegrass	Endophyte-free varieties	Med-High, Moist	2000-5000'	50-120"	5.0 - 7.8	Very palatable and high quality forage. CP: 5.8-15% TDN: 58-60%	Annual ryegrass toxicosis may occur but rare.	2000-6000 lb/ac/yr	Compatible with Dactylis glomerata, Trifolium repens, Holcus lantanus, Bromus spp, Lotus spp.	30-35 lb PLS/ac alone 20-25 lb PLS/ac in mix	9	2-3 in stubble height, min 3 week regrowth. Vigorous seedlings.	https://ir.library.oregonstate.edu/downloads/mg74qm32g https://extension.psu.edu/ryegrass
Grass	*Megathyrsus maximus* Guinea grass, Green panicgrass	'Petrie' 'Gatton Panic' 'Blue or Green Panic'	Low-Med, Dry-Moist	0-2500'	20-180"	5 - 7.0	M. maximus is well eaten by all classes of grazing livestock, with particularly high intakes of young leafy growth. Old growth quickly loses quality and can be difficult to manage. CP: 6-25% IVDMD: 50-64%	Some oxalates may be present. Mineral supplementation important.	Commonly 10-15 t/ac DM, depending on variety and growing conditions.	Combines well with twining or shrubby legumes under proper grazing. Companion species Grasses: Chloris gayana, Legumes: Centrosema molle, Macroptilium atropurpureum, Neonotonia wighti, Stylosanthes spp, Leucaena leucocephala.	5 lb PLS/ac	17	Shade tolerant, but can decrease production. Does not tolerate water logging. Short varieties ("panic" grasses) more drought tolerant. TLSB resistant.	https://www.feedipedia.org/node/416 https://www.tropicalforages.info/text/entities/megathyrsus_maximus.htm
Grass	*Paspalum notatum* Bahia grass	Tifton 9 or UF Riata preferred. Argentine or Pensacola also acceptable.	Low-Med, Moist-Wet	20-1700'	50-120"	5.5–6.5	Palatability varies with age, genotype and soil fertility. Although young growth is readily eaten, the species generally, and 'Pensacola' in particular, are increasingly poorly eaten with age. It is essential to maintain grazing pressure to avoid this decline in palatability. Nitrogen fertilization of 'Pensacola' has a beneficial effect on intake. CP: 5-20% IVDMD: 50-70%	No toxicity reported.	Annual dry matter yields are mostly between 1 and 4 t/ha.	Once established, bahia grass is a very competitive species, particularly in situations where it is regularly defoliated. It tends to develop into near monospecific swards, with few legumes or other grasses. Legumes: Arachis glabrata Arachis pintoi, Trifolium repens, Vigna parkeri	UF Riata 15-20 lb PLS/ac Pensacola, Argentine, Tif-9 20-30 lb PLS/ac	16		https://www.feedipedia.org/node/402 https://www.tropicalforages.info/text/entities/paspalum_notatum.htm
Grass	*Stenotaphrum secundatum (sprigged)* St. Augustine grass or Buffalo grass		Low-Med, Moist	0-3000'	40-80"	6.0 - 8.5	Important to graze frequently. As with other tropical grasses, quality declines rapidly with age of regrowth. CP: IVDMD: 50-60% with N concentrations dropping from 2.7% to 1.0%, crude protein digestibility from 53% to 31%, and dry matter digestibility from 60% to 50%.	No toxicity reported.	DM yields vary considerably, probably reflecting differences in fertilizer use and growing conditions in general. DM yields of the order of 2.2t/ac/yr DM are common.	Once established, very competitive, suppressing weeds. Can grow with twining stoloniferous and rhizomatous legumes. Companion species Grasses: Rarely found with other grasses. Legumes: Macroptilium atropurpureum, Desmodium spp., or hedgerows of Leucaena leucocephala or Gliricidia sepium.	50 cu. ft./ac	15	Seeds generally not commercially available. Shade and salt tolerant. Popular in tropical silvopasture under coconuts, papaya, etc.	https://www.feedipedia.org/node/369 https://www.tropicalforages.info/text/entities/stenotaphrum_spp.htm
Grass	*Urochloa decumbens* *Urochloa brizantha* *Urochloa spp hybrids* Signal grass	'Mulato' 'Mulato II' 'Marandu'	Low-Med, Moist-Wet	0-2200'	50-180"	4–8	Palatability/acceptability Well accepted by grazing stock. U. brizantha considered to be slightly more palatable than U. decumbens. Nutritive value is dependent on the basic fertility of the soil, fertilizer application and age of regrowth. CP: 7-16% IVDMD 51-75%	Some reports of photosensitization in sheep, goats and young cattle. None reported on Marandu.	DM yields range from 4 to 10 t/ac/yr depending on ecotype, growing conditions, and management.	Under light grazing, many twining legumes will persist in the sward Grasses: Urochloa hybrids, U. decumbens, Legumes: Arachis spp., Centrosema molle, D. intortum, Leucaena leucocephala, Stylosanthes spp.	8 lb PLS/ac	not rated	Seeds have a 6 month dormancy after harvest. Does not tolerate water logging. Moderately shade tolerant. TLSB resistant.	https://www.feedipedia.org/node/490 https://www.tropicalforages.info/text/entities/urochloa_brizantha.htm https://www.tropicalforages.info/text/entities/urochloa_decumbens.htm

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Grass	*Urochloa mutica (sprigged)* California grass, Para grass		Low-Med, Wet	0-2500'	80-200"	4–8	CP: 7-10%, IVOMD: avg 56%	Some oxalates may be present, may cause big-head. Mineral supplementation important.	Drymatter yields range from 2.5-7 tons/ac/yr	Not many grasses can compete with U. mutica. Can mix with twining legumes such as Centrosema molle, Neonotonia wightii or Desmodium intortum or Vigna parkeri	50 cu. ft./ac or 3,000 t stems/ac	12	Seeds generally not commercially available. Well suited to high rainfall or waterlogged environments. Very sensitive to overgrazing, Graze at 18-28 in tall, stubble height: 10-12 in. TLSB resistant.	https://www.tropicalforages.info/text/entities/urochloa_arrecta__u._mutica.htm https://www.feedipedia.org/node/486
Legume	*Desmodium incanum* Spanish clover, Kaimi clover		Med, Moist	0-3000'	40-120"	4 - 8.5	For whole plant material (vegetative stage) high CP concentration (23.5%) and very low IVOMD (36.1%) have been reported; low digestibility probably due to high tannin concentration (0.4–5.9%).	No toxicity reported.	Varies depending on pasture composition. Innoculate with *Rhizobium sp* (Cowpea)	Compatibility (with other species) Competes well with stoloniferous or rhizomatous grasses under heavy grazing. Companion species Grasses: Cenchrus clandestinus, Urochloa mutica, Paspalum dilatatum, P. notatum	5 lb PLS/ac	not rated.	Difficult to procure seeds commercially. Intolerant of continuous heavy grazing. Seed spread by cattle. Good cold tolerance and shade tolerance. Low harvestable production.	https://www.tropicalforages.info/text/entities/desmodium_incanum.htm
Legume	*Desmodium intortum* Greenleaf desmodium	'Green-leaf' 'Kuiaha'	Med, Moist	0-3000'	60-120"	5 - 7.0	D. intortum is very palatable and tends to be heavily grazed but it cannot withstand constant heavy grazing or frequent defoliation. Tannins may be beneficial for bypass protein and have anthelmintic effects: the prolonged feeding of goats with greenleaf desmodium resulted in the lowest total worm burden. CP: 12-21% DM IVDMD: 52.5 to 56.6%	Has tannins. 10-12% DM No toxicity recorded and no bloat.	Varies depending on pasture composition. Innoculate with *Rhizobium sp* (Cowpea)	Combines with bunch and sod-forming grasses. Companion species Grasses: Cenchrus clandestinus, Urochloa mutica, Paspalum dilatatum, P. notatum	5 lb PLS/ac	not rated.	Difficult to procure seeds commercially. Oversowing seed into established pasture is not reliable because of slow seedling growth. Moderately shade tolerant. Poor persistence under heavy grazing. Poor tolerance of drought and salinity.	https://www.tropicalforages.info/text/entities/desmodium_intortum.htm https://www.feedipedia.org/node/303
	Leucaena leucocephala subsp. Glabrata Haole koa or Koa haole	Leuceana hybrids, KX2, KX3, KX4, Tarramba, Wonder-graze	Low-Med, Dry-Moist	0-2500'	30-100"	5.5-8.0	Very palatable, CP: 23-30%, IVOMD: avg 75%	Has mimosine that will cause hairloss in horses.	Varies depending on pasture composition. Innoculate with *Rhizobium sp* (Coronilla, Petalosemon-Onobrychis)	Companion species Grasses: Cenchrus ciliaris, Chloris gayana, Megathyrysus maximus, Cynodon spp, Urochloa decumbens, Paspalum dilatatum, P. notatum	5 lb PLS/ac or in rows	3	Scarify (mechanical) and inoculate seed with correct rhizobium (Leucaena/desmanthus strain). Usually grown in single rows (or double rows 27-35 in apart), with 12-30 ft between rows. Wider spacing for drier areas. Competition must be well controlled during establishment.	https://keys.lucidcentral.org/keys/v3/pastures/Html/Leucaena.htm https://www.tropicalforages.info/text/entities/leucaena_leucocephala.htm
	Lotus uliginosus Big trefoil	'Grass-lands Maku'	Med-High, Moist	1000-6000' 50-77 dF	50-100"	5.5-9	Very palatable when mixed with grass. CP: 20-28%, IVOMD 65-75%	Has tannins, 3-11% DM. No toxicity recorded and no bloat.	2-4 tons/ac, varies depends on pasture composition. Innoculate with *Rhizobium sp* (Lotus)	Companion species Grasses: Cenchrus clandestinus, Dactylis glomerata, Digitaria eriantha, Lolium spp., Paspalum dilatatum.	5 lb PLS/ac	Not rated.	Moderate shade tolerance. Withstands waterlogging. Seedlings grow slow so can take up to 1-2 years to establish.	https://www.tropicalforages.info/text/entities/lotus_uliginosus.htm https://www.ctahr.hawaii.edu/oc/freepubs/pdf/B-093.pdf https://core.ac.uk/download/pdf/211321796.pdf

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Legume	*Stylosanthes scabra* Shrubby stylo	'Seca'	Low, Dry-Moist	0-3000'	25-80"	No info	Nutritive value declines with age. Generally low palatability, the grass being grazed preferentially in the early part of the growing season. CP: 10-20%, IVDMD: 50-70%	none	Dry-matter yields on poor soils in a low rainfall area may be less than 1000 lb/ac, but up to 4 ton/ac under more ideal conditions. Innoculate with *Rhizobium sp* (CB82)	Once established, S. scabra can persist with many of the grasses that grow in the same environment. Grasses: Bothriochloa bladhii, Cenchrus ciliaris, Heteropogon contortus, Megathyrsus maximum Legumes: Aeschynomene americana, Chamaecrista rotundifolia, Listia bainesii, Stylosanthes hamata, S. guianensis var. intermedia.	2-3 lb PLS/ac	1	Seeds survive digestion and germinate from cow dung. Deep taproot, drought tolerant. Not suited to heavy clays. Seedling growth is slow, takes about 6 months to mature. Freshly harvested seed dormant, broken by heat exposure on soil surfaces.	https://www.tropicalforages.info/text/entities/stylosanthes_scabra.htm
Legume	*Trifolium repens* White clover, Dutch clover, Ladino clove	'Haifa' 'Grass-lands Huia'	Med-High, Moist-Wet	1500-7000' 40-70dF Avg Ann Temp	35-80"	Above 5.5	Highly palatable. The inclusion of white clover in mixed pasture (grass and legume) increases the feeding value of the pasture due to the high protein and OM digestibility of white clover. CP: 18-26%, IVDMD: 74-84%	Can cause bloat. Use only in grass mixes, 20-50% clover.	Varies depending on pasture composition. Innoculate with *Rhizobium trifolii*	White clover generally found in mixture with temperate or tropical grasses, such as brome grass, cocksfoot (Dactylis glomerata), tall fescue, dallis grass (Paspalum dilatatum), bermuda grass (Cynodon dactylon), Paspalum spp. or kikuyu (Pennisetum clandestinum)	0.5-3 lb PLS/ac in pasture mixtures	not rated	When inter-planting into existing grass pastures, grass competition is a major problem so limit nitrogen fertilizer use, and use grazing or mowing to reduce grass shading on the clover seedlings.	http://www.fao.org/3/v2350e/v2350e0d.htm https://www.feedipedia.org/node/245
Legume	*Vicia sativa* *Vicia villosa* Vetch (common) Woolypod vetch		Med-High, Moist	1500-4000'	40-80"	6 - 7.0	Vetch provides high quality forage in pasture mixes (maintain at 10% vetch or less). Nutrititive value decreases with age. CP: 24% IVDMD: 69-74%	Toxins present in the seed. Bloat is also a risk.	Varies depending on pasture composition. Innoculate with *Rhizobium leguminosarum* (Pea/Vetch)	Does well with other grasses suited to its environment. Grasses: Digitaria eriantha, Dactylis glomerata, Lolium multiflorum, Cenchrus clandestinus. Legumes: Trifolium repens, Meliolotus spp, Lotus spp.	4-8 lb PLS/ac	16	Sow in Fall. Hard-seeded, scarification will improve germination.	https://www.tropicalforages.info/text/entities/vicia_villosa_subsp._varia.htm https://www.feedipedia.org/node/239 http://extension.msstate.edu/content/common-vetch-vicia-sativa

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Species by Zone

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