DRAFT - FY2023 Alabama CSP Enhancement Reference Guide
Version: 01/31/2023

Code	Crop (Annual)	Crop (Perennial)	Pasture	Forest	Associated Ag Land	Farmstead	Full Enhancement Name	Enhancement Description	Lifespan	Eligible Contracted Years	State Supplement	Notes	Rate
E314A			X	X	X		Brush management to improve wildlife habitat	Brush management is employed to create a desired plant community, consistent with the related ecological site steady state, which will maintain or enhance the wildlife habitat desired for the identified wildlife species. It will be designed to provide plant structure, density and diversity needed to meet those habitat objectives. This enhancement does not apply to removal of woody vegetation by prescribed fire or removal of woody vegetation to facilitate a land use change.	10	5	Y	*Remove Invasive shrubby species from encroaching edges.	$18.61
E315A			X	X	X		Herbaceous weed treatment to create desired plant communities consistent with the ecological site	Mechanical, chemical, or biological, herbaceous weed treatment will be used to control targeted, herbaceous weeds to create, release, or restore desired plant communities that are consistent with achievable, ecological site, steady state descriptions.	5	5	Y	*Remove Invasive herbaceous species from 100% of the impacted area.	$13.97
E327A	X	X		X	X	X	Conservation cover for pollinators and beneficial insects	Seed or plug nectar and pollen producing plants in non-cropped areas such as field borders, vegetative barriers, contour buffer strips, grassed waterways, shelterbelts, hedgerows, windbreaks, conservation cover, and riparian forest and herbaceous buffers.	5	1	Y	*Site prep and plant 1.25% of tract acres. *Plant minimum 9 species from list.	$506.11
E327B	X	X			X	X	Establish Monarch butterfly habitat	Seed or plug milkweed (Asclepias spp.), and high-value monarch butterfly nectar plants on marginal cropland, field borders, contour buffer strips, and similar areas.	5	1	Y	*Site prep and plant 1.25% of tract acres. *Plant based on monarch list and seed calculator.	$824.53
E328C	X						Conservation crop rotation on recently converted CRP grass/legume cover	Implement a crop rotation management system on crop land acres that have recently converted from CRP grass/legume conservation cover to annual planted crops. Crop rotation minimizes disturbance resulting in a Soil Tillage Intensity Rating (STIR) less than 10 and reduces soil erosion from water and wind to below soil tolerance (T) level. The current NRCS wind and water erosion prediction technologies must be used to document the rotation, soil erosion estimate, and STIR calculations. *This enhancement is limited to acres where the conversion event took place not more than 2 years prior. Enhancement not applicable on hayland.	1	5		*Crop rotation on recently expired CRP grass	$3.32
E328D	X						Leave standing grain crops unharvested to benefit wildlife	Implement a crop rotation which allows a portion of grain crops to be left in fields un-harvested to provide food and cover for wildlife during winter months.	1	5		*Leaving unharvested corn, grain sorghum, soybean or sunflower	$3.91
E328E	X						Soil health crop rotation	Implement a crop rotation which addresses all four principle components of soil health: increases diversity of the cropping system; maintains residue throughout the year; keeps a living root; and minimizes soil chemical, physical and biological disturbance. The rotation will include at least 4 different crop and/or cover crop types (crop types include cool season grass, warm season grass, cool season broadleaf, warm season broadleaf) grown in a sequence that will produce a positive trend in the Organic Matter (OM) sub factor value over the life of the rotation, as determined by the Soil Conditioning Index (SCI). The current NRCS wind and water erosion prediction technologies must be used to document the rotation and SCI calculations.	1	5	Y	*High residue crop rotation with cover crop and four different crop types	$5.54
E328F	X						Modifications to improve soil health and increase soil organic matter	Use of soil health assessment to evaluate impact of current conservation crop rotation in addressing soil organic matter depletion (primary assessment made in Year 1). Modifications to the crop rotation and/or crop management will be made as a result of the assessment results (adding a new crop and/or cover crop to the rotation; making changes to planting and/or tillage system, harvest timing of crops, or termination timing of cover crops). During Year 3 a follow up assessment will be completed to allow time for the modifications to show increased soil organic matter. Modified system must produce a positive trend in the Organic Matter (OM) sub factor value over the life of the rotation, as determined by the Soil Conditioning Index (SCI). The current NRCS wind and water erosion prediction technologies must be used to document the rotation and SCI calculations.	1	5		*Four crops in rotation *Use Haney test (or similar) years 1 and 3	$2.43
E328G	X						Crop rotation on recently converted CRP grass/legume cover for soil organic matter improvement	Crop rotation on acres converted, no more than 2 years prior, from CRP grass/legume cover to annual crops. Diverse rotation with living roots and residue cover throughout year and minimal disturbance. Enhancement not applicable on hayland.	1	5		*Crop rotation on recently expired CRP grass *Four crops in rotation, high residue with cover crops	$5.54
E328I	X	X					Forage harvest to reduce water quality impacts by utilization of excess soil nutrients	Establish a forage crop (single species or mix) following a primary annual crop to take up excess soil nutrients. Select forage known to effectively utilize and scavenge nutrients. Forage shall be harvested for forage, but not be grazed or burned.	1	1		*Using cover crops or grass based rotation harvested for hay to remove excess phosphorus	$5.22
E328J	X						Improved crop rotation to provide benefits to pollinators	Improve the existing crop rotation by adding pollinator friendly crops into the rotation. The crop rotation shall include a minimum of three different crops in a minimum five year crop rotation. Each year, the pollinator friendly crop will be planted on a minimum of 5% of cropland acres contained within the agricultural operation. Use of insecticides is limited for the pollinator friendly crop.	1	5	Y	*Adding a pollinator friendly crop to the rotation, i.e. sunflower	$88.65
E328K	X						Multiple crop types to benefit wildlife	Alternating crops in a systematic arrangement of strips across a field to provide diverse rotations of crops that provide wildlife food. At least two crops will be planted in adjacent strips a minimum of 0.5 acres in size.	1	5	Y	*Planting grain crops in alternating strips	$5.54
E328L	X						Leaving tall crop residue for wildlife	Fields may be harvested but must leave crop residue standing a minimum of 14 inches. Residue will be left through winter and into spring, providing valuable winter cover and forage for wildlife spanning late summer and through the following winter.	1	5		*Leave 14 inch minimum stubble height overwinter through March 15	$11.08

E328M	X						Diversify crop rotation with canola or sunflower to provide benefit to pollinators	Add canola or sunflower to existing crop rotation on minimum of 5% of cropland acres each year. No systemic pesticides allowed. Only pesticide application on canola or sunflower during pre-bloom and bloom following integrated pest management and industry best management practices.	1	5		*Plant at least one year of canola or sunflower in a three year rotation	$11.08
E328N	X						Intercropping to improve soil health	This enhancement involves the use of intercropping principles (i.e., growing two or more crops in close proximity to each other during part or all of their life cycles) to promote interactions that improve soil health, plant health, reduce inputs via increased biodiversity and contribute to pest management. This enhancement cannot be used for annual hay or silage crops. It is for grain/seed/vegetable production only.	1	5		*Typically for small vegetable farmers or organic	$5.54
E328P	X						Low Nitrogen Requirement Annual Crop Rotation	Design a planned annual crop rotation which requires less average annual nitrogen fertilizer than the current (benchmark) crop rotation. This is accomplished by replacing high N-requirement annual crops with low N-requirement annual crops. Examples include replacing high N-requirement small grain crops such as spring wheat, with low N-requirement small grain crops (oats or malt barley) or annual legumes. The crop rotation will reduce fertilizer N application, decrease the potential for nitrates to leach to groundwater, maintain soil organic matter, and slow the effects of soil acidification.	1	5	Y		$27.69
E329A	X						No till to reduce soil erosion	Establish no till system to reduce sheet and rill and wind erosion soil loss. Field(s) must have a soil loss at or below the soil tolerance (T) level for water and wind erosion for the crop rotation and a Soil Tillage Intensity Rating (STIR) of no greater than 10 for each crop in the planned rotation. The current NRCS wind and water erosion prediction technologies must be used to calculate soil loss and STIR.	1	5		*The various ones just change which resource concern they are affecting	$3.32
E329B	X						No till to reduce tillage induced particulate matter	Establish no till system to reduce tillage induced particulate matter. Field(s) must have a soil loss at or below the soil tolerance (T) level for the crop rotation and a Soil Tillage Intensity Rating (STIR) of no greater than 10 for each crop in the planned rotation. The current NRCS wind and water erosion prediction technologies must be used to document soil loss and STIR calculations.	1	5		*The various ones just change which resource concern they are affecting	$3.32
E329C	X						No till to increase plant-available moisture	Establish a no till system to increase plant-available moisture. Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 20. The current NRCS wind and water erosion prediction technologies must be used to document STIR calculations. Maintain a minimum 60 percent surface residue cover throughout the year to reduce evaporation from the soil surface.	1	5		*The various ones just change which resource concern they are affecting	$3.32
E329D	X						No till system to increase soil health and soil organic matter content	Establish a no till system to increase soil health and soil organic matter content. Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 20. The crop rotation must achieve a soil conditioning index (SCI) of zero or higher. The current NRCS wind and water erosion prediction technologies must be used to document STIR and SCI calculations. Residue shall not be burned, grazed, or harvested.	1	5		*The various ones just change which resource concern they are affecting	$4.43
E329E	X						No till to reduce energy	Establish a no till system which reduces total energy consumption associated with field operations by at least 25% compared to current tillage system (benchmark). Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 20. The current NRCS wind and water erosion prediction technologies must be used to document STIR calculations and energy consumption.	1	5		*The various ones just change which resource concern they are affecting	$4.43
E338A			X	X			Strategically planned, patch burning for grazing distribution and wildlife habitat	Patch burn grazing is the application of prescribed fires on portions of an identified grazing unit at different times of the year. Patch burn grazing allows grazing animals to select where they want to graze creating a mosaic of vegetation structures and diversity that will maintain or enhance the wildlife habitat desired for the identified wildlife species and maintain livestock production.	1	5	Y	*Patch burning native grasses in pasture or silvopasture	$7.41
E338B				X			Short-interval burns to promote a healthy herbaceous plant community	The controlled use of fire is applied in a forest to restore fire-adapted plants while improving wildlife habitat, wildlife food supply, and reducing the risk of damage from intense, severe wildfires. The ideal interval between prescribed burns is not often achieved. To improve the effectiveness of prescribed burning, the frequency of prescribed burning is increased appropriately, for a specified time period, to help restore ecological conditions in forests and woodlands. Short return interval prescribed burning is used to regenerate desirable tree species, improve the condition of fire-adapted plants and native herbaceous vegetation, improve wildlife food supply, create wildlife habitat (snags and den/cavity trees), limit encroachment of competing vegetation including non-native species, and reduce the future risk of damage from intense, severe wildfires.	1	1	Y	*2 burns per 5 years, Burn in years 2 and 4, or 3 and 5.	$101.90
E338C				X			Sequential patch burning	Conduct prescribed burning beneath a forest canopy (ground fire), burning a portion of the area each year to create a mosaic of vegetation in several stages of development, to provide a more diverse understory and contribute to wildlife habitat. The health of conifer and oak-conifer forests, particularly longleaf pine with a characteristic herbaceous understory, is dependent on fire or another means of controlling encroaching woody vegetation. A healthy longleaf or shortleaf pine, or pine-oak forest, can support a wide array of wildlife including pollinators and several endangered or threatened species.	1	1	Y	*Break into 3 burn blocks. *Burn one block each year consecutively.	$172.23

E340A	X	X					Cover crop to reduce soil erosion	Cover crop added to current crop rotation to reduce soil erosion from water and wind to below soil tolerance (T) level. Cover crops grown during critical erosion period(s). Species are selected that will have physical characteristics to provide adequate erosion protection.	1	5	Y	*One small grain	$9.62
E340B	X						Intensive cover cropping to increase soil health and soil organic matter content	Implementation of cover crop mix to provide soil coverage during ALL non-crop production periods in an annual crop rotation. Cover crop shall not be harvested or burned. Planned crop rotation including cover crops and associated management activities must achieve a soil conditioning index (SCI) of zero or higher. The current NRCS wind and water erosion prediction technologies must be used to document SCI calculations.	1	5	Y	*Three species mix	$17.08
E340C	X	X					Use of multi-species cover crops to improve soil health and increase soil organic matter	Implement a multi-species cover crop to add diversity and increase biomass production to improve soil health and increase soil organic matter. Cover crop mix must include a minimum of 4 different species. The cover crop mix will increase diversity of the crop rotation by including crop types currently missing, e.g. Cool Season Grass (CSG), Cool Season Broadleaves (CSB), Warm Season Grasses (WSG), Warm Season Broadleaves (WSB).	1	5	Y	*Four species mix	$15.21
E340D		X					Intensive orchard/vineyard floor cover cropping to increase soil health	Implement orchard or vineyard floor cover crops. Cover crop shall not be harvested, grazed, or burned. Must achieve a soil conditioning index of zero or higher and produce a positive trend in the Organic Matter subfactor over the life of the rotation.	1	5	Y	*Orchards only, two species mix	$15.21
E340E	X						Use of soil health assessment to assist with development of cover crop mix to improve soil health	Soil health assessment (year 1) to evaluate current crop rotation in addressing soil organic matter depletion. Results are utilized to select a multi-species cover crop mix to add to the current crop rotation. Follow up assessment completed (year 3).	1	5	Y	*Minimum four species mix and soil health assessment such as Haney test	$4.20
E340F	X	X					Cover crop to minimize soil compaction	Establish a cover crop mix that includes plants with both fibrous root and deep rooted systems. Fibrous to treat and prevent both near surface (0-4") and deep (>4") soil compaction and deep rooted to break up deep compacted soils. Cover crop shall not be harvested, grazed, or burned.	1	5	Y	*Minimum two species mix, small grain and brassica	$14.76
E340G	X	X					Cover crop to reduce water quality degradation by utilizing excess soil nutrients	Establish a cover crop mix to take up excess soil nutrients. Select cover crop species for their ability to effectively utilize nutrients. Terminate the cover crop as late as practical to maximize plant biomass production and nutrient uptake. Cover crop shall not be harvested, grazed, or burned.	1	5	Y	*Single species or two species mix, small grain or small grain and brassica	$14.76
E340H	X	X					Cover crop to suppress excessive weed pressures and break pest cycles	Establish a cover crop mix to suppress excessive weed pressures and break pest cycles. Select cover crop species for their life cycles, growth habits, and other biological, chemical and/or physical characteristics. Select cover crop species that do not harbor pests or diseases of subsequent crops in the rotation. Cover crop shall not be harvested, grazed, or burned.	1	5	Y	*Single species or mix, but must include a small grain and rye is recommended *Should be rolled *Very effective for palmer amaranth control when combined with herbicide program	$15.21
E340I	X						Using cover crops for biological strip till	Establish alternating strips of cover crops in which one strip acts as a biological strip-tiller and the adjacent strip promotes soil health with high residue cover crops. This will facilitate planting of the subsequent cash crop into the biologically strip-tilled row without the need for mechanical disturbance.	1	5	Y	*Planting strips of daikon radish over the row with small grain or legume between rows *Difficult to implement	$16.57
E345A	X						Reduced tillage to reduce soil erosion	Establish a reduced tillage system to reduce soil loss. Field(s) must have a soil loss at or below the soil tolerance (T) level for water and wind erosion for the crop rotation and a Soil Tillage Intensity Rating (STIR) of no greater than 40 for each crop in the planned rotation. The current NRCS wind and water erosion prediction technologies must be used to calculate soil loss and STIR.	1	5		*Strip till/minimum till *The various ones just change which resource concern they are affecting	$4.43
E345B	X						Reduced tillage to reduce tillage induced particulate matter	Establish a reduced tillage system to reduce tillage induced particulate matter. Field(s) must have a soil loss at or below the soil tolerance (T) level for the crop rotation and a Soil Tillage Intensity Rating (STIR) of no greater than 40 for each crop in the planned rotation. The current NRCS wind and water erosion prediction technologies must be used to document soil loss and STIR calculations.	1	5		*Strip till/minimum till *The various ones just change which resource concern they are affecting	$3.32
E345C	X						Reduced tillage to increase plant-available moisture	Establish a reduced till system to increase plant-available moisture. Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 80. The current NRCS wind and water erosion prediction technologies must be used to document STIR calculations. Maintain a minimum 60 percent surface residue cover throughout the year to reduce evaporation from the soil surface.	1	5		*Strip till/minimum till *The various ones just change which resource concern they are affecting	$3.32
E345D	X						Reduced tillage to increase soil health and soil organic matter content	Establish a reduced till system to increase soil health and soil organic matter content. Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 80. The crop rotation must achieve a soil conditioning index (SCI) of zero or higher and produce a positive trend in the Organic Matter (OM) subfactor over the life of the crop rotation. The current NRCS wind and water erosion prediction technologies must be used to document STIR and SCI calculations. Residue shall not be burned, grazed, or harvested.	1	5		*Strip till/minimum till *The various ones just change which resource concern they are affecting	$4.43
E345E	X						Reduced tillage to reduce energy use	Establish a reduced tillage system which reduces total energy consumption associated with field operations by at least 25% compared to conventional tillage systems (benchmark). Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 80. The current NRCS wind and water erosion prediction technologies must be used to document STIR calculations and energy consumption.	1	5		*Strip till/minimum till *The various ones just change which resource concern they are affecting	$3.32
E381A			X	X	X		Silvopasture to improve wildlife habitat	Establishing a combination of trees or shrubs and compatible forages on the same acreage, providing forage, shade, and/or shelter for livestock and including a purpose of enhancing wildlife habitat.	15	1		*Establish trees in existing pasture or grass in existing heavily thinned pines	$82.68

E382A			X	X	X		Incorporating "wildlife friendly" fencing for connectivity of wildlife food resources	Retrofitting or constructing fences that provide a means to control movement of animals, people, and vehicles, but minimizes wildlife movement impacts.	20	1	Y	*Applicable for woven-wire fences or other fences with bottom strand less than 12 inches above ground	$0.18
E382B			X				Installing electrical fence offsets and wire to facilitate cross-fencing for improved grazing management	Retrofitting conventional fences such as barb wire, with new electrical offsets and electrical wire to facilitate cross-fencing for improved grazing management.	20	1	Y	*Applicable for non-electrified existing cross fences to attach single wire offsets with electric wire. Polywire can then be used to further subdivide pastures.	$0.52
E383A				X			Grazing-maintained fuel break to reduce the risk of fire	The area has existing fuel break(s) of 30 to 60 feet in width, supporting a mixture of woody sprouts and some herbaceous vegetation. Warm-season perennial vegetation will be established on the fuel breaks, and will be over-seeded with cool-season annual forages in the fall. Grazing will be managed on the fuel breaks to remove or modify the fine fuel vegetation, thus reducing the risk of fire spread from ground fires. Ground cover will be maintained to control soil erosion and facilitate prescribed burning.	10	1		*Establish fuel break and maintain with grazing.	$299.79
E386A	X	X			X		Enhanced field borders to reduce soil erosion along the edge(s) of a field	Enhance existing field borders to a width of at least 30 feet and establish a single species or mixture of species that provide a dense ground cover along the edge(s) of the field.	10	1	Y	*Enhance existing field borders to a width of at least 30 feet using fescue, bermuda, or bahia	$617.73
E386B	X	X			X		Enhanced field borders to increase carbon storage along the edge(s) of the field	Enhance existing field borders to a width of at least 30 feet and establish a single species or mixture of species that provide a dense ground cover and dense rooting system along the edge(s) of the field.	10	1	Y	*Enhance existing field borders to a width of at least 30 feet using a mix of two native warm season grasses	$705.68
E386C	X	X			X		Enhanced field borders to decrease particulate emissions along the edge(s) of the field	Enhance existing field borders to a width of at least 40 feet and establish a mixture of species that decrease the particulate emissions along the edge(s) of the field.	10	1	Y	*Enhance existing field borders to a width of at least 40 feet using a mix of two native warm season grasses	$637.21
E386D	X	X			X		Enhanced field borders to increase food for pollinators along the edge(s) of a field	Enhance existing field borders to a width of at least 40 feet and establish a mixture of species that provide food for pollinators along the edge(s) of the field.	10	1	Y	*Enhance existing field borders to a width of at least 40 feet using a mix of pollinators and native grasses	$705.68
E386E	X	X			X		Enhanced field borders to increase wildlife food and habitat along the edge(s) of a field	Enhance existing field borders to a width of at least 40 feet and establish a mixture of species that provide wildlife food and habitat along the edge(s) of the field. The extended field border will also provide enhanced wildlife habitat continuity.	10	1	Y	*Enhance existing field borders to a width of at least 40 feet using a mix of forbs and native grasses	$705.68
E391A	X	X					Increase riparian forest buffer width for sediment and nutrient reduction	Where an existing forested riparian area is located along a river, stream, pond, lake, or other waterbody, increase the width of the buffer in order to allow a greater percentage of sediment and nutrient removal from surface and subsurface flows.	15	1		*Remove invasives that are on Alabama's top 10 invasives list *Protecting and Increasing the width of riparian buffers to a minimum of 70 feet *Do not clearcut for 15 year life of enhancement *Tree planting required on openland portion.	$1,817.36
E391B	X	X	X	X	X	X	Increase stream shading for stream temperature reduction	Riparian area tree canopy cover density is increased and the extent of the forested riparian area is increased to provide greater stream shading.	15	1	Y	*Remove invasives that are on Alabama's top 10 invasives list *Protecting and Increasing the width of riparian buffers to a minimum of 100 feet Do not clearcut for 15 year life of enhancement *Plant trees if openland	$1,839.54
E391C	X	X	X	X	X	X	Increase riparian forest buffer width to enhance wildlife habitat	Where an existing riparian forest buffer is located along a river, stream, pond, lake, or other waterbody, increase the diversity of native species, control invasive species, install fencing and relocate equipment operations, trails, and livestock to increase the functional width of the buffer.	15	1	Y	*Remove invasives that are on Alabama's top 10 invasives list *Protecting and Increasing the width of riparian buffers to a minimum of 70 feet *Do not clearcut for 15 year life of enhancement *Plant trees if openland	$1,839.54
E393A	X	X			X		Extend existing filter strip to reduce water quality impacts	Extend existing filter strips for water quality protection. Extend the existing buffer for a total of 60 feet or more to enhance water quality functions. The extended buffers must be composed of at least 5 species of non-noxious, wildlife friendly grasses and/or perennial forbs best suited to site conditions. Include species that provide pollinator food and habitat where possible.	10	1	Y	*Enhance existing filter strips to a width of at least 60 feet using a mix of 2 forbs and 3 native grasses	$927.30
E412A	X	X					Enhance a grassed waterway	Enhance grassed waterways for water quality protection (reduce excess sediment in surface waters). This is done by either changing the waterway size, protecting the current waterway, or improving the infiltration of the watershed of the grassed waterway to protect the waterway.	10	1	Y	*Enhance existing grassed waterway using introduced or native grasses	$3,665.96
420A	X	X		X	X	X	Establish pollinator habitat	Seed or plug nectar and pollen producing plants to establish or improve pollinator habitat. These areas may include, but are not limited to, field borders, vegetative barriers, contour buffer strips, shelterbelts, hedgerows, windbreaks, conservation cover, and riparian forest and herbaceous buffers.	5	1	Y	*Site prep and plant 1.25% of tract acres. *Plant minimum 10 species from list.	$487.23
420B	X	X			X	X	Establish monarch butterfly habitat	Seed or plug milkweed (Asclepias spp.) and high-value monarch butterfly nectar plants to establish or improve monarch habitat. These areas may include, but are not limited to, field borders, vegetative barriers, contour buffer strips, shelterbelts, hedgerows, windbreaks, conservation cover, and riparian forest and herbaceous buffers.	5	1	Y	*Site prep and plant 1.25% of tract acres. *Plant based on monarch list and seed calculator.	$824.53
E449A	X	X	X		X	X	Complete pumping plant evaluation for water savings	Evaluation of all pumping plants to determine the potential to rehabilitate/replace/reconfigure pump performance to improve water delerivery efficiency 10% or more. Evaluate to determine if a Variable Frequency Drive motor controller(s) is recommended and the simple payback in terms of energy savings is less than 10 years.	1	1		*Irrigation efficiency improvement.	$3,908.83
E449C	X	X	X				Advanced Automated IWM – Year 2-5, soil moisture monitoring	Advanced automated irrigation water management using soil moisture or water level monitoring (installed as per IWM plan) with data loggers.	1	5		*Irrigation efficiency improvement.	$20.11
E449D	X	X	X				Advanced Automated IWM – Year 1, Equipment and soil moisture or water level monitoring	Installing and monitoring soil moisture or water leveling equipment for advanced automated irrigation water management	1	1		*Irrigation efficiency improvement.	$56.99
E449F	X	X	X				Intermediate IWM— Year 1, Equipment with Soil or Water Level monitoring	This activity involves monitoring soil moisture or water levels within a irrigated field for intermediate irrigation water management include installation of equipment year 1.	1	1		*Irrigation efficiency improvement.	$44.82

E449G	X						Intermediate IWM— Years 2-5, Soil or Water Level monitoring	Field currently flooded through a cascade levee system will be converted to furrow irrigation. It is required that field is leveed on the lower end and approximately 25% up the sides for furrow irrigation prior to implementing the enhancement. After the previous year's crop is harvested, elevated planting beds and furrows will be reshaped as needed to guarantee proper irrigation of the rice crop. Layflat tubing will be utilized with the correct holes or gates installed to advance water down the furrows at the appropriate rate across the length of the field as prescribed by an NRCS "PHAUCET" design, Delta Plastic® Pipe Planner® or similar.	1	5		*Irrigation efficiency improvement.	$8.95
E449H	X						Intermediate IWM— Years 2 -5, using soil moisture or water level monitoring	Monitoring soil moisture or water levels within an irrigated field for implementing an intermediate irrigation water management plan using soil moisture data to facilitate management decisions.	1	5		*Irrigation efficiency improvement.	$44.49
E449I	X						IWM - Year 1, Retrofit Equipment with Speed Control on Sprinkler Irrigation System	This enhancement consists of retrofitting an existing sprinkler irrigation system to integrate variable rate irrigation (VRI) speed control where the technology is not present. The added functionality of VRI speed control equipment allows for enhanced water application precision, efficiency, and uniformity along the length of the sprinkler irrigation system by varying the irrigation system speed within the irrigation pass. Renovation of the existing sprinkler irrigation system utilizing this enhancement includes the installation of an upgraded control panel capable of speed control programming and global positioning system (GPS) technology capable of providing real-time field position. Utilization of the VRI speed control and GPS equipment will be for the entire irrigation season and be based on spatially identified parameters such as variations in past yield data, soils, crop growth, topography, or computerized irrigation scheduling recommendations. This scenario requires that the existing sprinkler irrigation system meets Conservation Practice Standard (CPS) 442 uniformity and efficiency requirements. System equipment is installed in year 1 with this scenario and scenario E449G or E449C is used in years 2-5.	1	1		*Irrigation efficiency improvement.	$1,877.02
E472A	X	X	X	X	X	X	Manage livestock access to waterbodies to reduce nutrients or pathogens to surface water	Installation of structures and implementation of grazing management actions that restrict livestock access to streams, ditches, and other waterbodies in order to reduce nutrient loading or reduce the introduction of pathogens from manure, bio-solids or compost to surface waters.	10	1	Y	*Construct fence to exclude livestock from ponds and blue-line streams	$2.75
E484A	X						Mulching to improve soil health	Implement a crop rotation which utilizes mulch and addresses all four principle components of soil health: increases diversity of the cropping system; maintains residue throughout the year; keeps a living root; and minimizes soil chemical, physical and biological disturbance. Plant-based mulching materials will be applied at least once during the rotation. The rotation will include at least 4 different crops and/or cover crops grown in a sequence that will produce a positive trend in the Organic Matter (OM) subfactor value over the life of the rotation, as determined by the Soil Conditioning Index (SCI). The current NRCS wind and water erosion prediction technologies must be used to document the rotation and SCI calculations.	1	5		*Probably for small vegetable or organic farms *Must implement a soil health crop rotation including 4 different crops and/or cover crops. *Difficult to implement	$2.22
E484B		X					Reduce particulate matter emissions by using orchard or vineyard generated woody materials as mulch	Reduce particulate matter emissions by using orchard or vineyard generated woody materials as mulch. At least 90% of all woody materials are to be used as mulch on the operation. *An exception may be made when it is determined that infected material must be burned to preserve crop health.*	1	5		*For orchards, at least 90% of pruned wood or dead trees/vines are chipped and used for mulch on farm. *Must implement a soil health crop rotation including 4 different crops and/or cover crops. *Difficult to implement	$15.52
E484C	X	X					Mulching with natural materials in specialty crops for weed control	Application of straw mulch or other state approved natural material (such as wood chips, compost, green chop, dry hay or sawdust) for weed control in specialty crops.	1	5		*Probably for small vegetable or organic farms *For applying straw mulch or other natural material	$55.60
E511A	X	X					Harvest of crops (hay or small grains) using measures that allow desired species to flush or escape	Harvest of crops (hay or small grains) using conservation measures that allow desired species to flush or escape. (For species list see State Wildlife Action Plan) Conservation measures include timing of harvest, idling land during the nesting or fawning period, and applying harvest techniques that reduce mortality to wildlife.	1	5	Y	*Wildlife focus - Must apply two-leave 1/3 of hay acreage uncut, 1/3 hay cut before or after nesting season, Increase mowing heights (requires shoes on mower)	$4.03
E511B	X	X	X				Forage harvest management that helps maintain wildlife habitat cover, shelter or continuity	The timely cutting and removal of forages from the field as hay, green-chop, or ensilage in such a way, and in time frames, to optimize both forage yield/quality and wildlife cover and shelter and/or continuity between otherwise disconnected habitats.	1	5	Y	*Wildlife focus - Increase mowing heights (requires shoes on mower)	$5.45
E511C		X	X				Forage testing for improved harvesting methods and hay quality	Dry hay forage samples are collected and analyzed following LGU procedures. Analysis results are kept and used to improve harvest decisions to guide forage supplementation of on-farm livestock to meet nutritional needs and improve health and productivity.	1	5		*Forage testing of hay grown on farm	$129.88
E511D		X					Forage harvest management to improve terrestrial habitat for wildlife and invertebrates during critical over-winter periods	Eliminate or forgo the last fall cutting of hay or haylage to optimize wildlife cover and shelter during critical over-winter periods and lengthen late season bloom period for invertebrates. Allowing late season stand maturity increases stand life and reduces risks of frost and winter damage while providing valuable wildlife habitat and extended bloom periods.	1	5	Y	*Eliminate late summer/fall hay cutting	$25.77
E512A	X	X					Cropland conversion to grass-based agriculture to reduce soil erosion	Conversion of cropped land to grass-based agriculture to reduce soil erosion. Mixtures of perennial grasses, forbs, and legume species are established on cropland where annually-seeded cash crops have been grown.	5	1	Y	*Planting cropland to grass/legume mixture *Payment rate is low	$9.98
E512B			X				Forage plantings that help increase organic matter in depleted soils	Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species suitable for pasture, hay, or biomass production that can provide for reduced soil erosion, improving soil health.	5	1	Y	*Planting pastureland to grass/legume mixture *Payment rate is low	$26.27

E512C	X	X					Cropland conversion to grass for soil organic matter improvement	Conversion of cropped land to grass-based agriculture. Mixtures of perennial grasses, forbs, and/or legume species are established on cropland where annually-seeded cash crops have been grown.	5	1	Y	*Planting cropland to grass/legume mixture *Payment rate is low * Different resource concerns than 512A (organic matter etc.)	$13.97
E512D	X	X	X				Forage plantings that help increase organic matter in depleted soils	Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species suitable for pasture, hay, or biomass production that can help improve soil quality of depleted sites through increase or conservation of the organic matter in the soil.	5	1	Y	*Planting conventionally-tilled cropland or severely eroded pastureland hillsides to grass/legume mixture to improve organic matter *Payment rate is low	$14.99
E512I			X		X	X	Establish pollinator and/or beneficial insect and/or monarch habitat	Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species that can provide nectar for Monarch butterflies and/or pollinators and forage and other habitat values for wildlife and livestock, particularly at times when targeted nectar, forage supply and quality, cover, and shelter are not available in other pastures.	5	1	Y	*Establish pollinators in a pasture. Payment rate is low.	$29.25
E512J			X		X	X	Establish wildlife corridors to provide habitat continuity or access to water	Establishing adapted and/or compatible species, varieties, or cultivars of perennial, herbaceous species that can provide cover needed for wildlife species of concern to move from food/cover/water sources to other food/cover/water sources as needed for their life cycles, and/or to enhance the utility of underused wildlife habitat areas.	5	1	Y	*Plant a corridor of native grasses to connect wildlife cover areas *Payment rate is low	$18.59
E512L			X		X		Diversifying forage base with interseeding forbs and legumes to increase pasture quality	Establishing adapted and/or compatible species, varieties, or cultivars of perennial, herbaceous species that increases the diversity to enhance livestock, forage supply and quality not available in other pastures.	5	1	Y	*Interseeding perennial white clover into existing pasture *Old enhancements 512F,G,H are retired	$89.01
E512M			X		X		Establishing native grass or legumes to improve the plant community	Establishing adapted and/or compatible species, varieties or cultivars species suitable for pasture, hay or biomass production that can provide cover and shelter or structure and composition for wildlife	5	1	Y	*Planting native warm-season grasses (big bluestem, little bluestem, indiangrass, eastern gamagrass, switchgrass) on pastureland. Payment rate is low. *Old enhancements 512F,G,H are retired *Payment rate is low	$53.71
E528A			X		X		Maintaining quantity and quality of forage for animal health and productivity	Managing the harvest of vegetation with grazing and/or browsing animals for the purposes of maintaining desired pasture composition/plant vigor and improving/maintaining quantity and quality of forage for the animals' health and productivity following the recommendations of a qualifying professional, as detailed in the documentation and implementation requirements.	1	5	Y	*Quarterly forage and/or hay samples *Typical cost is $25-50 per sample	$4.03
E528B			X				Grazing management that improves monarch butterfly habitat	Implement a grazing management plan that will increase the abundance and diversity of monarch nectar-producing perennial forbs, including milkweed, while maintaining ecosystem benefits for other wildlife and livestock.	1	5	Y	*Plant monarch butterfly habitat in pastures, minimum 5 ac. or 5% *Payment rate is low	$10.78
E528C			X				Incorporating wildlife refuge areas in contingency plans for wildlife.	A prescribed grazing plan that includes 12 month (or longer) rest (non-grazing period equal or greater than one year) of a grazing unit that consists of native grasses and/or legumes and/or perennial forbs for the purpose of meeting the needs for drought/disaster contingency plans that will also provide wildlife habitat or wildlife access to water for a period of time.	1	5		*Native grass stands must be excluded from grazing for 12 months or longer on 15% of acreage	$17.96
E528D			X	X			Grazing management for improving quantity and quality of food or cover and shelter for wildlife	Grazing management employed will provide the plant structure, density and diversity needed for improving the quantity and quality of cover, shelter and food for the desired wildlife species of concern.	1	5		*Grazing management in stands of native warm season grasses	$0.55
E528E			X	X	X		Improved grazing management for enhanced plant structure and composition for wildlife	Managing the harvest of vegetation with grazing and/or browsing animals for the purpose of improving the quantity and quality of the structure and composition of the plant community that is available for wildlife.	1	5		*Grazing management in stands of native warm season grasses *Same as 512D but treats an additional resource concern	$3.45
E528F			X		X		Stockpiling cool season forage to improve structure and composition or plant productivity and health	Grazing management employed to stop grazing events of selected paddock(s) to allow pasture forages to grow to maximum vegetative biomass accumulation before the end of the growing season.	1	5		*Stockpiling fescue	$34.90
E528G			X				Improved grazing management on pasture for plant productivity and health with monitoring activities	Managing the harvest of vegetation with grazing and/or browsing animals as adjusted when following recommendations of a qualifying professional, as detailed in the enhancement criteria, generated through pasture condition scoring (PCS).	1	5	Y	*A selected monitoring site will be evaluated quarterly with the Pasture Condition Scoring tool for each forage type. *528K is retired	$10.60
E528I			X				Grazing management that protects sensitive areas -surface or ground water from nutrients	Grazing management employed will provide cover and density needed in the watershed in order to protect sensitive areas such as sinkholes, streams, highly erodible areas, or locations with plants that cannot tolerate defoliation.	1	5		*Protect waterbodies, sinkholes and streams by rotationally grazing and excluding sensitve areas. A selected monitoring site will be evaluated quarterly with the Pasture Condition Scoring tool for each forage type	$1.86
E528J			x				Prescribed grazing on pastureland that improves riparian and watershed function.	Grazing management employed will provide cover and density needed in the watershed in order to reduce runoff, improve infiltration, provide for above ground water filtration and sustain applicable fish and wildlife species habitat.	1	5		*Improved grazing management for watershed protection through rotational grazing and monitoring. A selected monitoring site will be evaluated quarterly with the Pasture Condition Scoring tool for each forage type	$16.96
E528L			X	X			Prescribed grazing that improves or maintains riparian and watershed function-erosion	Grazing management employed will provide cover and density needed in the watershed in order to reduce runoff, improve infiltration, provide for above ground water filtration and sustain applicable fish and wildlife species habitat.	1	5		*Improved grazing management for watershed protection through rotational grazing and monitoring. Resource concern is bank erosion from streams. A selected monitoring site will be evaluated quarterly with the Pasture Condition Scoring tool for each forage type *Livestock must be excluded from sensitive areas	$10.74
E528M			X				Grazing management that protects sensitive areas from gully erosion	Grazing management employed will provide vegetative cover and density needed in the watershed in order to protect sensitive areas such as sinkholes, streams, highly erodible areas, or locations that cannot tolerate plant defoliation.	1	5	Y	*Improved grazing management for watershed protection through rotational grazing and monitoring. Resource concern is gully erosion. A selected monitoring site will be evaluated quarterly with the Pasture Condition Scoring tool for each forage type *Livestock must be excluded from sensitive areas	$1.69
E528Q	X	X	X	X	X	X	Use of body condition scoring for livestock on a monthly basis to keep track of herd health	Body condition scoring (BCS) serves as a useful management tool to monitor livestock performance with respect to current and recent feeding or grazing programs. Body condition scoring is a numeric scoring system, producers can use to consistently evaluate animals' estimated body energy reserves through degree of fatness. This information can be used to adjust nutritional strategies to reach optimal BCS. Since body condition is closely associated with reproductive performance as well as feed efficiency, monitoring body condition can help producers reach production goals and increase the operation's bottom line. Knowledge and understanding of BCS will assist producers to adjust a supplemental feeding program to maintain animal health and nutrition on a-monthly-basis.	1	5	Y	*Utilize body condition scoring monthly in additon to prescribed grazing *A selected monitoring site will be evaluated quarterly with the Pasture Condition Scoring tool for each forage type	$1.79

E528R			X				Management Intensive Rotational Grazing	Management intensive, multi-paddock grazing system where livestock are regularly and systematically moved to fresh forage to optimize quantity and quality of forage growth, improve manure distribution, improve wildlife cover, and improve soil health.	1	5		*Intensive rotational grazing moving livestock every 3 days or less *A selected monitoring site will be evaluated quarterly with the Pasture Condition Scoring tool for each forage type	$44.94
E528S			X				Soil Health Improvements on Pasture	Use of soil health assessment to evaluate impact of planned grazing in addressing organic matter depletion, soil organism habitat and aggregate instability. Laboratory soil health tests will be completed in year 1 and year 4 of the contract. Planned modifications to the pasture forages and/or management system will be made to the benchmark grazing system to address concerns from the assessments. During sample collection, Pasture Condition Score (PCS) or Determining Indicators of Pasture Health (DIPH) assessment will be completed for the sample area.	1	5	Y	*Completing a soil health assessment in years 1 and 4 utilizing the "Haney" test or similar. *A selected monitoring site will be evaluated quarterly with the Pasture Condition Scoring tool for each forage type	$9.98
E533A	X	X	X				Advanced Pumping Plant Automation	This enhancement consists of installing a control device to a pump station that allows the user to remotely monitor and operate the pump station based on field measured data. Pumping stations may have either a combustible or electric power unit that are compatible with the control device or sensor. These devices/sensors collect field-measured data and provide this data in real time to the landowner to make irrigation decisions and adjustments to the pump operation	1	1		*Irrigation efficiency improvement.	$8,290.40
E533B	X	X	X		X	X	Complete pumping plant evaluation for energy savings	Evaluation of all pumping plants to determine the potential to rehabilitate/replace/reconfigure pump performance to improve water delerivery efficiency 10% or more. Evaluate to determine if a Variable Frequency Drive motor controller(s) is recommended and the simple payback in terms of energy savings is less than 10 years.	15	1		*Irrigation efficiency improvement.	$3,908.83
E533C	X	X	X		X	X	Install VFDs on pumping plants	Install Variable Frequency Drive(s) (VFD) on Pumping Plant with the correct sensors, on all pumps as indicated in the evaluation.				*Irrigation efficiency improvement.	$7,087.31
E533D	X	X	X		X	X	Switch fuel source for pumps	Switch the fuel source for the pump motor(s) to an on-farm renewable source (wind, solar, geothermal, etc.).				*Irrigation efficiency improvement.	$11,097.49
E578A	X	X	X	X	X	X	Stream crossing elimination	Existing stream crossings on an operation are consolidated into fewer crossings in order to reduce impacts to stream habitat.	10	1	Y	*Removing an improperly or poorly functioning stream crossing.	$9,076.65
E580A	X	X	X	X	X	X	Stream corridor bank stability improvement	Stream corridor bank vegetation components are established to provide additional streambank stability.	20	1		*Stabilizing stream bank.	$2,033.71
E580B	X	X	X	X	X	X	Stream corridor bank vegetation improvement	Stream corridor bank vegetation components are established to improve ecosystem functioning and stability.	20	1		*Improving streambank vegetation.	$2,033.71
E590A	X	X					Improving nutrient uptake efficiency and reducing risk of nutrient losses	Nutrient management encompasses managing the amount, source, placement, and timing of the application of plant nutrients and soil amendments. Nutrients are currently being applied on the farm based on the 4R nutrient stewardship principles. Enhanced nutrient use efficiency strategies or technologies are utilized to improve nutrient use efficiency and reduce risk of nutrient losses to surface and groundwater and reduce risks to air quality by reducing emissions of greenhouse gases (GHGs).	1	5	Y	*Utilize two or more of the following: split nitrogen application, apply within 30 days of planting, enhanced efficiency N application, plant tissue testing, using urease inhibitors	$13.20
E590B	X	X					Reduce risks of nutrient loss to surface water by utilizing precision agriculture technologies	Precision application technology and techniques are utilized to plan and apply nutrients to improve nutrient use efficiency and reduce risk of nutrient losses.	1	5	Y	*Variable N-P-K utilizing precison ag	$17.22
E590C			X				Improving nutrient uptake efficiency and reducing risk of nutrient losses on pasture	Nutrient management encompasses managing the amount, source, placement, and timing of the application of plant nutrients and soil amendments. Nutrients are currently being applied on the farm based on the 4R nutrient stewardship principles. Enhanced nutrient use efficiency strategies or technologies are utilized to improve nutrient use efficiency and reduce risk of nutrient losses on pasture.	1	5		*On pasture, utilize two or more of the following: split nitrogen application, variable rate N-P-K, detailed hay movement plan, adjusting pH to optimum level	$20.23
E590D	X	X					Reduce risks of nutrient losses to surface and groundwater by increasing setback awareness via precision technology	Utilize precision technology to increase Soil/Groundwater Setbacks & Associated Application Rate Restrictions (SGS&AARR) implementation during nutrient application by providing precise, real-time location information (geo-located) in the field to the equipment operator. While operating nutrient application equipment, the operator's location is continually updated and displayed on an integrated, in-cab or add-on GPS-enabled device visible to the operator at all times to reduce the risk of nutrient application in setback and/or sensitive areas. This allows the equipment operator to manually turn off or steer equipment to avoid applying nutrients in setback or sensitive areas.	1	5	Y	*A registered 590 Technical Service Provider will develop GIS maps with setback distances for streams and sensitive areas for manure application and upload into application equipment	$14.12
E595A	X	X					Reduce risk of pesticides in surface water by utilizing precision pesticide application techniques	Utilize precision application techniques to reduce risk of pesticides in surface water by reducing total amount of chemical applied and reducing the potential for delivery of chemicals into water bodies.	1	5		*Utilize two or more of the following for pesticide application: precision guidance, variable rate technology, intensive monitoring, smart sprayer technology	$13.21
E595B	X	X	X				Reduce risk of pesticides in water and air by utilizing IPM PAMS techniques	Utilize integrated pest management (IPM) prevent, avoidance, monitoring, and suppression (PAMS) techniques to reduce risk of pesticides in water and air. Reduce the potential for delivery of chemicals into water or ozone precursor emmisions.	1	5	Y	*Choose at least 4 activities from prevention, avoidance, monitoring, and suppression techniques	$6.94

E595D	X						Increase the size requirement of refuges planted to slow pest resistance to Bt crops	Bacillus thuringiensis (Bt) plant incorporated protectants are plants that have been genetically altered to produce proteins that are harmful to certain insect pests. Widespread implementation of Bt crops has decreased insecticide use and increased crop yields, but it must be used as part of an integrated pest management (IPM) approach to protect the crop from pest species that are not susceptible to the Bt toxin and to manage pest resistance. Crop rotation, scouting and resistance management strategies, such as planting and creating refuges of non-Bt crops, are essential when farming Bt crops. Insects have developed resistance to Bt proteins. To mitigate the development of further resistance, growers are required to plant refuges of non-transgenic crops. These refuges produce numbers of susceptible insects that will help sustain populations of non-resistant insects. The size of Refuge requirement depends on the environment, pest and strain of the crop. Size of refuge is determined by resistance risk. Most Bt corn requires that 20% of the total Bt crop planted be non-Bt. Cotton can require 50% of the crop be planted to non-Bt. A recent study published in the Journal of Integrated Pest Management revealed, compliance has been a challenge. Nearly 40% of growers surveyed did not plant the required refuge (Reisig 2017). They credit non-compliance, in part, to lack of understanding by small-scale farmers about the need for refuges.	1	5	Y	*Increase the size requirement for refuge by an additional 25%	$14.58
E595E			X				Eliminate use of chemical treatments to control pests and to increase the presence of dung beetles	Pests and parasites can have a significant impact on the economic viability of livestock operations, by affecting the performance and health of animals. The use of broad-spectrum insecticides, pour-ons and avermectins have been shown to have a detrimental effect on dung beetle populations. Having a healthy population of dung beetles facilitates the recycling of nutrients and promotes soil and grassland health. By eliminating the application of broad-spectrum insecticides, pour-ons, and avermectins, including injectable avermectins, for pest control in and on livestock along with rotational grazing and higher stock densities has shown to increase the dung beetle population. Use of natural or alternative methods of pest control over multiple years is encouraged.	1	5	Y	*Cannot use avermectin-type dewormers	$6.06
E595F	X		X				Improving soil organism habitat on agricultural land	To reduce or eliminate the use of neonicotinoid seed treatment in corn and soybean cropping systems to promote beneficial predatory insect populations as a means of biological pest control. Beneficial insects such as the Carabidae beetle have been found to be very important in the population control of common agricultural pests such as grey garden slug, a pest that has increasingly been an issue in no-till and heavily cover cropped fields. Slugs being mullosks, can ingest neonicotinioids with no adverse affects, while beneficial predators that may consume slugs will die as soon as they consume a slug with prior seed coat exposure.	1	5	Y	*Eliminate the use of seed treatments in corn and soybean	$11.08
E595G	X	X	X				Reduce resistance risk by utilizing PAMS techniques	To reduce or eliminate the use of neonicotinoid seed treatment in corn and soybean cropping systems to promote beneficial predatory insect populations as a means of biological pest control. Beneficial insects such as the Carabidae beetle have been found to be very important in the population control of common agricultural pests such as grey garden slug, a pest that has increasingly been an issue in no-till and heavily cover cropped fields. Slugs being mullosks, can ingest neonicotinioids with no adverse affects, while beneficial predators that may consume slugs will die as soon as they consume a slug with prior seed coat exposure.	1	5	Y		$14.73
E612B	X	X	X	X	X	X	Planting for high carbon sequestration rate	Plant tree species and use stocking levels for higher growth to increase the rate of carbon sequestration (capture). Use species with a longer life span as well as relatively fast growth, and species suitable for durable manufactured products. Increase stocking levels in forests that are not fully stocked. Implement afforestation on appropriate open lands.	15	1	Y	*The Alabama approved species list must be used. *A completed E612B Job Sheet is required.	$660.09
E612C				X	X		Establishing tree/shrub species to restore native plant communities	Establish trees and/or shrubs to restore elements of plant diversity that have been lost through past diseases or improper management. For example, disease-resistant varieties of elm and chestnut can be established to restore the ecological functions of American elm and American chestnut. At the stand level, past forest management may have eliminated certain native tree species. Restoring stand-level diversity and function addresses a wide array of resource concerns and strengthens ongoing management activities. This enhancement improves a forest that is already in good condition by increasing plant diversity, and improving health and vigor through adding plants with resistance to disease, pests, or other local hazards. Additional benefits include contributing to carbon storage, and providing diversity in wildlife habitat and food sources.	15	1	Y	*For Alabama, the lost species include longleaf pine, shortleaf pine, and white oak. All other species must be approved by the State Staff Forester.	$825.41
E612D	X	X	X	X	X	X	Adding food-producing trees and shrubs to existing plantings	Plant food-producing trees and shrubs for wildlife or human consumption within windbreaks, alley cropping, multi-story cropping, silvopasture systems, and/or riparian forest buffers.	15	1	Y	*Adding "edible landscape" to existing plantings. See approved Food Producing Plant List	$163.28
E612E			X	X	X	X	Cultural plantings	Plant trees and shrubs that are of cultural significance, such as those species utilized by Tribes in traditional practices, medicinal plants, species used in basket-making, etc. (e.g., paper birch, slippery elm, witch hazel).	15	1	Y	*Must select trees and shrubs listed on the Culturally Significant Plant List for Alabama.	$1,491.74
E612G	X	X	X	X	X	X	Tree/shrub planting for wildlife food	Tree or shrub planting to enhance habitat for native wildlife. A minimum of five tree or shrub species will be used; they will be species that provide food and/or cover for identified wildlife species.	15	1	Y	*Must plant at least 4 tree species and 1 shrub for wildlife	$1,380.56

E644A	X	X	X				Managing Flood-Irrigated Landscapes for Wildlife	Developing and implementing a conservation plan that supports maintenance of flood-irrigation in key landscapes to provide important foraging habitat for local breeding and migratory waterfowl and waterbirds.	1	5		*Implementing flood irrigation plan for wildlife.	$25.56
E645A	X	X	X	X	X	X	Reduction of attractants to human-subsidized predators in sensitive wildlife species habitat	Reduction of artificial perching sites, nest sites, food, and water available to subsidized predators in areas where human-subsidized predators are a threat to sensitive wildlife species. Human-subsidized predators may include ravens, crows, magpies, coyotes, foxes, skunks, raccoons, and other species. Activities under this enhancement may include removal of non- native or invasive trees; removal of unused power poles, corrals, windmills, buildings, and other vertical structures; and/or removal or management of watering facilities, dead livestock, road kill, garbage, animal feed, dumps, and other non-natural food sources.	1	1	Y	*Remove all artificial raptor perch sites. *Must be managing for quail habitat to include this enhancement.	$50.55
E645B	X	X	X	X	X	X	Manage existing shrub thickets to provide adequate shelter for wildlife	Existing shrub thickets provide an instant and important cover for wildlife. Various wildlife species may use shrubs as winter/thermal cover, summer shade, roosting, or as escape cover from predators. Proper management ensures that these shrubs will continue to provide the desired benefits for the local wildlife. A combination of herbicide treatments, cutting and trimming branches, and removal of other competing vegetation will occur. An eligible existing shrub thicket needs to have a canopy cover of 750 square feet, with an end goal of expanding to 1500 square feet. Any existing shrub thicket (not hand planted within the last 5 years) are eligible for this enhancement. Shrub thickets found within fence rows may now be very wide, but still meet the 750 square feet, are eligible.	1	1	Y	*Remove trees in and around shrub thickets with mechanical or herbicide or both. *Apply a light application of fertilizer.	$306.65
E645C	X	X	X	X	X	X	Edge feathering for wildlife cover	Selected trees are cut, and brush clipped along the border between a wooded area and a grassland, cropland, or idle land, creating a dense woody cover of interlocking branches at ground level. The feathered edge will be an average of 30 feet wide and a minimum of 50 feet long, resulting in an area of 1500 square feet. The width of the strip will vary to follow topographic features and to create a wavy border; the design will also consider aesthetics. Vegetative composition and cover will vary within the edge, ranging from areas with no trees and shrubs to areas with scattered trees and extensive shrub cover. The variation in vegetation structure along with variable width of the edge will create feathering. The edge may include shrub plantings for wildlife food and aesthetics.	1	1	Y	*Feathered Edge = Transition Zone *Create 4 feathered edge patches within 1/4 mile stretch. *Select and remove unwanted trees along field edges with mechanical and herbicides. *Treated strips to be at least 50 feet long and 30 feet deep.	$820.16
E646A	X						Close structures to capture and retain rainfall for waterfowl and wading bird winter habitat	When flooded to shallow depths during fall and winter, agricultural fields provide ideal foraging habitat for myriad species of waterfowl and wading birds . In addition, flooded conditions promote establishment of aquatic invertebrate populations, thus providing protein-rich food sources for shorebirds as well as waterfowl and wading birds.	5	1		*Capture rainfall for shallow water fall and winter habitat for waterfowl and shorebirds.	$27.19
E646B	X						Extend retention of captured rainfall for migratory waterfowl and wading bird late winter habitat	When flooded to shallow depths during fall and winter, agricultural fields provide ideal foraging habitat for myriad species of waterfowl and wading birds. Harvested and idled agricultural lands, notably those occurring within rice rotations, contain high densities of residual (i.e., waste) grain and natural seeds following harvest. In addition, flooded conditions promote establishment of aquatic invertebrate populations, thus providing protein-rich food sources for shorebirds as well as waterfowl and wading birds. Benefits may become greatest during late winter and early spring as birds are assimilating nutrient and fat reserves in preparation for northward migration. However, agricultural fields flooded during fall-winter are typically drained during late January or February in advance of spring planting. This often results in a rapid reduction in available habitat, and may constrain ability of migratory birds to adequately prepare for migration, with greatest impacts likely occurring during years of low winter precipitation. Retention of water on agricultural lands into early spring will produce maximum benefits to migratory waterfowl and shorebirds by providing high quality habitat during a time when habitat may otherwise be in low abundance.	5	1		*Hold shallow water into early spring for waterfowl and shorebirds.	$32.23
E646C	X						Manipulate vegetation and maintain closed structures for shorebirds mid-summer habitat	Suitable shorebird habitat is limited during the summer and fall as birds migrate south post-breeding and providing shallow water and mud flat habitat will benefit a variety of shorebird species. Optimal conditions are created when water levels are slowly reduced through evaporation, which allows for propagation of invertebrates (typically insect larvae) used as food by shorebirds. Manipulation of vegetation, preferably through rolling, creates open conditions required by this suite of birds as a means to detect and avoid predators, and provides nutrient inputs for invertebrate production.	5	1		*Creating midsummer shallow water habitat for shorebirds.	$55.92
E646D	X						Manipulate vegetation and maintain closed structures for shorebird late summer habitat	Suitable shorebird habitat is limited during the summer and fall as birds migrate south post-breeding. Providing shallow water and mud flat habitat will benefit a variety of shorebird species. Optimal conditions are created when water levels are slowly reduced through evaporation, which allows for propagation of invertebrates (typically insect larvae) used as food by shorebirds. Manipulation of vegetation, preferably through rolling, creates open conditions required by this suite of birds as a means to detect and avoid predators, and provides nutrient inputs for invertebrate production.	5	1		*Creating late summer shallow water habitat for shorebirds.	$61.61

E647A	**X**						Manipulate vegetation on fields with captured rainfall for waterfowl & wading bird winter habitat	Harvested and idled agricultural lands, notably those occurring within rice rotations, contain high densities of residual (i.e., waste) grain and natural seeds following harvest. Seed densities in harvested rice fields may rival those documented in intensively managed moist-soil units, especially in the Gulf Coast and Central Valley of California. When flooded to shallow depths during fall and winter, these agricultural fields provide ideal foraging habitat for myriad species of waterfowl and wading birds. In addition, flooded conditions promote establishment of aquatic invertebrate populations, thus providing protein-rich food sources for shorebirds as well as waterfowl and wading birds. In many cases, light manipulation of dense vegetation is needed to improve the accessibility of food resources to waterfowl, wading birds, and shorebirds.	5	1		*Flooding agricultural fields for shallow water habitat for shorebirds and waterfowl.	$25.30
E647C	**X**						Maintain most soil vegetation on cropland edges to enhance waterfowl and shorebird habitat	The wetter or more water saturated portions of cropland fields such as areas adjacent to field drains, have the potential to produce a significant amount of moist soil plants which are a tremendously valuable source of forage and cover for many waterfowl, shorebird and wading bird species, especially during a period of time when such plants may be limited. Under normal cropland production, the native vegetation is restricted on these sites through mechanical and/or chemical control. These maintained moist soil plants also will provide filtering and improve water quality.	5	1		*Maintain natural moist soil plants for shorebird and waterfowl habitat.	$10.58
E647D	**X**						Establish and maintain early successional habitat in ditches and bank borders	This enhancement is to encourage the establishment of early successional, naturally occurring vegetation in ditches, side slope and bank borders to provide cover, critical nesting and brood rearing habitat as well as filtering overland flow and improving water quality. Ditches perform the critical function of removing water from agricultural lands. Allowing naturally occurring vegetation to develop along ditches, including side slopes, banks and borders, will help provide food and cover for wildlife while enhancing aquatic habitat and improving water quality. Ditches and ditch borders provide a foundation that supports a diverse wildlife community including Northern Bobwhite (Colinus virginianus) and other birds preferring early successional cover. Rabbits, furbearers, amphibians and many other species that inhabit agriculture areas will use this vegetative cover. These areas can also provide critical nesting habitat for the Mottled Duck (Anas fulvigula).	5	1		*Early successional habitat along ditch banks.	$10.58
E666A				**X**			Maintaining and improving forest soil quality	Adopts guidelines for maintaining and improving soil quality on sites where forest management activities are practiced. These guidelines will increase soil organic matter content, improve nutrient cycling, and increase infiltration and retention of precipitation. Avoiding soil compaction will allow for greater root development and tree growth, limit windthrow, and reduce drought stress. Increasing carbon storage on site will maintain the soil microbial community and provide wildlife benefits.	10	1		*Most applicable to stands that will be harvested within the contract, but not required. *Following Alabama's BMPs is required under this enhancement and must be incorporated into the updated Forest Management *Plan which is also required. Prior to implementation, have a current or updated Forest management Plan (FMP) that includes **ALL** activities required to implement this enhancement.	$43.68
E666D				**X**			Forest management to enhance understory vegetation	This enhancement provides for management of the understory vegetation in a forested area by mechanical, chemical, and/or manual methods to improve the plant species mix and the health of the residual vegetation. Managing the understory vegetation increases available water to the plants, minimizes runoff and erosion, and improves water quality. An adequately stocked forest provides inputs of leaves, needles, and woody twigs and stems to the forest floor, adding to soil organic matter and contributing to forest soil health. Desirable tree species and understory vegetation, with spacing that allows ground cover to develop, will allow moisture to infiltrate and be stored in the soil, releasing moisture over longer periods of time.	10	1		*Good for hardwood stands, doesn't require burning *Reduce wildfire risk	$281.77
E666E				**X**			Reduce height of the forest understory to limit wildfire risk	Forest stand improvement that manages forest structure to reduce the risk of wildfire, and creates conditions that facilitate prescribed burning. The fire risk reduction is accomplished by reducing the height of the woody understory and midstory, creating space between the ground cover and the tree canopy. This enhancement provides for management of the understory vegetation in a forested area, using mechanical, chemical or manual methods to improve the plant species mix and the health of the residual vegetation, and reduce the risk of wildfire. In appropriate stands, the treatment creates conditions that favor prescribed burning. Forest stand improvement (FSI) activities are used to remove trees of undesirable species, form, quality, condition, or growth rate. The quantity and quality of forest for wildlife and/or timber production will be increased by manipulating stand density and structure. These treatments can also reduce wildfire hazards, improve forest health, restore natural plant communities, and achieve or maintain a desired native understory plant community for soil health, wildlife, grazing, and/or browsing.	10	1		*Improves understory for wildlife and reduces risk of wildfire *Most applicable to pine dominated forest *Requires an updated management plan	$281.77
E666F				**X**			Reduce forest stand density to create open stand structure	Reducing forest stand density creates open forest conditions with a low basal area which promotes the health and vigor of the residual trees. The open stand structure allows a significant amount of sunlight to reach the forest floor and stimulates the growth of understory vegetation. Understory vegetation management, along with the wide spacing between trees or clumps of trees, provides visual appeal, lowers the risk of wildfire, and provides habitat for many at-risk and listed wildlife species. The enhancement creates conditions that facilitate a follow-up treatment with prescribed burning.	10	1	Y	*Requires thinning to 50 – 60 BA *Prescribed burning should follow *Requires an updated management plan	$322.02

E666G				X			Reduce forest density and manage understory along roads to limit wildfire risk and improve habitat	Opening the tree canopy along roads ("daylighting"), and providing space between ground vegetation and tree crowns minimizes the spread of wildfires that often start along roads, and improves wildlife habitat and food sources for many species. Some trees near a forest road are removed through harvesting, cutting, mulching, or another option available at the site, with the objective of creating a partially open forest canopy bordering the road. A semi-open canopy allows more sunlight to reach the forest floor to promote herbaceous understory plants, and reduces maintenance needs by allowing moisture to evaporate from roads. The reduced canopy and herbaceous understory limit woodland fuel buildup and reduce fire intensity.	10	1		*Daylighting Roads - Remove 50%, at least 35' from road edge.	$323.89
E666H				X	X	X	Increase on-site carbon storage	Use forest management techniques to maintain and increase on-site carbon storage. These include, but are not limited to, applying uneven-aged management, using longer rotations, retaining cavity/den trees, snags, and down woody debris, and protecting or increasing soil organic material.	10	1		*Prior to implementation, have a current or updated Forest Management Plan (FMP) that includes **ALL** activities required to implement this enhancement. - The plan will include details of the required activities on Page 1 of the enhancement and at least one activity from the list on Page 1 and continued on Page 2. - The plan must also include details of the implementation requirements listed on Pages 3 and 4. *Following Alabama's BMPs is required under this enhancement and must be incorporated into the updated FMP which is also required.	$14.41
E666I				X	X	X	Crop tree management for mast production	Forest stand improvement using crop tree management techniques to increase mast production	10	1		*Remove trees touching crown of crop trees on at least 3 sides of crop tree.	$385.66
E666J				X	X		Facilitating oak forest regeneration	Facilitate oak regeneration following a forest stand improvement treatment for natural oak regeneration (i.e., a regeneration cut). After a regeneration cut, oaks in the seedling and sapling stages are often out-competed by invasive brush and undesirable tree and shrub species. This enhancement will release seedling and sapling oaks from competing invasive plants and other undesirable species, and thin stump sprouts. A forester will monitor site conditions, treat competition, protect seedlings, and recommend additional follow-up treatments as needed. The enhancement protects investments in oak regeneration by providing for follow-up activities that require the expertise of a professional forester.	10			*Multiple harvest scenario. Would require assistance of professional forester.	$603.18
E666K				X	X	X	Creating structural diversity with patch openings	Forest stand improvement that creates patch openings. Size, shape, and arrangement of patches will be based on natural features, and emulate patches that would result from natural disturbance regimes of wind or fire, varying geographically and by forest type, and by tree species desired from natural regeneration. The treatment will create diversity in stand composition and structure, increase pest resistance, and enhance wildlife food availability. Openings may provide regeneration sites and restore natural plant communities, and achieve or maintain a desired understory plant community for wildlife habitat.	10	1	Y	*Mature hardwoods or longleaf pine w 80+ sq ft BA *Create 1 to 10 acre patch openings; some can become permanent for wildlife *Between 10 and 30 percent of timber stand will be converted to patch openings.	$540.28
E666L				X			Forest Stand Improvement to rehabilitate degraded hardwood stands	Hardwood forestland has been subject to poor logging practices ("high-grading") for decades. Without professional forestry assistance the best species and individual trees are removed, often before maturity ("diameter-limit cutting"), leaving the poorest species and individual trees to regenerate the stand. Reversing this process requires cutting or killing poor quality trees while retaining any desirable species that might still be present. A combination of 3 silvicultural methods are applied: crop tree release, group selection (all trees removed from an area 0.25 to 1.0 acre in size) and small clear-cuts (all trees removed from an area 1-3 acres in size).	10	1		*Use clearcuts and crop tree release to improve degraded hardwood stands.	$571.09
E666O				X	X	X	Snags, den trees, and coarse woody debris for wildlife habitat	Improve wildlife habitat through creation and retention of snags, den trees, forest stand structural diversity, and coarse woody debris on the forest floor, to provide cover/shelter for native wildlife species.	10	1	Y	Choose one of 3 options: *Option 1 create snags with numbers per acre based on tree diameters. *Option 2 create brush piles. *Option 3 create or maintain downed woody debris.	$56.14
E666P				X	X	X	Summer roosting habitat for native forest-dwelling bat species	Create new potential roost trees within upland and riparian forests to achieve desired summer habitat for forest-dwelling bat species.	10	1	Y	*Create medium and large snags. Numbers per acre are based on diameter of snags.	$222.42
E666S				X	X	X	Facilitating longleaf pine establishment	Facilitate longleaf pine regeneration and establishment following a forest stand improvement treatment for natural regeneration (e.g., a regeneration cut), or where longleaf has been previously planted. After a regeneration cut or a planting, competition from invasive brush and undesirable tree and shrub species often suppresses successful establishment of longleaf pine. This enhancement will release seedling and sapling longleaf from competing invasive plants and other undesirable species. A forester will monitor site conditions, treat competition, protect seedlings, and recommend additional follow-up treatments as needed. The enhancement protects investments in longleaf pine regeneration and establishment by providing for follow-up activities that require the expertise of a professional forester.	10	3		*Requires assistance of professional forester.	$233.93