[~~2019 ~~]Kentucky Soil Erosion & Water Quality [~~State ~~]Cost-Share Practice Handbook

TEAM KENTUCKY
ENERGY AND ENVIRONMENT CABINET

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Livestock: Animal Feeding Operation (AFO) BMP Category

BMP Introduction and Objective[~~:~~]

The Livestock: Animal Feeding Operation (AFO) BMP[~~This practice~~] category should[~~will~~] only be requested on sites that need animal waste storage and[~~,~~] animal waste application practices, where pastures are overstocked with livestock, or when livestock are confined in buildings or lots. [~~Please~~]Refer to the BMP Eligibility Criteria section below for more clarity on when this BMP category should be requested. The list of practices under the Livestock: AFO[~~Animal Feeding Operations~~] BMP category focus on solving soil erosion and water quality pollution problems resulting from concentrated livestock and/or the production, storage, or utilization of animal waste. Note that some practices under this BMP require a nutrient management plan (NMP). If a NMP is required, the plan[~~those plans~~] shall be developed prior to submitting a cost-share application. Producers may utilize the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP)[~~NRCS EQIP program~~] to request cost-share assistance in developing a NMP, if applicable, prior to submitting[~~making~~] a Kentucky Soil and Water [~~State~~]Cost Share Program Application for these practices. To solve animal waste related natural resource problems, a single practice or multiple practices may be needed. It is recommended that changes in livestock management practices be fully evaluated prior to installing any cost-share structural practices. Often[~~Many times~~], changes in management may resolve the natural resource problems without the need for[~~of~~] additional practices. Poor operation and maintenance of installed cost-share practices may[~~will likely~~] result in the failure of the practice to solve the natural resource problem. This should be reviewed and discussed with cost-share applicants prior to application.

All practices should be consistent with recommendations as part of the[~~a~~] Kentucky Agriculture Water Quality Act [~~plan~~]and be installed according to approved engineering designs or Implementation Recommendations (IR)[~~job sheet recommendations~~].

Current Eligible Practices That May Be Requested Under This BMP[~~:~~]

Animal Mortality Facility (316) *NMP Required*
Composting[~~Compost~~] Facility (317) *NMP Required*
Comprehensive Nutrient Management Plan - Written (102)
Critical Area Planting (342)
Diversion (362)
Fence (382)
Filter Strip (393)
Grade Stabilization Structure (410)
Grassed Waterway (412)
Heavy Use Area Protection (561)

- [~~As a~~]Companion practice to a Waste Storage Facility (313) *NMP Required*
- Heavy use area around watering facilities
- Heavy use area crossing for grassed waterway

Lined Waterway or Outlet (468)
Livestock Pipeline (516)
Mulching (484)
Nutrient Management (590) *NMP Required*

- Animal waste application ONLY

Nutrient Management Plan – Written (104)	
Riparian Forest Buffer (391)	
Riparian Herbaceous Cover (390)	
Roof Runoff Structure (558)	
Roofs and Covers (367)	*NMP Required*
Stream Crossing (578)	
Subsurface Drain (606)	
Trails and Walkways (575)	
Tree /[~~and~~] Shrub Establishment (612)	
Tree /[~~and~~] Shrub Site Preparation (490)	
Underground Outlet (620)	
Vegetated[~~Vegetative~~] Treatment Area (635)	*NMP Required*
Waste Facility Closure (360)	*NMP Required*
Waste Storage Facility (313)	*NMP Required*
Waste Transfer (634)	*NMP Required*
Waste Treatment Lagoon (359)	*NMP Required*
Water and Sediment Control Basin (638)	
Watering Facility (614)	

BMP Eligibility Criteria[:]

A current NMP[~~nutrient management plan (NMP)~~] is required to apply for some practices within the Livestock: AFO[~~this~~] BMP category if those practices are involved in the processing of animal waste (i.e. production, storage, and application).

Cost-share assistance under this BMP category will be utilized when current site conditions meet a minimum of[~~meets~~] one of the [~~following~~]criteria listed below.[:]

1. Livestock:
   a)[~~a.~~]Are stabled or confined, and fed or maintained for a period of 45-days or more in any 12-month period;[,] and
   b)[~~b.~~]Crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season (April 1 – November 1) over any portion of the lot or facility. Does[~~(Note: This should~~] not apply to winter feeding areas in pastureland settings.[~~)~~]
2. The[~~If~~] Livestock: AFO BMP category may be requested, if:
   a) Livestock stocking rates exceed:[~~exceeds~~]
      i) One cow/calf pair per 2 acres of pastureland;
      ii) One adult cow per 1.5 acres; or
      iii) One stocker calf (400-750 lbs.) per 1 acre of pastureland; or
   b) [~~if~~]*KY Graze Tool* is used to calculate the stocking rates and they exceed 130% of the pastureland carrying capacity. The *KY Graze Tool* (i.e. *Grazing-KY Graze*) can be found at efotg.sc.egov.usda.gov under Section 4 – Practice Standards & Supporting Documents and Ecological Science Tools[~~then this BMP would be requested rather than the Pastureland BMP~~].
3. Livestock are confined in buildings, structures, or lots and animal waste storage is needed.
4. Dead animal disposal is a current natural resource problem that needs to be addressed[~~addressing~~].
5. Animal waste application is a resource problem that needs improvement.

Cost-Share Rates and Limits[:]

The Kentucky Soil Erosion and Water Quality Cost-Share Program has established a 75% cost-share rate limit based on actual expenses, not to exceed the estimated payment rate.

A cost-share limit of $20,000 per applicant or operation is approved for any single [practice]or combination of practice components[practices that are] needed to solve the soil and water[resolve the] resource concerns associated with an[the] animal feeding operation. Multiple cost-share applications, by the same applicant or on the same land, is not permitted[for this practice].

Eligible Cost-Share Practices[:]

The eligible practices listed in Table 1[below] should be requested to address existing or potential soil erosion and/or water quality issues[natural resource concerns] associated with animal feeding operations, animal waste storage, or waste application, and meets the BMP eligibility criteria[for this practice]. Other resource concerns associated with [the]pastureland, cropland, and forestland should be requested under a different section of this[the cost share program] handbook. All practices should be designed and installed according to *NRCS Field Office Technical Guide* standards or other approved standards as identified in this handbook[manual].

All ***NRCS Field Office Technical Guidance (FOTG)*** standards for the practice codes in Table 1[the chart below] can be found at[:] efotg.sc.egov.usda.gov. After selecting "Kentucky"[the correct state] from the drop-down box, practice standards are located under Section 4 – Practice Standards & Supporting Documents and Conservation Practice & Support Documents[IV of the dropdown menu and in the Conservation Practices category].

Referenced ***University of Kentucky Extension Publications*** can be found at[:] dept.ca.uky.edu/agc/pub_prefix.asp. In the drop-down box, select the alpha[-]numerical prefix for the referenced practice[and a list containing that practice should appear].

Table 1 – Livestock: Animal Feeding Operation (AFO) BMPs

NRCS BMP Name & Practice Code	**Kentucky Soil Erosion & Water Quality[State Soil and Water State] Cost-Share Program** Practice Guidance/Description
Animal Mortality Facility (316) 15-year practice life	This practice can include a small rotary drum or a composting facility for poultry, turkey, swine and other livestock. A [nutrient management plan (]NMP[)] is required before submitting a cost-share[an] application containing this practice[for funding]. This practice is strictly designed to properly dispose of dead animals according to approved engineering plans and Kentucky regulation/statute requirements[law]. More guidance on composting large animals can be found in the *University of Kentucky Extension Publication ID-166 On-Farm Composting of Animal Mortalities*.
Composting Facility (317) 15-year practice life	This practice is designed to compost manure, bedding, and other organic waste. A [nutrient management plan (]NMP[)] is required before submitting a cost-share[an] application containing this practice[for funding]. This practice can include a facility with a concrete, gravel, or compacted earthen floor, and wood or concrete walls. This practice is strictly designed to properly dispose of organic waste according to approved engineering plans and Kentucky regulation/statute[state law] requirements.
Comprehensive Nutrient Management Plan (102) 5-year practice life	This practice assists with the development of a Comprehensive Nutrient Management Plan (CNMP) (102) to identify potential livestock pollution sources, and the storage and management of animal waste and runoff from confined/concentrated livestock operations. The CNMP addresses nutrient needs of crops, current soil available nutrients, and potential nutrients available in the animal waste when waste is applied to the land. If animal waste is applied to the land, the CNMP identifies potential application setbacks, application timing and placement of nutrients, and any other soil or water related nutrient concerns.

NRCS BMP Name & Practice Code	**Kentucky Soil Erosion & Water Quality[~~State Soil and Water State~~] Cost-Share Program** Practice Guidance/Description
Critical Area Planting (342) 10-year practice life	This practice is utilized to grade, smooth, and seed eroded areas associated with concentrated livestock traffic or vegetating other conservation construction practices associated with this BMP category. This practice may[~~will likely~~] require Mulching (484) to enhance establishment and Fence (382) to exclude livestock.
Diversion (362) 10-year practice life	This practice is used to construct an earthen channel to divert clean water away from confined livestock feeding areas or animal waste storage facility to a safe outlet. The practice will also require Critical Area Planting (342) and Mulching (484) to establish vegetation, and Fencing (382) to protect from livestock damage.
Fence (382) 20-year practice life	This practice is utilized to protect sensitive areas (streams, sinkholes, ponds, trees, eroded areas) from concentrated livestock. This practice may also be utilized to protect newly constructed conservation practices from livestock damage. Fencing to protect streams or other water bodies, or forestland areas from livestock damage, which do[~~does~~] not meet the Livestock: AFO[~~Animal Feeding Operations~~] BMP category eligibility criteria, should be requested under the Livestock: Pastureland BMP category. Cross fencing pastures to improve grazing distribution should **not** be requested under this BMP category. Only a permanent containment fence is an approved practice for cost-share under this BMP category.
Filter Strip (393) 5-year practice life	This practice is utilized when animal feeding area runoff needs to be filtered prior to leaving the feeding area or waste storage site. This practice should be used to filter contaminants from runoff water prior to entering streams or other water bodies. Design guidance for a Filter Strip[~~Strips~~] (393) using *RUSLE2* can be found in[~~:~~] *the USDA NRCS Agronomy Technical Note No. 2: Using RUSLE2 for the Design and Predicted Effectiveness of Vegetative Filter Strips (VFS) for Sediment*.
Grade Stabilization Structure (410) 15-year practice life	This practice is utilized to prevent gully erosion from occurring as a result of water velocities being too rapid to be stabilized with grass. A Grade Stabilization Structure[~~Structures~~] (410) may serve to reduce gully erosion at the outlet of a grassed waterway or diversion. Other practices that may be needed are Critical Area Planting (342), Mulching (484), and [~~possibly~~]Fence (382). Additional guidance on grade stabilization structures can be found in the *University of Kentucky Extension Publication AEN-100 Building a Grade Stabilization Structure to Control Erosion*.
Grassed Waterway (412) 10-year practice life	This practice is utilized to control gully erosion from concentrated flow areas occurring as a result of an animal feeding operation. Critical Area Planting (342), Mulching (484), Fence (382), Filter Strip (393), Grade Stabilization Structure (410), Subsurface Drain (606), or Underground Outlet (620) may be needed along with this practice.
Heavy Use Area Protection (561) 10-year practice life	**Heavy Use Traffic Areas:** Under the Livestock: AFO[~~Animal Feeding Operations~~] BMP category, the Heavy Use Area Protection (561) practice can only be used as a companion practice to implement a Waste Storage Facility (313). A NMP is required prior to submitting a cost-share application for Heavy Use Area Protection (561) when used as a companion practice with a Waste Storage Facility (313). Winter feeding pads, a type of Heavy Use Area Protection (561) should **not** be requested under this BMP unless it is part of a Waste Storage Facility (313). Winter feeding pads are designed to be used in pastureland settings where livestock numbers are less concentrated, animals are only fed during winter months, and a Waste Storage Facility[~~Facilities~~] (313) is[~~are~~] typically not needed. Winter feeding pads or other Heavy Use Area Protection[~~Areas~~] (561) not associated with a Waste Storage Facility (313) should[~~would~~] be requested under the Pastureland BMP category. **Watering Facility Pad and Equipment Crossings:** The Heavy Use Area Protection (561)[~~HUA~~] practice will also be used as a companion practice to establish a stable traffic area around a livestock Watering Facility[~~Facilities~~] (614) or as a livestock or equipment crossing for a Grassed Waterway (412) when [~~these are~~]needed.
Lined Waterway or Outlet (468) 15-year practice life	This practice may be needed when gully erosion is occurring and a standard grassed waterway will not solve the problem due to excessive velocities or continuous seepage flow that cannot be managed with an Underground Outlet (620) or a Subsurface Drain (606). The resource problem that is to be addressed with this practice should be due to[~~the result of~~] damage created by an animal feeding operation.

NRCS BMP Name & Practice Code	**Kentucky Soil Erosion & Water Quality[~~State Soil and Water State~~] Cost-Share Program** Practice Guidance/Description
Livestock Pipeline (516) 20-year practice life	This practice should[~~will~~] only be used under this BMP category when an additional Watering Facility[~~Facilities~~] (614) will aid in the development of a Waste Storage Structure (313), or improve the management of concentrated livestock movement, and permit increased animal waste collection in a Waste Storage Facility (313). Livestock Pipeline (516) can only be used in conjunction with a livestock Watering Facility (614).
Mulching (484) 1-year practice life	This practice can only be used as a companion practice to assist with the vegetation establishment on conservation practices. This practice includes natural materials (hay or straw) and erosion control blankets.
Nutrient Management (590) 1-3 year practice life	This practice assists with the cost of properly applying animal waste, produced by an animal feeding operation, to the land according to a NMP. A current NMP is required before submitting a cost-share application for animal waste application assistance. Note: farms accepting, but[~~For farms that are accepting animal waste, but are~~] not producing animal waste[~~it~~], cost-share assistance can be requested for the proper application of waste according to an approved NMP. Select the cost-share item that best describes the waste application methods planned when estimating cost. Nutrient Management (590) involving precision (variable rate) application of inorganic fertilizer to cropland should[~~would~~] be requested under the Cropland BMP category.
Nutrient Management Plan – Written (104) 5-year practice life	This practice assists with the development of a [~~Nutrient Management Plan (~~]NMP[~~)~~] to identify nutrient needs of crops and current soil available nutrients within fields receiving animal waste that is imported to the farm. A NMP plan should[~~would~~] be used instead of a CNMP when the animal waste is not produced on the farm, but utilized to provide nutrients to fields. The NMP[~~Nutrient Management Plan~~] will also identify potential application setbacks, application timing and placement of nutrients, and any other soil or water related nutrient concerns. A Nutrient Management Plan (104) is required prior to cost-share approval for the Nutrient Management (590) practice.
Riparian Forest Buffer (391) 15-year practice life	This practice is utilized to establish trees and shrubs along a stream, around a sinkhole, or other water body when land use conditions meet[~~meets~~] the Livestock: AFO[~~Animal Feeding Operations~~] BMP eligibility criteria and this practice is needed to [~~a~~]solve water quality issues resulting from concentrated livestock. This practice may[~~will likely~~] be used in conjunction with other practices as part of the overall waste management system. Tree/[~~ and~~]Shrub Site Preparation (490) and the Tree/[~~ and~~]Shrub Establishment (612) practices[~~practice~~] will be needed to complete this practice. Fencing (382) may[~~will also likely~~] be needed to protect area from livestock damage. The Kentucky Division of Forestry should be contacted to develop any tree planting plans.
Riparian Herbaceous Cover (390) 5-year practice life	This practice is used to establish a grass vegetative buffer adjacent to a stream, sinkhole, or other water body when land use conditions meet the Livestock: AFO[~~Animal Feeding Operations~~] BMP eligibility criteria and when a Filter Strip (393) practice cannot be designed due to site conditions. This practice may[~~will likely~~] be used in conjunction with other practices as part of the overall waste management system. The seeding requirements of this practice should follow the guidance of the Critical Area Planting (342) or the Conservation Cover (327) practice depending on site conditions.
Roof Runoff Structure (558) 15-year practice life	This practice is used to transfer roof runoff away from concentrated livestock feeding areas,[~~ and~~] animal waste storage areas, or as a companion practice with a Waste Storage Facility (313), Composting Facility (317), or Animal Mortality Facility (316). This practice may include gutters and downspouts, concrete curbs, trench drains, and storage tanks. Guidance on rainwater harvesting can be found in the *University of Kentucky Extension Publication AEN-135 Rainwater Harvesting for Livestock Production Systems*.
Roofs & Covers (367) 15-year practice life	This is a companion practice of an animal waste management system to help protect a dry Waste Storage Facility (313), Composting[~~Animal Waste Compost~~] Facility (317), or Animal Mortality Facility (316) from precipitation. A [~~Nutrient Management Plan (~~]NMP[~~)~~] is required before submitting a cost-share[~~an~~] application containing this practice[~~ for funding~~]. Roofing can only be used when it is a component for the proper function of the practice. It is not to be used as a "stand alone" practice.

NRCS BMP Name & Practice Code	**Kentucky Soil Erosion & Water Quality[~~State Soil and Water State~~] Cost-Share Program** Practice Guidance/Description
Stream Crossing (578) 10-year practice life	This practice should[~~will~~] only be used within this BMP category when it is needed to move livestock across a stream from one animal feeding area to another. This practice should not be used to allow concentrated livestock numbers to have continuous access to a stream. Kentucky Division of Water permits may be required when installing a stream crossing. Additional guidance on stream crossings can be found in the *University of Kentucky Extension Publication AEN-101 Stream Crossings for Cattle*. More guidance about Division of Water floodplain permits can be found on the Kentucky Division of Water webpage under the "Permits, Certifications, and Approvals" tab.
Subsurface Drain (606) 20-year practice life	This practice can only be used as a companion practice to improve soil drainage at a site to allow for vegetation establishment in areas that are experiencing damage from an animal feeding operation. It is typically used in conjunction with a Grassed Waterway (412), which has wet or saturated soils, or to control seepage that is contributing to soil erosion.
Trails & Walkways (575) 10-year practice life	This practice includes the use of gravel on geotextile to provide a stable surface and prevent soil erosion when livestock move to and from feeding areas associated with a Waste Storage Facility (313). Trails and Walkways (575) in pastureland settings, walkways to winter feeding pads, gate openings, or approaches to Stream Crossings (578), or to promote rotational grazing should be requested under the Pastureland BMP category.
Tree /[~~and~~] Shrub Establishment (612) 15-year practice life	This practice is used to establish trees around concentrated livestock facilities or animal waste storage areas to assist with odor problems, stabilize eroded areas, provide shade away from sensitive areas, redirect air movement, or improve visual appearance. This practice is[~~will be~~] used in conjunction with the Tree/[~~ and~~]Shrub Site Preparation (490). The Kentucky Division of Forestry should be contacted to develop any tree planting plans.
Tree /[~~and~~] Shrub Site Preparation (490) 1-year practice life	This practice can only be used as a companion practice to prepare the site prior to Tree/[~~ and~~]Shrub Establishment (612) when tree planting is needed to reduce soil erosion or provide water quality benefits due[~~as a result of~~] to concentrated livestock or animal waste related issues.
Underground Outlet (620) 20-year practice life	This practice can only be used as a companion practice to help remove surface water through an underground pipe outlet to a stable or safe outlet when needed with animal feeding areas. This practice is typically used in conjunction with a Water and Sediment Control Basin (638) or a[~~possibly with~~] Roof Runoff Structure (558) to transfer clean water to a safe outlet.
Vegetated[~~Vegetative~~] Treatment Area (635) 10-year practice life	This practice can only be used as a companion practice with a Waste Storage Facility (313) or Heavy Use Area Protection (561) when recommended as part of a NMP to filter or treat liquid waste runoff from concentrated livestock feeding areas. A NMP is required before submitting a cost-share application containing this practice. A Vegetated Treatment Area (635)[~~Vegetative Treatment Areas~~] must meet specific design criteria that considers[~~gives consideration to~~] type and volume of liquid waste applied, vegetation grown, and absorptive ability of the soils on the site. A Vegetated[~~Vegetative~~] Treatment Area (635) should be available for harvesting to remove excess nutrients captured in vegetation.
Waste Facility Closure (360) 10-year practice life	This practice is designed to close an old waste storage pond or waste holding facility. A [~~nutrient management plan (~~]NMP[~~)~~] is required before submitting a cost-share[~~an~~] application. This practice is designed to properly close an existing waste storage structure according to approved engineering plans and Kentucky regulation/statute requirements[~~law~~]. This practice may[~~will likely~~] require Critical Area Planting (342), Mulching (484), and [~~possibly~~]Fence (382) to protect from livestock damage. More guidance on Waste Facility Closures can be found in the *University of Kentucky Extension Publication AEN-125 Closing a Liquid Manure Storage Structure*.

NRCS BMP Name & Practice Code	**Kentucky Soil Erosion & Water Quality[~~State Soil and Water State~~] Cost-Share Program** Practice Guidance/Description
Waste Storage Facility (313) 15-year practice life	This practice includes a[~~any of the following practices:~~] holding pond, manure tank, and dry stack pad. A [~~nutrient management plan (~~]NMP[~~)~~] is required before submitting a cost-share[~~an~~] application containing this practice[~~ for funding~~]. Several other conservation practices may be needed with the Waste Storage Facility[~~Structure~~] (313) to allow it to[~~make it~~] function properly. This practice is designed to store animal waste according to approved engineering plans and Kentucky regulation/statute[~~state law~~] requirements. Any liquid waste holding structure requires a no-discharge permit from Kentucky Division of Water prior to construction. More guidance on Kentucky Division of Water no-discharge permits can be found on the Kentucky Division of Water webpage under the "Permits, Certifications, and Approvals" tab.
Waste Transfer (634) 15-year practice life	This practice includes the development of a collection pit and underground PVC pipe to allow for the transfer of liquid animal waste to a Waste Storage Facility (313) or to more environmentally desirable areas of the farm for application. A NMP is [~~be~~]required before submitting a cost-share application containing this practice.
Waste Treatment Lagoon (359) 15-year practice life	This practice is designed to have both anaerobic and aerobic holding ponds to biologically treat animal waste prior to application. A NMP is required before submitting a cost-share[~~an~~] application containing this practice[~~ for funding~~]. Any liquid waste holding structure requires a no-discharge permit from the Kentucky Division of Water prior to construction. More guidance on Kentucky Division of Water no-discharge permits can be found on the Kentucky Division of Water webpage under the "Permits, Certifications, and Approvals" tab.
Water & Sediment Control Basin (638) 10-year practice life	This practice may be installed when it is the best alternative to collect excessive runoff water or store accumulated sediment from eroded areas in a constructed basin near an animal feeding area. Typically, water is removed from the basin through an Underground Outlet (620) that safely disposes of excess water to an acceptable outlet.
Watering Facility (614) 20-year practice life	This practice should be used under this BMP category when an additional Watering Facility[~~Facilities~~] (614) will aid in the development of a Waste Storage Structure (313), or improve the management of the animal feeding area, and permit increased animal waste collection in a Waste Storage Facility (313). This practice could also be used to remove livestock from polluted water sources that are currently being impacted by animal feeding operations.

Livestock: Pastureland BMP Category

BMP Introduction and Objective[:]

The Pastureland BMP category is designed to address natural resource issues that are occurring on pastureland acres. The list of practices under the Livestock: Pastureland BMP category focuses on solving soil erosion and water quality pollution problems resulting from livestock grazing[~~on these acres~~]. This could require one practice or multiple practice components to solve the soil and water related resource concerns. It is recommended that changes in land management and/or stocking rates be fully evaluated prior to installing any cost-share practices. Often, changes in [~~the~~]land management may resolve the natural resource issues without the need for additional practices. Poor operation and maintenance of installed cost-share practices may[~~will likely~~] result in the failure of the practice to solve the natural resource problem. This should be reviewed and discussed with cost-share applicants. [~~Please~~]Refer to the BMP Eligibility Criteria section below to clarify when to request this BMP category. This BMP category should not be requested for assistance with confined livestock feeding operations or where livestock stocking rates are significantly greater than forage production potential. Conservation practices needed to address resource concerns with concentrated livestock and/or animal waste that does not meet the Pastureland BMP eligibility criteria requirements, should be requested under the Livestock: AFO[~~Animal Feeding Operation~~] BMP category.

All practices should be consistent with recommendations as part of the[~~a~~] Kentucky Agriculture Water Quality Act [~~plan~~]and be installed according to approved engineering designs or Implementation Recommendations (IR)[~~job sheet recommendations~~].

Current Eligible Practices That May Be Requested Under This BMP[:]

Critical Area Planting (342)
Diversion (362)
Fence (382)
~~Forage and Biomass Planting (512)~~
Grade Stabilization Structure (410)
Grassed Waterway (412)
Heavy Use Area Protection (561)

- Concrete winter feeding area with hay feeding rack *NMP Required*
- Fence line feeding area *NMP Required*
- Rock and geotextile winter feeding pad *NMP Required*
- Concrete winter feeding pad *NMP Required*
- Heavy use area around watering facilities and gate openings
- Heavy use area crossing for grassed waterway

Lined Waterway and Outlet (468)
Livestock Pipeline (516)
Mulching (484)
Pasture and Hay Planting (512)
Pond (378)
Riparian Forest Buffer (391)
Riparian Herbaceous Cover (390)
Roof Runoff Structure (558)
Spring Development (574)
Stream Crossing (578)
Subsurface Drain (606)

Trails and Walkways (575)
Tree /[and] Shrub Establishment (612)
Tree /[and] Shrub Site Preparation (490)
Underground Outlet (620)
Vegetated[Vegetative] Treatment Area (635)
Water and Sediment Control Basin (638)
Watering Facility (614)
Water Well (642)

BMP Eligibility Criteria[:]

Cost-share assistance under the Livestock: Pastureland [Eligible land includes permanent pastureland, pastured hay land, and cropland acres planted to annual forages and grazed. This] BMP category may[can only] be requested for eligible lands meeting the following criteria:[on sites where]

1. Livestock stocking rates are less than or equal to:
   a) One cow/calf pair per 2 acres of pastureland;
   b) One adult cow per 1.5 acres; or
   c) One stocker calf (400-750 lbs.) per 1 acre of pastureland; or
2. If *KY Graze Tool* is used to calculate the stocking rate at 130% or less of the pastureland carrying capacity. If livestock stocking rates exceed these numbers on pastureland acres, then the applicant is ineligible for the Pastureland BMP category and should request assistance under the Livestock: [Animal Feeding Operation (]AFO[)] BMP category. The *KY Graze Tool* (i.e. *Grazing-KY Graze*) can be found at efotg.sc.egov.usda.gov under Section 4 – Practice Standards & Supporting Documents and Ecological Science Tools.

Eligible land under this BMP includes permanent pastureland, pastured hay land, and cropland acres planted to annual forages and grazed.

Cost-Share Rates and [Payment]Limits[:]

The Kentucky Soil Erosion and Water Quality Cost-Share Program has established a 75% cost-share rate limit based on actual expenses, not to exceed the estimated payment rate.

A cost-share limit of $20,000 per applicant is approved for any single or combination of practice components needed to solve the soil and water resource concerns[problems] on pastureland acres. Multiple cost-share applications, by the same applicant or on the same land, is not permitted for this practice.

Eligible Practices[:]

The eligible practices listed in Table 2[below] should only be requested to address existing or potential soil erosion and/or water quality issues on pastureland acres as identified in the BMP eligibility criteria[for this practice]. Other resource concerns associated with cropland, forestland, or livestock[:] animal feeding operations[operation (AFO)] should be requested under a different section of this[the cost share program] handbook. All practices should be designed and installed according to *NRCS Field Office Technical Guide* standards or other approved standards as listed in this handbook[manual].

All ***NRCS Field Office Technical Guidance (FOTG)*** standards for the practice codes in Table 2[below] can be found at[:] efotg.sc.egov.usda.gov. After selecting "Kentucky"[the correct state] from the drop-down box, practice standards are located under Section 4 – Practice Standards & Supporting Documents and Conservation Practice Standards & Support Documents[IV of the dropdown menu and in the Conservation Practices category].

Referenced ***University of Kentucky Extension Publications*** can be found at[:] dept.ca.uky.edu/agc/pub_prefix.asp. In the drop-down box, select the alpha[-]numerical prefix for the referenced practice[~~ and a list containing that practice should appear~~].

Table 2 – Livestock: Pastureland BMPs

NRCS BMP Name & Practice Code	**Kentucky Soil Erosion & Water Quality[~~State Soil and Water State~~] Cost-Share Program** Practice Guidance/Description
Critical Area Planting (342) 10-year practice life	This practice is utilized to grade, smooth, and seed eroded areas associated with livestock damage in pastureland settings or vegetating other conservation construction practices associated with this BMP. This practice may[~~will likely~~] require Mulching (484) to enhance establishment and Fence (382) to exclude livestock.
Diversion (362) 10-year practice life	This practice is used to construct an earthen channel to divert runoff water to a stable outlet when hillside runoff in pastureland areas is[~~are~~] creating soil erosion or sedimentation problems on adjoining bottomland areas. The practice will also require Critical Area Planting (342) and Mulching (484) to establish vegetation, and may require a Fence[~~Fencing~~] (382) to protect from livestock damage and a Grade Stabilization Structure (410) for outlet protection.
Fence (382) 20-year practice life	This practice is utilized to protect sensitive areas (streams, sinkholes, ponds, forestland, and eroded areas) located in or adjacent to pastureland areas from livestock damage and/or pollution. This practice is also utilized to protect newly constructed conservation practices in pastureland areas[,] from livestock damage. Cross fencing can also be requested under this practice to divide larger pastures into smaller fields that would encourage rotational grazing and improved pasture management. This practice cannot be used to create small lots or feeding pens to control livestock movement for the purpose of feeding management. Only permanent fence is an approved practice for cost-share under this BMP category[~~practice~~].
[~~**Forage and Biomass Planting (512)**~~ ~~5 year practice life~~	~~This practice is utilized to improve forage species in existing pastureland where poor forage vegetation, weed species encroachment and soil erosion may be occurring. Landowners without livestock should apply for this practice under the Cropland BMP practice. If forage decline is the result of current overgrazing (verify with KY Graze tool) this practice should not be used to make improvements until after stocking rates are reduced to less than 130% KY Graze tool carrying capacities. This practice requires that existing weedy vegetation be controlled before introducing new species and erosive areas be repaired in pastureland acres as part of this practice.~~ ~~Fields established to new forage species using this practice should be managed according to the grazing heights and recommendations as established in the Prescribed Grazing (528) standard.~~ ~~More guidance can be found in the University of Kentucky Extension Publications AGR-1 Lime & Fertilizer Recommendations and AGR 18 Grain & Forage Crop Guide.~~]
Grade Stabilization Structure (410) 15-year practice life	This practice is utilized to prevent "head cutting" soil erosion as a result of significant grade changes. Grade Stabilization Structures (410) may serve to reduce gully erosion at the outlet of a grassed waterways and diversions, or in areas where concentrate runoff is creating a "head cut" due to over fall. Other practices that may be needed are Critical Area Planting (342), Mulching (484), and [~~possibly~~]Fence (382). Additional guidance can be found in the *University of Kentucky Extension Publication AEN-100 Building a Grade Stabilization Structure to Control Erosion.*
Grassed Waterway (412) 10-year practice life	This practice is utilized to control gully erosion from concentrated flow areas occurring in pastureland areas. Critical Area Planting (342), Mulching (484), Fence (382), Filter Strip (393), Grade Stabilization Structure (410), Subsurface Drain (606), or Underground Outlet (620) may be needed along with this practice.

NRCS BMP Name & Practice Code	**Kentucky Soil Erosion & Water Quality[~~State Soil and Water State~~] Cost-Share Program** Practice Guidance/Description
Heavy Use Area Protection (561) 10-year practice life	This practice is utilized to manage various heavy traffic resource problems occurring from livestock and equipment in pastureland settings. **Rock and Geotextile or Concrete Winter Feeding Pad:** This practice includes the use of gravel on geotextile, concrete pads, fence-line feed pads, or concrete winter feeding pad with hay rack to manage resource concerns associated with winter feeding sites in pastureland settings. A NMP is required [~~to be completed~~]prior to submitting a cost-share application for Heavy Use Area Protection (561)[~~funding request for the HUA~~] for winter feeding areas to verify that nutrients can be managed appropriately on the available land. Refer to the BMP eligibility criteria for instructions to determine if stocking rates meet the pastureland criteria for this practice. If stocking rates exceed the BMP eligibility criteria for this practice, then a winter feeding pad is not an eligible practice and the producer needs[~~would need~~] to request assistance under the Livestock: [~~Animal Feeding Operation (~~]AFO[~~)~~] BMP category[~~-practice~~]. Heavy use areas associated with livestock traffic walkways should be requested under the Trails and Walkways (575) practice. **Watering Facility Pad and Equipment Crossings:** The Heavy Use Area Protection (561)[~~HUA~~] practice will also be used as a companion practice to establish stable traffic areas around a livestock Watering Facility[~~Facilities~~] (614), or as a livestock or equipment crossing for a Grassed Waterway (412). Erosion concerns around gate openings is also a potential use. Crossings for streams should[~~will~~] be requested under the Stream Crossing (578) practice.
Lined Waterway or Outlet (468) 15-year practice life	This practice may be needed when gully erosion is occurring and a standard grassed waterway will not solve the problem due to excessive velocities or continuous seepage flow that cannot be managed with an Underground Outlet (620) or a Subsurface Drain (606). The resource problem [~~that is~~]to be addressed with this practice should be due to[~~the result of~~] damage created by livestock in a pastureland setting.
Livestock Pipeline (516) 20-year practice life	This practice should[~~will~~] only be used under this BMP category when an additional Watering Facility[~~Facilities~~] (614) will aid in better livestock distribution resulting in improved pasture management according to the Prescribed Grazing (528) standard or to protect water sources or other sensitive areas from livestock water access and potential pollution. Livestock Pipeline (516) can only be used in conjunction with a livestock Watering Facility (614).
Mulching (484) 1-year practice life	This practice can only be used as a companion practice to assist with the vegetation establishment on conservation practices. This practice includes natural materials (hay or straw) and erosion control blankets.
Pasture & Hay Planting (512) 5-year practice life	This practice is utilized to improve forage species in existing pastureland where poor forage vegetation, weed species encroachment and soil erosion may be occurring. Landowners without livestock should apply for this practice under the Cropland BMP category. If forage decline is the result of current overgrazing (verify with *KY Graze Tool*), this practice should **not** be used to make improvements until after stocking rates are reduced to less than 130% *KY Graze Tool* carrying capacities. This practice requires that existing weedy vegetation be controlled before introducing new species and erosive areas be repaired in pastureland acres as part of this practice. Fields established to new forage species using this practice should be managed according to the grazing heights and recommendations as established in the Prescribed Grazing (528) standard. More guidance can be found in the *University of Kentucky Extension Publications AGR-1 Lime & Fertilizer Recommendations* and *AGR-18 Grain, Forage, & Cover Crop Guide*.
Pond (378) 20-year practice life	This practice is utilized when there is a lack of available livestock water on pastureland acres resulting in soil erosion or water quality concerns. The pond practice should only be used when there is no other, more economical or practical, water supply sources available. Newly constructed ponds are required to be fenced with[~~and~~] a pipeline and tank or livestock ramp, [~~installed~~]and must help improve current livestock distribution on pastureland acres or cause new pastureland acres to become available for grazing. Companion practices such as Fence (382), Livestock Pipeline (516), Watering Facility (614), Critical Area Planting (342), and Mulching (484) may[~~will also likely~~] be needed with this practice.

NRCS BMP Name & Practice Code	**Kentucky Soil Erosion & Water Quality[~~State Soil and Water State~~] Cost-Share Program** Practice Guidance/Description
Riparian Forest Buffer (391) 15-year practice life	This practice is utilized to establish trees and shrubs along a stream, around a sinkhole, or other water body when land use conditions meet[~~meets~~] the Pastureland BMP eligibility criteria. This practice may[~~will likely~~] be used in conjunction with other practices as part of the overall pasture management system. Tree/[~~ and ~~]Shrub Site Preparation (490) and the Tree/[~~ and ~~]Shrub Establishment (612) practice will be needed to complete this practice. Fencing (382) may[~~will also likely~~] be needed to protect area from livestock damage. The Kentucky Division of Forestry should be contacted to develop any tree planting plans.
Riparian Herbaceous Cover (390) 5-year practice life	This practice is used to establish a grass vegetative buffer adjacent to a stream, sinkhole, or other water body when land use conditions meet[~~meets~~] the Pastureland BMP eligibility criteria and when a Filter Strip (393) practice cannot be designed due to site conditions. This practice may[~~will likely~~] be used in conjunction with other practices as part of the overall pasture management system. The seeding requirements of this practice should follow the guidance of the Critical Area Planting (342) or the Conservation Cover (327) practice depending on site conditions.
Roof Runoff Structure (558) 15-year practice life	This practice is used to transfer roof runoff from existing agricultural infrastructure and away from concentrated livestock use areas. This practice may include gutters and downspouts, concrete curbs, trench drains, and storage tanks. Guidance on rainwater harvesting can be found in the *University of Kentucky Extension Publication AEN-135 Rainwater Harvesting for Livestock Production Systems*.
Spring Development (574) 10-year practice life	This practice is used when a water source is needed for livestock and dependable, naturally occurring water from a spring or seep is the most practical and economical means to obtain that water. Livestock should be excluded from the immediate spring development area. This practice is typically used in conjunction with Fence (382), Livestock Pipeline (516), and Watering Facility (614). Additional guidance can be found in *the University of Kentucky Extension Publication AEN-98 Alternative Water Source: Developing Springs for Livestock*.
Stream Crossing (578) 10-year practice life	This practice should only be used within this BMP category when it is needed to move livestock across a stream from one pasture area to another without causing streambank damage. This practice should not be used to improve livestock access to a stream unless the remaining streambanks are fenced and improvements to existing streambank conditions are a result. This practice may also be needed when there is no other source of livestock water available in a pasture field and it is the most practical alternative to solve the resource problem. Kentucky Division of Water permits may be required when installing a stream crossing. Additional guidance can be found in the *University of Kentucky Extension Publication AEN-101 Stream Crossings for Cattle*. Additional guidance about Division of Water floodplain permits can be found on the Kentucky Division of Water webpage under the "Permits, Certifications, and Approvals" tab.
Subsurface Drain (606) 20-year practice life	This practice can only be used as a companion practice to improve soil drainage and to allow for vegetation establishment in pastureland areas that are experiencing damage from concentrated water flow and resulting in soil erosion. This practice is typically used in conjunction with a grassed waterway, which has wet or saturated soils or to control seepage that is contributing to soil wetness in the waterway area.
Trails & Walkways (575) 10-year practice life	This practice includes the use of gravel on geotextile to provide a stable surface and prevent further soil erosion when livestock move to and from pastureland areas. This includes Trails and Walkways (575) in pastureland settings, walkways to winter feeding pads, or approaches to Stream Crossings (578).
Tree /[~~and~~] Shrub Establishment (612) 15-year practice life	This practice is used to establish trees when soil erosion or water quality issues can be resolved with this practice. This may include plantings to stabilize eroded areas, provide shade away from sensitive areas, or improve streambank or shoreline conditions. This practice should be used in conjunction with the Tree/[~~ and ~~]Shrub Site Preparation (490). Tree and shrub plantings should follow Kentucky Division of Forestry or NRCS guidance.
Tree /[~~and~~] Shrub Site Preparation (490) 1-year practice life	This practice can only be used as a companion practice to prepare the site prior to Tree/[~~Trees or ~~]Shrub Establishment (612) when tree planting is needed to reduce soil erosion or provide water quality benefits in pastureland settings. Tree and shrub site prep should follow Kentucky Division of Forestry or NRCS guidance.

NRCS BMP Name & Practice Code	**Kentucky Soil Erosion & Water Quality[~~State Soil and Water State~~] Cost-Share Program** Practice Guidance/Description
Underground Outlet (620) 20-year practice life	This practice can only be used as a companion practice to help remove surface water through an underground pipe outlet to a stable or safe outlet when needed to address a soil erosion or water quality resource concern. This practice is typically used in conjunction with a Water and Sediment Control Basin (638) or [~~possibly~~]with a Roof Runoff Structure (558) to transfer clean water to a safe outlet.
Vegetated[~~Vegetative~~] Treatment Area (635) 10-year practice life	This practice can only be used as a companion practice with a Heavy Use Area Protection (561) to filter runoff from winter feeding areas prior to entering a water source or other sensitive areas. Vegetated[~~Vegetative~~] Treatment Area (635) should be available for harvesting to remove excess nutrients captured in vegetation.
Water & Sediment Control Basin (638) 10-year practice life	This practice is installed when it is the best alternative to collect excessive runoff water or store accumulated sediment from eroded areas in a constructed basin in a pastureland setting. Typically, water is removed from the basin through an Underground Outlet (620) that safely disposes of excess water to an acceptable outlet.
Watering Facility (614) 20-year practice life	This practice should be used under this BMP category when an additional Watering Facility[~~Facilities~~] (614) will aid in reducing soil erosion by limiting livestock travel paths, improving water quality by better distributing livestock grazing in fields, or by removing livestock from a water source such as a stream, pond, sinkhole, or spring. Watering facilities should not be placed closer than 800 feet in the same pasture field unless it is located in an adjoining pasture fence line. When a Watering Facility[~~Facilities~~] (614) is[~~are~~] being installed to better distribute grazing, pastures should be managed according to the Prescribed Grazing (528) standard grazing heights requirements.
Water Well (642) 20-year practice life	Water wells under this BMP category can only be developed to provide livestock water in pasture settings to better distribute grazing or provide other water quality benefits. Utilize this practice when no other economical source of water (public water line, spring, pond, stream, etc.) is available for livestock and geologic site conditions are conducive for a successful water well. Water wells that are drilled and do not produce water cannot receive a cost-share payment. In addition to the Water Well (642) practice, Livestock Pipeline (516), Watering Facility (614), and Heavy Use Area Protection (561) around the watering facility may[~~will likely~~] be needed.

Cropland BMP Category

BMP Introduction and Objective[:]

The Cropland BMP should[~~This practice will~~] only be requested on lands planted in annual crops, hay land acres, meadow areas, or other open areas that are in grasses, legumes, or forbs and are not used for pastureland. The Cropland BMP category focuses on solving soil erosion and water quality pollution problems resulting from cropland runoff. This could require one practice or multiple practices to solve the soil and water related concerns. [~~Please~~]Refer to the BMP Eligibility Criteria section below for more clarity on when this BMP category should be requested. The list of practices under the Cropland BMP category focuses on solving water quality pollution problems resulting from soil erosion or nutrient runoff associated with cropland areas. Note that[:] some of the practices under this BMP may require a [~~Nutrient Management Plan (~~]NMP[~~)~~] to be developed prior to the application of the conservation practices. Producers may also utilize [~~the~~]NRCS EQIP [~~program~~]to request cost-share assistance in developing a NMP, if applicable, prior to submitting[~~making~~] a Kentucky Soil and Water [~~State~~]Cost Share Program Application for these identified practices.

All practices should be consistent with recommendations as part of the[~~a~~] Kentucky Agriculture Water Quality Act [~~plan~~]and be installed according to approved engineering designs or Implementation Recommendations (IR)[~~job sheet recommendations~~].

Current Eligible Practices That May Be Requested Under This BMP[:]

Cover Crop (340)
Critical Area Planting (342)
- Practice vegetation establishment ONLY

Diversion (362)
Fence (382)
- ONLY as companion practice with 512 – Pasture and Hay Planting (crop conversion)

Field Border (386)
Filter Strip (393)
[~~Forage and Biomass Planting (512)~~]
Grade Stabilization Structure (410)
Grassed Waterway (412)
Heavy Use Area Protection (561)
Lined Waterway or Outlet (468)
Mulching (484)
Nutrient Management (590)
- Inorganic fertilizer ONLY *NMP Required*

Nutrient Management Plan (104)
Pasture and Hay Planting (512)
Residue and Tillage Management (329)
- Conversion to no-till or strip-tillage

Riparian Forest Buffer (391)
Riparian Herbaceous Cover (390)
Stream Crossing (578)
Subsurface Drain (606)
Terrace (600)
Tree /[~~and~~] Shrub Establishment (612)
Tree /[~~and~~] Shrub Site Preparation (490)

Underground Outlet (620)
Water and Sediment Control Basin (638)

BMP Eligibility Criteria[:]

Cost-share assistance under the Cropland[this] BMP category may[will] be utilized for eligible lands meeting[when site conditions meet] the following criteria:

1. [Eligible lands include]Fields with soil or water related resource problems that are planted in annual crops, abandoned crop fields, hay land acres, meadow areas, or other open areas; and
2. [that]Are not used for pastureland or accessed by livestock at any point during the year.

Practices should be requested to solve existing or potential natural resource concerns. This may require one practice or multiple practices. It is recommended that changes in land management be fully evaluated prior to installing any cost-share [structural]practices. Often[Many times], changes in the land management may resolve the natural resource problems without the need of additional practices. Poor operation and maintenance of installed cost-share practices may[will likely] result in the failure of the practice to resolve the natural resource problem. This should be reviewed and discussed with cost-share applicants.

Cost-Share Rates and Limits[:]

The Kentucky Soil Erosion and Water Quality Cost-Share Program has established a 75% cost-share rate limit based on actual expenses, not to exceed the estimated payment rate.

A cost-share limit of $20,000 per applicant is approved for any single or combination of practice components that are needed to resolve[solve the] Cropland BMP category resource concerns. Multiple cost-share applications by the same applicant, or on the same land, is not permitted.

Eligible Practices[:]

The eligible practices[practice components] listed in Table 3[below] should only be requested to address existing or potential soil erosion and/or water quality issues resulting on cropland acres as identified in the BMP eligibility criteria[for this BMP category]. Other resource concerns associated with concentrated livestock and animal waste, pastureland, and forestland should be requested under a different section of this[the cost share program] handbook. All practices should be designed and installed according to *NRCS Field Office Technical Guide* standards or other approved standards as identified in this handbook[manual].

All ***NRCS Field Office Technical Guidance (FOTG)*** standards for the practice codes in Table 3[below] can be found at[:] efotg.sc.egov.usda.gov. After selecting "Kentucky"[the correct state] from the drop-down box, practice standards are located under Section 4 – Practice Standards & Supporting Documents and Conservation Practice Standards & Support Documents[IV of the dropdown menu and in the Conservation Practices category].

Referenced ***University of Kentucky Extension Publications*** can be found at[:] dept.ca.uky.edu/agc/pub_prefix.asp. In the drop-down box, select the alpha[-]numerical prefix for the referenced practice[and a list containing that practice should appear].

Table 3 – Cropland BMPs

NRCS BMP Name & Practice Code	**Kentucky Soil Erosion & Water Quality[~~State Soil and Water State~~] Cost-Share Program** Practice Guidance/Description
Cover Crop (340) 1-year practice life	This practice is used to provide seasonal vegetative cover to protect the soil on annually planted cropland acres from soil erosion or to improve soil quality. This practice is not allowed for cost-share assistance on fields that are considered highly erodible land [~~(HEL)~~]and that already require a cover crop to meet Food Security Act requirements. The cover crop cannot be harvested for hay or grain. Light grazing is allowed. No more than half[~~½~~] of the cover crop growth can be removed by grazing livestock. Additional information on cover crops can be found in the *University of Kentucky Extension Publication AGR-240 Cover Crop Benefits &[~~and~~] Challenges in Kentucky*.
Critical Area Planting (342) 10-year practice life	This practice is utilized to establish vegetation on newly constructed conservation practices by preparing a seedbed, seeding, and fertilizing. This practice may[~~will likely~~] require Mulching (484) to enhance establishment.
Diversion (362) 10-year practice life	This practice is used to construct an earthen channel to divert runoff water to a stable outlet when hillside runoff is creating erosion or sedimentation problems on adjoining cropland. The practice will require Critical Area Planting (342) and Mulching (484) to establish vegetation. It also may require a Grade Stabilization Structure (410) for outlet protection.
Fence (382) 20-year practice life	This practice is utilized under the Cropland BMP category ***only*** to complement a conversion from cropland to pastureland (more intensive land use to a less intensive one) in conjunction with Pasture and Hay Planting (512), encouraging a move to a more robust rotational grazing operation. It shall not be used if the conversion is to hay land and no animals will be present. Only permanent fence may be approved for cost-share under this practice.
Field Border (386) 5-year practice life	This practice is used to establish a perennial vegetative border around annually planted crop fields to reduce end-row erosion and improve water quality leaving the field. This border can also be used for hay production or wildlife benefit. The seeding requirements for this practice should follow the guidance of the Critical Area Planting (342) or [~~the~~]Conservation Cover (327) practice depending on site conditions.
Filter Strip (393) 5-year practice life	This practice is utilized when needed to create a grassed buffer area between cropland acres and streams, sinkholes, or other water bodies to help filter contaminated runoff from entering these sensitive areas. Design guidance for Filter Strips (393) using *RUSLE2* can be found in the document[:] *USDA NRCS Agronomy Technical Note No. 2: Using RUSLE2 for the Design and Predicted Effectiveness of Vegetative Filter Strips (VFS) for Sediment*.
[~~**Forage and Biomass Planting (512)**~~ ~~5 year practice life~~	~~This practice is utilized to convert annually planted cropland acres to perennial vegetation. Endophyte infected tall fescue (Ky 31 fescue) and annual grasses or annual legumes are not approved for cost share funding. All seeding must contain both perennial grasses and legumes. A soil test is required and fertilizer and lime should be applied according to University of Kentucky recommendations prior to seeding.~~ ~~More guidance can be found in the University of Kentucky Extension Publication AGR-1 Lime & Fertilizer Recommendations and AGR-18 Grain & Forage Crop Guide.~~]
Grade Stabilization Structure (410) 15-year practice life	This practice is utilized to prevent "head cutting" soil erosion as a result of significant grade changes. A Grade Stabilization Structure[~~Structures~~] (410) may serve to reduce gully erosion at the outlet of a grassed waterways and diversions or in areas where concentrate runoff is creating a "head cut" due to over fall. Other practices that may be needed are Critical Area Planting (342) and Mulching (484). Additional guidance can be found in the *University of Kentucky Extension Publication AEN-100 Building a Grade Stabilization Structure to Control Erosion*.
Grassed Waterway (412) 10-year practice life	This practice is utilized to control gully erosion from concentrated flow areas occurring in cropland areas. Critical Area Planting (342), Mulching (484), Filter Strip (393), Grade Stabilization Structure (410), Subsurface Drain (606), or Underground Outlet (620) may be needed along with this practice.

NRCS BMP Name & Practice Code	**Kentucky Soil Erosion & Water Quality[~~State Soil and Water State~~] Cost-Share Program** Practice Guidance/Description
Heavy Use Area Protection (561) 10-year practice life	This practice should be utilized[~~,~~] under the Cropland BMP category[~~,~~] to install a stable equipment crossing for a Grassed Waterway (412). Crossings for streams should[~~will~~] be requested under the Stream Crossing (578) practice. Other applications of the Heavy Use Area Protection (561) practice should[~~will~~] be requested under a separate BMP category depending on the resource problem that is to be addressed.
Lined Waterway or Outlet (468) 15-year practice life	This practice may be needed when gully erosion is occurring and a standard grassed waterway will not solve the problem due to excessive velocities or continuous seepage flow that cannot be managed with an Underground Outlet (620) or a Subsurface Drain (606).
Mulching (484) 1-year practice life	This practice can only be used as a companion practice to assist with the vegetation establishment on conservation practices. This practice includes natural materials (hay or straw) or erosion control blankets.
Nutrient Management (590) 1-3 year practice life	This practice assists with the cost of precision applying inorganic fertilizer to cropland acres according to a NMP. A NMP is [~~be~~]required before submitting a cost-share application. The method of nutrient application must[~~would need to~~] be an improvement from existing conditions to be eligible for cost-share assistance. Specific information[~~Job Sheets~~] describing the different precision nutrient management options can be found under "Conservation Practice Standards & Support Documents[~~Job Sheets~~]" in Section 4[~~IV~~] of the *NRCS Field Office Technical Guide* [~~Standard~~]for practice code 590. Farms producing or accepting animal waste should apply for this practice under the Livestock: AFO[~~Animal Feeding Operations~~] BMP category. Cost-share assistance to develop a NMP may be requested under NRCS[~~the~~] EQIP [~~program~~]or Kentucky Soil Erosion and Water Quality[~~State~~] Cost-Share Program.
Nutrient Management Plan – Written (104) 5-year practice life	This practice assists with the development of a NMP[~~Nutrient Management Plan~~] to identify nutrient needs of crops and current soil available nutrients within cropland fields. The NMP also identifies potential application setbacks, application timing and placement of nutrients, and any other soil or water related nutrient concerns. A Nutrient Management Plan (104) is required prior to cost-share approval for the Nutrient Management (590) practice.
Pasture & Hay Planting (512) 5-year practice life	This practice is utilized to convert annually planted cropland acres to perennial vegetation. Endophyte infected tall fescue (KY-31 fescue) and annual grasses or annual legumes are not approved for cost-share funding. All seeding must contain both perennial grasses and legumes. A soil test is required, and fertilizer and lime should be applied according to University of Kentucky recommendations prior to seeding. More guidance can be found in the *University of Kentucky Extension Publication AGR-1 Lime & Fertilizer Recommendations and AGR-18 Grain, Forage, & Cover Crop Guide*.
Residue & Tillage Management (329) 1-3 year practice life	This practice is used to convert to no-till or strip tillage planting methods in any annually planted crops where no-till or strip tillage have not been fully adopted by the producer. Crops may[~~could~~] include grain crops, tobacco, small grains, or vegetables crops. The adoption of this practice should result in soil savings over the previous cropping system to be eligible for cost-share. *RUSLE2* may be used to verify soil savings over the previous cropping system. *RUSLE2* can be found in the *USDA NRCS Agronomy Technical Note No. 2: Using RUSLE2 for the Design and Predicted Effectiveness of Vegetative Filter Strips (VFS) for Sediment*.
Riparian Forest Buffer (391) 15-year practice life	This practice is utilized to establish trees and shrubs along a stream, around a sinkhole, or other water body when land use conditions meet[~~meets~~] the Cropland BMP eligibility criteria and this practice is needed to solve water quality issues. This practice may[~~will likely~~] be used in conjunction with other practices as part of the overall cropland management system. Tree/[~~ and~~]Shrub Site Preparation (490) and [~~the~~]Tree/[~~ and~~]Shrub Establishment (612) practice will be needed to complete this practice. The Kentucky Division of Forestry should be contacted to develop any tree planting plans.
Riparian Herbaceous Cover (390) 5-year practice life	This practice is used to establish a perennial vegetative buffer adjacent to a stream, sinkhole, or other water body when land use conditions meet[~~meets~~] the Cropland BMP criteria and when a Filter Strip (393) practice cannot be designed due to site conditions. The seeding requirements of this practice should follow the guidance of the Critical Area Planting[~~seeding~~] (342) or [~~the~~]Conservation Cover (327) practice depending on site conditions.

NRCS BMP Name & Practice Code	**Kentucky Soil Erosion & Water Quality[~~State Soil and Water State~~] Cost-Share Program** Practice Guidance/Description
Stream Crossing (578) 10-year practice life	This practice should[~~will~~] only be used within[~~with~~] this BMP category when it is needed to establish a stable equipment crossing on a stream or erosive area to allow access to [~~a~~]crop fields[~~fields(s)~~] without causing streambank erosion damage. This practice is not intended to be used to create new stream crossings unless it is solving an existing stream crossing resource concern. Kentucky Division of Water permits may be required when installing a stream crossing. More guidance about Division of Water floodplain permits can be found on the Kentucky Division of Water webpage under the "Permits, Certifications, and Approvals" tab.
Subsurface Drain (606) 20-year practice life	This practice can only be used as a companion practice to improve soil drainage at a site to allow for vegetation establishment in cropland areas that are experiencing damage from concentrated flow or resulting in soil erosion. It is typically used in conjunction with a Grassed Waterway (412) that[~~grassed waterway which~~] has wet or saturated soils, or to control seepage that is contributing to soil erosion. This practice cannot be used to improve drainage in crop fields unless it is used in conjunction with another soil erosion control practice.
Terrace (600) 10-year practice life	This practice is used to control soil erosion as a result of long field slopes occurring in cropland areas that are creating soil erosion resource concerns. A stable outlet is required to discharge the runoff water collected by the terrace. A Grassed Waterway (412) or Grade Stabilization Structure (410) may be needed in conjunction with this practice.
Tree /[~~and~~] Shrub Establishment (612) 15-year practice life	This practice is used to establish trees on cropland areas when soil erosion or water quality issues can be resolved with this practice. This practice may be used to remove areas from cropland production, to stabilize eroded areas, or to improve streambank, sinkhole, or shoreline conditions. This practice should[~~will~~] be used in conjunction with the Tree/[~~ and~~]Shrub Site Preparation (490). Tree and Shrub plantings should follow Kentucky Division of Forestry or NRCS guidance. The Kentucky Division of Forestry should be contacted to develop any tree planting plans.
Tree /[~~and~~] Shrub Site Preparation (490) 1-year practice life	This practice can only be used as a companion practice to prepare the site prior to Trees/[~~ or~~]Shrub Establishment (612) when tree planting is needed to reduce soil erosion or provide water quality benefits in cropland settings. Site preparation should follow Kentucky Division of Forestry plan recommendations.
Underground Outlet (620) 20-year practice life	This practice can only be used as a companion practice to help remove surface water through an underground pipe to a stable or safe outlet when it is needed to address a soil erosion or water quality resource concern. It is typically used in conjunction with a Water and Sediment Control Basin (638) to transfer runoff water to a safe outlet.
Water & Sediment Control Basin (638) 10-year practice life	This practice may be installed when it is the best alternative to controlling gully erosion by collecting runoff water and storing accumulated sediment from eroding areas on cropland acres. Typically, the basin water is removed through an Underground Outlet (620) that safely disposes of excess water to an acceptable outlet.

Forestland BMP Category

BMP Introduction and Objective[:]

The Forestland BMP[~~This practice~~] category should only be requested on sites with soil or water natural resource problems that are occurring in woodland areas, harvested forestland sites, recently tree planted sites, early successional wooded sites, and any other non-pastured forested sites. BMPs[~~BMP practices~~] needed in woodland areas that are currently accessed by livestock should be requested under the Livestock: Pastureland BMP category[~~practice~~] or Livestock: [~~Animal Feeding Operation (~~]AFO[~~)~~] BMP category[~~practice~~]. [~~Please~~]Refer to the BMP Eligibility Criteria section below[~~under this practice~~] for more clarity on when to request this BMP. One practice or multiple practices may be needed to resolve an existing soil and water quality related issues.

All practices should be consistent with recommendations as part of the[~~a~~] Kentucky Agriculture Water Quality Act [~~plan~~]and be installed according to approved engineering designs or Implementation Recommendations (IR)[~~job sheet recommendations~~].

Current Eligible Practices That May Be Requested Under This BMP[:]

Brush Management (314)
Critical Area (342)
Diversion (362)
Forest Management Plan (106)
Forest Stand Improvement (666)
Grade Stabilization Structure (410)
Grassed Waterway (412)
Heavy Use Area Protection (561)
Lined Waterway or Outlet (468)
Mulching (484)
Riparian Forest Buffer (391)
Road / Trail / Landing Closure and Treatment (654)
Stream Crossing (578)
Tree /[~~and~~] Shrub Establishment (612)
Tree /[~~and~~] Shrub Site Preparation (490)
Underground Outlet (620)
Water and Sediment Control Basin (638)

BMP Eligibility Criteria[:]

Cost-share assistance under the Forestland[~~this~~] BMP category may be utilized for eligible lands meeting[~~when site conditions~~] the following criteria:

1. Areas[~~Eligible lands include area~~] with soil or water related resource problems that are currently in woody vegetation; and
2. Are not accessed by livestock;[.]
3. Including[~~This includes~~] newly planted forest areas, natural successional areas, existing forestland, fruit or nut tree plantings, or other sites with trees or shrubs present.

Practices should [~~only~~]be requested to solve existing or potential natural resource concerns. This may require one practice or multiple conservation practices. It is recommended that changes in land management practices be fully evaluated prior to installing any additional cost-share practices. Improvements in land management practices may resolve the natural resource problems without the

need of structural engineering practices. Poor operation and maintenance of installed cost-share practices may[likely] result in the failure of the practice to solve the natural resource problem. This should be reviewed and discussed with cost-share applicants.

Cost-Share Rates and Limits[:]

The Kentucky Soil Erosion and Water Quality Cost-Share Program has established a 75% cost-share rate limit based on actual expenses, not to exceed the estimated payment rate.

A cost-share limit of $20,000 per applicant is approved for any single [practice]or combination of practice components [that are]needed to solve forestland resource problems. Multiple cost-share applications by the same applicant, or on the same land, is not permitted.

Eligible Practices[:]

The eligible practices listed in Table 4[below] should only be requested to address existing or potential soil erosion and/or water quality issues resulting on forestland acres as identified in the BMP eligibility criteria. Other resource concerns associated with [the]concentrated livestock and animal waste, pastureland, and cropland should be requested under a different section of this handbook[the cost-share program]. All practices should be designed and installed according to *NRCS Field Office Technical Guide* standards or other approved standards as identified in this handbook[manual].

All ***NRCS Field Office Technical Guidance (FOTG)*** standards for the practice codes below can be found at[:] efotg.sc.egov.usda.gov. After selecting "Kentucky"[the correct state] from the drop-down box, practice standards are located under Section 4 – Practice Standards & Supporting Documents and Conservation Practice Standards & Support Documents[IV of the dropdown menu and in the Conservation Practices category].

Referenced ***University of Kentucky Extension Publications*** can be found at[:] dept.ca.uky.edu/agc/pub_prefix.asp. In the drop-down box, select the alpha[-]numerical prefix for the referenced practice.

Table 4 – Forestland BMPs

NRCS BMP Name & Practice Code	**Kentucky Soil Erosion & Water Quality[State Soil and Water State] Cost-Share Program** Practice Guidance/Description
Brush Management (314) 10-year practice life	This practice is utilized on existing woodland sites, newly tree planted areas, or natural regeneration areas to control invasive species that are hindering the growth and health of the forestland area. This practice requires a Forest Stewardship Plan developed by the Kentucky Division of Forestry or a forestry consultant recommending the treatment of invasive species on the site where cost-share is requested.
Critical Area Planting (342) 10-year practice life	This practice is utilized to grade, smooth, and seed eroded areas in forestland settings or vegetating other conservation construction practices associated with this BMP category. This practice may[will likely] require Mulching (484) to enhance establishment.
Diversion (362) 10-year practice life	This practice is used to construct an earthen channel to divert runoff water to a stable outlet when hillside runoff in forestland areas is creating soil erosion or sedimentation problems on adjoining areas. The diversion should be designed according to *NRCS Field Office Technical Guide* standards. The practice will also require Critical Area Planting (342) and Mulching (484) to establish vegetation.

NRCS BMP Name & Practice Code	**Kentucky Soil Erosion & Water Quality[~~State Soil and Water State~~] Cost-Share Program** Practice Guidance/Description
Forest Management Plan (106) 5-year practice life	This practice is used to help develop a Forest Management Plan (106) to advise the landowner that[~~which~~] practices may be needed[~~need~~] on forestland acres. This plan is required prior to requesting cost-share for Brush Management (314) or Forest Stand Improvement (666). Forest Stewardship Plans that are developed by the Kentucky Division of Forestry, at no cost to the landowner, are not eligible for cost-share. This practice would only be requested when the availability or Kentucky Division of Forestry personnel are limited or due to the complexity of the forest plan and[,] other private forestry consultants are needed to develop the plan.
Forest Stand Improvement (666) 10-year practice life	This practice is used to improve the stand quality and health of forestland by killing or deadening undesirable or unhealthy tree species. This practice requires a Forest Stewardship Plan developed by the Kentucky Division of Forestry or a forestry consultant recommending Forest Stand Improvement (666) on selected acres. Participants are expected to contact a private consultant forester to mark trees if the Kentucky Division of Forestry is not available.
Grade Stabilization Structure (410) 15-year practice life	This practice is utilized to prevent "head cutting" soil erosion as a result of significant grade changes. Grade Stabilization Structures (410) may serve to reduce gully erosion at the outlet of a grassed waterways and diversions or in areas where concentrate runoff is creating a "head cut" due to over fall. Other practices that may be needed are Critical Area Planting (342) and Mulching (484). Additional guidance can be found in the *University of Kentucky Extension Publication AEN-100 Building a Grade Stabilization Structure to Control Erosion*.
Grassed Waterway (412) 10-year practice life	This practice is utilized to control gully erosion from concentrated flow areas occurring in forestland areas. Critical Area Planting (342), Mulching (484), Grade Stabilization Structure (410), or Underground Outlet (620) may be needed along with this practice.
Heavy Use Area Protection (561) 10-year practice life	This practice should be utilized under the Forestland BMP category to install a stable equipment crossing for a Grassed Waterway (412). Crossings for streams should be requested under the Stream Crossing (578) practice. Other applications of the Heavy Use Area Protection (561) practice should be requested under a separate BMP category depending on the resource problem that is to be addressed.
Lined Waterway or Outlet (468) 15-year practice life	This practice may be needed when gully erosion is occurring and a standard grassed waterway will not solve the problem due to excessive velocities or continuous seepage flow that cannot be managed with an Underground Outlet (620) or a Subsurface Drain (606).
Mulching (484) 1-year practice life	This practice can only be used as a companion practice to assist with the vegetation establishment on conservation practices. This practice includes natural materials (hay or straw) and erosion control blankets.
Riparian Forest Buffer (391) 15-year practice life	This practice is utilized to establish trees and shrubs along a stream, around a sinkhole, or other water body when land use conditions meet[~~meets~~] the Forestland BMP eligibility criteria and this practice is needed to solve water quality issues. This practice may[~~will likely~~] be used in conjunction with other practices. Tree/[~~and~~]Shrub Site Preparation (490) and Tree/[~~and~~]Shrub Establishment (612) practice will be needed to complete this practice. The Kentucky Division of Forestry should be contacted to develop any tree planting plans.
Road / Trail / Landing Closure and Treatment (654) 10-year practice life	This practice is designed to grade, smooth, seed, and/or close existing logging roads or trails that are eroding. It can also be used to smooth and seed landing or loading areas that are experiencing soil erosion and need re-establishing. This may involve installing water bars to reduce runoff lengths going down hills or other means of reducing runoff concentrations and controlling soil erosion. This practice may[~~will likely~~] also need Critical Area Planting (342) [~~seeding~~]and Mulching (484) to establish grass after completion. Other practices that may be needed are Tree/[~~and~~]Shrub Site Preparation (490) and Tree/Shrub Establishment (612). This practice should not be used when logging operations are in violation of state timber harvesting rules and sites were not repaired according to Kentucky Division of Forestry requirements.
Stream Crossing (578) 10-year practice life	This practice should only be used within this BMP category when it is needed to move equipment across a stream from one forested area to another without causing streambank damage. Kentucky Division of Water permits may be required when installing a stream crossing. More guidance about Division of Water floodplain permits can be found on the Kentucky Division of Water webpage under the "Permits, Certifications, and Approvals" tab.

NRCS BMP Name & Practice Code	**Kentucky Soil Erosion & Water Quality[~~State Soil and Water State~~] Cost-Share Program** Practice Guidance/Description
Tree /[~~and~~] Shrub Establishment (612) 15-year practice life	This practice is used to establish trees or improve existing stands when soil erosion or water quality issues can be resolved with this practice. This may include stabilizing eroded areas or improving streambank and shoreline conditions. This practice should be used in conjunction with the Tree/[~~ and~~]Shrub Site Preparation (490).
Tree /[~~and~~] Shrub Site Preparation (490) 1-year practice life	This practice can only be used as a companion practice to prepare the site prior to Trees/[~~ or~~]Shrub Establishment (612) when tree planting is needed to reduce soil erosion or provide water quality benefits in forestland settings.
Underground Outlet (620) 20-year practice life	This practice can only be used as a companion practice to help remove surface water through an underground pipe outlet to a stable or safe outlet when needed to address a soil erosion or water quality resource concern. It is typically used in conjunction with a Water and Sediment Control Basin (638) to transfer runoff water to a safe outlet without causing soil erosion.
Water & Sediment Control Basin (638) 10-year practice life	This practice is installed when it is the best alternative to collect excessive runoff water or store accumulated sediment from eroded areas in a constructed basin in a forestland setting. Typically, water is removed from the basin through an Underground Outlet (620) that safely disposes of excess water to an acceptable outlet.