Meade County RECC

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12/14/07

Director of Engineering
Kentucky Public Service Commission
P.O. Box 615
Frankfort, KY 40602

Sir or Madam,

Enclosed is a copy of Meade County RECC's "Distribution Right-of-Way Management Policy and Procedures". This document is hereby forwarded and submitted to you as prescribed by the order noted in administrative case #2006-00494. If you should have any questions or concerns, you may contact me at (270) 422-2911, ext. 3149 or Mr. Jim Miller at ext. 3152.

Sincerely,

David R. Poe
Vice President of Operations & Engineering

Meade County RECC

DISTRIBUTION RIGHT-OF-WAY MANAGEMENT POLICY AND PROCEDURES

OCTOBER 2005
Revised December 2007

Prepared by
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520 Business Park Circle
Stoughton, WI 53589

These policies and procedures apply to maintenance of vegetation on all overhead Meade County RECC distribution power lines, from 120V to 35kV.

It is important for all Meade County RECC employees involved with the right-of-way management program to understand and support these policies and procedures.

This manual supersedes all previous manuals, specifications and guidelines for right-of-way vegetation management work at Meade County RECC
October 2005 (revised December 2007)

Table of Contents

1.0 Introduction

The purpose of this document is to provide instructions and procedures to encourage the orderly, uniform, safe and efficient furtherance of the Cooperative's objectives relative to the maintenance of vegetation on distribution rights-of-way (ROW). This Right-of-Way Procedures Manual applies to Meade County Employees and Contractors working on behalf of Meade County RECC.

Contractor personnel, in matters of safety and work practice are to follow the safety rules established by their respective companies, but always in conformance with applicable federal and state laws and regulations, including OSHA regulations. It should be expressly agreed and understood that Meade County RECC, its officers, directors and employees assume no responsibility in whole or in part, for the work practices and actions of the holder, whether or not referred to in this manual.

2.0 Safety and Reliability

The purpose for maintaining ROW vegetation is to help maintain safe and reliable service to Cooperative members. Without maintenance, tree can become a major cause of service interruptions and can contribute to dangerous conditions such as downed power lines. ROW maintenance is also the primary means of complying with the National Electric Safety Code Tree Trimming Section 218.

All crews performing vegetation management work on or near Meade County RECC facilities or ROW shall follow approved safety guidelines and procedures. All contractors performing work for Meade County RECC shall comply with all applicable governmental safety and health regulations and the safety and health provisions of their respective contract.

All contractors also must, at all times, be aware of the nature and characteristics of Meade County RECC electric facilities before work begins. Contractors need to understand that electric facilities must remain energized during the performance of work unless special arrangements are made with an authorized Meade County RECC representative.

The following procedures shall be included in Meade County RECC contracts for ROW vegetation maintenance work:

- The contractor shall obtain from Meade County RECC full information as to the voltage of its circuits before starting the work.
- The contractor shall at all times conduct work in a manner to safeguard the public from injury and property from damage.
- The contractor must use all necessary protection for its employees and the public and guard against interference with normal operation of the circuits. If, in the judgment of the contractor's general foreman/supervisor, it is hazardous to prune or remove trees with the circuits energized, the contractor must contact an authorized

Meade County RECC representative(s). If appropriate, Meade County RECC will provide the necessary protective materials or de-energize circuits to ensure the safe pruning or removal of the tree(s).

- Should the contractor knock down or come into contact with Meade County RECC conductors (power lines), the contractor must notify Meade County RECC immediately and take the necessary protective measures. All contractor-caused electric service interruptions are subject to repair at the contractor's expense. This would include any damage to customers' property, including any electrical damage.
- In the event a contractor becomes aware of any dangerous, broken, loose or faulty Meade County RECC line facilities in the normal course of its line clearance performance, the contractor shall promptly advise Meade County RECC as to the exact pole location(s) and nature of the condition found.

General Guidelines

3.0 General Guidelines

3.1. SCHEDULED MAINTENANCE AND CLEARANCE

3.1.1. Distribution (<=35kV) Maintenance Cycle:

Meade County RECC uses a cyclic approach to preventive electric distribution ROW. Different circuits or portions of circuits may be scheduled on different cycles based on site conditions, sensitivity of the line to interruptions caused by trees or criticality of the line. Maintenance cycle for tree removal, tree pruning or brush control may be the same or different for a given scheduling unit.

3.1.2. General Guidelines for Tree/Conductor Clearance:

The exact amount of clearance needed to maintain reliable service depends on site factors including, but not limited to, the type of tree, its location and condition, and the type of power line and its voltage. Meade County RECC and its contractors will consider all factors when deciding how much clearance is necessary.

Meade County RECC and its contractors will use their professional judgment in determining what these clearances will be in each situation, based on the proposed maintenance cycle for the area in which they are working. The maintenance cycle is dependent upon electric reliability requirements of the system.

3.1.3. Rural ROW Maintenance

Rural ROW will be maintained to a distances of 20 feet each side of three-phase pole lines and 10 feet each side of single-phase pole lines. All trees and brush will be controlled on the ROW floor and edge trees growing into the ROW will be pruned or removed.

3.1.4. Yard Tree Clearance

Clearance provided on yard trees will be dependent of tree species and growth rates. The appendix provides a table of recommended clearances at the time of pruning for yard trees.

3.1.5. Circuit Prioritization and Scheduling:

Annually, circuits are prioritized based on the following factors:

- Reliability – The circuits due to be maintained in any given year are ranked based on customer minutes interrupted or frequency of interruptions by tree-related causes. Circuits that have the highest number of customer minutes interrupted or frequency of interruptions by tree growth outages may be scheduled first.

  Cooperative monthly and yearly reliability reports are used and reviewed in determining the actions, if any, necessary to prioritize and remedy or address current vegetation issues. Such reviews and decisions are to be conducted by the V.P. of Operations, Right-of-Way Coordinator, and the Compliance Cooridinator on a monthly basis or more frequent if it necessary.

- Last Trim Date – Circuits are scheduled based on the last maintenance year. The oldest are weighted over the earliest.
- Customers Affected – Circuits are ranked by customer count and frequency of incidents. The CAIDI and SAIFI indices will be used to evaluate and prioritize and rank the circuits. Circuits with high numbers of customers or circuits with critical customers are ranked higher.
- Current Vegetation Conditions – The current vegetation conditions (clearance to conductors, vegetation height, presence of hazardous trees and trees overhanging conductors, and ROW access) on a circuit will be used to prioritize it.
- Other – Additional factors that are considered when scheduling include circuit load, customer complaints, customer requests, and political issues.

Circuits are initially evaluated based on reliability data, years since previous maintenance and the current vegetation conditions. Other factors are then considered to refine the rankings. Prioritization of a circuit may change based on any of these factors. For scheduling strategy, see Appendix 4.

3.2. UNSCHEDULED (REACTIVE) MAINTENANCE

Unscheduled maintenance is typically more costly to perform than scheduled ROW maintenance. Consequently, reactive tree maintenance should be avoided. However, the following circumstances may warrant completion of unscheduled tree maintenance:

- A tree is an immanent threat to service reliability
- A tree is an electrical safety hazard
- A tree requires maintenance as part service restoration efforts

The ROW Coordinator is responsible for the monitoring, determination of work to be performed (if any), and scheduling of such work.

3.3. TREE REMOVAL

3.3.1. Manual/Mechanical Removal of Vegetation (Rural Locations)

The following guidelines should influence the decision as to whether ROW trees are removed, and how to remove trees designated for removal:

- Remove all tall-growing trees within the width of the ROW.
- Remove all tall-growing brush that has the potential to grow closer than the minimum clearance specified for a specific voltage line.
- Remove all brush around poles and other equipment.

- Cut and treat all vines growing on poles and guy wires.
- All trees and brush should be cut as close to the ground as practical.
- Remove fast-growing and undesirable tree species.
- Remove trees that present an obvious immanent hazard to Meade County RECC facilities.
- Consider removing trees when the cost of removal is equal to or less than trimming.
- Whenever possible, deciduous tree stumps should be treated with herbicides to prevent re-sprouting.

3.3.2. Hazard Trees

Structurally unsound trees (on or off the easement or ROW) and that could fall into electrical conductors should be evaluated for removal. Hazard tree conditions could include but are not limited to the following symptoms:

Dead or dying	Root failure
Leaning trees	Cankers
Weak branches	Conks (fungal fruiting bodies)
Shallow root system	Internal decay

3.3.3. Removal Procedure – Yard Trees

Meade County RECC or its agents will inspect the trees near power lines scheduled for maintenance and determine which trees should be removed. If a tree is a candidate for removal, the homeowner or resident will be contacted and asked to authorize Meade County RECC and its contractors to remove the tree to the ground line.

3.3.4. Stumps

All stumps of deciduous trees shall be treated with an approved herbicide unless a property owner has requested that the stump not be treated or if the herbicide label warns against treatment of stumps in particular situations. Stumps will NOT be ground.

3.4. TREE PRUNING

3.4.1. Pruning (Yard Trees and Rural ROW Edge Trees)

Tree pruning is the selective removal of tree branches that are not an adequate distance from the power lines, or that will grow too close to the power lines before the next maintenance cycle.

Trees are pruned to provide adequate clearance from Meade County RECC facilities. As a general rule, trees should be pruned to improve or re-establish the clearance provided from all previous tree maintenance performed.

Some factors to consider before pruning include:

- The growth rate of the tree species (how fast the branches grow back);
- The wood strength of the tree species (what is the chance of the branch breaking under the load of strong wind, snow, or ice);
- The voltage conducted by the line (the hazard presented by the branch contacting the line; the higher the voltage, the greater the hazard);
- Limbs overhanging primary conductors or equipment. Remove or shorten dangerous limbs – those overhanging limbs with a high potential for breaking or bending into conductors due to ice, snow or wind loading (be aware of failure risk associated with co-dominant stems with included bark);
- Desirability of tree removal in lieu of pruning. In many cases, it may be preferable to remove a tree rather than prune the tree. For example, when repeated severe pruning is necessary or when the tree is declining and unsafe or when it is economically beneficial to remove the tree.

3.4.2. Inspection

Scheduled circuits will be inspected and yard trees near primary lines not designated for removal will be pruned to achieve adequate clearance from conductors. Rural ROW will be maintained to prescribed distances as described in the clearance section.

Some yard trees may require pruning on a frequency greater than the target cycle length for the circuit.

3.4.3. Pruning Near Primary and Secondary Wires:

Trees growing into service lines will be maintained to avoid deflection of these secondary voltage conductors by tree limbs as part of routine, schedule ROW maintenance.

ALTERNATE
Trees limbs growing into service lines will be cleared to a distance of 18 inches from of these secondary voltage conductors as part of routine, schedule ROW maintenance.

3.4.4. Incompatible Brush Pruning

Incompatible brush should normally be removed rather than pruned.

3.5. ROW BRUSH CONTROL - DISTRIBUTION ROW

3.5.1. Integrated Vegetation Management

Meade County RECC will utilize principles of Integrated Vegetation Management (IVM) to control brush on rural distribution ROW. IVM is an approach that considers the use of mechanical mowing, hand cutting, and herbicide applications, together with the benefits of biological control to manage undesirable woody vegetation on a ROW. The responsible, targeted use of herbicides is an important component of this approach.

Foliar application of herbicides for control of ROW brush on rights-of-ways as well as basal and cut stump methods will be used when most appropriate. Cut stumps should be treated with an appropriate herbicide mixture to prevent resprouting. Even small diameter brush stumps should be treated unless a follow-up foliar application is definitely scheduled.

3.5.2. Safety and Regulations

All herbicides shall be applied in strict compliance with all federal, state and local laws and regulations. This includes, but is not limited to: transporting, handling and chemical container disposal.

All herbicide and treatment methods used by the contractor shall have prior approval by Meade County RECC.

Any crewmember applying herbicides must be supplied with the appropriate protective gear, current label and Material Safety Data Sheet (MSDS) for the product being applied and meet licensure requirements of the State of Kentucky.

It is the contractor's responsibility to provide all necessary materials, including chemicals and safety gear, unless specifically indicated as being provided by Meade County RECC. The contractor will be responsible for the proper disposal or recycling of all herbicide containers.

3.5.3. Application of Herbicide

- Only EPA registered herbicides shall be approved for use on Meade County RECC ROW.
- Meade County RECC shall maintain a list of approved ROW herbicides.
- Herbicides shall not be applied outside the easement ROW boundaries except in cases where no ROW width has been established in the easement.
- All herbicide treatment shall be performed in a responsible manner that will reflect the best interests of the property owner and Meade County RECC. If a property owner should object to any of the herbicide treatments, the operation shall immediately be discontinued on that property until any differences are resolved.
- Treat all cut vines ascending all poles and guy wires.
- Herbicide may be applied to foliage of trees 8 feet tall or less.
- The Contractor shall furnish all mixing materials, and application equipment and shall be responsible for transporting, handling, mixing, and application of chemicals used in the immediate operation.
- The Contractor shall comply with all State and Federal Laws and Regulations pertaining to Herbicide Applications and any other licensing or regulatory requirements.

3.5.4. Reporting Pesticide Incidents

When a spill is reported the contractor general foreman should determine the type of chemical and amount of spillage along with the containment efforts that were made. Then the general foreman should notify the proper state or federal agencies if necessary. Any spill, leak, fire or other accident involving pesticides *must be reported immediately* to the proper line clearance supervisor. All damage from such leaks or spills are the responsibility of the contractor.

3.6. DEBRIS DISPOSAL

3.6.1. Tree Disposal

Meade County RECC/Meade County RECC contract crews will dispose of all debris resulting from their tree removal and pruning operations, and small enough to feed through a chipper, unless different arrangements have been made with the homeowner or resident. Wood too large to be chipped shall be cut and stacked at the site unless the property owner requests the wood be removed. Debris created in the course of rural ROW maintenance may be chipped and blown onto the ROW, stacked along the edge of the ROW or mowed.

3.7. TREE PRUNING AND REMOVAL DURING STORMS

When trees fail or branches break during storms, and they make contact with or cause failure of Meade County RECC facilities, Meade County RECC will do the necessary pruning or removal to clear its facilities and restore power.

If Meade County RECC and its contract crews prune or remove trees following storm emergencies, all limbs and logs will be left on the Member's premises. The disposal of limbs and/or logs is the responsibility of the property owner.

3.8. MEMBER RELATIONS

3.8.1. Member Requested Tree Pruning

Meade County RECC will promptly respond to legitimate requests related to tree or ROW maintenance and inform the property owner of the results of the investigation. All requests are legitimate to the member. Meade County RECC will decide if the work requested will benefit the overall safety and reliability of the electric system and its customers and the general public based on the following guidelines:

- Document all request using a standard Member Complaint/Request Form.
- Screen all request by phone by asking questions such as:
  - Do you have power?
  - Do your lights blink?
  - Is there a broken limb on the power line or threatening the line?
  - Why do you want the tree trimmed or removed?
  - How close is the tree or limb to the electric lines?
  - Attempt to identity if the lines are communication or electric.
  - Is the line going from pole to pole or pole to house?
  - Can the request wait until the entire circuit is scheduled for maintenance?

- Field inspect the request that cannot be resolved by phone. If no one is home when the field inspection occurs, a correspondence will be left at the residence to notify the customer of the decision that was made and if the work will be completed, deferred or denied. This practice can increase efficiency for field investigations that are completed when property owners are not at home.
- If it is determined that a potential hazard does exist, a crew will be scheduled to perform all necessary pruning and/or tree removal.
- If the tree is not a potential hazard or immanent threat to service reliability, the Member will be inform that the tree will be re-evaluated when that particular area is scheduled for maintenance.

3.8.2. Member Requested Tree Removal

When a Member wants to remove a tree and Meade County RECC's facilities make it hazardous for the customer or customer's agent to accomplish the work, Meade County RECC will do one of the following:

- Temporarily drop the conductors while the customer or customer's agent performs the work. To make arrangements, the Member should call the Meade County RECC Customer Service Center
- Prune or remove the portion of the tree that is contributing to the hazard.
- When Meade County RECC prunes or removes trees at the Member's request and convenience, the disposal of the debris is the responsibility of the property owner unless otherwise agreed to in writing.
- When evaluating tree removal requests, ANSI Z-133 minimum working distances (10.0 feet for distribution voltages) for persons other than qualified line clearance tree trimmers will be considered.

Note: Meade County RECC will not remove trees to clear house (pole–to-house), or street light service wires except in emergency situations. In the event of needed power restoration, MCRECC may remove a tree or parts of it to allow or increase the efficiency of such restoration efforts.

3.9. MEMBER COMMUNICATION

3.9.1. Scheduled ROW Maintenance

Members will be notified of pending rural ROW maintenance through articles in the Meade County RECC Kentucky Living publication. A Meade County RECC representative will attempt to notify each member, whenever possible, before removing yard trees, and in accordance with the special conditions that might apply to a particular location. Before starting the line clearance work, the contract trimming crew will attempt a courtesy contact with the property owner by knocking on the door.

3.9.2. Member Refusals

If pruning is necessary and the homeowner refuses permission, the crew will turn the matter over to their supervisor. If the supervisor is unable to develop

concurrence with the customer regarding the necessary pruning, the supervisor will notify appropriate Meade County RECC representative.

3.9.3. Pruning on Fort Knox Property

When pruning involves trees on Fort Knox property or ROW, Meade County RECC representative or agent should contact the appropriate Fort Knox personnel to discuss any special concerns.

3.10. TREE REPLACEMENT

Tree pruning is expensive for Meade County RECC and its members. It may be preferable to remove and replace certain trees that pose a particular hazard to the power lines. Fast-growing, tall trees directly under primary wires are an example. They grow back quickly into the wires and can cause repeated outages. Elms, willows and silver maples are some fast-growing trees that need frequent pruning near power lines. Consequently, Meade County RECC has established a discretionary program to assist members with the replacement of certain trees following removal of non-compatible trees from the utility ROW.

3.10.1. Property Owners

Meade County RECC works with homeowners to identify trees that are good candidates for replacement. The tree must be near Meade County RECC power lines and must require repeated pruning to keep the lines clear. The power line must be at least a primary circuit. Meade County RECC will remove the existing tree and provide assistance in replacing the tree up to a nominal amount. The planting and care of the new tree are the responsibility of the property owner, unless other arrangements are made.

Meade County RECC reserves the right to decide under what circumstances trees will be replaced (at the expense of Meade County RECC). The replacement tree must be a low-growing variety that will not grow to a height that would require periodic pruning for line clearance, or it must be planted a sufficient distance away from power lines as to not require future line clearance pruning, if it is a tall-growing variety.

3.11. REPORTS AND RECORD KEEPING

Adequate records and reporting are important to effective management of any program. Records shall be maintained of key aspects of the ROW vegetation management program to document program performance and provide information necessary for ongoing program management including:

- Cost metrics (cost per mile, cost per circuit, scheduled work, reactive work, etc.)
- Schedule of future work and completed work by work type and date
- Contractor performance (T&M manhours per unit, miles per week, schedule attainment, etc.)
- Daily crew locations

3.12. PLAN EFFECTIVENESS AND EVALUATION

In order to insure the plan is effective and remains effective, it is to be evaluated annually. The V.P. of Operations, ROW Coordinator, and the Compliance Coordinator is to review data and other information from the following sources.

- Direct member feedback (correspondence, documented phone calls, personal conversations)
- Membership satisfaction surveys
- Reliability indices and supporting data
- Visual notations and observations
- Employee feedback (mainly linemen and their supervisors)
- Right-of-Way reports
- Other pertinent sources that adds value to the evaluation, such as contractors, accounting department (costs), member service representatives, other electrical cooperatives, staff, etc.

4.0 Appendices

1. Glossary of Terms
2. Clearance Distances
3. Pruning Techniques
4. ROW Vegetation Maintenance Scheduling Strategy
5. Trade-A-Tree Program

Appendix 1

4.1. GLOSSARY OF TERMS

Basal Application: The application of an herbicide and oil mixture to the lower or basal part of the stem.

Brush: A woody plant less than 4 inches d.b.h. that may reach the conductor at maturity.

Callus: New growth made by the cambium layer around all wounds.

Cambium Layer: The actively growing tissue between the bark and sapwood of a tree that accounts for a tree's growth in diameter.

Clearance: The distance between vegetation and the conductors.

Compatible Vegetation: Vegetation that matures at a low height, so that it will never grow tall enough to interfere with the electrical conductors.

Coniferous: Any of the cone-bearing trees or shrubs, mostly evergreens. Coniferous trees usually do not sprout new growth when cut or trimmed.

Crew Foreman: Tree contractor's crew leader (man or woman) working with and supervising the line clearance crew.

Cut Stump Treatment: Removing vegetation by cutting, followed by herbicide application to the stump.

Cycle: See "Pruning Cycle."

Danger Tree: Any dead, dying, weak, diseased, or leaning tree (on or off the right-of-way) that could fall onto the conductors. (See "Hazardous Trees.")

Diameter at Breast Height (d.b.h.): Diameter of trees or brush measured at a point 4.5 feet above the ground.

Deciduous: Any perennial plant that sheds its leaves annually at the end of a growing season. Deciduous species generally sprout prolifically when cut or trimmed unless treated with an herbicide.

Drop-Crotching: See "Natural Pruning."

Evergreen: Any plant that retains its leaves year-round. These leaves are replaced gradually, thus retaining the "evergreen" appearance.

Foliar Application: The application of an herbicide to the stems, leaves, or needles of a target plant.

General Foreman: Supervisory personnel (man or woman) working for the contractor who has responsibility for work performed by that particular contractor's tree crews.

Ground-Line Cutting: Completely removing trees or brush at ground level.

Hazardous Trees: Trees that are dead, diseased, infested by insects, deformed, shallow-rooted, or otherwise structurally unsound and that could fall into or cause other trees to fall into electrical conductors.

Healing: The roll or callus growth around a wound area. Trees do not actually heal; they simply "wall off" the damaged area and grow around, and eventually over, the wound.

Herbicide: A chemical used to control, suppress, or kill plants, or to severely interrupt their normal growth processes.

Hotspotting: Assigning line clearance crews in a manner that does not involve a systematic schedule.

Incompatible Target Brush: A woody plant less than 4 inches d.b.h. that has the capability of maturing at a height greater than or equal to the conductor.

Line Clearance: Controlling vegetation to maintain proper clearance from conductors and to provide reliable electric service. This includes the pruning of trees to prevent limb contact, the control of brush to minimize future problems, and the removal of dead, diseased, weak, or interfering trees and branches that could fall onto the conductors. Synonymous with tree clearing, tree trimming, or vegetation management.

Minimum Clearance: The required minimum distance between tree and conductor to be achieved at the time of pruning to ensure that the tree will not grow into the conductor before the end of the maintenance cycle.

Natural Pruning: A method by which branches are cut to the branch collar at a suitable parent limb back toward the center of the tree. This method of pruning is sometimes called "drop-crotching" or "lateral trimming." Natural pruning is also directional pruning, since it tends to guide tree growth away from wires.

Non-Compatible Vegetation: See "Target Vegetation."

Ornamentals: Trees used for landscaping or that otherwise have aesthetic value. Ornamentals are often hybrids, varieties, or grafted species.

Pollarding: Stubbing off major limbs until the tree assumes the desired size. The result is unsightly, and a multitude of fast-growing suckers will sprout from the stubs resulting in a line clearance problem more serious than before.

Pruning: The removal in a scientific manner of dead, dying, diseased, interfering, objectionable, and/or weak branches of trees or shrubs.

Pruning Cycle: The period of time that elapses between the time a tree is pruned and then pruned again.

Qualified Line Clearance Tree Trimmer: Personnel who meet the qualifications of "line clearance tree trimmer and/or trimmer trainee" as defined by OSHA 1910.269, and ANSI Z133.1 as revised.

Removal: Completely removing an entire tree to ground level; required when a tree is described as a danger tree or when a tree should be removed for other reasons. Also, any tree that is a candidate for removal.

Residential: See "Urban."

Rounding Over: The making of many small cuts so that the tree top is sheared in a uniform line. This creates an unhealthy tree condition and results in rapid regrowth directly back toward the electrical conductors.

Rural: An area that is not directly associated with a permanent or seasonal residence where vegetation is not intensively managed for aesthetic values. This includes areas of agricultural and forest land use, as well as undeveloped sites within otherwise urban or residential neighborhoods. Rural areas are commonly dominated by native species of trees, shrubs, and herbaceous vegetation.

Selective Herbicide: An herbicide that, when applied to a mixed population of plants, will control specific species without injury to others.

Shearing: See "Rounding Over."

Shrub: A woody plant normally maturing at less than 20 feet in height, presenting a generally bushy appearance because of its several erect, spreading, or prostrate stems.

Side Trim Stubbing: Stubbing off portions of limbs along the side of the tree to obtain clearance. The result is not only unsightly, but on many species a multitude of fast-growing suckers will sprout from the stubs, soon resulting in a line clearance problem more serious than before. The stubs are quite likely to fall victim to decay or disease.

Side Pruning: Cutting back or removing side branches that are threatening the conductors; required where trees are growing adjacent to conductors.

Slash: Debris resulting from a tree clearing operation.

Species: The basic category of biological classification, intended to designate a distinct group or kind of plant or animal having common attributes.

Specifications: All the terms and stipulations contained in a contract pertaining to the method and manner of performing the work or to the quantities and qualities of the material to be furnished under the contract, including amendments, revisions, deductions, or additions.

Sprout: New growth originating from adventitious buds, usually induced by removing a limb.

Target Vegetation: Woody species capable of growing tall enough to interfere with the electrical conductors and/or access to the electrical conduction system.

Top Pruning: Cutting back large portions of the upper crown of a tree; required when trees are located directly beneath a conductor. Sometimes called topping.

Translocated Herbicide: An herbicide that is moved from its point of entry throughout a plant via the vascular system.

Translocation: The transfer of substances from one location to another in the plant body.

Tree: A woody plant normally maturing at 20 feet or more in height, usually with a single trunk, unbranched for several feet above ground with a definite crown. Any trunk that is over 4 inches d.b.h. can be considered a tree.

Tree Crown: Upper portion of the tree; the branches or leaf area.

Trimming: Cutting back tree branches or shrubs, not necessarily in a scientific manner, to shape or reduce the size of the tree or shrub.

Trimming Cycle: See "Pruning Cycle."

Troublesome Species: Trees that exhibit great potential to grow into contact with electrical conductors due to their growth patterns.

Under Pruning: Removing limbs beneath the tree crown to allow wires to pass below the tree.

Urban: An area in direct association with permanent or seasonal residences, commercial properties, or other developed areas, where the existing vegetation is intensively managed for aesthetic value. This includes all landscaped areas, such as business and

industrial properties, golf courses, lawns, and parks. Urban areas are typically stocked with yard or street trees of high aesthetic or ornamental value.

Volunteer Trees: Trees that are established naturally, rather than being planted.

Windthrow: The uprooting of trees due to wind.

Whorl: A circle of three or more similar parts around a central point, as three or more leaves growing around a twig at one spot or node. The circular arrangement of branches about the trunk of conifers.

Appendix 2

4.2. CLEARANCE DISTANCES

The following guidelines for tree clearances apply at the time of line clearance tree maintenance to protect the wires under normal operating conditions. Special clearances may be needed at times because of field conditions. Additional allowance should be made for wires that will sag due to hot weather or swing sideways in strong winds.

Table of Recommended Line Clearances (in feet)

Clearance from trees	Growth Rate	3-phase Primary to the 1st Protection	2&3-phase Primary Beyond 1st Device	1-phase Primary	Secondary	Services
Rural Areas						
Under (ROW)	Slow	a	a	b	Clear	As reqr'd - f
	Fast	a	a	b	Clear	As reqr'd - f
Side (ROW)	Slow	15 ft or ROW Edge	15 ft or ROW Edge	10 ft	Clear	As reqr'd - f
	Fast	15 ft or ROW Edge	15 ft or ROW Edge	10 ft	Clear	As reqr'd - f
Over (ROW)	Slow	c	d	d	Clear	As reqr'd - f
	Fast	c	d	d	Clear	As reqr'd - f
Towns						
Under (Yards)	Slow	12 ft. (d)	12 ft. (d)	12 ft. (d)	2	As reqr'd - f
	Fast	15 ft. (d)	15 ft. (d)	15 ft. (d)	4	As reqr'd - f
Side (Yards)	Slow	10 ft. (e)	10 ft. (e)	8 ft. (e)	2	As reqr'd - f
	Fast	10 ft. (e)	10 ft. (e)	10 ft. (e)	4	As reqr'd - f
Over (Yards)	Slow	Remove all overhang	d	d	2	As reqr'd - f
	Fast	Remove all overhang	d	d	4	As reqr'd - f

NOTES

(a) The ROW shall be cleared and ground cut for a minimum distance of 20 feet either side of the multi-phase pole line, or out to the limits of the existing cleared ROW when that is greater. The Contractor shall ground cut and stump treat all tall growing tree species over 3 feet tall growing within the ROW's adjacent to roadways, and over 6 feet tall when the ROW is off road and surrounded by woodlands. All trees, limbs and branches that are trimmed or cut shall be neatly piled along the edge of the ROW, mowed, or removed from site as approved by property owner.

(b) The ROW shall be cleared and ground cut for a minimum distance of 10 feet either side of the single-phase pole line, or out to the limits of the existing cleared ROW when that is

greater. The Contractor shall ground cut and stump treat all tall growing tree species over 3 feet tall growing within the ROW's adjacent to roadways, and over 6 feet tall when the ROW is off road and surrounded by woodlands. All trees, limbs and branches that are trimmed or cut shall be neatly piled along the edge of the ROW, mowed, or removed from site as approved by property owner.

(c) Prune all trees from sky to ground to a minimum of 20 feet either side of the pole line, and eliminate all overhangs from the area above the three-phase line.

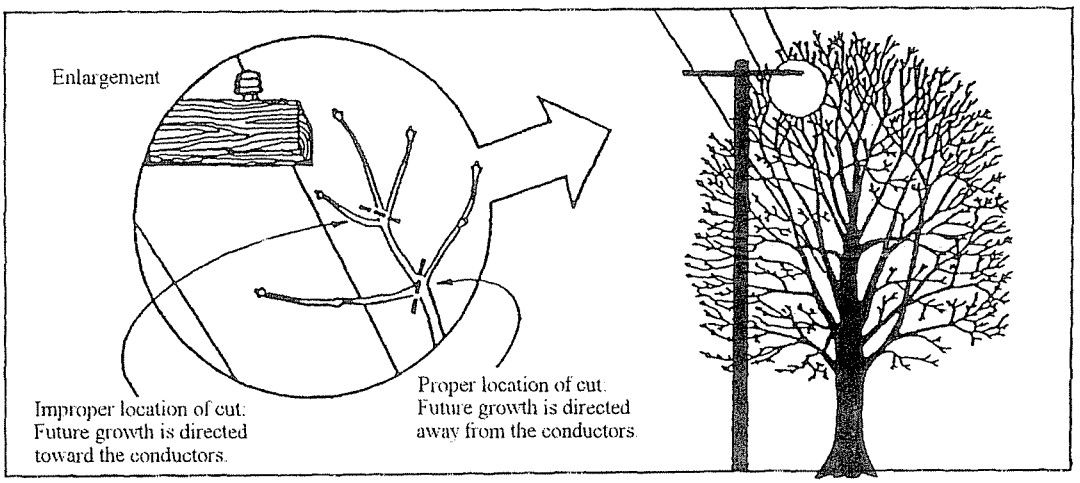
(d) Remove all overhang from lines sky-to-ground.

(e) Begin pruning on distribution primary voltages at the level at least 12 to 15 ft below the primary as determined by tree species and growth rates, and also prune to the clearance requirements for secondary lines described above. Examples of fast-growing trees include sycamore, sweetgum, and silver maple.

(f) Trim service drops to 1.5 feet of clearance in all directions of clearance around conductor where a limb or branch is displacing the service drop from it's natural sag condition, or when a significant limb (two inches or larger in diameter) is rubbing on the service drop. It will not be required to trip other service drops.

Appendix 3

4.3. PRUNING TECHNIQUES



Natural Pruning (to direct growth away from wires)

Natural pruning is a method by which branches are cut at a suitable parent limb back toward the center of the tree. The cut should be made as close as possible to the branch collar at the branch base, however the branch collar should not be injured or removed. Every branch has a branch bark ridge that separates the branch from the main stem. The cut should be made on the outer side of the ridge. If the cut is made on the inner side of the branch bark ridge, a "larger" wound will result that may inhibit the trees ability to naturally compartmentalize the wound, increasing wound closure time and the risk of entry for microorganisms. This method of pruning is sometimes called "drop-crotching", "direction trimming" or "lateral trimming." Large branches should be removed to laterals at least one-third the diameter of the branch being removed. Natural pruning is especially adapted to the topping of large trees where a great deal of wood must be removed.

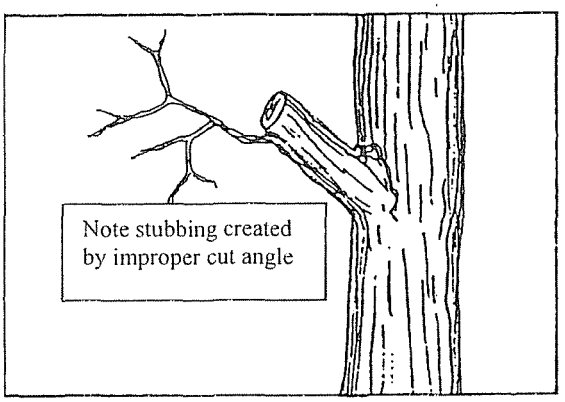
In natural pruning, almost all cuts are made with a saw, and very little pole pruning works is required. This results in a natural looking tree when finished, even if a large amount of wood has been removed. However, a hydraulic or manual pole pruner is required to trim those smaller laterals that cannot be properly trimmed using the pole saw and each crew shall be equipped with the necessary hydraulic pruners for lift crews and manual pruners for climbing crews.

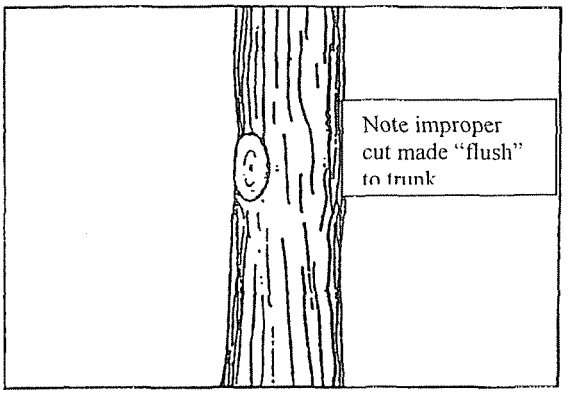
Natural pruning is also directional pruning, since it tends to guide the growth of the tree away from the wires. Stubbing or pole-clip clearance, on the other hand, tends to promote rapid sucker growth right back into the conductors. It is important to remember is that natural pruning does work, and that two or three trimming cycles done in this manner will bring about an ideal situation for both the utility and the tree owner. Most shade trees lend themselves easily to this type of pruning.

Natural pruning techniques should be used for top pruning, side pruning, under pruning, and combinations as described on the following pages.

Natural Pruning Details

Improper Trimming Techniques

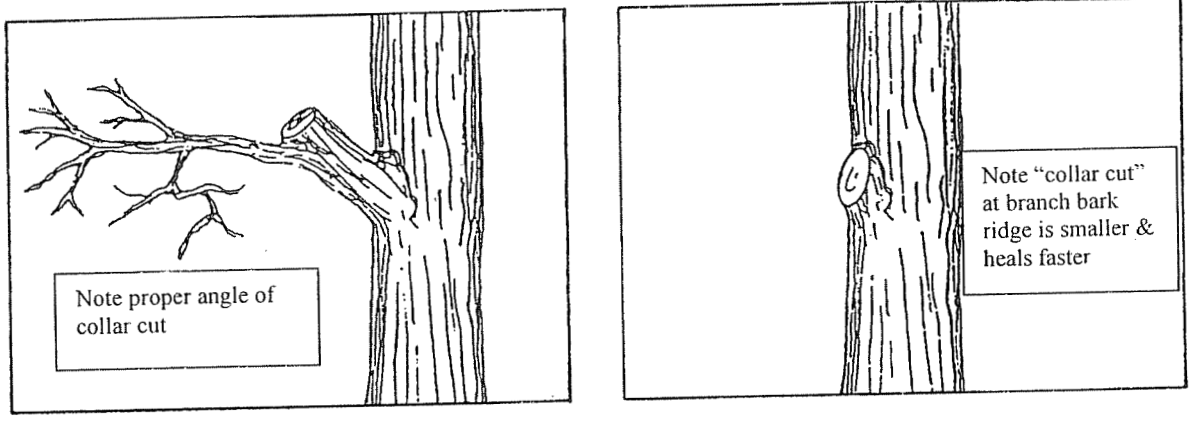


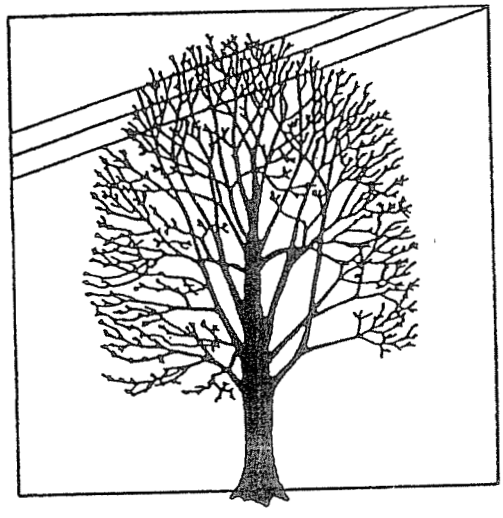


Details of improper trimming and proper natural pruning techniques are shown here. The branch at left above was cut back to a lateral that is too small. Branches should be cut back to a lateral that is at least one-third the size of the branch being removed as shown at left below. If a proper lateral is not available, the branch should be cut back to the trunk. Note that the remaining limb should be trimmed in a manner that meets the minimum clearance requirements while "training" it to grow away from the conductors. When limbs growing toward the conductors cannot be trimmed to meet these requirements, they should be removed back to the truck of the tree.

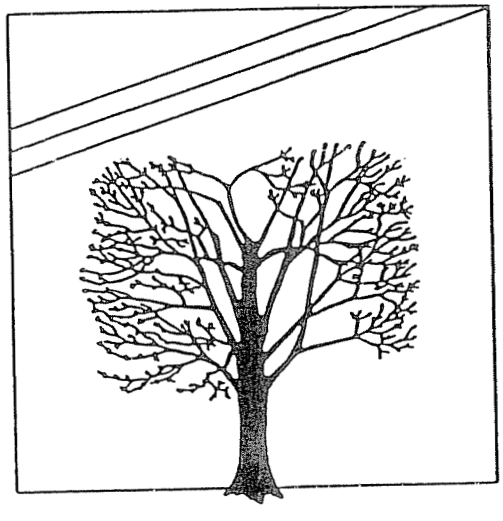
The cut shown at right above is an improper flush cut where the branch collar was removed. The cut at right below shows the proper method to remove the branch at the trunk, leaving the branch collar but not a stub.

Proper Pruning Techniques





Before Top Pruning



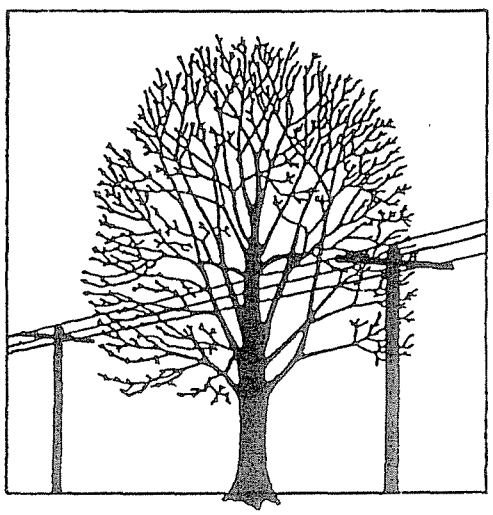
After Top Pruning

1. TOP PRUNING

Top pruning involves cutting back large portions of the upper crown of the tree. Top pruning is often required where a tree is located directly beneath a line. The main leader or leaders are cut back to a suitable lateral. (The lateral should be at least one-third the diameter of the limb being removed.) While most cuts should be made with a saw; a hydraulic or manual pole pruner is still required to properly prune the small lateral limbs that cannot be properly pruned using a pole saw.

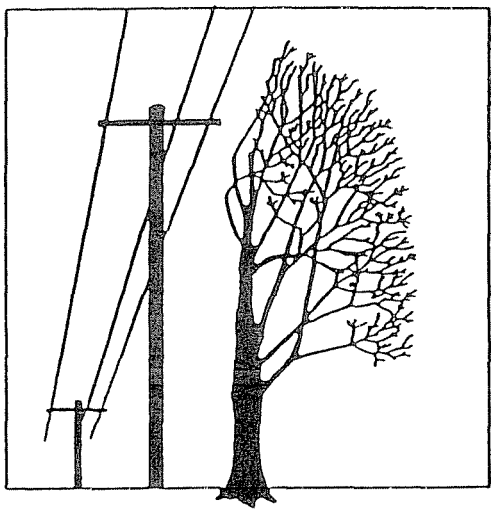
For the sake of appearance and to limit the amount of regrowth, it is best not to remove more than one-fourth of the crown when top pruning. In certain species, removal of too much of the crown may result in death of the tree.

Top trimming is generally required to address the situation where a tall growing tree has been planted or grown underneath the lines. Top trimming should NOT be used on those trees that are located partially under the line, where part of the tree could be trained to grow away from and/or beside the line, specifically required by the property owner. Side trimming is discussed in the next section.



Before Side Pruning

After Side Pruning
Rural – R/W areas



2. SIDE PRUNING IN NON-RESIDENTIAL R/W AREAS

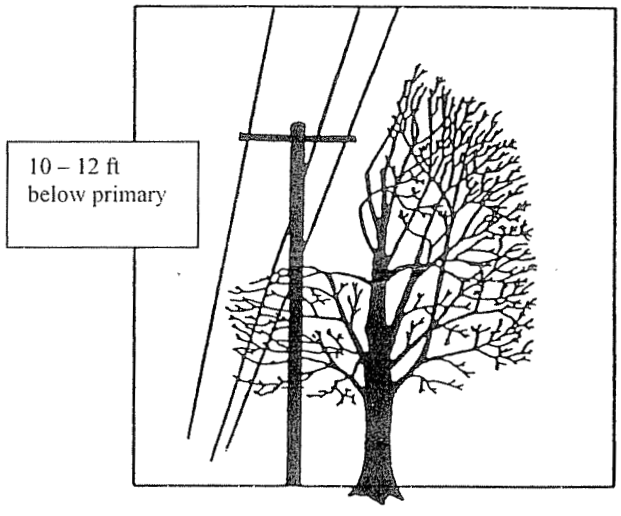
In non-residential or rural right-of-way situations side pruning consists of cutting back or removing the side branches that are threatening the conductors from ground to sky. Side pruning is required where trees are growing adjacent to utility lines. Limbs should be removed at a lateral branch or the main trunk wherever possible to minimize future re-growth. All branches beneath the conductors should be removed to prevent them from growing up into the lines. Avoid unsightly notches in the tree, if possible.

3. SIDE PRUNING IN RESIDENTIAL AREAS

In residential situations, where the tree to be trimmed is part of a lawn or landscape setting it is often necessary to leave a "shelf" of branches below the phone cable level, or at least 10 – 12 feet below the primary level. While this is NOT a preferred trimming methods, it is commonly required in residential areas in order to maintain as much of the natural appearance, screening and shade value of the tree as possible. Trees that would require excessive trimming or create serious visual impacts for the property owner should be candidates for removal.

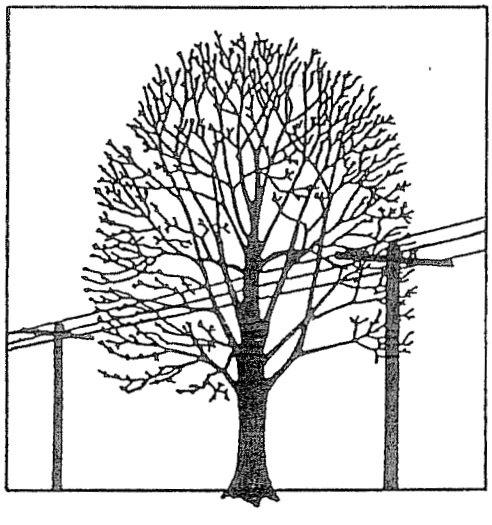
When shelf trimming is performed the remaining branches shall be trimmed so as to train them to grow out flat, or down and away from the conductors. Branches growing up, toward the overhead conductors should be removed or trimmed to laterals growing away from the wires.

After Side Pruning
Residential Areas

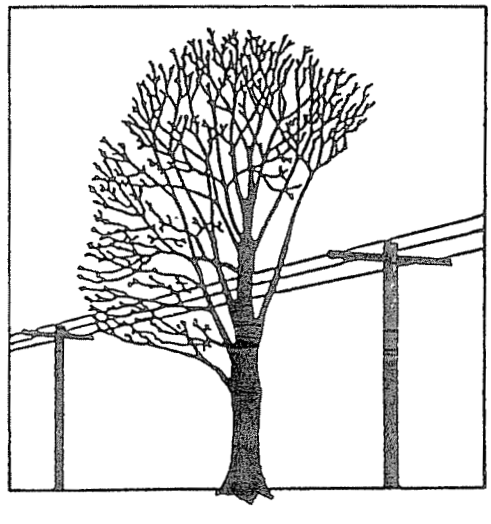


4. UNDER PRUNING

Under pruning involves removing the lower limbs of the tree to allow wires to pass below the tree crown. All cuts should be made as close as possible to the branch bark ridge at the branch collar, to avoid leaving unsightly stubs. The natural shape of the tree is retained in this type of pruning, and the tree can continue its normal growth. All dead branches above the wires shall be removed, regardless of height, since this dead wood could easily break off and cause an interruption.



Before Under Pruning



After Under Pruning

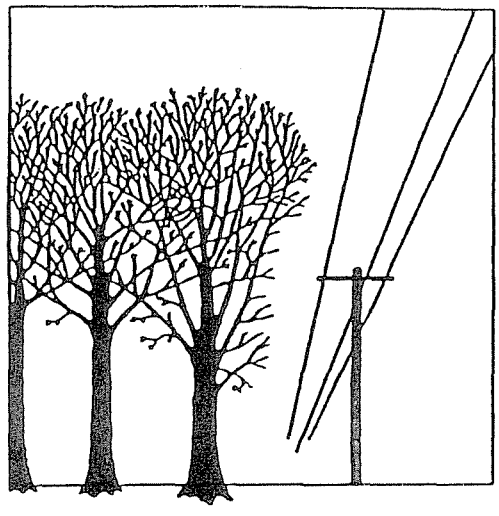
5. COMBINATIONS

It may be necessary to combine several pruning types in order to achieve a good-looking job and to obtain adequate clearances.

Improper Trimming Methods

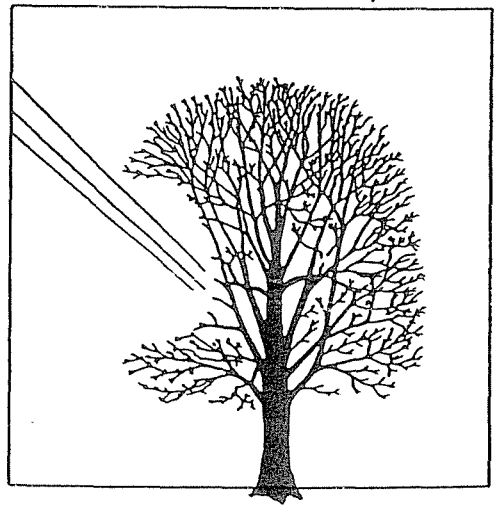
6. SIDE TRIM STUBBING

This is done by stubbing off portions of limbs along the side of the tree to obtain clearance. Cutting off portions of limbs (leaving stubs) to obtain clearance creates many fast-growing suckers that become a serious line clearance problem. Corrective pruning will be required to eliminate and repair past stubbing practices when they are encountered.

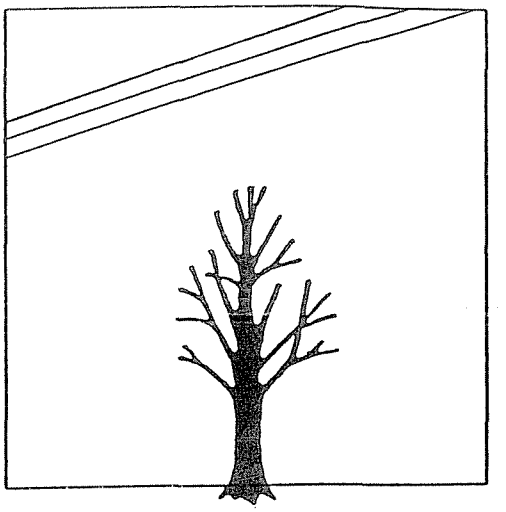


7. "SHAPING" AROUND LINES

This is done by trimming limbs in an arc to obtain clearance. This unsightly method of trimming leaves branches above the conductors that could bend or break, causing outages. Shaping also creates many fast-growing suckers.

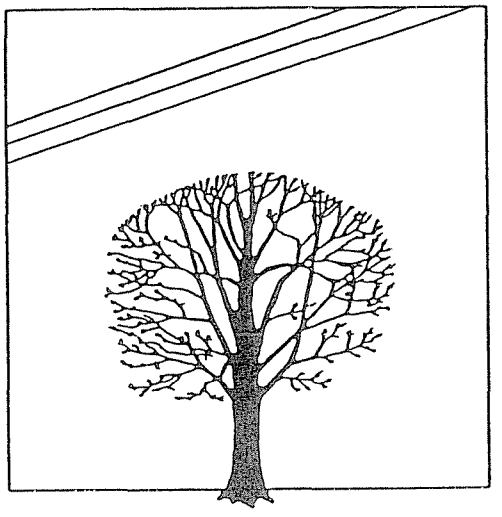


8. POLLARDING



This is done by stubbing off major limbs to greatly reduce the size of the tree crown. The result is not only unsightly, but promotes a multitude of fast-growing suckers that sprout from the stubs. The combination of stubbing and re-sprouting leads to weak limb attachments, disease and decay, which then lead to a serious reliability and line clearance problem.

Pollarding is unacceptable.



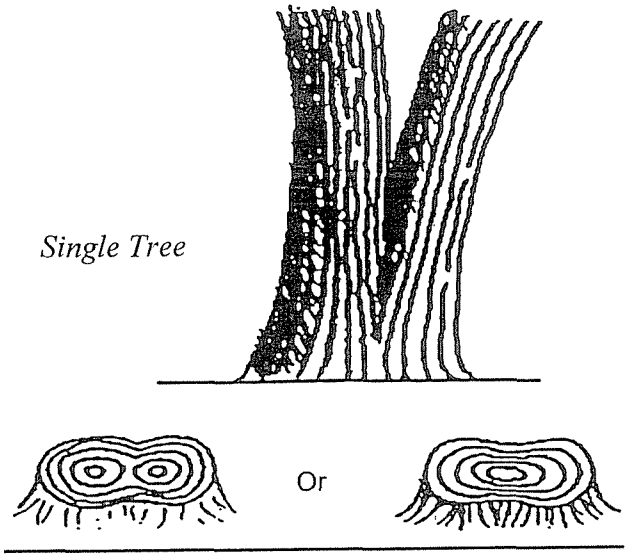
9. ROUNDING OVER

Rounding over (or shearing) is done by making many small cuts so that the tree top is sheared in a uniform line. This creates an unhealthy tree condition and results in rapid regrowth of suckers directly toward the electric conductors.

When a round over is done using a pole saw the trimmer usually leaves numerous stubs, rather than following drop crotch and directional trimming principles. This stubbing commonly leads to decay, disease and rapid re-growth. This condition is unacceptable, except when mandated by customer requirements.

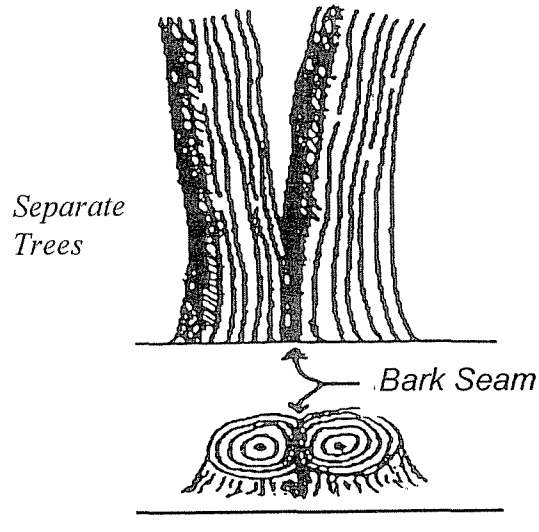
When a round over must be done, it shall be completed using the proper hydraulic or manual pruning tools, following the proper collar cut procedures. Stubbing is unacceptable.

EXCEPTION: Trees directly under overhead lines that have been previously maintained through the use of "round over" methods on multiple occasions, may continue to be rounded over to avoid future limb failures above conductors height associated with decay resulting from past tree maintenance methods.



10. SINGLE-STEM TREE IDENTIFICATION

A tree that splits above ground line and has a visible included bark seam down to the ground line is considered a single tree.



11. MULTI-STEM TREE IDENTIFICATION

A tree that splits at ground line is considered multiple trees. A tree that splits above ground line, but has a visible included bark seam down to the ground line is considered separate trees.

Appendix 4

4.4. ROW VEGETATION MAINTENANCE SCHEDULING STRATEGY

The following table summarizes the Meade County RECC ROW vegetation maintenance scheduling strategy. Individual circuits may be accelerated or deferred based on assessment of field conditions and operating performance.

Circuit Description	Primary Cycle Length (Years)
Residential Feeder Sections	3
Rural Circuits	5

RIGHT-OF-WAY MANAGEMENT

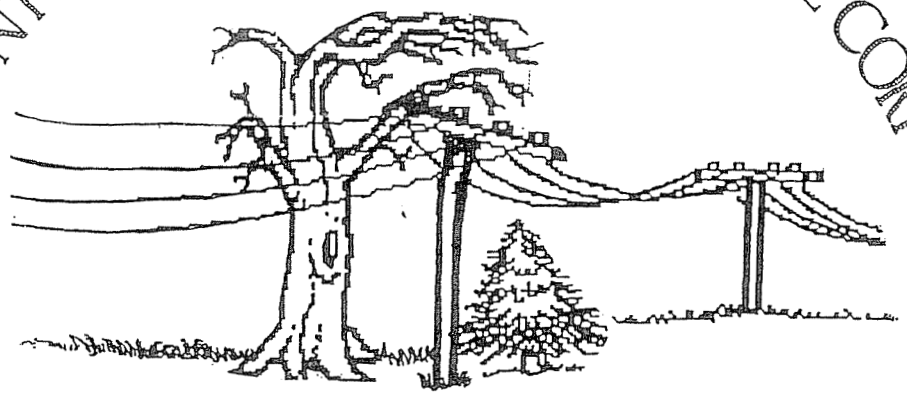
(5 YEAR PROGRAM)

CUT/MOW/TRIM (BID CONTRACT)			CHEMICAL	
2007	BRANDENBURG	154.2 MILES	2008	BY GALLON APPLIED
	DOE VALLEY	81.8 MILES		BY GALLON APPLIED
	MCDANIELS	200.5 MILES		BY GALLON APPLIED
2008	CLOVERPORT	96.1 MILES	2009	BY GALLON APPLIED
	FALLS OF ROUGH	102.5 MILES		BY GALLON APPLIED
	CUSTER	188.1 MILES		BY GALLON APPLIED
2009	ANDYVILLE	153.1 MILES	2010	BY GALLON APPLIED
	FORDSVILLE	205.5 MILES		BY GALLON APPLIED
	HARNED	140.3 MILES		BY GALLON APPLIED
2010	BATTLETOWN	79.8 MILES	2011	BY GALLON APPLIED
	FLAHERTY	156.2 MILES		BY GALLON APPLIED
	GARRETT	152.6 MILES		BY GALLON APPLIED
	HARDINSBURG # 1	96.5 MILES		BY GALLON APPLIED
2011	IRVINGTON	193.7 MILES	2012	BY GALLON APPLIED
	HARDINSBURG # 2	137.1 MILES		BY GALLON APPLIED
	UNION STAR	153.3 MILES		BY GALLON APPLIED

Appendix 4

4.5. TRADE-A-TREE PROGRAM

MEADE COUNTY RURAL ELECTRIC COOPERATIVE CORPORATION



Trade-a Tree Program

Date_____ Account Number _____

Name_____

Address_____

City State Zip

Telephone_____

Under the *Trade-a-Tree* program, Meade County RECC will remove the tree (or trees) from the right-of-way and replace it with the member's choice of any of several varieties available. Meade County RECC will contract with a local nursery to set the new tree--away from power lines--and warranty the tree for one growing season. The *Trade-a-Tree* program is for trees growing under primary power lines in residential areas.

I hereby agree to allow Meade County RECC or their designee to remove _____ tree(s) growing under the primary lines on my property and install a tree from the varieties listed below. This request is in lieu of Meade County RECC's normal trimming procedures.

Signature_____ Date_____

Meade Co. RECC Representative_____

Garden Path
626 Broadway St.
Brandenburg, Ky. 40108
270-422-5544

Flowering	Mature Height	Price
Dogwood- Cherokee Brave 3-4 ft.	8 ft.	$59.99
Dogwood- Cherokee Chief 5 ft.	8-10 ft.	$59.99
Dogwood- White 5-6ft.	20 ft.	$65.99
Dogwood-Pink 5-6 ft.	20 ft.	$65.99
Magnolia-Sweet Bay 5-6 ft.	18-20 ft.	$38.99
Dwarf Red Bud 3-4 ft.	9 ft.	$55.99
Evergreen		
Blue Spruce- Fat Albert 2-3 ft.	8 ft.	$ 59.99
Blue Spruce- Baby Blue Eyes 2-3 ft.	6 ft.	$ 59.99
Blue Spruce- Baccari 3-4 ft.	8-10 ft.	$59.99
Dwarf Alberta Spruce 18-24 "	6 ft.	$ 9.99
Dwarf White Pine 3-4 ft.	15 ft.	$69.99
Holly- Foster 3-4 ft.	20 ft.	$42.95
Wichita Blue 4 -5 ft.	18 ft.	$44.99
Wichita Blue 2 ft.	18 ft.	$16.99