

Herbicide Use On Right-of-Ways

Preventative Maintenance for a Reliable Future

Over the last five years Southside Electric Cooperative has made significant advancements in our Vegetation Management Program in order to better serve our members. When electric service interruptions caused by trees and vegetation began to increase, SEC was motivated to take decisive action to improve electric reliability for its members. The Vegetation Management Program can be divided into two primary maintenance activities: Herbicide Application and Tree Maintenance (i.e. trimming and tree removals). SEC intends to reduce the number of tree and vegetation outages through improved preventative maintenance; which led to the implementation of an herbicide program in 2008 and the adoption of modernized and nationally recognized tree maintenance standards in 2011.

SEC's Herbicide Program

In 2008, SEC first began utilizing herbicide as a way to control brush growing within the right-of-way. Treatments are scheduled in order to have each Circuit treated on a four year cycle. After herbicide applications scheduled for 2013 are completed every Circuit on the system will have been treated at least once. The regular cycle treatments on some Circuits will also begin in 2013.

The objective of an effective herbicide program is to use selective products and a variety of application methods that target tall-growing vegetation and vines within the right-of-way. When selective products and application methods are used properly in a right-of-way management program the amount of herbicides used can be cut in half compared to broadcast, or non-selective, spraying practices. Furthermore, when used properly over an



Ron Brememan

Right-of-way that is not being managed

extended period of time right-of-ways that are completely occupied by low-growing plant communities are developed creating more reliable and cost-effective electric service. SEC's herbicide program goal is to eliminate tall-growing incompatible woody vegetation from within the right-of-ways, while encouraging the growth of favorable low-growing grasses and plants.

Herbicide Application

SEC uses approved selective forestry herbicides to maintain our right-of-ways. Selective

herbicides are a great resource for right-of-way managers due to their ability to kill some kinds of plants, but have little to no effect on those that are resistant. This means that some herbicides can control undesirable woody vegetation, while leaving most grasses and forbs unaffected. Forbs are desirable vegetation; such as ragweed, pokeweed, milkweed, lespedeza, partridge pea, and clover. Undesirable woody vegetation have the ability to grow into power lines or up equipment and include trees, tall-growing shrubs, and woody vines (i.e. poison ivy). Selective herbicides alone will not create a successful herbicide program so they are used with an appropriate selective application method in order to increase an herbicide program's effectiveness.

Selective application methods include stem injection, basal treatments, cut stump treatments, and foliar spray. Application methods can be adjusted for different locations to make sure woody plants are targeted; therefore, minimizing the impacts on non-target, low-growing vegetation. Stem injection is where an incision is made in the bark of a tree and the herbicide is inserted into the cut. This allows applicators to apply herbicide only to specific target stems while leaving all other vegetation unaffected. Basal treatments are used on stems less than six inches in diameter that are over six feet tall. The lower twelve to fifteen inches of a tree are wetted with herbicide that will penetrate through the bark. The advantage to a basal treatment is that it can target a specific tree while leaving surrounding vegetation unharmed, and it reduces the amount of herbicide needed for a tree over six feet tall compared to other application methods. Cut stump treatments are used for larger trees that had to be completely removed manually. A small amount of herbicide is applied to the outer edge of a freshly cut stump, this prevents new sprouts from growing off the stump and reduces the need for future maintenance. Foliar applications must be applied directly to the leaves and are effective on woody plants less than six feet tall. Foliar herbicides must be absorbed through the leaves in order to be effective because they are designed to affect processes unique to plants. These low-volume selective application techniques have become a commonly accepted and utilized management tool for maintaining right-of-ways.



Dean Price, American Electric Power

Turkeys in a managed right-of-way

Benefits to Wildlife

A utility's herbicide program can provide benefits to wildlife, especially turkey. Right-of-ways that have been maintained with a successful herbicide program mimic 'old field' habitat and vegetation. Old field habitats contain grasses, sedges, forbs, and low-growing shrubs ideal for turkeys, deer, quail, and small mammals such as mice and rabbits. The forb/grass communities wildlife prefer can develop in four to five years once an herbicide program eliminating woody plants is established depending on seed sources, soil, and climate conditions. Forbs not only attract insects which are a great food source, but also provide turkeys with vitamin rich green foliage needed for reproduction. Deer often forage in right-of-ways that are an excellent source of soft mast such as berries. Right-of-ways can also function as courtship areas for gobblers, nesting sites and brood raising areas for hens, and travel corridors for deer and other wildlife. Small mammals and deer that favor the right-of-ways will eat tree seeds and the new growth on seedlings delaying the re-establishment of non-desirable plants within the right-of-way. Wildlife can benefit from the numerous advantages provided by a maintained right-of-way while simultaneously helping to reduce the need for future herbicide applications.

Herbicide v. Mowing

When trying to start an herbicide program a popular question asked is "Why not just mow instead?". Mowing or bush-hogging right-of-ways has several disadvantages when compared to herbicide. Cutting or mowing brush does not control any future sprouts that grow from cut stumps. Mowing actually

stimulates the cut brush to grow in response to being wounded. Oak, hickory, and sweet gum are examples of trees that when mowed will sprout back with even more individual stems. Cut brush and stump sprouts grow faster than the original plant because there is already an established and undamaged root system to provide the new growth with nutrients. The rapid growth rates and multiple re-sprouts mowing produces means shorter maintenance cycles, and only short-term control of vegetation. Shorter maintenance cycles can increase the amount of soil and wildlife disturbance within right-of-ways. Mowing is also a non-selective right-of-way maintenance practice. Desirable low-growing shrubs, grasses, and forbs are mowed along with the targeted woody plants. Allowing a low-growing plant community to remain through selective herbicide applications can help prevent soil erosion within right-of-ways. Another consideration is the amount of risk workers undertake while controlling vegetation with mowing or herbicide. Mowing is a more hazardous vegetation control method than herbicide application. Overall, when compared to traditional mowing an herbicide program: has greater long-term and preventative vegetation control, creates a longer more cost-effective maintenance cycle, reduces the frequency and extent of wildlife and soil disturbance, and is safer for workers.

keeps an updated list of all licensed applicators on their website www.vdacs.virginia.gov. All herbicide work on SEC's system is completed by Registered Technicians who are supervised by a Certified Commercial Applicator licensed by VDACS.

Forestry herbicides are proven to be environmentally safe and very effective in controlling targeted vegetation. Forestry herbicides only affect the photosynthetic processes unique to plants, and when mixed and used properly in accordance to the labels are safe to use. These herbicides do not persist in the environment and break down, or biodegrade, relatively fast after they are applied to brush. Forestry herbicides do not bioaccumulate in the food chain and have an extremely low toxicity to humans and wildlife. Regular table salt is more toxic than Glyphosate and Imazapyr, which are two herbicides that have been used on SEC's system in previous years. Ten of the most commonly used forestry herbicides are less toxic than ibuprophen, caffeine, and nicotine. Herbicides are a safe and effective way to ensure more safe and reliable electric service to SEC members.

Information on all herbicides is available to consumers and applicators so they can be aware of all the necessary precautions and risks associated with the product. Material Safety

and Data Sheets (MSDS) are created for all chemicals found in the workplace as required by the Occupational Safety and Health Administration Hazard Communication Standard. The label on herbicides also provides information on the proper way to mix, handle, and use the product. SEC posts the MSDS for herbicide products being used on the system on our website at www.sec.coop/content/vegetation-management. MSDS provide information on the concentrated product before mixing, or following label directions for diluting.

Additional information on how to read an herbicide label can be found at the Virginia Cooperative Extension website.

Future of the Herbicide Program

Since its start in 2008 SEC's herbicide program has been successful and shows great promise for the future. Many sections of the right-of-ways were completely covered with sweet gums, pines, oaks, and other undesirable trees creating accessibility problems and requiring aggressive management to prevent outages. With SEC beginning our re-treatment cycles the amount of product needed on the system should be greatly reduced this year and in the future. The stable low-growing plant communities the herbicide program is encouraging to develop will help lead to a reduction in tree populations within right-of-ways. Over the next few years we hope to see grasses and low-growing plants begin establishing themselves on right-of-ways that had dense brush and trees that were treated. SEC is excited to join with the many other

utilities that maintain their right-of-ways with herbicide and eliminate the need for frequent and ineffective bush-hogging. Southside Electric Cooperative looks forward to a future of right-of-ways with grasses, shrubs, and forbs teaming with wildlife.



Southside Electric Cooperative maintained Right-of-Way



James N. Kochenderfer, U.S. Forest Service (ret.)

Selective low-volume foliar spray herbicide application

Herbicide Safety & Oversight

All herbicides are regulated by the government and undergo extensive testing to evaluate their risk to human health, the environment, and wildlife. The Environmental Protection Agency (EPA) regulates herbicides federally, and the Virginia Department of Agriculture and Consumer Services (VDACS) oversees herbicides at the state level. Before an herbicide can be manufactured and sold it must undergo testing and research as required by the EPA. These tests and studies include herbicides': residue in water, toxicity to aquatic organisms, toxicity to non-target organisms, and residue in livestock. In addition to the extensive testing, all herbicides manufactured and sold must be approved and registered with the EPA. Virginia requires companies or individuals applying herbicides commercially to pass an exam in order to become a licensed applicator. VDACS administers the exam and

References

Hurst, G. A. (n.d.). Rights-Of-Way for Wildlife. *NWTF Wildlife Bulletin No. 19*. National Wild Turkey Federation. Retrieved from http://www.nwtf.org/conservation/bulletins/bulletin_19.pdf.

Jackson, D. R., & Finley, J. C. (2011). *Herbicides and Forest Vegetation Management*. University Park, Pennsylvania: Penn State Cooperative Extension: College of Agricultural Sciences. Retrieved from <http://pubs.cas.psu.edu/freepubs/pdfs/uh174.pdf>.

Kochenderfer, J. D., Kochenderfer, J. N., & Miller, G. G. (2012, July). *Manual Herbicide Application Methods for Managing Vegetation in Appalachian Hardwood Forests*. Newtown Square, Pennsylvania: United States Forest Service. Retrieved from http://www.nrs.fs.fed.us/pubs/gtr/gtr_nrs96.pdf

Metzler, S., & Thompson, E. (2013, January 1). *The Changing Economics of Industrial Vegetation Management*. *Transmission & Distribution World*.

Nowak, C. A., & Ballard, B. D. (2005, January). *A Framework For Applying Integrated Vegetation Management On Rights-Of-Way*. *Journal of Arboriculture*, 28-37. International Society of Arboriculture. Retrieved from <http://joa.isa-arbor.com/request.asp?JournalID=1&ArticleID=173&Type=2>.

Townsend, L. H. (2001, July). *Training Manual for Right-of-Way Vegetation Management*. Lexington, Kentucky: Kentucky Cooperative Extension Service. Retrieved from [http://pest.ca.uky.edu/PSEP/Manuals/Category %206.pdf](http://pest.ca.uky.edu/PSEP/Manuals/Category%206.pdf).