Operational Considerations for Control of Cogongrass

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Introduction

The invasion of cogongrass into the Southern United States has replaced the forest fire as the greatest perceived threat to biodiversity, land uses practices and land values. Though it has very little else in common with a forest fire, there is a wealth of knowledge about fighting fire in the forest that can be applied to battling the spread of cogongrass. As with fire fighting, controlling cogongrass infestions should be addressed across all ownership and land use types simultaneously with a cooperative and sustained effort.

Initial efforts should be focused on setting up a baseline from which to stop the advance. Then all available resources should be focused on the leading edge with extra effort to protect unique or rare microcosms, such as Sandhill Crane nesting sites or Gopher Tortoise colonies.

This paper addresses practical methods, materials and cooperative liaisons that might be employed to combat cogongrass encroachment.

Partnership

As previously stated, the necessity of cooperation across land-use types is essential. In fact, it makes no sense to utilize all the technology available to control cogongrass if adjoining landowners do not have the same goal of eradication.

Potential Partnerships:

- Public Land
  - Federal (USFS, USF&W, USPS, Interstate Highway System, USDA)
  - State (DOT, WMA, Parks, Dept of Agriculture)
  - Local (County Board of Supervisors, Municipalities, Airports, Industrial Parks)
- Private Lands
  - Forest Product Companies
  - Non-industrial forest landowners
  - Farms
  - Conservation Organizations
  - Hunting clubs
  - Homeowners

Necessary tools

Specific tools are needed in order to liaison among these diverse groups. Development and distribution of these tools by a central group that has jurisdiction over all levels of land stewardship is crucial. That central group is the USDA Natural Resources Conservation Service.

The specific tools needed to foster partnerships and cooperative control of cogongrass are:

- Current Survey
  - Extent and magnitude of the infestation
    - Macroscopically (infa-red (IR) satellite or IR aerial digital photography)
    - Microscopically (land ownership GPS/GIS mapping)
- Communication
  - Educational
    - Campaign similar to Smokey the Bear
    - Message aimed at children to have an informed future generation.
    - Widespread distribution

    - Technical
        - Latest tools and their use
        - Local infestation maps
        - Lists of local on-going projects and managers
        - Lists of contract applicators
- Government Over-sight
    - Establishment of cogongrass as a public enemy
    - Legislation to halt the spread
        - Stop Sale of plant material (e.g. ornamental cultivars)
        - Condemnation of infested soil, sand and gravel pits
        - Regulation of soil haulers
        - Regulation of excavators
        - Regulation of Landowners with infestations
    - Cost-sharing
        - Mapping
        - Materials only (providing herbicides?)
        - Contract application (materials, application, and operational management

Critical Support Groups

Herbicide Manufacturers The development and manufacture of herbicides in the United States is different than other types of manufacture. Unlike, for example, the manufacture of automobiles or homes where the demand pre-exists the supply, the development of herbicides occurs in response to a specific need or problem. In the case of cogongrass, available products within the agricultural, forestry and industrial markets are screened specifically for that need or problem.

The manufacturer usually bears the brunt of the expense of these screens either internally though in-house research and development or by grant-in-aid to university researchers. The cost of these efforts usually run in the tens of thousands of dollars and may span five or more years.

In addition to Research and Development (R&D), the herbicide manufacturer employs professional representatives who focus on a specific herbicide's use and limitations and the geographic opportunities that it has. The manufacturer's representative is equally intimate with the pest for which the product is developed.

In short, we are dependant on the manufacturer for the useful product, the knowledge of the herbicide (and the pest) and further research and development of that product or other more effective products.

Consultants Currently, few forest or agricultural consultants have specific knowledge of cogongrass. Some restoration ecologists specialize in combating non-native invasive plants such as cogon grass. However, their concern is not so much eradication of non-native vegetation, as restoration of indigenous plant communities that are vigorous and self sustaining.

Those seeking the consultation for cogongrass control should contact their local office of the following public agencies or private consultants:

- Natural Resource Conservation Service (NRCS)
- County Extension Office
- Forestry Commission
- Restoration Ecologists
- Forest and Agricultural Consultants

Be sure to weigh the consultant's experience and knowledge against the cost of the consultation. Ask for references.

Contract Applicators There are many contract applicators certified to apply pesticides, but few have experience or knowledge in non-native plant control and management. In order to provide effective and successful, cogongrass control, a contractor will:

- Properly scout and identify cogongrass at all stages of growth (so as not to confuse it with similar species such as vaseygrass, pine-land-three awn, plumegrass, seedling Johnsongrass, or purpletop)
- Have the ability to use various pieces of equipment and methods on a given site
- Understand the limitations of the available herbicides
- Schedule multiple audits and re-treatment intervals that are critical to eradication

When considering a contract applicator, landowners should look at experience, professional standing within the industry and available references. Cost should not be the only consideration and should be weighed heavily against probability of success.

Custom Blend Suppliers In recent years, "ready-to-use" (RTU) blends of two or more herbicides have evolved. These blends are mixed with a very high degree of accuracy and consistency to meet the prescribed dosage and proportion. Each blend is tested for compatibility and stability in storage.

It is now possible to secure custom blends to meet the standard of control agreed to by the scientific community and either apply it directly from the container or empty the contents into a specified volume of water. The consistency from one application to the next is the same.

Advantages of Custom Blends:

- Accurate prescription dosage
- Closed system filling for prevention of leaks and spills
- Container recycling
- Inventory control and balancing
- Bulk pricing

For more information about custom blends contact your local herbicide supplier.

Operational Methodology

To effectively control cogongrass one must understand how it invades a site and how it spreads. By far, the majority of infestations that contract applicators are called to treat are introduced by vegetative propagation. Therefore, most of these infestations are associated, in early stages, with roads, trails and fire lanes.

The typical new infestation is almost always a circle (about 0.001 to 0.1 acres) unless impeded by intense shade, a hard surfaces or aquatic conditions. The early stage continues to grow in an ever expanding circle. If the infestation is mowed or disked it is further spread by vegetative propagation. If surrounding areas are disked during the spring and early summer when seed heads are present, it is possible a new infestation may begin in the prepared seed bed by wind-borne cogongrass seed.

It is best to herbicide-treat cogongrass in the early stages of infestation. Although applications can be made any time that the plant is actively growing (April to October), best results are obtained in the early fall. During the early fall, translocated herbicides reach the root system in a more lethal dosage. The application should be applied to the above ground parts and to the area just outside of the infestation boundaries, where rhizomes and stolons are spreading or encroaching. This area may be fifteen or more feet outside the visible colony. If using only glyphosate or treating just the visible colony, expect to see a "doughnut" re-infestation as the rhizomes and stolons outside of the original infestation emerge and mature.

Herbicide applications made late in the year are usually confounded with rank growth and partial senescence of foliage. If possible, the rank growth, senesced foliage and thatch should be removed by mowing and/or burning. The herbicide should be applied when the re-emerging cogongrass is eight to sixteen inches tall.

When desirable vegetation is within close proximity to cogongrass the safest herbicide application is the recommended rates of glyphosate, at 2%, and an effective surfactant, at 0.5%. If the cogongrass has not been mowed and/or burned the mixture should be applied with sufficient volume to thoroughly wet the foliage at usually 50 to 100 gallons per acre. If the cogongrass has been mowed and/or burned, an application of 20 to 35 gallons per acre should be used. Treatments should be repeated every six to twelve months for three years or until the cogongrass is eradicated.

If there is no desirable vegetation and the object is reclamation only, apply 2% imazapyr in a similar method as an application as glyphosate. Because imazapyr may appear slow to control cogongrass, it may be advisable to mix glyphosate and imazapyr to determine if there are missed areas or skips in application, as glyphosate activity is apparent in 2 to 4 weeks.

Equipment used for successful application:

Tractor Mounted Sprayer: This versatile sprayer is mounted on a 4 wheel drive tractor with boomless nozzles, an adjustable handgun and a 300 foot hose reel. It can be moved on site with a utility trailer and can access and apply herbicide to large expanses of cogongrass either in a broadcast or spot treatment manner. When secluded early infestations are discovered, the tractor can be maneuvered within a few hundred feet and the spot sprayed with the handgun and hose reel.

This spray equipment can also be used for other types of applications such as hardwood control in early pine plantations, pine release, mid-rotation release and site preparation.

Truck Mounted Sprayer (slide in sprayer): This sprayer allows adaptation to a standard bed 4 wheel drive truck. It allows for spot treatment of early infestations that cover less than five acres, is highly maneuverable with low cost operation and maintenance.

The sprayer may also be used for spraying roadside weeds and brush, fencerows and for fire suppression.

ATV Sprayer: This equipment is best suited for the do-it-yourself landowner. It allows for broadcast and spot applications and high maneuverability. The land manager can scout and spray on the same reconnaissance. ATVs, are easily rigged and maintained for this purpose and owned by most landowners.

Backpack Sprayer: Perhaps the most maneuverable of all sprayers, a backpack sprayer is not limited by terrain or land use. It is very useful in checking previously treated cogongrass sites and for treatment of very early (small) infestations.

A team of six to twelve sprayers rigged with short booms can treat remote areas in a broadcast manner. Each sprayer must follow in a staggered formation with each swath slightly overlapping the one in front. A marker dye is a useful aid to determine overlap.

Any mechanized sprayer should be accompanied by at least one backpack sprayer to broaden the ability of the application. A recommended number of backpacks would be one for every crew member plus one.

Branded Products versus Generics Products

Branded or proprietary products are brought to market with a great many unknowns. They are first produced at a very high cost of $30 to $60 million dollars without recapturing the first dollar. The “value in use” is determined by the market conditions at which time the product is introduced, balanced against a financial analysis to recoup the expenditure plus a profit before the 17 year patent expires. The “value in use” selling price is arrived at by considering the other options for that particular use. Therefore, has less to do with production cost than with competitive options.

Generic products are introduced after the patent life on a product has expired. They have a simple objective of entering the market as a “me too” product. They have the same usefulness as the branded product, but the cost is determined form the “bottom up”, consisting of production, marketing and delivery cost, plus profit. There are little to no R&D costs associated with generic products.

The difference between “value in use” pricing and “bottom up” pricing can be substantial. Much of the difference is called value added services that support the industry and develop the particular product and other new products yet to be introduced.

A contract applicator should prefer to stick with branded products because the heavy investment in research and development by branded products preserves the contract applicator’s reputation and professionalism and because of the support manufacturers provide our industry.

That support includes:

- Quality Control - proven and trusted
- Research and Development that is proven
- Industry involvement
    - Meetings for technology transfer
    - Field trips
    - Proven recourse in event of nonperformance
        - Evaluation by representative
        - Fair and equitable resolution
        - Product guarantee
    - Proven recourse in event of property or personal injury damage
        - Legal support
        - Scientific support
        - Toxicological support
- A Fair Price or Cost
    - Cost is a relative term (cost/benefit)
    - Failure is a higher cost
    - Low-cost substitute may interject unknowns
    - Customer’s deserve the best job
    - “value in use” pricing is based on available options

When to Consider a Generic Product

As a private individual or a public entity this decision might be quite different and more simplified than for a contract applicator or consultant. Since the former may make the decision once or just a few times over a course of time, while the contract applicator or consultant will make the decision hundreds of time per season. Since one’s reputation and industry support weigh heavily; the decision to switch must be compelling.

Important considerations are:

- Is the product proven, with reliable R&D?
- Is the cost is at least 15% lower?
- Is product support equal?
- Is product defense equal?

Conclusion

Cogongrass represents a severe and urgent threat to land managers. Methods and materials are available for all levels of cogongrass infestation. For greatest effect, the affected parties should view the threat and the needed course of action as if they were dealing with a wild fire, focusing available resources at the leading edge of invasion.

Our government must realize that cogongrass is a serious public enemy and action must be taken to halt the spread. Current mapping and communication of infestation conditions must be made public. Unwitting culprits must be made aware of the spread and action taken. Inducements to landowners to treat the infestation must be investigated, reformed and continued.

To defeat the threat we must work together in a cooperative spirit with proven methods and with a determined attitude.