

## Performance Based Contracting for Herbicide Application

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### **Introduction**

Herbicides, when implemented as part of a comprehensive integrated vegetation management (IVM) program, have been proven to greatly reduce the cost and environmental impact of maintaining utility rights-of-way (ROW). However, realizing these benefits requires the development of contracts that take into account the unique aspects of this type of vegetation management, and that encourage measurable performance from contractors.

Herbicide program contracts and specifications often use generic construction contract templates as base documents. However, the characteristics and performance expectations of herbicide programs and construction projects are significantly different. While a construction project may be a relatively short-term effort with a clearly defined beginning and end, ROW vegetation management is a continuous process that requires a long-term perspective. While it is relatively easy to determine the level of performance of a pruning or construction contract, the effectiveness of an herbicide application may take several months or even years to fully evaluate. Contracts that are written to account for these differences will yield better results. This article describes some of the common pitfalls when traditional contracting methods are applied to herbicide work, and offers constructive solutions to improve effectiveness and assure good results.

### **Contract Language**

Herbicide application contract specifications are frequently focused on avoiding litigation and/or negative public image, with not enough emphasis in assuring high performance based on measurable deliverables. There are several performance requirements that can be written into the contract to avoid these issues. In addition, early conversations with industry colleagues and suppliers to gain the benefits of their experience in developing herbicide application specifications can accelerate the effort and help to avoid problems.

Contract specifications should not leave loopholes that can be taken advantage of by unscrupulous contractors. For example, the commonly used benchmark of "95% control" has been interpreted to mean that leaving 5% untreated vegetation is within contract compliance. Herbicide mixes that achieve brown-out, but do not actually control the whole plant, can be used to achieve the appearance of 95% or more control at the time of inspection, but actually control far less.

Contract language should accurately reflect the work scope to create a level playing field for qualified bidders. For example, there is no reason to use a ladder in a low-volume herbicide application contract; however, otherwise qualified bidders have been excluded from such contracts because their safety manuals did not have a section on ladder safety!

Contract specifications should provide measurable criteria to evaluate contractor performance. Both the utility and the contractor should be confident that the language is unambiguous and protects their interests. This will assure more accurate pricing and a higher level of performance.

### **Defining Control**

Most herbicide contracts call for 95% control of interfering vegetation. However, utility vegetation managers have no easy way to evaluate performance based on this arbitrary figure. Furthermore, achieving 95% control may not be a reasonable expectation, given that product manufacturer labels do not even reflect these levels.

Three problems frequently encountered include:

1. How to objectively evaluate control
2. When to perform evaluations
3. What to do about non-performance after the contractor has been paid

Without contract specifications that detail how vegetation will be audited, the utility vegetation manager is left to subjective visual measurements, which may be contested by the contractor. As IVM methods become more sophisticated, visual audits become even more difficult. For example in IVM it is desirable to retain compatible species, which can confound the acuity of even the best visual auditor. In addition, some species may be targets at different points in time or locations.

Imagine an auditor or vegetation manager having to make all of these determinations from a helicopter at 200 or more feet above the right-of-way at 100 mph!

## **Measuring Performance**

### **Pre-established sample plots**

One way to objectively measure contractor performance is to set up pre-established sample plots at locations known only to the utility. These can be visited at the end of the first and second season for live and dead plant counts from which percentage control figures can be mathematically determined. In this situation "control" would be defined as target vegetation with no visible living plant parts. However, setting up and monitoring pre-established plots can be a laborious undertaking.

### **"Rank set sample"**

An alternative sampling method is to "rank set sample" random plots after an established period in time following treatment. In this technique the utility vegetation manager randomly "selects" plots that are among the "worst" and "best" sites based on visual estimation. This can be accomplished from a helicopter utilizing GPS waypoints.

Subsequently, the sites are ground checked by establishing a center point, measuring out a 37.25 foot radius and then sweeping around to mark out a circular area, which is equivalent to one tenth of an acre. By counting out the ratio of live to dead plants within a one tenth acre circle, the level of control over a larger area can be extrapolated.

The rank set sample technique allows the vegetation manager to better determine specific reasons for performance variation. For example, an improper prescription may not adequately control the species mix or the size of the target vegetation. If there was no change in species or other site conditions, it could mean that the applicator had an improper mix or sprayer nozzle problem.

### **Measuring coverage first; control second**

Contractors generally cannot wait months for payment while waiting for target vegetation to respond to treatment. A more reasonable approach is to write a contract specification that addresses "coverage" of the target plants rather than percent control. The contractor's performance can be evaluated based on the targeted plants treated.

Observed herbicide effects such as leaf chlorosis or necrosis may be used to evaluate coverage. Adequate time must be allowed for symptoms to appear, and it should be understood that timing and symptoms may differ depending on target species, weather, product used and other site-specific factors.

Audits should be performed by inspectors with a solid knowledge of what the specific prescription should look like. Sample plots are assessed by tallying affected and not affected plants, then extrapolating the level of compliance. The initial application should achieve 100% coverage on target species.

Second season observations are the only reliable measure of herbicide application performance. Evaluations should take place on the same sample plots where the herbicide coverage audits were performed. This audit should determine whether target plants are dead or alive, then use this basic data to extrapolate the level of control. For example, 19 dead plants out of 20 treated plants would be 95% control.

This is a tough performance level to achieve, but feasible with a qualified contractor who is familiar with, and dedicated to, the utility's long-range plans.

### **Guaranteeing Performance!**

Long-term contracts are a proven way to assure a high level of contractor performance. With a multiple-year contract, the contractor is vested into the vegetation condition within that scope of work. If a contractor is required to apply herbicide the first season; then patrol and touch up the very same ROW the second season, they have an interest in maximizing performance on the first pass, and are more likely to meet or exceed the specified control levels. Incentives can be offered to further encourage performance. An added benefit to multiple-year contracts on the same ROW is that contractor personnel become familiar with the topography, species present, concerned landowners and other site factors, making for smoother operations on subsequent cycles.

Multiple-year contracts are well suited to IVM programs, which, especially on NERC-regulated ROW, include a documented vegetation management plan. The IVM plan should be all inclusive, taking into account the concerns of various stakeholders and differences in site and vegetation conditions. It should also consider and implement multiple application methods and prescriptions as appropriate.

The utility can improve the likelihood of successful implementation of an IVM program by eliminating contractors that have not invested in the necessary training and equipment, or do not have the capability to electronically gather, record and report the information required by NERC (North American Electric Reliability Corporation).

With IVM, a diverse and sophisticated approach is highly desirable for achieving good results. By using an appropriate RFP process with clear specifications and requiring prospective contractors to meet certain criteria to qualify for contract award, low-performing or under-qualified contractors can be eliminated from contention. Reputation, experience and capability should be as important as cost considerations.

### **Looking Ahead**

Decades of research and development have yielded proven IVM methods, but they are still not being used by many utilities. Led by the UAA, utility vegetation managers and contractors are actively involved in developing industry standards, best management practices and certifications for employees. The tools, equipment and methods are simply waiting to be put to use.

Considering how important vegetation management services are in protecting vital energy supplies, it is surprising that best management practices in contracting for vegetation management services have not been more widely adopted. By implementing a few basic changes to herbicide contracting methods, utilities have an opportunity to significantly reduce costs, improve reliability and enhance the environment along ROW corridors.