

Using Herbicides on Forest Lands

A Position of the Society of American Foresters

Originally adopted on November 29, 1978, and subsequently revised and renewed by the SAF Council in 1996, 2001, and June 7, 2008. This position will expire on June 7, 2013, unless, after subsequent review, it is decided otherwise by Council

Position

The Society of American Foresters (SAF) supports the availability and judicious use of herbicides as an effective and vital tool for controlling undesired vegetation on forest lands. SAF believes that the use of herbicides, when properly applied according to federal and state regulations, is a safe and effective approach for managing undesired vegetation. In addition to helping improve reforestation and forest productivity, herbicide use is now a particularly important management option for addressing the serious and growing problem of native and non-native invasive species on forest lands.

Issue

Undesired vegetation is an important management concern on forest lands, and forestry professionals sometimes need to control competing plants to help promote successful reforestation and forest productivity after timber harvest or catastrophic events such as wildfires and hurricanes. In recent years, native and non-native invasive plants also have become a major problem and serious threat to natural flora and fauna in many forest areas. Research, monitoring and professional experience have shown that well-planned and careful use of herbicides can be a highly effective and environmentally responsible approach for vegetation control on forest lands. Persistent concerns about human and environmental health and safety risks have led some to believe that the use of herbicides should be further regulated or prohibited, particularly on federal or other public forest lands.

Background

Role of Herbicides in Forestry

Trees and other vegetation on forest lands are in constant competition for the available space, light, moisture and nutrients. After timber harvest or natural disturbance opens the forest canopy, plant competition can seriously impede the establishment and productivity of desired forest species. Research and operational experience have shown that vegetation control with herbicides, prescribed burning, manual tools, or mechanical devices can significantly improve the establishment and growth of desired species by selectively limiting competition. Importantly, such vegetation management normally does not eliminate the competing plants altogether (Lautenschlager and Sullivan 2002) and total species diversity actually can increase when the most aggressive plants are controlled (Various authors 2004). In several parts of the U.S., it is imperative to use

herbicides where competition from shrubs reduces available water moisture and hence the ability to re-establish forests.

Undesired forest vegetation may be either local invasive vegetation or invasive exotic species. Many invasive species aggressively colonize forest ecosystems, compromising the viability of native plants and animals. These invasive species are an increasing threat to forest biodiversity throughout the U.S. and often require strong control measures. Control of invasive species also can help improve fish and wildlife habitat, forage production for livestock, watershed conditions, reduce wildfire hazards, and maintain rights-of-way and recreation sites. Science, monitoring and professional practice have shown that among the various methods available, herbicides are an environmentally acceptable and highly effective tool for managing undesired vegetation. When compared to other control methods, herbicides can provide greater certainty of results, including environmental responses, and often require less cost and energy to implement. In areas where concerns about air quality or wildfire are high, herbicides provide a valuable alternative to prescribed burning for vegetation control.

The amount of herbicides applied and frequency of herbicide use in forestry are relatively minimal compared to other users. According to EPA data for 2001 (the most recent year available), the agriculture sector is by far the largest user of herbicides in the U.S., accounting for 78% of herbicide use. Home and garden use accounts for 13%, and industrial, commercial and government use combined (which includes forestry) is 9% (EPA 2004). Treated forest lands normally receive only one to three brief applications over management periods that extend as long as a century, depending on tree species and region. The U.S. Environmental Protection Agency (EPA) maintains a list of herbicides approved for forestry uses, and this and other references and guidance are used by forestry professionals for appropriate applications.

Environmental Effects and Research

The EPA continually assesses the effects of herbicide use on the environment and public health, as part of the required registration process for individual chemicals and their specific uses, and to maintain approved uses over time. Universities, research cooperatives, governmental and other public and private research organizations also conduct studies on the uses and effects of herbicides. Research findings indicate that the herbicides currently approved for use on forest lands are unlikely to produce undesirable effects on non-target organisms other than plants.

Chemical exposure and toxicity are two key factors that control the risk of undesirable effects of herbicides to non-target organisms. People and animals are unlikely to be exposed to forest herbicides at levels of concern because, when used properly, these chemicals generally are of low toxicity (e.g., they primarily affect plant systems), are applied at low amounts and frequency, are quickly excreted or decomposed in the environment, and do not accumulate in food chains.

Researchers continue to develop and evaluate new methods and equipment for more effective and safer integrated vegetation management, including advances with herbicide treatments. (Various authors 2004).

Role of Forestry Professionals & Planning

Forestry professionals have knowledge and experience that can help ensure the proper and effective use of forest herbicides, and some have specialized expertise in vegetation control. Land owners and managers can use this and other appropriate expertise to develop a comprehensive, integrated vegetation management strategy. This approach includes identifying ecological conditions that favor weed establishment and expansion, and evaluating alternative combinations of treatments for an effective, environmentally sound, and cost-effective solution. Herbicides may be but one part of an integrated approach that may also include such treatments as hand or mechanical clearing, prescribed burning, surface cultivation, and covering areas with weed mats.

Where environmental concerns are significant, alternative chemicals or application methods are often available to increase treatment effectiveness and reduce environmental risks. Examples include liquid or granular herbicides, broadcast or spot treatments, and aerial or ground applications. Global positioning systems, specialized application equipment, and careful attention to weather conditions can enhance application accuracy and minimize off-site chemical movement. Information on the latter can be used in computer models to evaluate the likely effectiveness of alternative practices to control chemical movement, and predict the environmental fate of herbicides prior to application. Finally, forestry professionals can provide a valuable role in communications with local residents, landowners, recreational users, and other parties who may have questions or concerns about planned herbicide applications.

References and Suggested Further Reading

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