borne chemicals may have adversely altered the ability of these trees to withstand natural stress factors, no experimental studies have been initiated only recently to test this idea in a scientifically rigorous way.

Conclusions

A great deal is known about the effects of sulfur dioxide and hydrogen fluoride on forests in the vicinity of strong point sources of these pollutants. By comparison, however, very little is known at present about the possibility that regionally dispersed airborne chemicals might be involved in the last three of the five regional changes in forest health and productivity discussed above. Ozone is the only airborne chemical which so far has been rigorously proven to cause regional effects on forests (cases 1 and 2, above). On the basis of general knowledge of the responses of forests to stress, some circumstantial evidence, and a very few controlled exposure tests, however, a consensus of informed judgment is developing which suggests that the following airborne chemicals may be involved. These five airborne chemicals are listed below in order of decreasing probable importance; the detailed rationale for this ranking is summarized elsewhere:

—ozone;

—acidic or acidifying substances including sulfate, nitrate, chloride, ammonia vapor, and ammonium ion;

—excess nutrient substances—especially greater-than-normal atmospheric deposition of biologically available nitrogen compounds including nitrate and ammonium nitrogen and ammonia and nitric acid vapors;

—toxic metals such as lead, cadmium, mercury, and zinc; and

—growth-altering organic substances such as ethylene, aniline, and dinitrophenols.

Acid deposition in particular and air pollution in general have become major environmental issues in both Europe and North America during the past two decades. Much has been learned already but much more remains to be learned about various aspects of these twin problems.

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Abstract

HENSLEY, D.L. 1986. **Fusilade 2000: toxicity test results.** Am Nurseryman 163(10):67.

Selective postemergence herbicides have gained in popularity and use in nursery and landscape markets. One such herbicide, Fusilade (fluazifopbutyl), can be used to selectively remove annual and perennial grasses growing with a large number of landscape species. A new formulation, Fusilade 2000 (fluazifop-P-butyl) has been released. This material contains a greater proportion of the herbicidal isomer of the active ingredient and will replace the familiar 4E formulation. We applied Fusilade 2000 at a pressure of 30 pounds per square inch to 16 woody ornamentals. There was no evidence of foliar damage to any species caused by either solution of Fusilade 2000 two or four weeks after application. Fusilade 2000 appeared to be safe for use on all species studied at the rates tested.