



CAUSES OF FOREST HERBICIDE FAILURE

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Private landowners and forest contractors regularly use herbicides to accomplish silvicultural objectives, including site preparation, seedling and sapling release, thinning, and cull tree removal. The result of herbicide applications is normally satisfactory, provided the manufacturers' directions are properly followed. Sometimes, however, the results are disappointing, even with experienced applicators.

There are a number of explanations why herbicides sometimes fail to perform as intended, and they are summarized here:

1. **Soil Texture** – Herbicides act more slowly on fine-texture soils (clay) than on coarse soils (sand). Often it is necessary to slightly increase application rate on finely-textured soils as well as soils with high mineral and organic matter, and slightly lower the application rate on coarse (sandy) soils.
2. **pH of the Water** – Efficacy of herbicides can vary according to the pH of the water. Study the label to determine the most favorable pH range. Do not use surface water for mixing herbicides.
3. **Air Temperature** – Many herbicides will perform better with warmer air temperatures. Normally during cool or even cloudy weather, plants are not actively growing. Herbicides will not translocate readily and favorable results will be slow, if at all.
4. **Photo Decomposition** – Excessive sunshine in the absence of rainfall can cause some herbicides to function poorly.

Soil incorporation may be necessary (follow the label to see if this is recommended).

5. **Sap Flow** – When applying herbicides to the girdles or frills of certain trees (for instance maple) in early spring, sap flow can be so aggressive that herbicides are immediately “pushed” back out, never to reach the roots.
6. **Salt Form** – How well herbicides enter a plant is often dictated by the salt form. For instance, “2,4-D” ester is more volatile than the amine salt and can move off target more readily.
7. **Precipitation** – Whether in excess or too sparse, precipitation is a major factor in success with herbicides, and one over which the applicator has no control (other than in timing of application).
8. **Improper Application** – Poor site preparation, improper mixing, faulty spray equipment, variation in ground speed, etc., all contribute to inconsistency or failure.

Forest landowners that are inexperienced with herbicide application should first seek professional assistance, starting with the local county extension office or Forestry Commission office. Be sure to read and follow closely the label on the product to reduce the likelihood of failure. Some herbicides require specific additives and precautions. Remember too that restricted-use herbicides applied commercially require a pesticide applicator's license. ☞