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American chestnut continues to exhibit the same kind of hormonal response when it is repeatedly killed back by the Chestnut Blight fungus. Trees of this species have been dying back and re-sprouting since the blight swept through New England in the early decades of this century. This behavior is another example of the loss of "apical dominance" or hormonal balance in the tree, resulting in the sprouting of what would otherwise be dormant buds at the base of the tree.

Based on a developing understanding of the role that hormones play in tree growth and form, forest scientists today are using hormones in research to clone superior trees. Tissue from such trees is taken back to the laboratory and grown in test tubes in the presence of hormones that will stimulate root and shoot formation. The resulting "little trees" (not actually seedlings) can then be planted. Knowledge of tree hormones has also resulted in the development of herbicides that are lethal to trees. These herbicides are an artificial form of hormone that stimulates excessive growth and peculiar physiological behavior which results in tree death.

Scientists continue to study the role that hormones play in tree growth. Much is yet to be learned about the interesting form of "communication" within a tree. Based on numerous external environmental stimuli such as day length or temperature, hormone balances in a tree change, and leaves fall, buds unfold or flowers appear. Shoot elongation and the degree of "apical dominance" is also controlled by hormones. Also, a tree's response to injury or external influences such as weevil infestation, high winds, animal browsing, or felling is controlled by hormones. The relative presence in minute quantities of these important hormones plays a significant role in determining the growth and form of the trees we enjoy today.

Poa annua Control

Poa annua remains a serious problem facing many golf course superintendents. Over the last several years new information has come out concerning **Poa annua** control. Research at Michigan State University by Gaussoin and Branham has shown that collection of clippings and elimination of overwatering can reduce the amount of **Poa annua** in fairways. When attempting to reduce **Poa annua** in fairways the first step is to develop a management system to favor the desired turf species and then supplement proper management with chemical control measures.

Progress has received much attention as a preemergence and postemergence herbicide for **Poa annua** control. Turfgrass researchers from several universities report excellent success with Progress. Several factors are very important to keep in mind when using Progress. The first is to accurately assess the amount of annual bluegrass present. If the amount of annual bluegrass is underestimated there could be numerous bare or thin areas the following spring that golfers would find objectionable. Two applications of Progress, 3 to 4 weeks apart, are a must. The applications can be made between September and December. The annual bluegrass will show no symptoms of injury after the first application. Few, if any symptoms of injury will be seen after the second application. The results of applications made in the fall will be observed the following spring in a reduction in the amount of **Poa annua** present. The annual bluegrass treated with Progress dies during the winter. Often an overseeding program is needed in conjunction with the use of Progress to provide turf cover in bare or thin areas.



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