

## Chipco Proxy—A New Plant Growth Regulator for 1999

*Fred Yelverton*

In the previous issue of *Turfax*, we discussed a new herbicide (Drive) which is registered for use in turf for 1999. In this issue, we will discuss Proxy, which is a new plant growth regulator that has obtained EPA registration for use in turf. In addition, another herbicide, Lontrel Turf and Ornamental, is scheduled to be available for the third quarter of 1999. Lontrel will be discussed in a future issue. It is noteworthy that at least 3 new herbicides or plant growth regulators will be available in 1999. This is indicative that the turf market is growing and the basic manufacturers are optimistic about the future of turfgrass management.

**The common name for Chipco Proxy is ethophon.**

Unlike other currently registered plant growth regulators such as Primo, Cutless, and TGR Turf Enhancer, which work by temporarily inhibiting gibberellin biosynthesis in plants, the mode of action for Proxy is associated with the release of ethylene gas in plant tissues. Ethylene is a naturally occurring plant growth hormone that generally

occurs in very small quantities (usually less than 0.1 ppm) in plant tissues. However, ethylene is responsible for a number of growth responses in plants, including leaf bending (epinasty), leaf abscission, stem swelling, inhibition of stem growth, fruit ripening, and flower petal discoloration. **Proxy retards foliar growth by stimulating the production of ethylene in plants.**

Ethophon is currently registered as a plant growth regulator for several other agronomic and horticulture crops. Because other formulations of this product are currently registered with the EPA, the registration of Proxy was very fast. **As a result, there is limited research on the effects of this plant growth regulator on turf.** However, data from a few researchers across the country indicate that Proxy can be effective in reducing vegetative growth of turf. In a year or two, much more will be known about this product.

**Proxy is a foliar-absorbed product that should be applied to actively growing turf.** The plant growth re-

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## Counting Wildlife—Is There More?

*James B Beard*

The number and diversity of birds and other animals present is a key indicator of the environmental health of a golf course. The presence of these animals in a landscaped golf course environment is an added beneficial feature for individuals playing a round of golf.

During the past decade considerable emphasis has been placed on counting the actual number and diversity of birds and other animals present on a golf course. Golf course officials are encouraged by wildlife specialists to provide an environment that is increasingly hospitable to a diversity of wildlife, including the construction of artificial features and structures. **The implied philosophy to date has been “the more wildlife the better.”**

However, is this approach really appropriate and realistic? There are numerous examples around the world where man has attempted to enhance wildlife numbers that have resulted in excessive populations, e.g., Canada geese, deer, wild pigs, and others. The result has been a deterioration in the animal's natural habitat, and in some cases has presented human health hazards as well as habitat loss or imbalance relative to other desirable wildlife species.

**Would not the better approach be to assess the existing and potential natural habitat carrying capacity for each golf course site in terms of the range in wildlife species and specific numbers that can be realistically supported?** Threshold levels should be established as to the maximum, balanced numbers of wildlife for a range of the appropriate animal species. Then subsequent plant and animal surveys can determine if those population thresholds have been reached, which will signal an alert when an excessive population is developing. This is especially important where man-made structures have been constructed that may need to be removed to avoid an animal population level that overburdens the local habitat, and causes significant habitat deterioration on the golf course. Also, one should recognize that humans are a component of the Animal Kingdom that occurs on the golf course.

**An even greater question is “do wildlife scientists know what species and populations levels can be realistically supported by each individual type of soil-climate ecosystem?”** Is this important basic principle being ignored in the rush to improve the image of golf courses through wildlife habitat enhancement?

## Chipco Proxy...

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tardant effects usually are apparent after about 7 to 10 days. Proxy is currently only registered on several cool-season turfgrass species. They are as follows:

- Kentucky bluegrass (*Poa pratensis*)
- Perennial ryegrass (*Lolium perenne*)
- Bentgrass (fairway height) (*Agrostis* spp.)
- Tall & fine-leaf fescue (*Festuca* spp.)

Proxy maybe used on fairways, roughs, and other commercial turfgrasses. Currently, the label prohibits its use on putting greens. The use rate for Proxy will be 5 oz/1,000 ft<sup>2</sup> and should be applied in 0.5 to 4 gallons of water/1,000 ft<sup>2</sup>. The use of surfactants is not recom-

mended. Reapplications may be made at the following intervals:

- Kentucky bluegrass: 7 weeks
- Perennial ryegrass: 7 weeks
- Bentgrass: 4 weeks
- Tall & fine-leaf fescues: 4 weeks

As with any plant growth regulator, proxy should only be applied to actively growing turf under favorable growth conditions. Applications of Proxy should be avoided during periods of stress. As with any new product, Proxy should be tested under local conditions prior to wholesale application. 

## Bacterial Wilt...

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greens. Some discoloration may be masked by tank-mixing Kocide with chelated iron or slow-release, liquid forms of nitrogen. Kocide should be applied in at least 5.0 gallons of water/1,000 ft<sup>2</sup> (19 L/93 m<sup>2</sup>). Using lower water dilutions when applying Kocide could intensify turf injury. In situations where the disease is chronically severe, greens composed primarily of annual bluegrass may have to be renovated.

### XPO® — The Biological Agent

Eco-Soil Systems® of San Diego, California, is developing *X. campestris* pathovar *poannua* as a biological agent for annual bluegrass control on golf courses. The biotype being developed was discovered by Dr. Joseph M. Vargas, Jr. of Michigan State University. According to tests reported by Eco-Soil Systems, the XPO biotype does not infect creeping bentgrass. Various biotypes of *X. campestris* have been tested in the United States. The reported levels of annual bluegrass control with some *X. campestris* biotypes have varied from 0 to 82% (Johnson, 1994; Zhou and Neal, 1995). Like all biological agents, the level of control will vary from year to year and possibly from region to region. This is because most biological agents require some very specific environmental conditions in order to incite disease.

Currently, the XPO bacterial must be fermented on-site using the Bioject System®. After a suitable fermentation period, the liquid is pumped into and delivered by a conventional sprayer. **It is recommended that XPO be applied four times in the spring and autumn.** The bacteria are sensitive to UV light. Therefore, the product should be applied in the evening when the turfgrass leaves are dry.

**Immediately following application, the treated turf must be mowed.** The mowing creates wounds, which allows for the entry of the bacteria. According to Mr. John Lensing of Eco-Soil Systems®, the company has an aggressive research program planned for 1999. These research efforts should contribute a lot of new information regarding how best to achieve maximum annual bluegrass control with XPO. According to some initial estimates, levels of annual bluegrass control in the 5 to 10% range typically occur. However, the use of gibberellic acid to stimulate elongation of annual bluegrass leaves prior to applying XPO may boost control into the range of 50% or higher. There also is some evidence that XPO can infect rough bluegrass (*Poa trivialis*). Obviously, extensive field testing in various climatic zones will be required to provide more meaningful information on how best to use the product. 

### References

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