

"If time is money, the combination of the sheer cost of identifying a new compound, testing and getting it through government regulations... can approach or exceed \$50 million."

KARL DANNEBERGER, PH.D., Science Editor

Patent laws need to change

asel, Switzerland is a beautiful city that sits on the Swiss, French and German borders. It has a population just under 200,000 and has been around since 374 A.D. Basel has been home to chemical and pharmaceutical companies for centuries.

In 1758 the origins of a company was started in Basel. Johann Geigy, a merchant, started a dye business that evolved into a chemical company. Like Johann Geigy's company, many of the early chemical and pharmaceutical companies had their roots in dye processing. Johann originally used natural products to dye silk ribbons. Through generations, the Geigy business grew and expanded into chemicals and pharmaceuticals through advances in chemistry.

In 1970 J.R. Geigy merged with Ciba AG to form Ciba-Geigy, shortened to Ciba in 1992. In 1996 Ciba merged with Sandoz (another Swiss chemical company) to form Novartis. Novartis remained as the pharmaceutical company, but the agricultural division, which includes turf and ornamental, became Syngenta.

At the same time of Geigy's evolution, new innovation became increasingly more costly and time-wise, longer to bring products to market. In the 1960s the chances that a research chemist's idea would lead to a commercial product was 1/11,000.

Now those odds are 1/100,000.

After optimizing, screening and developing that chemical compound into a product, along with trying to get it through the maze of toxicology and environmental reviews and regulations, you are looking at well over eight years to bring a product to market.

If you hit snags in government reviews the product can be delayed even longer. If time is money, the combination of just the sheer cost of identifying a new compound, testing and getting it through government regulations... it does not take long to see why a product's development from conception to market can approach or exceed \$50 million.

I'm not at all promoting the idea that we need less regulation. I want to know that a product that could potentially be widely used, does not impact the local or global environment negatively. I am



wondering, however, if the current patent laws should be revised.

Early in the discovery phase of developing a chemical, a patent is often sought. From the date that patent is granted, the company is given 17 years of product protection. The longer a product takes to get to the market, the less time you have to recoup your investment and make a profit.

When chemicals were released in the 1960s the period from discovery to commercial release was quicker, allowing for a longer period of time for the product to remain commercially under patent protection. Now it takes longer to bring a product to market, along with being more costly.

But patent protection remains 17 years. If the world is changing, I think this is one law that should change as well.

Everyone likes cheaper products, and in the chemical and pharmaceutical sphere that is in the form of post-patent products or generics. But I also know that if there is not some protection for companies that create new chemistries and compounds, innovation will slow to a snail's pace. And in all likelihood managing my own health, let alone turfgrass pests, will become more difficult.

It seems hard to defend chemical and pharmaceutical companies that may be making hundreds of millions, if not billions of dollars (also spending hundreds of millions of dollars on science). But if the trend continues, as it has for the last 40 years, the cost of development will continue to skyrocket. I think it is worth an additional year or two or three on patent protection to keep companies like BASF, Bayer, FMC, Syngenta and the other companies around Basel making our life better both professionally and personally.

Karl Danneberger, Ph.D., *Golfdom*'s science editor and a professor at The Ohio State University, can be reached at danneberger.1@osu.edu.