



The Endurance Factor

How much shelf life do those old, half-used turf products have left in them? It depends

BY JIM BLACK, CONTRIBUTING EDITOR

Walk in to any golf course maintenance facility, head directly to the storage area for seed, fertilizer and chemicals, and you'll find them tucked away in a far corner or up on the top of a rack.

Abandoned and forgotten, the stash of leftover turf products sits in the dark maintenance shop with dust quietly marking time on the half-empty bottles, jugs and bags.

From my own experiences, these collections of musty, old clumping and rotting relics inherited from a handful of previous superintendents always gave me a slight cause for concern.

"Is this stuff any good anymore?" I would wonder. "What happens to some of these

chemicals over time? Will it be worth the effort to spray this stuff out or apply this fertilizer? If the mice are still eating the seed, does that mean it'll still germinate?"

My biggest fears were always that the insecticide was a thousand times more toxic, or the selective herbicide would no longer select. And surely the fertilizer was now hotter than MSMA on a 95-degree day.

And disposal fees? Forget about it. No public course I ever worked at wanted to engage in that discussion. "Just spray it out," they would say.

"Yeah, right," I would think to myself. "And suffer the consequences."

So what to do with all this waste? Mostly, I would just work around it, giving a cursory glance and a fleeting thought of how to dispose of it, while at the same time cursing

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it for being in my way. In the end I have to admit I did what all the superintendents before me did — left it for my successor.

Since that time my curiosity has been getting the best of me. Could all those old products have been put to good use without worry?

Rather than continuing to wonder, I decided to find out once and for all what can be done with them.

According to Doug Brede, research director of Simplot Partners and author of the “Turfgrass Maintenance Reduction Handbook”, the shelf life of turf products depends primarily on how they are stored. Take seed, for example.

“If kept in a basement with low humidity,” Brede says, “you can have fairly good germination on many turfgrasses at four years and even up to 10 years. We routinely keep bluegrass seed here in Idaho in an unheated warehouse for upwards of 10 years for research purposes, with little decay in germination rate.

“The exceptions to that rule are: fine fescue and hulled bermudagrass. Both of these have a short shelf life of two years maximum. Hulling, or stripping away the floral bracts, really shortens the life of seed.”

As far as fertilizer and chemicals go, Brede says: “Fertilizers keep indefinitely but will cake in humid environments. It’s usually best to use them within six months, but 10-year-old fertilizer is still good if you break up the clumps.”

Brede says dry pesticides will keep indefinitely. “Liquids decay with time, depending on the formulation,” he adds. “Emulsifiable concentrate (EC) products settle into plastic goo. Solubles keep for several years.”

Once, I discovered some chemicals of which I had never heard. When I researched the manufacturer on the peeling label, I found the company had gone out of business. I knew what the chemical was, but how was I to know how old it was?

Barbara Klahn, of the Product Support Center from Bayer Environmental Science, says the only way to determine how old products are is to get the lot numbers off

the packages. Lot numbers are usually ink-jetted onto the packaging, not the labeling, she adds.

“We conduct shelf-life studies for two years on our products,” Klahn says. “Typically your baits are the shortest-lived products because of the food material in the baits, followed by liquids. Dry formulations tend to last the longest.”

David Ross, technical manager for Syngenta Professional Products, notes that the Environmental Protection Agency has specific guidelines for chemical producers to establish at least two years of product longevity.

“When registering with the EPA, they will accept the results of an accelerated storage study where chemicals are subjected to heat of 60 degrees Celsius for two weeks to mimic conditions over two years,” he says. “We shoot for a five-year shelf life, but only guarantee for two years. In general, all products have at least a two-year shelf life at room temperature.”

Ross notes that actual shelf life can depend on several factors: formulation, percentage of active ingredient, pH, sunlight and heat. All of these factors can break down chemicals and reduce efficacy.

“Elemental metals, of course, will never break down,” Ross adds. “When you see an actual physical change in the product, you can expect degradation. But for dry products like wettable powders and water-dispersible granules, they will last a long time if you just keep them dry.”

One of my big curiosities about these old chemicals was whether or not they actually get more toxic as time goes by.

“There’s nothing I know about that grows more toxic over time,” Brede says. “However, this should not be confused with pesticides found from the 1960s in someone’s garage. There were some arsenic and heavy-metal pesticides sold back then that I wouldn’t want to get near. Most of today’s chemistries are between the toxicity of table salt and gasoline.”

All right then. We know storage conditions are a big factor with our two biggest summertime enemies, heat and humidity, taking their toll on our valuable turf products. But what about the cold?

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SIMPLOT PARTNERS

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Todd Burkdoll, a market development specialist for BASF Professional Turf & Ornamentals, says when some EC materials are under freezing conditions, the cold temperatures change the molecular structure of some of the constituents, especially the inert ingredients.

"Most pesticides are less than 50 percent active, with liquid products less than 20 percent active and dry products maybe 60 percent to 70 percent active," Burkdoll says. "Typically, you have at least 50 percent inert ingredients. What a superintendent needs to do is look at the MSDS for the product and that will tell him exactly what the freezing point is for the material."

Burkdoll notes that it's best just to use your products up and keep a lower inventory.

"It's good risk management all around," he adds. "If the label changes on a product or if the product goes off registration, you can't

use the product in certain states anymore."

Burkdoll also suggests keeping good records and making inventory lists. You may end up in a situation where you buy a pesticide for a specific reason and leave the course to take another job. Then when the new superintendent comes to the course, he might not know the background on that product and the reason you purchased it.

"The best thing to do is to use what you're going to use this year and plan ahead and don't store a lot of chemicals," he says. "In certain cases when you have fire sales or early orders, a (vendor) has a blue-light special opportunity to buy more at a reduced price. There is nothing wrong with that, but you've got to use the product accordingly."

So let's say the stuff you have lying around is just too scary looking to trust being sprayed or spread out even into the furthest reaches of your rough. *Do not*, I repeat, do not just chuck

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The most sensible thing to do is to order only what you need to keep inventory to a minimum.

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it into your dumpster. The environmental and financial risks are just too great.

Maryland is one state that occasionally offers a free pesticide disposal program, but it is usually reserved for farmers and agricultural producers. But Rob Hofstetter of the Pesticide Regulation Section of the Maryland Department of Agriculture says superintendents can sometimes take advantage of disposal programs. If a superintendent finds a program in his or her area, he or she will sometimes be allowed to participate and be charged only what the hauler is charging the state, which can be as little as 97 cents per pound. "But remember, that's based on the hauler getting 20,000 pounds of material or more," Hofstetter points out.

Unfortunately for superintendents, Hofstetter says these programs are becoming more and more scarce. Contacting an independent certified waste hauler is usually the best option to take if you're unsure.

Another option is to call your local county landfill services office and see what's acceptable. I was very surprised to find out that if you have a nasty bag of old fertilizer that's gone to mush or has solidified into an N-P-K brick, you can actually just throw it away in some areas. But be sure it's straight fertilizer and not a combination product.

I think that it's obvious that the most sensible thing to do is to order only what you need to keep the inventory of partial bags and bottles to a minimum. But chances are you'll be inheriting an aging arsenal of chemical and fertilizer relics. When it comes to their use and/or disposal, I advise you to use your head to avoid losing your job.

Jim Black, a former Maryland golf course superintendent, is now an operations manager for Scotts Lawn Service in southern Maryland. In switching to the lawn business, Black has gone from taking care of 200 acres of turf to taking care of about 356,000 acres of turf. ■

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