



The Well-Stocked Hardware Store

Helping Local Retailers Make the Switch to Organic Products and Practices



**BEYOND
PESTICIDES**

The Well-Stocked Hardware Store

Making the Switch

Increased awareness of pesticide hazards, from the decline of honey bees and wild pollinators, to international recognition of the carcinogenic properties of the common herbicide Roundup (glyphosate), has encouraged residents throughout the United States to seek out alternatives that do not put human health or the environment at unnecessary risk. These residents



are engaging in grassroots activism, encouraging their neighbors, city officials, and local businesses to eschew toxic synthetic pesticides in favor of holistic management practices and least-toxic and organic products. As more and more communities enact laws restricting pesticides, and local residents seek out these alternatives, it is critical that local hardware and garden stores participate in this movement by supplementing and replacing their stock of toxic pesticides with products that promote a natural systems approach to lawn care.

To assist local garden centers and hardware stores in transitioning their customers to holistic lawn care practices, Beyond Pesticides has crafted the “Well-Stocked Hardware Store,” which provides the products and tools necessary to support a move to healthy, organic landscapes. This guide fits in with Beyond Pesticides’ Model Pesticide Policy and Implementation Plan for Communities, but can be used independently for hardware stores looking to encourage the use of products and practices that protect the health of their customers, community, and the wider environment.



The Basics: Informational Materials

In order to orient customers towards an organic approach, it's important to educate them on the steps necessary for a successful changeover. Hardware stores should provide both basic fact sheets on lawn care maintenance as well as more in-depth documents for those transitioning and establishing a new organic lawn.

Basic Lawn Care Documents:

Organic Lawn Care 101: Easy to follow steps on how to prime your customer's lawn to go organic!

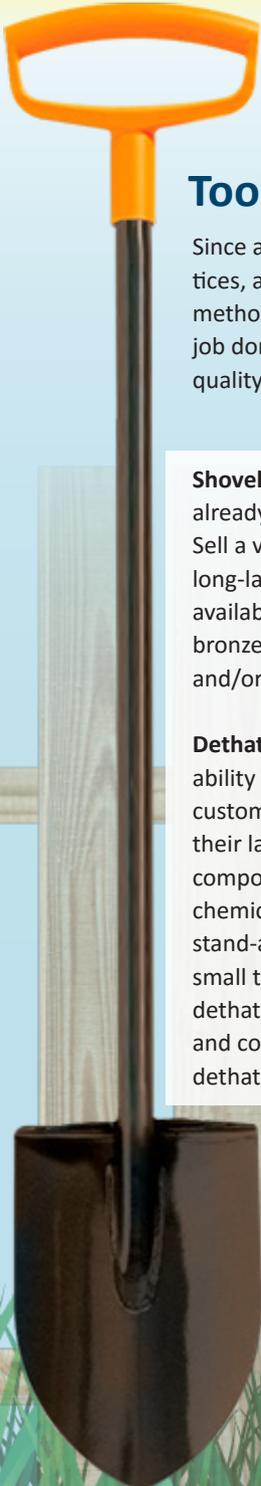
Simple Guide to Creating a Healthy Lawn: Learn about the conditions promoting weeds and how they can be corrected.

In-Depth Lawn Care Documents:

Establishing Sustainable Lawns: Get customers into the details of how to transition a toxic lawn to organic practices. This document, helpful for both homeowners and practitioners, walks through how to choose the right grass seed and prepare your site for organic practices. Also provides ideas for alternative landscapes, as grass may not be the most appropriate plant for your situation.

Maintaining Sustainable Lawns: Keep your organic lawn looking healthy all year round. This document outlines proper lawn care practices for each time of the year, addresses how to correct turf problems, and other symptoms of an unhealthy lawn without resorting to toxic pesticides.

For access to printable versions of these documents, visit beyondpesticides.org



Tools and Watering Supplies

Since a systems approach to lawn care puts a focus on cultural practices, a critical part of ensuring customers are able to implement safer methods in their yards is providing them with the right tools to get the job done. For all watering equipment, carry products that are of high quality and free of unnecessary toxic chemicals, like BPA and lead.

Shovels, Trowels, and Soil Probes: Most garden and hardware stores already carry shovels and trowels, and brands aren't all that important. Sell a variety of sizes and types, making certain they are sturdy, and long-lasting. Carrying soil probes is critical as they are the best tool available for collecting soil samples. Avoid carrying tools that are brass, bronze, or galvanized as they can contaminate soil samples with copper and/or zinc.

Dethatching Rake: Thatch on a lawn reduces its ability to absorb water and nutrients. Although customers shouldn't need a dethatching rake if their lawn is healthy, the tool can be a helpful component of a transition from over fertilized, chemically treated turf to natural practices. Offer stand-alone thatching rakes for customers with small to medium sized yards. Also sell motorized dethatchers like Greenworks electric dethatcher, and consider keeping a few large, commercial dethatchers available to rent.



Hoses: Most plastic green garden hoses have been shown to contain harmful chemicals like phthalates, BPA, and lead. Avoid stocking those hoses completely by opting for others made with quality material, like high-grade rubber and laminated filament.



Soil Moisture Meter: Encourage your customers to water only when necessary by selling soil moisture meters. Luster Leaf sells a number of different soil moisture meters.

Sprinklers: Customers should take into account the area they're watering, soil type, and rate of water flow when deciding upon a sprinkler. Impulse sprinklers water a large area slowly, while oscillating and rotary sprinklers deliver water faster. Assist customers by carrying a variety of different types of sprinklers.

Watering Can: Carry a range of both metal and plastic cans to fit everyone's budget. Try to be as open and honest as possible about whether the products could contain toxic contaminants.



Rain Barrels: Rain barrels are a great way for customers to save on their watering costs throughout the hot summer months. Carry a variety of different sized barrels and make sure that they're made of food grade plastic and UV-protectants to prevent algae growth. The Great American Rain Barrel Company and the Spruce Creek Rainsaver are good examples of the many rain barrels available on the market.

Fertility Products

Proper soil fertility is critical to ensure healthy soil biology (and customers that are happy with their new organic lawn).

Soil Test Kit: Soil testing provides a baseline for chemistry, texture, and nutrient availability. Many agricultural extensions can also perform an organic content analysis and offer organic care recommendations, in addition to providing data on nutrient and pH levels. Businesses can reach out to most local agricultural extensions for sample boxes that customers can pick up right at the store and ship off later. Emphasize the importance of soil testing by placing a soil testing information station at a highly visible location in the store. Provide fact sheets from the local extension agent on how customers can conduct their soil test. **TIP!** Consider providing discounts for customers that bring their soil test results into the store.



Chip Osborne taking soil samples in Ft. Scott, KS.

Soil Amendments: While soil inoculants work to improve the biological health of soil, soil amendments can help improve the physical properties of soil (though, of course, the two are intricately connected). Carry lime and gypsum, which are useful in adjusting the pH of soils. Peat, coconut coir, vermiculite, and perlite can help adjust drainage issues and water retention (though they're not usually an important part of organic lawn care). And the best known soil amendment, compost, can help break up and improve soil structure, in addition to providing a gentle fertilizer to your customer's lawns. Stock a variety of soil amendments and organic certified composts, as well as a means for customers to produce their own (see 'compost bins' below).

Soil Inoculants: Soil inoculants, or microbial inoculants, feed the microorganisms that work to break down and release nutrients in your lawn. These products can help speed up the transition to an organic lawn by kick-starting soil biodiversity. Examples include humates, mycorrhizal fungi, and a range of other beneficial bacteria. Carrying a variety of soil inoculants can help boost the microbial life in your customer's yards.

Compost Bins: For urban and suburban areas, compost tumblers make a nice, aesthetically pleasing addition to a backyard. They're also better at preventing offensive odors from wafting toward neighbors, keeping 'black gold' free of local vermin, and are just easier to turn and aerate. There are a wide number of compost bins on the market, ranging from expensive self-aerating composters to more practical tumblers, which have convenient handles to turn the compost, to simple bins with tight-fitting lids. Selling worm compost bins (and even supplying composting worms) is also a good idea, though more appropriate for gardening than lawn care. Display educational information on how to begin composting. Also try to carry compost accessory items, like compost aerators, compost boosters, and under the counter kitchen pails for those that don't want to make the trip outside every time they want to compost food scraps.



Fertilizers: To begin, make certain that the fertilizers your store carries are certified organic, by only stocking products with the "USDA Organic" label. Broadly speaking, there are two types of fertilizers: granular and liquid. Both have pros and cons within an organic turf system.

- **Granular fertilizers** take time to break down, allowing a slow release of nutrients throughout the growing season.
- **Liquid organic fertilizers**, such as seaweed and kelp meal, break down and provide nutrients to the grass a bit faster, and can be mixed with other microbe-boosting soil inoculants at the time of application (see 'soil inoculants')

It's important to educate customers on when it's appropriate to fertilize their lawn. Pay particular attention to state laws that may restrict the use of fertilizers (i.e., phosphorus or nitrogen), making sure to follow applicable regulations. Generally, once nutrient deficiencies are corrected per soil test recommendations, lawns will need very little fertilizer to maintain healthy growth. A ¼" topdressing of compost in the fall is usually enough to maintain healthy soil biology – the real focus of organic lawn care.

Lawn Maintenance

Stocking the necessary equipment and supplies to help your customers maintain their organic lawns is critical.

Mowers: Lawn mowers come in two different varieties – reel and rotary. Though we suggest carrying both, rotary mowers are a better fit for an organic turfcare system.



- **Reel mowers** are generally push mowers, which snip grass like a pair of scissors. They're great for cutting lawns short; however, with organic cultural practices, you generally only want to do that once, at the end of the growing season.
- **Rotary mowers** are better suited to maintain your customers' lawns at the 3 ½" to 4" mark that crowds out weeds. Encourage customers to both mow high and keep their grass clippings on their lawns. Clippings are a free source of nutrients that will help grass grow throughout the season.

Grass Seed: Make sure that the type of grass seed sold is compatible with your local climate. Although it's not widely available at the moment, try to source organic certified seed. Also include seed mixes that contain clover. Clover mixes can help reduce fertilizer costs by fixing nitrogen, and also provide a year-round food source for pollinators. Don't be afraid to promote clover mixes as beneficial – the latest trend in organic land care!



Seeders: Overseeding in the fall is a critical part of good cultural practices for lawn care. Although customers can seed small areas by hand, for larger areas, they'll need a seeder to maintain uniformity. Grass seeders range from hand-held rotary spreaders, to mobile push seeders, mounted seeders that attach to ATVs or other small vehicles, or those that can be pulled behind a tractor.

Weed and Pest Management Products

Even with a focus on cultural practices that build soil and natural systems, pest problems can arise, particularly when customers are in the transition process from a chemical-dependent to organic lawn.

Mechanical

Mechanical controls should be the first line of defense for customers that need to manage lawn and garden pests.

Garden Gloves: Because hand pulling is the most tried and true method of removing weeds from a landscape, a good pair of gloves will give your customers a leg up on stubborn problematic plants.

Mechanical Pullers: Hand-pulling weeds simply isn't an option for everyone. Luckily, there are innovative products that can assist so your customers don't have to break their backs to remove weeds.

Weed Whackers/String Trimmers: Encourage your customers to forgo using glyphosate-based products like Roundup along fence lines, driveways, and other edges in their yard, and instead opt for a simple pass with a string trimmer. There are a wide range of trimmers to fit your customers' budget and landscape needs.

Flame Weeder: These machines use a targeted flame to kill weeds (and can also be used in the winter to melt ice!). While it can be fun to use these products to burn down weeds, stress safety for your customers, and do make them aware of the potential dangers with their use. Sizes may include mini, full-sized, and backpack flame kits for customers with larger landscapes.

Traps: It's a good idea to carry a wide range of insect traps for homeowners. Options range from stinkbug and Japanese beetle traps, to outdoor mouse and squirrel traps, to dangerously fun electric fly swatters.

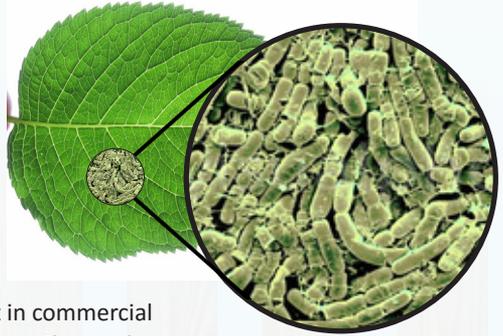


Weed and Pest Management Products, continued

Biological

Biological controls are the next line of defense in an organic approach. Most biological controls are pest and timing specific, so it's important to educate employees about the proper use of these small but effective predators.

Bacillus thuringiensis: An effective check on caterpillars and mosquitoes, bacillus thuringiensis (Bt) is a naturally-occurring soil bacterium. Once consumed by an insect, Bt acts as a potent pathogen, producing a crystalline delta-endotoxin that punctures a target pest's stomach lining. There are various strains of Bt in commercial production. Bt subspecies *kutstaki* is effective for moths and caterpillars. Bt subspecies *israelensis* is effective for controlling mosquito larvae in small ponds, birdbaths and other stagnant sources of water in a yard. It is usually sold as mosquito dunks or bits.



Nematodes: Beneficial nematodes generally enter target pests through the mouth or anus and quickly kill by injecting toxic bacteria into the pests' body. They are effective on a wide range of pests in lawns and gardens. However, it's important to tailor the subspecies to the target pest. *Steinernema carpocapsae* is effective against fleas, sod webworms, termites, caterpillars, and cutworms. *Steinernema feltiae* can control fungus gnats, leafminers, ticks, and thrips. *Steinernema glaseri* is effective against a range of grubs, including Japanese beetle, june bugs, and european chafer.



Beetle grub infected with nematodes (University of Maryland)

Milky Spore: The bacterium *paenibacillus popilliae* can be effective for controlling Japanese beetle grubs in a lawn and landscape, occurring naturally as a check on the population in wet climates. Once applied to a lawn they begin to multiply and grubs will ingest the bacterium as part of their feeding. The bacterium causes Milky Spore Disease, which will lower populations as the grubs will pass the disease amongst themselves. Note that this control may take several seasons to achieve good control, and may not be as effective in colder, northern climates.



Beneficial Insects: Beneficial insects can be an excellent way to put a check on pests without resorting to hazardous chemicals. The green lacewing is certainly the most popular and widely available, as it is inexpensive to produce and an effective generalist predator with a particular appetite for aphids. However, stores can carry a wide variety of pest insect predators, including various species of trichogramma wasps (which parasitize moths), predatory mites, and minute pirate bugs, among others. If an insectary is nearby, it may be best to work closely with them, but there also ways to cultivate some of these predators in-house if owners are inclined to invest the time and space.



Goats and other wildlife: While biological controls for weeds are certainly lacking, goats and geese are a bright spot with a lot of untapped potential at the local level. Goats will eat a wide range of weeds and invasive species in a landscape, and one goose can adequately weed an urban garden. Look for local goat grazing companies that would value referrals.

Weed and Pest Management Products, continued

Least Toxic

Least toxic pesticides should only be considered after cultural, mechanical, and biological controls have been attempted and proven ineffective. Least toxic pesticides are, generally, those that have been reviewed by the National Organic Standards Board for their health and environmental impact, and compatibility with an organic system. More and more of these products continue hit the market with rapidly increasing effectiveness. *Remember: Even with least-toxic pesticides, the label is the law, and customers should be instructed on proper use.*

Insecticides:

Powdered Insecticides: Diatomaceous earth and silica gels provide an excellent alternative to toxic insecticides for lawn and garden use. They are effective against fleas, ticks, and beetles with a light coating on the lawn. Be sure to provide customers with food-grade diatomaceous earth, and make certain it does not contain any added and unnecessary synthetic pesticides. The product will wash away after a rain event. Boric acid, although generally used indoors, is available in numerous forms, including dusts, liquids, granules, pellets, tablets, wettable powders, rods, or baits. Carry a wide range of products for indoor, as well as home and garden use.

Insecticidal Soaps: These products use potassium salts of fatty acids to suffocate and kill insects that come into direct contact with the spray. Urge care to avoid spraying these contact killers when beneficial insects, such as bees and butterflies, are in the area.

Neem Oil and other Botanicals: Concentrated neem oil, known as azadirachtin, has become a popular go-to for least toxic control of problem pests. It works by interrupting a pest's growth and depressing its feeding, leading to starvation. The product controls a wide variety of insects, and possesses a very low toxicity to humans, but its impact to beneficials remains murky. Botanical products are generally derived from essential oils, and work by desiccating insects with active ingredients such as rosemary, peppermint, thyme, and clove oil, drying out their waxy outer layer.



Pheromones: These products often go hand-in-hand with insect traps. A number of products are on the market to either attract or repel pests or beneficial insects to one's landscape. It is helpful for your store to conduct their own investigation to match supplies with local pest populations.



Fungicides:

Active ingredients in organic fungicides are generally quite similar to those in insecticides. In fact, many organic fungicides, such as Monterey's 70% Neem Oil and Safer 3 in 1 Spray, are also marketed as insecticides.

Herbicides:

Least toxic herbicides are best used on young weeds, as larger plants may take more than one pass to kill. They are contact killers, so the entire plant must be sprayed, and these products are usually most effective when sprayed on a bright day. As of now, these pesticides are non-selective, meaning that they have the potential to burn grass if improperly applied.

Herbicidal Soaps: New herbicides containing some form of fatty acids are entering the market quickly. These herbicides work by penetrating the waxy coating of plant leaves to dry them out. Look for products that contain ingredients like ammonium nananoate, pelargonic acid, potassium salts of fatty acids, or sodium lauryl sulfate, 2-phenethyl propionate, and essential oils.

Botanicals: Botanical herbicides also represent a growth market as residents throughout the United States seek out an alternative to Roundup and 2,4-D. Herbicides that use concentrations of botanical ingredients like citrus or clove oil are good alternatives.

Vinegars: Horticultural vinegars are a popular mainstay of least-toxic alternative herbicides. They work in a similar way to the other herbicides above, but are quite harsh, and acutely toxic to weeds. It's important that customers follow the label and any protective equipment prescribed therein. Look for horticultural vinegars with at least 15% acetic acid, as any less will be much less effective.



Suggested Products:

Lawn Maintenance

- **Greenworks** reel & electric rotary lawn mowers
- **DLF Organic, Jonathan Green,** and **Earth Turf** grass seeds
- **Earthway** seeders

See *Beyond Pesticides'* [Pollinator-Friendly Seed Directory](#) for more seed companies!

Tools

- **Greenworks** electric dethatcher
- **Luster Leaf** soil moisture meters
- **The Great American Rain Barrel Company** and **Spruce Creek Rain-saver** rain barrels

Fertility

- **Epsoma** granular organic fertilizers
- **Neptune's Harvest** liquid organic fertilizers
- **Dr. Earth** granular & liquid organic fertilizers
- **John & Bob's, Age Old Organics,** and **Plant Success** soil inoculants
- **Aerobin** self-aerating compost bins

Least-Toxic Pest Control

Insecticides

- **Earthworks Health** food-grade diatomaceous earth
- **Safer Brand** insecticidal soaps
- **PBI Gordon** Azatrol, **General Hydroponics** AzaMax, **Safer Brand** neem oils
- **EcoSmart** botanical-based insecticides
- **Victor Pest** and **Seabright Laboratories** pheromones and traps

Fungicides

- **Monterey** 70% Neem Oil
- **Safer** 3-in-1 Spray
- **Bright Organics** cinnamon and clove oil-based fungicides
- **Greencure** potassium bicarbonate fungicide
- **Gowan** M-PEDE for powdery mildew

Herbicides

- **Biosafe System** AXXE, **Gowan** Sycthe, **Neudorff North America** Final-San-O, **Safer Brand**, or **EcoSmart** herbicidal soaps
- **Avenger Organics** **Weed Killer** (citrus oil, d-limonene)
- **Soiltech** Phydura (clove oil)
- **Bradfield** 20% Vinegar
- **SummerSet** AllDown (acetic & citric acid)

Biological Pest Control

- **Safer Brand** Garden Dust and Caterpillar Killer, **Monterey Bt**, and **Summit** Bt products
- **BioLogic** and **The Environmental Factor Inc.** nematode products
- **St. Gabriel Organic** milky spore products
- **Beneficial Insectary** beneficial insect distributor
- **Ewe4ic Ecological Services** goat services

Mechanical Pest Control

- **Womanswork** high-quality gloves (men & women)
- **West County Gardener** gloves made from recycled materials
- **The Garden Weasel** weed-poppers or **GarretWade** Grandpa's Weeder (weed remover)
- **Greenworks** trimmers
- **Red Dragon** flame kits (for weeding)
- **Dynatrap** bug zappers
- **Safer Brand** outdoor insect traps
- **Havahart** no-kill traps for small animals



Making the Switch:

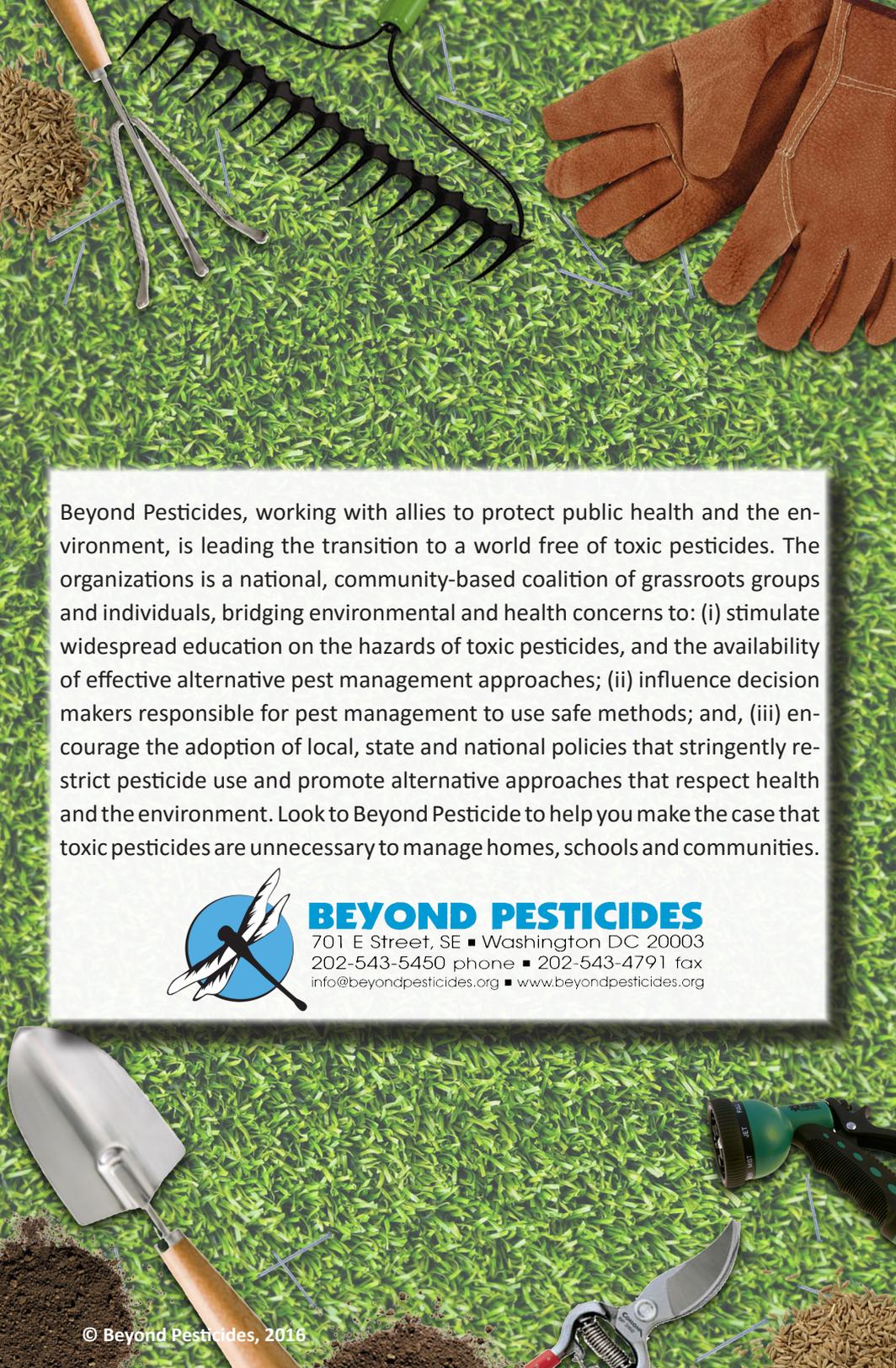
Eldredge Lumber & Hardware York, Maine

Making the Switch: Forward looking businesses such as Eldredge Lumber and Hardware in York, Maine, are indeed Making the Switch, and clearing their store shelves of harmful synthetic pesticides and fertilizers. Eldredge is encouraging consumers to employ alternatives by consciously stocking their shelves with organic compatible products. "You're protecting your environment, you're protecting your family, your children and grandchildren, and your neighbors. Nobody wants to have pesticides drifting into their front or year yard, and people are just loving it, they're feeding into it. I couldn't be happier," says owner Scott Eldredge. Efforts by local businesses to stock alternatives and educate consumers on their use is a wonderful example of creating change through grassroots efforts and a bottom-up approach, and offers an alternative to big-box stores focused simply on replacing products. Beyond Pesticides has produced the video, *Making the Switch*, which highlights Eldredge Lumber and Hardware's efforts to orient its customers towards safer management practices.

Conclusion

The products above do not represent a comprehensive list of all of the alternative materials available on the marketplace. And with the market for organic growing exponentially, there will certainly be more to add in the future. Beyond Pesticides encourages enterprising hardware stores, manufacturers, and residents to let us know what we've left out by sending an email to info@beyondpesticides.org.

However, taken together with educational materials, these products do provide a viable, effective means to orient the average consumer towards an organic approach to lawn and landscape care, and have hardware stores maintain a profit while doing so. By putting a focus on materials that support safe, sustainable cultural practices in the home and garden, residents will appreciate the change, come back again, and tell their friends and family about the innovative approach their local store is taking.



Beyond Pesticides, working with allies to protect public health and the environment, is leading the transition to a world free of toxic pesticides. The organization is a national, community-based coalition of grassroots groups and individuals, bridging environmental and health concerns to: (i) stimulate widespread education on the hazards of toxic pesticides, and the availability of effective alternative pest management approaches; (ii) influence decision makers responsible for pest management to use safe methods; and, (iii) encourage the adoption of local, state and national policies that stringently restrict pesticide use and promote alternative approaches that respect health and the environment. Look to Beyond Pesticide to help you make the case that toxic pesticides are unnecessary to manage homes, schools and communities.



BEYOND PESTICIDES

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