

Positive results reported from study of IPM on home lawns

A two-year project by the North Dakota State extension service proves lawn care customers will change bad habits if you show them how.

by Ronald C. Smith, Ph.D.

■ A two-year study of Integrated Pest Management (IPM) on 20 homelawns by the North Dakota University extension service has proven the effectiveness of IPM when it's done right.

The project was started in conjunction with two local lawn care companies, ChemLawn and Outdoor Services.



Ryobi Mulchinator runs 90 minutes on a full charge. Ryobi is in Anderson, SC.

EXCLUSIVE BIOTURF NEWS CASE STUDY REPORT

Clients were picked based on their willingness to cooperate with extension service recommendations.

Test lawns were equally divided between the two companies because of other clientele commitments, and the time required to begin the program. Some customers expressed concern that IPM would cost more and yield poor results, and at first were suspect of company motives in the project.

After being assured that the objective was mutual education, they were willing to change past bad habits.

Understanding IPM. Integrated Pest Management involves the consideration to pest control and turf management. Pesticides are not eliminated, but are a part of the management scheme to achieve the desired outcome: a healthy, functional and attractive turfgrass system.

Since the lawn care companies did not provide turnkey services, the homeowner was made to realize that their practices of mowing and watering could negate the best efforts of these professionals.

IPM programs start with an inventory of the property. This includes:

- a list of problem areas;
- client concerns and desires;
- a soil test, the linchpin for most initial decisions apart from mowing and watering.

Proper turfgrass mix. Turfgrass species in our region are all cool-season grasses: Kentucky bluegrass, creeping fescues and perennial rye. Some lawns are sodded with three or four cultivars of elite bluegrass; one is a monoculture of *Touchdown* Kentucky bluegrass, and another was a tall fescue blend.

One of the challenges in lawn care is to find a mix of grass seed that will be a good overseeder without differing substantially from the existing turfgrass. Since most of our clients had elite turfgrass mixes, an "IPM Mixture" was developed that met most of those needs and differing conditions. The mix contained three bluegrass cultivars: *Glade*, *Cynthia* and *Rugby*, and a single cultivar of perennial ryegrass, *Regal*. This mix provided quick germination growth in sun or shade and tolerance to a variety of conditions.

New mowing practices. Clients were instructed in the proper way to mow:

- mow at three inches high to keep weeds down;
- keep the blades sharp;
- mow frequently, based on turf growth rates, not a calendar;
- leave the clippings.

Customers were also encouraged to alternate mowing patterns to minimize compaction and encourage more upright growth.

The program used a Ryobi Mulchinator—a rotary mower powered by a 24-volt battery. It runs quieter than a household vacuum, mulches turf clippings and leaves, and can run

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90 minutes on a full charge (about 20,000 sq. ft. of turf).

Leaf removal was emphasized as an important part of preparing the lawn for winter. In autumn, turf needs maximum sunlight to photosynthesize and translocate the carbohydrates to the crown, roots and rhizomes for winter storage.



Thatch layer of 2.25 inches, too much to remove at once with a dethatching unit.

Heavy clay soil. Most of the problems were caused by heavy clay soil that was stratified with subsoil of nearly equal density. Compaction, low infiltration and low percolation were all problems. Compaction was verified with a Dickey-John unit that convinced every client that their lawns needed aeration.

(Patch diseases during hot spells were also thought to be caused by the poorly drained soils.)

Poor oxygen diffusion into the soil caused problems during the cool, wet summers of 1992 and 1993. While aeration is not a substitute for decent weather and proper fertility, it did improve the appearance of every lawn; in fact, the effect was essentially equal to that of a fertilizer application.

Irrigation schedules. Most clients were unaware of the importance of proper irrigation for healthy turf. Noting our weather pattern for the two years under study, they simply needed to be turned off.

But then, with the limited rainfall from August through September of 1993, some people opted to not activate their systems at all. This created drought stress, putting the turfgrass

system at a disadvantage going into the winter months.

Basic watering advice was to irrigate twice a week, making sure the moisture reaches the root zone completely. This means homeowners have to water .33 to .50 inches each time, depending on exposure, slope, soil type, wear, etc. The most common fault was over-watering, especially where automatic irrigation systems existed.

Fertilization tips. A basic application of sulfur coated urea—a slow-release form of 36 percent N—was applied at a rate of 2.7 lbs. per 1000 sq.ft. One pound of nitrogen was delivered on normally sunny sites, with the rate being cut in half for two sites where heavy tree shade existed over the turf canopy most of the day.

In a few instances where the turf did not respond favorably to this standard treatment, a non-ionic



Before (above) and after. The difference a higher cut makes.

wetting agent (Noburn) was applied, with good results. The Noburn apparently released some of the micronutrients in the soil, —most notably iron— that was previously unavailable because of high pH or bicarbonates making them unavailable.

Pest control. Weeds were controlled with Trimec or Confront. Where drifting or leaching danger to surrounding ornamentals existed, Confront was the chemical of choice.

Insects were monitored by using pitfall traps, yellow sticky traps and pheromone traps. For turf purposes, the pitfall traps worked most effective-

ly. Pests collected were cutworms, armyworms, sod webworms, billbugs and chinch bugs.

The presence of June beetle adults indicated egg-laying activity in the lawn. The turf quality was monitored closely; some insect damage was noted, but not enough to warrant any insecticide use.

It was found that fungicide use could also be significantly reduced if the homeowner were to allow annual aerations, thereby increasing the competitive activity of other microbial populations which reduce the number of potentially destructive fungi.

Thatch control. Where thatch exceeded 0.5 inches in thickness, homeowners were advised that thatch reduction would make water, fertilizer and pest control more effective. Some opted to remove the excess thatch themselves, and rented aerators. Spring and fall aeration was advised for lawns that had a very thick thatch layer (2.5 inches).

IPM=Common Sense. IPM begins with a change in mowing and watering practices, and evolves into other cultural practices such as aeration and dethatching. Appropriate pesticides are never eliminated; rather, depen-



ency on them is reduced.

A program of inspection and inventory, regular monitoring and perhaps preempting a potential problem with a selected application of the appropriate pesticide will result in satisfactory results over the long term.

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After mowing heights were raised to three inches, customers realized that a more extensive root system requires less water.