

IRRIGATION IN THE LANDSCAPE:

Adding Value While Conserving Resources

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hen properly designed, the exterior landscaping of a property can add a significant amount of enjoyment and value for homeowners. A functional landscape has the ability to inspire and soothe its users, while providing essential structural and environmental benefits.



When a user views a thriving landscape, they most likely notice the healthy trees, blossoming shrubs, colorful perennial flowers, lush green lawn and spectacular annual flower arrangements. This living spectrum of color and vitality is made possible by many other factors that are not frequently seen. A proper design and thorough management plan ensure a landscape can reach its potential. This includes a suitable fertilization plan, proper cultural controls (tasks performed by humans) and the presence of a suitable irrigation system.

The first irrigation systems were developed around 6000 BC when the Egyptians diverted the Nile River to flood farm fields. The Egyptians also used dams and canals around 3500 BC under King Menes. Around 2000 BC the Romans used cement pipe to carry irrigation water.

Some of the first modern sprinkler heads were developed in the 1870s and the first pneumatic irrigation systems were devised in the 1930s. The 1950s brought electric controllers to the field and the gas wars of the 1970s made plastic heads the economical choice because they were lighter and cheaper to ship.

Irrigation systems drastically reduce maintenance to a landscape by automatically applying water at a desired rate. Dragging hoses across your lawn and losing plants due to drought can become a task of the past by installing an irrigation system. Systems can easily be

designed either to meet a budget or to comprehensively care for an entire landscape.

The first step in designing an irrigation system is establishing where you will be drawing your water. Wells, city/township water, and lake-pump systems are all commonly used. Temporary systems can use hose bibs (faucets) as a source. If connecting to a municipal water source or well, you will need to install a back-flow preventer.

Conventional irrigation systems as we know them consist of a few different methods of delivering water to the plant. Large lawns use gear-driven rotary heads (rotors), as they are efficient in covering a large area of low growing plants (yes, a lawn is comprised of many turf grass plants). Spray heads are used for tight spaces and can cover a lawn (4-inch pop-ups) or a planting bed (12-inch pop-ups). Rotary nozzles are special nozzles for spray heads that have higher uniformity and lower precipitation rate to minimize runoff. These nozzles are especially well suited for soils high in clay, as these soils absorb water at a lower rate.

Drip irrigation has become popular in recent years because it minimizes drift and runoff, conserving water. Drip zones deliver gallons of water per hour, where rotors and sprays deliver gallons per minute. Drip irrigation can be used for large trees, shrubs, pots and





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window boxes. It can also be efficiently used in landscape beds. Benefits of drip irrigation include keeping water off buildings, minimizing staining from iron in water if present, and keeping water off plant foliage. Drip irrigation requires more maintenance, however, due to roots/dirt that may plug emitters. Monitoring drip zones should be done a few times per season.

It is very important to keep each type of delivery method (rotor, spray, drip) on its own zone. You will set the time on the controller based on the water requirement for the plants that zone is servicing. Creating zones also allows you to compensate for the different microclimates of your landscape (sun/shade). When the different delivery methods are mixed together, different plants may be getting too much water, while others may not receive enough. It is also important to note that as a landscape ages, watering time and frequency can often be reduced.

Water conservation concerning irrigation systems has become a hot topic as of late. Most sprinkler systems are set to run too often, yielding runoff and shallow plant roots. A general rule of thumb is to run the system less often, but for a longer duration.

Modern technology has also aided in making irrigation systems more efficient. Rain sensors, soil moisture sensors, and new controllers monitoring evapotranspiration (ET) help use as little water as possible. Some controllers can have on-site weather monitoring devices, or receive data online from local weather stations.

Ask if your contractor is a certified irrigation designer or certified irrigation contractor. This qualification ensures you will receive the safest and most efficient system for your property. Although contractors not currently certified can install systems in the state of Michigan, there is a growing movement to mandate licensing for all installers. Make sure your contractor has the required liability insurance so you are protected.

It is important to recognize well-designed irrigation systems as an essential part to a thriving landscape. They are easy to maintain and provide countless benefits to the user and the environment. Often, they use less water than when watering by hand. A sustainable landscape starts with a sustainable design, so be sure that the landscape designer you work with is familiar with water-efficient design. For more information on irrigation systems, you can visit the Irrigation Association at irrigation.org. □