**Glossary of Irrigation Terms (Rain Bird)**

**ANGLE VALVE**

A valve configured so its outlet is oriented 90 degrees away from its inlet. In irrigation, these valves are generally installed with the inlet at the bottom of the valve.

**ANTI-SIPHON DEVICE**

A type of backflow preventer which seals off the atmospheric vent area when the system is pressurized. Should be installed downstream of a control valve in a location which is at least twelve inches higher than the highest point in the lateral which it serves. When system pressure drops to zero, the float and seal assembly drops, opening the vent to atmosphere and breaking any siphon effect. Consult local building codes or your Rain Bird distributor for laws applicable in your area. Synonymous with Atmospheric Vacuum Breaker.

**ANTI-SIPHON VALVE**

The combination of an angle valve and anti-siphon device in one unit. The anti-siphon device is located downstream of the angle valve.

**APPLICATION RATE**

A measurement of the volume of water applied to landscape in a given time. (In the United States, usually expressed in inches per week. Its metric equivalent is centimeters per week.)

**ARC**

The area a part-circle sprinkler irrigates, expressed in degrees of a circle. For example, a 90 degree arc provides quarter-circle coverage, while an 180 degree arc provides half-circle coverage.

**AUDIT or IRRIGATION AUDIT**

A detailed review of an irrigation system, including tests to determine overall system efficiency, identify problems areas that need correction, and determine an ideal watering schedule.

**AUTOMATIC CONTROL VALVE**

A valve which is activated by an automatic controller using electric or hydraulic means. Synonymous with Remote Control Valve.

**BACKFLOW**

The unwanted reverse flow of liquids in a piping system.

**BACKFLOW PREVENTER**

A mechanical device which prevents backflow. In irrigation, it is used to protect the potable water supply from potentially contaminated irrigation water. There are several types of backflow preventers. The choice of backflow preventer used depends on the degree of hazard and the particular piping arrangement involved. Virtually all regulatory agencies in the United States require backflow prevention devices to protect the domestic water supply from contamination by the backflow of irrigation water. In areas where it is not required, it is highly recommended. Consult local building codes for laws applicable in your area.

**CALENDAR DAYS OFF**

A controller feature that allows you to suspend watering on a specific date.

**CHECK VALVE**

A valve which allows water to flow in one direction only. Check valves are used to prevent low head drainage.

**COEFFICIENT OF UNIFORMITY (CU)**

A numerical expression which serves as an index for the uniformity of water applied to a given area within a specific geometric arrangement of sprinklers (e.g., square or triangular).

**CONTROLLER or TIMER or CLOCK**

This is the brain of the sprinkler system. The controller automatically opens and closes valves according to a preset schedule. Rain Bird controllers have easy-to-set programs to help you efficiently manage seasonal adjustments. Rain Bird also has sensors that signal the controller to shut off the system when it rains. An automatic controller is usually more water-efficient that operating sprinklers manually.

**COVERAGE**

The area of landscape watered by a sprinkler or grouping of sprinklers.

**CYCLE + SOAK™**

Rain Bird 's exclusive feature which allows you  to break the total irrigation run time into shorter cycles, segmented by breaks or soaks during which the landscape has time to absorb the water. Optimizes the watering of poor drainage sites, slopes, and heavy soil areas.  Helps to prevent run-off.

**DIAPHRAGM**

Rubberized seal which keeps water from flowing through the valve.

**DIAPHRAGM VALVE**

A globe or angle pattern valve which uses a diaphragm to control the flow of water through the valve.

**DISTRIBUTION UNIFORMITY (DU)**

A calculated value that shows how evenly water is distributed in a sprinkler system to avoid excessively wet or dry areas in the landscape. It depends on the spacing of sprinklers, type of sprinkler used, wind and water pressure among other factors.  High distribution uniformity is obtained when an equal amount of water is placed on all areas of the landscape.

**DOMESTIC WATER**

Potable or drinking water. It can be used as a source of irrigation water, but once water enters an irrigation system it is no longer considered domestic or potable.

**DRAIN VALVE**

A valve used to empty water from a lateral or main line, usually for winterization purposes.

**DRIP IRRIGATION**

A low volume watering method that delivers water slowly and directly to the plant roots for maximum efficiency.

**DYNAMIC PRESSURE**

The pressure of the irrigation system during operation. Synonymous with Working Pressure.

**EMITTER**

A small watering device which delivers water at very low rate (measured in gallons per hour) and pressure at the outlet port.

**ET OR EVAPOTRANSPIRATION (ET)**

The amount of water lost due to evaporation from the soil and transpiration from the plants. ET is used by Smart Controllers to help determine the amount of watering needed by a landscape.

**EXTERNAL MANUAL BLEED**

A feature which allows an automatic valve to be opened manually (without controller) by releasing water from above the diaphragm to the outside of the valve. Useful during installation, system start-up and maintenance operations.

**FLOW**

The movement of water.

**FLOW CONTROL**

A valve which modulates in order to maintain a pre-determined flow rate without drastically altering the pressure.

**FLOW SENSOR**

A device which actively measures water flow through a piping system and reports its data to the computerized central control system.

**FPT**

Female nominal pipe thread.

**FRICTION LOSS**

The amount of pressure lost as water flows through a system. Synonymous with Pressure Loss.

**GLOBE VALVE**

A valve configured with its outlet oriented 180 degrees from its inlet. In irrigation, these valves are generally installed so that the inlet and outlet are parallel to the ground.

**GPM**

Acronym for gallons per minute.

**HEAD TO HEAD COVERAGE**

The practice of placing sprinklers so that water from one sprinkler overlaps all the way to the next sprinkler head.  This helps to increase overall system efficiency and prevents dry spots in the landscape.

**IMPACT DRIVE**

A sprinkler which rotates using a weighted or spring-loaded arm which is propelled by the water stream and hits the sprinkler body, causing movement around a circle.

**INFILTRATION RATE**

The rate at which water enters the soil, usually expressed in depth of water per hour. (In the United States, usually expressed in inches per hour. Its metric equivalent is centimeters per hour.)  Infiltration rate is determined by the type of soil.

**IRRIGATION EFFICIENCY**

The percentage of irrigation water which is actually stored in the soil and available for use by landscape as compared to the total amount of water provided to the landscape.

**IRRIGATION SYSTEM**

A set of components which includes the water source (e.g., domestic service or pump), water distribution network (e.g., pipe), control components (e.g., valves and controllers), emission devices (e.g., sprinklers and emitters) and possibly other general irrigation equipment (e.g. quick coupler and backflow preventer).

**IRRIGATION REQUIREMENT**

The quantity of water needed by the landscape to satisfy the evaporation, transpiration and other uses of water in the soil. The Irrigation requirement is usually expressed in depth of water and equals the net irrigation requirement divided by the irrigation efficiency. (In the United States, usually expressed in inches per week. Its metric equivalent is centimeters per week.)

**LATERAL**

The pipe installed downstream from the control valve on which the sprinklers are located.

**LOW HEAD DRAINAGE**

Residual flow from low-elevation sprinkler heads in a system after the control valve has been closed.

**MAIN (MAINLINE)**

A pipe under constant pressure which supplies water from the point of connection to the control valves.

**MASTER VALVE**

A valve used to protect the landscape from flooding in case of a ruptured main or malfunctioning downstream valve. The master valve is installed on the mainline after the backflow preventer and the control valves.

**MATCHED PRECIPITATION RATE (MPR)**

Matched precipitation rate (MPR) refers to sprinklers that apply water at the same rate per hour no matter the arc of coverage or part of a circle they cover. For instance, a full-circle sprinkler discharges twice the flow of a half-circle sprinkler and a quarter-circle sprinkler discharges half of what the half-circle unit does. MPR allows the same type of sprinklers, no matter what their arc, to be circuited on the same valve and to deliver the same PR rate. Spray heads have fixed arcs and are matched by the manufacturer, while rotors offer a choice of nozzles to match the Designed arc pattern.

**MICROCLIMATE**

The unique environmental conditions in a particular area of the landscape.  Factors include amount of sunlight or shade, soil type, slope and wind.

**MOISTURE SENSOR**

A device which monitors the amount of water present in the soil and modifies the watering schedule accordingly.

**MPT**

Male nominal pipe thread.

**NOZZLE**

The final orifice through which water passes from the sprinkler or emitter.  Nozzle shape, size and placement has a direct effect on the distance, watering pattern and distribution efficiency.

**OPERATING PRESSURE**

The pressure at which a system of sprinklers operates. Static pressure less pressure losses. Usually as measured at the base or nozzle of a sprinkler.

**PERMANENT WILTING POINT**

The point at which plants can no longer extract moisture from the soil and die.

**POINT OF CONNECTION (POC)**

The place where the irrigation submain is joined to the water service line.

**POLYVINYL CHLORIDE (PVC) PIPE**

A semi-rigid plastic material used in irrigation systems.

**POLYETHYLENE (PE) PIPE**

A flexible black pipe used in irrigation systems.

**POTABLE WATER**

Domestic or drinking water. It can be used as a source of irrigation water, but once water enters an irrigation system it is no longer considered domestic or potable.

**PRECIPITATION RATE (PR)**

The rate at which a sprinkler system applies water to the landscape. PR is expressed in depth of water per hours of operation. (In the United States, usually expressed in inches per hour. Its metric equivalent is centimeters per hour.)

**PRESSURE**

The force per unit area measured. (In the United States, usually expressed in pounds per square inch. Its metric equivalent is Bars.)  Insufficient water pressure can result in poor sprinkler coverage, while excessively high water pressure may cause misting and fogging leading to water waste.

**PRESSURE LOSS**

The amount of pressure lost as water flows through a system. Synonymous with Friction Loss.

**PRESSURE REGULATOR**

A device which maintains constant downstream operating pressure which is lower than the upstream operating pressure.

**PROGRAM**

The watering plan or schedule that tells the controller exactly when and how long to run each set of sprinklers. Many Rain Bird controllers offer multiple programs which can be useful on sites where different plant groups have different irrigation needs.

**PSI**

Acronym for pounds per square inch.

**PUDDLING**

When water gathers in one location, such as at the base of a sprinkler or at a low spot on the site. Can be caused by low-head drainage, over-irrigation, or slow soil infiltration.

**PUMP START CIRCUIT**

The feature on automatic controllers which supplies 24 VAC, which can be used to activate a pump through an external pump start relay.

**PUMP START RELAY**

Low-amperage or electric switch designed for use with pump start circuits.

**QUICK COUPLING VALVE**

A permanently installed valve which allows direct access to the irrigation mainline. A quick coupling key is used to open the valve.

**RAIN SHUT·OFF DEVICE or RAIN SENSOR**

A device which prevents the controller from activating the valves when a preset amount of rainfall is detected.

**RAIN DELAY**

Lets you turn the irrigation system off for a specific number of days without having to remember to turn it back on.

**REMOTE CONTROL VALVE**

A valve which is actuated by an automatic controller by electric or hydraulic means. Synonymous with Automatic Control Valve.

**RETRACTION**

When the pop-up riser of a sprinkler such as a spray head or rotor returns to the case in the ground. Also called Pop-down.

**RISER**

A length of pipe which has male nominal pipe threads on each end. Usually affixed to a lateral or submain to support a sprinkler or anti-siphon valve. May also be used underground to connect system components.

**RUN-OFF**

Water which is not absorbed by the soil and drains to another location. Run-off occurs when water is applied in excessive amounts or too quickly for the soil to absorb.

**SCHEDULING COEFFICIENT**

A numerical expression which serves as an index of the uniformity of water application to a given area within a specific geometric arrangement of sprinklers (e.g., triangular or square). Used to measure the uniformity of landscape irrigation systems.

**SLIP CONFIGURATION**

A threadless connection which is solvent-welded.

**SMART CONTROLLER**

An irrigation control system that uses weather-based calculations and environmental conditions to determine how much water to apply to a landscape based on the plant water needs.

**SPRAY HEAD**

A type of fixed spray sprinkler that pops up from underground and waters a set pattern, usually from 4 to 15 feet in range. Used for lawns and shrubbery areas.

**SOIL TYPE**

The texture and structure of the soil particles which affects its ability to take in and store water for use by plants.  Soils range from clay to loam to sand.  Clay soils take in water more slowly than loam or sandy soils (lower infiltration rate).

**SOLENOID**

An electromagnet which is connected to a controller and causes the opening and closing of automatic control valves.

**SPRINKLER**

A hydraulically operated mechanical device which discharges water through a nozzle or nozzles.

**START TIMES**

When you program a controller, you schedule the precise time you want to begin watering on water days.  The start time is the time the first station in a program begins to water.  All other stations in the program follow in sequence.  Remember, start times usually apply to the entire program, not to the individual stations.

**STATIC PRESSURE**

The pressure in a closed system, without any water movement.

**STATION**

A circuit on the controller which activates a single control valve in the irrigation system to control watering for a particular zone.

**STOP-A-MATIC® VALVE (SAM)**

A spring-loaded check valve used beneath a sprinkler to prevent low-head drainage. The check valve feature may also be built into the sprinkler.

**SWING ASSEMBLY**

An assembly of flexible swing pipe and fittings that are used to connect a sprinkler to the lateral pipe.  Allows you to easily adjust the sprinklers to grade level and also helps to prevent breakage due to force on the sprinkler.

**SWING JOINT**

A threaded connection of pipe and fittings between the pipe and sprinkler which allows movement to be taken up in the threads rather than as a sheer force on the pipe. Also used to raise or lower sprinklers to a final grade without plumbing changes.

**TRANSPIRATION**

The process where a plant's moisture is lost to the atmosphere through its leaves.

**UNIFORMITY**

How evenly water is distributed over an irrigated area.

**VALVE**

A valve is like a faucet. Valves respond to commands from the controller. When valves receive a signal to open, water flows to the sprinklers. when they receive another signal to close, the flow of water stops.

**VELOCITY**

The speed at which water travels. (In the United States, usually expressed in feet per second . Its metric equivalent is meters per second .

**WATER BUDGET**

A feature of Rain Bird controllers that let you easily change the run times of your sprinklers without having to reprogram the controller.  Use water budget to increase or decrease watering in response to changing seasonal needs throughout the year.

**WATER HAMMER**

A damaging shock wave created when the flow of water in a pipe system suddenly stops. Usually the result of a fast-closing valve.

**WATER PRESSURE**

The force which is exerted by water. (In the United States, usually expressed in pounds per square inch. Its metric equivalent is Bars.)

**WATER WINDOW**

The time of day available when watering can take place on a site.

**WATERING DAYS**

The specific days of the week on which watering will take place.  For example, every Monday, Wednesday and Friday, or every third day.

**WINTERIZATION**

The process of removing water from an irrigation system before the onset of freezing temperatures.  Necessary to prevent damage to the sprinkler system that can be caused by expansion due to freezing water in the pipes.

**WIRE GAUGE**

Standard unit of measure for wire size. The larger the gauge number, the smaller the wire.

**WORKING PRESSURE**

The pressure of the irrigation system during operation. Synonymous with Dynamic Pressure.

**ZONE**

A section of an irrigation system served by a single control valve. Zones are comprised of similar sprinkler types and plant material types with similar water requirements and soil types.