Common Problems Found on an Irrigation System
Sprinkler Efficiency

- 3 areas to worry about:
  - Water the **Right Place**
  - Water **Evenly**
  - Proper **Scheduling**
Broken Equipment

- Where problems typically occur
  - Sprinkler Head
  - Main & Lateral Line
  - Valve Box
Broken Equipment Examples

Sprinkler Heads

Valve Box

Lateral or Main Lines
Broken Equipment

Why is this a problem?
- Broken equipment allows water to leak out of the system.
- Leaking water is not being efficiently applied to the landscape and results in runoff.
- Runoff won’t keep your landscape healthy, though you still pay for it on your water bill.
- Runoff costs both you and your landscape.

How do you fix broken equipment?
- Most broken heads can be easily repaired.
- Dig up the existing head and replace it with a new one.
- Repairing broken valves, lateral, and main lines require more finesse.
- Only homeowners who feel very comfortable with their system should attempt these repairs.
- If they don’t feel comfortable- they should call a certified contractor.
Misaligned Equipment

Tilted Heads
Over time, sprinkler heads settle and tilt due to natural compaction of soil, foot traffic, and lawn maintenance.

Why is this a problem?
Causes uneven distribution of water resulting in brown spots and runoff.

Sunken Heads
Sunken sprinkler heads settle due to natural compaction of soil.

Why is this a problem?
Results in stems that cannot popup above the grass and frequently causes uneven distribution of water, misting, brown spots, and runoff.
Repairing Tilted and Sunken Heads

Tilted and Sunken Heads can easily be repaired with a little effort.

- Remove sod with shovel- be careful to not hit lateral line.

- Lift and straighten the head by packing soil under and around until it is level with and perpendicular to the ground.

- Replace your sod pieces back in place around the head and water them to encourage reestablishment.
Mixed Zones

Mixed areas exist when both rotor and fixed spray heads operate together on a given zone.

Why is this a problem?
- Spray heads are designed to emit an average of 50% more water than rotor heads.
- Different operating pressures.
- If the time and pressure are correct for one type of head in a mixed zone, it will be wrong for the other head type.
- Mixed zones will create overly wet areas or excessively dry areas.
Fixing Mixed Zones

- Never mix rotor and spray heads on the same zones
- When replacing heads always use the same brand/type/model
Blocked Heads

Blocked heads occur for a variety of reasons

– Overgrowth of vegetation
– Changes to landscape and not sprinkler system
– Poorly placed heads

Why is this a problem?
Water is not reaching the intended area and can lead to uneven spray patter and brown grass.
How to Fix Blocked Heads

• Trim back overgrown vegetation.
• Move the head with blocked spray pattern to a better location.
• If the area is not suited for watering by a sprinkler head, consider replacing the turf with water-conserving plants.
No Check Valves

Why is this a problem?

- After a system is turned off, water may drain out of sprinkler heads that are at lower elevations.
- Check valves lock water in the lateral line and result in quicker start up times and no run off after the system turns off.

How do you fix it?

- Install heads with check valves to eliminate water loss from the system, and prevent excess wear on the system pipes.
- Several types and brands of heads come with pre-installed check valves. If a check valve is necessary, simply replace the whole head.
Inappropriate Nozzle/ Spray Pattern

Why is this a problem?

- Inappropriate spray patterns originate in one of two ways
  - Throw distance (radius) of the nozzle is too far
  - Arc (angle) of the nozzle is not appropriate for the area to be watered.

- EX: Head with a 180 degree spray pattern in an area that only requires 160 degree spray

- Fences, concrete, asphalt, rocks, and buildings don’t need water!
How to Fix

- Replace the nozzle correct throw radius and arc.
- Use variable arc nozzles (VAN) in situations where a custom arc is needed.
  - Pros and Cons
- Use the radius reduction screw.
  - Adjust no more than 20%
- For rotor heads it is necessary to use the hunter key to adjust.
Clogged Nozzle

- A clogged nozzle is caused by debris in the system getting stuck in the nozzle or the filter of a spray head.
- Clogs may be caused by dirt, sand, roots, plastic, etc.
- Clogged heads can cause uneven distribution of water resulting in brown spots.
How to Fix

- Make sure system is off
- Screw the nozzle off of the spray head. Be sure to hold onto the stem of the head or clamp it to prevent it from dropping back into the body of the head.
- Take the filter out of the stem and wash out any debris in the filter or the nozzle.
- Put the clean filter back into the stem and screw the nozzle back on.
- Adjust the spray pattern to ensure that water is spraying onto the turf.
Improper Pressure- HIGH

- High pressure causes smaller droplets to be sprayed out of the sprinkler head
- Results in water being blown or evaporated
- Consistently high pressure can cause sprinkler heads to wear out more quickly

High Pressure Causes Misting!
Improper Pressure- LOW

- Low pressure does not allow the heads to pop up fully resulting in poor coverage.
- Could be a sign of an underground leak!

Low Pressure Causes Poor Coverage!
How to Fix

HIGH Pressure

*If pressure is high in the entire system*
Install a pressure reducer on the pipe, before the valves, feeding the whole system.

*If pressure is high in one zone:*
  - If the zone has many heads, install a pressure reducing valve to the entire zone.
  - If the zone has only a few heads, install heads with pressure regulated stems.

LOW Pressure

*If pressure is low on the entire system:*
Check with your local water district about main line pressure issues.

*If pressure is low in one area of a given zone:*
  - Check for leaking heads or potential underground leaking lines.
  - If the zone has many heads, consider redesigning the system to efficiently water the area with fewer heads.
Overspray

- Overspray is caused when sprinkler heads are improperly adjusted, and are set to spray on surfaces not requiring irrigation.
- These areas could be sidewalks, driveways, mulch or rock beds, or even fences.
- Overspray results in runoff and thus excessive water waste.
- Non-point source pollution
Poor Spacing

- For adequate coverage, use head to head spacing
- Heads that are spaced too far apart create dry spots of brown grass
How to Fix

- Change nozzles
- Adjust heads
- Spacing of heads may need to be altered
- Typically when moving, or putting in new heads a homeowner should consult a professional
Inefficient Watering Schedule

- Watering every day or more than 2 to 3 days per week
  - Watering every day for a short period of time will deliver water shallowly to the landscape.

- Applying water for only 1 cycle in a given watering day
  - Turf grass can only absorb the first 5-7 minutes worth of water, after that the rest typically results in runoff. One cycle does not allow the water to penetrate and deeply saturate the soil.

- Watering for too long or not long enough based on the precipitation rate (in./hour) of the system.
  - This will create either areas of excessive moisture or dryness.

All of these result in grass that is neither drought tolerant or disease resistant!
Landscape Changes

You put in a beautiful new patio…

But you forgot to alter your sprinkler system
Thatch and Aeration

Why is this a problem?
- Thatch is a spongy mat of root growth found directly under the grass, but above the soil.
- This layer can be caused by excessive surface watering and can make it difficult for water to penetrate to the soil, leading to excessive run-off.

How do you rid your yard of thatch?
- **Aerate!**
  - Aeration should be done twice a year, once in early spring and once in late fall, when the turf grass is dormant.
  - Over time, this will decrease the layer of thatch under the turf.