A WORKSHOP FOR LANDSCAPE IRRIGATION MANAGERS

GET AHEAD OR GET PARCHED:
SIX WAYS TO SURVIVE THE DROUGHT

Learn how to maintain your landscape and reduce water use by improving water management and system efficiency. This workshop features indoor presentations and outdoor demonstrations on the following topics:

TOPICS

1. Understanding precipitation rates (PR) to reduce runoff
2. Improving sprinkler distribution uniformity (DU) to reduce water use
3. Improving controller programs to reduce and manage water use
4. Determining application rates and PR of drip/micro irrigation
5. Understanding soils to reduce runoff or deep percolation
6. Understanding and reading water meters to improve irrigation efficiency

WHEN Thursday, July 31st, 2014, 7:30 AM-11:30 AM

WHERE Irvine Civic Center Council Chamber
1 Civic Center Plaza
Irvine, CA 92606

JULY SMART IRRIGATION MONTH

COST $20; includes a certificate of participation (for IA and PLANET CEUs). Also included - 3 hours continuing education "Other" credits from DPR.

Refreshments courtesy of CLCA and MWDOC. Attendees will be provided with useful tools and resources to complement the workshop. **Register online at: http://ccuh.ucdavis.edu/**

PRESENTED BY

WITH PARTNERS

University of California Agriculture and Natural Resources

UCDAVIS

EWING

ASLC

CLCA

Hunter

TORO

NETAFIM

RAIN BIRD

MISSION RESOURCE

HYDRO-SCAPE

CITY OF IRVINE

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

IRVINE RANCH WATER DISTRICT

UNA CLASE PARA GERENTES DE IRRIGACIÓN PARA JARDINERÍA

¡ADÁPTATE O TE SECAS!

SEIS METODOS DE SOBREVIVIR LA SEQUÍA

Aprenda a mantener el jardín y a reducir el uso del agua mejorando la administración del agua y la eficiencia del sistema. Este taller ofrece presentaciones dentro de un salón y demostraciones al aire libre en los siguientes temas:

TEMAS

1. Entendiendo las tasas de Precipitación (PR) para reducir el desperdicio de agua
2. Mejorar la Distribución Uniforme (DU) de los aspersores para reducir el uso de agua
3. Mejorando programas de regulador para reducer y administrar uso de aqua
4. Como determinar las tasas de aplicación y PR de goteros y micro aspersores
5. Entendiendo los tipos de tierra para reducir el desperdicio superficial y la infiltración profunda
6. Como entender y leer los medidores de agua para mejorar la eficiencia del irrigación

CUANDO Jueves, 31 de Julio, 2014, 12:00 PM -3:30 PM

DONDE Irvine Civic CenterCouncil Chamber
1 Civic Center Plaza
Irvine, CA 92606

JULY SMART IRRIGATION MONTH

COSTO $20; incluye un certificado de participacion (de IA y PLANET CEUs). Tambien se incluyen, 3 horas de educación continua "Otros" créditos de DPR.

Se ofrecerán refrescos por cortesía de CLCA y MWDOC. A los presentee les darán herramientas útiles y recursos para complementar el taller. **Registrarse en linea ccuh.ucdavis.edu.**

PRESENTADO POR

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A sampling of slides from the workshop!


EXIT

Drought Management Workshop

For

Landscape Professionals

California Landscape Contractors Association

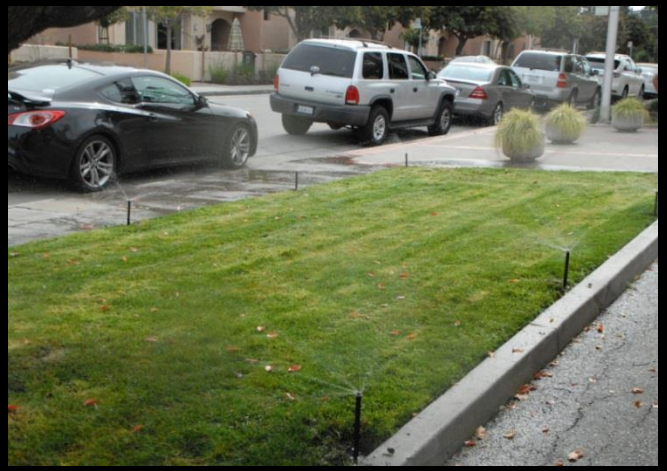
DEPARTMENT OF WATER RESOURCES
STATE OF CALIFORNIA

Learning Objectives

- At the end of the workshop the participant will be able to understand precipitation rates of sprinklers to avoid runoff which will help meet water use reduction goals

Learning Objectives

- By the completion of this workshop the participant will understand how the improvement in the distribution uniformity of a sprinkler system will help the landscape manager meet local water use reduction goals.

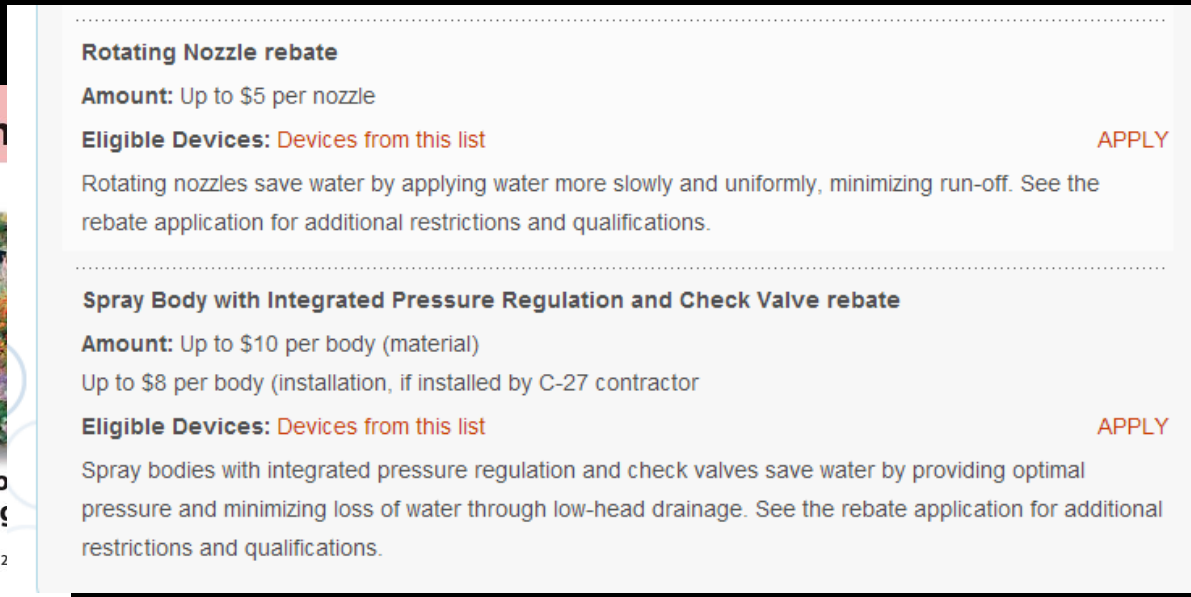


Learning Objectives

- By the completion of this workshop the participant will understand how the improvement in the distribution uniformity of a sprinkler system will help the landscape manager meet local water use reduction goals.

Learning Objectives

- By the end of this workshop the participant will understand local water restrictions, water costs, and irrigation equipment or landscape rebates that may be available



Learning Objectives

- At the completion of the training day the participants will understand how to create a basic irrigation controller program that eliminates runoff and enables them to conform to mandatory watering restrictions

Learning Objectives

- By completion of this workshop the participants will understand the resources available to assist in controller programming.

Learning Objectives

- By the end of the workshop the participant will understand how to calculate the application rate of drip micro systems and reduce water use to meet water reduction goals

Precipitation Rate Tables - Low Volume/Drip-Micro Irrigation

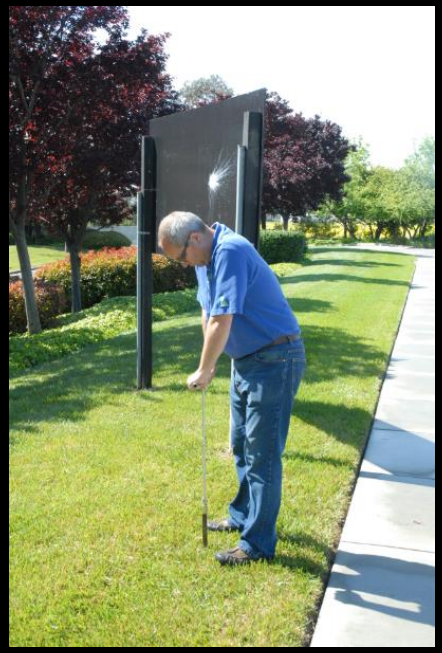
Point Source Emiiters or Micro Spray

(METER FLOW)

CFM	GPM	AREA IN SQUARE FEET(C																
		50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	45
0.03	0.25	0.48	0.32	0.24	0.19	0.16	0.14	0.12	0.11	0.10	0.09	0.08						
0.07	0.50	0.96	0.64	0.48	0.39	0.32	0.28	0.24	0.21	0.19	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.
0.10	0.75	1.44	0.96	0.72	0.58	0.48	0.41	0.36	0.32	0.29	0.26	0.24	0.22	0.21	0.19	0.18	0.17	0.
0.13	1.00	1.93	1.28	0.96	0.77	0.64	0.55	0.48	0.43	0.39	0.35	0.32	0.30	0.28	0.26	0.24	0.23	0.
0.17	1.25	2.41	1.61	1.20	0.96	0.80	0.69	0.60	0.54	0.48	0.44	0.40	0.37	0.34	0.32	0.30	0.28	0.
0.20	1.50	2.89	1.93	1.44	1.16	0.96	0.83	0.72	0.64	0.58	0.53	0.48	0.44	0.41	0.39	0.36	0.34	0.
0.23	1.75	3.37	2.25	1.69	1.35	1.12	0.96	0.84	0.75	0.67	0.61	0.56	0.52	0.48	0.45	0.42	0.40	0.
0.27	2.00	3.85	2.57	1.93	1.54	1.28	1.10	0.96	0.86	0.77	0.70	0.64	0.59	0.55	0.51	0.48	0.45	0.

Learning Objectives

- Soils are critical to water conservation. At the conclusion of the workshop the participant will know how to use a soil probe and understand basic soil properties which will enable them to reduce runoff



Learning Objectives

- At the completion of the workshop the participants will understand why the water meter is the most important irrigation management tool

This rate of application represents 180 deg. (half circle) rotors. In a 360 degree configuration the rate is half the chart value

Flow gpm	Precip In/h	Precip In/h
2.9	0.37	0.42
4.2	0.44	0.50
3.3	0.38	0.44

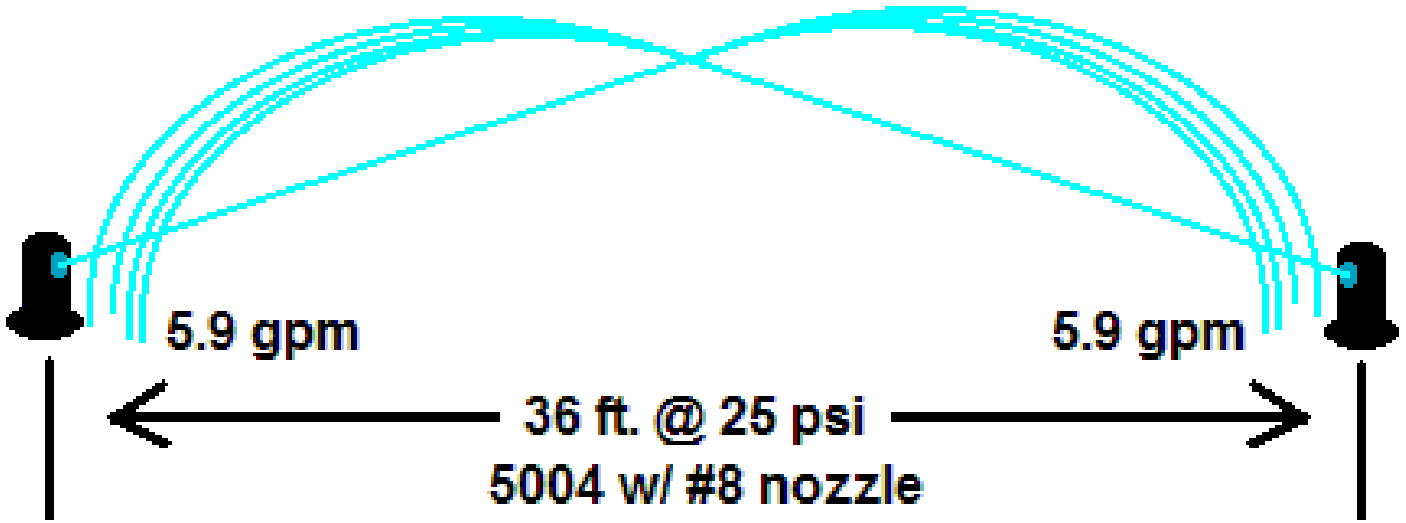
When adjusted to full circle operation the 4.2 nozzle would have a precipitation rate of 0.22” / hr (0.44 / 2)

At this pressure the # 8 nozzles should be spaced no more than 36 feet apart

5000/5000 Plus Std. Angle Rain Curtain™ Nozzle Performance

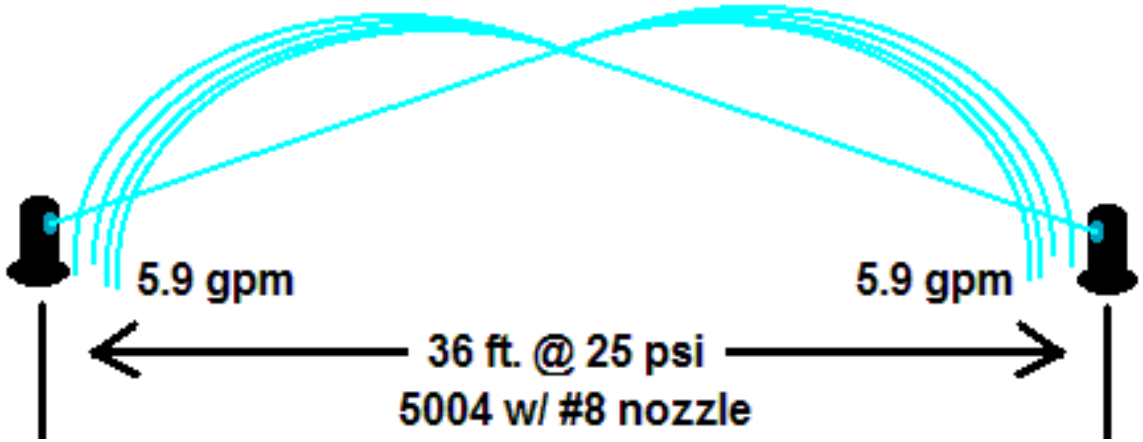
Pressure psi	Nozzle	Radius ft.	Flow gpm	■ Precip In/h	▲ Precip In/h
25	8.0	36	5.90	0.88	1.01

36 ft. radius

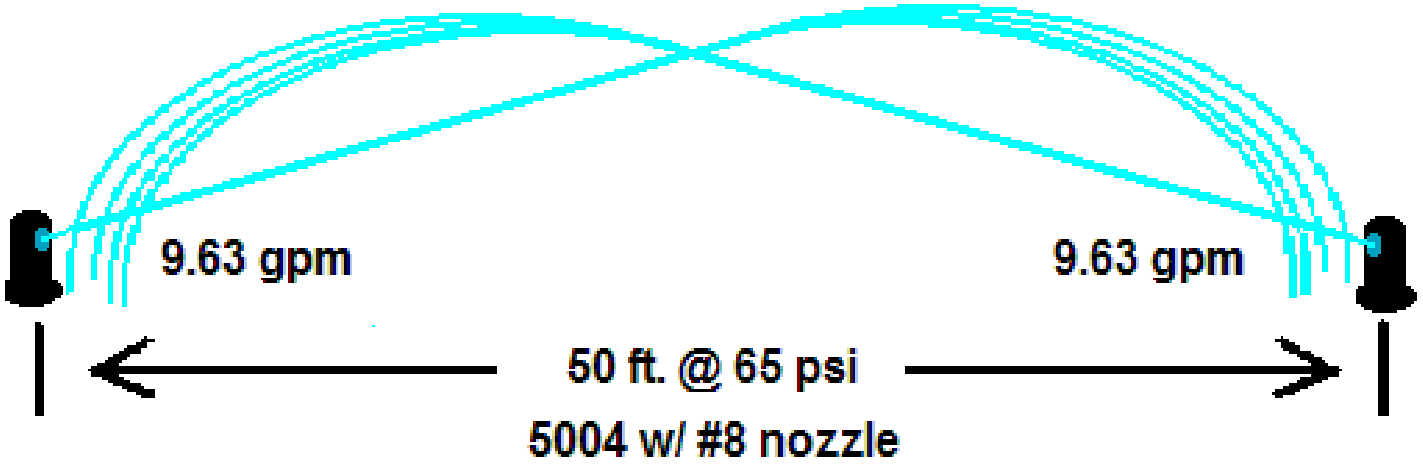


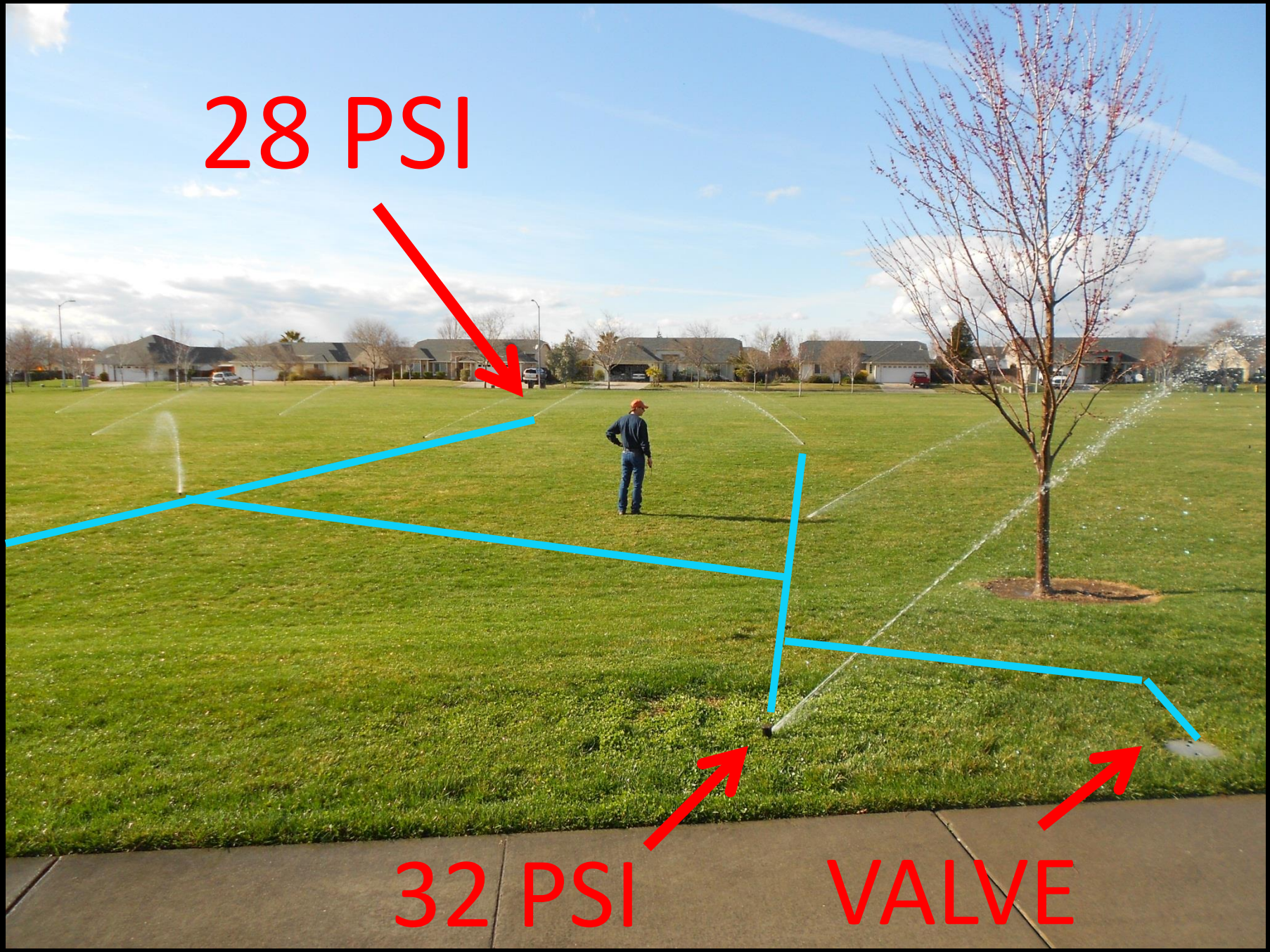
An increase in pressure from 25 to 65 psi increases radius 38% (36 to 50 ft) but increases nozzle gpm from 5.9 to 9.3 (57%)!

36 ft. radius



50 ft. radius



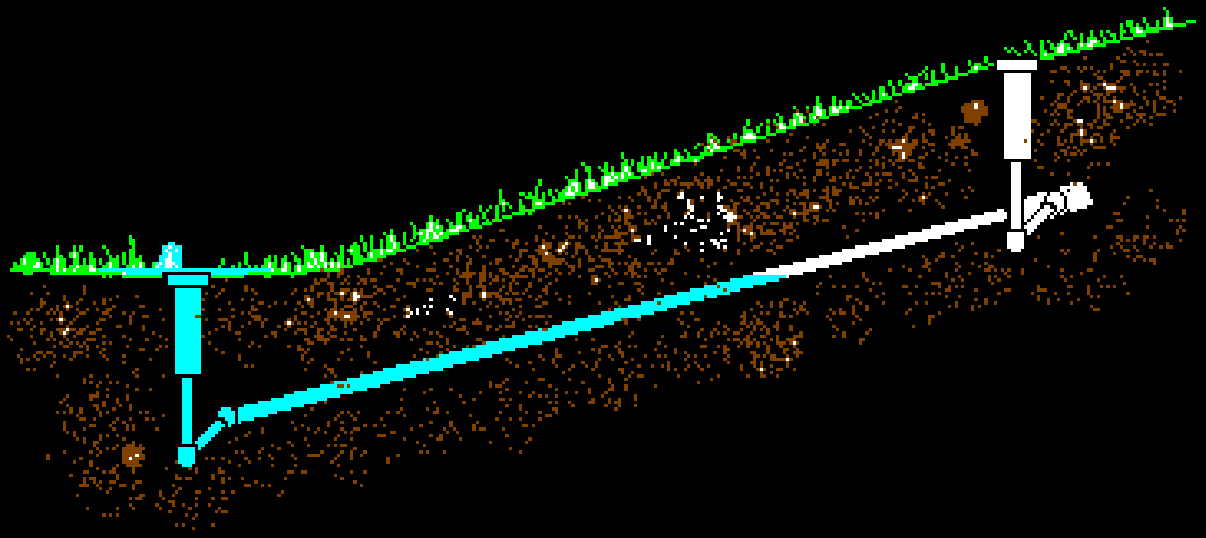

28 PSI
32 PSI
VALVE

The solution is to reduce flow on the valve by switching to a lower precipitation rate which will increase sprinkler pressure

Before with sprays

After with rotating stream nozzles!

Multiple cycling to avoid runoff causes water waste when water drains out the sprinkler heads after each automatic cycle



ROI Calculator for Irrigation System Conversions

Sprinkler Type	Typical DU_{LQ}
Spray	0.45
Rotor	0.55
Drip/Micro	0.9

Current DU_{LQ}	0.44	
Scheduling Multiplier	1.506	
DU_{LQ} after renovation	0.76	
Scheduling Multiplier	1.168	

Water cost per 748 gallon unit (CCF) top tier	$2.75	per CCF
Water cost per 1,000 gallon unit (top tier)	$0.00	per 1,000 gal
ET_O per year (March - October) WELO tables	35.6	inches
CS turf requirement per year (Mar - Oct) (KC = 0.70)	24.92	inches
Turf area in square feet	96,000	ft^2

Water req't. per year in CCF's before renovation	3,001
Water req't per year in CCF's after renovation	2,328
CCF's Saved in 5 years	3,365
Water $ Savings in 5 years	$9,255

Water req't. per year in 1,000 gal units before renovation	2,245
Water req't per year in 1,000 gal units after renovation	1,741
1,000 gallon units saved in 5 years	2,517
Water $ Savings in 5 years	$0

EWING

Taking a soil sample with a soil probe

In 30 minutes 10 ft spray nozzles apply 0.76 inches of water (1.52 in/hr x0.5)

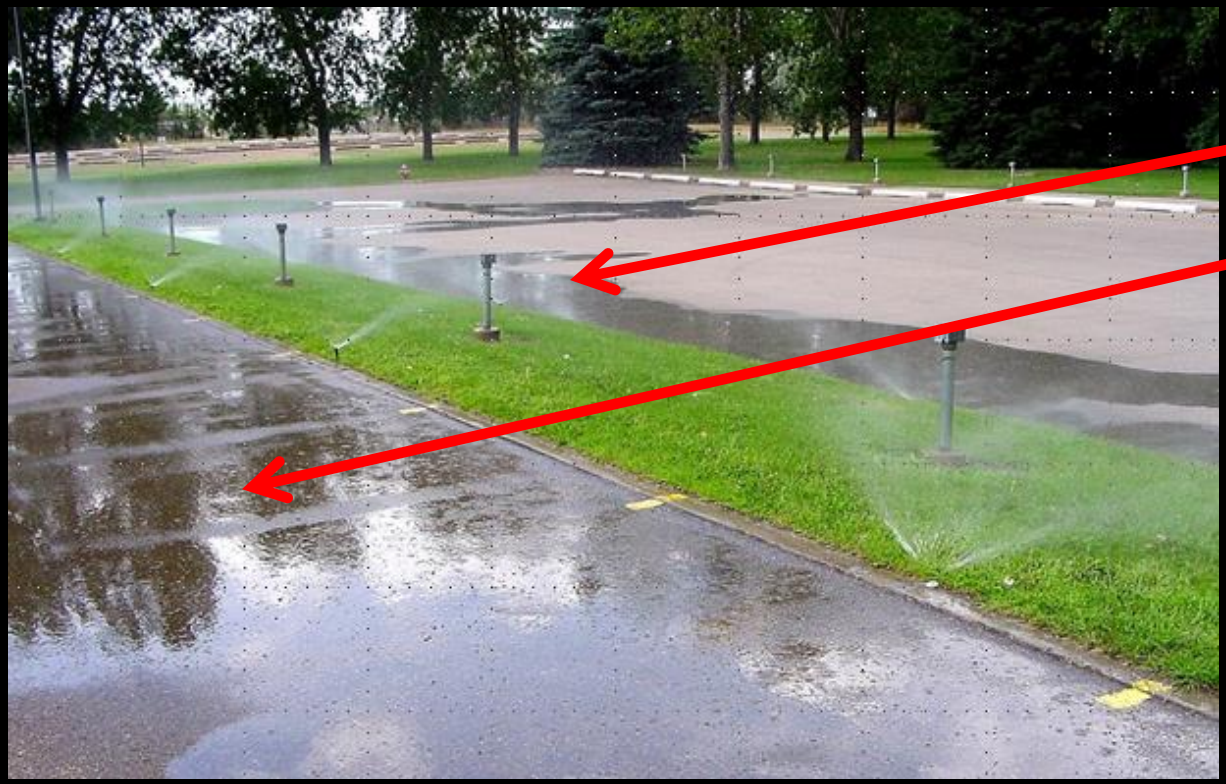
Performance Charts

10 Series MPR Nozzles

15° Trajectory, English

Nozzle	Pressure (psi)	Radius (ft.)	Flow (GPM)	Precip (In/h) ■
10F 	15	7	1.16	2.28
	20	8	1.3	1.96
	25	9	1.44	1.71
	30	10	1.58	1.52
10H 	15	7	0.58	2.28
	20	8	0.65	1.96
	25	9	0.72	1.71
	30	10	0.79	1.52

The root zone can accept 0.45” (allowable depletion) but we have applied 0.76”



0.76” applied

0.45” required

0.31” of runoff

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