

Simplified Landscape Irrigation Demand Estimation

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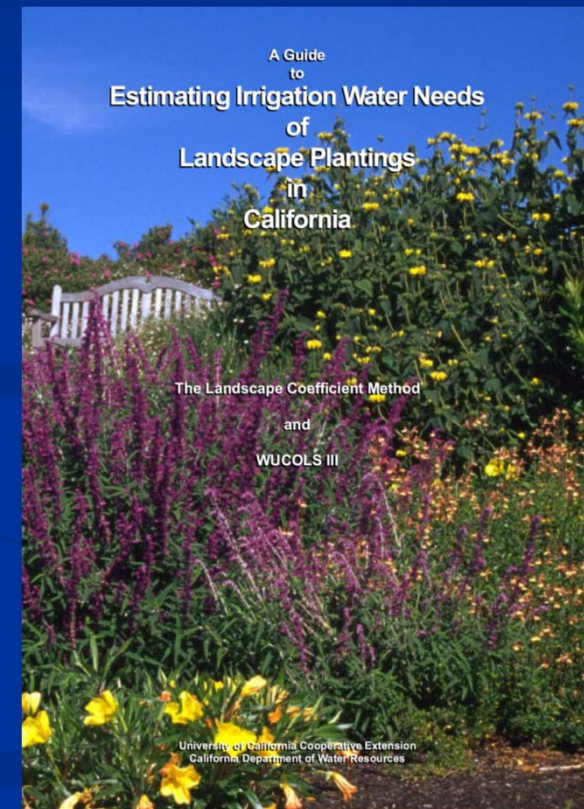
Center for Water Efficient Landscaping - Utah State University

SLIDE

- Scientifically and conceptually sound
- Effective in water conservation
- Simple to understand and use
 - Replaces need for huge data base
- Provides reliable numbers for calculations
- Accommodates new plants

Kc & PF Estimates for Landscape Plants

- Turfgrass Kc's developed
- No true Kc's for landscape plants
- Few reliable PFs for landscape plants
- WUCOLS & Landscape Coeff. (K_L)



WUCOLS

Water Use Classification of Landscape Species

PROS

- Source of numbers for calculations
- Categories by climate zone and water use
- Includes numerous spp.
- Hardcopy and on-line

CONS

- Not science based
- Data not reliable
- False sense of precision
- Can be perplexing to use
- Not readily revised

WUCOLS Analysis

WUCOLS ZONE	1	2	3	4	5	6	AVG.
# of species appropriate to zone	1602	1088	1969	1185	529	820	1199
% High Water Needs 70-90%	5	6	5	9	7	8	7 (84)
% Medium Water Needs 40-60%	51	52	57	57	66	68	59 (707)
% Low Water Needs 10-30%	38	36	31	32	25	24	31 (372)
% Very Low Water Needs <10%	7	5	7	3	2	0.5	4 (48)
Control Total	101	99	100	101	100	100.5	

(WUCOLS III, 2000)

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Field Studies on Landscape Plants' Water Needs

- 79 plant species to date
 - 33 trees, 12 groundcovers, 34 shrubs
- Locations – no summer rainfall
 - Inland valley – 28 trees
 - South Coastal – 28 shrubs, 9 groundcovers, 5 trees
 - Low Desert – 6 shrubs, 3 groundcovers

Groundcovers, Trees, Shrubs

- Many traditional landscape plants perform acceptably with low amounts of water
- Less water often limits growth with limited loss of visual appearance
- Acceptable performance 0-80% ETo
- Typically acceptable 30-60% ETo
- Discrepancies with WUCOLS



SLIDE Rules (*DRAFT*)

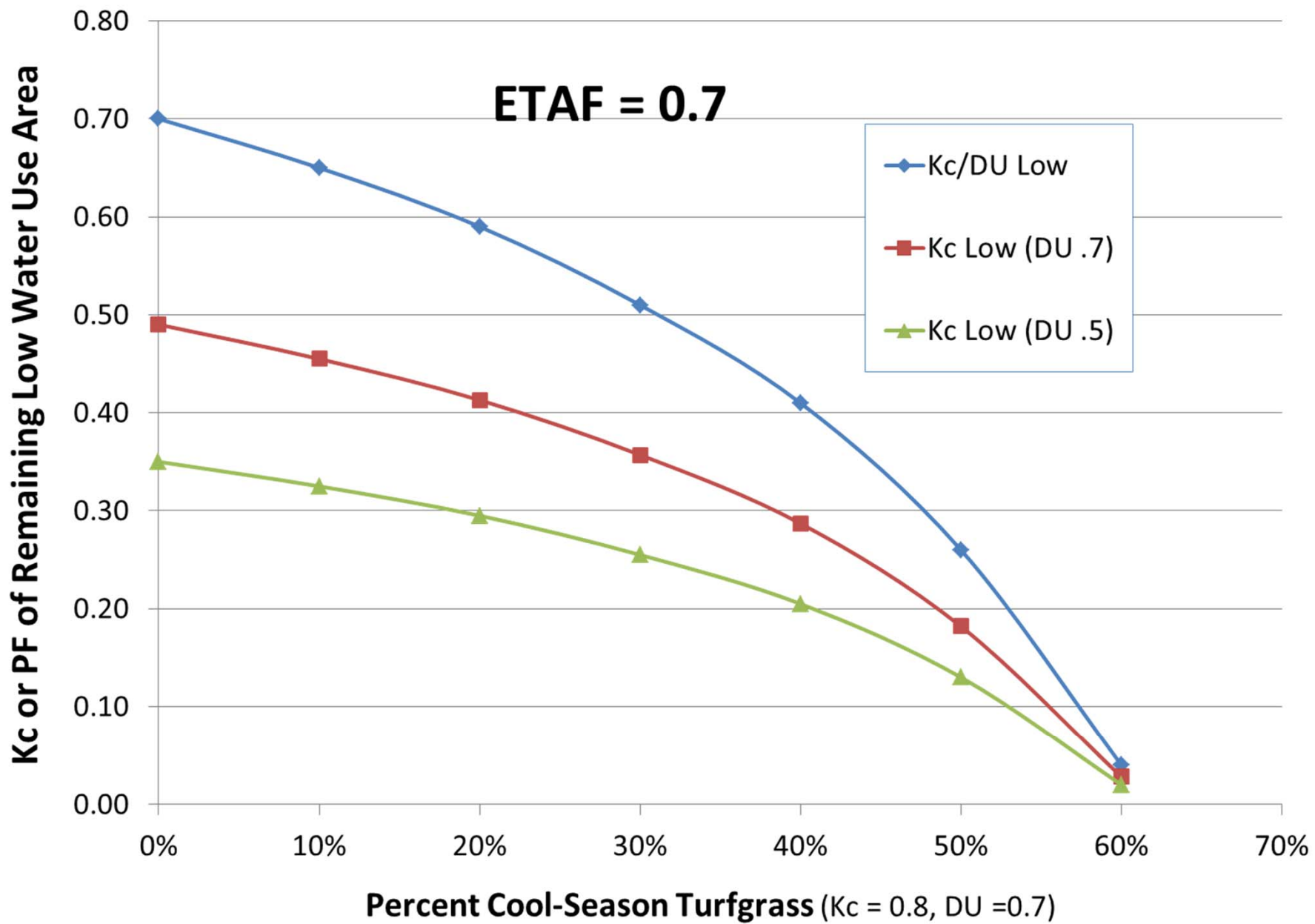
- Landscape plant water USE \neq NEED
 - Plants often use more than they need
 - Meet minimum expectations in a range of % ETo
 - ETo concept has limited accuracy in landscapes
- Most non-turf plants need near 50% ETo
- Landscape plants can be placed in % ETo water needed based on plant type
- Many landscape plants can tolerate managed drought

SLIDE Rules (*DRAFT*)

- Categories of Water Need (*under discussion*)
 - Turfgrasses = 60-80% ET_o
 - Annual & Perennial Flowers/Foliage = 70-80% ET_o
 - Trees-Shrubs-Groundcovers-Vines = 50% ET_o
 - Desert Natives/Research Proven Drought Tolerance Mechanism = 0-10% ET_o

Current Development Status of SLIDE

- Presenting to key stakeholders and decision makers
- Electronic discussion system
- Need to have face-to-face meeting
- Key issues:
 - Establish authority of SLIDE
 - ID plants in Low category



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