Assess Your Treatment/Disposal Area

Skip to the next section if you want to irrigate.

If you only want to dispose of greywater, you can differentiate prospective treatment areas on your site map by indicating how much greywater they can handle. In this case, the only concern is to not overload the soil or sensitive plants (see Table 2.3). Areas with higher perk rate and areas with more wind and sun can take more water. You don't want to apply too much water near the foundation of the house.[12]

These rates are several times the amount needed for irrigation. Disposal rate—the Long Term Acceptance Rate (LTAR)—is limited by soil perk rather than plant transpiration. With a high application rate, the majority of the treated water ends up percolating down to groundwater rather than transpiring to the sky.

TABLE 2.3: DISPOSAL LOADING RATES

Soil infiltration rate, min/in	Loading rate gal/day/ft²	Area needed ft²/gal/day	Soil infiltration rate, *min/cm*	Loading rate *m³/day/m²*	Area needed *m²/m³/day*
0–30	2.5	0.4	*0–75*	*.1*	*10*
40–45	1.5	0.7	*100–110*	*.06*	*20*
45–60	1.0	1.0	*110–150*	*.04*	*25*
60–120	0.5	2.0	*150–300*	*.02*	*50*

These rates are conservative. Can be up to 3–5 gal/day/ft² for greywater, up to 10 for secondary treated effluent.

Assess Your Irrigation Need

Skip this section if you only want to dispose of greywater.

Note the vegetation types and the extent of irrigated areas and trees on your site map, indicating areas of plants that like wetter conditions by different colors or shades, or you can simply make a list of irrigated areas and how much water you think they want—both options are shown in Table 2.4.

Again, if your aim is to live ecologically, you should thoroughly explore conservation options in the landscape before turning to reuse to feed water-hog plants.

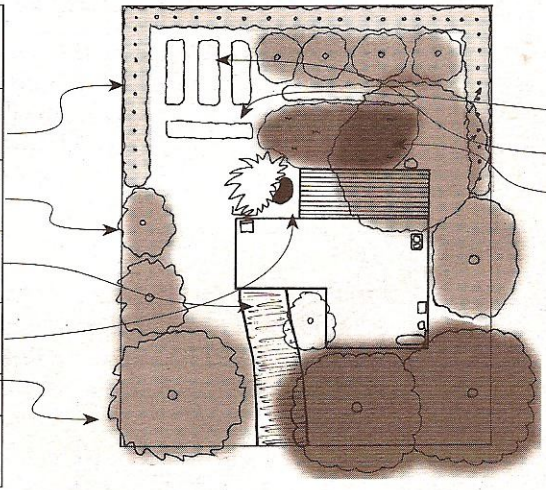
Estimating irrigation demand is an inexact science. Even getting within a factor of two of the real irrigation demand is an ambitious goal. As a rough rule of thumb, figure that **your plants need about ½ gal per week of water for each square foot of plant** *(20 L/week/m²)*.

Double this figure for desert, and halve it for a cool, humid climate (see Table 2.5). You can also double or halve this figure again for plants that use more or less water. For trees, use the same table (or calculate the area under the canopy and multiply it by the gallons per square foot per week*).

This rule of thumb above does not account for variations in evapotranspiration rate by season, climate, plant type, seasonal loss of leaves, rainfall, or irrigation efficiency. It does,

TABLE 2.4: EXAMPLE OF IRRIGATION NEEDS ASSESSMENT

	Irrigation need (gpw)	*(Lpw)*
533 ft² Fruiting Hedge	320	*1,200*
7 Small Fruit Trees	100	*380*
4 x 20' Wildflower Bed	10	*40*
Small Water Garden	30	*110*
5 Large Fruit Trees	575	*2,180*
Greywaterable Subtotal	**1,035**	*3,910*



	Irrigation need (gpw)	*(Lpw)*
Herb Garden	50	*190*
3 Veggie Beds	80	*300*
15' x 20' Lawn	180	*680*
Non-Greywaterable Subtotal⁺	**310**	*1,170*
Grand Total	**1,345**	*5,080*

⁺Due to hardware limitations of the chosen systems (can't water turf) and health concerns (inadvisable to water veggies).

Yard belongs to four people. This is 48 gal/person/day outdoors, slightly below average. These numbers are generated with the ½ gal/ft²/wk shortcut. Use 3' *(1 m)* as the smallest diameter for new trees—they like extra water.

*To get the area, take half the diameter of the tree canopy, square it, and multiply it by 3.14: $a=\pi r^2$.