

Reductions: Combined

Total reductions (Table 6) are based on 100% adoption in ornamental production, which represents the maximum benefit under these conditions (the complete table can be found at the end of this module). Almost 50% of water and CO₂ emission reductions were due to container production (57.8 billion gallons and 45 thousand tons respectively). Container operations also accounted for a very large share of the N and P reductions under both the conservative and optimistic scenarios, accounting for at least 85% of the N and P reductions.

Table 6. Total magnitude of potential yearly environmental benefits of wireless sensor irrigation networks by region (assuming 100% adoption). Reductions in nitrogen (N) and phosphorus (P) emissions are based on conservative and optimistic scenarios (Table 3 and 4 respectively).

Region	Operation type	Reduction in water use (million gal.) ^y	Reduction in carbon dioxide emissions (ton) ^x	Conservative scenario		Optimistic scenario	
				Reduction in N runoff (lb) ^w	Reduction in P runoff (lb) ^w	Reduction in N runoff (lb) ^w	Reduction in P runoff (lb) ^w
All regions	Greenhouse	12,884.4	8,859.3	96,491.8	126,600.3	141,153.0	184,176.2
	Container	57,823.5	45,104.4	1,134,991.3	674,865.1	2,496,981.3	1,484,701.3
	Field	46,872.9	25,914.2	13,794.3	---	22,070.5	---
	Total	117,580.8	79,8789.0	1,245,277.4	801,465.4	2,660,204.7	1,668,877.5
^y 1 gal.= 3.785412 L, ^x 1 ton = 0.9071847 Mg, ^w 1 lb = 0.4535924 Kg							

Reduction per million dollars of output

It is also helpful to look at benefits as reductions per amount of output (\$) to put numbers in perspective. To do this, the total sales for the region were divided by the reduction amount that we estimated, to understand reductions per million dollars output (Table 7). Ratios are similar in table 6 and 7, but the magnitudes are different. The complete table is at the end of this module.

Table 7. Potential environmental benefits of wireless sensor irrigation networks by region per million dollars of output per year. U.S. Total reflects total nationwide environmental benefits divided by national sales. Reductions in nitrogen (N) and phosphorus (P) emissions are based on conservative and optimistic scenarios (Table 3 and 4 respectively).

Region	Operation type	Total sales (million \$) ^z	Reduction in water use (millions gal.) ^y	Reduction in CO ₂ emissions (ton) ^x	Conservative scenario		Optimistic scenario	
					Reduction in N runoff (lb) ^w	Reduction in P runoff (lb) ^w	Reduction in N runoff (lb) ^w	Reduction in P runoff (lb) ^w
All regions	Greenhouse	\$2,219.05	2.9	3.99	43.48	57.06	63.60	83.00
	Container	\$6,411.37	4.5	7.03	177.03	105.27	389.47	231.57
	Field	\$3,357.47	7.0	7.72	4.10	---	6.57	---
	Total	\$11,987.89	4.9	6.66	103.88	66.87	221.92	139.22
^z Total sales are derived from U. S. Department of Agriculture (2010b). ^y 1 gal.= 3.785412 L, ^x 1 ton = 0.9071847 Mg, ^w 1 lb = 0.4535924 Kg								