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### **Water Loss by Weeds**

As we continue to be impacted by the drought in Arizona with a 21% reduction in the Colorado River water allocation, we need to reconsider every option for water conservation in our agricultural operations.

We know that weeds compete with our crops for water, nutrients, and space causing yield reductions. However, how much water are we losing due to high weed infestations?

Some researchers have concluded that weeds use more water than various crops and consider them “water wasters”. Therefore, good weed control can contribute to raise available water for our crops. Transpiration of some of the most common annual weeds is approximately four times higher than crop plants. It has also been reported that weeds use up to three times the amount of water to produce a pound of dry matter. A study showed “common lambsquarters (*Chenopodium album*) requires 658 pounds of water to produce one pound of dry matter, common sunflower (*Helianthus annuus*) requires 623 pounds, and common ragweed 912 pounds, compared with 349 pounds for corn and 557 pounds for wheat<sup>1</sup>.” It has been reported that increase from 0 - 8 plants / row meter of Palmer amaranth (*Amaranthus palmeri*) densities in corn decreased soil water available and the water use efficiency (WUE) of corn.

Uncontrolled weed growth can add direct irrigation costs of more than \$50/ha while even weed densities below economic thresholds can add ~\$20/ ha in production costs depending upon the cropping system and water cost (Norris,1996).

Under stress condition such as we experience yields can be reduced more 50% just by moisture competition. Other factors that influence water loss are weed densities, transpiration rate, other weed characteristics like root system and depth. For example, perennial weeds with a well-established root system are more drought resistant because they can explore better the soil profile.

Some report that weeds can potentially cause 34 percent of crop loss worldwide. We have seen how weeds cut the water flow in irrigation ditches and cause more evaporative loss. We believe weed control is essential for water conservation purposes and further research is needed in this matter.

1. [https://www.researchgate.net/profile/Hussein-Abouzienna-2/publication/278020092\\_Water\\_loss\\_by\\_weeds\\_A\\_review/links/5578c26608ae752158703bdc/Water-loss-by-weeds-A-review.pdf](https://www.researchgate.net/profile/Hussein-Abouzienna-2/publication/278020092_Water_loss_by_weeds_A_review/links/5578c26608ae752158703bdc/Water-loss-by-weeds-A-review.pdf)

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