

Advantages of chemigation:

1. Economical. Chemigation allows the use of the already existing irrigation system thus reducing or eliminating the need for ground or aerial application equipment and operators.
2. Application uniformity. In many tests, chemical application by properly outfitted systems has been superior to other methods such as aerial application.
3. Ease of application. The moving systems such as the center pivots can apply chemicals on a timely basis regardless of crop height or field or weather conditions.
4. Chemical incorporation. Separate field operations are not needed to incorporate or activate chemicals such as herbicides. Degree of incorporation can be varied by changing the amount of water applied.
5. Soil compaction reduced. Yield-reducing soil compaction is nearly eliminated when large irrigation systems are used to apply chemicals instead of many trips across a field with ground rigs.
6. Reduced crop damage. Crop damage in the ground rig spray rows is eliminated. For many crops, the resulting yield increase and value would be substantial.
7. Reduced labor. Without the need for ground rigs, labor costs would be substantially reduced, especially with the automated moving systems.
8. Spray drift reduction. The application of chemicals in large volumes of water potentially reduces the danger of spray drift common to ground and aerial chemical applicators.
9. Easy to "spoon-feed" crops. With the irrigation system, it is easy to closely correspond chemical application to the crop's seasonal requirement. This is most applicable to crops growing in sandy soils where irrigation water applications and fertilizer needs are frequent.
10. Potential reduction in groundwater pollution. The application of small amounts of chemicals (particularly fertilizers) corresponding closely to crop growth ("spoon feeding") offers the potential to substantially reduce groundwater pollution.

Disadvantages of chemigation:

1. Soil factors. Chemigation is most useful in deep, sandy soils with crops growing under high temperatures. The southeast coastal plains soil is a good example. On heavy soils, water needs may not be high enough, often enough, to make chemigation practical. Runoff also might be more serious on these soils.
2. Water requirements. There may be times when chemical application is required but the irrigation water not needed. This might be true even on sandy soils after a suitable rainfall.
3. Crop specificity. Chemigation may not be practical for all vegetable crops. It is probably not as useful for crops with wide row spacings (watermelons) as for crops with higher plant populations (sweet corn, leafy greens).
4. Chemical Specificity. Not all chemicals are presently labeled for application through an overhead irrigation system.
5. Water quality. The quality and pH of the irrigation water will dictate the amounts and types of chemicals and fertilizers that can be effectively applied.