

Jared Mann

College of Integrative Sciences and Arts, Arizona State University, Polytechnic

## Background

This is a look into how dryland agriculture can help the agricultural industry increase the production of high quality crops. These methods of agriculture are especially important for desert and semi-desert regions of the world. Many of these regions suffer from unsustainable farming practices. However, dryland farming can be a solution to these problems caused by current, modern agricultural practices in these places.

## Objective

The aim of this literature review is to discuss:

- Comparisons of dryland agriculture and modern agriculture
- Which method is more productive
- Various aspects of how these agricultural methods differ and are similar as well

## Approaches

Numerous peer-reviewed papers were selected for this review:

- Search engine: Google Scholar
- Keywords: GMO, Heirloom, Heritage, Sustainability, Horticulture, Desert, Xeric

## Results



Fig 1. Example of a dryland farm field.

<https://modernfarmer.com/wp-content/uploads/2022/06/hopicorn-1536x1152.jpeg>



Fig 2. Example of a modern agricultural field.

<https://www.agrivi.com/wp-content/uploads/2016/05/Blog-Proper-irrigation-1200x565.png>

Table 1. Comparison of dryland and modern agriculture

	Dryland Agriculture	Modern Agriculture
Definition	Farming with little irrigation in dry areas	Farming with industrialized methods
Characteristics	Uses little input to grow crops	Uses high input to grow crops
Yield	Higher than modern agriculture	Lower than dryland agriculture

## Results

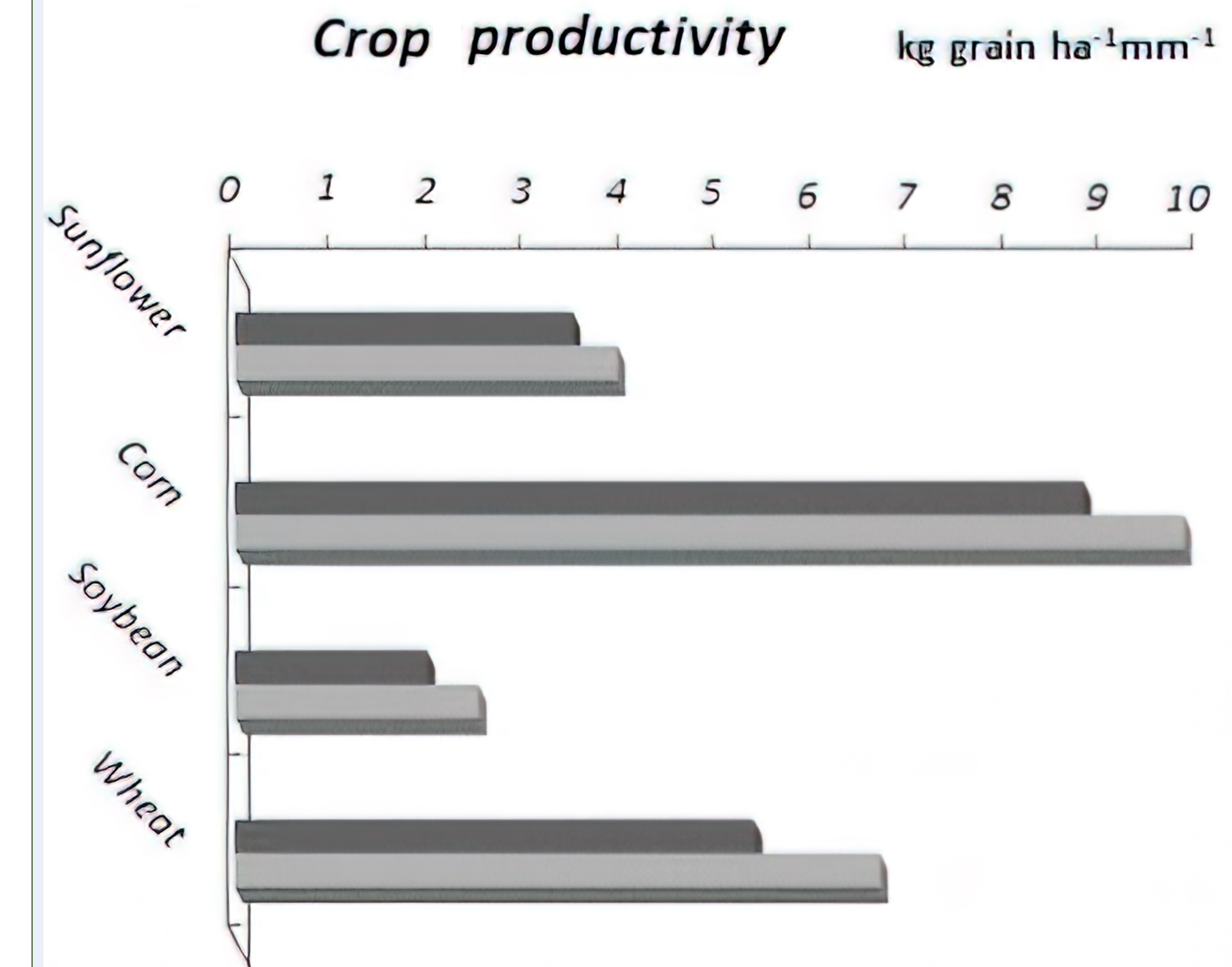


Fig 3. Crop water productivity comparison between dryland and modern farming practices. The black bars represent modern agriculture, and gray bars represent dryland agriculture.

Noellemeyer E, R Fernández, A Quiroga. Crop and tillage effects on water productivity of dryland agriculture in Argentina. *Agriculture* 2013; 3: 1–11.

## Conclusion

In most aspects that have been explored, dryland farming appears to increase the productivity of plants and thus the yield as well, compared to plants that are grown using typical modern methods.