



**DRONES. NOT  
JUST FOR THE  
BEES.**

**#LIFEWITHPLANTS**

# Introduction



What are Drones?

Examples of drone use in horticulture and plant science related fields

Career opportunities

# Learning Objectives

Students will :

be able to describe drones

be able to describe applications of drones in horticulture and plant science related fields

be able to evaluate a map and identify crop concerns

learn how to fly a drone\*\*\*



# Drones

Definition: an uncrewed or unpiloted aircraft or ship, guided by remote control or onboard computers. (Merriam Webster)



# Drones

## Horticulture Applications

“Smart Agriculture”

Precision Agriculture



# Drones

## Horticulture Applications

Plant or Crop Health



# Drones

## Horticulture Applications

### Crop Health

Example: NDVI: Normalized Difference Vegetation Indexes

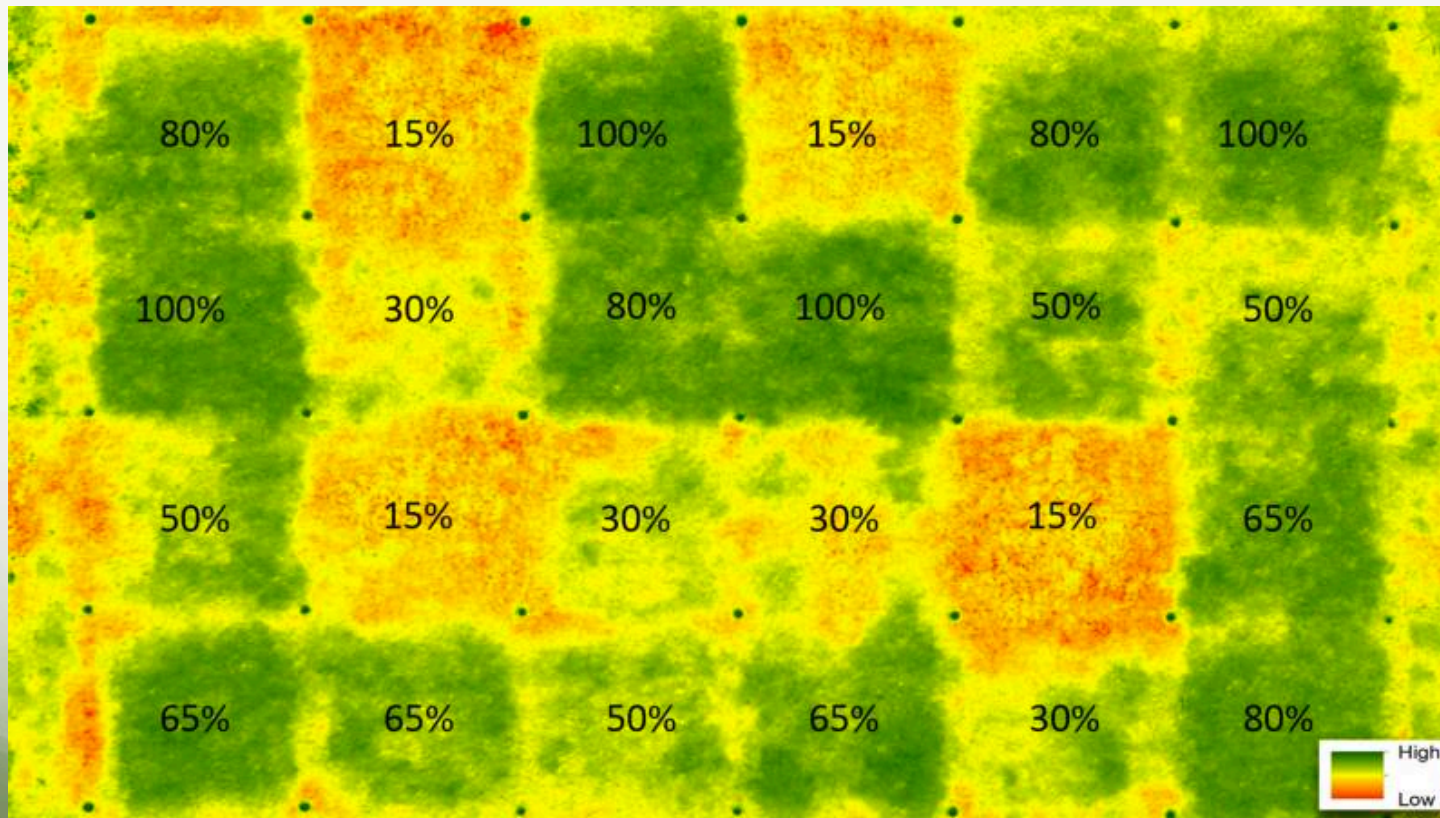


Image courtesy of:  
<https://www.usga.org/course-care/turfgrass-and-environmental-research/research-updates/small-unmanned-aircraft-systems-detect-turfgrass-drought.html>

# Drones

## Horticulture Applications

### Plant Inventory and Crop Status



Photo courtesy of: [Nurserymanagement.com](http://Nurserymanagement.com)



# Drones

## Horticulture Applications

Evaluating Plant Diversity

Understanding plant communities

(Imagery analysis)

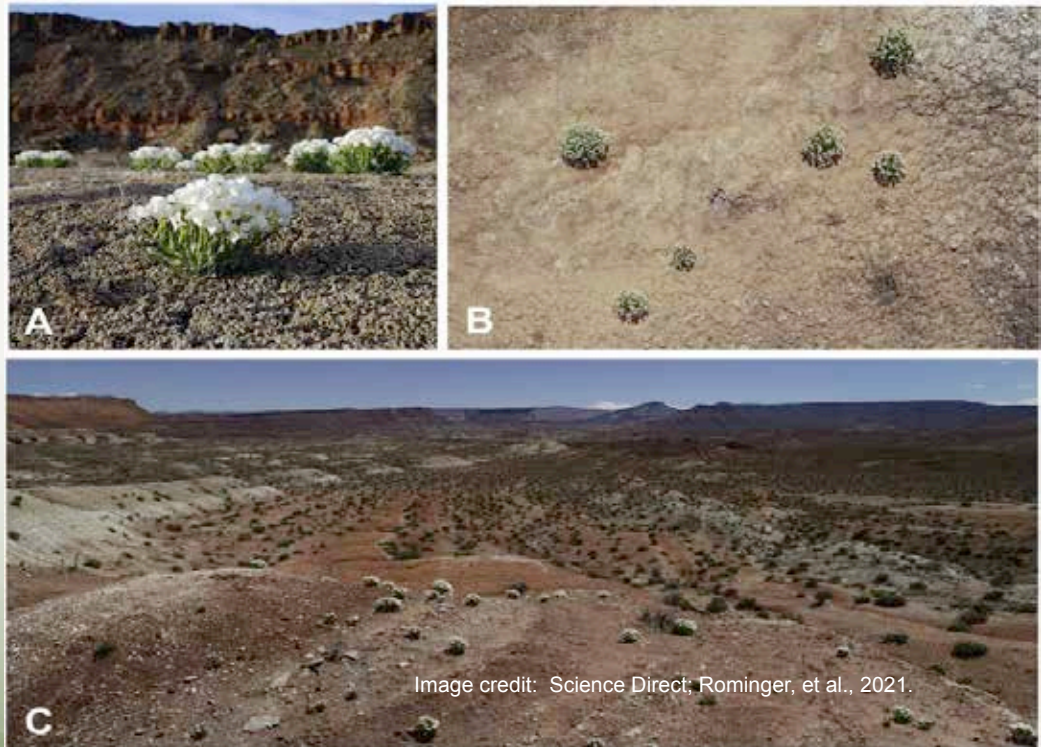


Image credit: Science Direct; Rominger, et al., 2021.

# Drones

## Horticulture Applications

### Greenhouse Crop Monitoring



# Drones

## Horticulture Applications

### Greenhouse and Orchard Pollination



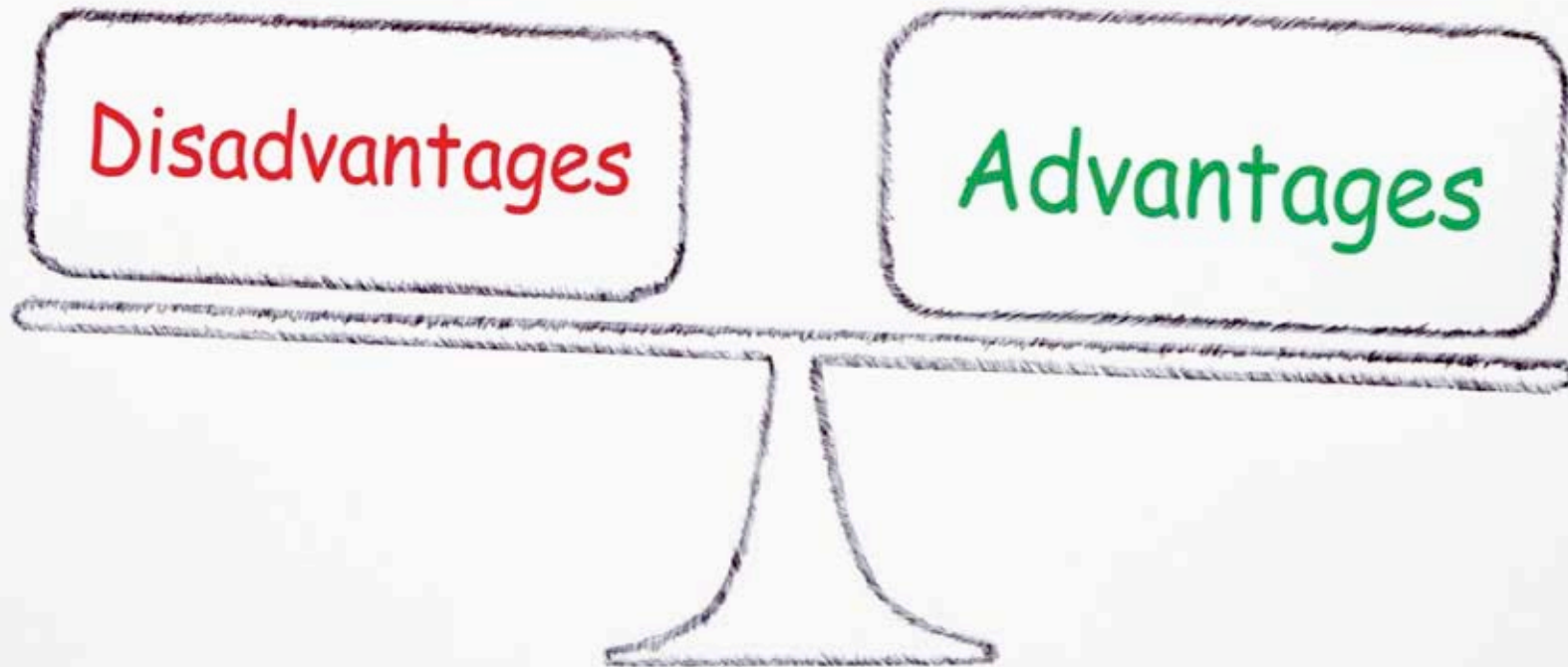
Photo courtesy of

Pollen source



# Drones

Can you think of....



# Drones

## Advantages

- Saves labor!
- Can be operated by one (or few people)
- Less intrusive practices for some situations
- Can improve efficiency

## Disadvantages

- **Cost!** (initial investment)
  - Depends on quality/model
- **Certification/Training**
- **Challenges if breaks down**
  - Fixing timeline
  - Costs
  - Could be hard to get manual labor to make-up

# Drone Careers

## Career Examples

Greenhouse Tomato Grower

Orchard Manager



Ecologist



# Drone Education

## College Programs

Kansas State University  
Salina Aerospace and  
Technology Campus



University of  
Nebraska Omaha



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