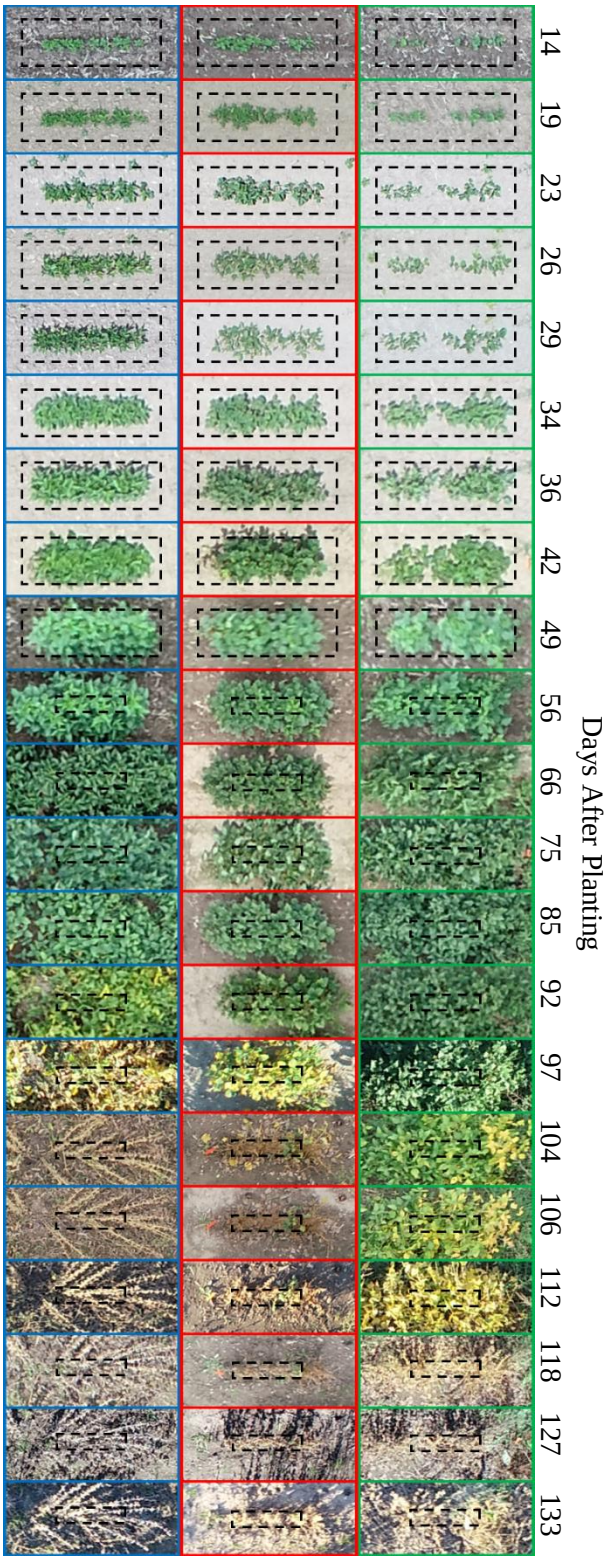
Tips for Tracking Changes Over Time with Your Drone

Some metrics of plant growth & health, such as growth rates and maturity dates, are best measured using a time series of images. This requires capturing images regularly and frequently with sufficient spatial resolution to clearly resolve plots and focus on the relevant portions of each plot on every flight date. Here are our recommendations for collecting early and late season time series:

- **Fly regularly & frequently,** 2-3 times a week from emergence to full canopy cover and as the crop approaches maturity**.** The more frequently you fly, the more precisely you'll be able to pinpoint changes in growth rate, maturity & other physiological processes.
- **Fly at a consistent, low altitude, but not too low!** (40-100 ft) to get less than 1 cm/pixel resolution so you can clearly resolve plots.
- **Capture 80% forward & lateral image overlap** for fast & accurate image stitching and 5-20 replicate images of each plot on every flight date to distinguish reliable trends from noise.
- **Record daily air temperature & other meteorological data** so you can compute growing degree days (GDD) and diagnose potential causes of stunted growth or other stress indicators.
- **Use measurement buffers** to exclude weeds from measurements during the early season and focus on the interior of the canopy during the late season as shown by the black dashed boxes on the right. Progeny makes it easy to use measurement buffers.
- **Consider using Progeny to batch-process multiple flight dates quickly**. Progeny lets you select multiple input folders containing multiple experiments. You can draw your experiment grids on one ortho-mosaic and re-use/adjust these experiment grids on other flight dates to maintain perfect grid alignment across the season.



For help getting started, please visit: www.progenydrone.com