



Using Drones to Seed Cover Crops

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Evaluation of Drone-Seeded Cover Crop Establishment

Why?

- Small, irregular shaped fields

Unanswered Questions:

- Appropriate rates to establish a sufficient cover crop
- Cost-effectiveness





Drone Specs:

- Drone Type: DJI Drone
- Hopper: Holds 16# of radish seed
- Flight Time: 4-6 minutes per fill
- Coverage: 1.2ac @ 12.5lb/acre each flight
- Battery: 2 flights per battery (2.4 acres)



2020 Trial: Methods

- Daikon radish flown onto 26 acre field of standing corn on August 27, 2020.
- Seeding Rate: **12.5 lbs/per acre**
- Corn harvested September 15th



2020 Trial: Evaluation

- Evaluated stand establishment on October 21st
- The average cover crop plant population in the field was **3.1 plants/ft²**
 - A low of 0 and maximum of 6.



2020 Trial: Evaluation

- Calculated canopy density using the app, Canopeo[©]
- Images taken approx. 2.5ft off the ground.
- Average canopy coverage was **39.1%**.
 - Min and max value of 20.3% & 53%, respectively.



2021 Trial: Methods

- Daikon radish flown into standing corn on August 30, 2021.
- Seeding Rate:
12.5lbs/per acre
- Corn was harvested on October 15th.



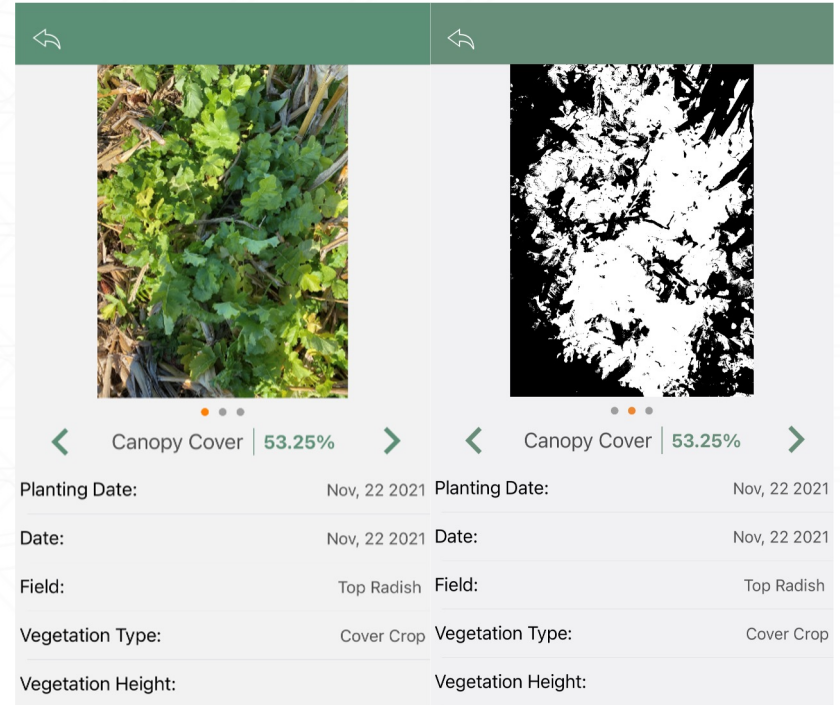
2021 Trials: Evaluation

- Evaluated stand establishment on November 19th
- The average cover crop plant population in the field was **1.95 plants/ft²**
 - A low of 0 and maximum of 4.



2021 Trials: Evaluation

- Calculated canopy density using the app, Canopeo[©]
- Average canopy coverage was **30%**.
 - Min and max value of 6.59 & 61.68%, respectively.



2020 vs 2021

First Rating	2020	2021
Establishment Rates	3.1 plants/ft ²	1.95 plants/ft ²
Canopy Coverage	39.1%	30%

Precipitation	2020	2021
August	11.81in	4.36 in
September	4.48 in	6.04 in
October	4.36 in	5.24 in
November	6.35 in	1.33 in
Total	27 in	16.97 in

What We Have Learned?

- Cover Crop establishment via the use of drones is effective.
- Precipitation amounts and harvest timing are critical to good stand establishment.
- May be a method to establish early cover crop for those that don't have access to other aerial methods.

New for 2021

