




How to use your drone on your farm.

Or just pay me to do it ;)
-Jaron hinkley-



About me

My philosophy

“The days that i keep my gratitude higher than my expectations well, i have really good days.” Artist - Ray wylie hubbard , Song - Mother blues, Album - Grifter's Hymnal

About me

Ballet Dancer - Apprentice Trainee with Ballet Austin

College - Richland community college, Austin Community College

Businesses - 5th man window cleaning, Barn Owl Drone Services

Industries - Food Service, Theater, Construction, mining, agriculture, insurance, sales

I am a millennial

There is no cure

**Millennials are afraid
of gluten.**

@NatBaimel

**That's why so
few of us are
breadwinners.**



(Unemployable) Dad Joke

Care to see pictures of every meal I've ordered in a restaurant in the past 45 years?



FUTURE MILLENNIAL GRANDPARENTS

Less work more reward

That's not entitlement that's efficiency

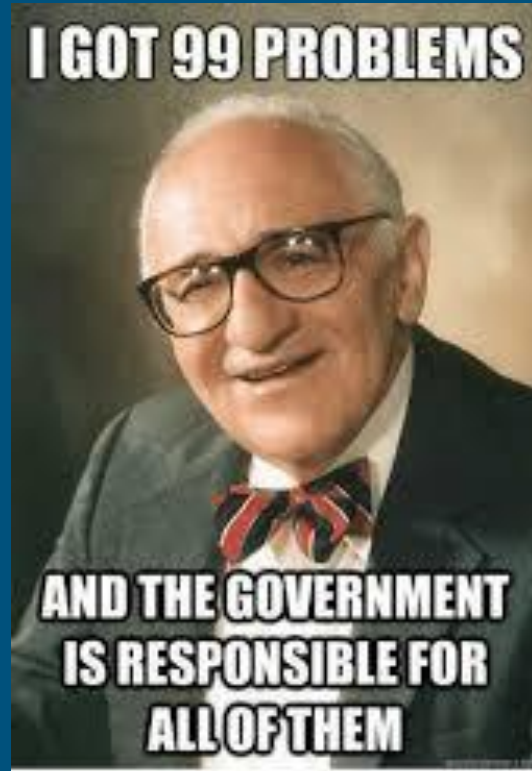
We want results

We want new solutions to the problems no one figured out how to solve yet.

We want to EARN enough money to live happy and fulfilling lives

We want to leave something positive for the generation after us, the lazy and entitled generation Z.

How to solve all your problems



D.A.D.A. - Slow it down

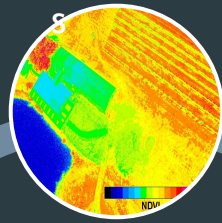
Data - What do i know?

Analysys - What options do i have?

Decision - What am i going to do?

Action - How do i do it?

Analysi



Dat
a



D.A.D.A.

A data driven approach to
decision making

Decisio
n



Actio
n



Increasing Diversity

Communication

Agronomic Information

Action Strategies

Skills

Culture

Empower Yourself

- You are the most valuable asset on your farm
- give yourself the best possible chances for success by equipping yourself with knowledge
- keep up with the evolving industrial landscape

It's NOT about the DRONE

It is an effort to get INFORMATION

Information is the real tool

What do you want to accomplish?

Scout more efficiently?

Improve field history record keeping?

Improve your marketing efforts?

Mitigate problems more quickly?

Organize your efforts?

Have a goal in mind

So,
if you fly
a drone,
remember:



107 - You Need One

Commercial or recreational : Must register S.U.A.S. with the FAA. between .55lbs and 55lbs

Commercial or public operations must follow certain rules:

Commercial (for business purposes) - 107 certification

Public (Police,Fire dept.,other...) - Certificate of authorization

What is recreational use of drones? “for personal use and enjoyment.” you may have fun farming but you probably not farming for fun.

Checklist - A.W.E.P.C.O

Airspace

Weather

Equipment

Personnel

Obstacles

Airspace

Do i need authorizations?

Is there a temporary flight restriction TFR?

Do i need waivers?

Tools - Avare (app), <https://www.1800wxbrief.com/Website/> , Air Map (app)

Weather

- Is it too windy?
 - Max 20mph
- Is it raining?
 - Water and electronics mix poorly
- Is it too cold?
 - Drones lose efficiency and handling response in the cold
- Is it too hot
 - The equipment can overheat, melt solder connections, ruin some chips and components

Equipment

- Check propellers
- Check motors
- Check radio link
- Check battery
- Know the controls
 - Know the emergency controls

Personnel

- Are you well rested?
- Are you focused on the task at hand?
- Are you frustrated, angry, sad?
- Are you well practiced?
- Is your visual observer in good shape?

Communication

- Have you talked to the farmer
- Have you talked to the crop dusters
- Have you got your radio charged
- Have you got a strategy with your visual observer

Obstacles

- Powerlines
- Cell towers
- Mountains
- Trees
- Weather towers
- Wind turbines
- Buildings
- Birds

Photogrammetry Basics

- Measurements from photographs
- Uses match points in photos to measure relative angles
 - Scale is derived from GPS coordinates
- will produce orthomosaic imagery and 3D Models
 - Overlap - more overlap will produce better results but will require more flight time
- Exposure - over or under exposed will produce bad results. Underexposed is the lesser of two evils

Flight Control Software

- Dronedeploy (app)
- Pix4d Capture
- Mission Planner (opensource)
- DJI GO
- Litchi (App)
- Many more

Orthomosaic imagery

- Measurements
 - Linear, distance
 - Area
 - Location lat/long
 - Birds eye view
- Post Processing
 - Plant populations
 - Row width/length
 - Damaged acreage
 - change/time

Photogrammetry software

- Pix4d
 - Produces all types of outputs, ortho, point cloud, DSM, builds reflectance maps....
 - Advanced features, professional grade, can produce the highest quality outputs
 - Most expensive (350/month) (250/month)
 - Multiple sub products
 - Pix4d Ag, Pix4D model
- Dronedeploy
 - Cloud based
 - Less expensive (123/month) (250/month)
 - Great shareability
 - Works well in the field
- Many others

Post Processing Software

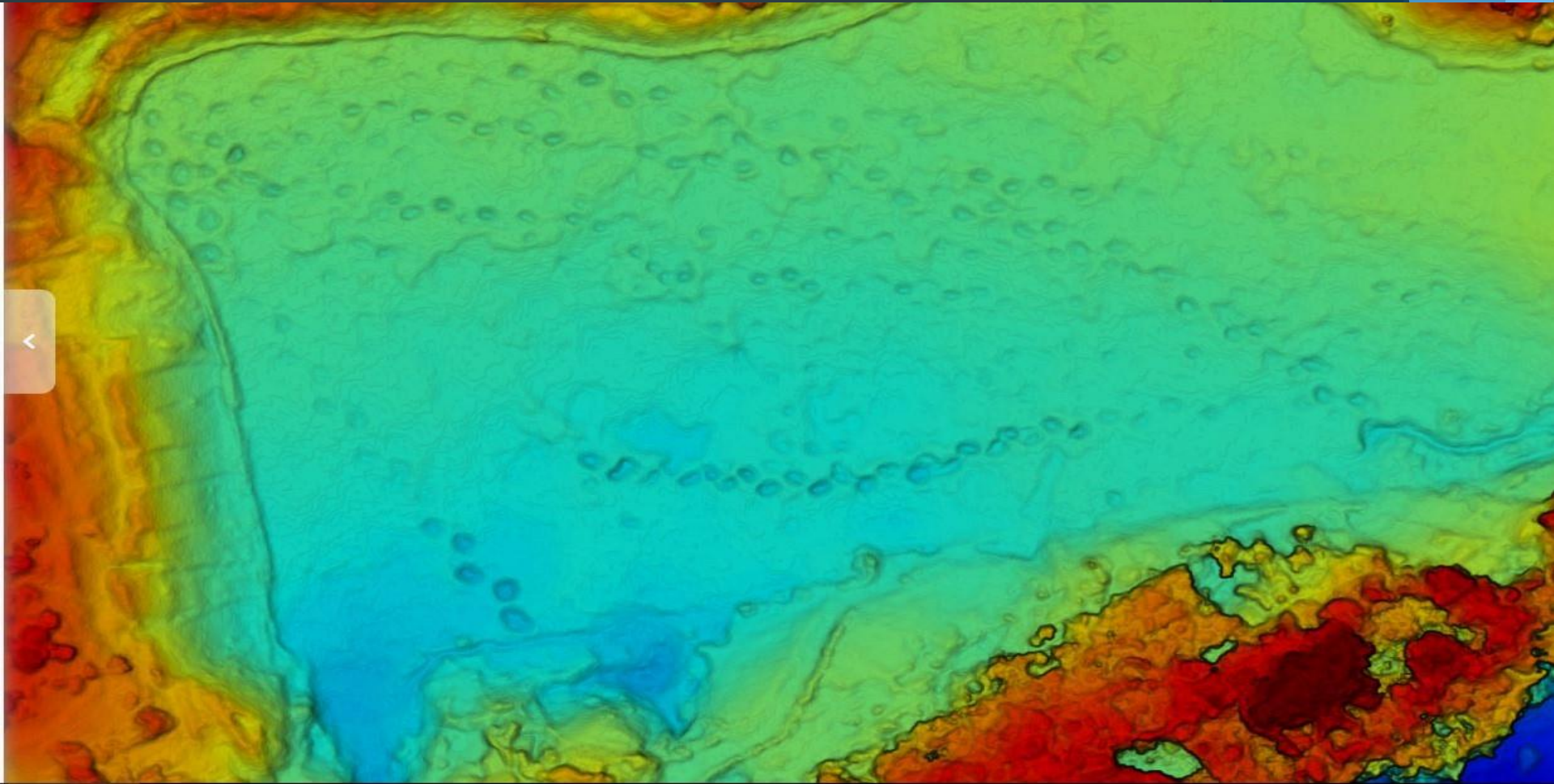
- QGIS - open source GIS software that is packed with powerful tools and plugins
 - You tube tutorials, online community will help you learn
- Global Mapper - Paid post processing software
- Esri ArcGIS - Paid post processing software
- CAD suite - Autocad, Civil CAD...

The Processes

Come to Farmers Edge booth for detailed methods and solutions for your operation



Topography



3D - Modeling

