A man wearing a red baseball cap with a circular logo that says "THINGS 1", sunglasses, and a green jacket is holding a bunch of fresh orange carrots. He is standing in a field with mountains in the background.

Starting a Farm From Scratch

A 3-Part Webinar Series

Part 2: Intro to Drip Irrigation

March 8 | 10 a.m. - 11 a.m.

Matthew Mccue
Shooting Star Organic Farm
Army Veteran



Homegrown By Heroes



www.farmvetco.org/homegrown-by-heroes/

Who is Matt Mccue?

- U.S. Army OIF veteran and returned Peace Corps volunteer
- Owner/Operator of Shooting Star Organic Farm and CSA in Fairfield, CA
 - 10 years farming experience
 - Grower of organic vegetables
 - B.S. Business Management
- Masters in International Agricultural Development – in progress



Examples of Irrigation Districts

South San Joaquin Irrigation District



Solano Irrigation District



Imperial Irrigation District



Irrigation district employees know the land, what is being used, what is fallow, and who owns the land.

Basic Components of a Drip Irrigation System

- **T-Tape**
- **Headers**
- **Valves**
- **Underground PVC**
- **Filters**
- **Pumps**



Steps to Creating a Drip Irrigation System

- **Step 1: Measure Flow**
- **Step 2: Test Water**
- **Step 3: Design System/Install System**
- **Step 4: Create Schedule**
- **Step 5: Maintain System**



Step 1: Start with Source: Measuring Water Flow (w/o flow meter)

Materials needed: two, 5-gallon buckets, water source, timer, pencil, piece of paper.

Directions:

- Prepare to time 1 minute of flow
- Have buckets ready next to water
- Turn on water
- Fill up bucket and dump it out, then fill it again. Count the number of times you can fill up the bucket in one minute

of buckets filled
in 1 minute
X
of Gallons bucket
holds
=Gallons Per Minute

**Gallons per minute is the
cornerstone to understanding
drip irrigation capacity**



Step 2: Test Water

Water Type: **SELECT** Open Water Profile Library

Feed Percentage: **100** (%) Feed Number: **1** Feed Streams: **1**

Ions	mg/l	ppm CaCO3	meq/l	To
Ammonium (NH4+ + NH3)	0	0.000	0.000	
Potassium (K)	0	0.000	0.000	
Sodium (Na)	786.75	1711.069	34.221	
Magnesium (Mg)	0	0.000	0.000	
Calcium (Ca)	0	0.000	0.000	
Strontium (Sr)	0	0.000	0.000	
Barium (Ba)	0	0.000	0.000	
Carbonate (CO3)	0	0.000	0.000	
Bicarbonate (HCO3)	0	0.000	0.000	
Nitrate (NO3)	0	0.000	0.000	
Chloride (Cl)	1213.25	1711.069	34.221	
Fluoride (F)	0	0.000	0.000	
Sulfate (SO4)	0	0.000	0.000	
Silica (SiO2)	0	n.a.	n.a.	
Boron (B)	0	n.a.	n.a.	

☐ Specify Individual Solutes

Total Dissolved Solids: **2000.0** mg/l

Feed Parameters

Temperature: **25.0** °C

Flow Rate: **1.33** gpm

pH: **7.6**

Charge Balance

Cations: **0.00**

Anions: **0.00**

Balance: **0.00**

Add Sodium Add Calcium Adjust Cations Adjust Anions Adjust All Ions

System Temp: **25.0** °C System pH: **7.60** Save Water Profile to Library

- **What can't I grow?**
- **Will I need to leach?**
- **Can I drink my water/can animals drink it?**
- **Irrigation districts publicize water results.**
- **Always test well water!**

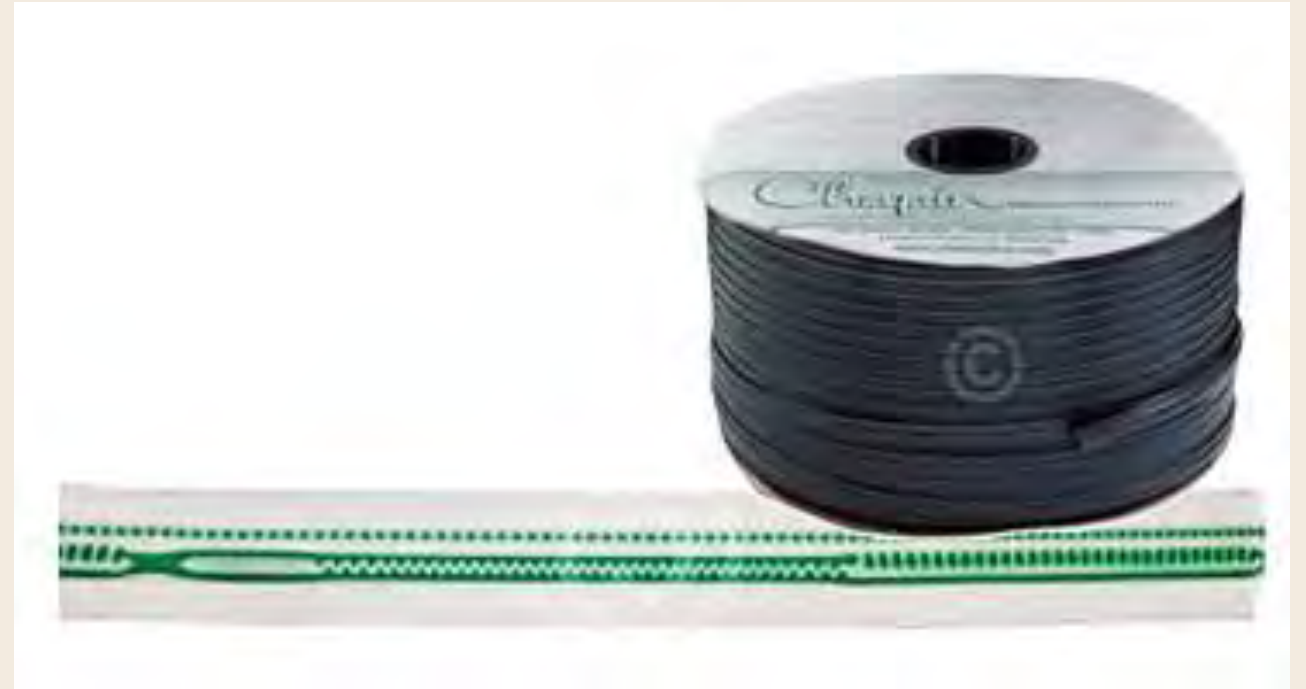
Water Testing Labs



- **Some companies are cheaper than others!**
- **There are many labs out there!**



Step 3: Design Your System (Start by knowing your tape)



Pay attention to maximum length.