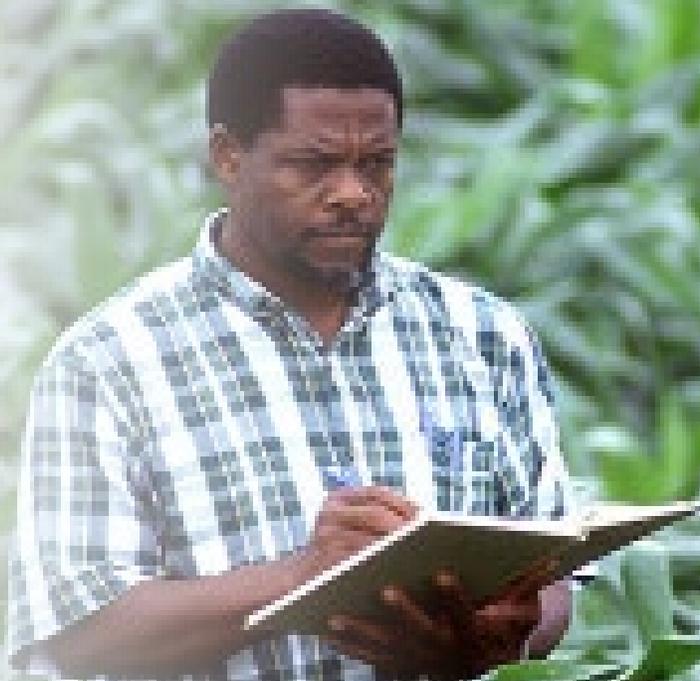
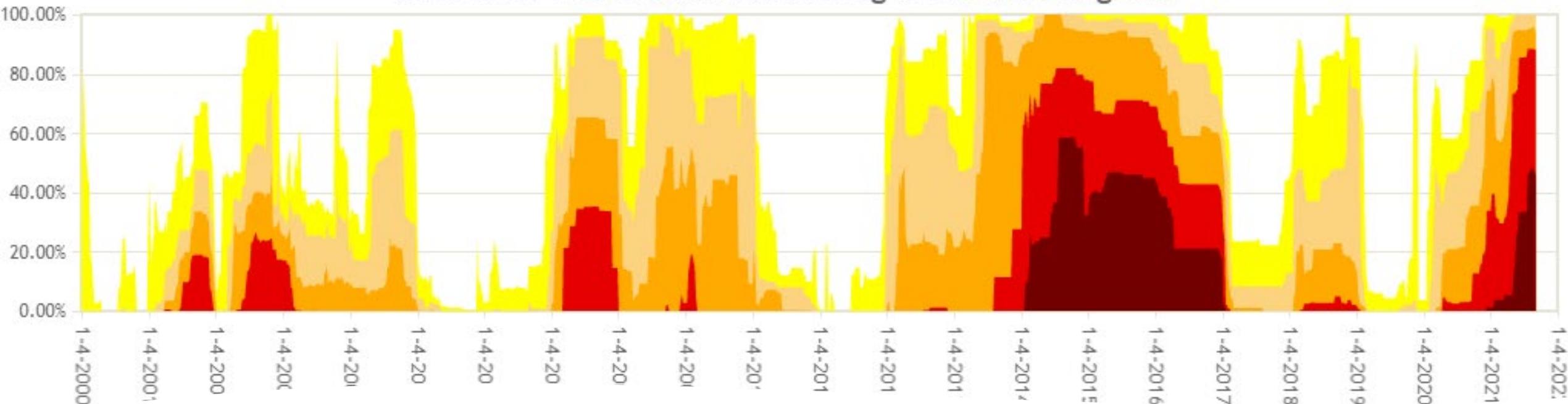


Understanding the Impact of Drought

How are **Agronomists**
Using Science to Provide
Solutions?



California Percent Area in U.S. Drought Monitor Categories



Why Is this Important?
California is Experiencing an Extended Period of Drought

- Throughout its history, California has experienced many [droughts](#).
- During the last ten-plus years the state has experienced an increase in the frequency of droughts.
- **As the most populous state in the nation and a major agricultural producer, drought in California can have a severe economic and environmental impact.**

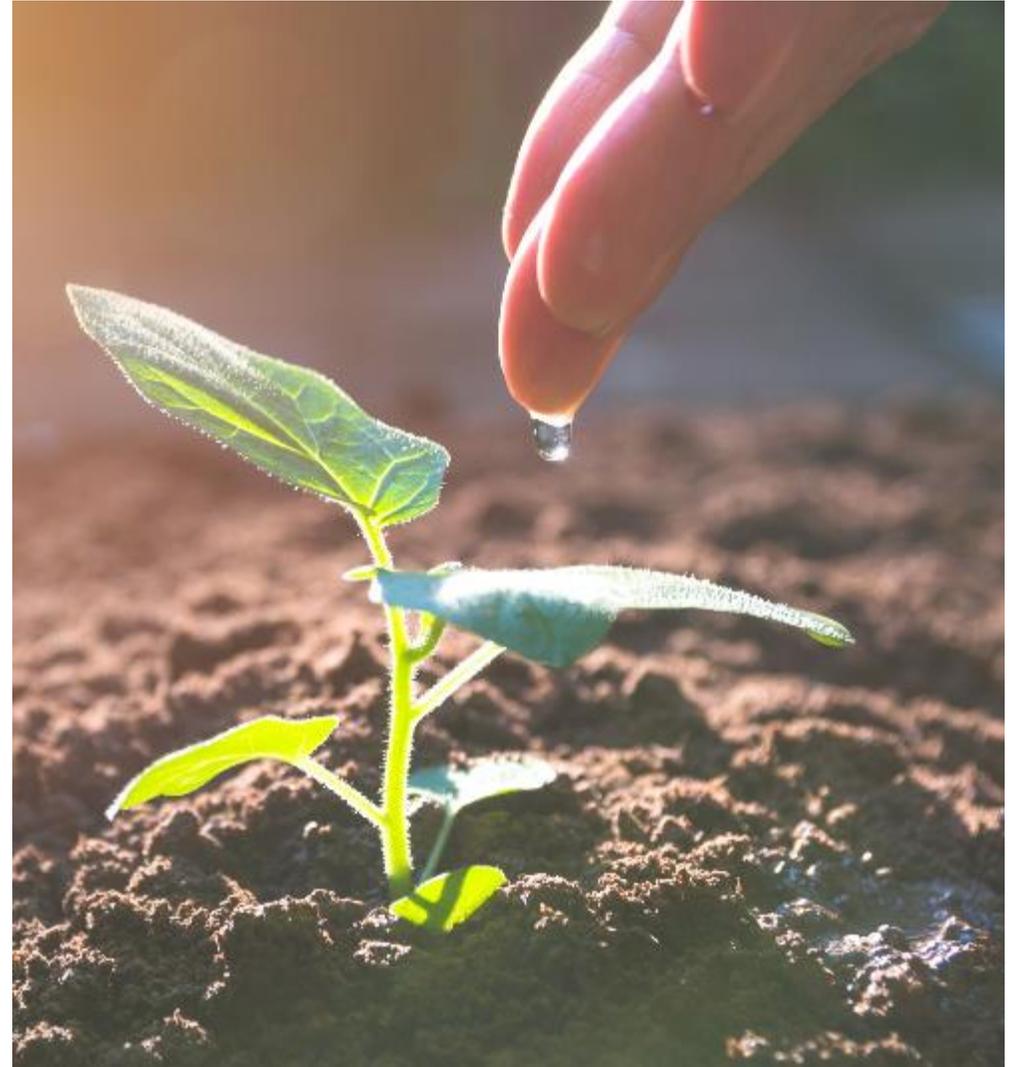
Agronomists Are Plant and Soil Scientists

- **Agronomists develop innovative farm practices and technologies that:**
 - boost crop yields
 - control pests and weeds
 - protect the environment
- **Agronomists also play critical roles in issues of global concern, including:**
 - food and water shortages
 - climate change
 - soil loss and decline in quality



Making Every Drop Count

- Agriculture is the world's largest user of water. Globally, 70% of the world's fresh water is used for agriculture
- As the world's population grows, so does the need for more crops.
- **The challenge for Agronomists: How can farmers make every drop of water count while producing more crops and protecting the quality and quantity of water we all depend on?**



Meet An Agronomist: Ray Archuletta

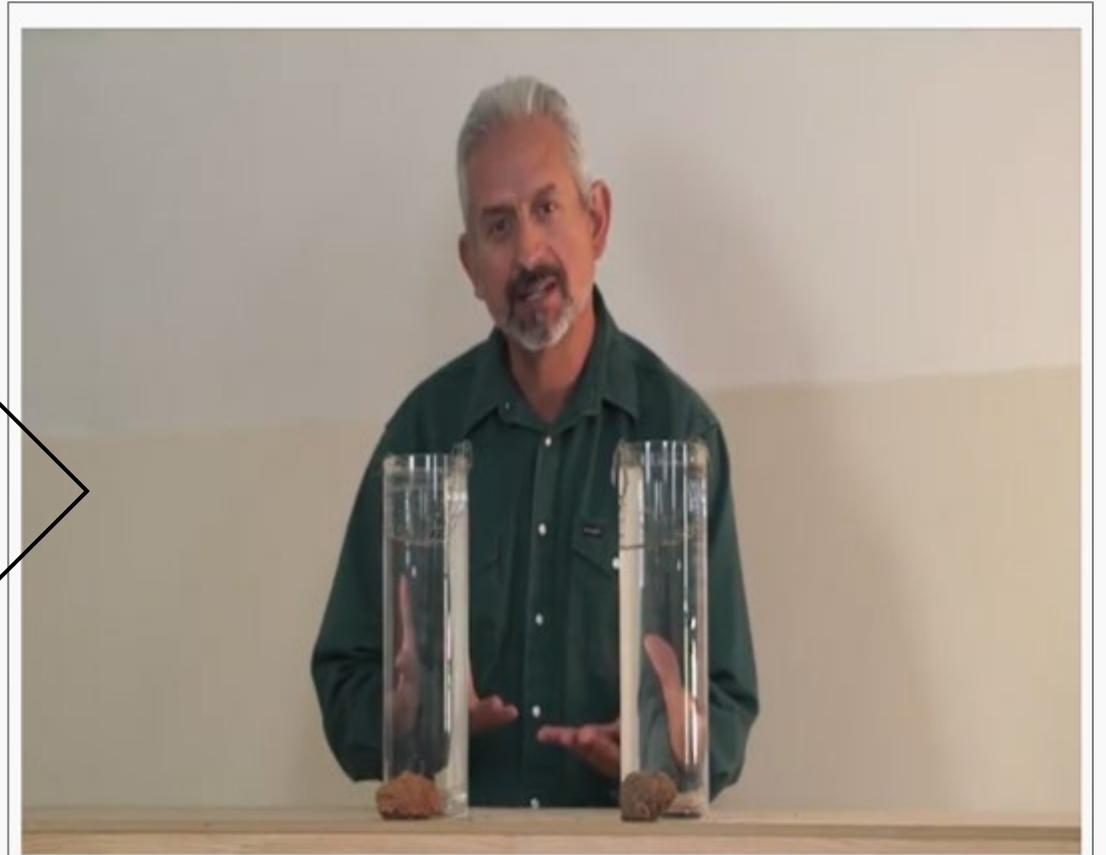
- Certified Professional Soil Scientist with the Soil Science Society of America.
- Over 30 years experience as a Soil Conservationist, Water Quality Specialist, and Conservation Agronomist with the Natural Resources Conservation Service (NRCS).
- Founded *Understanding Ag and Soil Health Academy*, to teach principles for improving soil function including water retention.
- Nicknamed “Ray the Soil Guy”



Make Every Drop Count: It's Starts With the Structure of the Soil

Agronomist Ray Archuletta demonstrates in this video the importance of soil structure.

[Video](#)

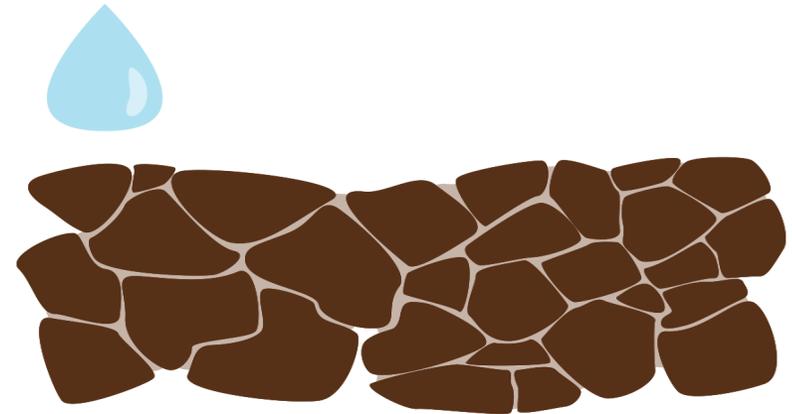
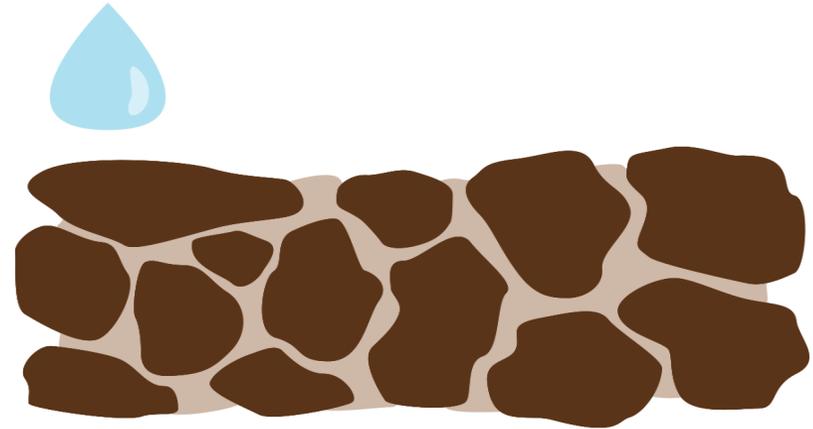


Ray Slake Test- Uncensored, No Frills

Improve Soil Structure By Improving Soil Health!

- Improved soil structure (top picture) shows healthy soil with pores. This increases water absorption and water holding capacity while decreasing runoff.

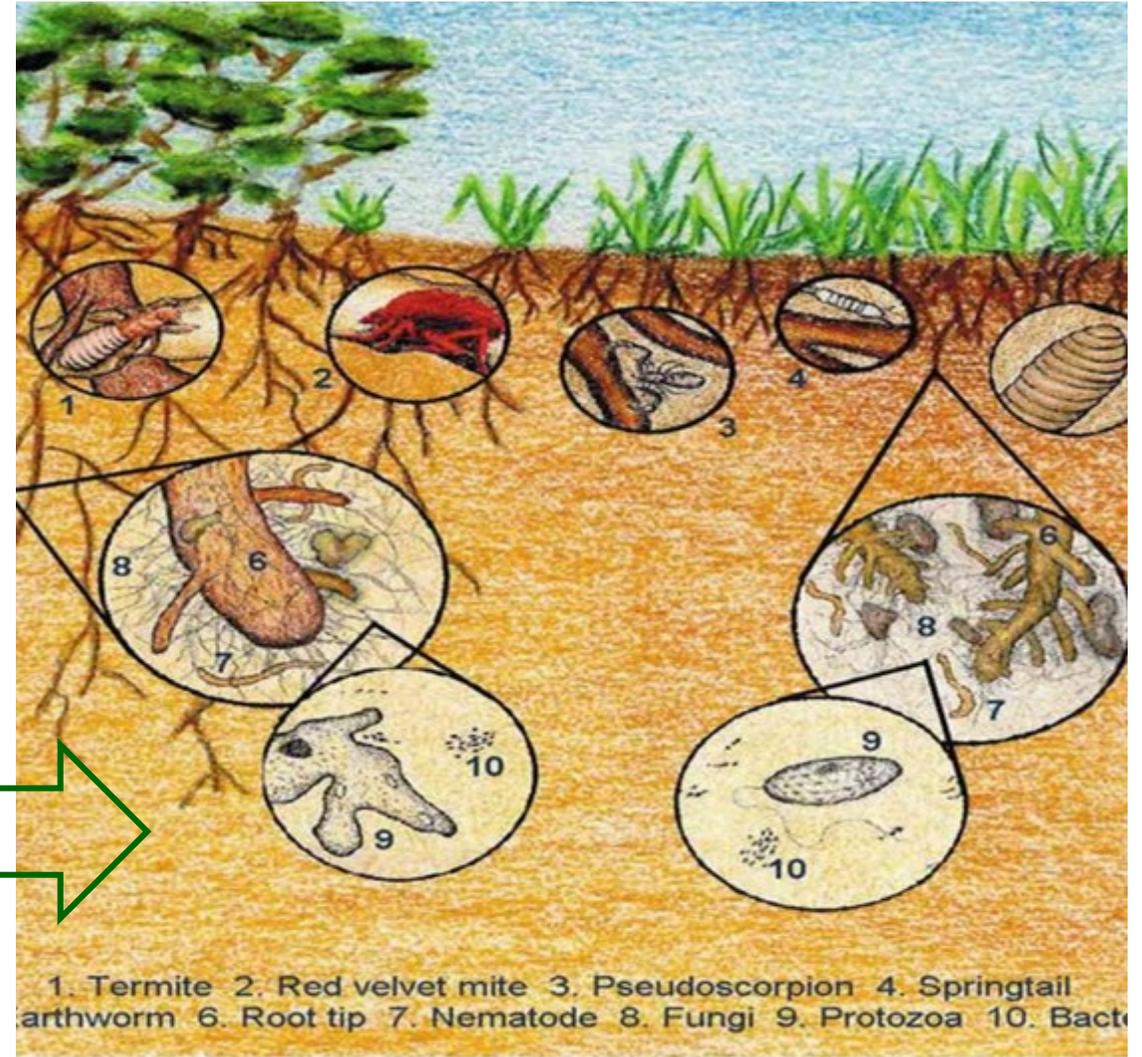
How do Agronomists help farmers enhance soil health? Learn four ways to make every drop for a crop count.



Improve Soil Health

1. Plant Diversity

- Increasing the number of plant species may also increase the diversity of life living in the soil.
- These organisms and microorganisms (see diagram) improve the soil's structure and its ability to cycle nutrients.



Improve Soil Health

2. Don't Till

- Tilling can kill many beneficial organisms living in the soil.
- Decrease or eliminate the tilling of soil and you will increase the overall organic matter in the soil.



Improve Soil Health

3. Cover Crops

- Instead of leaving a planting bed fallow (unplanted) during a hot summer or cold winter, plant a cover crop which provides nutrients and water retention in the soil.



Improve Soil Health

4. Keep the Soil Covered

- Mulch and compost will improve the biological properties of soil, including earthworm populations and fungal biomass.
- This will also slow the speed of water moving across the surface, reducing the amount of soil particle detachment and run-off.



Impact the Planet!

Be An Agronomist

[Video](#)



Impact the planet. Be an Agronomist

Learn More About The Impact of Drought

Explore how Botanists are using science to tackle drought or gain a deeper understanding about the importance of water for plants.

To access a science pathway, close this PowerPoint lesson and open your choice of the Botanist or Water is Essential PowerPoints.

