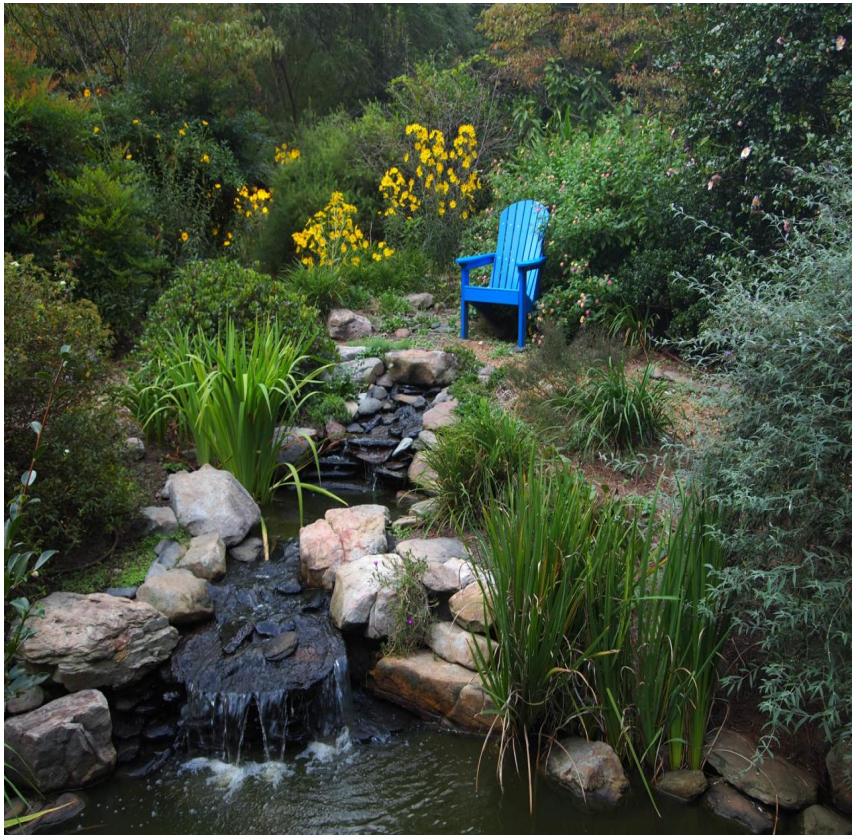
Freddie Freeman's Lunch and Learn

Water in the landscape May 16, 2019

Too much

Too little

Water in the Landscape on purpose



Water in the landscape not on purpose

- ‘House is at foot of hill, spring rains produce runoff that ruins my flower beds, undercuts driveway. Hill isn’t on my property, can only control runoff once it reaches my yard. I repair damage, happens the next spring. Neighbor isn’t willing to do anything to water running off his yard’.
- What can I do to stop this?
- Two goals:
- One: divert water to stop damage to your property
- Two: slow down water so it percolates into soil instead of running off

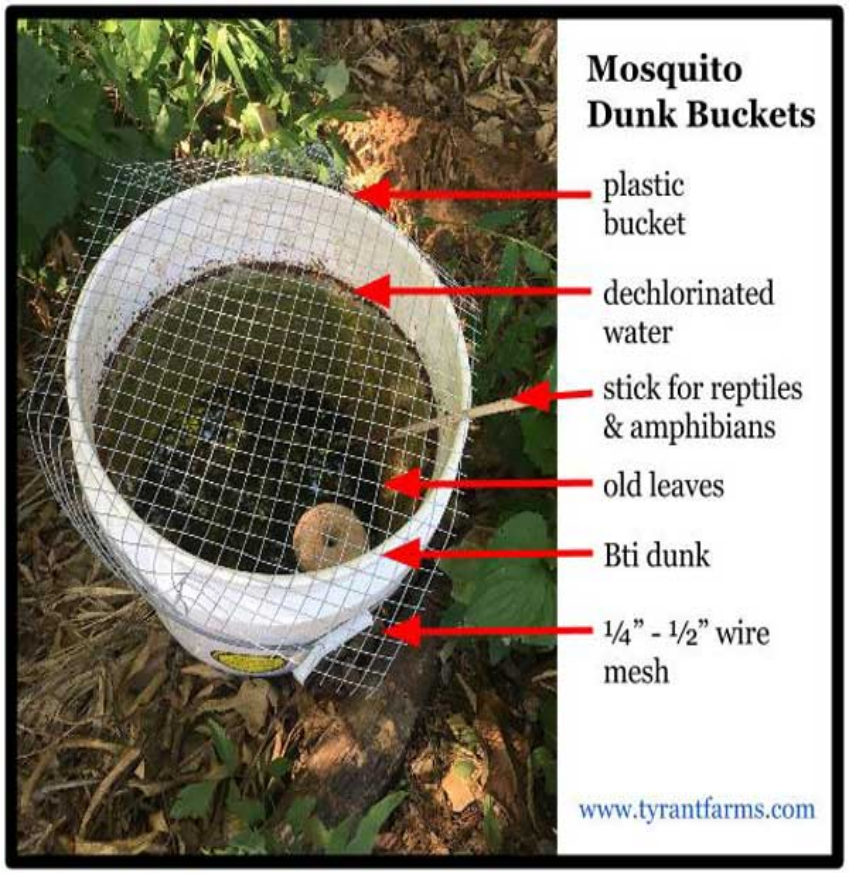
Using water in the Landscape

- Rain gardens
- Rain water
- Retention ponds/berms
- Keep fertilizer, herbicides, pesticides out of storm drains & sewers
- Reduce standing water, reduce mosquito populations

Mosquito dunks

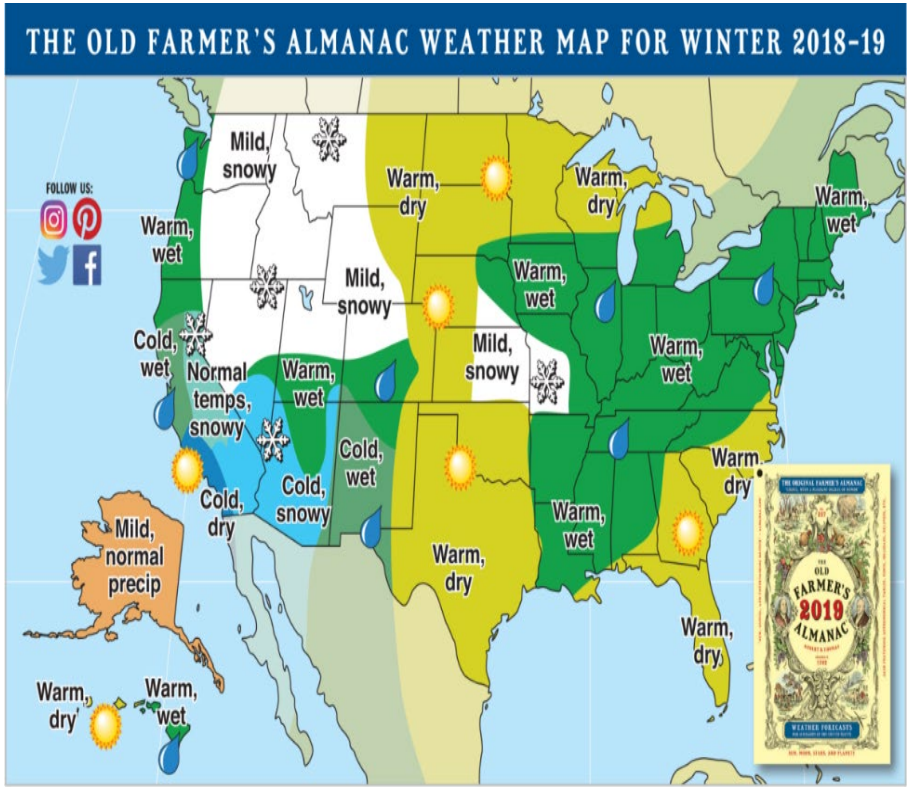
- Kills mosquito larvae in a matter of hours
- The effect lasts for 30 days
- Simple and easy to use
- Safe for humans, animals and plants alike
- Works only when placed in standing water
- Doesn't work on adult mosquitoes
- Naturally occurring soil bacteria
- Bacillus thuringiensis, Bti (israelensis)

Where to place dunks



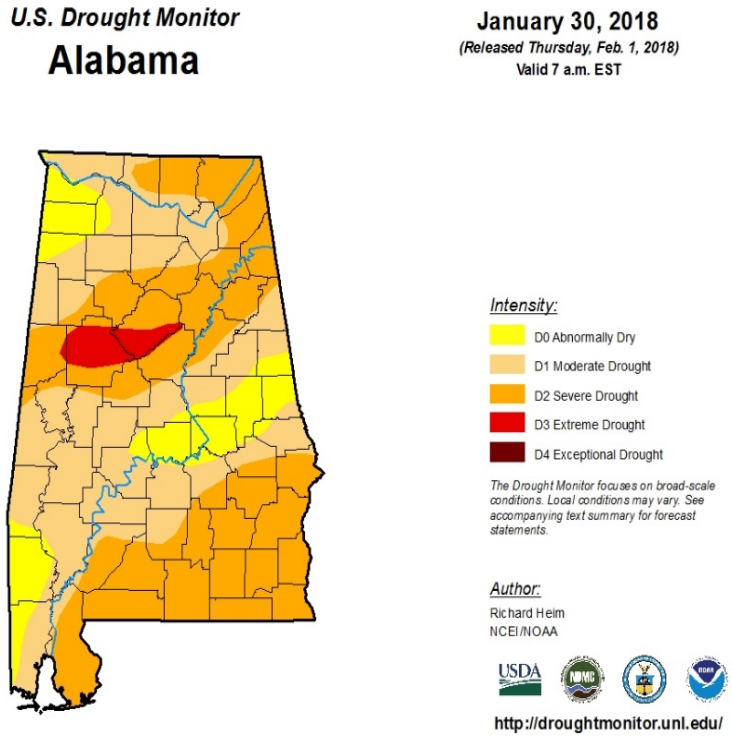
Predicting Rainfall

- NOAA's spring 2019 climate outlook
- Wet winter leading to spring flooding w/major on Red River, Missouri & Mississippi
- Much of country risk of above average precip
- Minor flood risk most of country east of Mississippi
- NOAA = National Oceanic & Atmospheric Administration



USDM: Tracking Drought

- United States Drought Monitor
- Drought measured D0 – D4
- D0 = “abnormally dry”
- D4 = Exceptional drought
- Not a forecast
- USDM looks backward
- Weekly assessment of drought conditions



5 ways to stop runoff in lawn

- Build a berm – protects by diverting water
- Route water to dry well
- Grade broad surfaces
- Intercept the water
- Replace impermeable surfaces
- Final word of advice

Rain Gardens: What? Why?

- Landscaped shallow depression
- Captures, absorbs, filters stormwater
- Designed to hold water IN soil, not on top of it
- Filters fertilizers, herbicides, oil, grease, pesticides
- Improves property value
- Habitat for birds, butterflies, beneficial wildlife
- Size of RG depends on size of landscape
- Blueflag Iris, Cardinal flower, Swamp milkweed, natives better

Berms vs Swales

Berm: control storm water runoff

Berms

- ‘A mound or wall of earth or sand’
- 1693 “berm” used
- From Dutch “berm” strip of ground along a dike
- Should be 4-6 times long as wide
- No taller than 24”
- Top should be flat to reduce runoff
- Provides more water to plants growing on berm

Swales

- Technique in rainwater harvesting
- Can be dug by hand, little cost
- Needs level bottom
- Width 16-18” depth 12”
- Often combined with berm on downhill side
- Can be planted or other materials i.e. rock
- Wet/dry streambed effect

Plants that handle wet or dry

- Weather unpredictable
- Downpours in dry summer can cause plant damage
- Clay soils more problem – waterlogged longer
- Plants for clay soil: buddleia, cotoneaster, hardy fuchsia, hydrangea, viburnum, ornamental grasses, hosta, Michaelmas daisies

Examples of wet/dry plants (pics)

Ornamental grass groundcover

Hardy Red Fuchsia

What's running off my yard? Causes of fertilizer runoff

- Improper irrigation (i.e. during rain storm), 'watering' driveway, encouraging "thirsty" plants
- Overfertilization – sources both agriculture and residential
- Phosphorus often guilty – create excess algae growth in lakes, ponds
- Poor soil structure – result from years of mineral & synthetic plant 'food'
- Ignoring good gardening practices – apply at correct time and correct amounts 'If a little is good, a LOT is better' not smart

Fertilizers: best and worst?

Fertilizer

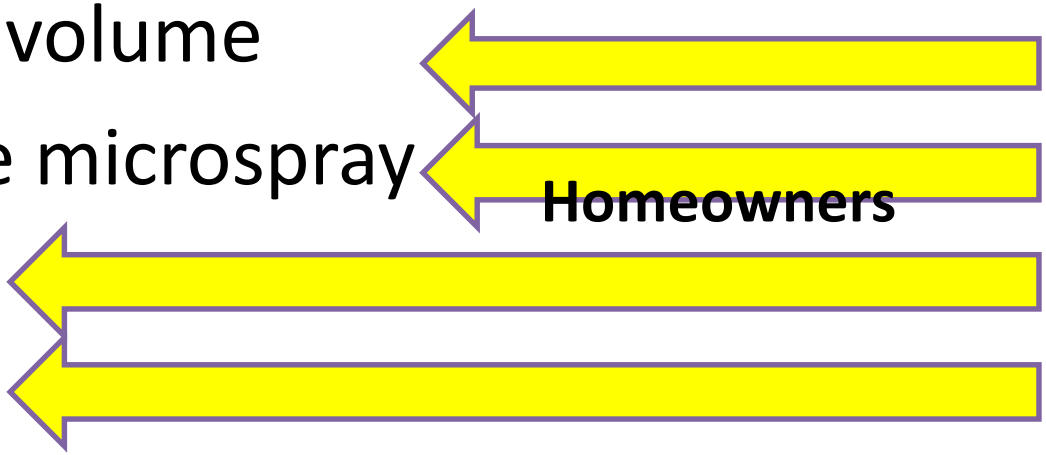
- Too much can damage the environment
- Too much can burn your lawn
- Too much can burn your wallet
- Excess or careless fertilization
- Usually associated with chemical or synthetic products
- Contain mineral salts
- Salts build up
- Are washed into storm drains, storm sewers in heavy rain

Supplemental Water

- ~~Drip hoses(soaker ho~~ses)*
- Hand watering
- Drip irrigation
- Home made or bought waterers
- Sprinklers (overhead)
- *not recommended
- **Light, frequent irrigation helps only during the period of seed germination!

Types of Irrigation

- Flood - some crops
- High pressure cannons – firefighting, mining
- Rotary high volume
- Low-volume microspray
- Drip
- Mist



Drip Irrigation is the best water source for vegetable gardens!

Drip irrigation:
saves time and water

Drip Irrigation……

NEVER, NEVER, NEVER, NEVER,!!!!
(use drip, not soaker or overhead)

Drip Irrigation……

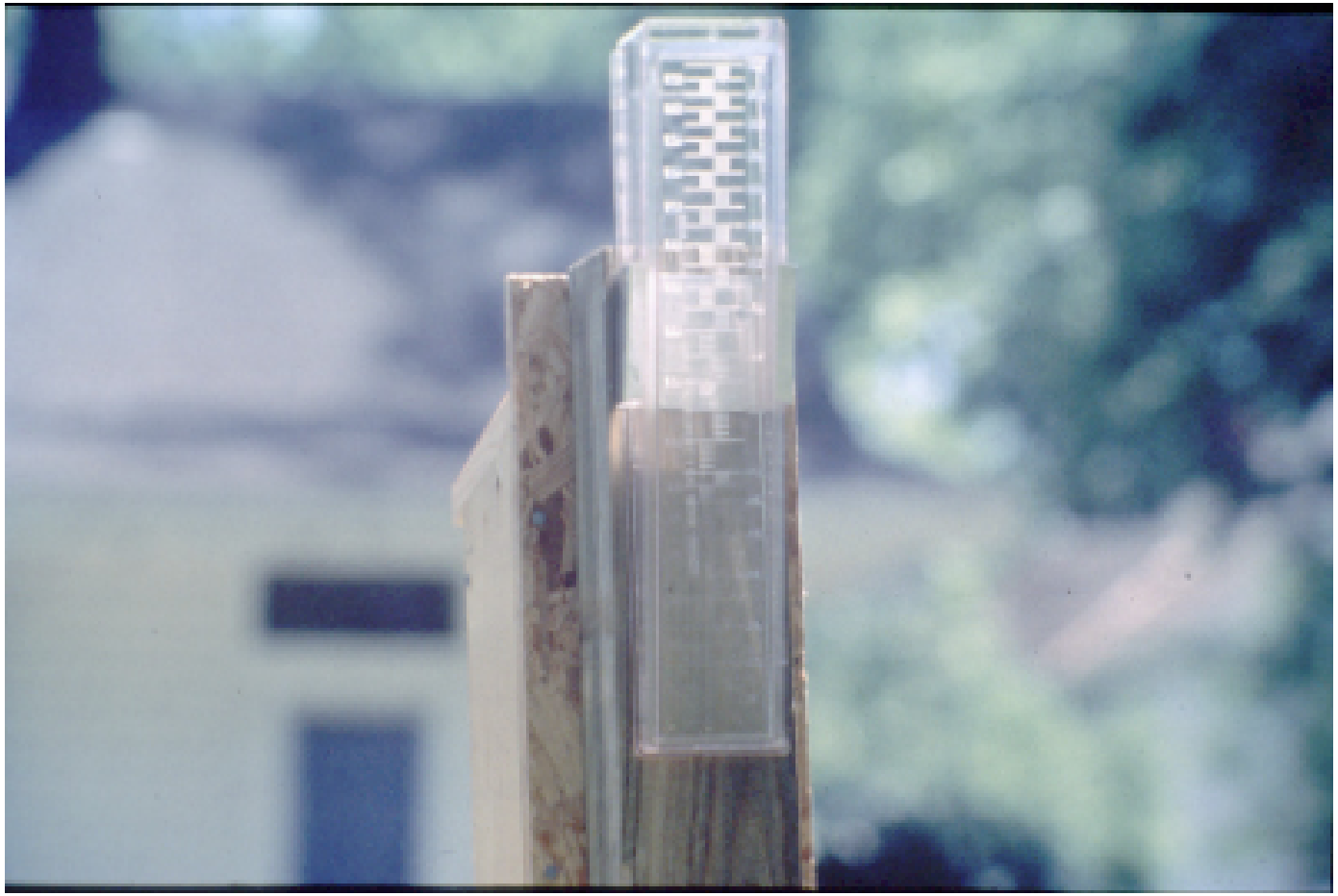
- Conserves water
  - uses only 15-20% water used by overhead watering
- More efficient use of water
  - places water where needed
  - do not water as many weeds/aisles
- Does not wet foliage
- Can work in garden while watering
- Can be easily automated

WATER

- Irrigation Systems require annual maintenance.
- During periods of dry weather, the addition of irrigation to home vegetable gardens is a must for plant growth.
- Most vegetables in the garden need at least 1 inch of rain or irrigation water per week for steady plant growth.
- In the hotter dryer months, this need may go up to 2 inches of water per week.
- Adequate soil moisture is of upmost importance when vegetables are flowering and fruiting.

HOW MUCH IS AN INCH OF WATER????

- Its about 60 gallons per each 100 square feet of garden space!
- For drip that would be 5.4 gal/ 9 sq. ft
- Using tuna or catfood can, it’s easy to see how much water has been applied!
- Water infrequently (twice a week) and deeply rather than every day for short period UNLESS germinating seeds




30% Water loss
due to
evaporation


Inconsistent water
distribution

Drip Irrigation……

How much water use

- Average American family daily water use – 552 gals
- Average African family daily water use – 5 gals
- Americans get water delivered to home through tap
- Developing countries women walk avg 4 mi/day to get water
- Approx 40B work hours lost because of walking for water

Harvesting Rain Water: options

- 55 gal rain barrel
- Placed under/at downspout
- Elevated – gravity flow
- Spigot/bib at bottom for hose attachment
- Place where overflow won't run under foundation
- Most have overflow to direct excess rainwater
- Use only food-grade barrels
- Rainbarrel workshop June 15 at BBG

QUESTIONS?
Good Gardening!