# Water-Wise Gardening

# Permaculture

# Fruits and Nuts need no Water

**5 gallons/month**

**First 2-3 years**

**Then only in very**

**Dry Weather**

# Low Water Crops

## Squash, Pumpkins

## Peppers, Brocolli

# High Water Use

## Potatoes, Corn

## Tomatoes, Beans

# Winter Planting

## Winter Wheat/Oats

## Fava Beans/Leeks

# Mulch, Mulch, Mulch, Mulch

# Mulch, Mulch, Mulch, Mulch

# Mulch, Mulch, Mulch, Mulch

## Cover Crop

## Cardboard/Newspaper

# Weed Removal

# Proper Watering Amounts/Times

# Test Soil By Hand

## Soil SHOULD Dry Out

## More Water in Hot Weather

# You Do Need to Water

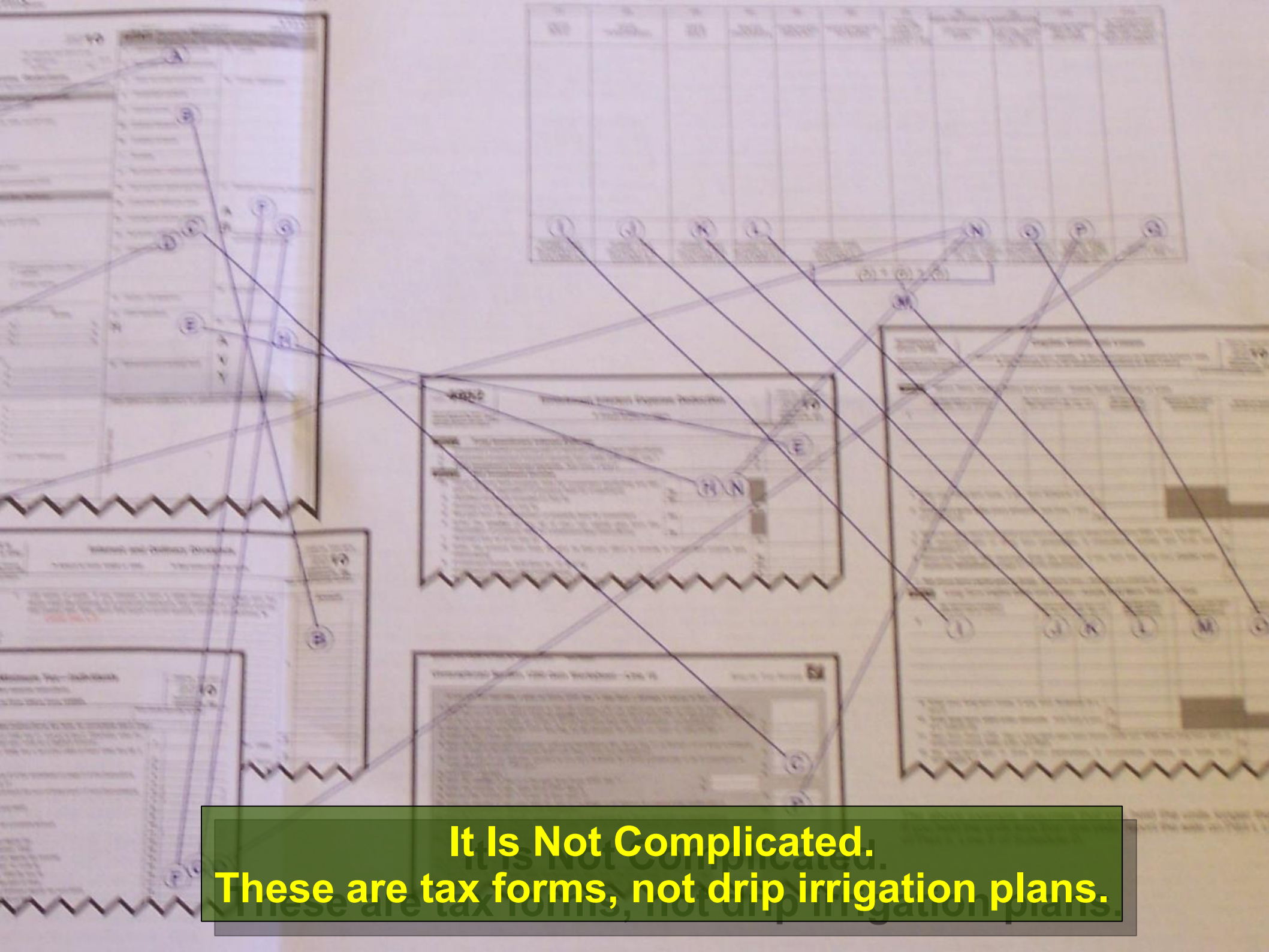
**Oct- April**

**No Water needed**

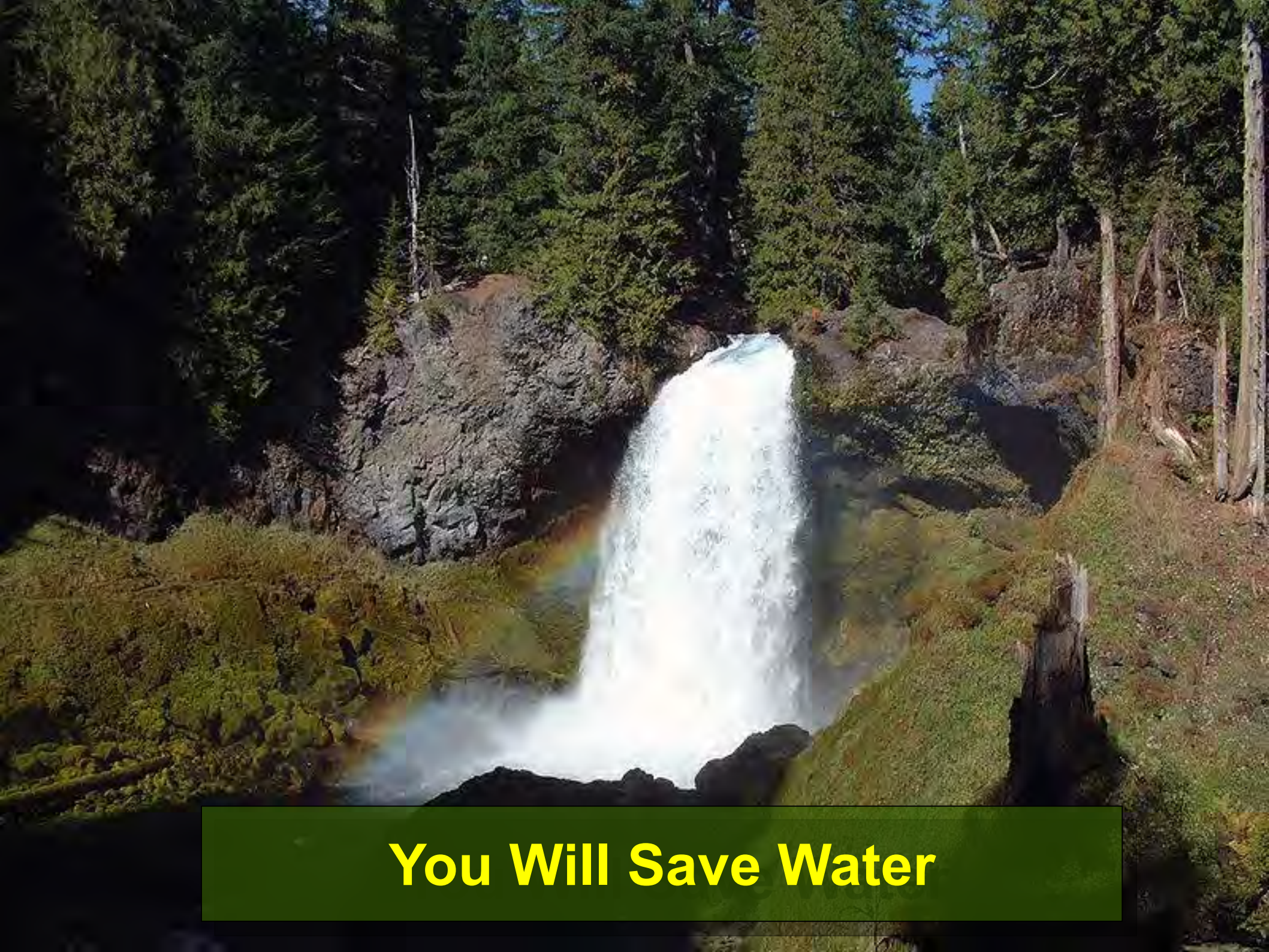
**May- Sept**

**12”-20” Needed**


recycle-
weather.com
Drip Irrigation- It's Like Magic


It Is Not Complicated.
These are tax forms, not drip irrigation plans.


Last years drip tubing rolled up and put away
will get a bit tangled, but you can straighten it.


You Will Save Water


You Will Not Have To Weed (as much)


Dry Plants Are Happy Plants

# Advantages of Drip Irrigation

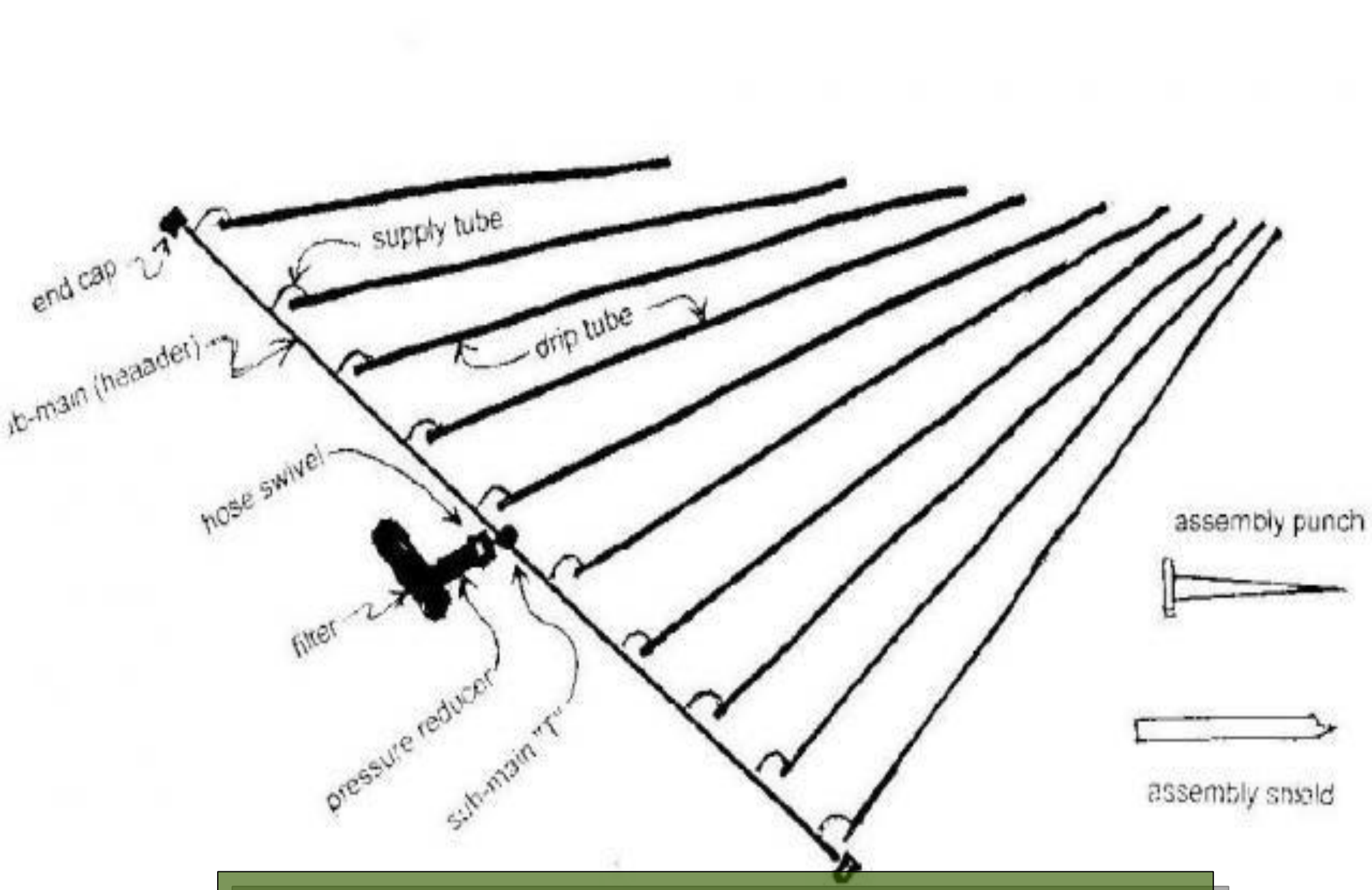
- Save Water -- Water applied to the soil, under mulch, goes to roots instead of evaporating
- Weeding Reduced Don't water them- they won't grow
- Plants Stay Dry Reduces disease, mold, mildew,cracking


This is a drip emitter. It will put out a measured
amount of water-- say 1 gallon per hour.
Emitters come in different rates, and styles

# Drip Irrigation Is VERY Simple

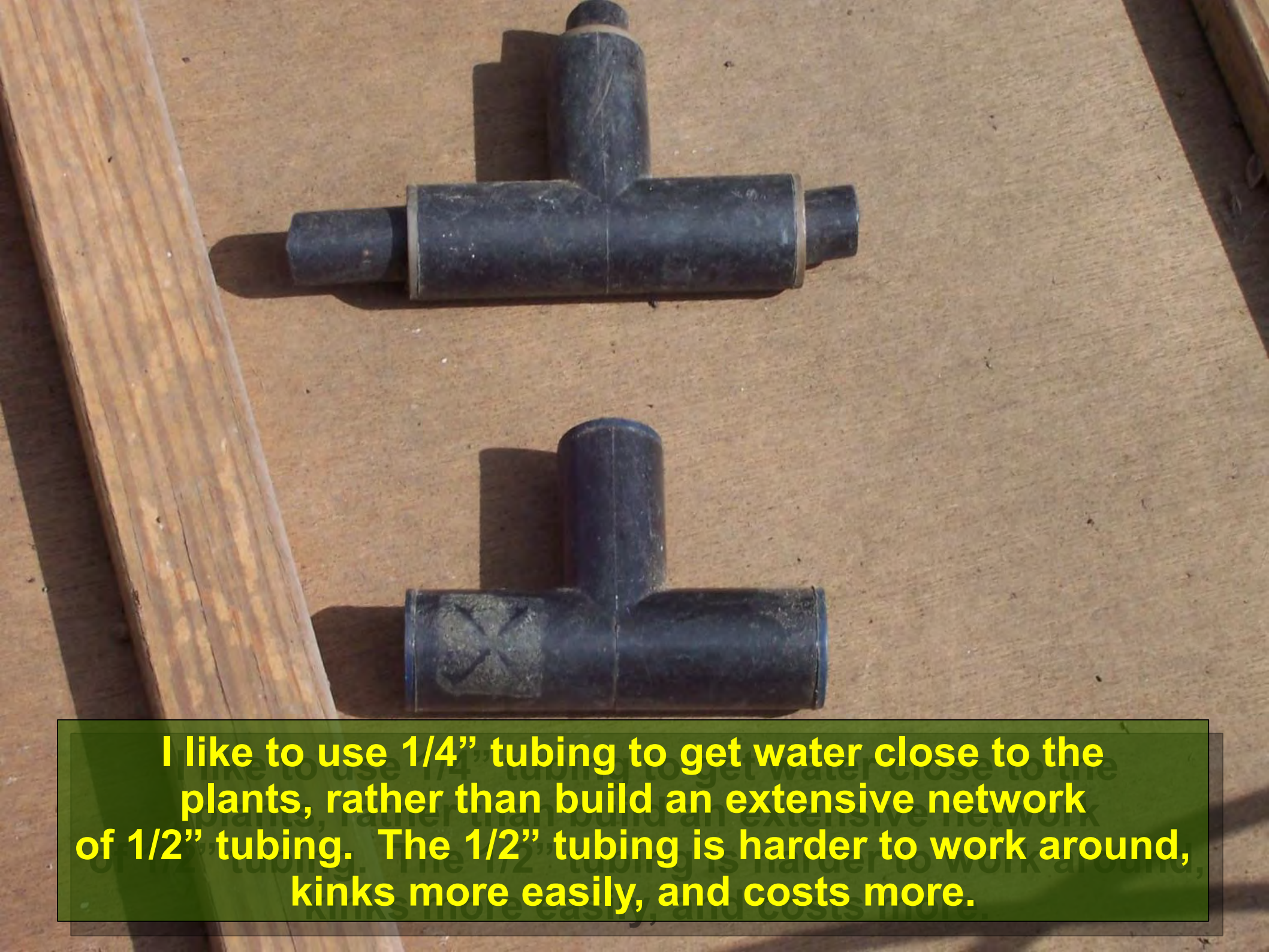
You Will Need

- Water Supply
- Pressure Reducer (most systems)
- Main Line 1/2”
- Drip Lines – for bed crops
- Individual Drippers for single plants



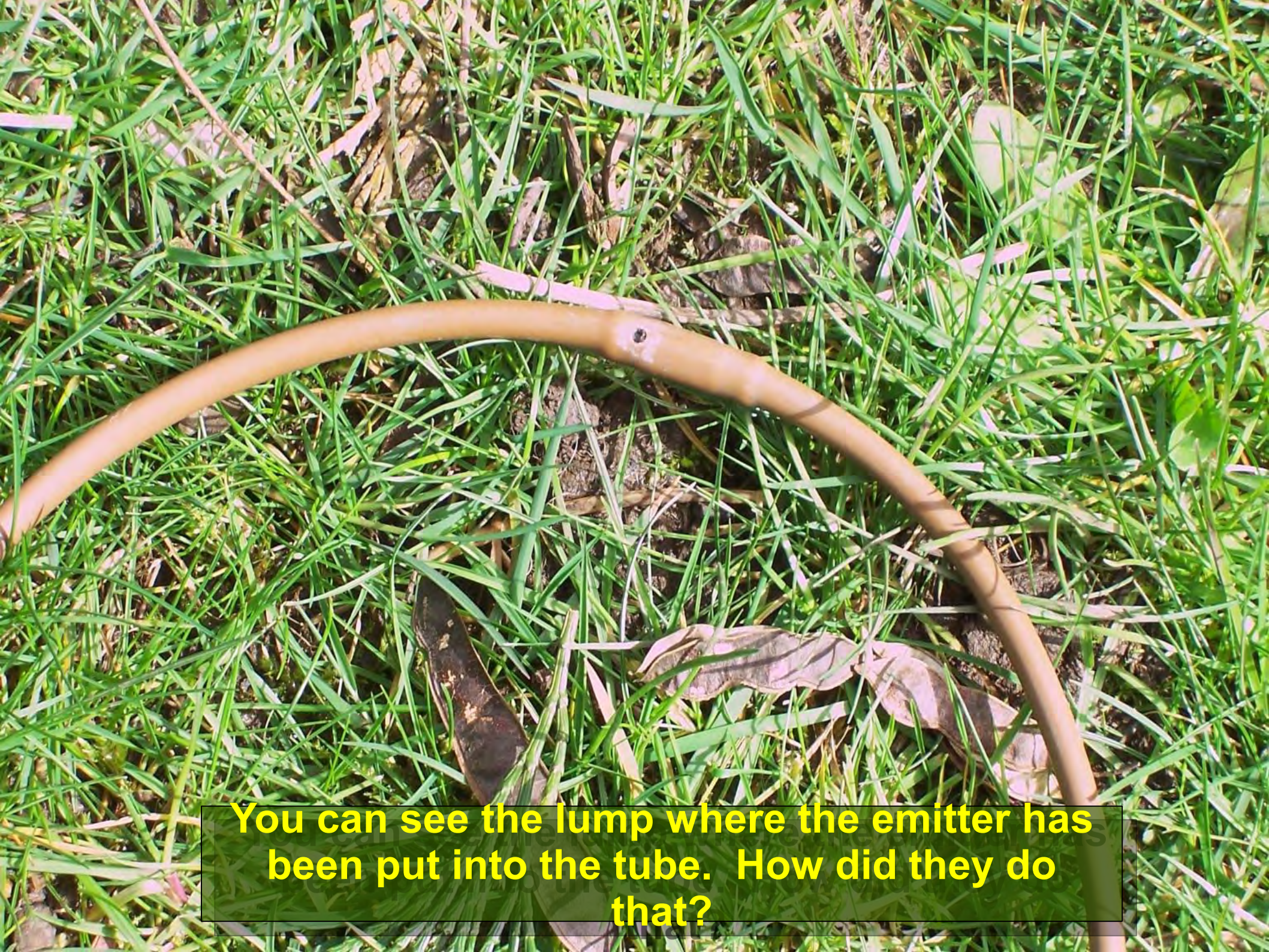

**This is a sketch of a basic system. A filter is included. We will get to that later.**

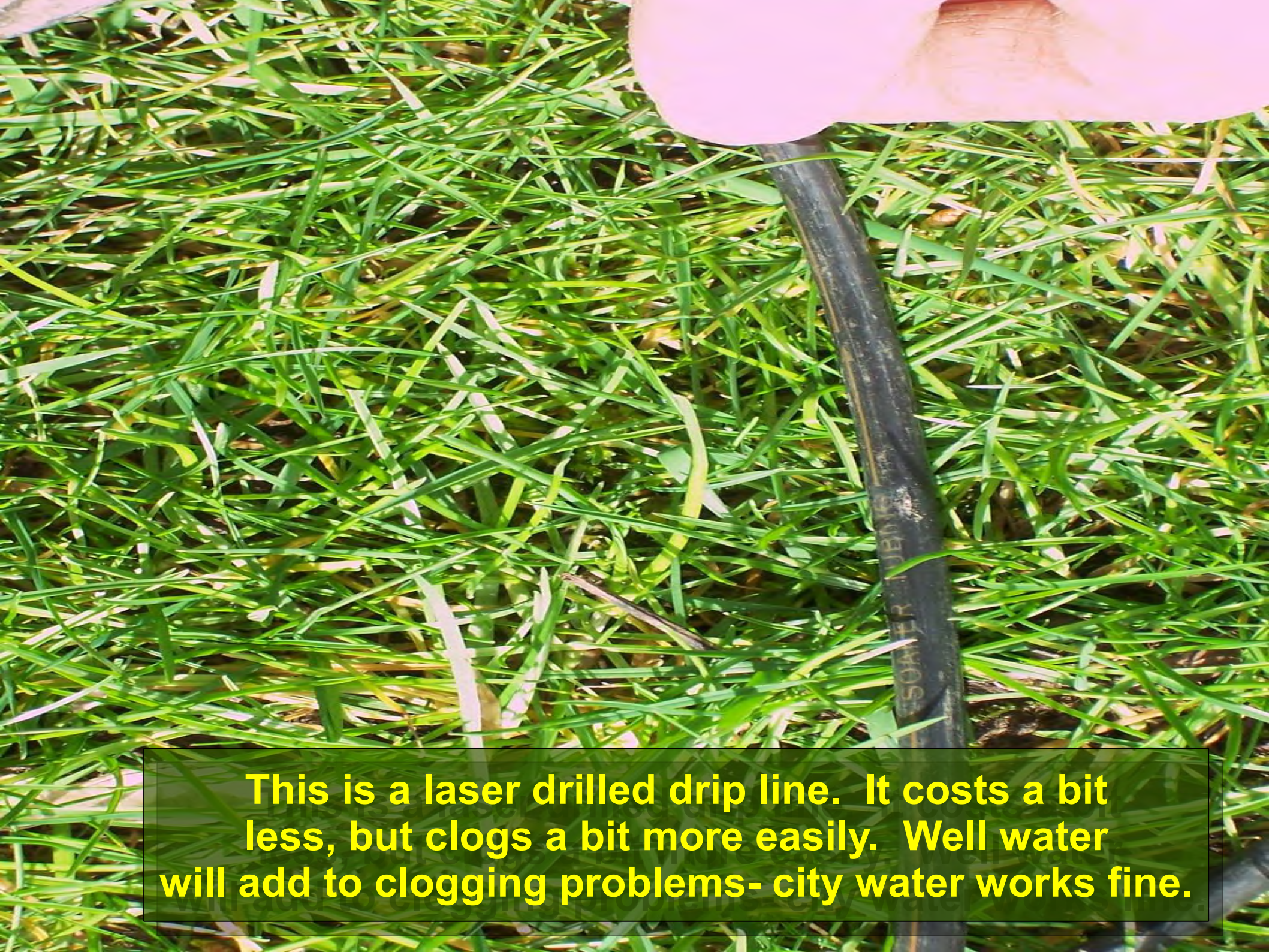

The system on the previous page is perfect for
corn, beans, or other row crops.


I like to use 1/4” tubing to get water close to the
plants, rather than build an extensive network
of 1/2” tubing. The 1/2” tubing is harder to work around,
kinks more easily, and costs more.

# Three Kinds Of Drip Tubes

- Inserted Drip Hole-- Clogs less
- Drilled Drip Hole-- Less expensive- more prone to clogging
- 1/4” Soaker Hose Should be used alone to keep water distribution equal


You can see the lump where the emitter has been put into the tube. How did they do that?


This is a laser drilled drip line. It costs a bit less, but clogs a bit more easily. Well water will add to clogging problems- city water works fine.

# Pay Attention- this is all you need to know

# Hose and Pressure Reducer

# Pressure Reducer and ½” plastic soft plastic line

# End Cap on Soft Plastic ½” line

# ¼” line leading to perforated drip line, or  drip emitters (1 or 2 gph)

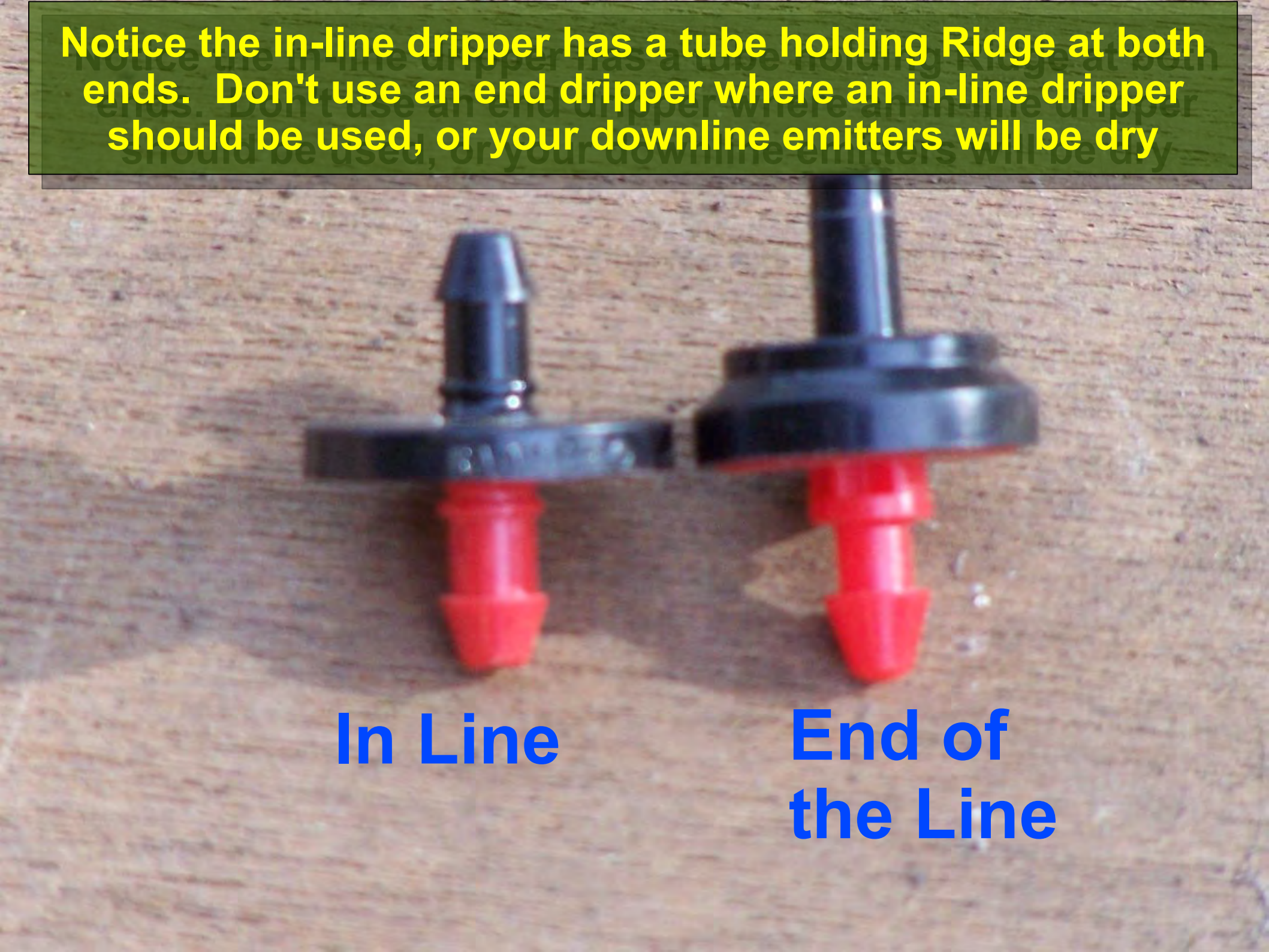
# Drip Tube Advantages

- Helps Germination- Turn water on to dampen seeds.
- Keeps Weeds Down You water the seeds- not the weeds.


This is a single emitter on a line with a dozen drippers on it. They are watering tasty peppers

# Drip Emitters

- In Line Style- String together a large number.
- End of the line style. Build a line with emitters branching off.
- A combination works well


Notice the in-line dripper has a tube holding Ridge at both ends. Don't use an end dripper where an in-line dripper should be used, or your downline emitters will be dry
In Line
End of the Line

# End of the Line

# In Line


This is a combination set up that will water
a dozen plants. Don't plant on concrete.

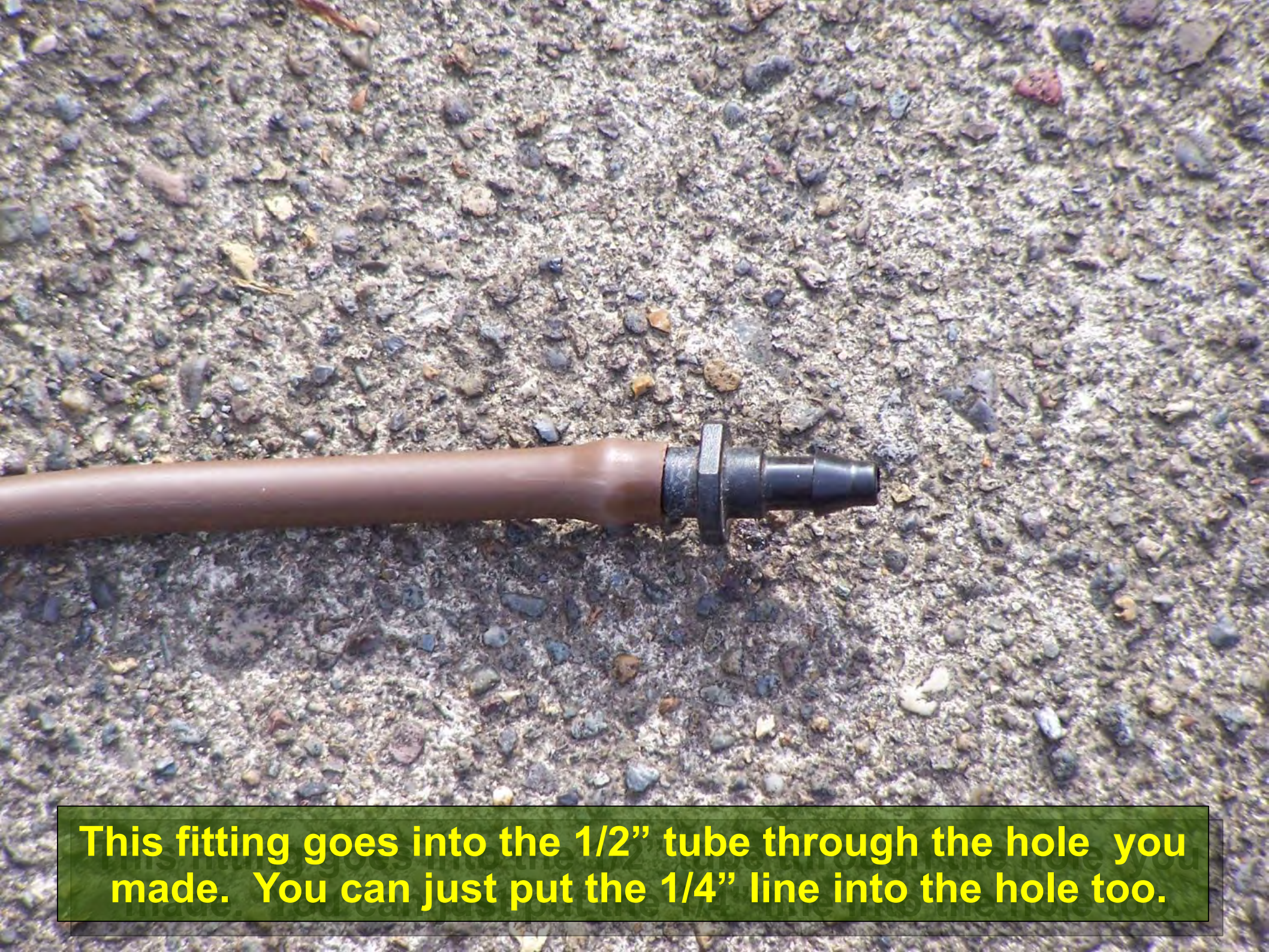

Attach ¼” tubing without connection plug

# Insert ¼ “ tubing like an IV

# Attaching Lines to 1/2” Main Line

- Use A Poker Tool
- Use A Gutter Spike
- Use A Hole From Last Year, or the year before, or the year before, or the year before, or the year before...
- Have Plugs For Old Holes


If it is hard to put fittings together, dip the 1/4” tubing into hot water to soften it up.


This fitting goes into the 1/2” tube through the hole you made. You can just put the 1/4” line into the hole too.


A Plug is used to fill a hole you made last year, but don't need this year.

# Less leakage if you skip the connector

# The End of the Distribution Line


# Other Drip Systems

- Drip Tape-  Cheaper, but good for ag uses.
- Soaker Hoses-  Can be used, but usually put too much water down, and put it down in the wrong places.

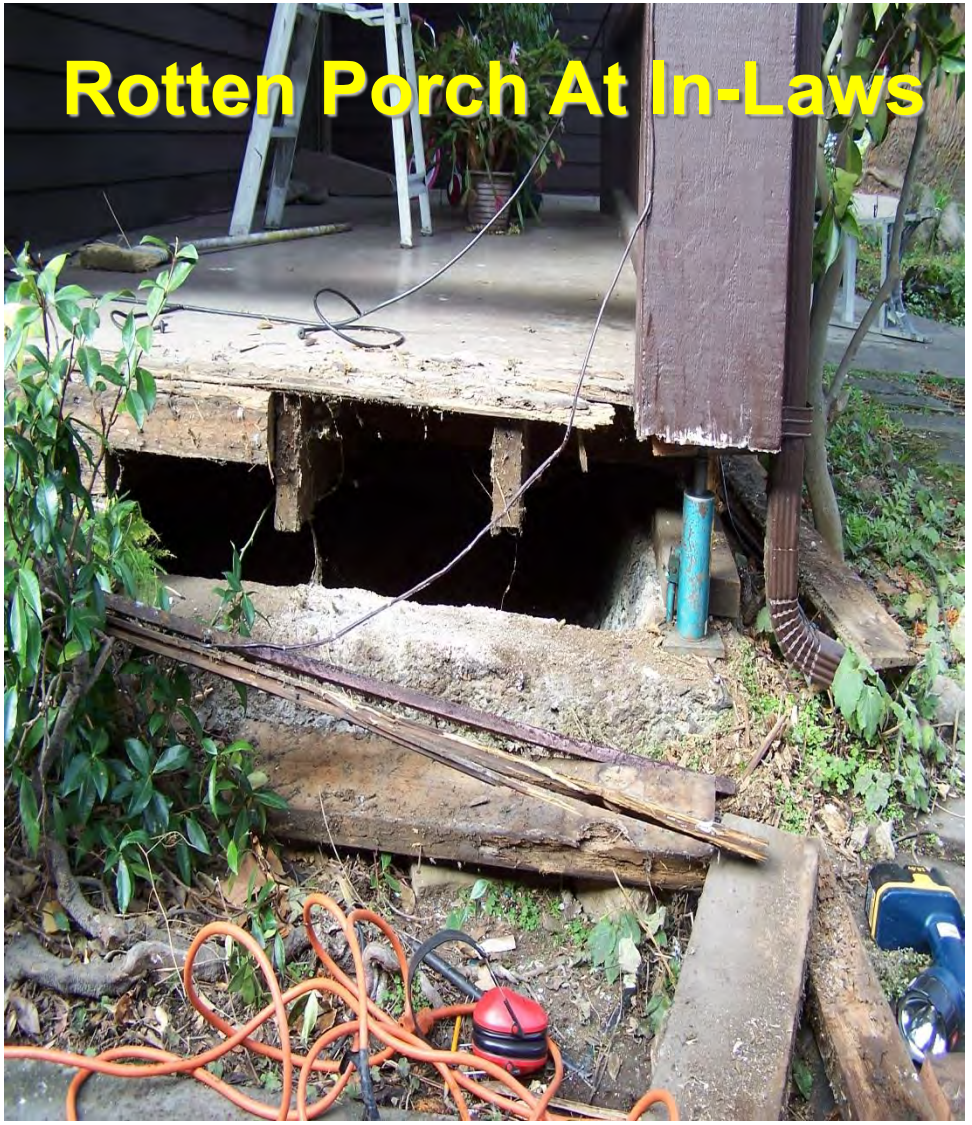

This soaker hose is watering the soil near the plants
instead of just the soil at the base of the plants.
That will promote weed growth, and waste water.
Soaker hoses are bad !
for most garden applications

# Drip Tape


# Drip Tape Differences

- This is the supply for the drip tape system
- No Pressure Reducer
- Does Not Go Around Corners Well
- Is More Subject to Sun Damage

# Disadvantages To Drip Systems




# Real Problems With Drip Systems

- Lines/Emitters May Get Clogged- Use a filter as in the picture.
- Some Spot Watering May Be Needed

# Where To Get Materials


- Buy A Kit – may not fit your needs.
- Buy Parts – may cost a little more. Split parts with friends.

3 — 1 — 3/4 in. FHT swivel adapter with screen. Attach to the faucet (hose bib) or garden hose. Connect the poly tubing to the other side. (#18)

1 — adaptador giratorio de rosca hembra de manguera de 3/4 in. Se acopla al grifo (llave para la manguera) o a la manguera. Conecte el tubo de polietileno al otro extremo. (núm. 18)

4 — 50' — 1/2 in. Polyethylene Tubing .600 ID x .700 OD

50 — pies de tubo de polietileno de 1/2 in. de .600 (D.I.) x .700 (D.E.)

5 — 50' — 1/4 in. Micro tubing

50 — pies de microtubo de 1/4 in.

6 — 1 — 1/2 in. Hose Connector to connect 2 pieces of 1/2 in. poly tubing. (#17)

1 — conector de manguera de 1/2 in. para conectar dos tubos de polietileno de 1/2 in. (núm. 17)

7 — 1 — 1/2 in. Tee for 3-way layout of 1/2 in. poly tubing. (#19)

1 — conector en T de 1/2 in. para conexión triple de tubo de polietileno de 1/2 in. (núm. 19)

8 — 20 — 1 GPH self-cleaning pressure compensating dripper. Black (#30)
2 — 2 GPH Green (#38) plus 2 — 4 GPH Red (#34)

20 — goteros compensantes autolimpiantes de 1 GPH Negros (núm. 30)
2 — verdes de 2 GPH (núm. 38) y 2 rojos de 4 GPH (núm. 34)

9 — 3 — 1/2 in. Tubing Holder Stakes to hold 1/2 in. poly tubing securely on the ground. (#60)

3 — estacas para tubo de 1/2 in. para sujetar el tubo de polietileno de 1/2 in. firmemente en el suelo. (núm. 60)

10 — 2 — 1/4 in. Tees for 3-Way layout of 1/4 in. micro tubing. (#26)

2 — conectores en T de 1/4 in. para conexión triple de microtubo de 1/4 in. (núm. 26)

11 — 2 — 1/4 in. Barbs to connect micro tubing to 1/2 in. poly tubing, or to connect two pieces of 1/4 in. micro tubing. (#25)

2 — conectores en T de 1/4 in. para conexión triple de microtubo de 1/4 in. (núm. 26)

12 — 1 — 1/4 in. Ball Valve to turn individual 1/4 in. lines on and off. (#65)

1 — válvula de bola de 1/4 in. para activar y desactivar tramos individuales de 1/4 in. (núm. 65)

13 — 5 — Tubing Holder Stakes to hold 1/4 in. micro tubing above the ground. (#57)

5 — estacas para tubo de 1/2 in. para sujetar el microtubo de 1/4 in. sobre el suelo. (núm. 57)

14 — 2 — Goof Plugs to close holes in 1/2 in. poly tubing. (#56)

2 —tapones multiuso para cerrar los orificios en el tubo de polietileno de 1/2 in. (núm. 56)

15 — 1 — Hole Punch (#52)

1 — punzón (núm. 52)

16 — 2 — Figure "8" Hose Ends to close the end of 1/2 in. poly tubing. (#55)

2 — cierres de manguera en "8" para tapar el extremo del tubo de polietileno de 1/2 in. (núm. 55)

## NSTALLACIÒN

ers can be installed directly into 1/2 in. poly tubing micro tubing. If the tubing is buried, the drippers d above the ground.

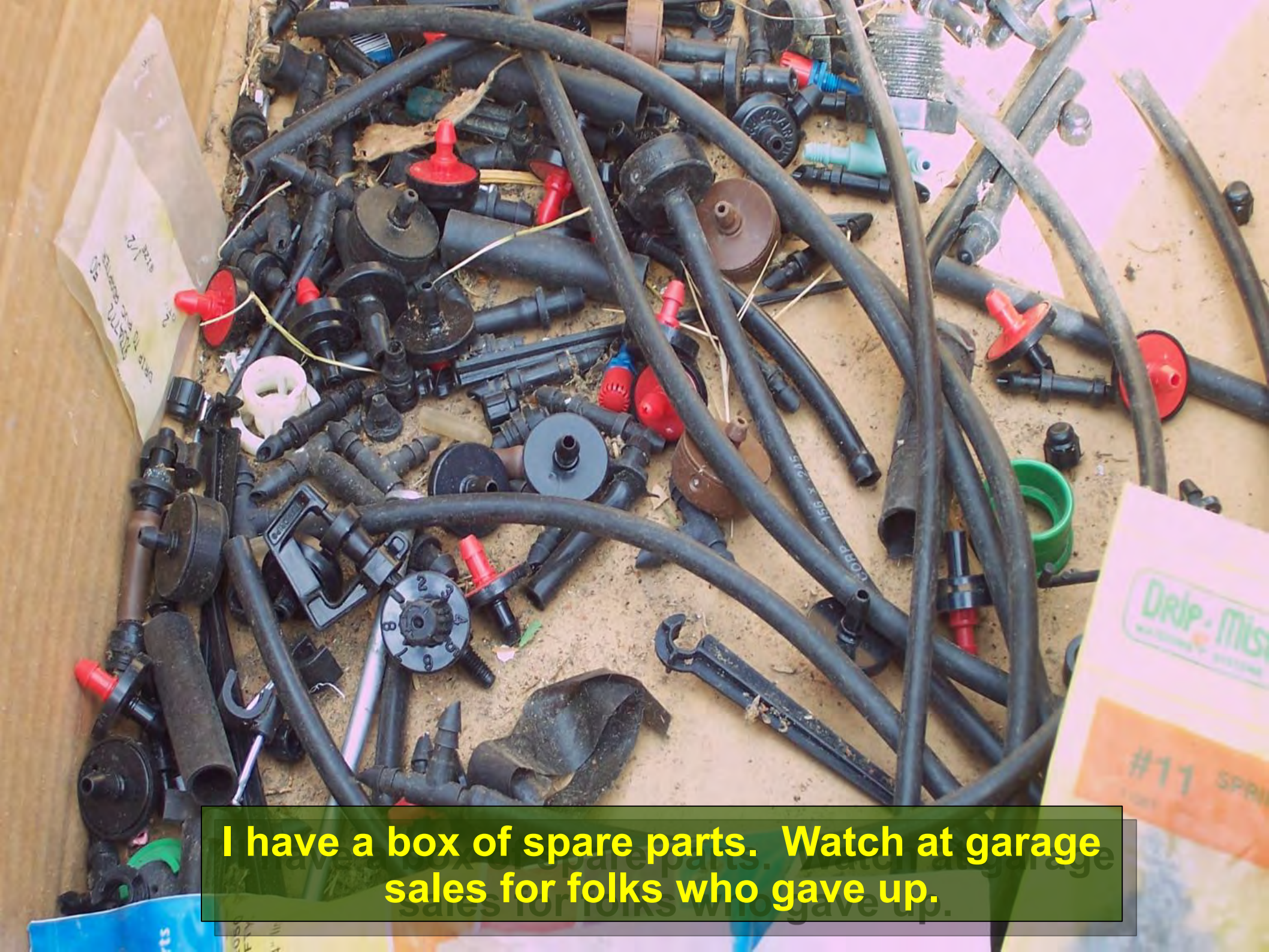
oteros se pueden instalar directamente en el tubo in., o bien se pueden acercar a la planta con mic bo, los goteros deben siempre encontrarse sobre

For plants far from the mainline, first attach micro tubing to a 1/4 in. barb or tee. Then insert the tee or barb into the 1/2 in. poly tubing. Run micro tubing to the

CONTENTS – MODEL NO. R531D



**You will see on the box what is in the kit. Look before you take it home.**


I have a box of spare parts. Watch at garage sales for folks who gave up.


recycle-
weather.com
Drip Irrigation- It's Like Magic !

# Seeds and/or Plants

- Some plants need a head start
- Tomatoes/Peppers
- Melons

- Sometimes you are busy
- Broccoli/Cauliflower

- Sometimes you are Hungry
- Onion starts
- Leek plants

# Organic Seeds for organic plants

**Treated seed is usually colored**

- GMO seed is not Organic, and is very rare for home gardeners.
- Do you grow soybeans?

# Seed Saving from your own garden

Fava Beans

Poppy Seeds

# Seed Saving from your own garden
# You are the breeder

Fava Beans

Save the survivors/thrivers

# Let Plants go to seed.

Lettuce- Let plants go to seed
Look for sprouts in the spring

Sorrel- Perennial vegetable
Seeds sprout to expand
or give away

# Hybrid Seeds don’t breed true

Pollen from Tassels

Goes down silks

# Squash Hybrids may be good, or…

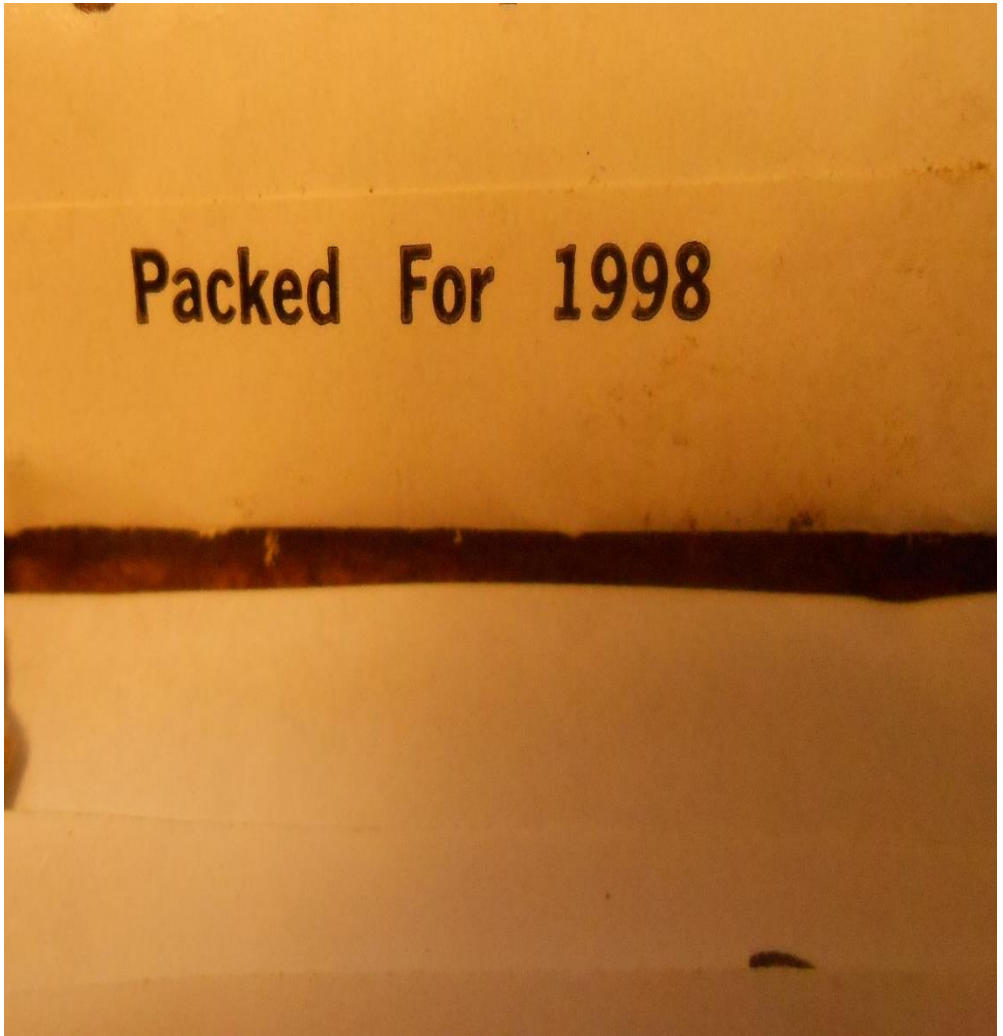
# Squash Variety- Compost pile

## Seeds last a long time.
## Larger Last Longer

Carrot Seeds 2-3 years

Lotus Seeds 1000 + Years

# Plant the freshest seed you can

# Plant the freshest seed you can
# Unless you have sentimental attachment


# Check for pests in beans
# 48 hours in freezer will kill them

## Weevil