# How to Install a Drip Irrigation System

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00:00:02,200 --> 00:00:06,580

Hello, I'm Ryan Neal, county agent in Benton County.

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00:00:06,580 --> 00:00:10,870

We're here in Bentonville at a helping hands pantry garden.

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00:00:10,870 --> 00:00:19,000

And I'm going to talk about setting up a drip irrigation system. Before the drip irrigation system was set up here,

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00:00:19,000 --> 00:00:29,800

someone was required to hand water all of these garden beds, 40 plus three to four times a week, depending on what the weather was doing.

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00:00:29,800 --> 00:00:33,040

So after we were able to set up this drip irrigation system,

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00:00:33,040 --> 00:00:43,330

put it on a timer that eliminated that position and the beds are able to get more uniformly watered when they want to without the added labor.

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00:00:43,330 --> 00:00:47,380

So the first thing that we need to do is to measure our flow.

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00:00:47,380 --> 00:00:53,260

So if you're setting up a large drip irrigation system or just a small one in front of your home,

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00:00:53,260 --> 00:00:58,300

the most important question that I need to answer is what is our flow here?

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00:00:58,300 --> 00:01:03,610

We have a Frostproof hydrant, but if you've just got a wall mounted hydrant on the side of your house,

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00:01:03,610 --> 00:01:11,770

what we're going to need to do is get a five gallon bucket. We're going to turn it on full blast and we're going to see how many gallons we can

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00:01:11,770 --> 00:01:17,500

fill up in a minute or how long it takes us to fill up this five gallon bucket.

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00:01:17,500 --> 00:01:21,340

So I've got my phone here and I've got the stopwatch set.

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00:01:21,340 --> 00:01:28,690

I'm going to turn it on full bore and I'm going to press start to the stopwatch and just see how long it takes to fill up this bucket.

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00:01:28,690 --> 00:01:44,350

Three two one. So that took right at 20 seconds to fill up a five gallon bucket.

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00:01:44,350 --> 00:01:54,820

The next thing we're going to do is go to the calculator app and figure out how many gallons then we would get in an hour.

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00:01:54,820 --> 00:01:58,630

So if that was 20 seconds to fill up five gallons,

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00:01:58,630 --> 00:02:10,720

we know then that we could get 15 gallons in a minute times 60 would be nine hundred gallons per hour.

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00:02:10,720 --> 00:02:23,710

So now that we've identified our flow has been 900 gallons per hour, we can decide on how many row feet we can water in each zone.

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00:02:23,710 --> 00:02:33,970

So in this case, we have more than adequate flow at nine hundred gallons to be able to water this entire garden in one zone.

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00:02:33,970 --> 00:02:37,750

It is unlikely that everybody will have such high pressure.

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00:02:37,750 --> 00:02:43,390

And so it might be important if our flow is less, say, 20 gallons per hour,

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00:02:43,390 --> 00:02:50,950

we would have to break up our garden beds in multiple zones in order to adequately water each garden section.

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00:02:50,950 --> 00:02:55,570

So what I've decided to use in this situation is quarter inch drip.

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00:02:55,570 --> 00:03:06,340

Take this drip tape has emitters every 12 inches and each of these emitters will drip out a gallon per hour.

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00:03:06,340 --> 00:03:18,730

So in this case, with nine hundred gallons per hour, I can run nine hundred feet of this drip line before I have to break it into another zone.

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00:03:18,730 --> 00:03:26,230

So it would be unlikely that we would run one to run nine hundred feet of this continuously.

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00:03:26,230 --> 00:03:35,110

It's also important to note that because this is so thin at quarter inch, it will not get the volume of water through it.

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00:03:35,110 --> 00:03:39,340

And so it's limited to 30 feet per run.

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00:03:39,340 --> 00:03:45,160

So of that nine hundred feet, we can't have any individual run more than 30 feet.

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00:03:45,160 --> 00:03:51,040

That works out great in a situation like this where we have raised garden beds that are only 12 foot long.

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00:03:51,040 --> 00:04:01,090

But just note, if you've got a landscape with a very long bed, you can't have any one run more than 30 foot long.

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00:04:01,090 --> 00:04:09,950

The next things to think about when setting up a drip irrigation system is what all is involved before we get to our garden beds.

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00:04:09,950 --> 00:04:17,470

All of these I have sourced locally at our hardware store and can be found both locally or online if you choose.

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00:04:17,470 --> 00:04:22,690

Some things to keep in mind is what we'll need to have a proper setup.

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00:04:22,690 --> 00:04:31,150

First thing we have a pressure regulator. These are automatically set at either twenty five or 50 PSI.

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00:04:31,150 --> 00:04:38,650

I have chose the twenty-five PSI because we're using a drip system and not an overhead irrigation system.

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00:04:38,650 --> 00:04:46,480

And so it's important to have a pressure regulator so that we don't get too much pressure and potentially close up our emitters.

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00:04:46,480 --> 00:04:50,080

The next thing I would recommend would be the use of a timer.

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00:04:50,080 --> 00:04:58,930

It's very important to try to water consistently, especially in the case of tomatoes, so we don't get a lot of blossom in rod or cat facing.

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00:04:58,930 --> 00:05:03,760

And we can do this very easily with just a simple, say, 30 dollars timer.

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00:05:03,760 --> 00:05:07,990

It also helps us to water more consistently.

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00:05:07,990 --> 00:05:14,020

So our water maybe for 15 minutes, four times a day, rather than one hour once a day.

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00:05:14,020 --> 00:05:18,760

And that helps move the water horizontally in the garden beds.

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00:05:18,760 --> 00:05:24,700

The next thing I have here is what's called a backflow preventer that prevents any kind of sediment that might

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00:05:24,700 --> 00:05:30,820

get sucked back in the drip line whenever it gets turned off from going back into the municipal water supply.

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00:05:30,820 --> 00:05:37,600

Many municipalities would also require an RPZ before it goes to the Frostproof hydrant.

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00:05:37,600 --> 00:05:45,790

The next thing I like to see is a filter. This is a simple screen filter in here and that just prevents any debris that might be

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00:05:45,790 --> 00:05:51,730

coming in the water lines from getting into your drip lines and potentially clogging.

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00:05:51,730 --> 00:05:59,800

So this is a simple screen filter that can easily be cleaned out, let's say, once a month from any sediment that might build up or algae.

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00:05:59,800 --> 00:06:08,260

Now that we've set everything up at the Frostproof hydrant, we're out in the garden where we are going to bring the water into these raised beds.

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00:06:08,260 --> 00:06:13,240

A couple of things to keep in mind is how we're going to do that without creating tripping

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00:06:13,240 --> 00:06:20,470

hazards or places where the water is going to consistently get nipped by weed eaters or mowers,

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00:06:20,470 --> 00:06:21,610

things like that.

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00:06:21,610 --> 00:06:31,240

And so what we decided to do here is just bury just below the surface this half inch, what I'm going to call a header line or transport line.

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00:06:31,240 --> 00:06:36,880

And so this has just been buried at the base of this garden bed and then in that,

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00:06:36,880 --> 00:06:47,470

we use these little quarter-inch couplers, you just poke it into the half-inch line, and then out of that comes our quarter-inch drip tape.

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00:06:47,470 --> 00:06:53,410

We can see it here. We also installed an on off switch so we can easily turn that on or off.

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00:06:53,410 --> 00:07:01,540

We turn it off, say, when this garden bed doesn't need to be watered for a little while while we're turning it over to, say, a full vegetable bed.

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00:07:01,540 --> 00:07:10,510

So what we've done here is also we drilled a simple hole just to make it easy for the drip line to go into the bed and not get cain't.

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00:07:10,510 --> 00:07:12,610

What I do like about this quarter inch line,

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00:07:12,610 --> 00:07:19,810

it's almost like a jump rope and then it can easily be moved in or out of the bed without easily getting kinked,

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00:07:19,810 --> 00:07:26,830

like sometimes the half inch line can. In this garden bed we decided to go with drip tape.

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00:07:26,830 --> 00:07:35,020

But you may in the future decide you wanted mini sprinklers, say if we want it to germinate seeds or something like that.

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00:07:35,020 --> 00:07:44,770

But in most cases, the drip system works very well. What we like about it is it keeps the foliage dry or at least not unnecessarily wet.

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00:07:44,770 --> 00:07:53,830

And this can help prevent a lot of our foliar diseases that, for instance, tomatoes tend to suffer from in our wet, humid climate.

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00:07:53,830 --> 00:08:01,150

It is possible with a drip irrigation system to put fertilizer through the irrigation water.

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00:08:01,150 --> 00:08:07,030

There are many common solutions sold at hardware stores or garden centers that can be used.

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00:08:07,030 --> 00:08:16,990

But please keep in mind a lot of our organic fertilizers, like seaweed or fish emulsion, can tend to clog up the emitters.

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00:08:16,990 --> 00:08:25,360

So it's important if we are going to inject some sort of fertilizer to do so before the filter at the Frostproof hydrant.

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00:08:25,360 --> 00:08:32,860

That way we can filter out any impurities or large particles that might otherwise clog the emitters.

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00:08:32,860 --> 00:08:42,400

One last thing to consider is winterization. We want to design our system so that we can easily drain the water out of it.

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00:08:42,400 --> 00:08:48,370

When winter comes, the Frostproof hydrant does a very good job of winterizing itself.

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00:08:48,370 --> 00:08:52,630

All you need to do is unscrew whatever you have that's hooked up to it.

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00:08:52,630 --> 00:08:59,620

But we also need to go to the lowest point of the system and think about being able to drain the water out of that.

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00:08:59,620 --> 00:09:08,890

We do not have to take the end caps off of these because they will drip water out of the emitters and freezing is not an issue for them.

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00:09:08,890 --> 00:09:14,950

But just to keep in mind, especially if we don't have our header line buried more than 18 inches deep,

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00:09:14,950 --> 00:09:21,160

that we need to come up with a way to easily and effectively winterize our system before winter.

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00:09:21,160 --> 00:09:28,390

So in conclusion, when setting up a drip irrigation system, the first thing we need to know is our flow. Next,

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00:09:28,390 --> 00:09:36,070

Things to keep in mind are inserting a back flow preventer, pressure regulator and filter.

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00:09:36,070 --> 00:09:43,570

Also, consider adding a timer just for ease of use when monitoring our soil moisture levels.

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00:09:43,570 --> 00:09:50,410

Sometimes it's a good idea just to take a handful of soil to see if we're over or under watering.

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00:09:50,410 --> 00:09:57,970

If I'm easily able to squeeze this soil into a ball and squeeze out water, then it's likely over watered.

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00:09:57,970 --> 00:10:05,380

If I can easily make a bowl and it breaks apart whenever I toss it up in the air, then likely it's underwatered. Again,

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00:10:05,380 --> 00:10:16,060

Consider pulsing your irrigation system, meaning water it for a short amount of time more frequently rather than a long time less frequently.

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00:10:16,060 --> 00:10:21,880

This will help the water to move more horizontally in a situation like a raised bed.

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00:10:21,880 --> 00:10:59,328

Again, if you need help calculating these figures or just walking through the system, feel free to contact your local county extension agent.