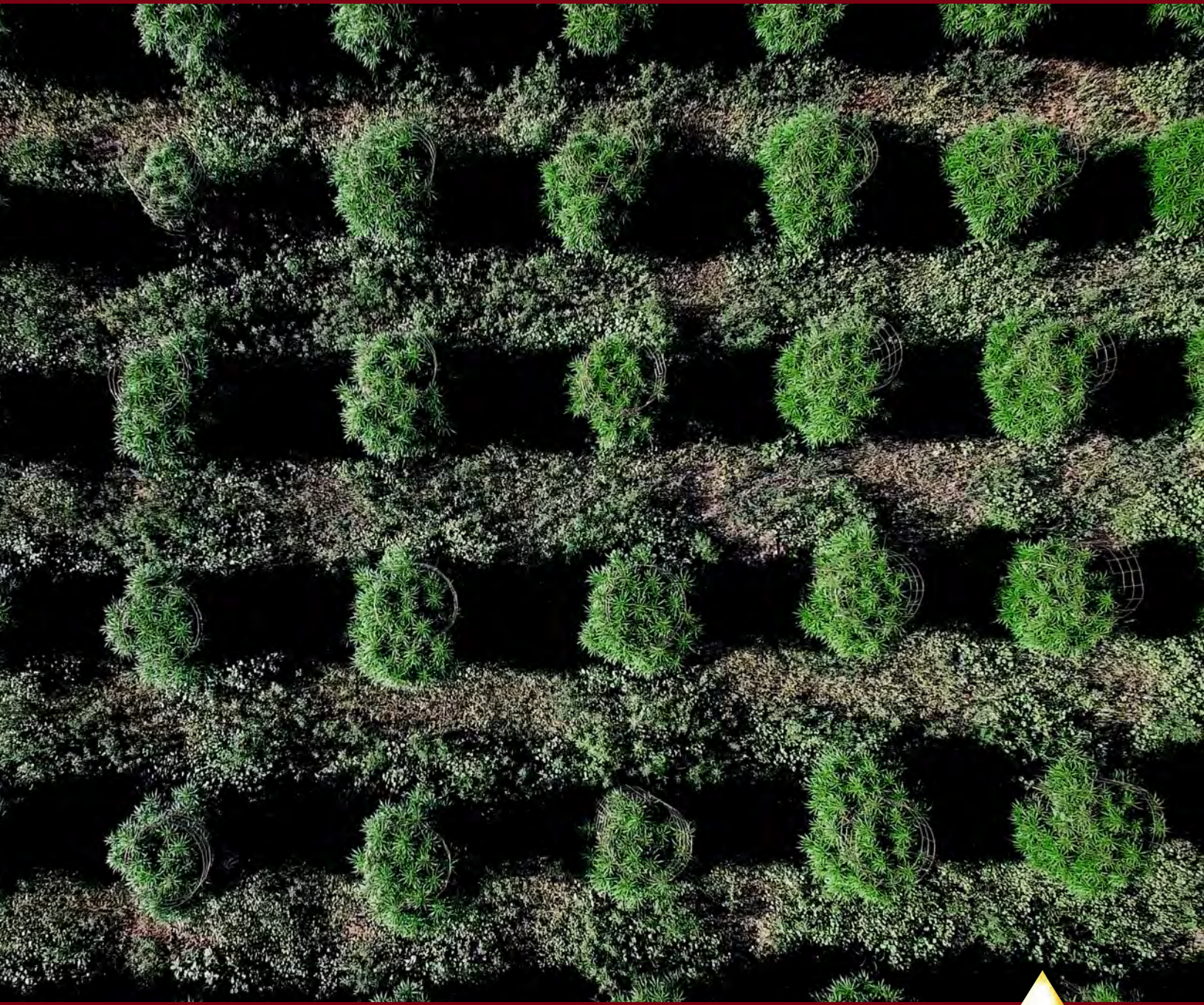


HEMP IRRIGATION SYSTEMS



World Leader in Irrigation Technology

Table of Contents

HEMP IRRIGATION SYSTEMS

A-05

What is Hemp?

A-07

Designing a Hemp Irrigation System

A-09

Hemp Irrigation System - Variable Costs

A-11

Component Selection : Tape and Tubing

A-17

Component Selection : Fittings

A-19

Component Selection : Layflat and Aqua-Flat

A-21

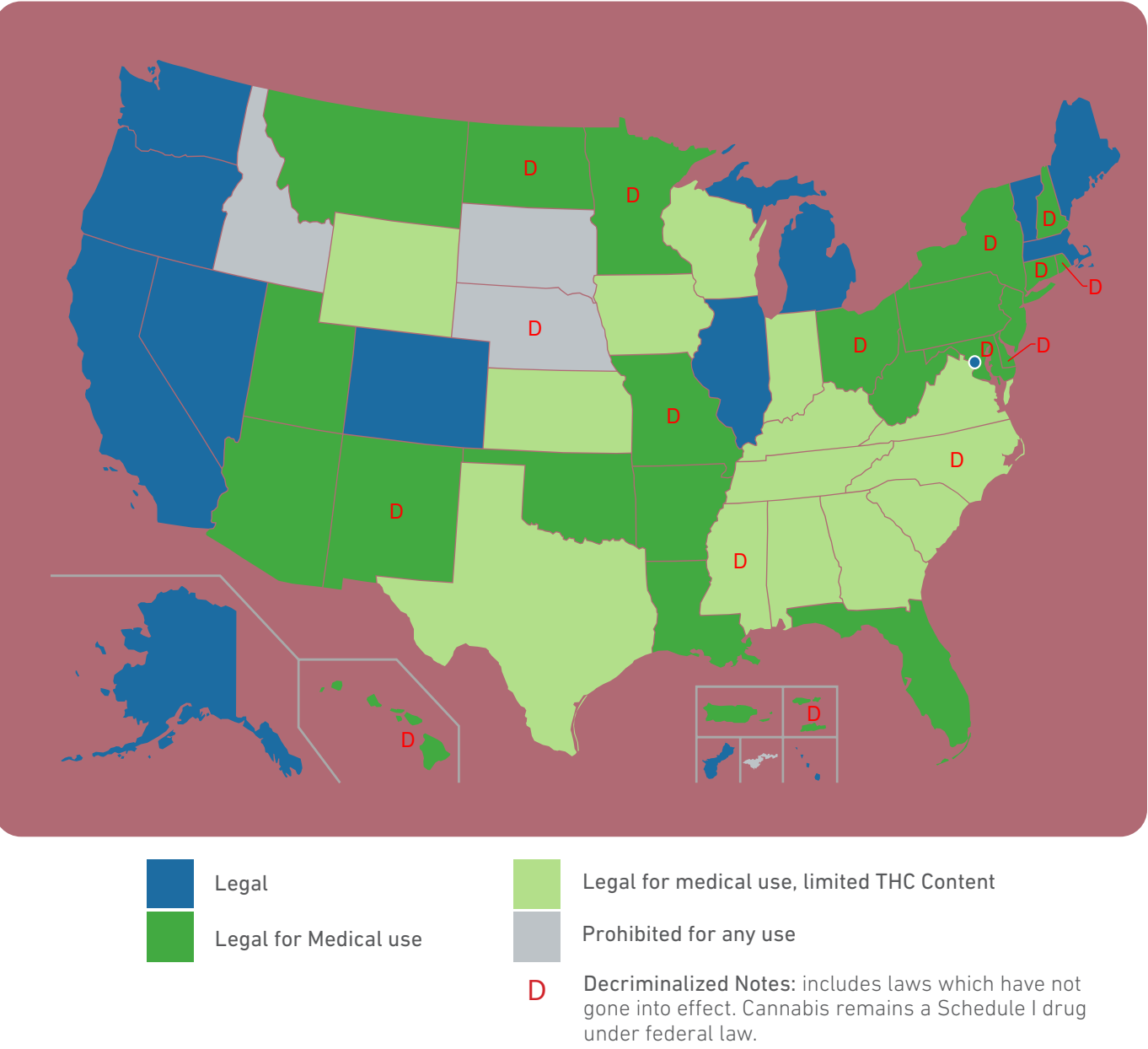
Component Selection : Valves

A-23

Component Selection : Filtration

A-25

Component Selection : Automation



HEMP CULTIVATION

What is Hemp?

Hemp, or industrial hemp, is a strain of the Cannabis sativa plant species grown specifically for industrial use. Hemp grows incredibly fast and was one of the first plants spun into usable fiber. Refined into a variety of commercial items, including paper, textiles, clothing, biodegradable plastics, paint, insulation, biofuel, food, and animal feed hemp is once again a modern day cash crop.

The legality of industrial hemp varies widely between states. Many state governments regulate the concentration of THC and permit only hemp bred with an especially low THC content.

There are a variety of uses for hemp in the United States. Hemp can be grown for fiber, grain, or cannabinoid (CBD). It's important to understand which type of hemp is being grown so the correct irrigation system can be installed. Each market has a different planting rate and spacing between rows/plants. The regulations for growing, storing, processing and transporting hemp vary greatly across the United States. We encourage growers to research the regulations extensively before planning a project.

It's estimated over 200,000 acres of hemp was planted in 2019.



Marijuana Leaf vs Hemp Leaf

According to the USDA National Institute of Food and Agriculture

"The term "hemp" means the plant species Cannabis sativa L. and any part of that plant, including the seeds thereof and all derivatives, extracts, cannabinoids, isomers, acids, salts, and salts of isomers, whether growing or not, with a delta-9 tetrahydrocannabinol concentration of not more than 0.3 percent on a dry weight basis. Delta-9 tetrahydrocannabinol, or THC, is the primary intoxicating component of cannabis. Cannabis with a THC level exceeding 0.3 percent is considered marijuana, which remains classified as a schedule I controlled substance regulated by the Drug Enforcement Administration (DEA) under the CSA."

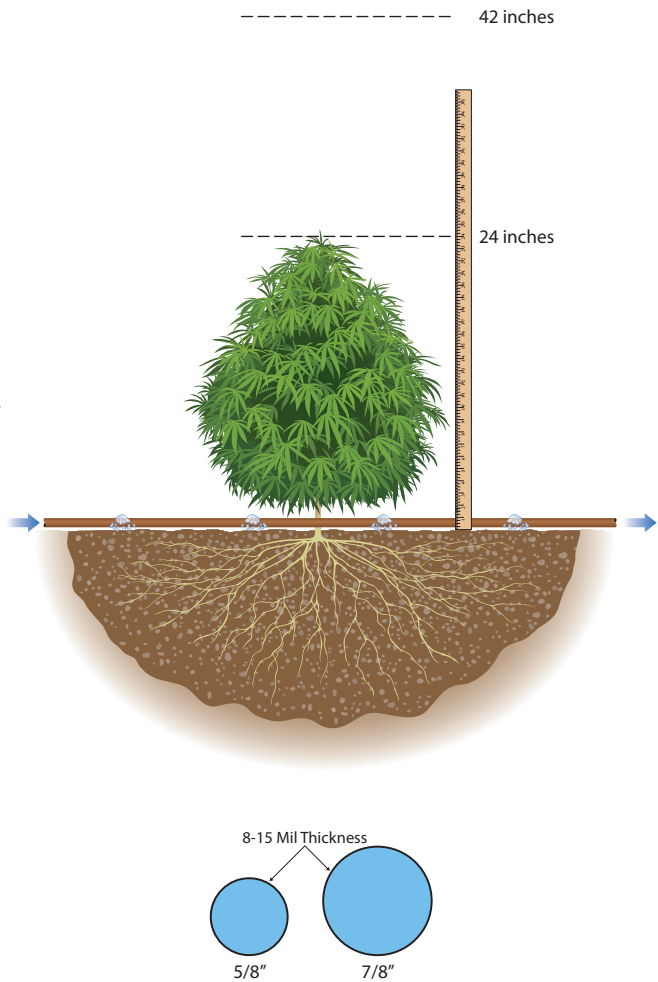
Uses for Hemp

- Hemp Fabric
- Rope
- Hemp Oil
- Bulding Materials
- Food
- Paper
- Paint
- Moisturizing Agents
- Shampoo
- Animal and Bird Feed

Designing a Hemp Irrigation System

Key Factors to Consider

- The first six weeks are important to the development of the root system and getting the stalk to a 30" height.
- Seedling/Vegetative stage is critical for water management.
- Fertigation is key through the drip irrigation system to "spoon feed" water and nutrient directly to the root zone.
- Drip wall from 8 to 15 MIL is recommended. The emitter spacing can range from 8 – 18" depending on the soil type.
- Estimates show growers have spent as much as \$60K on 120 acres, per season on hand-labor for weed control. Consider using plastic mulch with a drip system to block out the weeds and increase the soil temperature.
- Drip irrigation will provide a wetted band of water near the plant. This will help reduce weed pressure significantly.
- Plastic mulch will help reduce weeds, warm the soil and keep the moisture in the soil profile.
- Best results are when a plant is 12" inches in the first 4 weeks. This will provide 90% shade and prevent weeds from germinating between plants.



Important Site Details

Site Dimensions - Along with site dimensions the length of season will help determine the thickness of tubing, row spacing and row length.

Water Quality and Supply - Well water where solid particles like sand exist require a spin clean filter, surface water containing organic materials require a JAIN Sand Media Filter or Disc Filter.

Valve and Filter Size - Valve and filter sizing will be determined by pump flow rates and irrigation zone demands.

Managing Fertilizer

Hemp requires roughly the same amount of fertilizer as high yield corn or wheat crops.

Nitrogen:	100 - 130 lbs /A*
Phosphorus:	45 - 70 lbs /A
Potassium:	35 - 80 lbs /A

* Too much Nitrogen creates poor fiber quality.

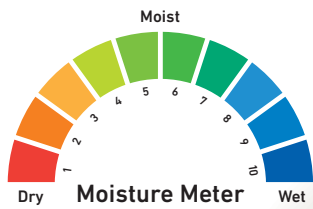
Crop Rotation

Hemp can be grown back to back in a continuous cycle but poses risks of insect and pest resistance.

Common Pests:

- Root worm, borers and rot/mold
- Hemp is a good choice for crop rotations but should be avoided following: canola, edible beans, soy beans, and sunflower. Research suggests there are issues with white mold following these crops.

Designing a Hemp Irrigation System



Irrigation

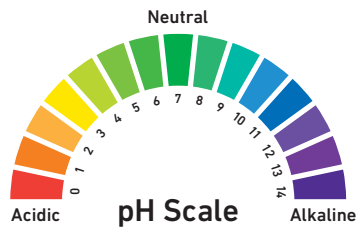
Research suggests the recommended water requirement for hemp ranges from 20" – 30" annually for optimal growth and to complete a life-cycle. JAIN irrigation drip products have an emission uniformity (EU) of over 90% when designed properly, helping use less water no matter a plant's demand.

Soil Type

Selecting the right soil type for hemp is critical. Research found hemp flourishes in a loamy well-drained soil. Drip irrigation helps apply the correct amount of moisture to the crop without over/under-watering the crop which can be the case with traditional irrigation methods. Integral emitterline offers reduced friction loss which allows for longer run lengths.

pH Level

Take advantage of managing the pH in the soil and water by applying fertilizers and chemicals through the drip irrigation system. The ideal pH range to target for a good hemp crop is 6.0 – 7.5. Small doses and frequent applications of acid or chlorine through the system can raise and lower the pH levels helping sustain a desired range. Optimizing pH levels with reduce labor and installation costs.



HEMP IRRIGATION SYSTEM SELECTION : Variable Costs

With the vast amount of products offered by JAIN we're often asked to provide three different pricing options for a hemp irrigation system. The reason for this is simple, some growers only grow certain times throughout the year and harvesting processes may destroy the irrigation system during harvest. Ideally irrigation systems will last for years and not fall victim to substantial wear and tear. It's in this light we offer three system breakdowns based on longevity and cost. In addition to the below system descriptions we have provided an illustration to elaborate on system components and how they're used.

Low Cost System (A) - A lower cost system requires as little actual digging as labor is typically one of the most expensive aspects of installing an irrigation system.

Tape - Chapin is the best drip tape on the market and is available in various flow types and emitter spacing patterns. Chapin will work well above ground or buried slightly below the surface in colder and warmer climates.

Valves and Filter - A ball valve can be used but installing an affordable valve and using the bleed feature will make things much easier when the system becomes automated. Plastic Spin Clean filters are a great option on any system and filters will screw directly onto the secondary side of the valve.

Laterals - There are three lateral options and the cheapest is Aqua-Flat layflat hose. This hose is traditionally used to move water from one place to another, think reservoir level control or the flushing of a large system. While Tape can be installed into Aqua-Flat hose, long term use is difficult because the line is typically driven over for site maintenance. This lateral type is only used for a few seasons before replacing, more often if the system experiences extreme temperatures.

Middle Priced System (B) - The Pacific Northwest and other Mountain States grow hemp 6-8 months of the year and the beginning and end of a crop can see very low and high temperatures. For sites like this, a grower needs to use a stronger lateral and consider burying drip tape a few inches below the soil, and using plastic mulch if possible.

Tape - Cascade drip tape features an actual physical emitter to help with filtration and potential root intrusion. While the tape thickness can be produced similar to Chapin tape the emitter makes this option a little more costly and more of a long-term solution.

Valves and Filter - The valve on a middle-priced system and commercial system is the same. An automated Raphael control valve that allows for manual bleeding and sustains a consistent amount of pressure to the field regardless of fluctuations in system pressure is an excellent choice. Combine this valve with a plastic Spin Clean filter for systems 2" or smaller.

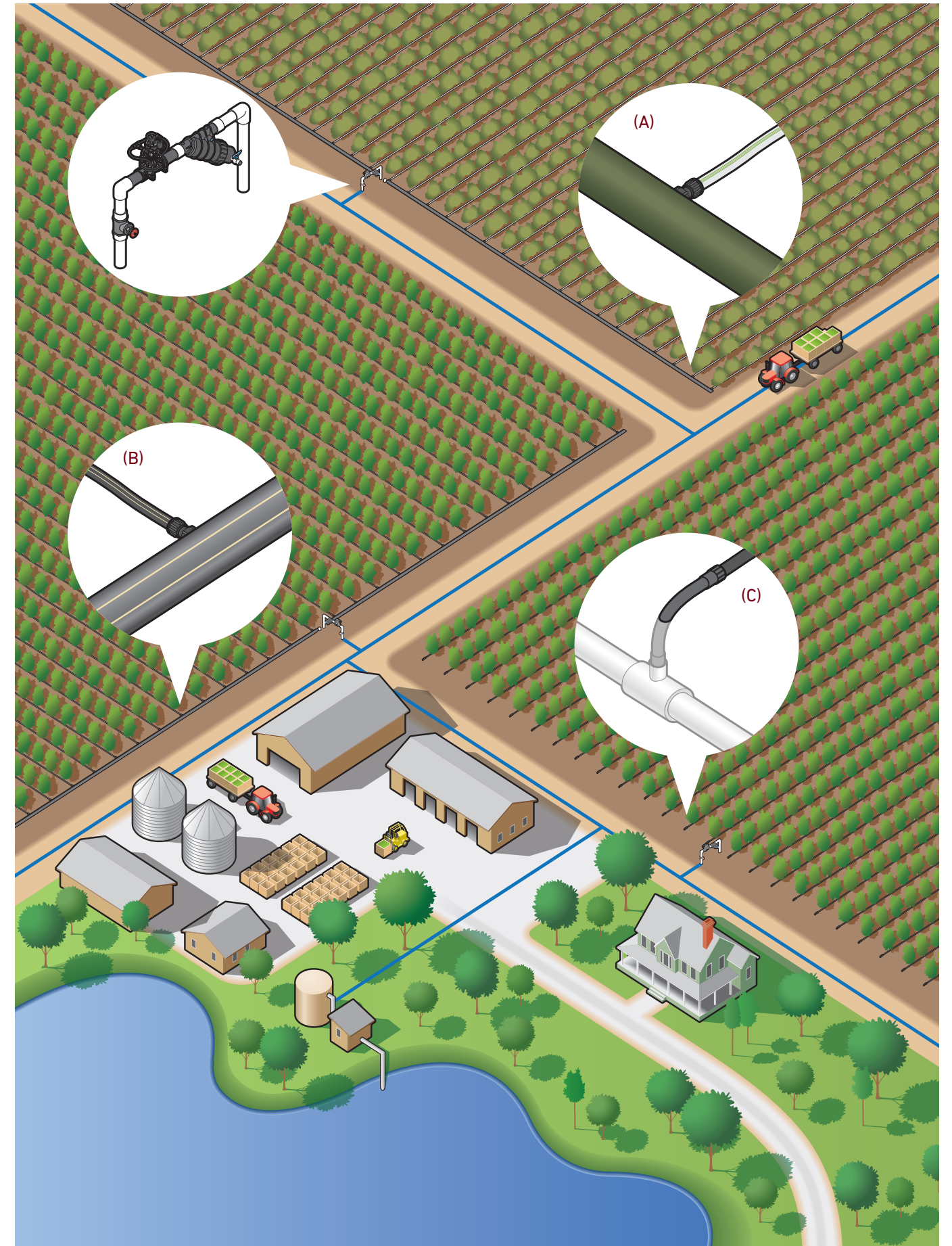
Laterals - Moving water throughout acreage on top of the ground may sound risky but when Oval Hose is used properly, this should not be a problem season after season. Oval hose provides an above ground, rigid connection while supplying a snug punch fit for tape connections.

Commercial Level System (C) - This is an irrigation system that should see a lifespan of 5+ years. Automation and remote monitoring are a priority while proper water budgeting is also very important. Managing irrigation water not only adds value and quality to a crop but also assists in the efficient use of fertilizers. Ideally nutrients are distributed by irrigation lines.

Emitterline - Drip Tape is a great option with many applications appropriate for it; however when lines are being installed with machinery or reused season after season, a more rigid emitterline is necessary. Top Drip emitterline provides a quality emitter extruded into 100% virgin resin guaranteed for 12 years in the field.

Valves and Filter - The Raphael control valves are available up to 3" in plastic and JAIN Steel Valves go up to 12" in diameter so there is no shortage of valve offerings. On a commercial system, valves will require either a 24VAC or 12VDC solenoid to operate off a central controller or remote monitoring station. Be sure to take future or current automation plans into account when specifying a valve. Spin Clean filters are the best filter for hemp systems. Their reliability, ability to handle complex nutrient combinations and ease of flushing make for the perfect filtration option on a large permanent system.

Laterals - Severe climate fluctuations and heavily maintained grow operations will require main lines and lateral lines be made of rigid PVC and buried below freeze levels in the ground. PVC stub ups will use Tape-Loc or Power-Loc connection types at the beginning of each row. Ideally flexible IPS comes out of the ground to make the tape connection, this will ensure if the line is bumped it won't break at the below ground PVC connection.



COMPONENT SELECTION GUIDE: Tape and Emitterline

Choosing the Correct Tape and Emitterline

The solid distribution of water across a grow operation is imperative season after season to ensure crops are healthy and of profound quality. Any variables that can be controlled on a site should be capitalized upon. A very important but easy to control variable is the rate in which water meets the root base of a plant. Another is soil type and how fast water moves through the soil. How fast does water move through the soil? Loamier soils benefit from a faster application rate (.5 or 1 GPH) while tighter soils require an emitter with a lower per hour flow rate (.28 or .35 GPH).

Row spacing and plant spacing are key details to be noted when purchasing tape and emitterline. While some growers prefer a single emitter at the plant’s base, others may prefer two or three emitters stradling a root’s stem to expedite water application rates. Row spacing will determine how many fitting connections need to be made for tape and emitter-line connection points. The length of a row is obviously very important as well. Consider how much tubing is needed to reach the end of a crop line. Coils range in length from 2,500’ to 12,500’ and are delivered on a plastic spool.

CHAPIN Drip Tape - Chapin drip tape has been manufactured in Watertown, NY for over 30 years. Chapin is a very flexible tape available in 5/8" and 7/8" diameter and wall thickness' of 4, 5, 6, 7, 8, 10, 13 and 15 millimeter. Emitter spacing options on 5/6" mil is 8" or 12". For the larger diameter 7/8" tape, emitter spacing is available in 4, 6, 8, 12 and 16 inches.

Cascade Drip Tape - Cascade drip tape is manufactured in Fresno, CA and is an important part of tape innovation. While Cascade features an emitter, the tubing is still of tape dexterity. Cascade can be buried slightly below the soil surface, below plastic mulch and coiled up and reused for multiple seasons. Cascade emitters also efficiently flushes out smaller particles of debris with patented cascading labrynth technology. Cascade drip tape is available in these diameters; 5/8", 7/8", 1", 1 1/8" and 1 3/8".

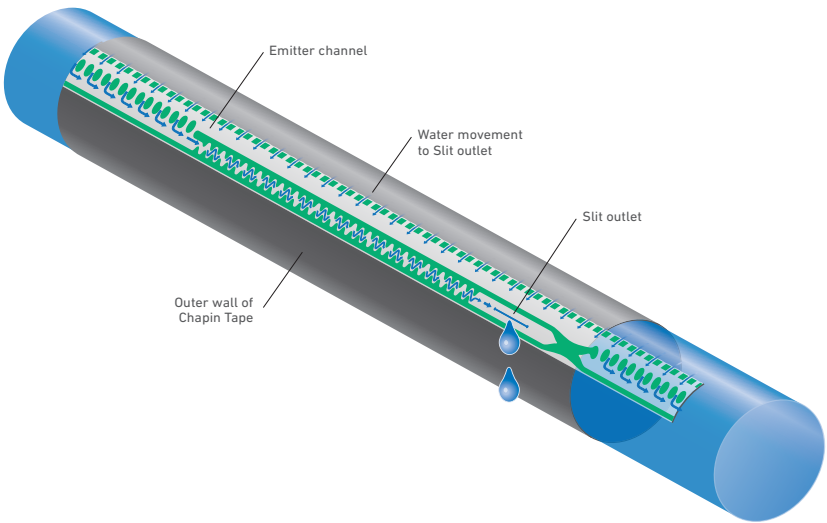
Top Drip - Top Drip features an emitter that provides a physical root barrier making it very difficult for an intrusive root like hemp to obstruct a flow path. This same barrier helps keep leakage to a minimum after the system is done cycling. Whenever possible a pressure compensating emitter like Top Drip should be used, to help in the consistent application of water to the plant regardless of system pressure fluctuations.

Drip Tape Selection Chart

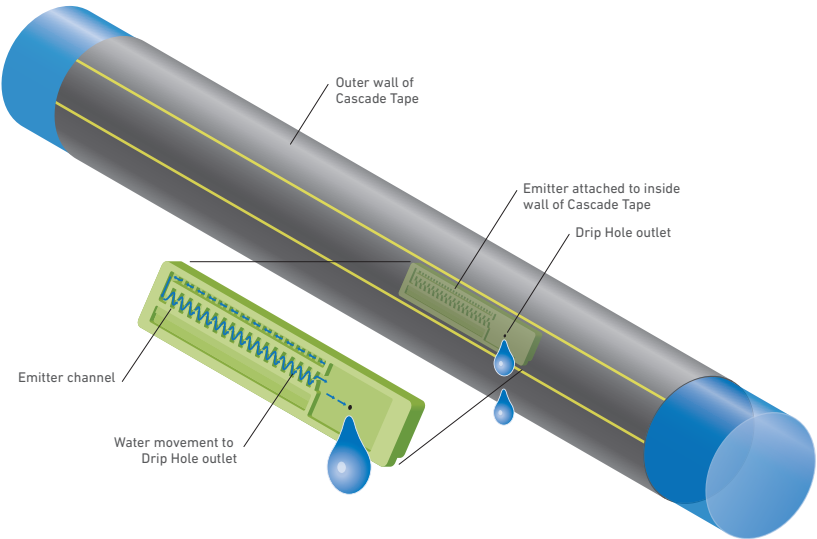
	Tape Diameter*	Emitter Spacing	Flow Rates	Common Products
Sandy Soil (Light Texture)	5/8" and 7/8"	6, 8, and 12" spacing	Low, Medium, High	Chapin 5/8" and 7/8" 8MIL 8" .40 GPM/100' Cascade 5/8" and 7/8" 10MIL 12" .26 GPH
Clay Soil (Heavy Texture)	5/8" and 7/8"	6, 8, and 12" spacing	Low, Medium	Chapin 5/8" and 7/8" 10MIL 12" .25 GPM/100' Chapin 5/8" and 7/8" 10MIL 16" .20 GPM/100' Cascade 5/8" and 7/8" 10MIL 18" .26 GPH
Uneven Field/Slope	5/8" and 7/8"	16" spacing	Medium	Top Drip 7/8" 20MIL 16"sp .33 GPH

* Refer to maximum run length charts for further information.

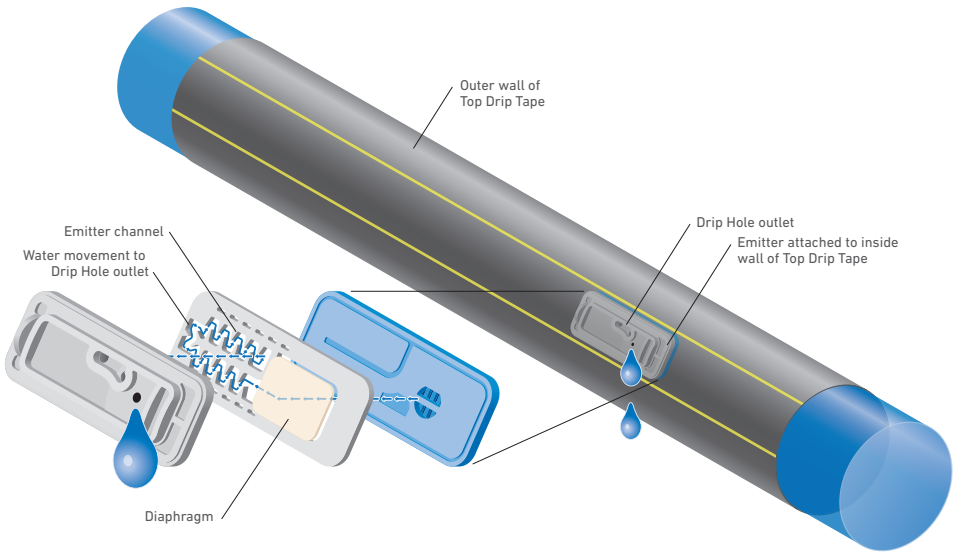
CHAPIN



CASCADE



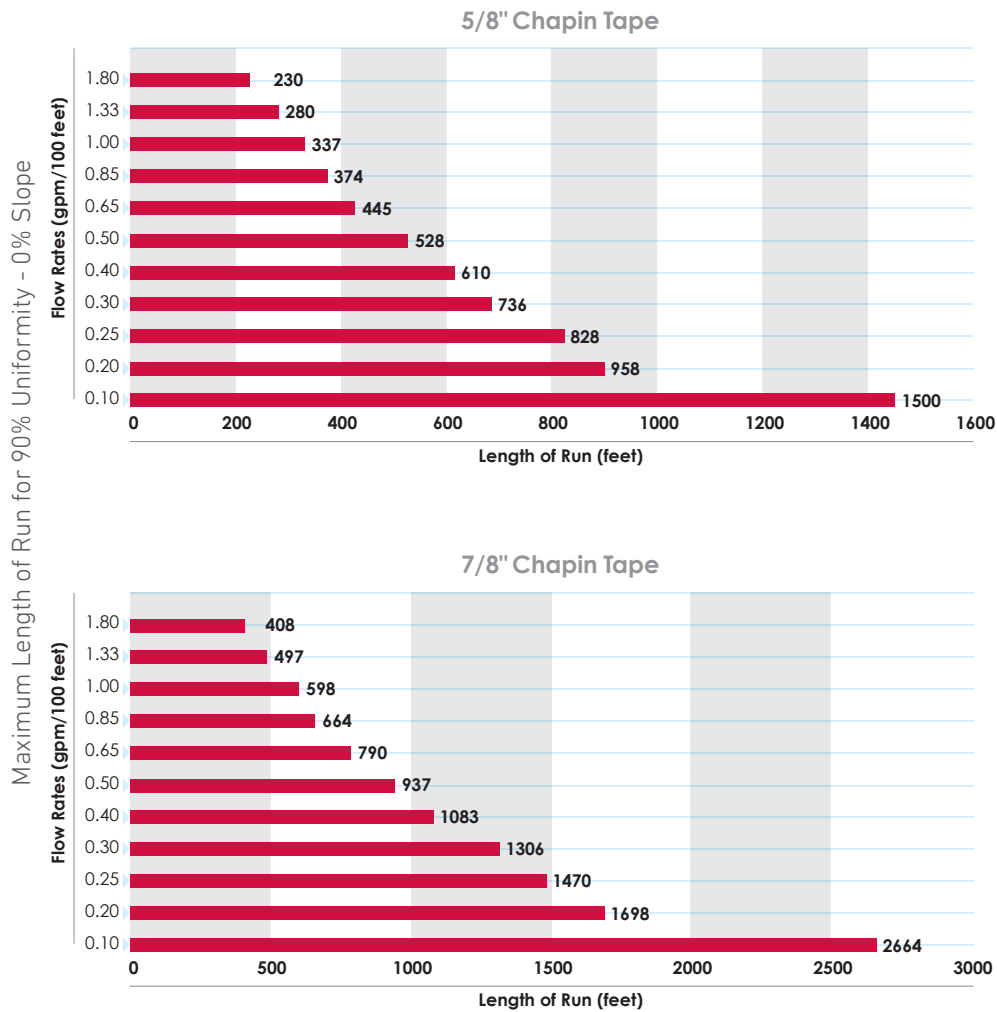
TOP DRIP



CHAPIN

Top Product Features

- Continuous filtering inlets will ensure a clean emitter flow path to deliver water to each outlet
- Turbulent flow path design provides larger internal dimensions offering higher resistance to clogging
- Engineered extruded high quality polyethylene film ensures round sides providing higher resistance to insect bites and field abrasion
- Slit design outlet will help prevent root intrusion and soil ingestion
- A low emitter exponent will ensure less flow and pressure variation on steep slopes to help increase emission uniformity
- Lower winding tension to ensure less retraction in the field and avoid kinking and snaking during installation



CASCADE

Top Product Features

- Seamless drip tape with injection molded emitters
- Cascade is made with 100% virgin polymer ensuring strength and durability
- Cascade emitters have a turbulent flow and cross section path making the emitter highly clog resistant
- Lowest available manufacturing variation (Cv)
- Highly flexible, making coiling and uncoiling an easy task during installation or retrieval
- Laser drilled outlet holes
- Suitable for sub-surface and surface applications



Maximum Run Lengths for 5/8" at 10psi Inlet and 0% Slope

Dripper Spacing	12"			14"			16"			18"			20"			24"		
Flow Rate (GPH)	90%	92%	94%	90%	92%	94%	90%	92%	94%	90%	92%	94%	90%	92%	94%	90%	92%	94%
0.13	861	746	592	958	831	658	1,050	911	722	1,139	987	782	1,224	1,060	840	1,384	1,200	950
0.17	736	638	506	819	711	563	898	779	618	974	843	669	1,045	907	719	1,184	1,026	812
0.22	622	540	429	693	601	478	760	660	524	824	716	567	885	769	610	1,002	870	690
0.26	548	475	377	611	529	419	670	580	460	726	629	498	780	675	535	882	764	606
0.37	435	377	298	485	420	333	532	460	364	576	500	395	619	537	424	700	606	480
0.78	277	241	191	310	269	214	339	295	234	368	320	254	395	344	272	446	388	308

Maximum Run Lengths for 7/8" at 10psi Inlet and 0% Slope

Dripper Spacing	12"			14"			16"			18"			20"			24"		
Flow Rate (GPH)	90%	92%	94%	90%	92%	94%	90%	92%	94%	90%	92%	94%	90%	92%	94%	90%	92%	94%
0.13	1,497	1,298	1,029	1,671	1,449	1,149	1,836	1,592	1,262	1,994	1,728	1,370	2,144	1,859	1,474	2,430	2,106	1,670
0.17	1,279	1,109	880	1,428	1,238	982	1,568	1,360	1,078	1,703	1,476	1,170	1,832	1,589	1,259	2,078	1,800	1,426
0.22	1,082	939	746	1,208	1,049	833	1,327	1,152	915	1,440	1,251	993	1,550	1,345	1,069	1,758	1,526	1,210
0.26	953	826	655	1,063	922	732	1,168	1,014	803	1,269	1,100	872	1,365	1,184	939	1,548	1,342	1,064
0.37	756	655	519	845	732	579	928	803	636	1,008	872	690	1,084	939	744	1,230	1,064	842
0.78	481	418	332	537	467	371	591	514	408	642	558	443	690	600	477	784	680	540

TOP DRIP

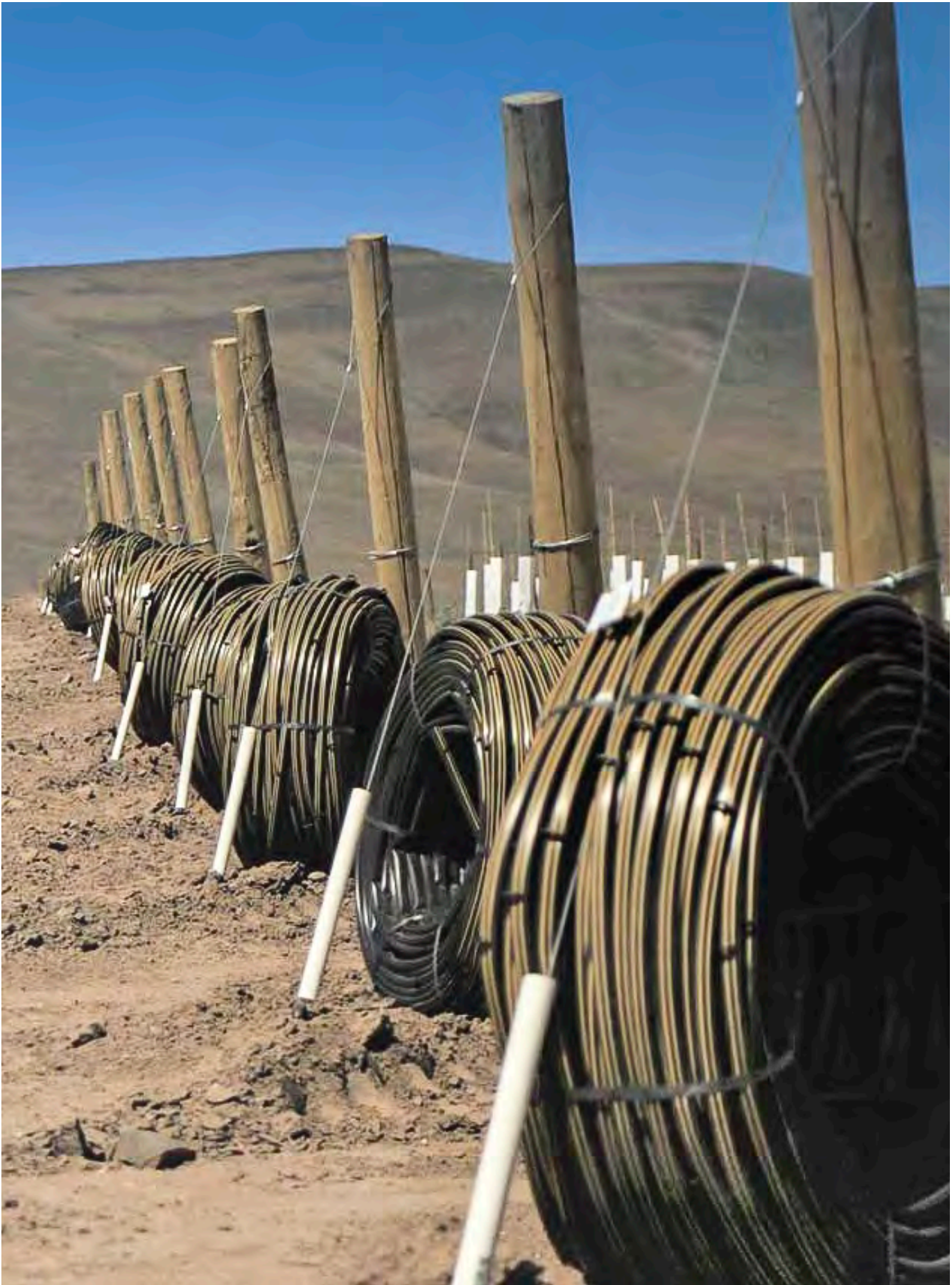
Top Product Features

- Accurate pressure compensating emitter
- Low Cv : < 3.0%
- Cascade labyrinth incorporated for maximum clog resistance
- Physical root barrier
- Unique double self-cleaning mechanism
- Large water passages for optimal durability at low flow rates
- Close emitter spacing creates a continuous wetted strip



Top Drip Maximum Run Lengths for 5/8” at 10psi Inlet and 0% Slope (18mm)

GPH	PSI	12”	18”	24”	30”	36”	42”	48”	60”
0.27	25	735	985	1,210	1,410	1,600	1,775	1,940	2,250
	35	885	1,190	1,455	1,700	1,925	2,135	2,335	2,710
	45	1000	1,345	1,645	1,920	2,175	2,415	2,640	3,065
	55	1,095	1,470	1,805	2,105	2,385	2,645	2,890	3,355
0.42	25	540	730	890	1,040	1,180	1,305	1,430	1,660
	35	655	875	1,075	1,250	1,420	1,575	1,720	1,990
	45	740	990	1,215	1,415	1,600	1,780	1,945	2,255
	55	810	1,085	1,330	1,550	1,755	1,950	2,130	2,475
0.53	25	465	630	770	895	1,015	1,125	1,235	1,430
	35	565	755	925	1,080	1,225	1,355	1,485	1,720
	45	635	855	1,045	1,220	1,380	1,535	1,680	1,945
	55	695	935	1,145	1,335	1,515	1,680	1,840	2,135
0.61	25	425	575	705	820	930	1,030	1,125	1,310
	35	515	690	845	985	1,120	1,240	1,360	1,575
	45	580	780	955	1,115	1,265	1,405	1,535	1,780
	55	635	855	1,050	1,225	1,385	1,535	1,680	1,950



COMPONENT SELECTION: Fittings

Connection Options

Standard operating pressure on a tape system is between 10 - 20 psi and while this may seem low, in the event of a break, substantial amounts of water can be lost if the proper fitting isn't chosen (hopefully there is a flow sensor and master valve installed). Locking fittings are available in multiple sizes and in a configuration for every application. JAIN Tape-Loc fittings provide a confident locking action every time.

Top Product Features

- Large range of fitting configurations. Popular Tape-Loc configurations are available in six different sizes ranging from 5/8" - 1 3/8"
- Tape-Loc fittings are reusable. In the event of a repair fittings, can be removed and reinstalled with the same snugness as first use
- Positive locking design seals tight for leak proof joints
- Polypropylene for strength, durability and checmical resistance beyond typical ag and landscape application water quality
- Certain models available with orange threaded locking nut for easy identification



Aqua-Flat x 7/8" Tape-Loc Connector

Tape-Loc Size Selection Chart

Series Number for Different Tape Sizes	Tape I.D (Internal Diameter)
"06" Series used for 5/8" I.D. tape	
"09" Series used for 7/8" I.D. tape	
"10" Series used for 1" I.D. tape	
"11" Series used for 1 1/8" I.D. tape	
"14" Series used for 1 3/8" I.D. tape	

Popular Tape-Loc Fittings

Model Number	Part Number	Description
FHC-09-LSO	12030031	FHC stands for Fitting Hose Connection, this fitting is used to connect 7/8" tape to Layflat hose. A punch tool is used to create a hole in the layflat and the back plate on this fitting slides into the layflat hole and pressure helps stabilize the connection.
400B-06-LSO	12030002	This fitting features a 5/8" Barb x 5/8" Tape-Loc Barb connection on the opposite side. Typically used in Oval Hose applications this fittings will also require a punch tool for use.
CPT-06-LSO	12030062	Mishaps in the field happen and 5/8" tape can be repaires easily with a 06-LS coupling. An orange locking ring helps bring attention to the repair area after use.
TEE-06-LS	12030092	Rarely are 06-LS 5/8" tees used but in the event an installer needs to create a grid or make a tee connection JAIN offers an assortment of configurations: socket, compression, swivel, spigot and hose thread.
ELL-06-LS	12030049	Like the 06-LS tee, elbows are used in grid configurations and come in a 5/8" and 7/8" model.
END-06-LSC	12030053	When flushing is not possible on a line end installers can always use a removable cap for manual flushing.

Popular configurations for 5/8" tubing shown, additional fitting models are available for 7/8", 1", 1 1/8" and 1 3/8" tape as well.



COMPONENT SELECTION: Lateral Lines

Main Line Options

Multiple tubing options are available to connect emitterline and valves. If the system needs to be shut down for part of the year Layflat will be easier and lighter to roll up and reuse next season.

If the crop is grown year round but digging into the soil to lay rigid PVC is not an option, Oval Hose is a more sturdy tubing type to lay on top of the ground.

For a permanent crop rigid PVC buried below the freeze line is recommended.

Oval Hose

Top Product Features

- Manufactured from virgin LLDPE with advanced extrusion technology
- Once pressurized, hose becomes 98% round
- Suitable for surface grade installations and subsurface installation
- UV stabilized - no environmental degradation
- Oval shape reduces freight and storage cost
- Complies with ASAE standards
- Sizes ranging from 1.5" to 6"



Aqua-Flat

Top Product Features

- Light-weight and easy to install
- Installs in place with minimal rotation, elongation or snaking under pressures normally
- Easy to install on conventional PVC in-line fittings.
- "T"- bolt clamps recommended for best sealing.
- UV protected, maintains durability and flexibility for multi-season use
- Sizes ranging from 1.5" to 8"



COMPONENT SELECTION: Valves

Valve Options

Choosing the right valve for a system is very important when considering the automation process. There are many different solenoid and diaphragm options; however system hydraulic restraints and budgets should make decision making easier. JAIN offers plastic valves and steel valves. Plastic valves are typically used on systems up to 2" while steel valves are a more appropriate long term solution for valves 2" and above. Different solenoid options are available for sites that use DC voltage or AC voltage. Poor water quality will warrant the use of a dirty water diaphragm with a standard diaphragm available for more potable water sources.

Plastic Valves

Top Product Features

- Globe style body to accomodate low flows
- Flow control stem for manual regulation
- On/Off lever for manual operation at the valve
- Internal drain for efficiency and dry site
- Controlled opening and closing to prevent vibration
- Full range of high quality solenoids to match most control systems



Steel Valves

Top Product Features

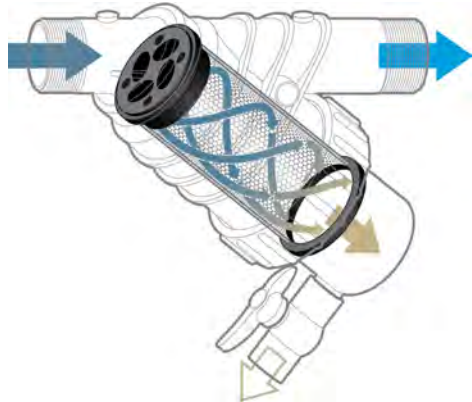
- Streamline high Cv design allow higher flows in smaller valves for better economics
- Four body ports with upstream and downstream Schraeder valves standard for low cost easy maintenance
- Spring-less patented design for precise regulation and low maintenance
- Versatile easy to access platform accomodates multiple functions and service



COMPONENT SELECTION: Filtration

Proper Filtration

Filtering a water supply on the primary side of control valves is only half the necessary filtration required to run low flow tape and emitterline. Any back suction can introduce clogging particles into a system, to eliminate this risk a filter is used on each control valve with a flush valve at the end of each line. Depending on a system's flow there are two filter material options available.



Plastic Spin Clean Filters

Top Product Features

- Engineered plastic construction is light in weight and resistant to corrosion and injected chemicals
- Two piece threaded housing with O-ring seal for easy screen access and maintenance
- Pressure ratings of 80 psi available in ¾" and 1" models, 150 psi rating for ¾" to 2"
- Strong stainless steel screen elements available in 30, 50, 100, 150 (standard) and 200 mesh



Steel Spin Clean Filters

Top Product Features

- No moving parts
- Unique Spin Clean action keeps the screen clean during operation
- Easy screen accessibility
- 150 PSI maximum operating pressure



Flushing to Minimize Maintenance

Along with proper primary filtration, flushing on the secondary side of tape and tubing is equally important. Debris caught in the filter will ideally have a path to freedom out of the end of a lateral line. While manual flushing is always an option we recommend a combination auto flush and air valve on the end of each lateral to reduce potential clogging. Flush valves are available with a barb or 1/2" pipe thread for direct tape or tubing installation.

Larger systems will require an air vent of some sort to release air when the system is charging and shutting down, clogging in emitters is typically caused by air turbulence in the lines not necessarily debris in water. Reducing excessive air in lines as quickly as possible will help eliminate clogging.



Screen Filters vs Disc Filters

Like most component selections on an irrigation system a grower is trying to reduce unnecessary maintenance. The same is true with choosing whether or not a system needs a screen filter, a disc filter or both at different times of year.

- Screen Filters come in different Micron sizes ranging from 30 to 200 mesh. The larger the mesh number the tighter the micron size the filter allows to pass. For example a system with larger particles and debris may only require a 30, 50 or 100 mesh filter while a system with smaller particles of debris will require a 150 or 200 mesh screen.
- Disc Filters are ideal for organic growth typically caused by the introduction of UV light into a system. Light leaks in reservoirs or clear tubing are usual points of concern with algae growth. If a water source has algae or it's impossible to eliminate organic growth from lines then a disc filter will make cleaning easy. Disc filters are made up of a series of discs in a housing that can be extended open to allow air in between filter discs. Within a short time algae will dry on the discs and can easily be shaken or scrubbed off with a dry brush. Cleaning algae off of a screen filter can be very difficult while a disc filter is not always going to catch debris coming from a water source, each has their ideal application.
- Depending on water sources, different times of a year may require both filters. For this filter sleds can be assembled with quick release unions to switch out filter types when necessary.



COMPONENT SELECTION: Automation

Controlling an Irrigation System

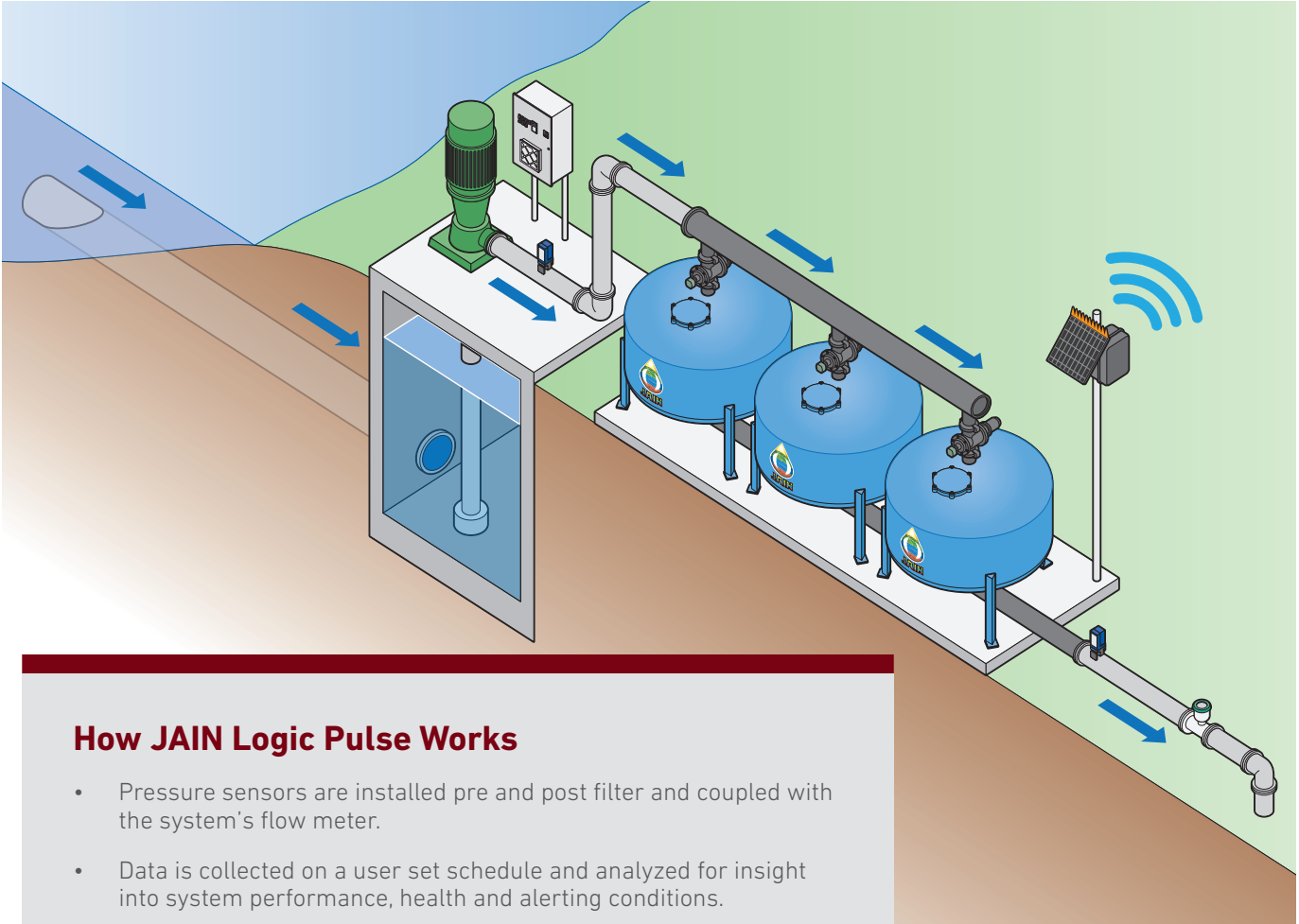
Automating an irrigation system is going to make consistent watering much easier and water management is of utmost importance when creating fertilizer and water budgets. Most valves operate with a 12V DC solenoid for battery and solar powered activation points or 24VAC solenoids when 110 is available at the controller. Regardless of solenoid type there is an automation solution for both solenoid options at different price points.

KEY ITEMS TO CONSIDER

- Is 110V available for a centralized controller?
- If pulling from reservoirs a Master Valve will be necessary to control all water coming out of tanks. This will also work as a connection point for a flow sensor.
- If the project is remote, a site manager will want to keep tabs on pre and post filter pressure and overall break control which will use the above - mentioned flow sensor.
- The systems JAIN offers can be operated from a smart device while more complex scheduling and monitoring are typically done with a computer.

110V SMART CONTROLLER OPTION

- Using real time ET measurements calculated hourly, plus predictive analytics for future weather, the SmartBox is an excellent choice. The Smart Box uses cloud based software to produce a scientific schedule based on user inputted site data. List Price: \$2600 - \$4100 depending on station count.
- Add a flow meter for comprehensive reporting and water budgets.
- User must have knowledge of the following site variables: soil type, grade, precip rate, Distribution Uniformity of emission devices, sun exposure and plant type.
- For smaller applications the HermitCrab2 will hook up to most popular controllers and provide the same water managing tools as its bigger brother the SmartBox. List Price: \$1,250 with flow adapter.



How JAIN Logic Pulse Works

- Pressure sensors are installed pre and post filter and coupled with the system's flow meter.
- Data is collected on a user set schedule and analyzed for insight into system performance, health and alerting conditions.
- Daily emails provide detailed operational information.
- Weekly emails are setup to deliver water use and system health trends.

REMOTE MONITORING AND CONTROL OPTION

- The JAIN Monitoring and Control (MC) system is completely self sufficient , requires only sunlight for power and hooks up to sensors and valves in the field.
- Combined with JAIN Logic our grower based software, JAIN MC provides users with system pressure, flow reporting and soil water capacity. Add a weather station to monitor wind, rain and temperature conditions.
- Equally important to the monitoring of site data is the distribution of data to crucial team members. All the information from a system is available on a smart device or through the browser based portal at jainlogic.com.





JAIN is a fully integrated global food / plant production company recognized by Harvard Business to be one of five global sustainability champions, the G-20 for lifting people out of poverty, and Fortune magazine for being a “Change the World Company.” Our irrigation manufacturing capabilities include everything from the pump discharge to the flush valve at the end of the lateral and everything in between. We lead the industry in manufacturing technology, owning both our extrusion and mold manufacturing equipment providers.

JAIN leads plant science research globally across a variety of food crops and is staffed with some of the world’s leading research scientists. With the Gandhi Library, JAIN now houses the leading collection of the world’s best plant science knowledge in a single facility. Our agronomic knowledge is integrated from our world class plant tissue culture operations through our food processing businesses. We research, educate, advance, manufacture, finance, propagate plants, and purchase produce for processing all in an effort to fulfill the JAIN mission:

“Leave This World Better Than You Found It”

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