RETURN ON INPUT

Valley® Defines the New ROI
For more than 60 years, Valmont® Irrigation has been the industry leader in designing, manufacturing and servicing the most reliable and durable center pivot and linear irrigation machines in the world. We’ve developed and implemented cutting-edge components that extend the life of your irrigation machines, innovative methods to transfer water from the source to the crops, and modern technologies that save labor, time and money.

Our purpose is to continually improve the utilization of every resource while maximizing yields. In short, we want to provide the greatest return on input (ROI) through irrigation technologies that are fitting to your operational demands.
Most growers tend to look at ROI as the return on investment – it’s what we’ve all been groomed to do.

At Valmont, we look at it differently. We see ROI as minimizing the input it takes to maximize yield.
We understand that a financial investment in the right irrigation methods and products isn’t the only input growers need for successful production. Inputs to us are more than gears and steel in the field. They include water and electricity, seeds, fertilizers and chemicals, technology and control, time and labor, knowledge and experience.

Valmont Irrigation has an obligation to each grower: to ensure each of these inputs is not only acknowledged, but gains a solid and significant return.

That’s the Valmont version of ROI.
Growers around the world are searching for ways to make the most of every resource to feed an ever-growing population. Projections show that the world's population will grow by more than one billion people by 2030. It is essential to continue the establishment of a reliable food supply; as a result, growers will need to make the most of every resource available to them to help achieve food and fiber security and sustainability.

Of course, water is a critical resource to grow a sufficient amount of healthy crops to address this need. With increased water regulations, constraints on fresh water supplies, and rising environmental concerns, “smart irrigation” must be a key part of sustainable agricultural production.

While flood and drip irrigation can lead to improved yields, mechanized irrigation – also known as center pivot and linear irrigation – may be the most efficient technology available today, and Valmont Irrigation is continually working to develop new ways to help growers make the most of every drop of water.


2 Source: http://www.pnas.org/content/110/31/12513.full. The case for distributed irrigation as a development priority in sub-Saharan Africa; Jennifer A. Burney a, Rosamond L. Naylor b, and Sandra L. Postel c,d; Edited by Pedro A. Sanchez, Columbia University, Palisades, NY.

Bringing Irrigation to New Places

Some of the areas with the highest projected population growth are also the least irrigated. That means the land isn’t producing to its full potential. For example, in sub-Saharan Africa (SSA), only 4% of agricultural land is irrigated. Although an estimated 40 million hectares (99 million acres) are suitable for irrigation, only 7.3 million hectares (18 million acres) are actually irrigated, and the vast majority of this irrigated land is concentrated in just four countries: Madagascar, Nigeria, South Africa and Sudan.2

In fact, less than 20% of the world’s harvested land is irrigated, but it’s those irrigated acres that generate 40% of global food production.1 According to the United Nations Food and Agricultural Organization, irrigated farms can produce 100-400% higher yields for most crops compared to dryland farming.3

So, while implementing mechanized irrigation may seem to be a significant investment, it can quickly provide a positive return on input by improving productivity on every acre, increasing yields and improving crop quality. Increasing the number of irrigated acres would certainly improve profitability, it could also exponentially increase the world’s food and fiber supply.

How does pivot irrigation do all this? It’s driven by uniformity, efficiency and reliability.

喷灌包可以被设计成最大化均匀度，对于不同的田间条件，如地形、作物、土壤类型和气候条件。适当的喷灌包设计和管理，中心枢轴喷灌系统可以应用水，超过90%的应用均匀度。这意味着，每一种作物在枢轴下都会受益，从而获得改进的产量和作物质量。

### Uniformity

### Efficiency

其他类型的灌溉方法浪费了大量的水，但枢轴可以为种植者提供更多控制，让他们使用大约一半的水，而不会受到洪水灌溉的影响。中心枢轴喷灌是目前最有效的送水方法，达到95%的灌溉应用效率或更高，取决于喷灌包设计，灌溉调度和农事实践。2

### Reliability

今天的枢轴都非常耐用且可靠。每个Valley的机器都被设计和制造来抵抗几十年的日常维护，在粗糙的地形和恶劣的条件下。这意味着，您投入的资金可以被分散到超过更多年份的使用中，伴随最小化维修的费用——最大化您的使用时间，特别是在任何生长季节的热浪中。
“A wealth of technologies is now at our disposal for boosting yields of the world’s key staple crops, in order to face the large demands on our food supplies by 2050. A major question we face is how to target these investments. Decisions over the development and adoption of specific agricultural technologies and practices will affect production, food security, trade and environmental quality in developing countries and across the world for decades to come.”

Mark Rosegrant
International Food Policy Research Institute
International Irrigation Management Institute
Growers can have as much control over their irrigation machines as they need or want with smart control technology. Growers now have the capability to manage the water they apply with more precision than ever, unlike other methods of irrigation. Utilizing pivots and linear irrigation technology, precise prescriptions can direct the water in varying amounts right in the areas that the crop and soil require.

With VRI prescription software, the grower can create a plan based on topography, soil data maps, yield data and other user-defined field information. Taking this data into account in a VRI prescription provides better nutrient management and crop uniformity – all while saving water. In a 2010 field study, the use of VRI addressed field variability, and light textured soils yielded well, even in a dry year. Also, 12% less water was applied by using the VRI prescription across the field, reducing water and energy use.*

Time management is also a major consideration. When growers spend less time managing pivots, they can focus their efforts on other areas in their farming operation, making irrigation management easier and gaining back quality time with family. Today’s control technologies allow growers to program their irrigation machines at the pivot point or remotely. Then, growers can see what’s happening in their fields from a desktop, smartphone or tablet remotely, reducing the number of trips to the field. They also have the ability to set up alerts so they are always in touch with their pivots...anytime, anywhere.

ADVANTAGE: VALLEY PIVOT IRRIGATION

Dryland. Drip irrigation. Flood irrigation. Center pivots. Growers have many options to supply their crops with the water needed. However, the choice in the type of irrigation method can lead to drastically different ROI.

Irrigating Dryland

Farming without irrigation forces growers to depend on Mother Nature for sufficient rainfall, which can prove to be unpredictable at best. Even areas that have adequate annual rainfall and productive soil can see great benefits from irrigation. Delivering water to the plant when it’s needed the most is a great advantage.

When plants receive the proper amount of water and nutrients at the right time, production improves and growers benefit from higher yields.
One Grower’s Experience

Catalin Iaba, the owner of CATVIZANA srl located in the village of Viziru in southeast Romania, cultivates 1300 hectares of land. They grow wheat and corn for seed harvesting for Pioneer, BASF and Monsanto.

Catalin first installed Valley machines in 2011 and since then has doubled their production. If a dry season is upon them, the machines and technology make the difference.

With four farms, Catalin uses pivots, linears and hose reels (10%, providing allowances to irrigate small parcels). They own seven Valley irrigation machines; two are pivots. All are equipped with drops and high-quality sprinklers and older machines are equipped with Pro2 panels.

“The last pivot I bought is equipped with a 91.44 meter VFlex™ corner, GPS guided,” stated Catalin. “It irrigates 232 hectares. In 48 hours with 7l/sqm. for eight to nine days. This one is equipped with an ICON5 control panel and will start using AgSense® as soon as the season starts. I’m planning to use technology on the older machines too, due to the lack of qualified people who can run my pivots.”

For Catalin, their irrigation season runs between May and July with four to five crossings on each crop. He explains that they still have land that is not irrigated and their goal is to buy more Valley machines and additional land in the future.
ADVANTAGES OF
MECHANIZED IRRIGATION
Over Flood or Drip Irrigation

Mechanized Irrigation
Fortunately, mechanized irrigation addresses the complications that can come with both flood and drip irrigation methods.

- **Precision**
  Mechanized irrigation gives growers the ability to uniformly apply the correct amount of water at the right time.

- **Labor and time savings**
  One person can run multiple machines covering thousands of acres. There is no need to spend hours walking the fields every day, because it requires only 30-40% of the labor needed to operate drip installations.

- **Simple maintenance**
  Maintenance is very simple and low-cost. The average annual cost to maintain a drip system is 7-10% of the initial investment. Maintenance of mechanized irrigation machines is 1% of the purchase price per 1,000 operating hours each year.

- **Versatility in water source**
  With mechanized irrigation, a grower can irrigate with any water that’s available, from well and river water to runoff and reuse water. Mechanized irrigation can easily use these water sources, whereas SDI (subsurface drip irrigation) may require extensive filtration and routine chemical applications.

- **Water efficiency**
  Mechanized irrigation saves money and conserves water by giving operators the control to apply precise amounts of water to crops only when they require it. Utilizing variable rate irrigation (VRI) is not economically possible for SDI.

- **Germination**
  Mechanized irrigation can be used for quick and easy germination of all crops ensuring the best possible plant population to get the crop started right. It also activates pre-emergence herbicides which is not possible with flood or SDI.

- **Fertigation**
  Application of fertilizers and crop production products can be applied through the irrigation machine, precisely and easily when the crops need it.

- **Crop rotation**
  Provides the ability to irrigate multiple types of crops without making changes to the equipment every year. Also, one mechanized irrigation machine can accommodate multiple crops.

- **Greater ROI**
  Mechanized irrigation can last more than 25-35 years with proper use and maintenance, and it retains its value. Plus, with savings on inputs like water and electricity, labor and time, along with an increase in yields and crop quality, the return on input can happen in just a few growing seasons.

- **Soil protection and retention**
  Mechanized irrigation installation requires no tillage or furrowing, so the soil can stay where it’s needed. It not only reduces salinity buildup, but also it can apply water to flush salts below the root zone, without water-logging the soil.
Flood Irrigation

Traditional flood irrigation (also known as furrow or surface irrigation) is exactly what it sounds like – intentionally flooding the field to irrigate the crops. Because it’s a low-tech way to irrigate the crop, it also wastes water, can lead to over-watering, and often results in runoff. Flood irrigation also contributes to salinity in the soil, which can damage land and diminish potential yields.

The biggest downside of using flood irrigation is the amount of water that it requires. Because large amounts of water are applied to massive areas of land, the efficiency of this method can be extremely low in the 40-50% range. Soil and plants simply can’t absorb water quickly enough to take advantage of the available water, so much of the water pushes quickly down past the roots, and wastes valuable resources.

Drip Irrigation

Drip irrigation is certainly more efficient than flood irrigation, and wastes less water than flood. It allows water to drip out from small emitters directly onto or into the soil – commonly known as SDI getting water where it should be most beneficial.

However, drip irrigation is an expensive technology to install, and very labor-intensive. Irrigation operators must inspect emitters frequently, flush filters to help avoid clogging and ensure leaks and plugged emitters are not affecting uniformity. Add to that, the laborious task of repairing damaged lines due to destruction caused by rodents which are almost impossible to eradicate. Drip irrigation can also lead to a build-up of salinity in the root zone.

Initial Investment Cost Comparison

Data from Dumler, Troy J.; O’Brien, Daniel M.; and Rogers, Danny H. “Irrigation Capital Requirements and Energy Costs,” Kansas State University, December 2011.
A Pivot to Fit Any Field

While a pivot provides uniform water application, there is no such thing as a completely uniform farm field. With so many sizes, shapes and terrains to handle, there can’t be a one-size-fits-all irrigation machine. That’s why Valley has many choices in quality span lengths, giving growers more ways to optimize and customize their machine design to specific field conditions.

Valley pivots are designed, engineered, constructed and field-tested to handle all kinds of operating stresses. Spans range in length from 41 meters to 69 meters, with a maximum machine length of 853 meters. Each span is hot-dipped galvanized steel, which is designed to stand up to the elements and provide years of corrosion-free service.

Valley continues to offer irrigation systems and equipment to meet the requirements of modern agriculture around the world. Some of the crops well-suited for mechanized irrigation include; corn, soybeans, small grains, cotton, fruits, nuts, sunflowers, sugarcane, legumes, rice and cover crops.
Sometimes, growers use wastewater, process water or water with high or low pH to water their fields. Some add crop-protection or soil amendment products to create a healthier growing environment. Any of these can corrode even the toughest galvanized pipe. In these cases, growers can choose to install PolySpan® pipe, a polyethylene liner that is installed inside the span pipe that protects against the effects of corrosive liquid. It is available in most Valley products.
Like nearly every aspect of life, irrigation is also a part of the Internet of Things (IoT) on the farm. The IoT refers to any physical thing that is connected to the Internet. From smartphones to security systems to televisions, the IoT is connecting people and technology in new ways every day, and is now more than ever entrenched into the agricultural environment.

Valley is a company driven by innovation, making everyday life easier on the farm by developing technologies that give growers back their time while staying connected to the farm.
Smart Connections

We’ve been at the forefront of bringing the IoT to agriculture since the 1990s. That’s when we first introduced BaseStation, a computer program that helps growers make irrigation management decisions based on input about the field.

Since then, Valley has continued to develop technology to help growers integrate all of their data to better manage and control their irrigation. Through two additional generations of BaseStation (BaseStation2 and BaseStation3™), the integration of AgSense® agricultural remote technology and strategic partnerships such as Trimble®, connection and precision is defining the future of irrigation.

Smart Panels

The Valley ICON series of smart panels is truly connecting physical irrigation to the IoT. Growers can control and manage their irrigation machines through smartphones, tablets and personal computers. They can take complete control, without ever leaving the home or office.

Valley ICON smart panels collect valuable data that can help growers make informed decisions for future growing seasons. Each Valley ICON smart panel is equipped with BaseStation3 and AgSense technology, which allows the panel to share data with other platforms. With all their data in one platform, growers can not only make informed, actionable decisions about irrigation, but also make smart choices about everything from seeds to chemical applications and agronomy to weather patterns.
Investing in center pivot irrigation is a sure way to get a solid return on your inputs, increase yields and provide better quality in practically any type of crop. It makes it simple to use water and power more efficiently, and requires less labor than any other type of irrigation method.

All Valley equipment is durable, reliable and built to last, so growers can see a substantial return on that initial investment over and over again.

The structural integrity of a Valley pivot is the result of careful engineering and manufacturing practices. The unique design uses vertical support members and diagonal tubular bases, which eliminates the high stresses and strains from the pipeline. The truss angles and rods are standardized so they’re easy to install and service. The pivot assembly, pipeline, drive units and bracing are all protected with high-quality galvanizing.

Valley machines have the most reliable drive trains in the business. The drive train is comprised of a wheel gearbox and mechanized center drive. The Valley gearbox is manufactured in the USA, and we test each one before it leaves the factory. Our gearboxes are known as the most dependable and durable throughout the industry. The center drive has a long-lasting, reliable motor with extra-large intermediate gear bearings for longer life.
Valley 8000 series
Major competitor's structures

Valmont Irrigation tests certified by independent consultant
Dr. James D. Summers, P.E., 2003.

Operation Costs of Hose Reel vs. Center Pivot Irrigation

Data from "Nebraska Crop Budgets, 2010."
http://extension.unl.edu/publications
Unsurpassed Service from the Global Valley Network

The Valley dealer network is the most extensive team in the mechanized irrigation industry. You can find them around the world, and they are often seen as a grower’s most valuable resource.

Our Valley dealers are your partners – they find new ways to irrigate those difficult acres, make an operation more efficient, discover new practices for conserving resources, deliver a return on inputs and make life simpler through technology.

The bottom line: Your Valley dealer can help you achieve a higher return on input with top-of-the-line irrigation equipment and technology. Call your Valley dealer today.