

How Much Does a Smart Irrigation System Cost?

A quote arrives with one line item: “system, installed.” You can’t compare it to anything. This guide breaks that number apart so you can budget before you call a vendor.

Quick answer: On a farm, a smart irrigation system costs roughly \$75 to \$175 per acre installed, plus \$5 to \$10 per acre in annual software and data fees. Those figures are illustrative assumptions for a fictional company, not market quotes.

A smart irrigation system adds soil moisture sensors and controllers to your existing pivot, drip, or pump setup, so irrigation starts and stops based on measured soil water instead of the calendar.

In this guide:

- Cost has three layers: hardware, installation, and recurring fees.
- Acreage, field variability, and existing equipment set where your farm lands in the range.
- A 160-acre worked example shows payback in about 4.5 years.

What Determines the Cost of a Smart Irrigation System?

Every quote contains three cost layers: equipment, labor to install it, and fees that continue after installation. The sections below cover each layer, starting with the equipment.

Sensors, controllers, and monitoring equipment

Soil moisture probes read water content at several depths in the root zone. A controller mounted on the pivot or pump panel acts on those readings and starts or stops irrigation. A telemetry gateway sends the data to a dashboard, so you see every field from your phone. Wells add flow and pressure monitoring to confirm the pump delivers what the controller requested. Small operations can start with probes and a gateway alone. Our [sensor buyer guide](#) explains probe types in detail.

Component	What it does	Illustrative cost
Capacitance probe site	Measures moisture at several depths	700–1,800 per site
Pivot or pump controller	Starts and stops irrigation	2,500–8,000
Telemetry gateway	Sends field data to the dashboard	500–2,500
Weather station	Records rainfall and evapotranspiration	1,000–3,500

Flow and pressure
monitor

Confirms pump output

600–2,500

All ranges are illustrative assumptions.

Installation and integration

Installation covers mounting probes, wiring the controller to your pivot or pump panel, and calibrating readings to your soil. Integration drives the cost swing. A newer panel accepts a controller in a few hours. An older panel needs retrofit parts. Ask the vendor for a panel inspection before quoting. Four variables move the price:

- Panel age and compatibility
- Distance from probe sites to the gateway
- Trenched lines versus wireless links
- Calibration visits during the first season

In the 160-acre example below, installation adds \$2,800, about 16 percent of equipment cost.

Connectivity, software, and ongoing fees

Recurring fees add up faster than most buyers expect. Plan for four:

- Software subscription for the dashboard and alerts
- Data plan for cellular or satellite telemetry, costing more where coverage is weak
- Probe replacement and recalibration as sensors age
- Support contracts, which some vendors bill separately

Telemetry coverage matters on rolling ground, so ask where signal drops. Our example assumes \$900 per year, or \$9,000 over ten years. That equals 45 percent of the \$20,000 installed price, so get fee terms and data ownership in writing before you buy.

What Factors Affect the Cost for Your Farm?

Component prices set the range. Your farm decides where you land in it. Think in dollars per acre and per management zone, the same way you price seed, fertilizer, and equipment.

Farm size and field variability

Cost scales with management zones, not total acres. A 160-acre field of uniform silt loam needs fewer probe sites than a field that swings from sand to clay. Sand drains fast and clay holds water, so each soil needs its own probe. Web Soil Survey maps show those boundaries before you buy. Placement matters more than count. One probe in a representative zone outperforms three in the wettest corner. In the 160-acre example, three soil zones with two probe sites each total six sites at \$1,200, or \$7,200.

Hypothetical agronomist note: “Put the probe where the field behaves like most of the field, not where it behaves best or worst.”

Existing irrigation infrastructure

Smart irrigation adds control to the system you own. It rarely replaces it. Center pivots take a pivot-mounted controller. Drip systems take zone valves and flow monitoring. Flood systems offer fewer automation points, so savings come mainly from scheduling. Wells add pump automation, while surface water sources often need only monitoring. A 160-acre pivot field with a newer panel needs one controller and little rewiring. Confirm your panel brand and age first, because compatibility decides whether you buy a controller or a retrofit kit.

Monitoring and automation requirements

Monitoring-only systems cost less than full automation. Choose based on your labor and risk.

- **Monitoring only:** Probes, gateway, and alerts. You decide when the pivot runs. Budget at the low end of the range.
- **Full automation:** Adds controllers that start and stop irrigation, plus optional variable rate irrigation (VRI) prescriptions. Budget at the high end.

Monitoring suits growers who already adjust pivots by hand and want better timing, not automation. If you only want alerts, start there and upgrade once the data earns your trust.

How to Estimate the Potential Return on Investment

Payback takes three steps: price your baseline, estimate savings, then divide installed cost by net annual savings. The example below uses a hypothetical 160-acre corn field under one center pivot. Every input is an illustrative assumption. Still deciding between sensors and ET-based scheduling? Read our [comparison](#).

Identify current irrigation and labor costs

Start with what irrigation costs you today. In the example:

- **Water applied:** 12 acre-inches per acre
- **Pumping energy:** \$6 per acre-inch, or \$11,520 across 160 acres
- **Field checks:** 4 hours per week over a 26-week season at \$25 per hour, or \$2,600

The farm pumps from its own well, so water charges are zero. If you buy water or pay allocation fees, add them to your baseline. The annual baseline totals \$14,120.

Estimate potential savings using realistic assumptions

Savings come from three sources. Use conservative numbers.

- **Pumping energy:** 15 percent fewer irrigation events saves \$1,728
- **Labor:** 60 fewer field-check hours saves \$1,500
- **Yield protection:** 3 bushels per acre from better timing, at \$4.50, adds \$2,160

Better timing avoids both water stress at critical growth stages and over-irrigation that leaches nitrogen. Gross savings total \$5,388. Subtract \$900 in annual fees for net savings of \$4,488. Yield is the least certain input. Set it to zero and net savings fall to \$2,328. Check your assumptions against land-grant extension scheduling research and the NRCS Conservation Practice Standard 449 for irrigation water management.

Calculate the payback period

Equipment in the example: six probe sites (7,200), *apivotcontroller*(5,000), a gateway (1,500), *aweatherstation*(2,000), and flow and pressure monitoring (\$1,500) total \$17,200. Run the numbers in three steps:

1. Add equipment and installation: $\$17,200 + \$2,800 = \$20,000$.
2. Subtract annual fees from gross savings: $\$5,388 - \$900 = \$4,488$.
3. Divide installed cost by net savings: $\$20,000 \div \$4,488 = 4.5$ years.

Under the conservative case with no yield gain, payback stretches to 8.6 years. Cost-share changes the math. If an EQIP payment covered \$8,000, net cost falls to \$12,000 and payback drops to 2.7 years. For a ten-year purchase, also run net present value, which discounts future savings for the time value of money. Is it worth it? In the expected case, yes: the system pays for itself in 4.5 years.

Questions to Ask Before Requesting a Quote

Bring these seven questions to every vendor. They expose hidden costs and lock-in before you sign.

1. **What does the installed price include?** Confirm calibration, training, and first-season support sit inside the number.
2. **What are the annual software and data fees, and how long is the contract?** Recurring fees decide ten-year cost.
3. **Who owns the sensor data if I switch vendors?** Ownership decides whether you can leave.
4. **Does it integrate with my pivot controller or pump panel?** Incompatibility adds retrofit parts and labor.
5. **What happens when cellular coverage drops?** Ask whether the system stores data and keeps running its schedule.
6. **What does the sensor warranty cover, and what does replacement cost?** Probes get damaged by tillage equipment and weather.
7. **How many sensors does my field need, and how did you decide?** A sound answer cites soil zones, not a flat per-acre rule.

Get two quotes and compare them line by line against these answers. Write each answer beside the quote it came from. The cheaper quote often leaves out calibration or charges more in fees.

Find the Right Irrigation Solution for Your Operation

You now have the cost layers, the farm variables, and a payback method. Fields with uniform soil and newer panels land near the low end of the range. Multi-zone fields with older panels land near the high end. A consultation turns that into a number for your operation. Bring your acreage, irrigation type, pump and panel details, and current energy and labor costs. GreenField itemizes equipment, installation, and recurring fees in a customized quote, so you can compare it line by line.

[Request a product consultation or customized quote](#)

SEO Asset Validation

- ✓ SEO title optimized (three options, 50 to 55 characters)
- ✓ Meta description optimized (three options, under 155 characters)
- ✓ URL optimized
- ✓ Internal links identified (three live, three proposed)
- ✓ External references recommended (verify URLs and dates before publishing)
- ✓ FAQs generated (seven, with placement caveat)
- ✓ Featured snippet opportunities included
- ✓ AI Overview assets completed