

Location

Farmington, Kentucky

Customer Profile

Matthew Colley is a diversified agricultural producer. He grows grain and tobacco and raises 10,000 head of hogs along with a large poultry operation.

Colley planted a few acres of hemp in 2017 to experiment with growing the crop and processing it for cannabidiol, the nonpsychoactive cannabinoid known as CBD and used in a variety of health products. The following year, he planted 250 acres. He germinated the seeds in greenhouses, then he transplanted them to fields and irrigated with drip hoses.

Colley retains sales control of his final product, a CBD isolate, acting as a wholesaler. He pays a processing company to extract CBD from his plants.

“ I don't want to put a plant in any kind of stress whatsoever. Any time you stress the plant you are lowering the CBD harvest.”

– Matthew Colley, agricultural producer

Considerations for success with hemp

- Buy high-quality seed. Some companies that sell low-quality seed are pricing it high, at nearly \$1 per seed. Price alone is not a good indicator of seed quality. Be sure to research the seed company before purchase.
- Hemp seeds need plenty of moisture to germinate.
- Center pivot irrigation allows for greater frequency and control in irrigation.
- Even hemp seeds with good genetics only have a germination rate of about 90%.



Problem

Colley needed to increase his hemp growing operation dramatically, while decreasing input cost per acre.

Solution

Colley had five Reinke center pivots installed. Using the pivots, he was able to provide enough moisture to germinate hemp seeds in the field, instead of greenhouses.

Outcome

Colley's hemp operation went from 250 to 800 acres. His per acre input cost reduced by \$15,000. In total, his 800-acre operation cost \$12 million less than it would have using his previous production method.



Challenge

Colley wanted to increase his hemp operation so he could take advantage of the high demand for CBD. In order to do that, he needed to decrease labor and cost per acre. Colley decided to change his process and germinate hemp seeds in the field, rather than a greenhouse. However, his drip irrigation setup posed a problem. Drip irrigation is labor-intensive because it relies on strips that must be placed each season. Also, the setup did not adequately support hemp seed germination. Colley explained that the only way to supply enough water to hemp seeds with drip irrigation was to place the hose strip directly above seeds. By doing so, that positioning posed an obstacle once the crop began to grow.

Solution

M-M Irrigation, a Certified Reinke Dealership in Murray, Kentucky, installed five Reinke Electrogator pivots on Colley's land. The dealership installed GPS-guided swing arms on two pivots to irrigate in corners.

Colley planted seeds directly in the field and irrigated the seeds once a day for four days, creating ideal germination conditions. Although he used top-quality seed, he knew it had only a 90% grow rate, so he planted 15% in a greenhouse and filled any empty spots in the field with greenhouse transplants.

"I don't want to put a plant in any kind of stress whatsoever. Any time you stress the plant, you are lowering the CBD harvest. You are taking potential away from that plant. I'll be able to keep consistent moisture with the pivots and not stress the plant throughout the life cycle," Colley said.

Outcome

Installing five Reinke Electrogator pivots allowed Colley to irrigate more frequently and consistently. With even irrigation, he created a moisture-rich soil environment in which hemp seeds could germinate. Colley direct seeded his hemp in the field, cutting out labor costs associated with transplanting hemp plants from the greenhouse. In contrast to drip irrigation, center pivots were a one-time cost. Drip irrigation hoses must be placed at the beginning of each growing season. In years to come, Colley will reap additional financial benefits from having an irrigation system in place.

Colley took his per acre input cost from \$30,000 to \$15,000, a savings of \$15,000 per acre. Limited greenhouse space and a high capital investment had kept Colley's operation small at 250 acres. With a reduced per acre input cost and a reduced need for greenhouse space, Colley more than tripled his hemp operation to 800 acres. In fact, an 800-acre operation would have cost an additional \$12 million using his previous production methods.

It all adds up to more profit per acre, and with 550 more acres than his previous year's operation, Colley is well-positioned to take advantage of the current high demand for CBD.

Colley's Reinke Electrogators

Pivot	Towers	Length (feet)
1	6	994
2	7	1,502 + swing arm
3	8	1,331
4	7	1,222
5	6	1,171 + swing arm



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– Matthew Colley, agricultural producer



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