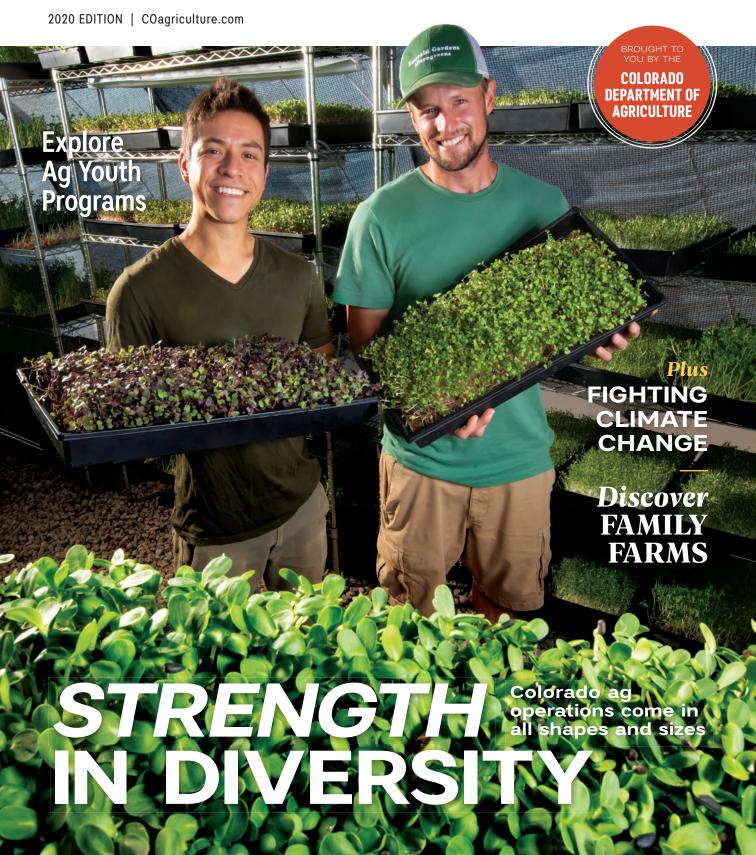
Cultivating Feeding your family, growing our resources COLORADO



COLORADO'S ELECTRIC COOPERATIVES

Creating Colorado's Energy Future by:

- Utilizing more than 30% renewable resources
- Deploying battery storage
- Modernizing the grid
- Partnering with the National Renewal Energy Lab
- Working with the Center for the New Energy Economy
- Pursuing beneficial electrification
- Focusing on innovation and technology



LOCAL ELECTRIC CO-OPS

Delta-Montrose Electric Assoc.

Empire Electric Assoc.

Grand Valley Power

Gunnison County Electric Assoc.

Highline Electric Assoc.

Holy Cross Energy Glenwood Springs

Intermountain Rural Electric Assoc.

K.C. Electric Assoc.

Hugo

La Plata Electric Assoc.

Durango

Morgan County Rural Electric Assoc.

Mountain Parks Electric Granby

Mountain View Electric Assoc.

Poudre Valley Rural Electric Assoc.Fort Collins

San Isabel Electric Assoc.

Pueblo West

San Luis Valley Rural Electric Co-op Monte Vista

San Miguel Power Assoc. Nucla/Ridgway

Sangre de Cristo Electric Assoc.

Southeast Colorado Power Assoc.

United Power

Brighton

White River Electric Assoc.

Meeker

Y-W Electric Assoc.

Akron

Yampa Valley Electric Assoc. Steamboat Springs

POWER SUPPLIER

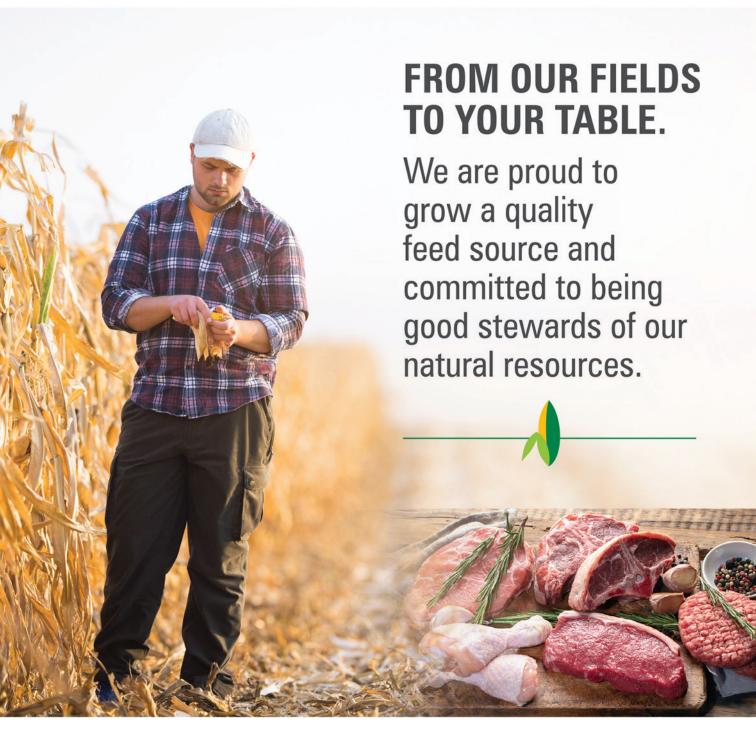
Tri-State Generation & Transmission
Westminster

Colorado's 22 community-focused, local electric utilities are led by local consumers and belong to the communities they serve.



Colorado Rural Electric Association 5400 Washington Street Denver, CO 80216





Colorado Wheat

Colorado has a long and proud history of wheat production. Three organizations serve the wheat farmers of Colorado, who in turn serve Colorado consumers.





Colorado Wheat Administrative Committee cwrf



Connect with us! coloradowheat.org









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Roberto Meza and Dave Demerling grow microgreens at Emerald Gardens in Bennett.

Photo by Nathan Lambrecht

Cultivating

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COLORADO DEPARTMENT OF AGRICULTURE:

COMMISSIONER Kate Greenberg DIRECTOR OF COMMUNICATIONS AND PUBLIC OUTREACH

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Kate Greenberg was appointed Commissioner of Agriculture in December 2018. She is a strong advocate for conservation. agriculture education and farmland affordability.

Welcome to Cultivating Colorado, and thank you for your interest in learning more about agriculture in Colorado.

On these pages, you'll find compelling stories about the people and innovation behind Colorado agriculture.

You'll also learn how incredibly diverse agriculture is here - from the products we produce to the skilled and dedicated workers who produce it. On page 7 is a map of Colorado's agricultural products by county. It tells the story of how our farm and ranch producers make the most of the unique

resources in Colorado's varied regions – from growing potatoes and barley in the San Luis Valley, to fruit and dairy in Mesa and Delta counties, to corn, millet and wheat on the eastern plains, to beef and hay in nearly every county.

We have four current main areas of focus at the Colorado Department of Agriculture: Supporting the next generation of ag, increasing producer profitability by scaling up high-value markets, advancing farmer and rancher-led stewardship, and increasing mental health awareness and support in Colorado's rural communities. These priorities inspire us every day and drive our department forward in our mission of strengthening and advancing Colorado agriculture, promoting a safe and high-quality food supply, protecting consumers and fostering responsible stewardship of the environment and natural resources.

Thank you for supporting Colorado agriculture.

Sincerely,

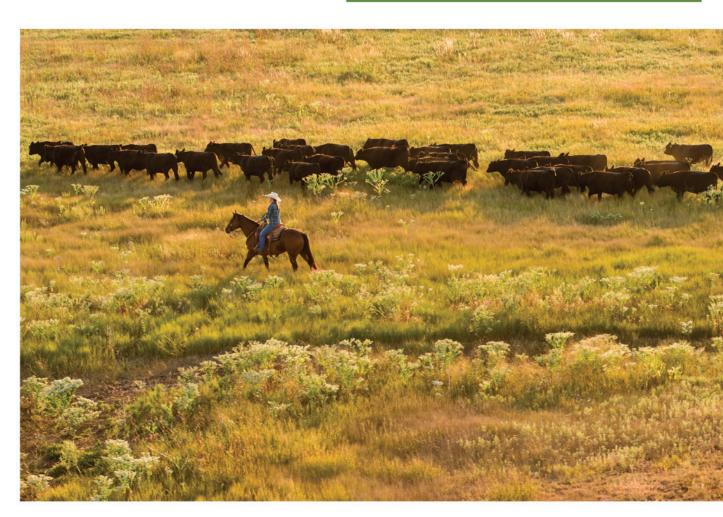


Kate Greenberg Commissioner of Agriculture





AG IS OUR MIDDLE NAME





We see things from the ground up, all of the small details that go into the big picture of ranching. Because agriculture is what we know, it's all we do. Call 800.799.6545 today or visit AgLoan.com

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Colorado Ag

An overview of the state's food, farming and agribusiness sectors

WHEN YOU THINK OF

Colorado, gorgeous, vast mountain vistas might come to mind, ready for hiking. Perhaps you envision the hustle and bustle of the Mile-High city of Denver. What probably doesn't come to mind when you think of Colorado is the agriculture industry – although it should.

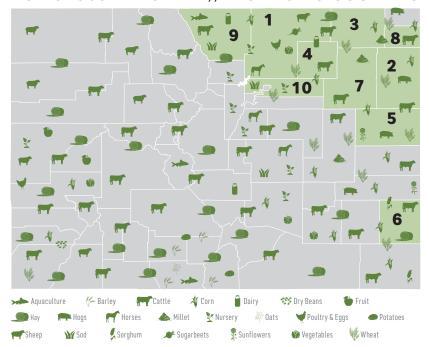
The Centennial State provides a diverse array of agricultural products, thanks to its varied geography. Colorado is home to 38,893 farms, according to the most recent Census of Agriculture. Those farms and ranches are spread over 31.8 million acres across the state and average about 818 acres in size. The industry annually contributes \$41 billion to the state's economy and employs nearly 173,000 people.

Some of the state's most prominent agricultural commodities include

cattle and calves, hay, wheat, field corn, hogs, and dairy products and milk, to name a few. Colorado also boasts crops that rank in the most popular category amongst consumers, including Palisade peaches, Rocky Ford cantaloupe, Pueblo chiles and Colorado lamb. It is also one of the nation's leaders in potato production, which mainly takes place in the San Luis Valley, and has several new and innovative crops, such as industrial hemp.

More than just crops and livestock, Colorado's agriculture industry encompasses everything from agricultural education and food processing to supporting farmers in a more meaningful way with mental health awareness and financial support. The many avenues of agriculture are just as diverse as the commodities produced.

AG ACROSS THE STATE // TOP 10 AG COUNTIES





THE nutritious EGG!

PROTEIN PACKED

6 grams per large egg and the least expensive source of high-quality protein at about 15 cents each.

NUTRIENT DENSE

One egg has varying amounts of 14 essential nutrients, including choline and vitamin D.

PORTION CONTROLLED

Each nutrient-rich large egg has 70 calories. Eggs are nature's form of portion control.



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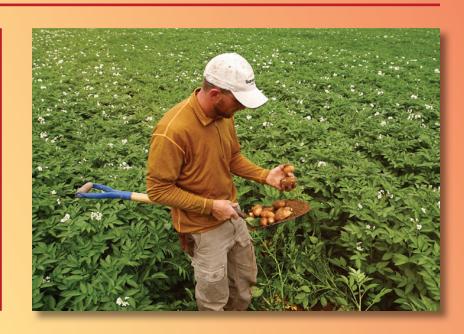
Colorado Potato Growers produce

\$217M

of potatoes annually.

COLORADO'S SAN LUIS VALLEY IS HOME TO 150 POTATO FARMING FAMILIES.
TOGETHER, THEY MAKE COLORADO THE SECOND-LARGEST SHIPPER
OF FRESH POTATOES IN THE U.S.

A medium size
(5.2 oz.) potato has
only 110 calories,
more potassium
than a banana
and complex
carbohydrates
for energy.





Power your performance with Colorado potatoes!





20 YEARS OF PRIDE IN COLORADO AG

Celebrating 20 years in 2019, the Colorado Proud program demonstrates the importance of promoting food that is locally grown, raised and processed in the state.

Consumers can spot the awardwinning program's logo in local grocery stores, farmers' markets, garden centers and on restaurant menus, and know they're eating the freshest food available, as well as supporting the local economy.

Throughout its history, Colorado Proud has satisfied the appetite for local flavor as it has continued to grow. When it started in 1999, the program consisted of 65 companies, and today is more than 2,700 members strong, including growers, food processors, restaurants, retailers and schools.

To honor the occasion, the program unveiled the 20th anniversary logo and tagline, "Buy Local. Grow Local," and hosted several events, including an ag community tour for consumers,

> ag symposium for farmers and ranchers, and school program. Learn more about Colorado Proud at

coloradoproud.com.

WHAT'S IN SEASON? Produce calendar for Coloredo

WHAI	3	5 IN SEASONS						for Colorado				
PRODUCT	JAN	FEB	MAR	APR	MAY	NII	JUL	AUG	SEP	100	NOV	DEC
Apples								А	S	0	N	
Apricots							J	Α				
Arugula					М	J	J	Α	S	0		
Asparagus					М	J						
Beets							J	Α	S	0		
Bell Peppers								A	S			
Broccoli							J	A	S	0		
							J	A	S	0		
Cabbage												
Cauliflower	-						J	A	S	0	_	
Cantaloupe							J	Α	S			
Carrots								А	S	0	N	
Celery							J	Α	S	0		
Chard						J	J	Α	S	0		
Cherries						J	J					
Chile Peppers								Α		0		
Collards					М			Α		0		
Cucumbers	J	F	М	А	М			Α		0	N	D
Eggplant								Α		0		
Grapes									S	0		
Green Beans							J	Α	S			
Herbs								Α	S	0		
Honeydew								Α	S	0		
Kale					М	J	J	Α	S	0		
Lettuce					М	J	J	Α	S	0		
Onions								Α	S	0	N	
Peaches							J	Α	S			
Pears								Α	S	0		
Plums								Α	S			
Potatoes	J	F	М	А	М	J	J	Α	S	0	N	D
Pumpkins									S	0		
Raspberries								А	S	0		
Summer Squash							J	A	S			
Spinach	+			А	М	J	J	A	S	0	N	
Strawberries						J	J	A	S			
Sweet Corn							J	A	S	0		
Tomatoes	J	F	М	А	М	J	J	A	S	0	N	D
Turnips					М	J	J	A	S	0		
Watermelon							J	A	S			
Winter Squash	J	F						-7		0	N	D
willer squasii	J									0	IN	U

Pind more online

Learn more about what's growing in your state at COagriculture.com.



FINDING COMMON **GROUND**

Female farmers in Colorado are tackling the divide between farmers and consumers through a supportive collaboration called CommonGround.

With a mission to share their personal experiences, as well as science and research, CommonGround is a group of farmers, funded by farmers through two national checkoffs, who help consumers sort through myths and misinformation surrounding food and farming. They provide scientific facts and information around sustainability, antibiotics and animal health, hormones, local and organic food, GMO foods, and food safety, among other topics.

The group hopes to reach primarily women, as they're the ones typically feeding their families, to help them better understand exactly where their food comes from, directly from the source.

Learn more about CommonGround and join the conversation at

findourcommonground.com.

COagriculture.com

Find even more online about Colorado agriculture, from education to agritourism to local food and more.



Shop in Season

When will your favorite fruits and vegetables be available? Download a produce calendar showing what's ripe right now.



Have a Field Day Discover agritourism destinations from wineries to Christmas tree farms.



Cook with **Local Products** Find tasty recipes using Colorado's top products such as beef, dairy, corn and more.



Stav Informed Discover facts and stats about agriculture in your state, from the average farm size to the number of family farms.

Read the **Digital Magazine**

Optimized For Online:

Each article can be read online, as a web article or within our digital magazine.

Share the Content:

Embed our digital magazine in your website to offer compelling information about Colorado agriculture to your site visitors.





To learn more about what's growing in your state, visit FarmFlavor.com.

What's Growing in Colorado

A glimpse at the state's leading ag products based on cash receipts*





DAIRY PRODUCTS & MILK \$757.3M

Colorado has approximately 120 dairy farms and 176,000 dairy cows. In one year, those cows produce more than 547 million gallons of milk. In 2018, milk exports from Colorado totaled \$96 million.

*WHAT ARE CASH RECEIPTS?

Defined by the U.S. Department of Agriculture's Economic Research Service, cash receipts refer to the total amount of crops or livestock sold in a calendar year.



CORN \$575M

In 2018, more than 1.47 million acres of corn were planted for grain and silage. Yuma County planted the most corn in acreage, with more than 238,400 square acres dedicated to corn.

HAY \$431.2M

Colorado ranked 13th in U.S. hay production with more than 3.6 million tons produced in 2018. More than 1.4 million acres of hay were cut and baled that year.



WHEAT \$338.6M

In 2018, Colorado ranked fourth in U.S. winter wheat production. That year, 2.2 million acres produced more than 70.2 million bushels of wheat. The crop is grown in all regions of the state and in 40 of the 64 counties.



Colorado farmers are as different as the foods they produce

N COLORADO, THERE is no such thing as a typical farmer: The hardworking farmers growing our food are as diverse as the crops and livestock they produce. Meet the men and women, military veterans, minority farmers and Native American tribes who grow your food.

SALLY HERBERT, **ALTIUS FARMS**

Sally Herbert had a successful career in supply chain management before starting an urban farm.

"I started learning more about the food crisis," she says. "We were overfarming certain areas and climate change was having a big impact, and I wanted to be part of reducing the carbon footprint of our food by growing it closer to our cities."

Herbert had the idea for Altius Farms in 2015. Rather than pursuing conventional soil farming, she opted to establish a high-tech hydroponic greenhouse on a rooftop in downtown Denver.

After struggling to find the right

site, Herbert finally launched Altius Farms in 2018. The rooftop urban farm features an 8,000-square-foot greenhouse where 28 different crops, including several varieties of lettuce, are grown in vertical towers to maximize space. The farm grows as much produce as 1.5 acres of conventional farmland.

Although Herbert is among a growing number of women pursuing careers in agriculture, it's not a desire to break the "grass ceiling" that gets Herbert excited about growing fresh, local produce for restaurant and wholesale accounts.

"I am a process person," she says. "Supply chain was a process; farming is a process, too. I want to work on this model and hope that we can continue evolving it to make a difference in communities."

TAYLOR DREW. **FOREVER WEST FARMS**

After serving in the Navy, Taylor Drew attended culinary school and spent 12 years working as a chef. He opened LoHi SteakBar and LoHi Local coffee shop in Denver but craved something different.

"I wanted to get more involved





in the local food community," Drew recalls. "I took classes through Veterans to Farmers, a Colorado nonprofit that trains military veterans for careers in agriculture, and loved being on that side of production."

The veteran and chef started Forever West Farms with Joe Pettenger in 2018. The 15-acre market garden grows 25 varieties of vegetables and herbs. Drew also planted 2 acres of winter wheat that he processes in a small mill. He plans to start selling the fresh milled flour at his local farmers' market next spring.

The military, Drew says, taught him valuable skills that he uses in the field.

"When you're out to sea and you only have so many resources, you have to figure out how to make

things happen; the same thing is true out in the field. You have to use what you have," he says. "For every disheartening moment, there are ways to make it work. There are a lot of small victories that make you feel like a million bucks."

ROBERTO MEZA, **EMERALD GARDENS MICROGREENS**

Roberto Meza has a background in video and film, not farming, but that didn't stop him from digging into a new agricultural venture.

"We watched a lot of YouTube videos to figure it out," Meza confesses.

In the three years it took Meza to build a barn and add essential infrastructure, including a well and power, to his Bennett, Colorado, farm, his plans changed. Instead

of growing vegetables to sell at local farmers' markets, the Latino artistturned-farmer and his business partner, Dave Demerling, decided to grow microgreens. He started **Emerald Gardens Microgreens** in 2017.

"It was a high-value crop with a quick turnaround that chefs were seeking out," he says.

The same qualities that made microgreens attractive to Meza as a farmer also appealed to him as a social justice advocate.

"We wanted to push microgreens beyond the garnish and into the lives of people who could benefit from the nutrition," he says.

With the help of the Food Pantry Assistance Grant, which provides funding to food pantries and food banks to purchase Colorado-grown products, Emerald Gardens

Microgreens is able to sell its nutrientdense crop to food pantries.

Meza believes the demand from chefs and food pantries has helped the farm go from a concept to a thriving venture.

"As a farmer, entrepreneur and food activist," he explains, "I'm looking for opportunities to use microgreens to build partnerships that will pave the way for our success."

ERIC WHYTE, UTE MOUNTAIN UTE FARM AND RANCH ENTERPRISE

The Ute Mountain
Ute Tribe started
growing crops after
its water rights
were settled in
1988. Over the
last three decades,
the farm has
expanded the Ute

Mountain Tribe Farm & Ranch Enterprise to a 7,800-acre modern irrigated farm that grows non-GMO corn, wheat, alfalfa, sunflowers and a 600-head cow-calf operation.

The enterprise sells most of its alfalfa to dairy farmers and mills corn into cornmeal and tortilla chips under the Bow and Arrow brand. The corn has also been used as a key ingredient in award-winning distilled spirits.

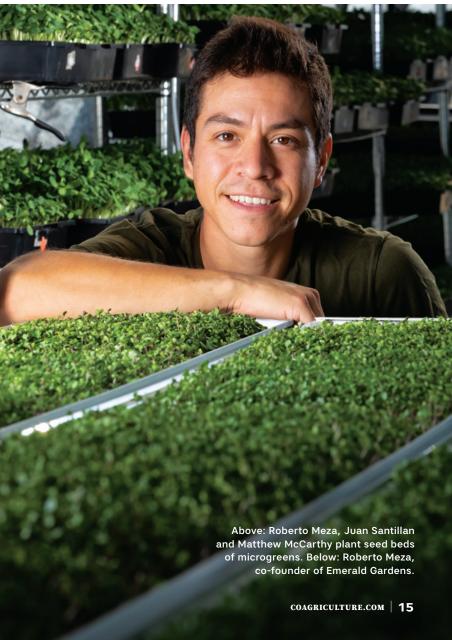
"The distilleries have been a big surprise and really good for us," hay sales manager Eric Whyte says.

Growing on tribal lands has special significance for the tribe, according to Whyte. The farm provides employment and income for the tribe while using state-of-the-art sustainability practices to ensure they are good stewards of the water they fought so hard to access.

"It's not just about having the water rights, it's about showing what we could do with them," he says. "We have become more than profitable on the farm and ranch side and done good things for the tribe and our local communities with agriculture."

– Jodi Helmer









the river." Known as "delayed return flow," it can extend the length of the seasonal flow for many of Colorado's rivers, making them viable for a longer period of time.

Moreover, without agricultural water rights intact, Colorado's agricultural industry would fail to supply the vast array of products and economic opportunities throughout the state, not to mention the open space and wildlife habitat our state depends on.

"We have plenty of unfortunate examples of formerly thriving agricultural rural communities that literally dried up after water rights were sold, one by one, from the farms," says Cindy Lair, program manager of the Colorado State Conservation Board at the Colorado Department of Agriculture (CDA).

COLLABORATING FOR COMBINED SUCCESS

One of CDA's roles in implementing the state's water plan is to help local conservation district leaders speak to the economic and cultural values of agricultural water rights in their communities. According to Lair, CDA's State Conservation Board works with organizations such as the Colorado Agricultural Water Alliance (CAWA) to connect conservation districts with the appropriate tools to foster productive conversations between all water stakeholders, especially agricultural water users. These efforts sometimes require funding, which is available through grant programs offered by the Colorado Department of Natural Resources' Colorado Water Conservation Board.

Lair and her department also collaborate with the Colorado Association of Conservation Districts (CACD), a nonprofit natural resources organization that serves as a unified voice for Colorado's 76 conservation districts, each of which fall into one of the 10 geographical watersheds across the state.

Conservation districts are special districts organized under state law to promote grassroots efforts for implementing state-of-the-art

fertilizer, insecticide and herbicide application, not to mention improving soil health for greater water conservation, an effort the Colorado Department of Agriculture is currently



conservation practices on private land through education and demonstrations at the county level. They also work closely with the **Natural Resources Conservation** Service (NRCS) to implement federal Farm Bill conservation programs. Through these federal and state partnerships with the districts, landowners are provided assistance with advocacy, education, guidance, support, project funding and technical implementation of wise conservation practices.

LEADING THE WAY

As a CACD regional director, Gary Thrash has witnessed progress firsthand. "We have seen more effective and efficient uses of water by producers, and in the future, an increasing focus on non-point source pollution control to address water quality issues." This includes implementing best management practices for

undertaking (see page 24).

"New farming practices that more effectively use water, cover crops and changes in crops also make a big impact on water use and water quality," Thrash says.

For some conservation districts, their participation in the Colorado River Basin Salinity Control program has helped to reduce the annual salt load of the Colorado River by more than 1.3 million tons. However, if the program does not continue to be aggressively implemented, damages to Colorado River water users are estimated to increase by \$120 million by 2035.

Looking to the future, voluntary, incentive-based water conservation tools such as Alternative Transfer Methods (ATMs) will also be key to preserving water quality and quantity for the next generation of producers, keeping water in agriculture and making every drop count.

HEN EDWARD TUFT started growing organic apple varieties in Hotchkiss in the 1970s, he struggled to sell the fruit. The market for organic produce was almost nonexistent back then, and Tuft worried the Red and Golden

Delicious apples growing on his 40-acre orchard would rot.

"Since we couldn't sell them, we built a juice press and pressed them into juice," he says.

Tuft created the Wacky Apple brand to market the juice, and his decision to pursue a value-added

product proved fruitful. Four decades after Tuft built his first juice press, he is still growing organic apples, making products like apple juice and applesauce, and filling orders for customers that include Whole Foods, King Soopers and several Colorado school districts.

Many Colorado farmers grow a range of agricultural commodities. Focusing on high-value crops and seeking out creative marketing opportunities helps farmers to diversify their operations and create new revenue streams.

"It's hard for farmers to make it on produce alone," he says. "The margins in farming are so thin; we had to find another market for our products that would allow us to be more profitable."

Selling organic apples proved challenging at first, but as the appetite for pesticide-free produce gained momentum, Tuft was prepared to meet the demand. In 2000, he expanded to a 220-acre orchard planted with apple varieties like Gala, Fuji and Honeycrisp.

"Even 10 years ago, organic apples were scarce, but the demand got big fast, and we had to source apples from Mexico and Serbia to fill orders for applesauce," Tuft recalls. "We made a significant investment to expand our orchard and processing plant so we could keep up with demand."













FINDING A NICHE

At Bella Vista Bison Ranch, Neil Fischer focused on a niche protein and created a unique model to distribute the grass-fed meat. Selling at farmers' markets in Colorado Springs required a lot of work, and only reached a limited number of customers. So, in 2013, Fischer founded a food cooperative, Farm2Table Meats, to distribute grass-fed bison alongside meats from other Colorado farms and ranches.

"We wanted the co-op to be about more than buying meat," Fischer says. "We wanted our customers to buy into the local food movement."

Although bison are not as popular as cattle, bison ranching is a

growing trend in Colorado. To stand out from the competition and help consumers understand the important cultural and ecological benefits of raising the ancient animals - Bella Vista Bison Ranch created an interactive agritourism experience. The Bison Adventure includes a performance by Lakota

Sioux Indians, interactions with the herd, a hayride and a barbecue meal featuring bison meats.

"Bison went from near extinction to making a comeback and we wanted to share their amazing conservation story," Fischer explains. "The dinner show is education and entertainment and

66 The dinner show is education and entertainment and demonstrates that we need to be better stewards of the resources we have or we could lose them."

Neil Fischer, farmer, Bella Vista Bison Ranch



demonstrates that we need to be better stewards of the resources we have or we could lose them."

STANDING OUT

The farmers growing hemp across Colorado are also eager to share their stories, in part to help stand out from the competition. The passage of the 2018 federal Farm Bill legalized industrial hemp and has led to a significant boom in registered hemp crops statewide. Currently, hemp is being grown on more than 86,000 acres in Colorado.

Zane Kunau of Freida Farms grows two acres of hemp in Fort Collins. He spends months propagating, transplanting and tending to plants, ensuring premium CBD levels before harvesting in the fall. While there is a lot of competition among farmers growing the high-value crop, Kunau believes that many of the CBD companies that purchase hemp from Freida Farms value the local source.

"Before hemp was legal here, it came from China or Canada," Kunau explains. "Thanks to the Farm Bill, the demand for hemp keeps going up and a lot of companies pride themselves on locally sourced hemp. That's what we are – boutique hemp grown on a family farm."

The diversity of high-value crops grown on family farms across Colorado is a win for both consumers and producers, by creating opportunities for farmers to find their own unique niches within agriculture.

- Jodi Helmer

BEING A FARMER MEANS TENDING TO THE LAND, AIR AND WATER.

66

99

SONDRA PIERCE

Colorado Mom and Farmer



Learn how farmers are being sustainable at findourcommonground.com



A New Generation OF FARMERS

4Rivers Equipment helps Colorado's farmers become tech-savvy

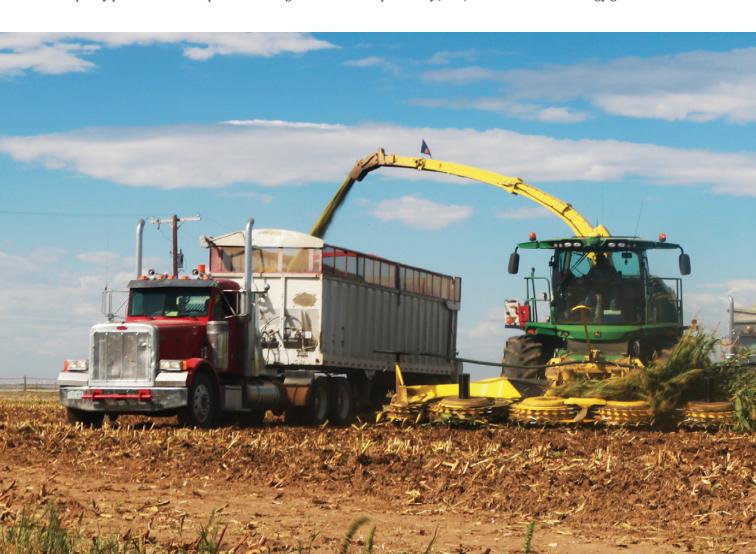
OHN LARSON, A
livestock farmer in Gill,
wanted to expand the use
of technology in his operation.
4Rivers Equipment, a trusted
partner for Colorado farmers and
ranchers since 1926, stepped in
to help Larson achieve that goal.

The company provides highquality products and exceptional customer service and is committed to growing and adapting to the state's changing agricultural industry.

Andy Hansen, 4Rivers ag precision specialist works with farmers like Larson to figure out the best solution to help with efficiency and increased production.

The Larson farm is a fifthgeneration farm operated by John, his father, Lelyn, and his grandfather, Jack. They're a livestock operation but also grow a lot of their own hay and corn for silage.

Hansen says that the Larsons were already incorporating efficient and environmentally friendly practices into their operation and were ahead of the game as far as technology goes.



"The family started a drip-tape irrigation system way back when, before there was a lot of information," Hansen explains. "And they built their own drip-tape systems."

Drip-tape irrigation emits a slow, steady stream of water to a crop's roots versus overhead irrigation, which is less controlled.

Larson says that many of their fields are irregularly shaped and don't work well for a center-pivot system. The drip-tape system has saved them water and helped them eliminate a lot of manual labor.

In addition, 4Rivers and the Larsons have worked together to utilize tractors, harvesters and other equipment that supply important data straight to the Larsons' computers.

other guidelines, which is really important because it allows us to control traffic in the field," Larson adds. "We have a lot of tractors, planters that work on 20-inch rows, a forage harvester and other John Deere equipment from 4Rivers that all has Greenstar technology."

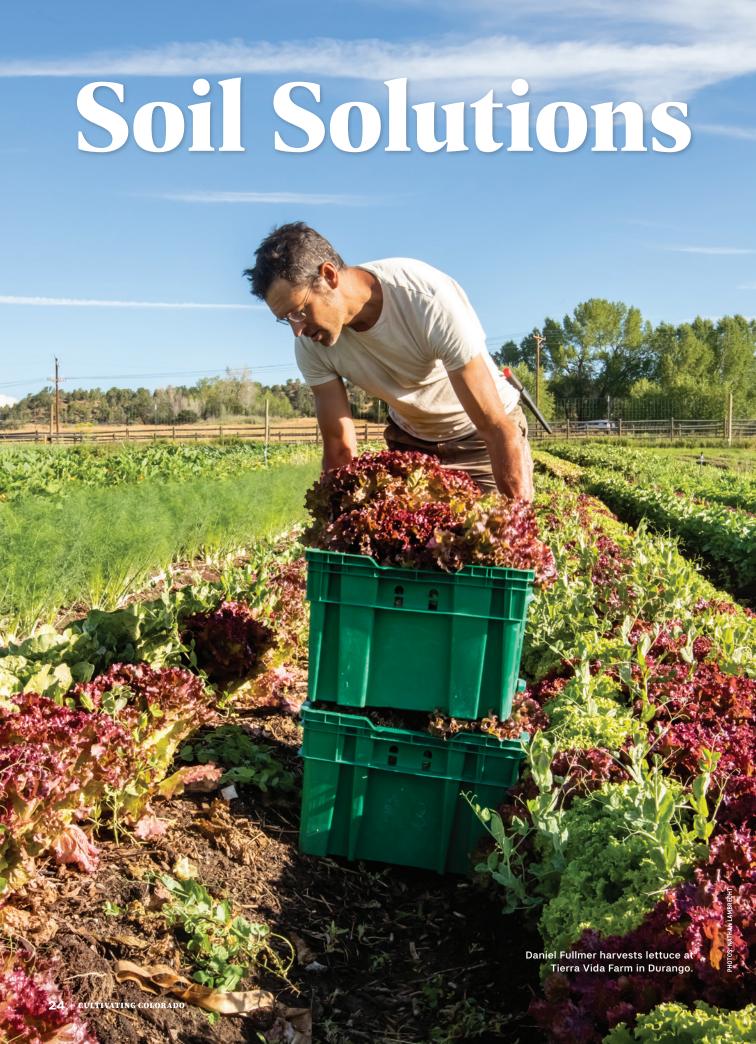
Larson says that this data is stored digitally and really helps them with guidance for the future and being able to repeat the successful results.

Hansen echoes that collecting this type of data is extremely important for Colorado's farmers.

"Data records for the farmer are like receipts for an accountant, extremely important," he says. "Most John Deere equipment can be accessed wirelessly using JDLink and Wireless Data Transfer, which wirelessly moves the farmer's production data to Operations Center, John Deere's data management system. The farmer can access Ops Center from their laptop, tablet or phone. It will give farmers like John the capability to manage employees and see their work versus being physically in the tractor all day long."

Learn more about 4Rivers
Equipment and the technology
they're implementing at **4riversequipment.com**.







Behind the scenes of statewide efforts to improve soil health, productivity and resilience

NLESS YOU'RE A FARMER or gardener, the importance of soil can be easily overlooked and underestimated. However, the reality is that we are all in debt to our soil - and not just figuratively speaking.

According to a report published in 2018 by the United Nations Convention to Combat Desertification, the global economy is set to lose \$23 trillion by 2050 through land degradation. And, so long as high erosion rates continue to outpace the slow rate of topsoil renewal, it's clear that a future crisis will be inevitable.

That's why Daniel and Hana Fullmer, owners of Tierra Vida Farm outside of Durango, Colorado, have become advocates for sustainable farming and regenerative production. Inspired by the motto, "Healthy soil, healthy food,

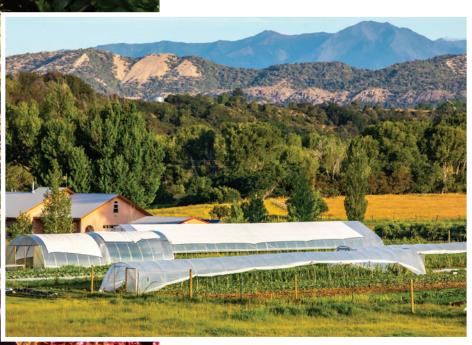
healthy people," the couple started out on heavy clay soils and farmland prone to flooding, knowing full well that without making a long-term commitment to soil health, it would be impossible for them to make a living off the land. As of 2019, they have accomplished five years of intensive management to rehabilitate the soil and continue to see improvements every year.

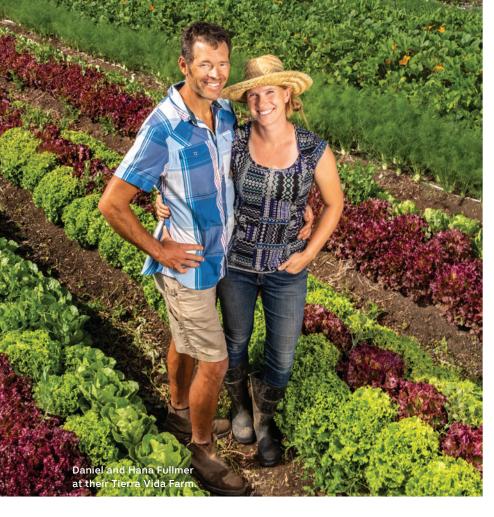
For example, in 2017 the San Juan Basin, which provides snowmelt for Tierra Vida Farm's irrigation water, had 150% of normal snowpack. Tierra Vida's fields flooded multiple times during the growing season. Although soil health initiatives had been in place for a couple of years, many crops remained small and stunted. Fastforward two years later: In 2019, the

> farm had 300% of normal snowpack, but with far less flooding and fewer crops affected. The game changer was healthier soil, which enabled the water to drain better.

Additionally, despite 2018 being a record drought year, the farm doubled production because their healthy soil acted as a reservoir. Overall, they've also noticed dramatic increases in plant performance with higher yields and less pest pressure.

As the Fullmers continue to teach others about their





methods and successes, they have found educational gaps that need filling. "The main misconception amongst the general public is that the goal is to conserve the current health of the soil. In reality, our goal is to improve soil health. It's not enough to just maintain what's there, and when we work with nature, we can speed up the soil building process exponentially," the couple says.

The Fullmers have begun to incorporate animals into their operation with the addition of chickens. They also continue to refine their methods by using their own on-farm experience as well as learning from experts in the field. Their efforts are constantly growing and evolving.

"As farmers and ranchers, we should always be thinking about how we can create a better home for the life in the soil."

CDA'S NEW SOIL HEALTH INITIATIVE

The Colorado Department of Agriculture (CDA) is scoping opportunities to develop a Colorado Soil Health Program (CSHP), which it expects to roll out in 2020. The program would provide innovative research, outreach and grant tools

to incentivize farmers and ranchers to voluntarily adopt carbon and water conserving practices by managing for healthy soil.

As part of this program, funds and technical assistance would provide strategic support to advance soil health, including investments in seed, equipment, soil testing, demonstration plots, farmer-tofarmer educational tours and more, according to Cindy Lair, CDA's program manager of the Colorado State Conservation Board.

"In addition, carbon storage from these improved practices will help achieve Governor Jared Polis' ambitious greenhouse gas reductions. Improving soil health is also a strategy identified in the Colorado Water Plan."

By partnering with landowners, the CSHP would help establish a first-of-its-kind baseline soil health map for the state, as well as identify potential environmental services markets that could provide additional revenue streams for farmers and ranchers. These pivotal steps will ensure not only that Colorado is creating soil health leaders today, but that future generations can still be productive in the fields of tomorrow.

- Keri Ann Beazell

There are more soil microorganisms in a teaspoon of soil than there are people on the earth.

-



Healthy soil can hold 20 times its weight in water.

EVERY YEAR. 24 BILLION TONS OF TOPSOIL ARE LOST TO SOIL EROSION.

Trying on Technology

Colorado dairy farmer makes significant strides in efficiency

TECHNOLOGY SURROUNDS

us in today's society, and that doesn't stop on the farm. For the past several years, farmers in Colorado and beyond have begun embracing new and innovative technology to make their operations more efficient, increase animal comfort and care, and to be more cost-effective. Dairy farmer Jim McClay is a pioneer in agricultural technology.

McClay owns Cottonwood Dairy in Fort Lupton. His parents started the dairy in 1981 with just 60 cows. Today, they have roughly 420 milking cows.

"We average about 91 pounds of milk per day," McClay says. His milk travels to the local Denver market and into Safeway and Kroger stores.

McClay says he began looking into technological advances to add to the dairy when they were notified of an energy pilot program that would allow them to operate as efficiently as possible financially.

"We were part of the pilot for an energy program, and that allowed us to get a plate cooler which uses groundwater," McClay says.

A plate cooler is used to cool down the milk before it goes into the tank. Typically, milk goes into the tank at 98 degrees and needs to be cooled to 36 degrees. Thanks to the plate cooler, McClay is now able to dump milk into the tank at 64 degrees in the summer and 48 degrees in the winter, which radically reduces the time and energy needed to cool the milk.

"Before we had the plate cooler, we'd turn on the old coolers at 12:45 p.m. and they'd still be running at 8:30 that night," McClay says. "Now,

we turn on the plate cooler at 12:30 p.m. and they're done by 3."

He also added things like a higher-efficiency on-demand water heater that, in tandem with another on-demand water heater, takes the temperature to 180 degrees, along with an industrial-size washing machine.

He also took advantage of technology when he switched all lighting to LED lights, which save a significant amount of energy.

"I try to be as environmentally sound as possible. I want to save energy where I can and not be a wasteful person," McClay says.

"But it has to be cost-effective as well. The plate cooler paid itself off in three months."

McClay adds that the technology he uses helps with cow comfort

"It makes the cows happier and you get more milk. If you have a bunch of disgruntled employees around here, they're likely to walk out," he jokes. "With all the lighting we upgraded, I'm using 75% less in electrical energy. That allows me to use energy elsewhere for cow comfort, and the lighting increases their comfort as well."

- Rachel Bertone



Educating THE NEXT GENERATION

Colorado education programs teach the state's youth about agriculture

HE FUTURE OF Colorado's agriculture industry rests on the shoulders of its youth. Thankfully, several agricultural education programs within the state are preparing them for the responsibility of carrying the industry forward.

COLORADO AGRICULTURE IN THE CLASSROOM

Administered by the Colorado Foundation for Agriculture, the Colorado Agriculture in the Classroom program helps teachers and students connect to food, fiber, fuel and natural resources through classroom materials.

"One of the staples of the program is the Colorado Reader, which is an eight-page student activity newsletter geared toward four through six grade students to teach current, accurate information about agriculture," says Jennifer Scharpe, executive director for the Colorado Foundation for Agriculture.

She explains that the Readers are distributed six times throughout the school year in classroom sets with an educator's guide, so teachers can use them while teaching core subjects such as math, science, social studies and language arts. Readers are mailed to 1,800 classrooms across the state.

"Besides the Colorado Reader program, we have other programs and resources, including five different activity books," Scharpe says. "They're designed to increase the level of understanding on a particular topic," which include water, cattle in Colorado history, wool and sheep, eggs, and more.

Scharpe says that all of the resources provided through Agriculture in the Classroom are helping to advance agricultural literacy in schools.

"It is said that today's youth are at least four generations removed from a farm or ranch," she says. "Today's youth have many misconceptions about agriculture - such as brown cows make chocolate milk, that farming is an antiquated practice or that food comes from a grocery store. The Agriculture in the Classroom program seeks to improve awareness, knowledge and appreciation around food, fiber, fuel and natural resources."

COLORADO FFA

The Colorado FFA program allows high school students to dive deeper into agricultural education and prepare for future careers in the industry.

"We have a little over 7,000 FFA members in our state and 125 high school programs, which equates to about 145 teachers," says Kenton Ochsner, state FFA advisor. "We've been growing very steadily and there is an increasing interest and demand for ag education in urban areas.

66 The Agriculture in the Classroom program seeks to improve awareness, knowledge and appreciation around food, fiber, fuel and natural resources."

Jennifer Scharpe, executive director for the Colorado Foundation for Agriculture

People want to know and understand where their food comes from, and they want students to be able to get their hands dirty and learn how to grow a plant."

The program is part of the National FFA Organization, which aims to not only give students hands-on experience in agriculture, but also instill in them life skills

To Make the Best Best Better

such as responsibility, leadership, public speaking and work ethic, among others. These skills are imparted through leadership and competitive events, as well as Supervised Agricultural Experiences, or SAEs, which allow students to have a hands-on learning opportunity, no matter what their career path may look like.

"We try to make sure we're providing students with quality leadership education," Ochsner says. "Leadership is a broad term, but making sure they can communicate effectively, learn how to handle themselves, be responsible and show up on time, and have a good work ethic is all part of it."

He adds that for Colorado specifically, the program is paramount for improving agricultural literacy and making sure all people – even outside of FFA – understand what is

happening with agriculture.

COLORADO 4-H

Part of the Colorado State University Extension, the Colorado 4-H program began more than a century ago with a mission to teach young people leadership, citizenship and life skills with a strong focus on agriculture. 4-H serves youth in rural, urban and suburban communities in every state of the country. Young people can join 4-H at age 5 as a Cloverbud and continue through age 18, participating through clubs, after-school programs and camps.

4-H programs and competitions encompass traditional agriculture subjects such as beef, poultry, gardening and horses, as well as creative projects including cake decorating and

ceramics, and innovative technology topics such as robotics, small engines and model rocketry.

Together, all three programs effectively improve the present and future of Colorado agriculture, providing information, lessons and skills that will benefit the state for years to come.

- Rachel Bertone

Pind more online

For more information about agyouth programs in your area, visit COagriculture.com.



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Occupation **OPPORTUNITY**

How the Centennial State leads the pack for diverse careers

N 2017, THE UNITED States Department of Agriculture (USDA) reported that roughly 5.9 million full- and part-time jobs were related to the agricultural and food sector.

According to the USDA, in Colorado more than 31.8 million acres are dedicated to farm operations around the state and with developments in technology and an increase in educational programming, there are more jobs available than ever within the ag industry.

Whether it's a career focused on food-animal systems or plant-based jobs, students in Colorado are quickly learning that these days Old MacDonald doesn't just have a farm.

A HANDS-ON APPROACH

The Colorado education system does an exceptional job of preparing the next generation of ag employees.

"The agricultural industry touches every corner of Colorado, whether big city or small town, and jobs created by agricultural industries play an essential role in the economy of the area," says Addy Elliot, assistant dean of academic advising and student success at Colorado State University (CSU). "The variety of jobs in agriculture is as diverse as agriculture itself."

At CSU, students can choose from several different paths and take a hands-on approach to learning, including Ag Adventure Days for

students in the College of Ag. The annual event hosts more than 3,000 third graders from the local district and allows undergraduate students to lead activities that show them the wide scope of ag careers.

Some of these jobs include managing a community garden, serving as an equine therapist or studying market trends and consumer behaviors to determine stock of produce at grocery stores.

These educational programs play an integral part in preparing students for the future and oftentimes allow them to explore areas in the field they wouldn't have known about otherwise.

"The examples provided during a class or for a project were always





Left: Matt Camper and Addy Elliott at commencement in 2018. Right: Students in the CSU College of Agricultural Sciences.



Left: Ag on the Plaza at CSU, 2018. Below: Leslie Mendez, Agricultural Statistician with the U.S. Department of Agriculture



a practical application to the 'real world," says Leslie Mendez, a statistician with the USDA-NASS, speaking about her educational background. "Since I paired my animal sciences degree to an ag business degree, I was able to see the application to both sides of agriculture."

TURNING IT UP A DEGREE

Though practical application is important, pursuing higher education can also offer students a good bang for their buck.

"Choosing to complete a degree program provides graduates with a strong network of fellow alumni, industry partners and stakeholders who are passionate about agriculture and resource sustainability," Elliott says.

Application of these lessons extends beyond the classroom and there is practically no limit on what those who pursue a career in agriculture can achieve. "The biggest lesson for me was how beneficial it was to be involved in school," explains Mendez, a CSU graduate. "I did not grow up on a farm or have that background,

but being able to take advantage of these opportunities gave me the experience and exposure I needed to learn the hands-on aspect of agriculture."

cost for hiring interns.

Fortunately for those in Colorado, opportunities in ag abound.

"Agricultural career opportunities in Colorado are almost as diverse

66 The agricultural industry touches every corner of Colorado, whether big city or small town, and jobs created by agricultural industries play an essential role in the economy of the area."

Addy Elliott, assistant dean of academic advising and student success at Colorado State University

AG FOR ALL

Colorado leads the pack when it comes to setting both students and employers up for success.

Through the state's Department of Agriculture, the Agricultural Workforce Development Program provides incentives for agricultural businesses, including farmers and ranchers, to hire interns. With the goal of providing hands-on education to students interested in a prospective career, the program allows qualified businesses to be reimbursed up to 50% of the

and abundant as the different landscapes of our state," Elliott says. "The industry is growing in breadth and depth and I believe this will continue."

– Cara Sanders

Pind more online

For more information about Agricultural Workforce Development Programs, visit colorado.gov/ag.

FARMERS COMBAT

Farmers and ranchers implement innovative conservation practices

HEN FARMERS stop in to see Stephen Iaouen at the USDA Natural Resources Conservation Service (NRCS) field office in Glenwood Springs, they express concerns over drought, excessive heat, monsoon storms and other extreme weather conditions.

Jaouen, a district conservationist for the NRCS, works with farmers and ranchers to implement conservation and sustainability practices that help mitigate climate change, conserve natural resources and build resilience.

"Water availability and drought, those issues are constant on our farmers' and ranchers' minds, and they are trying to do the best with what they've got in a sustainable way," Jaouen says.

The federal agency's mission statement is "Helping people help the land." Jaouen's staff helps farmers find ways to reduce energy dependence and usage, cut down on carbon emissions, control invasive plants and minimize salts from draining into rivers.

DOING MORE WITH LESS

NRCS issues federal funds to those that apply through programs such as the Environmental Quality Incentives Program (EQIP) to implement conservation practices. Participation is voluntary, and farmers who enroll agree to a payment that is roughly a 50-50 cost share.

Colorado receives about \$30 to \$35 million a year in EQIP funds, for a total of \$60 to \$70 million in conservation efforts going on statewide, Jaouen says. The Glenwood Springs office has 60 active EQIP contracts in a five-county area and exceeds \$1.2 million in annual grant funding.

"They know it's going to cost them to install, but they understand it's going to help them in the long run and stay in farming and produce food and fiber for the rest of us," Jaouen says.

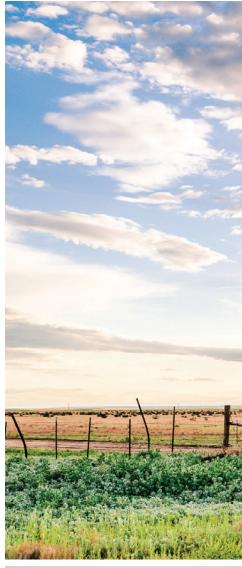
Those conservation efforts include no-tillage and low-tillage, crop rotation, prescribed cattle grazing, energy-efficient irrigation systems and water storage projects. Planting more permanent crops, along with no-till practices, helps capture carbon and store it in the soil rather than putting it into the air.

Fighting invasive weeds is another issue.

"We do a lot of expensive irrigationtype systems, so when there is a drought we can still produce food and fiber with less water and also manage those weeds properly during those drought cycles," Jaouen says.

The field office also provides technical assistance if a farmer is having an issue with weed control, erosion, soil health or water conservation.

Through ag expos and partnering with local conservation districts, NRCS field offices help spread the word about various programs that can increase a farmer's bottom line, reduce environmental impact and encourage climate stewardship.





CLIMATE CHANGE









"Most farmers and ranchers are all about doing more with less," Jaouen says. "Our farmers and ranchers are always interested in reducing those energy inputs that would generate greenhouse gases and climate change."

Forest fires are another growing concern, and the office works with public and private landholders on prevention awareness, forestry practices and defense measures to improve the forest's resistance and resilience.

A MORE HOLISTIC **APPROACH**

Ranchlands, a Colorado-based ranching business that specializes in the management of large-scale ranches, partners with owners to implement conservation programs that coexist alongside the company's cattle operations.

Duke Phillips, CEO of Ranchlands, focuses on preserving ecosystems and the region's ranching heritage while honoring what the land will produce. Phillips is a third-generation rancher. He says drought and weather extremes have impacted the industry in a big way. During dry spells, the land cannot produce enough feed for the cattle, forcing ranchers to reduce their herds.

"There are very strong motivations for ranchers to create a healthy natural world around them," Phillips says. "We depend on natural resources."

Ranchlands uses cattle to increase biodiversity, manage invasive plant species and restore riparian areas. Phillips sees ranching as the most compelling alternative to large-scale conservation efforts in the West.

"We think that conservation is a product we produce, the same as beef," Phillips says. Besides rotating cattle, herds are grazed in a migratory fashion around the ranch so the land is rested during the growing season. Large herds also break the surface of the ground so organic matter can recycle back into the soil instead of oxidizing in the air.

Ranchlands also uses business diversification to help with land conservation and environmental sustainability. Having diverse revenue streams enables ranchers to reduce stocking rates immediately when a drought begins, reducing stress on the ecosystem.

Ranchlands offers educational programs, as well as a ranch management training program, among other agritourism attractions like concerts, hunting and fishing.

The company works closely with the Nature Conservancy and Rocky Mountain Bird Observatory to take advantage of science-based tools.

"We do a lot of different kinds of monitoring to make better decisions in terms of the health of the land," Phillips says.

- Marla R. Miller



Voice of Experience

Ranchers, farmers put their knowledge to work

WHEN MEMBERS OF THE

nine-person Colorado Agricultural Commission make recommendations on ag policy, they know what they are talking about. This Governorappointed producer board oversees decisions made at the Department of Agriculture, from program developments to rulemaking and more. These agricultural leaders have more than 250 years of combined experience as producers.

Commission member Kathryn Bedell, DVM, of Fruita sees her role as providing a conduit from her community to the rest of the commission. "This means not only my physical location, but the community of people I brush up against doing business in agriculture," says Bedell, who raises grass-fed cattle and owns Roan Creek Ranch Grocery, where she sells her branded beef products and other local foodstuffs from the Western Slope.

Bedell's decision to raise her beef on grass and hay developed over time. In veterinary school, Bedell observed the practice of feeding human food waste such as orange

pulp, potato peelings - or anything that might be left over from manufacturing food products - to beef and dairy cows. She's opposed to growth hormones in livestock and believes grains are not part of a cow's natural diet. Bedell's knowledge of regenerative ranching brings an experienced voice to the "greening" of agriculture. "I see my role as someone who is involved in that space already, someone who can help move the conversation along toward more regenerative agriculture," she says. "The administration's whole platform focuses on the future."

PREPARING FOR **FUTURE GENERATIONS**

Looking to the future also means keeping Colorado's agricultural lands in agriculture. The next generation of producers must be able to make a living doing so. Commission member Segundo Diaz knows this firsthand. His father-inlaw and brother-in-law started raising certified seed potatoes in 1978. Segundo and his wife Margie took over Martinez Farms in 1986, and today, three of Diaz's four sons also work on the 2,500-acre farm in the San Luis Valley. They raise more than 20 varieties of potatoes and manage a tissue culture lab and greenhouse propagation facility.

Diaz is serving his second term as a commission member, and he says he's learned a lot from his fellow commission members who produce other commodities. "We raise seed potatoes and barley," he says. "We don't know about peaches, grapes or wheat. But when you consider labor issues, federal and state regulations, the water situation, climate change - each of us is facing the same common issues."

He echoes Bedell's concerns about the future of farming. "We have to be thinking about the next generation," he says. Despite the challenges, many of which are drastically different from those he faced when he started 35 years ago, Diaz remains philosophical. "Farming will survive," he says. "It's still a good way of living."

- Kim Hill





Supporting ONE ANOTHER

Co-ops benefit Colorado's agriculture industry

co-op by definition is a business that is owned and operated by and for the benefit of its members. It certainly has been a successful concept in the ag world. One shining example of this is Agfinity Inc., which operates in multiple communities across Colorado and connects farmers, ranchers – and even consumers – throughout the state.

"Agfinity got its start in 1905, when 20 potato farmers each invested \$100 to form a cooperative so that they could do collectively what they were struggling with individually – sourcing crop inputs and marketing their potato crop," says Jason Brancel, Agfinity's CEO and president.

Today, 114 years later, Agfinity is still a member-owned cooperative with assets in over 20 locations along Colorado's front range and with net sales in excess of \$220 million.

Most of Agfinity's members are farmers and ranchers, or people directly involved in agriculture in some way, but consumers can also be members. A benefit of being a member is that when the co-op is successful, those profits go back to the members in the form of patronage and equity.

As one of Colorado's largest and

strongest co-ops, Agfinity is a onestop shop by providing its members and customers with solutions in energy, automotive, retail, feed, grain, agronomy and turf products.

"Agfinity also supports Colorado farmers and ranchers by making larger investments in infrastructure and assets like grain bins or a bulk propane plant so cooperative members don't have to have to build those assets themselves," says Kent Kalcevic, board chairman.

A co-op is a true win-win situation because it provides quality products and services to Colorado industries like farming, ranching and construction and also returns earnings back to its members when the co-op is financially successful.

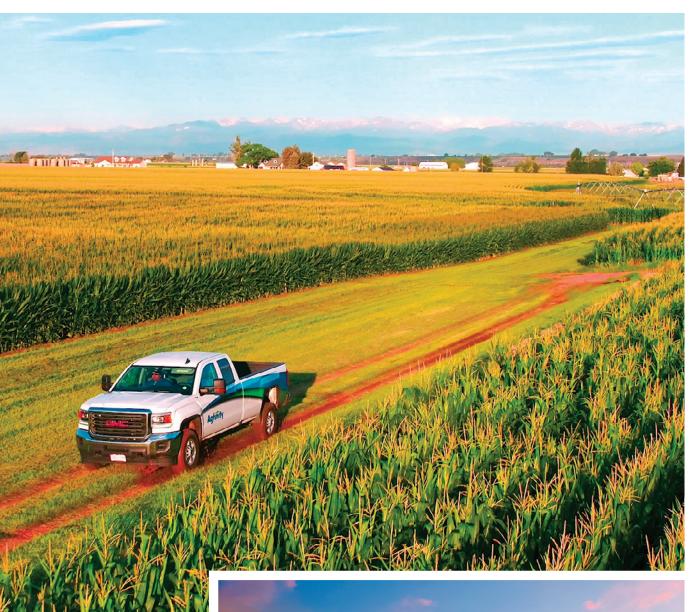
And while members reap the benefits of this unique business model, Colorado's agriculture community as a whole does, too.

Agfinity's leader and visionary, Jason Brancel shared that if we are going to feed 9 billion people by the year 2050, we need Colorado's agriculture industry to be strong and vibrant.

"At the end of the day," Brancel explains, "we are part of the support system for the farmers and ranchers who grow our food and raise our livestock."

















An Agricultural James family creates one-stop shop for local organic beef,

produce, cheese, eggs and more

FTER GRADUATING from the University of Redlands in Southern California in 1961, newlyweds Dave and Kay James moved to Durango, Colorado, and started James Ranch, which has grown to be a popular destination among foodies.

"Dave's dad had been raised on a farm in Kansas, so Dave had the genes drawing him into agriculture," Kay says. "We were looking for a place where we could work in agriculture and raise a large family."

The couple began raising kids five to be exact - along with cattle on their ranch in the scenic Animas River Valley, focusing on sustainability and being good stewards of the land. Their hard

work and commitment to conservation caused the ranch to grow, thrive and become what it is today - a destination for locals and tourists alike, spanning 400 acres and offering organic, grass-fed beef, freshly made artisan cheeses, eggs, produce, raw milk, pork and even spruce trees. Visitors can eat, shop, take a tour, or just pet the goats.

"We market all our products to the local community. We have our own market and cafe on our ranch, and we're one of the founders of the Durango Farmers Market," Dave says.

James Ranch also sells its organic products to local restaurants and stores.

A FAMILY TRADITION

Everything sold at James Ranch is produced on site with the help of four out of the five James children, now adults with children of their own.

"After our five children finished high school, we encouraged them to go to college or go work somewhere outside Durango," Kay says. "Once they were married, they realized they wanted to raise their own children the way they were raised, and they began coming back. Four of our children now live on the ranch, and each has their own enterprise."

That was the deal, Dave says.

"If they wanted to come back, they had to have their own business on the ranch, because our beef cattle





alone were not enough to support that many people," he continues. "Each of them having their own business on the ranch is a strong reason for our success."

The eldest son, Dan, makes all the ranch's cheeses with his wife, Becca. The cheeses are made from raw milk from the ranch's grass-fed Jersey cows, and they are aged to perfection. Six varieties of the cheese as well as ice cream can be purchased at James Ranch Market.

Oldest daughter Jenn Wheeling, a self-taught organic farmer, and her husband, Joe, started The Gardens at James Ranch two decades ago, growing a variety of vegetables and flowers. Joe has a degree in animal science, so he and Jenn are now partners with Dave and Kay in the beef cattle enterprise.

Daughter Julie James Ott and her husband, John, run the ranch's native tree farm and manage the laying hen operation. Julie also manages the James Ranch Market. One of their sons, 27-year-old Gunther, now runs the family's Whey-Good Pork business, raising pigs in the peaceful pastures of James Ranch.

"Our youngest daughter, Cynthia, was working in the fashion industry in California when she and her husband, Robert, adopted their daughter from Russia," Dave says. "She looked around at the school system and the crime rate and called me to say, 'Dad, I want to come home.""

DINING AT JAMES RANCH

Cynthia and Robert were the last to return to the ranch in 2009, and Cynthia now owns the Harvest Grill at James Ranch.

"She began cooking the food we raised and started making burgers and salads out of our little food wagon eight years ago," Dave says. "Every year, it got bigger."

The business outgrew the food wagon, and in 2019, the James family built a new brick-and-mortar restaurant with gorgeous views and both indoor and outdoor dining. They serve food produced at the ranch and use organic ingredients in everything, from sauces to pickles.

Through the years of growth and change, Kay says James Ranch has always remained committed to raising healthy food for their

community and preserving open space.

"We look forward to every day," she says. "We have challenges like everybody does, but it's a wonderful privilege to work with family. We have regular family meetings where we all decide together what we are going to do. It's very harmonious."

Dave agrees.

"Holistic resource management is very important to us," he says. "One of the things you should always do is question your quality of life, and we do that. We could sell this land for a lot of money. But we don't want a lot of money - we want a high quality of life for us and for future generations."

– Jessica Mozo

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OR GEORGE WHITTEN, OWNER OF SAN
Juan Ranch in Saguache, every day of his life
with animals has been a blessing. Born and
raised on a large sheep ranch started by his grandfather
in 1893, Whitten can't remember a time when life wasn't
centered around farm animals.

"We really are codependent, relying on each other for food and life," Whitten says about the animals he raises in the San Luis Valley. "We owe them our lives, and we learn a great deal from them. We understand them in a way that few people get to."

This belief is put into action as Whitten and his wife,

Julie Sullivan, continue to go above and beyond for the health and safety of their animals on their 100% grassfed beef operation, which is organic, humane and Audubon-certified. The pair never uses confinement except for short periods of time to care for animal health needs. Instead, they rotate their cattle in a way that more closely mimics nature and supports natural systems while raising healthy livestock. By applying these principles of holistic management, the focus is always on effectiveness rather than efficiency.

For example, part of their production cycle includes working with farmers to integrate livestock into



PHOTO: ISTOCK.COM/NIKONSHUTTERMAN

cropping rotations. "We partner with farmers who want livestock on their farmland to help them achieve soil health goals," says Whitten, who also serves on the Colorado Agricultural Commission. "In return, they offer us high-quality forage to finish our market animals on. This helps bring farmers, ranchers and consumers together to make their land and their communities more resilient both economically and environmentally."

Helpful Resources for Animal Welfare

Bureau of Animal Protection

colorado.gov/pacific/aganimals/ bureau-animal-protection

Emergency Preparedness and Response for Bovine, Poultry, and Swine Disease Outbreaks

colorado.gov/pacific/aganimals/ emergency-preparedness-and-response

What, When, and How to Report **Concerns about Livestock Health**

colorado.gov/pacific/aganimals/ livestock-health

In those counties that do not employ Bureau of Animal Protection agents, reports should be made to the Sheriff's Office or local law enforcement. You can also call the Bureau of Animal Protection at the Colorado Department of Agriculture at (303) 869-9130.

As Whitten sees it, this type of low-stress agricultural production nurtures everything in the system from the grass, living soil and livestock to rattlesnakes and magpies. "We don't need to kill anything except the livestock at harvest, which we do in the most humane way possible. Our nomadic grazing practices are, when you think about it, a very ancient form of relating to the world, which we now call 'agriculture' - vetted by time, by evolution and by nature."

PROTECTING THE ANIMALS

Similarly, Dr. Keith Roehr, state veterinarian with the Colorado Department of Agriculture, has witnessed how livestock husbandry practices are passed down through the generations and are also continuously evolving. "We, as producers and veterinarians, have long understood that patience and kindness pay big dividends," he says.

Today, livestock care and stewardship are top-tier issues with all farmers and ranchers across Colorado. Beef, pork, dairy and poultry producers have continually reevaluated and changed their daily care procedures in ways that reduce stress and diseases, increase well-being and result in better production.

Over the years, new technology and research have resulted in significant improvements in animal welfare, enabling livestock managers to develop an even deeper relationship with their animals and understanding of the needs of the animals and of the land. These innovations and insights have led to improved farm-level training and manuals, certifications, assessments and auditing.

An important part of this oversight falls under the CDA's Bureau of Animal Protection (BAP), which partners with local law enforcement to prevent animal

> neglect. Each year, BAP agents conduct many assessments concerning all aspects of animal well-being, including (but not limited to) proper housing and nutrition, disease prevention and treatment, and humane handling practices.

The end results benefit not only the animals, the environment and the producers, but the consumers as well. Further, as more consumers desire to learn where their food comes from and how it's raised, it's clear these animal welfare programs will continue to be part of the discussion and the solution.

"We at CDA are proud of the livestock producers in our state and know they have a love of the land and the animals that they keep and care for," Dr. Roehr says. Indeed, it's just a way of life.

- Keri Ann Beazell



At Home on the Range

Colorado's Veterinary Education Loan Repayment Program opens new doors for young vets and farmers

A "CITY CHICK" FROM SAN

Antonio, Texas, Dr. Callie Kuntz always knew she wanted to work with animals in some way. She was studying to be an equine specialist at Colorado State University (CSU) when an internship at the Beef Improvement Center in Saratoga, Wyoming, exposed her to a slower environment and a much more hands-on experience. Living in a more rural area for the first time, she realized that it was actually a very good fit for her. "Even though I had a ton of long nights, I knew that it's exactly where I wanted to be," Kuntz says.

In 2017, Kuntz graduated from CSU's DVM program, and in late 2018, she purchased an existing practice from a retiring veterinarian and began practicing there herself.

Kuntz, who now serves clients in a 50-mile radius of Yuma, became one of the first two recipients of the new state-funded Veterinary **Education Loan Repayment** Program (VELRP), which provides up to \$70,000 toward each student's loan debt over the course of four years. Established by Gov. John Hickenlooper in 2017 and administered by CSU, the initiative enables veterinary school graduates like Kuntz to work in rural communities where their services are often difficult to find.

A DIRE NEED

In some areas, farmers may have to drive more than 100 miles to get veterinary care, says Thom Hadley, executive director at CSU's College of Veterinary Medicine and



Biomedical Sciences. There simply aren't enough vets to go around, he says, partly because "the pay isn't nearly as high as it would be if you're a small animal practice owner in an urban area." In addition, not all veterinarians are cut out for a rural lifestyle - one reason the VELRP gives priority to applicants who have lived in a shortage area.

In addition, many rural vets are nearing retirement age. "I've heard from the farmers and ranchers that they're nervous about where they're going to get care when those guys retire," Kuntz says.

EVERYONE BENEFITS

The VELRP is already a win-win for farmers and vets, Hadley says. "For us, it's a marriage of getting those veterinarians out there who want to be there, as well as serving a population that is in the greatest need in Colorado."

For Kuntz, the program has been a godsend. "I am extremely blessed to have this jump start for my career and have part of my student loans covered," she says. "I could be easily making a lot more money doing small animal [care] in Denver, but that's not where I want to be."

- Nancy Henderson

Meet Me at the Fair

The Colorado State Fair offers something for everyone

ALONG WITH THE END

of school and the arrival of the season's heat, Colorado citizens have an exciting attraction to look forward to each summer - the Colorado State Fair. Held annually in Pueblo, the 11-day event ends on Labor Day and offers a massive amount of fun for everyone, no matter their interests.

The fair promotes the state's exceptional agriculture industry with activities including livestock and horse shows, crops shows, as well as ag-based competitions, like the craft beer homebrew and hobby wine competitions, which highlight the state's presence in the beer and beverage industry.

"The fair is a melting pot that brings together all walks of life," says Scott Stoller, Colorado State Fair general manager. "What better opportunity than this to help ag connect with consumers and consumers connect with ag? I can't think of a better place than the state fair for urban, rural and suburban folks to have informed conversations about food,"

And though agriculture is a big component, the fair features lots of other activities that aren't strictly ag-related. Stoller says some of the most popular include the largest carnival in the Rockies, motorsports, several national recording artists who perform live, fine arts and, of course, the mouthwatering fair food.







"The competitive exhibits at the fair are the true heart of the annual event," Stoller says. "Without the breadth of shows and competitions, the state fair would be no different than your typical street festival."

He says that, over time, as the community has evolved, so have the competitions. There are still several traditional competitions including baking, quilting and market livestock shows, but they've added some newer competitions such as a live poetry reading contest, showcasing tattoos as art, and a hemp and hops crop competition.

"Only time will tell if these new categories will stand the test of time," Stoller says.

Learn more about the Colorado State Fair and all of the exciting happenings at coloradostatefair.com.

- Rachel Bertone

A Centennial CELEBRATION

Colorado Farm Bureau prepares for the next 100 years

TO CELEBRATE THE PAST,

the Colorado Farm Bureau is looking toward the future.

To mark the organization's centennial, the Farm Bureau has been honoring its history with several events that included farmers, ranchers, ag professionals and people who aren't directly involved with agriculture.

"We promote agriculture and rural communities, and I think we're in a really good place," says Taylor Szilagyi, director of policy communications for the Colorado Farm Bureau. "We want to look forward to new opportunities and the continual longstanding tradition of farming and ranching that is sustainable not only in an environmental sense, but for future generations to come. That comes with embracing new ideas and continuing to diversify."

In May, the organization partnered with the Denver Business Journal to recognize Who's Who in Agriculture and highlighted agriculturalists throughout the state. They also awarded Sakata Farms owner Robert Sakata with a trailblazer award to highlight his longstanding leadership.

"We had an awesome event and a gala roundtable discussion at the Brown Palace," Szilagyi says of the May event. "We recognized 41 individuals and families and had a really good mix of a lot of different agricultural commodities and aspects."

The CFB also works with Colorado Farm Bureau Insurance on the Serving the Same People Initiative, which pairs local insurance agents with county farm bureau boards to help farmers and ranchers succeed and strengthen the organizations.

In addition, the Farm Bureau revamped its Future of Agriculture in Colorado task force, which was originally formed in 2007 and is charged with looking at the major issues facing agriculture in Colorado and how to prepare for the next 100 years.

The task force is made up of Farm Bureau representatives and people who work in international trade, businesspeople, officials from the Museum of Nature and Science, representatives from Colorado State University and others.

"The task force is one of the coolest things that I've ever done," Szilagyi says, "to see so many heavy hitters come together for the future of agriculture was great."



Expanded program supports successful transition

EAVING A LASTING legacy is a worthy goal for farm and ranch families, but passing an operation from one generation to the next is a daunting task that many are reluctant to tackle. Newly expanded farm succession programming aims to support families through the process and spur them into action.

The passage of the 2018 Farm Bill extended the Agricultural Mediation Program, a program that Colorado administers, which offers farm transition planning.

Colorado State University Regional Extension Specialist Jeff Tranel facilitates group meetings in Colorado and across the country. He also oversees online courses that focus on succession management to assist producers and meets with families who have difficulty determining what their farm or ranch legacy should look like.

"We as humans are not great communicators with our family members talking about the difficult issues," Tranel says. "Every family has topics that they don't talk about. We don't want to talk about our own deaths. We have to let go of control as we age, let the next generation take over. It's meshing those two different objectives of the retiring generation and the succeeding generation to come to some conclusion."

Group meetings are informational and educational, with lots of discussion. They focus on four pillars of a lasting legacy: passing on one's values and life lessons, talking about personal possessions of emotional value, detailing a person's last wishes and final

instructions, and taking inventory of real estate and financial assets.

"It's difficult for parents to choose a successor of the business," Tranel says. "Typically farms and ranches can only generate funds sufficient to pay one family. But choosing one out of your children is almost antihuman. Most families want to be fair to all of their children with their wealth. They want to split it up equally, or equitably. Equitably would be taking into account differences of the children - their interests, their financial wherewithal, their ability to care for elderly parents. It's choosing the successor and then

HOW TO START SUCCESSION PLANNING

- 1. Start planning sooner rather than later
- 2. Schedule a family meeting to start the conversation
- 3. Make a list of assets and a list of debts
- 4. Set goals for the future of the farm
- 5. Set a timeline
- 6. Gather important documents
- 7. Ask for help from experts

defining fair for that family."

Tranel shares the example of one family who worked for three years to move the father from full financial and managerial responsibility into a mentoring role, first relinquishing smaller tasks to his son and eventually more significant decisions and financial obligations. Tranel helped the family to set specific deadlines for the transition and encouraged the father to allow his son to experience his own successes and failures.

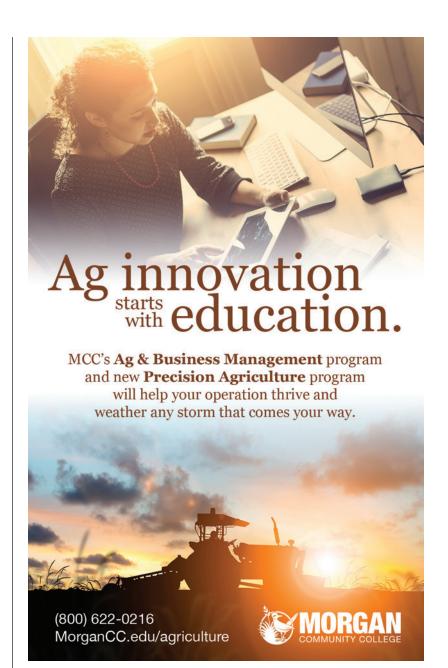
In another instance, a family had defined one son as the successor of the farm, only to find out that another son was also interested in continuing the operation.

The importance of succession planning cannot be understated. The Colorado Department of Agriculture (CDA) is partnering with Colorado State University Extension service to build a statewide network and reach more farm and ranch families, especially as the average age of producers continues to rise.

"For many producers, this has been their lifelong investment," said Mark Gallegos, who leads CDA's Agricultural Mediation Program. "It's their life, it's their business, and it defines who they are. It's just sad to hear those circumstances where someone has passed on and nothing is set in place. Then the operation has to be split apart and no one really comes out to where they're still operating that farm or that ranch."

Goals for the expanded program include increasing the number of farm and ranch families that begin, and hopefully complete, the process of succession or estate planning. That means successfully transferring the business to the next generation, in many cases. The CDA program is part of a nationwide grant with 38 other states that will also have the ability to provide this service to farm and ranch families.

- Carrie Muehling





A Century of Agriculture

Celebrating Colorado's centennial farms and ranches

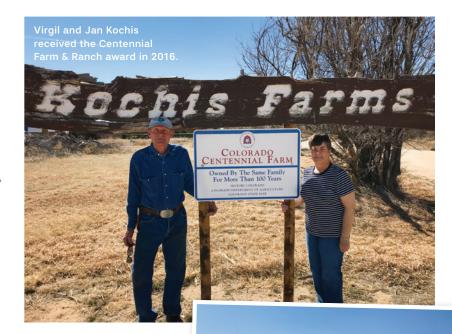
ORE THAN A century of farming has laid the foundation for a strong future in agriculture, extending to a fourth generation for the Kochis family.

Virgil Kochis' grandfather, Andrew, immigrated from what is now Slovakia through Ellis Island in 1902. Andrew and his wife, Lucy, came west to Colorado in 1908 and successfully applied for 160 acres through the Homestead Act. They passed that property along to Virgil's parents, who accumulated that acreage, plus additional land, that today encompasses 5,000 dryland crop acres and 5,000 acres for grazing.

Virgil and Jan inherited the family farm and are now the current operators, along with their son, Michael, who farms with them. Together, they grow winter wheat, corn, birdseed millet, sunflowers and milo, along with forage sorghum for 200 head of beef cattle. The family received the Centennial Farm & Ranch award in 2016.

"We felt like it was important to acknowledge the fact that family farms can survive for a long period of time. We really felt it was an honor to be recognized as a Centennial Farm," Jan says.

Ian believes that for each generation, diversification has been the key to surviving the tough years. Virgil's parents operated a dairy, providing steady income even when the crops were poor. Today, the Kochis family raises certified wheat seed and has a contract with Ardent Mills in Denver to grow white wheat used in whole-grain white flour. The



addition of 30 wind turbines on their farmland, part of the Rush Creek Wind Farm, is the family's newest endeavor.

"We raise all these different crops. We have our livestock, but our new cash crop is the wind turbines," Jan shares. "It doesn't matter if it rains or hails. As long as the wind blows, we have some income."

Regardless of what they're growing, Jan is proud of the family's longevity in Colorado agriculture.

"Over that time, you have put in a lot of hard work and investment, and there is some reason that you have lasted that long," she says. "The farms that are Centennial Farms are truly the farmers that love what they do and are very passionate. That's what has made it last that long, because there

certainly have been hard times for the people off and on throughout that 100-year span of time."

Colorado families currently farming or ranching properties that have remained in the same family continuously for at least 100 years are eligible for the Centennial Farms award. For more information, visit historycolorado.org/ centennial-farms-ranches.

The deadline to apply each year is May 31.

- Carrie Muehling

Want to stay in touch with Colorado food and farmers? Here are a few ways to get started:

Shop at a Farmers' Market

With more than 100 farmers' markets across the state, it's easy to buy fresh, local produce, meats and other foods in Colorado. Find a farmers' market near you at coloradofarmers.org.

Buy Local Products

Want to support producers in your state? Discover products made in Colorado at coloradoproud.com.

Keep Learning

Ag in the Classroom provides agricultural education to students across the state. For more information, visit growingyourfuture.com.

Visit a Farm

Picking berries, exploring a corn maze, sipping delicious wines - these are just some of the fun things to do on farms. To learn more about Colorado agritourism, visit coloradoagritourism.org.

Share Infographics

Download shareable graphics featuring the state's top 10 ag products, seasonal produce calendars and more at COagriculture.com.

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crea.coop

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