

NACAA Agricultural Awareness and Appreciation Award

Mountain Ag Fest

County Situation

AgFest is a collaboration between six counties in Central Colorado including: Chaffee, Custer, Fremont, Park, Pueblo and Teller. These counties represent a population with a large amount of farm acreage, diverse crops and a commitment to maintaining an agricultural industry. These six counties combine for nearly \$1 billion in agricultural revenue per year. According to the 2017 Census of Agriculture, five out of these six counties have seen at least a 20% increase in the number of farms between 2012 and 2017. Below is a summary of each county's agricultural significance:

Chaffee County: Chaffee County comprises 1,015 square miles and about 10% is considered farming and ranching land. With a population of just under 20,000, farmers and ranchers make up about 3% of the workforce with 662. However, agriculture is on the rise in Chaffee County, as the number of farmers and ranchers has risen from 509 to 662 between 2012 and 2017. As of 2017, Chaffee County had a total of 289 farms, at an average of 229 acres each. Their major products include cattle, aquaculture products, nursery and greenhouse plants and hay. Chaffee County farms and ranches sell \$12,200,000 worth of products annually. The communities in Chaffee County are showing an increased interest in the agricultural industries; their schools work closely with the local extension office to ensure agricultural literacy is implemented into their curriculums.

Custer County: Custer County covers 740 square miles and has a population of just under 5,000 people. They have 161,337 acres in farmland, of which 70% are rangeland and pasture acres. As of 2017, Custer County had 315 farms, which is a 59% increase since 2012. The average size per farm is 512 acres. Between crop and livestock sales, Custer County sees a profit of \$9,500,000 annually. Some of their most common products include cattle, sheep, hay, woody crops and cultivated Christmas trees. Although a smaller county, Custer contributes significantly to the agricultural industry of Colorado.

Fremont County: Fremont County spans 1,534 square miles, of which nearly 30% is used for agriculture. Of those 278,093 acres, 85% is dedicated to rangeland and pasture acres. According to the 2017 Census of Agriculture, Fremont County had 1,034 farms, which was an increase of 28% since 2012. The average size per farm is 269 acres and their most sold products include hay, apples, grapes, vegetables and cattle. Fremont County is home to several local wineries, some of which distribute to surrounding states and beyond. Fremont County agriculture nets a profit of over \$20,000,000 between crop sales and livestock sales.

Park County: Park County has seen a 33% increase in the number of farms between 2012 and 2017, with 278 farms as of 2017, at an average of 680 acres each. With a population of 18,000, 500 residents identify as an agricultural producer, which is just under 3%. Park County is known mostly for their production in livestock of cattle and poultry, as well as about 12,000 acres for hay production. Livestock sales account for nearly \$5,000,000 annually, while other crop sales account for \$383,000 in Park County.

Pueblo County: Pueblo County is the largest county in this partnership at 2,398 square miles. Farm and rangeland accounts for 58% of the total county acreage, and 90% of the total farmland is used for rangeland and pasture. Some of the major agricultural products from Pueblo County include cattle, hogs, hay, corn, dry beans and vegetables. Revenue for Pueblo County livestock and crop sales is over \$51,000,000 annually. As per the 2017 Census of Agriculture, there were 839 farms in Pueblo County, at an average size of 1,067 acres each. Many of these farms are multi-generational and have strong ties to the community of Pueblo.

Teller County: Teller County is the smallest county in this partnership at 559 square miles, of which about 20% is used for farm and rangeland. Teller County produces \$1,520,000 in crop and livestock sales each year, mostly in the form of hay and cattle. As of 2017, Teller County had 159 farms, which was a 29% increase from the past 5 years. The average size per farm is 449 acres, with a total of 284 producers in an overall population of 25,000.

Public Relations Objective

While most public relations outreach tends to be in the form of a Public Service Announcement, articles, or informational meetings, AgFest actually creates public relations by connecting fifth and sixth grade students with eight, hands-on stations where they learn about Colorado Agriculture and how it permeates every aspect of their lives.

The AgFest objectives were developed by a team of Colorado State University Extension Agriculture, Natural Resources, 4-H and Family Consumer Science Agents from around the state. We coordinated with the Colorado Department of Agriculture, Farm Bureau, and the Farm Service Agency for further ideas and guidance on developing the program. We reached out to the local school districts to determine their needs and ensure our programs met the core curriculum standards.

Our objectives were:

1. Create a series of eight, hands-on agriculture education stations where youth can move through in 20-25 minute rotations and learn about agriculture in Colorado and how it impacts their daily lives.
2. Create the stations and the educational materials so they teach STEM (science, technology, engineering and mathematics) principles outlined in the Colorado Common Core Standards for fifth and sixth graders.
3. Indirectly educate the parents and teachers who are guiding their classes through the stations so they can continue the agriculture education with materials we provide after the fieldtrips.
4. Provide Colorado agriculture public outreach and education to mostly urban fifth and sixth graders who know very little about agriculture and aren't necessarily our 4-H youth. We do this by holding the

training at the Colorado State Fairgrounds in Pueblo, Colorado, a city with a population of over 110,000. We developed this program from other successful programs that educate youth on recycling and smoking cessation, that by teaching the youth, they become the voice that then educates and influences their parents.

5. To increase their knowledge of Colorado agriculture by performing pre and post tests covering each of the eight stations by the end of the day.
6. To reach underserved audiences by holding the event in Pueblo, Colorado with over 50% Hispanic demographic.

The relationship of the objectives to the situation of reducing agriculture ignorance in our communities and helping youth understand how many products, foods, and energy are directly related to Agriculture, were directly met via the objectives. AgFest is an eclectic approach to science education focusing on the science in food, products, and energy production for fifth and sixth grade students. This interactive program will help the students make real-world connections between their daily lives and Agriculture.

Colorado has fallen behind on meeting STEM educational goals. AgFest is designed to focus on the Colorado Academic Standards in Science as related to Earth Systems Science for fifth and sixth grades. Backed by 4-H STEM curriculum, Extension agents and specialists provide the resources and expertise of agricultural science-based activities that many teachers cannot offer in their classrooms.

The benefits of AgFest continue well beyond the event's conclusion. Agricultural food production is currently the second largest revenue source in the state of Colorado and it is critical that students are familiar with the elements of the food production industry relating to producers, the economy and the world population of consumers.

Program Execution

This AgFest program began in 2014 and has continued each year with the exception of 2021 (COVID-19). This is a field trip type program for elementary aged students which takes place over the course of a school day. Students and teachers are bussed to the Colorado State Fairgrounds and greeted by the AgFest team shortly after students arrive, they listen to a short introduction speech to get them excited for the day and are given a short pre-test. After the opening of the day, students remain in their class groups with their teacher and begin a circuit of stations. Each station has an interactive lesson about agricultural products, careers, and the science, technology, engineering, & mathematics (STEM) aspects of agriculture. Some examples of stations in the past have been dairy, soils, beef, wind energy, pollinators, water, embryology, and vegetables. Many stations reoccur year after year while some are changed out when a new agent joins or a new idea for a station is possible. Groups remain at each station for the same amount of time. Time spent at each station is kept short (20-25 minutes) so they are well within the effective attention span of students of this age. This also helps keep the presenters fresh

(each presenter will give their presentation 7-8 times during the day). After four station cycles there is a break for lunch, students have a short intermission with their teachers, which allows time for them to eat their sack lunches. The Western Dairy Association donates individually sized cartons of white and chocolate milk for the students to enjoy. After lunch the groups resume and visit the last four stations. Once all the stations have been completed, students and teachers return to the tables and give the students a post-test based on the content they learned in the stations. After the tests have been returned, students and teachers leave on busses to return to their schools for the end of the day.

The schedule of events for the day is carefully planned and timed so students can learn as much as possible while not interfering with their school schedules. In addition to the planning of the specific day, the time of year was also carefully selected to have the most benefit and ease to the schools and teachers. As a result, Agfest typically occurs in late February to avoid conflicts with school holidays, state testing, and avoids some of the snowier season in January and early February. Working around what is good for the school districts keeps this partnership strong. We advertise this opportunity through the school districts in our respective counties. We keep a waiting list for schools who couldn't get in so that they get first preference in the following year. We have a waitlist year after year, showing that this is an in demand program for fifth grade classrooms.

While each class attends AgFest for one day, the program lasts several days for the Extension staff. So many schools express interest in the program each year that the event has been lengthened to allow for as many students to experience the program as possible, which also increases the diversity of students impacted by the program and overall area that can be served. Most years 21-22 schools have had classes attend and the program reaches over 500 students annually.

Staff for AgFest includes Extension agents, county directors, and county program assistants. It is also made possible by the state fair grounds for allowing the team to use a building with adequate size and amenities, Western Dairy Association who donates milk for the lunches, the schools for providing transportation to and from the event and the teachers and teaching aides. Now that the program is established and materials have been gathered for the stations, the cost to put on AgFest is lower, but the program was initially funded through a grant.

Results and Evaluation

To evaluate the effectiveness of our program, a pre and post test format was used. Pretests were given to the students when they arrived on site, and posttests were taken after all programs were delivered. Some classes are able to take the posttest on site before they leave, while others take the tests with them to complete in the classroom and return them at a later date. These specific results are from our most recent 2020 Mountain Ag Fest program. Over three days in 2020 (pre-pandemic), we reached 431 5th grade students with our agricultural programming. We ended up with usable pre and posttest data from 333 of those students. Overall, the average increase in knowledge from pretest to posttest was

30%. There was also a significant increase in the number of students who answered “strongly agree” on the posttest to the following statements: “Agriculture is important for addressing the problems and needs of everyday life”, “Agriculture is very important to our country’s future progress”, and “I would be interested in pursuing a career in agriculture”. There was a significant decrease in the number of students who answered “strongly agree” to the statement “I can get along perfectly well in my everyday life without agriculture”. These results show that not only did the students increase their knowledge of agriculture, but their attitudes regarding agriculture improved after attending Mountain Ag Fest.

Each year our results show that we continually meet our objectives. Twenty minutes to teach kids about an agricultural subject is not a lot, but every station succeeds each year. We ask the kids at the end, what was their favorite station, and each station always gets numerous votes. This shows us that the kids are really engaging with our activities and our staff. The lessons align with common core standards for fifth and sixth grade. Usually, something we are talking about in the stations relates back to a lesson they had done in the classroom. This gives the teachers opportunities to stop and relate what we are learning about, to something they have already learned in the classroom. Although we do not formally evaluate the adults (teachers and parent chaperones) who sit in on our lessons, we always get comments from them that they learned something new about agriculture from our stations. Oftentimes parent chaperones even have questions afterward, showing that they were engaging as much as the kids. We aim our Ag Fest programming to “city schools” who don’t have formal agriculture programming. The majority of these kids are not in 4-H and don’t have much exposure to agricultural concepts in their daily lives. In addition, the majority of the schools that attend are in low socioeconomic areas, and have high hispanic populations. These populations are traditionally underserved when it comes to agricultural programming. By reaching these kids with knowledge about agriculture, we also are reaching their families, as the kids go home and tell their caregivers all about their field trip and what they learned. We are able to quantitatively measure our success by using the pre and posttest data. Giving the kids the same test when they arrive and after they leave allows us to understand how much they actually learned. We also break these results down by question, so we can see if a particular one was confusing, or if a particular station was more or less successful. This allows us to make adjustments for future years.

This great program would not be possible without the cooperation of Extension staff (many of whom are members of NACAA) from multiple counties, and the support of CSU Extension as a whole. We greatly appreciate your consideration of recognizing our hard work by awarding our team the NACAA Agricultural Awareness and Appreciation Award.