

THE IMPACT OF AGENCY 229

Leveraging Agency 229 for Greater Economic Growth

Report prepared by the Virginia Tech Office of Economic Development

John Provo | jprovo@vt.edu

Elli Travis | emtravis@vt.edu



VIRGINIA AGRICULTURAL
EXPERIMENT STATION



OVERVIEW

Agency 229 provides funding to Virginia Cooperative Extension (VCE) and the Virginia Agricultural Experiment Station (VAES). Agency 229 impacts are vast and diverse and touch every sector of Virginia’s economy. Innovative and applied research, education and training, and direct assistance to Virginians have led to nationwide recognition of Virginia as a producer of superior agricultural products, better business management practices, and environmental stewardship that improves quality of life and attracts millions of tourists annually. Ultimately, Agency 229 activity creates jobs and new investments through higher returns and profits for producers; technological innovation and new product launches for industry; billions in international exports; and talented, healthy citizens who contribute to a vibrant workforce.

Agency 229 was charged with developing a strategy to leverage state investment with industry partnerships that “result in technological and scientific advancements needed to grow the state’s agricultural and natural resource economy.” The Virginia Tech Office of Economic Development (OED) was therefore commissioned to conduct a study of current impacts of VAES and VCE on the economy and to gather recommendations from industry on how funding could be leveraged to drive more innovation and advancement. OED spoke with over 200 stakeholders from private industry, local and state government; VCE agents, specialists, volunteers, and clients; VAES researchers; and many of the agricultural councils and commodity groups that fund and benefit from Agency 229 research and Extension.

This report represents a snapshot of findings with a focus on five key agriculture and forestry industries and four communities. The five industries chosen include: beef cattle; poultry and hogs in vertically integrated production systems (VIMP); food and

beverage manufacturing; forestry/wood products/timber; and row crops. These industries each represent a large share of the Virginia agricultural economy and are supported by Agency 229 in different ways. Pittsylvania County, Prince William County, Washington County and the City of Virginia Beach were selected as representations of urban and rural populations in four Virginia regions.

Agency 229 is part of the fabric of key agricultural and forestry industry sectors, and it is challenging to envision what the state’s largest industry would look like without it. In one county that has \$170 million in annual agricultural exports, a producer was asked about the impact of VCE.

“I don’t know if agriculture would exist in the county without Extension. It certainly wouldn’t thrive,” he said.

For this reason, rather than a single dollar number, the report contains selected examples of the ways that Agency 229 activity leads to community and economic growth and prosperity.

By examining how Extension programs and research innovation have influenced individual sectors of the economy and specific communities, we are able to uncover many of the ways Agency 229 activities affect change and in turn facilitate economic growth and development.

Agency 229 has made a positive impact across Virginia. With continued public and private partnerships, it can continue to improve lives in the commonwealth for decades to come.

Some highlights of Agency 229’s impact on industry include:

- **Placing an additional \$1.5 million of revenue into the operations of Virginia feeder cattle producers.** Virginia is known as the premier producer of feeder calves in the U.S.; calves certified through an Agency

| Inputs | Activities | Outputs | Outcomes | Impact |
|---|--|--|---|--|
| <ul style="list-style-type: none"> • Agency 229 dollars, faculty and staff, research and Extension locations across Virginia | <ul style="list-style-type: none"> • Needs-based applied research • Innovative research • Grant-sponsored research • Technical assistance from agents • Commodity group and industry group advising | <ul style="list-style-type: none"> • Research results such as reports • Presence in 107 rural and urban communities throughout the commonwealth • Strong relationships with producers and partnerships with private industry • More external funding leveraged to support research and Extension | <ul style="list-style-type: none"> • Environmental benefits • Perception of Virginia as a grower of premier products with a strong workforce • Better management practices • More money staying local • Knowledge about how to live a healthy life | <ul style="list-style-type: none"> • Higher returns and profits • Virginia jobs • Investment in Virginia companies • Money in the pockets of Virginians • Knowledgeable, healthy citizens |

Resources, when applied to Agency 229 research and extension programs bring investment into Virginia and create jobs.

- 229 program receive \$100 more than non-certified cattle;
- **Saving hundreds of millions of dollars for the poultry industry.** Existing facilities are vulnerable to disease but Agency 229 helped create disease-prevention and risk-management protocols to ensure companies do not lose hundreds of millions in revenue;
- **Developing a new food safety process for a major meat processing company,** which led to a \$36 million investment and 200 jobs in Southern Virginia;
- **Assisting landowners in improving the health and productivity of their woodlands** through sustainable management, resulting in an increase in the long-term value of their investment;
- **Delivering research in row crops provides producers with an extra \$10 million annually,** and has led to large-scale yield increases.

Many of the research and Extension programs

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performed by Agency 229 are translated through 107 local offices and 11 Agricultural Research and Extension Centers (ARECs). Agency 229 outreach allows for programs to evolve with the unique challenges of rural and urban communities. Although Agency 229 is most commonly thought of as supporting the agriculture sector, research and Extension activities directly impact the physical and financial health of many Virginians who are not directly affected by the agricultural sector.

Some specific community highlights:

- Offices across Agency 229 coordinate **more than 30,000 volunteers annually** who help administer programs in environmental stewardship, youth development, family nutrition, and financial education;
- Extension’s Family and Consumer Science outreach annually **provides over 3,000 low income youth** and families with education on nutrition and cooking programs in Virginia Beach;
- Washington County’s 4-H program, which has **more than 4,000 members**, teaches children leadership skills and engages them in community service projects. Improved standardized test scores have

- been attributed to the program;
- In partnership with insurance companies and private industry, **Pittsylvania Extension educates producers on risks**, which empowers them to make decisions and protect their livelihoods;
- Homeowner education programs in Prince William County **saved 130 homeowners from foreclosure** in 2016 alone.

Building on such strengths, industry, faculty, and community members reached through this study identified several major ways that Agency 229 could better serve them to contribute to greater economic growth. The most widely cited area for new investment is in people. Extension agents are trusted members of communities, and they are relied on heavily to provide advice and training that helps businesses grow, and help families lead healthy lives. Unfilled extension agent vacancies have left many communities and producer groups feeling underserved. The lack of up-to-date research-based Extension publications makes it difficult for agents to provide their communities with the information that they need. Industry similarly relies on, and is impressed by the high quality work conducted by specialists. Specialists are critical at both translating basic research into usable practices and advice, and conducting applied research that directly benefits industry and communities. **The consensus among industry stakeholders is that more funding should be provided to attract and retain additional Agency 229 researchers who can work on industry-specific challenges and help build the capacity of the agriculture and forestry industries.**

Many industry and faculty members interviewed also contend that to conduct the cutting-edge research and provide training needed to succeed in a competitive economy, new technologies and upgraded facilities are sorely needed. Pages 10 and 11 of this report illustrate how a pilot plant made available for industry collaboration, together with industry-focused Agency 229 researchers has been critical to the growth of the food and beverage industry. One producer shared that while he gets cutting-edge advice from his local AREC, he has to travel out-of-state to view new technologies and equipment, a critical step before he invests hundreds of thousands of dollars on his farm. Another interviewee argued that many of the AREC facilities and equipment are outdated by 10-20 years. A Virginia-based industry representative explained that members of the poultry industry go out-of-state to conduct research because of the higher capabilities of the facilities at other universities. Improved facilities can help foster additional funding via public-private partnerships to better align workforce education with industry needs, support current businesses through collaborative research and development, and leverage external funds for Agency 229 activities.

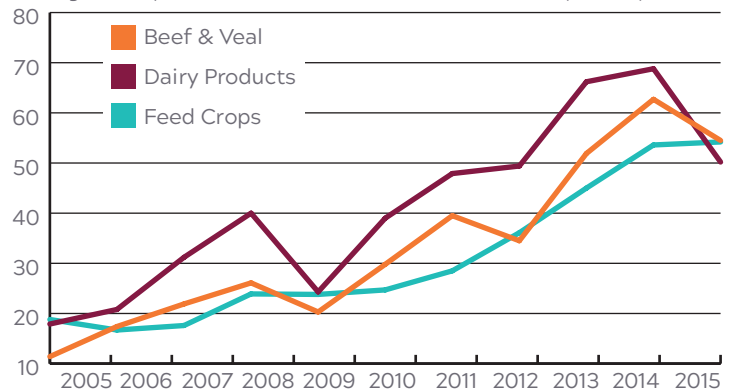


CATTLE

Virginia is home to more than 600,000 beef cattle. There are beef cattle in every county in Virginia, and approximately 40,000 Virginians work in this industry. Beef cattle sales topped \$607 million in 2015.

Over the last 10 years, the state's beef exports have grown by **377%**

Figure 1: Export Value of Cattle-Related Products in 2015 (\$1,000s)¹



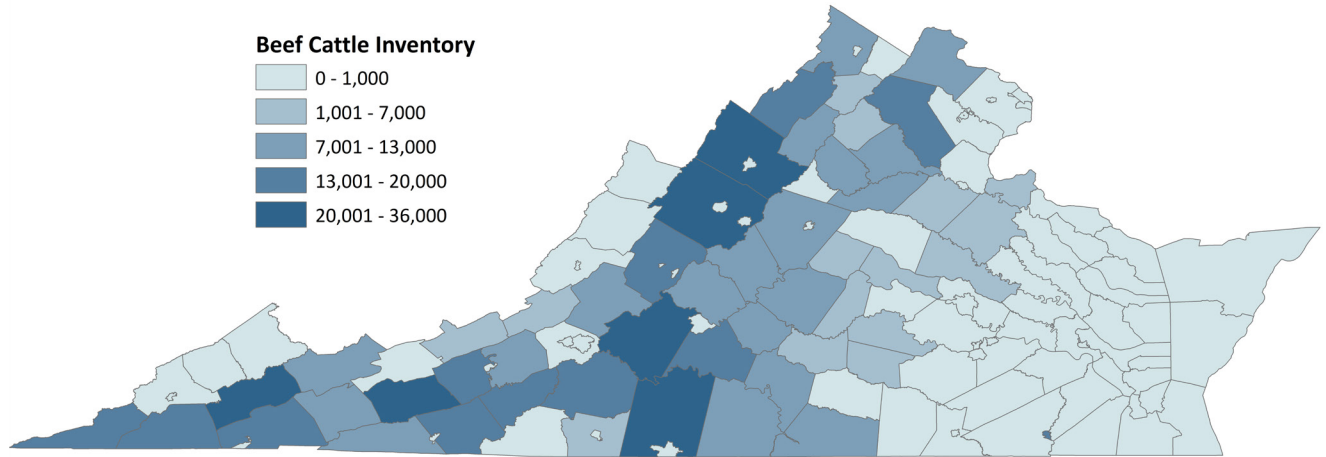
This number is steadily growing because Virginia is known nationally as the premier location for calves, which are purchased by buyers in the Midwest at high-premium prices.

Virginia's reputation for high-quality beef cattle is due largely to the relationships between public and private partners and Agency 229 Extension and research faculty who are working together to develop and implement best management practices.

VCE delivered more than 400 unique programs related to cattle across 60 counties in Virginia over the last five years.

Extension programming takes research from the Blacksburg campus and ARECs, and helps producers apply it on the farm to increase profitability and livelihoods. Premium Assured Heifer, Virginia Beef Quality Assurance, Virginia Beef Cattle Improvement Association, and Virginia Master Cattleman are

Figure 2: Virginia Beef Cattle Inventory by County in 2012



just some examples of programming overseen or supported by VCE. Extension provides information and support to cattle producers in the following areas:

- improving the quality of cattle stock through improved health and nutrition, vaccinations, genetic improvements;
- increasing producers' knowledge of the cattle industry and their business acumen;
- helping cattle producers assess the feasibility of growing their operations by finishing the cattle in-state and selling their product as beef cattle for meat processing (instead of shipping younger feeder cattle to Midwest operations).

This quality improvement has led to the Virginia Quality Assured Feeder Cattle Program, a public-private partnership with enormous economic gains for Virginians. VCE partners with the Virginia Cattlemen's Association to help administer the program and market Virginia feeder cattle. After learning proper

herd health management practices and record keeping techniques, producers have the option of selling their feeder calves for premiums up to \$100 over typical market price. If 50 percent of feeder cattle were VQA-certified, that would lead to \$25 million in direct and indirect economic impacts annually.

To continue growing the beef cattle industry in Virginia, stakeholders recommend additional resources to increase participation in VCE educational and certification programs, and recommend increased funding for applied research into invasive species management for forages and herd health.



In 2015, VQA-certified producers received an extra **\$1.5 million**, leading to a statewide economic impact of **\$2.5 million**. That's money directly into the pockets of Virginians that would not exist without Agency 229.

¹ United States Department of Agriculture – Economic Research Service (USDA-ERS; 2017). USDA-ERS State Export Data. Retrieved from www.ers.usda.gov/data=products/state-export-data/



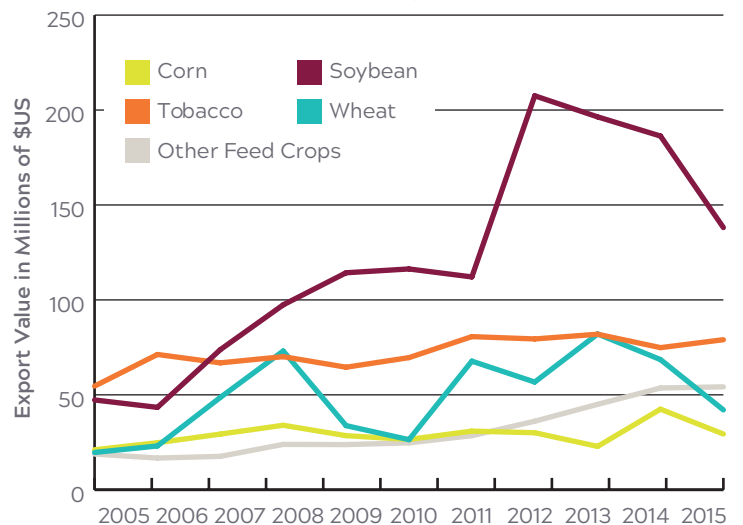
ROW CROPS

Corn, soy, wheat, barley, peanuts, and tobacco compose one-third of what farmers receive from the sale of agricultural products and one-third of Virginia's agricultural exports. The commonwealth's more than 19,600 row crop farms are spread throughout the state. Row crops are used for animal feed, food products, biofuel production, and Virginia's growing craft beverage movement.

The work of VAES researchers and VCE is vital in ensuring producers remain profitable and competitive in this global marketplace, which helps boost yields while growing the economy. Most of the VAES research focuses on small grains (wheat and barley), corn, soybeans, peanuts, and tobacco. Most of the research, conducted in Blacksburg and at ARECs across the state, is related to efficiency improvements, disease and drought resistance, pesticide use, and variety trials.

Research on improved varieties leads to the development of patented varieties that are released

Figure 3: Export Value of Row Crops³



for both public and private use, and licensed by growers throughout the United States. The royalties from those licenses, which total \$3.7 million over the past five years, have supported additional research. Research is also supported by private entities, such as seed or chemical companies, fertilizer manufacturers, and wholesalers.

A major portion of the research on these varieties is conducted at ARECs and demonstrated to producers and private industry during field days. Researchers work with private producers to conduct on-farm research trials and hold field days. On-farm research projects allow producers to work closely with Extension agents and specialists to better understand growing conditions, risks, and best management practices.

These private producers are the first to see the benefit of adopting a new variety, and also benefit from learning about the value of the scientific research process. Fellow producers are able to see the new variety perform or the new technique practiced on land similar to their own. These on-farm trials are a critical part of encouraging farmers to adopt improved varieties and environmentally friendly management techniques, leading to large-scale economic benefits.

Virginia Tech wheat and barley research programs reduce costs for producers by **\$2.4 million** annually

Two peanut varieties developed by Agency 229 brought farmers more than **\$16 million** since their introduction

Management training brings an additional **\$2.2 million** to corn producers annually

Soybean producers gain an additional **\$1.3 million** in income annually due to Agency 229 programs.

Private industry benefits from sponsorships of field trials. Scientists are able to compare varieties using scientific methods, and then provide unbiased objective information about the use and benefits of certain varieties and products. This information also assists the allied industry in better understanding the needs of Virginia producers, increasing both profits and yields.

Another area of research is in market development. For a commodity with high capital investment and low margins, finding local and global value-added contributes to a large and distributed economic impact. Examples include biofuels and the development of specialty grains for breads, brewing, and livestock feed.

As the number of craft breweries in the state tops 140, there is a desire for Virginia-grown inputs. Growing malt barley could be an opportunity, so researchers are conducting research and meeting with brewers and distillers in the commonwealth to understand their needs.

“VCE improves yield...which increases the economic benefits for everyone...the farmers themselves, the seed, fertilizer, chemical, and fuel suppliers, the truckers, and the port,” one survey respondent said.

Stakeholders recommend that to facilitate further innovation in the row crop industry, upgrading the AREC facilities is critical. Additionally, many agents active in eastern Virginia have retired and left an “extension vacuum.” There is a desire to see those positions filled so that the producers in that region can continue being served. Since many row crops are used as animal feed, this increase in capacity could have downstream benefits as well. Additional specialists and researchers could also be used to speed up applied research in the development of new markets for grains.



PORK AND POULTRY

Pork and poultry are large components of the state's livestock industry, the largest agricultural sector in the commonwealth.

Agency 229 researchers and Extension experts partnered with private industry to help find ways to promote animal health, disease management, and pollution control so the companies can be competitive in a global marketplace. This partnership helped the pork and poultry industries grow by more than 26 percent from 2008 to 2015.

These industries are called "vertically integrated" because in most cases, large companies own the feed, animals, and meat processing facilities, and farmers produce under contracts with those companies. Integration lowers production costs, leads to lower prices for consumers, and has reduced financial risks for poultry and hog farmers under contracts. Along with job creation in processing, manufacturing, and on-farm employment, the poultry industry contributes to supply chain jobs, including feed production and



manufacturing, poultry research and education, and wholesale jobs.

In 2015, livestock processing plants employed more than

13,300 individuals,

making Virginia the

16th ranked state in terms of livestock industry employment.

Agency 229 serves two stakeholder groups in this industry: the large poultry manufacturers, and the contract growers. Three main areas of research and Extension are disease management/food security, litter management, and non-nutrient based poultry management information such as lighting and water.

Vertically integrated facilities are highly vulnerable to disease. Agency 229's disease prevention programming is like an insurance policy so industry and government do not lose hundreds of millions in lost revenue as they did during a previous disease outbreak.

Agency 229 representatives were a part of the Virginia Poultry Disease Taskforce, which was created in response to the 2002 avian influenza outbreak. The outbreak led to losses of more than

\$230 million

in Virginia alone.

The taskforce developed and implemented an industry-wide policy for dealing with the disease, and continues to conduct disease surveillance. Agency 229 researchers and Extension specialists have written policies that set the standard for dealing with avian influenza in Virginia, align with industry standards, and ensure eligibility for USDA and state indemnification if outbreaks occur.

The protocols developed by Agency 229 researchers are now incorporated in a larger system used by the USDA.

Agency 229 not only helps prevent future losses of hundreds of millions of dollars, but it also encourages the poultry industry to continue to invest in Virginia, adding hundreds of jobs annually.

Another research and Extension activity that saves the industry hundreds of millions per year is litter management. The research and development of phosphorous site indexing has contributed to more moderate regulations on Virginia's poultry industry compared to many states.

As a result, Agency 229 has helped the industry to grow and utilize poultry litter as fertilizer in the commonwealth, allowing contract growers to produce their own feed, and grow their profits.

PORK AND POULTRY SALES FOR 2015

Broilers: **\$792 million**

Turkeys: **\$374 million**

Hogs: **\$47 million**

Due to integration, the poultry industry has the benefit of being able to access research and talent from across the United States. While the industry is able to bring in the expertise of researchers from other states, building up an area of specialization within poultry sciences, for example in gut health, could benefit the poultry industry in Virginia, and nationally. Industry representatives also recommend additional extension outreach and training to contract growers in areas of bird health and litter management. Finally, continuing to emphasize youth involvement will help the industry overcome the challenge of attracting talent.

The poultry industry grew by **26%** from 2008-2015.



FOOD AND BEVERAGE

Much of the growth the food and beverage industries have seen in the last 10 years is in large part because of the rise of craft breweries and wineries throughout the state. While the food and beverage industry is sizable by itself, it also supports other agricultural sectors that provide raw inputs.

Table 1: Food Manufacturing Establishments, Employment, Wages, and Average Hourly Wages⁵

| | 2009 | 2016 | Growth (2009-2016) |
|--------------------------|-----------|-----------|--------------------|
| Number of Establishments | 430 | 519 | 21% |
| Number of Employees | 29,539 | 30,230 | 2% |
| Total Wages (\$1,000s) | 1,078,821 | 1,257,925 | 17% |
| Average Hourly Wage | 15.93 | 20 | 26% |

Figure 4: Virginia Brewery and Winery Employment and Number of Establishments⁴



*2016 Employment Data is Preliminary

Agency 229 contributes to all levels of the food and beverage value chain, including growing crops used as inputs, quality control for products used at Virginia breweries, wineries, and food manufacturing plants, and research testing and Extension education at the pilot plant in the Human Agriculture and Biosciences Building 1. The pilot plant is a major point of collaboration between researchers and private industry. This collaboration can help companies expand their product lines, which leads to higher profits, greater investment, and more jobs in the state.

Safety validation of a product for Tyson Foods led to a **\$36 million** **200 job expansion** of Monogram Foods in Martinsville.

In addition to testing for food and beverage companies by Agency 229 researchers, companies sometimes send their own researchers to learn alongside Agency 229 faculty. There are several examples of West Coast beverage companies interested in opening an East Coast location who have first sent their researchers to work with Agency 229 faculty. Researchers evaluated their current manufacturing processes and looked at the water availability and suitability for their products. This type of relationship-building can attract businesses, jobs, and investment in this growing and often high-paying Virginia sector.

In addition to helping large companies, Agency 229 also helps small food businesses. The Food Innovations Program provides guidelines for food processing and safety regulations, resources on starting a food business, and information on the specific labels used on various food products. In 2016 alone, the program served 450 individuals and analyzed 250 food products. These food products were able to pass regulatory inspections and enter

into the market as new products. The program's regulatory assistance has helped several businesses, including a medium-size company that has 10 employees and an annual revenue of over \$1 million.

VCE offers an accredited course on food safety called ServSafe® Training for food workers, along with organizing a Master Food Volunteer Program. The Master Food Volunteer Program trains people interested in educating communities on cooking, nutrition, and physical fitness. Along with food safety programs throughout the food processing industry, VCE has an Extension center in Hampton that is focused solely on the processing and handling of seafood.

In terms of workforce development, Virginia Tech offers undergraduate and graduate degrees within the Department of Food Science and Technology including a new fermentation option supporting several industries, including brewing. Though teaching is not an Agency 229-funded activity, industry representatives frequently cite the value of experiential hands-on learning that students engage in at these world-class facilities.

Industry representatives commend the specialization of the Department of Food Science and Technology in shaping core competencies and making the program unique and differentiated from others. The customer service orientation of the department has been credited with drawing companies to central Virginia rather than to a major metropolitan area with a larger talent pool and greater concentration of research universities.

⁴Source for Establishments: Virginia Department of Alcoholic Beverage Control (ABC; 2017). 2009 -2016 Fiscal Year Annual Reports. Retrieved from <https://www.abc.virginia.gov/about/agency-overview/sales-and-revenue>. Source for Employment: U.S. Census Bureau (2017). State and County Employment and Wage, QCEW. Retrieved from <https://www.bls.gov/data/>.

⁵ Source: U.S. Census Bureau (2017). State and County Employment and Wage, QCEW. Retrieved from <https://www.bls.gov/data/>.



FORESTRY, TIMBER, AND WOOD PRODUCTS

Virginia's forests cover 62 percent of the commonwealth,

and provide economic value through the sale of cut timber, downstream forest product manufacturing, tourism, and environmental services. Environmental services provide \$6.6 billion in economic value to the state, with water-quality services making up about 80 percent of the estimate. Forests were a popular destination for tourism and many Virginia businesses are based on tourism related to forests. In total, forests were estimated to have an economic impact of over \$30.3 billion in 2015, with \$21 billion coming from industry output and an additional \$9.3 billion in value-added.

Agency 229 has an extensive outreach program to teach the public about the benefits associated with environmental conservation. For instance, VCE supports the Virginia Master Naturalist Program,

Part of this estimated impact is due to the **107,900 jobs** supported by Virginia forests.

which educates volunteers on Virginia forests and wildlife and engages them in natural resource education and conservation projects that result in annual service worth more than \$3.8 million. VCE programs introduce the challenges faced by landowners, the services provided from forests, and the efforts underway to properly harvest trees and sustain forests.

VCE provides science-based information to landowners to help them make informed decisions about management practices such as forest harvesting, forest farming, wildlife habitat, and urban forestry. VCE also helps manage the Virginia Forest Landowner Education Program which provides short

Table 2: Employment and Wages Paid From Selected Virginia Forest Industries⁷

| | Employment | | Wages (\$1,000s) | |
|-----------------------------|------------|-------|------------------|----------|
| | 2006 | 2016 | 2006 | 2016 |
| Forestry & Logging | 2,103 | 2,223 | \$62,338 | \$90,117 |
| Forestry Support Activities | 274 | 261 | \$9,518 | \$11,795 |

courses on best management practices, available resources, and how to devise a forest management plan. VCE's forestry landowner programs frequently result in behavioral change among participants. For example, 50 percent of attendees of one forestry landowner program wrote management plans within five years of attending, compared to three percent nationally. This improves wildlife habitats, reduces numbers of invasive species, contributes to higher returns on investments for property owners, and provides a better timber product for the industry.

Over 4,000 individuals have been trained through the SHARP Logger program, learning logging safety, sustainable forestry, harvest planning, and best management practices. The program is supported by the timber industry in conjunction with the Sustainable Forestry Initiative. A recent survey indicated that over 63 percent of Virginia logging business owners made changes to their

operations as a result of attending SHARP Logger trainings. The most common changes reported include improvements in safety and improvements in implementation of BMPs for water quality. There are over 1,400 current participants in the program, which represents the vast majority of logging production capacity in Virginia.

Agency 229 has award-winning Extension and outreach programs to support forest owners, and the ability to leverage an extensive volunteer network. Educational programming promotes the benefits of environmental conservation and sustainable forestry management. It

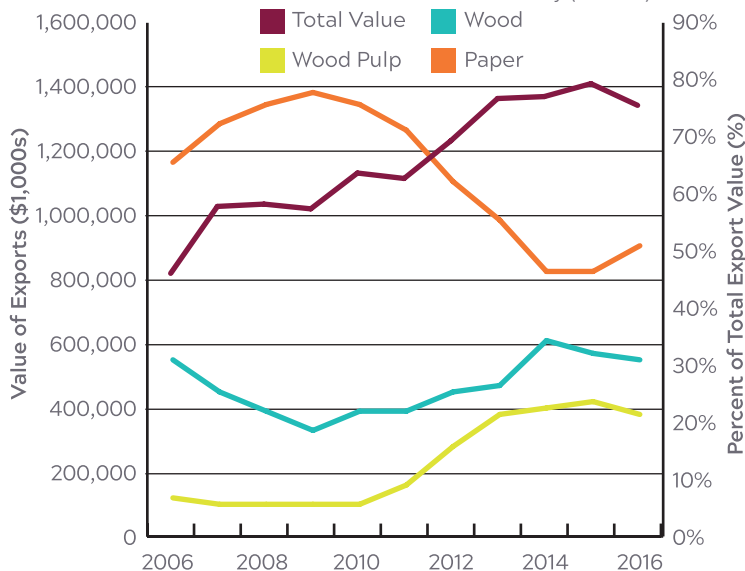
At this point, Agency 229 has trained the vast majority of logging businesses in the commonwealth.

also provides technical assistance in forest harvesting, farming forested lands, urban forestry, and forestry landowner management.

Agency 229 research supports the entire forestry sector in the commonwealth, ranging from genetic improvement of seedling stock to sustainable harvesting and best management practices through manufacturing and market development.

Stakeholders recommend that to increase the impact of Agency 229 on the forestry industry, additional support is needed for improved facilities. Faculty members are working in outdated facilities that are not competitive with national peers. Additional specialists in manufacturing competitiveness would help the forest products manufacturing sector become more competitive in the face of low cost global producers. Without a manufacturing base, the industry will begin to lose value in the forest supply chain.

Figure 5: Total Export Value of Wood, Wood Pulp and Paper and the Share Total of Each Commodity (\$1,000s)⁶



⁶Source: U.S. Census Bureau (2017). Economic Indicators Division USA Trade Online; U.S. Import and Export Merchandise Trade Statistics. Origin of Movement Exports, Origin state-based. HS Codes 44, 45, 47, & 48. Note: HS Code 45, Cork and Articles of Cork were used to construct total value but the share of value was omitted due to size (less than 1%). Retrieved from <https://usatrade.census.gov/>

⁷Source: U.S. Census Bureau (2017). State and County Employment and Wage, Quarterly Census of Employment and Wages (QCEW). Retrieved from <https://www.bls.gov/data/>.



COMMUNITY CASE STUDIES

VCE programming is tailored to each community's unique needs using feedback from local and regional stakeholders.

For example, urban Extension offices may focus on issues such as housing and financial management, while Extension offices located in more rural agricultural counties might focus more on technical assistance to producers and programming related to job and college readiness.

Each Extension office has access to high quality, evidence-based programs at the state and national levels, and is able to correspond with Extension specialists at the AREC or district-level in order to develop or adapt more context-specific programming to meet the needs of a specific community.

The work of Extension agents would not be possible without the assistance of over 30,000 volunteers in all areas of Extension.

When Extension volunteers and participants in the City of Virginia Beach, Prince William, Pittsylvania and Washington Counties were asked "What is the number one way VCE helps grow the economy," survey respondents said:

- "To educate me to be a better producer that I might be able to produce more revenue and taxes for the county."
- "All areas of VCE support the local economy."
- "It protects the beauty, watershed, and environment, thus protecting property values and enhancing attractiveness to new businesses."

There are four main Extension program areas:

FAMILY AND CONSUMER SCIENCES (FCS):

FCS agents take a holistic approach to the development of communities in Virginia. Areas of service include nutrition and wellness, family financial education, and family and human development. Specific programs include:

- o Financial education and housing support
- o First time home-buying and foreclosure avoidance
- o Home and family education, including parenting and communication
- o Health and nutrition, including SNAP education

FCS programs support children by teaching their parents about budgeting and saving, parenting skills, cooking, and housekeeping. Collaborations between the Departments of Corrections, Housing, and Human Services allow VCE to reach the most vulnerable populations. This saves other state organizations money, and helps break the cycle of poverty in many communities.

Nutrition agents reach over 3,000 low income youth and their families annually by teaching nutrition and cooking programs at USDA feeding sites spread throughout the Virginia Beach Region.

- “Students realized how important it was to have an education.”
- “I have received help with maintaining the family farm and keeping it intact when I am gone.”
- “The mothers I work with feel more equipped to cope with the challenges of parenting.”

4-H YOUTH DEVELOPMENT:

This program encourages youth to participate in a variety of activities emphasizing “learning by doing” so that youth develop as leaders and are ready for future endeavors. Some examples of 4-H youth development programming include:

- o Community and project clubs
- o School enrichment and in-school programming
- o Camps

Washington County 4-H helps recruit companies to the area with its 4,000-member club. Youth develop skills to become responsible citizens and overcome challenges at home and pressure from peers that may lead to bad decisions. Helping students succeed in and out of the classroom is of huge benefit to the economy of each county because those youth turn into responsible adults and hard workers. The county started the Virginia History Bowl which has had a tremendously positive impact on Virginia students’ SOL scores.

- “4-Hers are great communicators. They present themselves well, look you in the eye, and take leadership roles within their schools. They also take leadership roles in community service, and they learn to give back to the community.”
- “I have seen growth in confidence and the courage to be innovative.”
- “One attorney told a 4-Her that when he/she finished school, he would be glad to hire the student in his law firm.”

COMMUNITY VIABILITY:

Each Extension agent is responsible for connecting with partners, communities, and individuals in the areas of: leadership and planning, community enterprise and resiliency, community food systems, and planning. Examples of community viability activities undertaken by ANR, FCS, and 4-H agents include:

- o Training county officials
 - o Educating entrepreneurs
 - o Growing the food system
- “I applied leadership training to better manage my employees.”
 - “It has helped make our communities more viable and contributed to our economy by also locating markets for our products.”
 - “County elected officials have found VCE to be an excellent return on our investment.”

AGRICULTURE AND NATURAL RESOURCES:

Agents are very visible members of communities, especially in rural areas. They put on programs, trainings, and visit farms and households to diagnose problems, and help producers become more profitable.

Master Gardener Volunteers in Virginia Beach help protect Virginia’s waterways by teaching the public about watersheds, rain barrel collection systems, and storm water management. Agents hold pesticide trainings and re-certification courses together with VDACS.

In Pittsylvania County, risk management is a big challenge. Agents are working with insurance companies and private industry to help educate livestock producers about opportunities to protect their income in the case of adverse weather, or disease.

- “We approach our small farm with new eyes. We consider the impact our actions may have on the watershed and nature, and plan our use of herbicides and pesticides carefully.”
- “My farm operates more efficiently and is more profitable, and I am better informed of new farming techniques because of Extension.”

RECOMMENDATIONS

Additional 229 funding would allow for more leveraging with private co-investment. Investments are needed in core areas:

There is an urgent need to upgrade both the facilities and equipment at our on- and off-campus facilities. Campus research facilities and ARECs are essential for the innovations and translational research demanded by the agriculture and natural resource industries in addition to helping develop the future workforce and leadership capacity for communities and industry. A recent external evaluation of ARECs found that research and extension programs are well integrated and complementary and that the stakeholders and citizens of Virginia are well served by the ARECs. Stakeholders indicated that “our ARECs are the gems of agriculture, but infrastructure may not be keeping up with the times.” The external reviewers also reported that there are areas where the “facilities and outdated equipment are already negatively impacting the ability of programs to move in different directions in response to emerging needs.” In many cases, agricultural producers’ field equipment is much more advanced than the equipment at AREC facilities. The majority of on-campus and off-campus (including ARECs) buildings utilized by Agency 229 faculty to conduct research and extension programs are outdated, expensive to renovate, and lack technology and equipment for developing state-of-the-art programs.

In order to maximize the effectiveness of funds available to Agency 229, more flexibility in state and university building code requirements for renovation and construction of facilities at off-campus locations is needed.



The consensus among industry stakeholders is that more funding should be provided to attract and retain additional Agency 229 researchers who can work on industry-specific challenges and help build the capacity of the agriculture and forestry industries.

To attract and retain top Agency 229 talent, competitive salaries for faculty must be offered.

Agency 229 is one of the only organizations in Virginia that serves both rural and urban communities by applying research to the unique needs of every county and city. In many instances, extension agents are the trusted research-based resource for information about agriculture, youth development, family nutrition and health, and financial education. The trust established in communities through the Extension service is vital to helping individuals and businesses make decisions that benefit their financial and physical well-being. It is also critical in building the capacity of our youth to become skillful leaders in their communities. Unfilled vacancies driven by retirements and lack of competitive salary have left many communities feeling underserved. Commodity and agricultural business advisory groups representing each top agricultural industry all agree that filling vacant positions is a critical step in growing those industries. Continuing to support the work of VCE contributes to the economic vitality of Virginia in both urban and rural locations.

There is a need to increase the number of faculty members in strategic areas to meet growing industry needs. For example, agricultural biotechnology holds tremendous promise to be a powerful engine for economic growth in the commonwealth. Agency 229 needs to develop broader and deeper faculty expertise in this area. In addition, lack of sufficient faculty expertise and other resources hampers the ability of Agency 229 to respond to the emerging needs of agricultural producers.

Edwin Jones,
Director of Virginia Cooperative Extension,
ejones1@vt.edu

Saied Mostaghimi,
Director of Virginia Agricultural Experiment Station,
smostagh@vt.edu