Statement of the American Farm Bureau Federation

Statement of Blake Hurst
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On Behalf of The American Farm Bureau Federation

House Agriculture Committee
Subcommittee on Commodity Exchanges, Energy and Credit

For the Hearing On

Building Opportunity in Rural America Through Affordable, Reliable, and High-Speed Broadband

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Good morning Chairman Scott (D-Ga.), Ranking Member Scott (R-Ga.) and members of the House Agriculture Subcommittee on Commodity Exchanges, Energy, and Credit. My name is Blake Hurst, and I am a corn, soybean, and greenhouse farmer from Atchison County, Missouri. I serve as President of Missouri Farm Bureau and sit on the Board of Directors for the American Farm Bureau Federation, whom I am representing here today. Farm Bureau appreciates the opportunity to provide input on the necessity of broadband technology on America's farms, ranches, and in our agribusinesses.

A. Introduction

The American Farm Bureau Federation (Farm Bureau) is the nation's largest general farm organization, with nearly 6 million-member families, representing agricultural producers of nearly every type of crop and livestock across all 50 states and Puerto Rico.

Broadband is no longer a luxury, it's a necessity. Rural broadband (fixed and mobile) is essential to modern agriculture, the farmers and ranchers who grow our food and the quality of life for rural Americans.

I'm driving my combine, and the phone rings. It's my 84-year-old father, who is in our other combine. The conversation goes like this:

> Dad: "I just got a call from John Deere."
> Me: "Uh huh."
> Dad: "They said I was running out of DEF!" (A diesel fuel additive)
> Me: "Uh huh."
> Dad: "They're watching us!"

Farming has changed. We used to think that we just grew corn and soybeans. Now we also generate data. Trillions of bits, all containing information that can make us more efficient, economical and reduce our environmental impact. On our farm, that data allows us to apply more fertilizer on our most productive land, cut rates where yield potential is less, vary seed populations in real time as we travel across the field, and yes, allows our equipment supplier to monitor our machinery, alerting us to potential problems. After we collect this data, we must transfer it from our machines to the company who writes our "prescriptions," share it with our partners who supply our seed, and eventually utilize it when making crop insurance and other business decisions. Transferring this data, which is essential to the future success of every farmer, requires access to fast reliable and affordable broadband.

My friends in the livestock industry use broadband-based programs to monitor the development of each animal they raise, analyze markets, and make data-driven management decisions for their animals. From monitoring feed usage and rations to scheduling delivery of animals, livestock farmers use broadband daily to improve the efficiency of their operations and ensure the health of their herds. Many veterinarians communicate lab results through e-mail with livestock farmers to get them information on animal health as quickly as possible. All the data collected can be compiled into production reports which help farmers make more informed decisions about their farm and ranch.

While most Americans take broadband for granted, 26.4 percent of rural Americans lack access to broadband.[1] This is alarming, particularly when compared to the only 1.7 percent of urban Americans who lack such access.[2] However, an asterisk must be used alongside these figures because the current data and maps used to collect broadband coverage is flawed and fails to accurately determine broadband access. Farmers and ranchers, who already have seen a drastic 50 percent decline in net farm income in the last four years, must have access to fixed and mobile broadband to be more efficient, economical and responsive to environmental needs.

B. Improvements to Rural Prosperity

Precision Agriculture and Farming Business

Farmers and ranchers depend on broadband (fixed and mobile) just as they rely on highways, railways and waterways to ship food, fuel and fiber across the country and around the world. Many of the latest yield maximizing farming techniques require broadband connections for data collection and analysis performed both on the farm and in remote data centers. However, 29 percent of U.S. farms have no access to the Internet according to the USDA report, "Farm Computer Usage and Ownership, 2017."

America's farmers and ranchers embrace technology that allows their farming businesses to be more efficient, economical and environmentally sensitive. Today's farmers and ranchers are using precision agricultural techniques to make decisions that impact the amount of fertilizer a farmer needs to purchase and apply to the field, the amount of water needed to sustain the crop, and the amount and type of herbicides or pesticides the farmer may need to apply. These are only a few examples of the reasons farmers use broadband connectivity to achieve optimal yield, lower environmental impact and maximize profits.

According to USDA's "A Case for Rural Broadband," if access to broadband and adoption of digital agricultural technologies matched producer demand, U.S. agriculture would realize benefits amounting to nearly 18 percent of total U.S. market production, or $64.5 billion annually, based on 2017 levels. Farm Bureau's economic team analyzed the USDA report and wrote a Market Intel story, "Unleashing Broadband on Rural America Leads to Nearly $65 Billion in Economic Benefits Annually." The entire Market Intel story is attached as Appendix A to this testimony. Some highlights from this analysis include:

- Row Crops - The highest rate of adoption for precision technology used to improve yields and reduce costs is in the already highly mechanized row crop sector. USDA estimates connected technologies in row crops could result in a $13.1 billion gross benefit annually from next generation precision agriculture.

- Livestock and Dairy - According to the USDA's estimates, the livestock and dairy

[1] FCC Broadband Progress Report, https://docs.fcc.gov/public/attachments/FCC-19-44A1.pdf, 2019.

[2] Ibid.

sectors are poised to benefit the most from next generation precision agriculture, with annual potential gross benefits totaling $20.6 billion. The majority of estimated benefits come from the production side and are focused on increased efficiency of animal care.

- Specialty Crops - Like row crop growers, specialty crop farmers could also see major gains with the adoption of new production and planning technology. Total annual benefits for next generation precision ag for specialty crops is estimated at $13.3 billion.

Broadband is important to our businesses in more prosaic ways. Farmers and ranchers rely on broadband access to manage and operate successful businesses, the same as small businesses do in urban and suburban America. Access to broadband is essential for farmers and ranchers to follow commodity markets, communicate with their customers, gain access to new markets around the world and, increasingly, for regulatory compliance. Additionally, our accounting program requires us to download the latest tax data to do payroll and prepare our taxes. We use broadband to place orders for our greenhouse business and can check availability and pricing in real time. We would not be in business without access to broadband, and we cannot compete with businesses in more urban areas if we don't have connectivity.

Quality of Life

Rural communities need access to health care, government services, and educational and business opportunities. For many rural communities, access can only be gained by using broadband services and sophisticated technologies that require high-speed connections. There are Farm Bureau members who need to take their kids to the parking lot of the nearest fast food restaurant to do research papers and complete their homework because their house does not have access to broadband. This is unacceptable. As more and more primary care physicians and specialists leave rural communities, telemedicine has become a necessity to provide critical healthcare to our parents and kids. I'm concerned for the well-being of my 84-year-old father, who still is a full-time farmer.

I've listed business, health, and educational reasons for broadband's importance, but it's also important to rural Americans because we deserve the ability to be part of the larger society as well. Many families live across town, in another state or possibly another country and broadband allow families to connect, even when they are miles apart. Broadband allows grandparents to connect with their grandchildren through FaceTime and Skype. Streaming videos, using social media and participating in popular culture is important for social interactions. Rural Americans should have access to the same media as our urban neighbors.

Current and future generations of rural Americans will be left behind their fellow citizens if they are without affordable high-speed broadband service that enables them to tap into health care and education services, government agencies, and create new business opportunities.

C. 2018 Farm Bill Modifications

In the last few years, Farm Bureau members have elevated the priority of broadband access and affordability because of its impact on their daily lives. Farm Bureau has included rural broadband deployment as one of its strategic action issues for 2019 because many of our farm families are frustrated with the lack of services available in rural America.

Many of our state Farm Bureaus have engaged with their state legislatures to expand rural broadband deployment and have been conducting research on the impact of broadband deployment for rural communities. Let me walk you through some of the research that the Missouri Farm Bureau conducted concerning the deficits in current broadband programs provided at the state and federal level. We helped organize the Missouri Broadband Initiative Working Group, which brought together broadband providers, local, state, and federal officials, and end-users of broadband. Together, this group identified multiple opportunities and challenges to broadband deployment in our state and around the country. We now have a state broadband grant program and will soon roll out a comprehensive state broadband plan.

The recent changes in the 2018 Farm Bill made necessary strides in providing the technology of the future while safeguarding taxpayer dollars. Many of the challenges that we identified in Missouri are addressed by these changes, including:

- **High Deployment Costs:** Time and time again we have heard about the high cost of deploying broadband to rural areas. The 2018 Farm Bill increased the authorization for broadband deployment from $25 million to $350 million to help facilitate more broadband development nationwide. In addition, the farm bill established a grant program to help providers who are reaching the most rural citizens. It is crucial that these programs are fully funded at the authorized level to help ensure that rural communities can benefit from broadband services.

- **Delivering Technology of the Future**: Prior to the passage of the 2018 Farm Bill, some rural broadband programs did not deliver service that is adequate and scalable into the future. The 2018 Farm Bill focused on “future-proof” technology and established benchmarks for broadband services. By giving USDA the authority to set minimum acceptable standards based on the life of the loan or grant awarded, we are ensuring that our tax dollars are not being spent on technology that will be outdated by the time projects are complete.

- **Accountability**: Ensuring judicious use of taxpayer dollars was a priority in the 2018 Farm Bill. Thanks to the work of the House and Senate Agriculture Committees, more safeguards are in place to make sure that the services promised are the services delivered by loan and grant recipients. Prior to this legislation, very few safeguards existed in this regard. It is vital that when federal programs come into an area to address the lack of access that they do it right the first time.

- **Mapping and Data Collection:** Knowing where adequate broadband services do and do not exist is crucial to crafting sound public policies related to broadband deployment.

The 2018 Farm Bill made significant progress in streamlining applicant processes and took steps to drill down to more granular data sets in determining where services are being provided. Missouri is fortunate to have been selected for a mapping pilot program, but more work remains on ensuring that the data collected nationwide is accurate and adequately reflects the current needs of our rural communities.

- **Meeting the Technology Needs of Agriculture:** In response to the growing needs of agriculture, the 2018 Farm Bill established the Precision Agriculture Connectivity Task Force. This legislation directs the FCC and U.S. Department of Agriculture to work together to identify gaps in mobile broadband coverage to farmland and ranchland. Then, policies will be recommended to fill 90 percent of those identified gaps by 2025. The legislation is an important step in changing the way the FCC and other agencies think about rural broadband as we strive to build the information infrastructure that modern production agriculture increasingly needs to be successful. Farm Bureau looks forward to participating in the nomination process.

D. Importance of Broadband Mapping to Agriculture

As efforts to improve access to broadband in rural areas continue, the ability of the FCC and all other relevant agencies to utilize accurate coverage maps is the highest priority. With limited funding to address an estimated $45-65 billion issue and an overabundance of need, more granular and accurate maps are critical to successfully target and distribute federal broadband programs. Currently, the FCC's National Broadband Map relies on census block data to determine which areas are served, underserved, and unserved across the country. Census blocks are too large in rural and remote areas to accurately target broadband investments. If even one household in a given census block is reported by a provider as being served, then the entire block is considered served and is therefore likely excluded from eligibility to receive federal funds for rural broadband buildout. There are more than 3,200 census blocks across the country that are larger than the District of Columbia, and five that are larger than the state of Connecticut. In fact, census blocks larger than two square miles comprise more than 64 percent of the U.S. land area, which means that every rural area is impacted by this problem in some way.

Farm Bureau recommends that more granular data be used to determine areas of coverage. Gathering and, equally as important, verifying the data to accurately target and distribute the funding is critical to the success of broadband deployment for rural America. Adjustments in the data collection matrix to develop the mapping will assist in identifying areas in rural America where the digital divide is the greatest.

Farm Bureau supports H.R. 3162, the Broadband Data Improvement Act, that would improve the accuracy of broadband coverage maps and better direct federal funds for broadband buildout. This bipartisan bill would require broadband providers to report data to create an improved National Broadband Map that is significantly more accurate and granular, an outcome that Farm Bureau policy supports. To improve accuracy and granularity, H.R. 3162 includes a three-pronged data validation process that focuses on: public feedback, third-party commercial datasets and on-the-ground field validation.

E. Broadband Coverage for Croplands and Ranchlands

We strongly advocate for the inclusion of cropland and ranchland as a metric of broadband access. Precision agricultural equipment requires reliable, high capacity fixed and mobile broadband connections for data collection and analysis performed both on the farm and in remote data centers. As more precision equipment becomes available, farmers cannot take full advantage of that equipment if they do not have access to reliable, high capacity broadband in the field or on the farm.

F. Conclusion

Farm Bureau appreciates the subcommittee's interest in rural broadband and I am grateful for the opportunity to share our perspective with you today. Rural broadband (fixed and mobile) is essential to modern agriculture, the farmers and ranchers who grow our food and the quality of life for rural Americans. Broadband is no longer a luxury, it's a necessity.

We look forward to continuing to work with the subcommittee in advancing the shared goals, which I have highlighted here today.

Appendix A

Unleashing Broadband on Rural American Leads to Nearly $65 Billion in Economic Benefits Annually

By: Megan Nelson, Economic Analyst

According to USDA's "A Case for Rural Broadband," if access to broadband and adoption of digital agricultural technologies matched producer demand, U.S. agriculture would realize benefits amounting to nearly 18% of total U.S. market production, or $64.5 billion annually, based on 2017 levels. The report, published by the American Broadband Initiative, analyzes the possible economic benefits of bringing e-connectivity to the heartland and, more importantly, what needs to be done to make it happen.

From the way producers store and ship commodities to the way consumers purchase their food, the introduction and widespread usage of the household refrigerator has irrevocably changed the food supply chain system. A similar shift is upon us with the advent of digital technology and next generation precision agriculture, resulting in ever-increasing productivity with fewer inputs, better market access and healthier rural communities. Just as electricity allowed for refrigeration, to realize the benefits of this new digital technology, high-speed broadband service must be available everywhere.

	Row Crops	Specialty Crops	Livestock	Total
Annual Value of the U.S. Market Studied *	**$110.6 B**	**$30.1 B**	**$113 B**	**$254 B**
Precision Ag in Planning	$4.2 B	$1.3 B	$2.4 B	$7.9 B
Precision Ag in Production	$6.7 B	$3.5 B	$15.8	$25.9 B
Precision Ag in Market Coordination	$2.2 B	$8.5 B	$2.4	$13.1 B
Next Generation Precision Ag Potential Gross Economic Benefits Annually, For the Market Studied	$13.1 B	$13.3 B	$20.6	$46.9 B
Annual Value of Total U.S. Market Production *	**$142.6 B**	**$45.3 B**	**$151.9**	**$340 B**
Next Generation Precision Ag Potential Gross Economic Benefits Annually, Extrapolated to Total Market	$16.8 B	$19.9 B	$27.7	$64.5 B
Next Generation Precision Ag Potential Gross Economic Benefits as a Percent of Total U.S. Production	12%	44%	18%	18%
Average Percent of Next Generation Precision Ag Benefits that Depend on Broadband	35%	43%	38%	36%
Potential Gross Economic Benefits of Ubiquitous Broadband Infrastructure and Next Generation Precision Agriculture Adoption:	**$4.6** *to* **$5.9 B** *or 4%*	**$5.7 B** *to* **$8.6 B** *or 19%*	**$7.8 B** *to* **$10.5 B** *or 7%*	**$18 B** *to* **$23 B** *or 7%*

of the total market

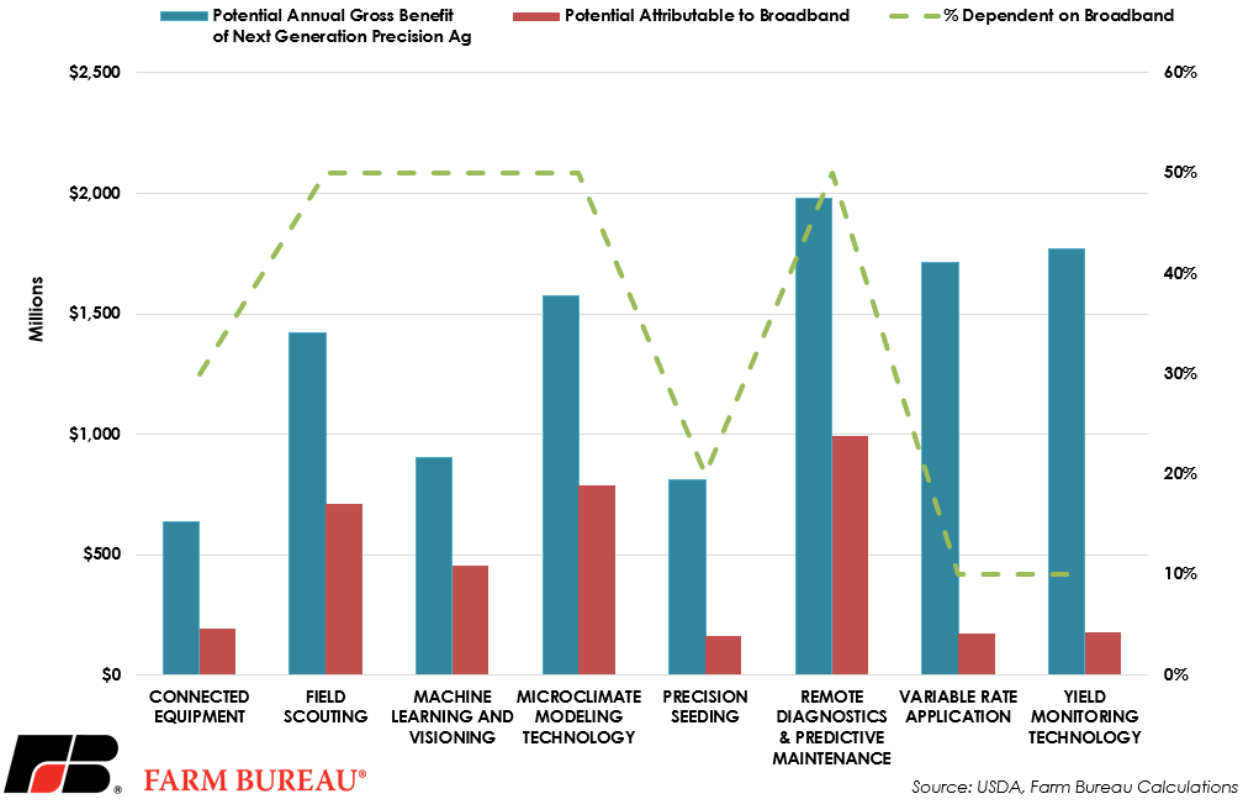
** Source: 2017 Production Values per 2019 reports of USDA National Agricultural Statistics Service and Animal and Plant Health Inspection Service.*

Benefits

Row Crops

The highest rate of adoption for precision technology used to improve yields and reduce costs is in the already highly mechanized row crop sector. USDA estimates connected technologies in row crops could result in a $13.1 billion gross benefit annually from next generation precision ag. Technology for improved planning, such as microclimate modeling, yield monitoring and precision seeding, is estimated to have a combined potential annual gross benefit of $4.2 billion, with $1.1 billion attributable to access to broadband services. On the production side of new technologies, the potential is even greater at $6.7 billion in possible benefits derived from precision agriculture, with $2.5 billion attributable to broadband. With an average dependence of 34% on broadband services to utilize these new technologies, the key to unlocking these significant gains is full deployment and adoption of broadband infrastructure. Figure 1 outlines the potential benefits for row crop production and planning technology compared to the potential attributable to broadband with the percent of technology dependent on broadband.

Figure 1. Potential Benefits for Row Crops by Digital Techonology Type

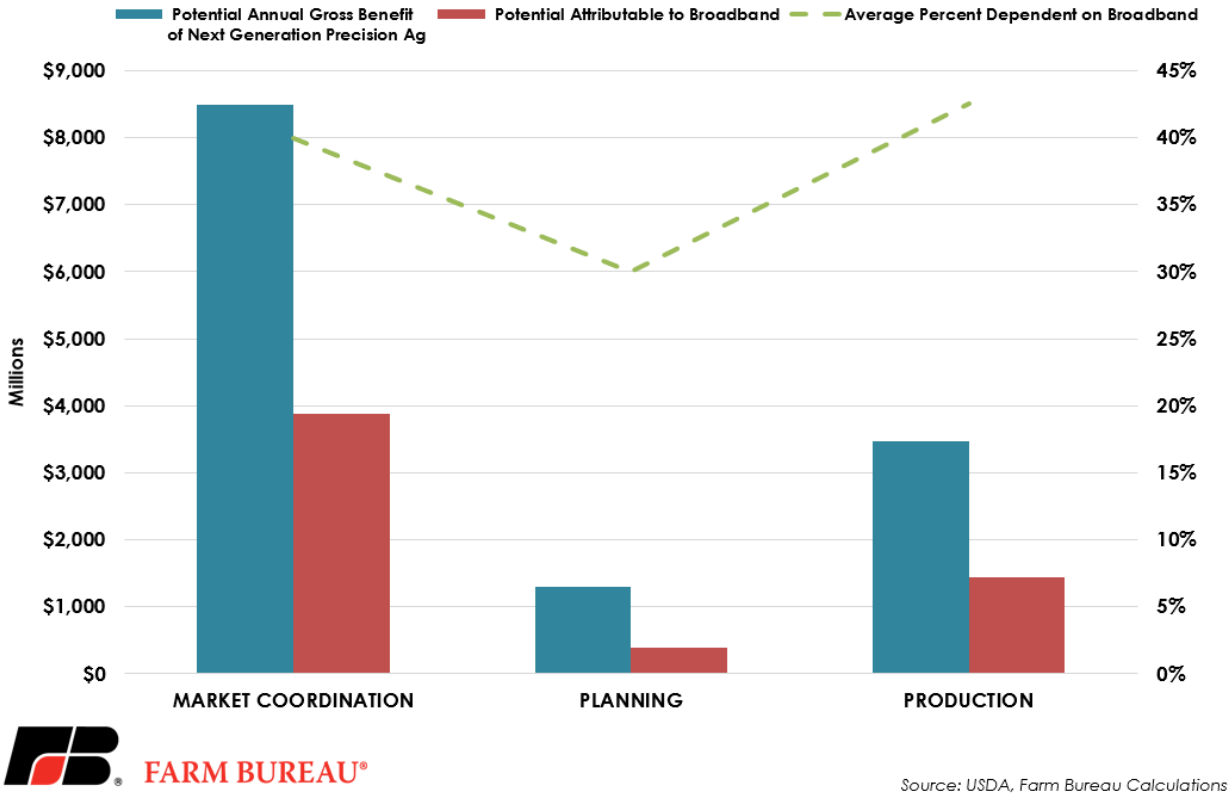


Source: USDA, Farm Bureau Calculations

Specialty Crops

Like row crop growers, specialty crop farmers could also see major gains with the adoption of new production and planning technology. Total annual benefits for next generation precision ag for specialty crops is estimated at $13.3 billion. With a possible increase of $8.5 billion, market coordination efforts will likely get the biggest boost from the adoption of digital technologies. Of the new opportunities in market coordination, direct-to-consumer sales are estimated to post a potential annual gross benefit of $6.4 billion, with $3.2 billion in potential attributable to broadband. Specialty crop producers can shorten the supply chain by utilizing digital platforms. USDA estimates a revenue increase of 50% per unit of apples, 649% per unit of salad mix and 183% per unit of blueberries. Figure 2 illustrates the breakdown of potential financial benefits from next generation precision ag and the amount attributable to access to broadband services.

Figure 2. Potential Benefits in Specialty Crops from Digitial Techonology By Business Function

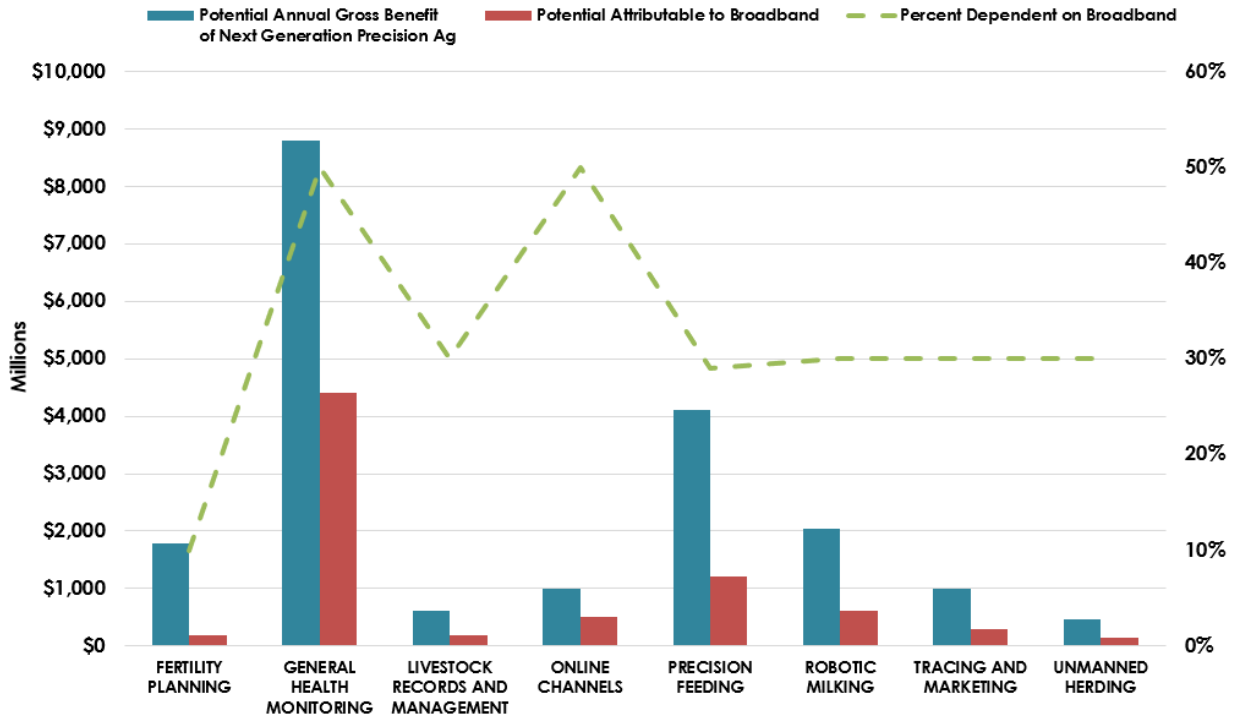


Livestock and Dairy

According to the USDA's estimates, the livestock and dairy sectors are poised to benefit the most from next generation precision ag, with annual potential gross benefits totaling $20.6 billion. The majority of estimated benefits come from the production side and are focused on increased efficiency of animal care. Utilizing Bluetooth technology, animal wearables transmit general health data directly to the producer, resulting in a 15%

reduction in medication per animal, as well as a shortening of the cattle finishing process by four to six weeks. Technological advances in general health monitoring alone are estimated to generate $8.8 billion in annual gross benefits. Unsurprisingly, as poised as producers in the livestock and dairy sectors are to reap enormous benefits from next generation precision ag, they are also the most dependent on reliable high-speed broadband to enable new technological advancements. Figure 3 outlines the potential benefits for livestock and dairy compared to the potential attributable to broadband along with the percent of technology dependent on broadband.

Figure 3. Potential Benefits for Livestock and Dairy By Digital Techonology Type



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Source: USDA, Farm Bureau Calculations

Strategies for Action

As with electricity, the dawn of digital technology has brought an unimaginable amount of change to every aspect of our lives. Precision agriculture has led to 7.5% fewer people at risk of going hungry in developing countries and an up to 80% reduction in the application of crop protection tools. However, while new technology is able to inform and improve business decision making, without widespread adoption of next generation precision agriculture tools and access to broadband infrastructure, these benefits cannot be realized.

USDA has outlined key priorities for strategic action planning involving improved broadband deployment, incentivizing innovative technologies and creating environments for innovation, strategic funding and communication. To bring broadband services to even the most remote areas, public and private entities must work closely with communities to determine specific needs and challenges. Reducing barriers in federal processes to access government assets is one of the cornerstones of the American Broadband Initiative and continues to be a focus at the federal level. The task of actualizing broadband infrastructure relies on funding for deployment as well as for new innovations that can lead to long-term successes for the entire sector.

Summary

USDA's report puts the hypothesized potential benefits that broadband technology and infrastructure could bring to rural areas at $64.5 billion annually. Potential gross economic benefits of ubiquitous broadband infrastructure availability and precision agriculture adoption are estimated to increase 4%, or up to $5.9 billion, for row crops, 19%, or up to $8.6 billion, for specialty crops, and 7%, or up to $23 billion, for livestock.

One limitation of the report is it does not incorporate the implementation costs, which will inevitably be incurred by rural residents, service providers and/or state and federal governments. As such, this report should be seen as a tool to illustrate the potential of broadband technology, rather than the only source for future investment-related decision-making.

USDA leaves us with this call to action - spread the word. For the full economic benefits of high-speed broadband to be realized throughout rural areas, adoption rates of precision agriculture tools and next generation technology must be much higher. All potential benefits are estimations based on rigorous research; however, producers must perform their own cost-benefit analysis to see where these emerging technologies fit in their operations.