

Comments by the
Tennessee Farm Bureau Federation
to the
Tennessee Advisory Commission on Intergovernmental Relations
Regarding
Broadband Internet Deployment, Availability, and Adoption in Tennessee
October 21, 2015

Farm Bureau is a voluntary membership organization.

We are an independent, non-governmental organization led by and representing farmers to provide a unified voice for agriculture.

We are, and always have been, a grassroots organization working at the local, state and national level.

Farmers organized Farm Bureau in 1919. In four years we will celebrate 100 years.

Simply stated, our mission is:

- to build a strong and prosperous agriculture and
- make rural communities a better place to live.

On behalf of our membership, I have three points to share illustrated by these three items: A Quarter A Combine... and an Hourglass

1. The quarter illustrates the global and competitive economy we live in....agriculture is at the heart of that competition.
2. The combine represents the "Internet of Things". The "Internet of Things" does not just apply to smart appliances and smart lifestyle gadgets but also to the technology available in today's smart farm equipment.
3. The Hourglass as we all know represents time...and there are several elements of time relevant to broadband.

Although the gap between rural and non-rural broadband adoption is narrowing, there are still substantial holes. Many rural residents fall behind urban neighbors when it comes to high-speed Internet connections. Speed, availability, or limited competition among Internet Service Providers resulting in affordability issues, are problems in many rural areas.

We hear many stories from rural members:

- of how service is available to their nearest neighbor but not at their farm,
- of service being available but the speed is so slow it is little value outside of simple emails,
- of high costs with ridiculous low data caps and
- one farmer shares how two fiber optic lines cross his property and yet fiber service is not available to him.

National studies show a discrepancy in broadband availability and adoption exists between rural and urban areas. The latest data from the National Broadband Map (NBM) suggests that while 100% of urban residents have access to at least one wired broadband provider, only 78% of rural residents do. (National Telecommunications and Information Association (NTIA - 2014)

Connected Tennessee maps show similar coverage issues in Tennessee.

The lag in rural areas was noted in the Governor's Rural Challenge – a 10 year strategic plan. One of the twenty-seven specific action steps called for improved broadband coverage in rural areas.

We live in a global economy. Global competitiveness is significant in agriculture. 95% of the world's population...our customers....live outside of the U.S.

The quarter represents that competitiveness. Approximately 25%, one quarter of every dollar generated by Tennessee agriculture and forestry is a result of exports. If we are unable to compete in the export marketthe quarter is forfeited.

Tennessee farmers need to be competitive not just with other countries but with other states too. It is important to remain competitive with other states and access to mobile broadband services is an essential component of a healthy and growing economy.

Weather conditions and commodity prices in near-real-time can be accessed via smart phones.

The Internet can be used to:

- access federal government sites (44 percent),
- purchase agricultural inputs (19 percent) and
- market commodities (16 percent).

But without adequate internet access, none of these resources are available to Tennessee farmers.

Farmers face constant pressure to improve efficiency, environmental stewardship, and output.

The economic challenges of farming is transforming agriculture into a technology-driven sector increasingly dependent on access to broadband.

The combine illustrates one example of the "Internet of Things" important in farming.

With smart farming technology, including an increasing number of solutions requiring mobile and fixed broadband access and GPS farmers are able to:

- remotely monitor equipment,
- gather real-time equipment diagnostics,
- upload variable rate prescriptions to applicators, and
- utilize real time market and weather data

With smart tractors, combines, and production systems along with GPS-enabled positioning systems, now standard on virtually all modern farming equipment, supplemented with data available from satellite signals and 2-G and 3-G modems, producers are able to farm to within a few centimeters of accuracy.

This technology has been available for about ten years....but many Tennessee farmers are unable to fully use it because they are in areas where there is no coverage, inadequate or unreliable coverage, or data limits make it unaffordable.

Precision agriculture and advanced farm equipment and services provide real-time agronomic data that can be analyzed to optimize the precise amount of water, seed, fertilizer and pesticides needed, and identify best practices..... not for a fieldbut precisely and responsibly down to the specific square inch of the field.

On the environmental front these technologies can make an enormous contribution to improved use of resources, regulatory compliance and sustainability.

The collected and analyzed data helps farmers apply the exact nutrient needed, in the exact amount needed, at the optimal time needed, to help the plants efficiently uptake the nutrients and reach maximum yield potential.

Data-driven decisions regarding irrigation, fertilization and harvesting can reduce the farmers' production cost resulting in increased farm profitability.

This technology uses data and lots of it. Therefore, it is also specifically important to agriculture to close the gap between upload and download speeds. Upload speeds are a must for the future of precision agriculture technology. Uploading prescription data from the application equipment—sprayer, planter, fertilizer applicator— to the cloud requires more bandwidth.

Both the environmental and economic impact of these technologies is significant.

The hour glass illustrates the urgent need for rapid deployment of broadband facilities and services in the agricultural sector.

Farmers and farm families are not-so-patiently anticipating coverage allowing them to utilize the "Internet of Things" to automate the collection, processing, and analytics, needed to make wise input decisions. Five years may not seem long to us. But, for a twelve year old, rural student, without internet, five years marks the end of his or her high school career.

Not only does the farmer's home lack access to adequate mobile and fixed broadband coverage..... but so do the fields where their agricultural equipment operates.

This is a unique challenge for farmers. Previously, agriculture technology adoption depended on an individual farmer's willingness or ability to invest, but broadband adoption is externally constrained and limits all farmers in a geographic area.

Farm operations are important to the economic vitality of these communities. So, as you discuss improved deployment of broadband to residential and businesses in rural communities, remember also the farm and cropland areas.

Time is important. We cannot allow rural areas to continue to lag behind.