# IoT AB Agriculture Subgroup

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# Opportunities

- Drive adoption of Precision Ag, also helps with farmer income
  - Increase agricultural productivity
  - Improve efficiencies & reduce cost
- Increase adoption of sustainable agriculture
  - Reduced use of chemicals, water
  - Better decision making
- Livestock management + aquaculture
  - Health, disease detection, animal welfare, reduced use of antibiotics
- Improved supply chain management
  - Tracking goods from farm to table, improve inventory management, reduce waste, timely supply chains

# Barriers

- High initial investment
- Limited internet connectivity
- Lack on interoperability: IoT systems are typically closed
- Data privacy + security concerns
- Complexity of implementation
- Resistance to change
- Lack of standards
- Environmental factors
- Energy access

# Recommendations list (summary list)

- The federal government should consider subsidizing the use of IoT in farms
- The federal government should consider fully funding the deployment of a “farm of the future” setup in every land grant university nationwide. This nationwide test-farm IoT network should span different forms of agriculture, including, but not limited to broadacre, horticulture, livestock, and aquaculture.
- The federal government should consider increasing funding and accelerating implementation of broadband deployment across rural America.

# Recommendation #1 (details)

## The federal government should consider subsidizing the use of IoT in farms

### Recommendation

The federal government should consider programs to **help growers and producers adopt IoT technologies**. This should include **subsidies** around connectivity, sensors, and digital applications. The programs could be similar to other subsidies that the USDA has for farmers around agricultural inputs or climate smart agriculture. The use of IoT in agriculture will benefit all stakeholders, including the farmer, the policy makers, the agricultural companies, and the consumer.

### Justification

- The upfront cost of IoT typically limits the adoption of data-driven agriculture
- Subsidies can help scale the technology, which will drive down costs

**Implementation Considerations:**

- Public/private/academia partnership
- This should leverage Ag Extension Centers as well
- Marginalized farmers and smallholder farmers might need more help to leverage this technology

# Recommendation #2 (details) **The federal government should consider fully funding the deployment of a “farm of the future” setup in every land grant university nationwide. This nationwide test-farm IoT network should span different forms of agriculture, including, but not limited to broadacre, horticulture, livestock, and aquaculture.**

## Recommendation

The proposed initiative advocates for the federal government to **allocate sufficient funding to implement a "farm of the future" setup in all land grant universities** across the United States. This would involve creating a comprehensive IoT network that spans various forms of agriculture, such as broadacre, horticulture, livestock, and aquaculture. By establishing a nationwide test-farm IoT network, the government can significantly enhance agricultural productivity, while also promoting sustainable agricultural practices. The implementation of this initiative will require substantial financial investments from the federal government. However, the benefits of having a comprehensive agricultural data network in place will likely lead to better decision-making, increased efficiency, and improved sustainability across the agricultural sector.

Justification

- Showcase for farmers for a region on how to collect & analyze data
- Will help build better AI/ML algorithms
- Help universities share data & insights with each other
- Help advance R&D

Implementation considerations:

- What IoT tech to use?
- Each university has different readiness
- Need to be inclusive, including HBCUs

Barriers:

- Limited IoT knowledge

Federal considerations:

- Minimal cybersecurity requirements

# Recommendation #3: **The federal government should consider increasing funding and accelerating implementation of broadband deployment across rural America.**

## Description

The federal government currently offers limited funding and grants (ex. Department of Agriculture – Community Connect Grant Program) to help fund broadband deployment in rural communities, however, these opportunities have not advanced quickly enough to provide broadband coverage for certain areas of rural America. Increasing the broadband infrastructure across the U.S. will be a critical component for IoT connectivity in agriculture.

## Justification

- 60% of US farmland doesn't have good Internet connectivity
- Point to point solutions, or satellite-based connectivity, quickly become expensive, and do not get connectivity to the middle of the farm

## Implementation considerations

- Mandate broadband infrastructure deployment across rural areas until U.S. coverage is complete.
- Current federal funding operates across several programs making it difficult to identify and find the opportunities available to specific areas. Although there are initiatives to increase awareness of the funding, the processes need to be simplified to accelerate implementation.
- Funding may include options for supplying energy sources such as solar power, wind power, or micro-hydro power where access to reliable electricity is limited.