


# Current and Future Technologies

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FARMING



**Farmers are struggling to keep up with the demand of their crops as more and more of their workers move to more populated areas. Agricultural digitization will allow for farmers to not only keep up with their demand, but exceed it.**

# Current technologies - GPS

- Farmers are currently taking advantage of having a GPS installed into their combines to semi-automate their farm work.
- Auto-steer - Steers combines right where it needs to be and stays within 2 inches of where they programmed the gps to be in.
- One major downside is that their still needs to be someone operating these combines, as they aren't completely automated.



Source: PBS



# Agricultural Robots

Source: (Polly)

These types of robots can help farming functions:

- Monitoring and forecasting
- Production costs reduction
- Activities precision and quality improvement
- Minimization of food production impact on the environment
- Support of medium and small agricultural businesses
- Increased food safety
- Ability to use agricultural robots in any weather, any time of the day

Robots will use automation to cut down physical workers and those needed to control these machines. This will allow crop production to become sustainable. The amount of farming workers in the United States is on a decline, to keep up with production agriculture robots will help make life easier for farmers who are struggling with demand. With such advancement in Artificial Intelligence and automation, these robots can handle multiple functions at an even faster rate than humans can.



# Vertical Farming: A Modern Day Solution

- Farming in the US is only sustainable at scale
  - Most conventional farms are over 400+ acres in size (USDA)
- Most goods have to be transported hundreds of miles from rural production sites to urban areas where there is demand (NY Times)
- Conventional farms are susceptible to inclement weather

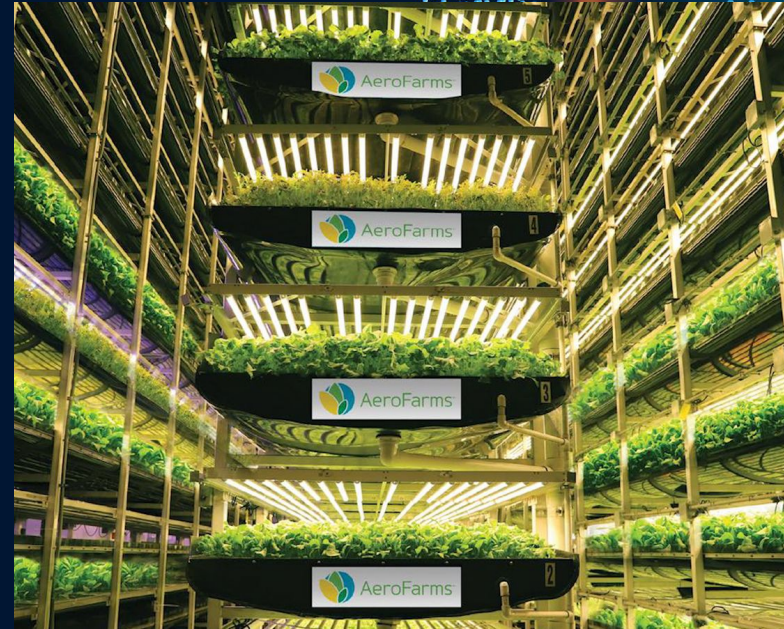


Land  
consumption  
by farms in  
US

Source: USDA &  
NY Times

# Vertical Farming: How it Works

- Farming takes place indoors in a single building on stacked “growing” shelves
- Vertical farms usually located in urban areas, reducing transportation cost (ex./ Newark Vertical Farm)
- Synthetic light, humidity, and other abiotic factors are acutely controlled by monitoring systems to promote best growing conditions
- Small workforce of technicians that monitor the automated growing system, making changes if needed



Inside AeroFarms in Newark, NJ

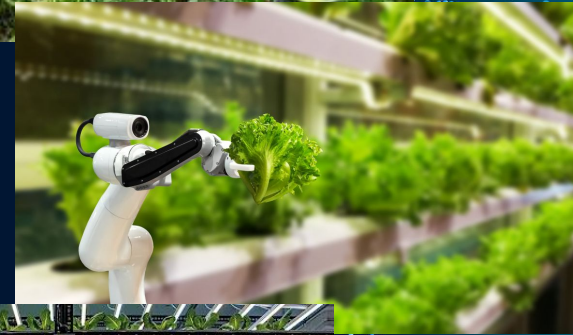


# Questions to Consider

Is price of newer technology worth it in the long term?

The materials used to make chips and automated machinery, are the safe for the environment as it is used in farmland?

What are some pros and cons of the increased specialization in agrarian jobs?



# References

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