Precision Agriculture

Producing More With Less

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BTR 820

Overview

- Agriculture
- Current issues in Agriculture
- Solution: Precision Agriculture (PA)
- Latest technologies in PA
- Future improvements in PA
- Barriers to adoption of PA
- Conclusion

The science or practice of farming, including cultivation of the soil for the growing of crops and the rearing of animals to provide food, wool, and other products.
Agriculture

Current issues in Agriculture

Soil Degradation

The use of fertilizers over the years cause accumulation of trace minerals.

E.g. Cadmium

Eutrophication

Excessive richness of nutrients in a water body which causes a dense growth of plant life and death of animal life from lack of oxygen.

Deforestation

Cutting of trees cause soil erosion and loss of mineral.

Causes climate changes as less plants consume carbon dioxide.

Deforestation
17% of the Amazon forest have been lost in last 50 year.

Climate Change

Agricultural practices produces greenhouse gases:

Methane **Nitrous oxide** **Carbon dioxide**

Pest Attack

Responsible for destroying 1/5 of the world's total crop production annually.

Food scarcity

Malnutrition: one of the top leading causes of death

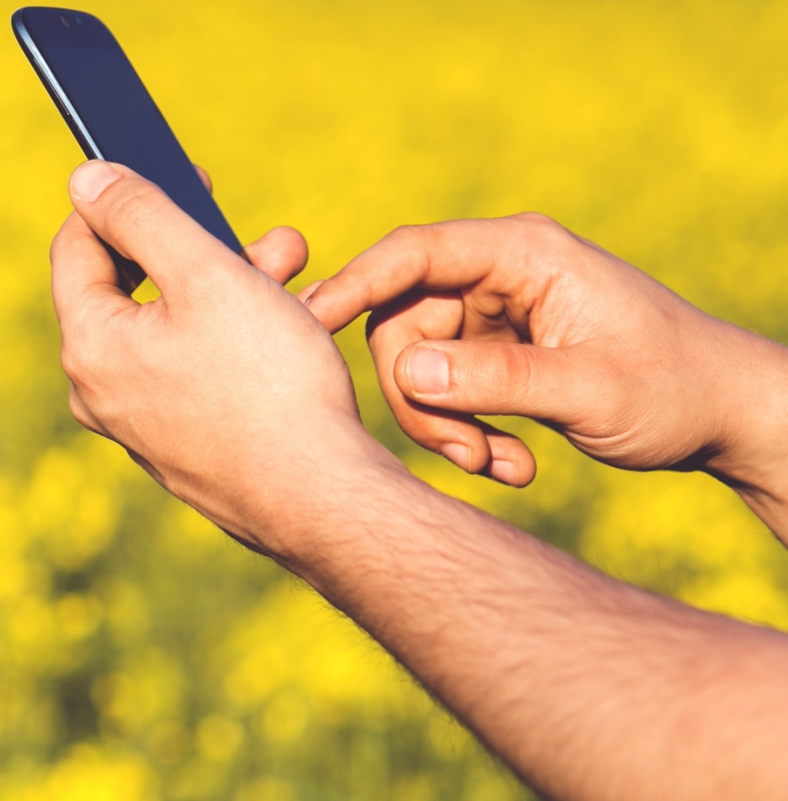
Solution

Precision Agriculture

Precision Agriculture

Practice of using technology for crop cultivation to produce high quality crops.

Latest technologies in Precision Agriculture



Variable Rate Technology (VRT)

Reduces resource cost, labour and negative environmental impacts.

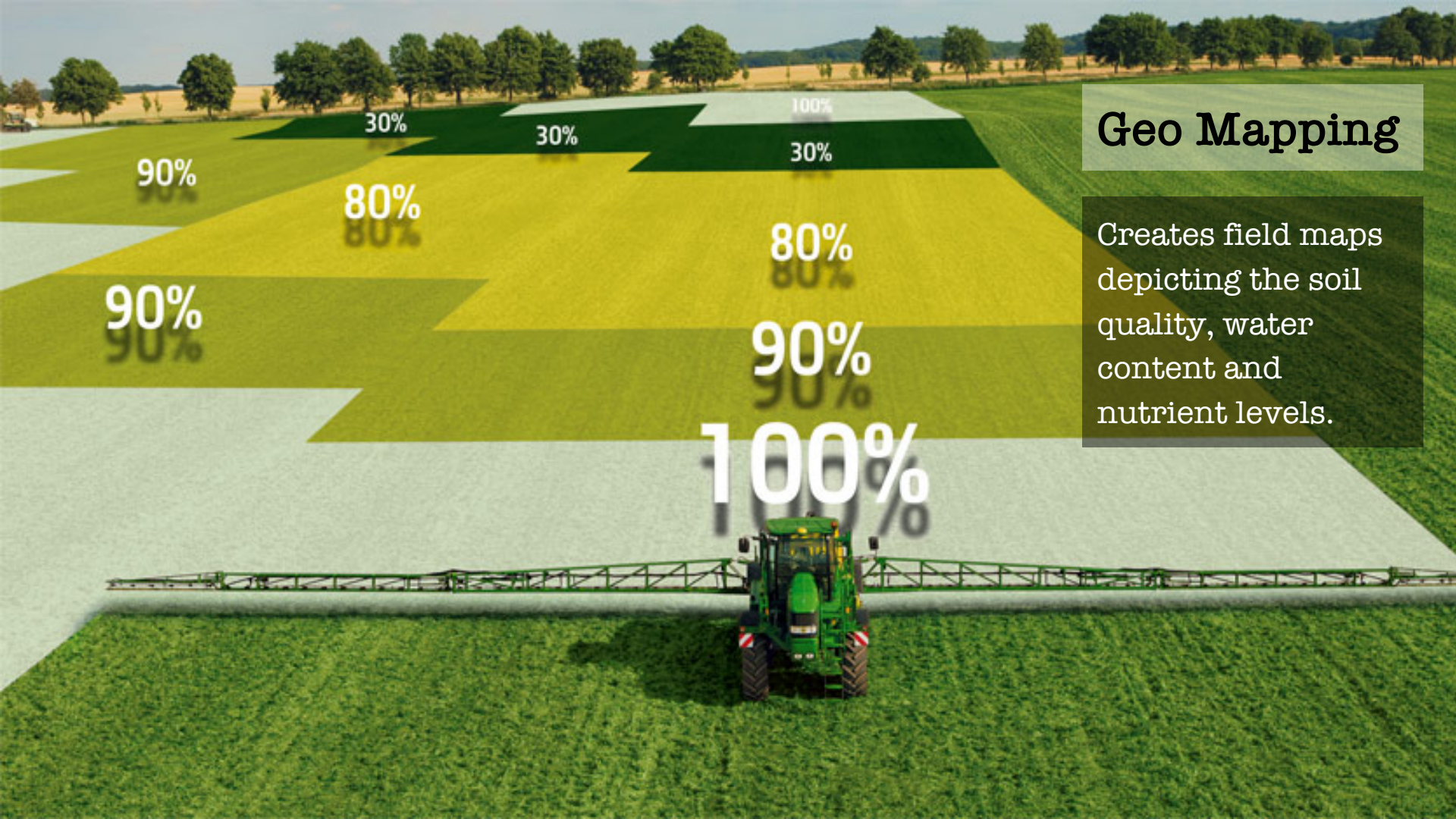
Unmanned Aerial Vehicle (UAV)

Spot bacterial/fungal infection and spray pesticide.

Global Positioning System (GPS)

Map the crop field using latitudes and longitudes.

Determine crop status.



Geo Mapping

Creates field maps depicting the soil quality, water content and nutrient levels.

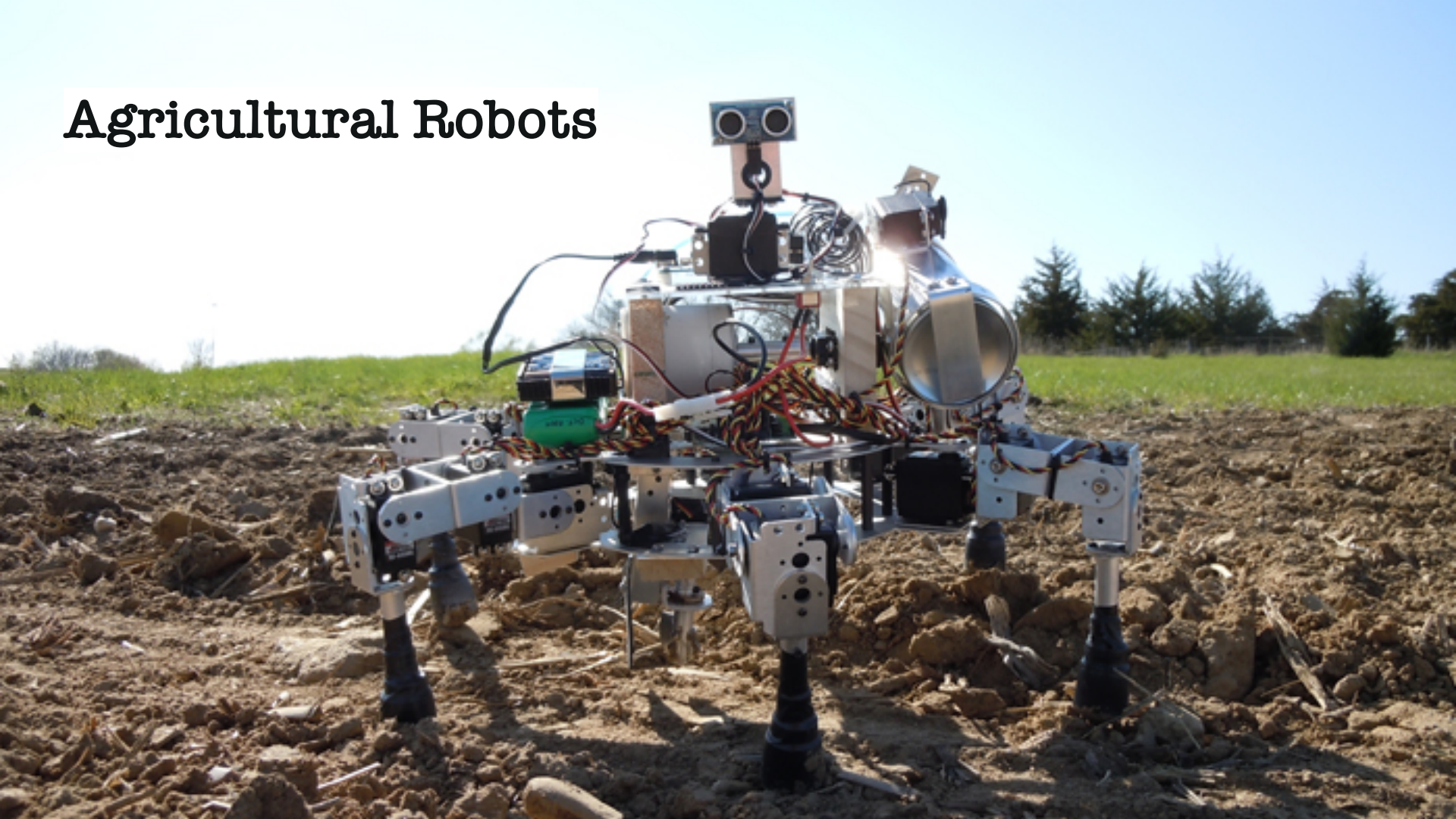
Automated Steering System

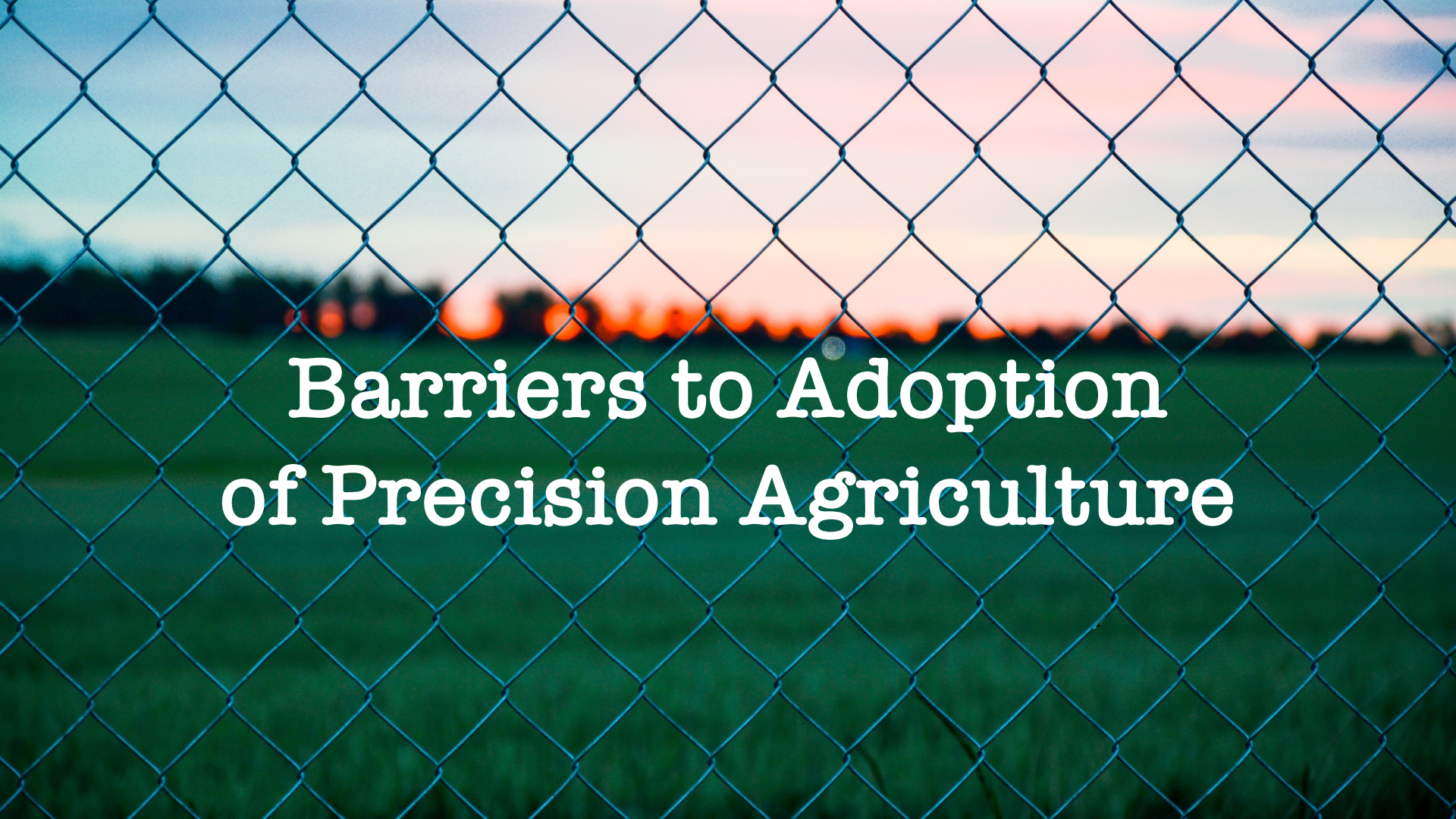
Reduces human errors by following field edges accurately and prevent overlapping of rows.

Future Updates

Fruit harvester

Agricultural Robots

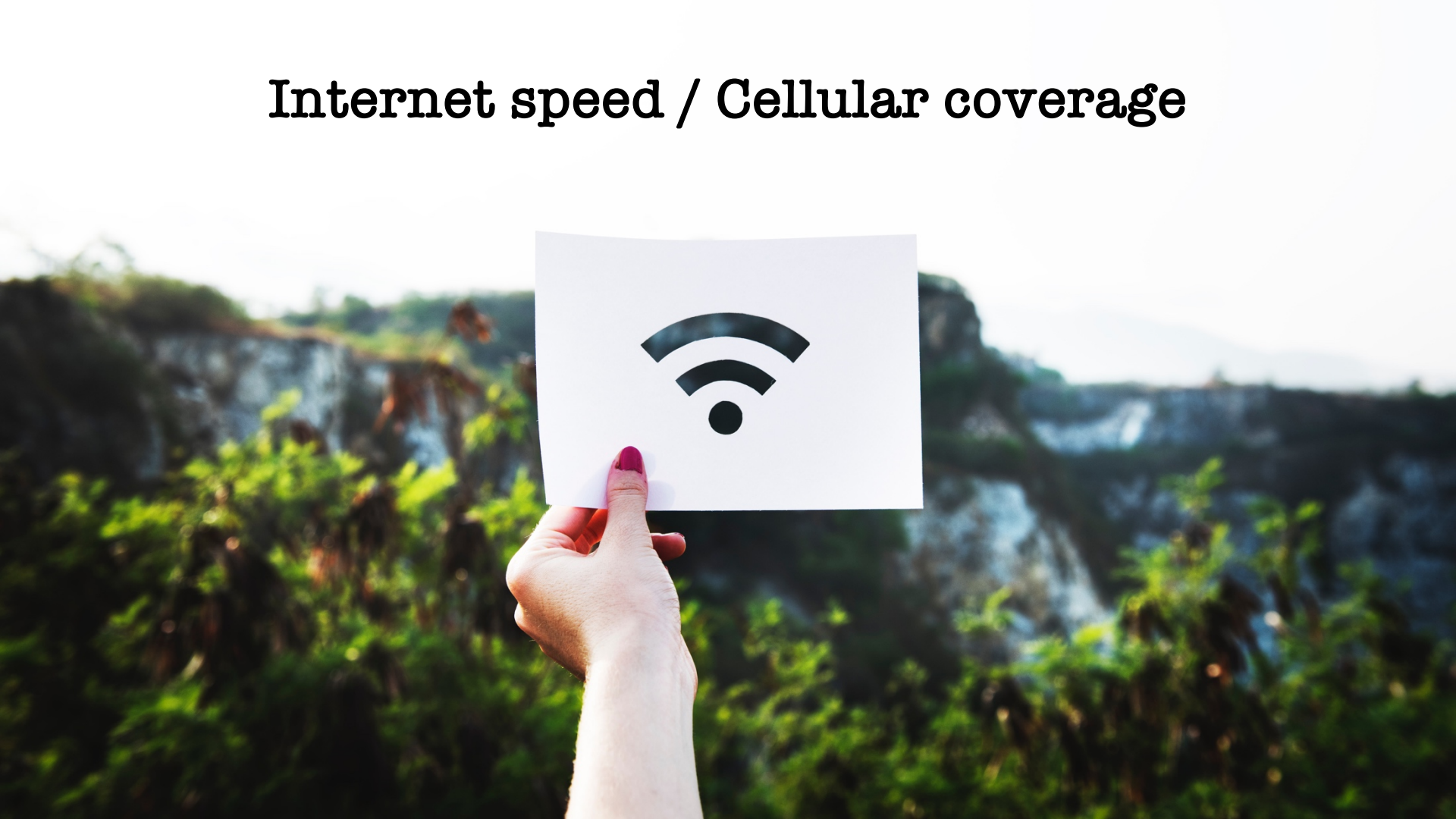




Barriers to Adoption of Precision Agriculture

Price

Internet speed / Cellular coverage



Lack of knowledgeable people

Risk of poor quality input

Conclusion

Issues in agriculture harm the environment

Food scarcity still prevails

Precision agriculture helps produce more food with less resources

Technology is the future of agriculture

Barriers to PA adoption continue in many countries

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