



DIGITAL TECHNOLOGY SOLUTIONS FOR IMPROVING POTATO FARMING

GROUP 26

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SCOPE/OBJECTIVES

The objective is to use digital technology tools as a solution to

- ❖ Improve the production of potato
- ❖ Reduced demand for manual labor (farm machinery automation)
- ❖ Improve accuracy and reduce the cost of monitoring crop growth and quality of land or water (remote satellite data and in situ sensors)
- ❖ To also help governments improve the efficiency and effectiveness of existing policies and programs.



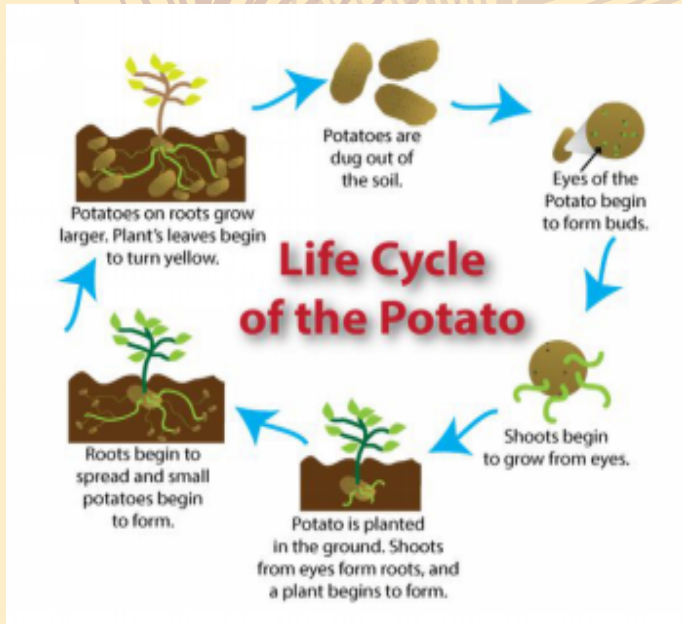
BRIEF INTRODUCTION OF POTATO

Considering potato as the fourth largest food crop after maize, wheat and rice. And as population grows we need to find a way to produce much more food, with less resources in a more sustainable way. We believe Digital technology is one key way to provide much more food, with less resources in a more sustainable way.



CONTINUATION.....

- ❖ The potato is a *Solanum tuberosum* tuber ,originate in the Andes.
- ❖ The life cycle of potato is made by 2 distinct phases of tuberization (Initiation and Growth phases) and tuber development (Dormancy and germination phases).
- ❖ There are about 100 varieties of potato tubers, varying in size, shape, color, starch content and flavor.



USES OF POTATOES

Potatoes are use for different pur poses

❖ Production of potato chips & wafers



❖ Flakes & Pellets



❖ Production of potato granules



❖ Frozen potato products:



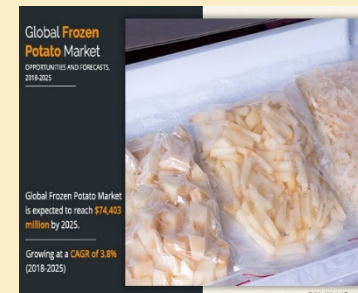
❖ Potato sticks, French fries:



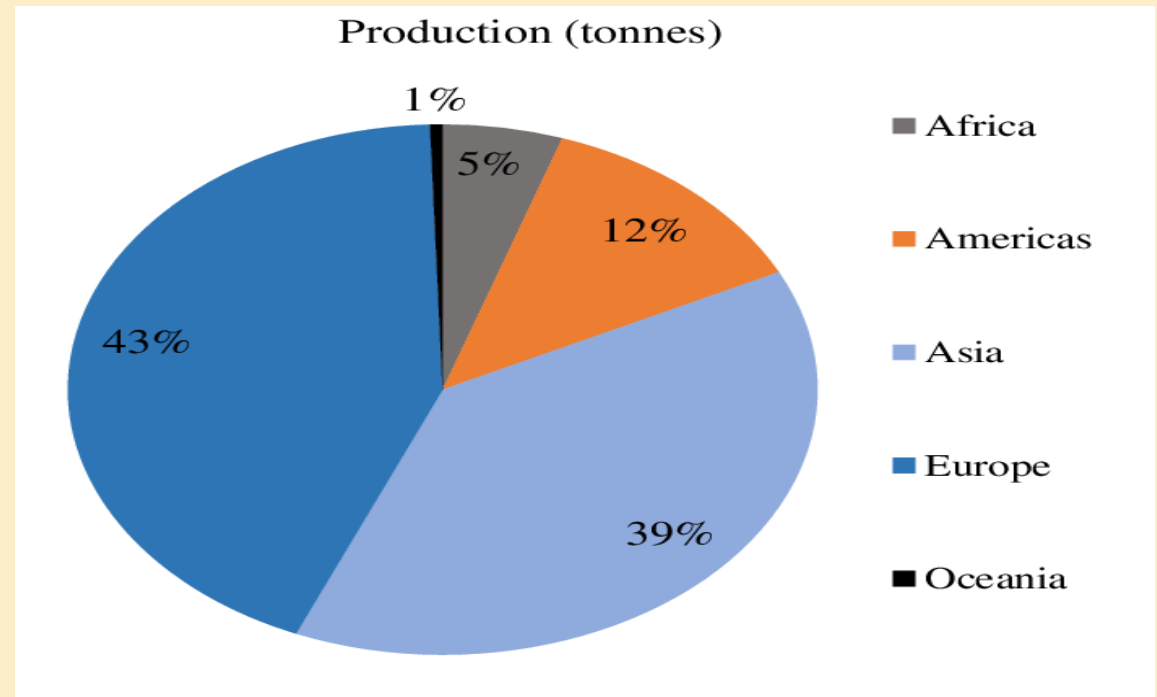
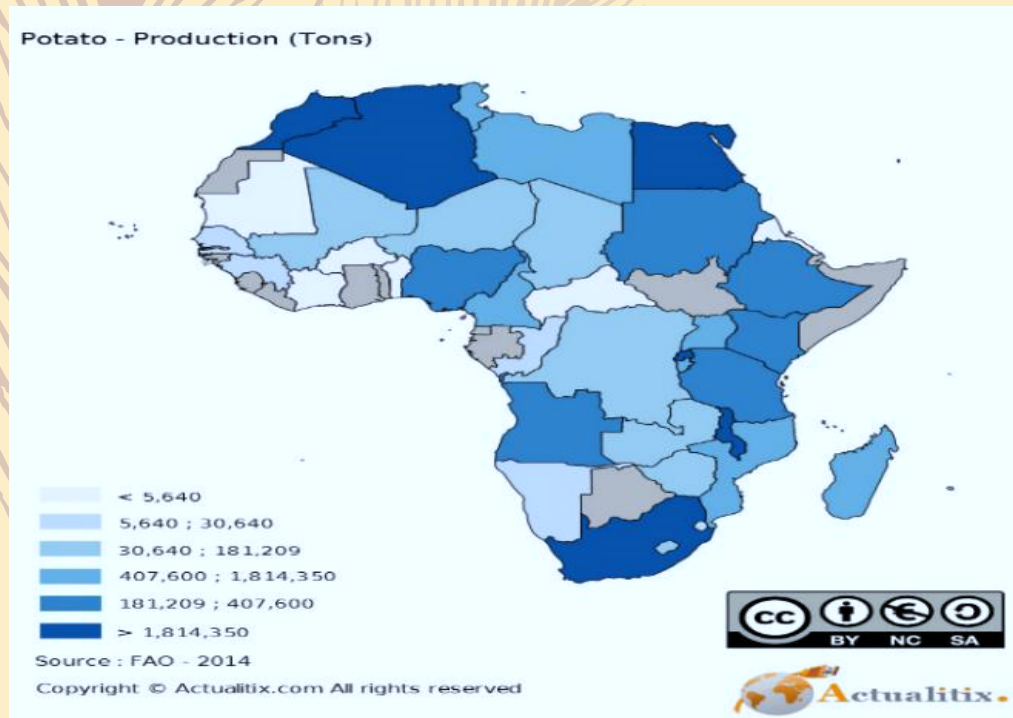
❖ Potato wine, vodka:



❖ Frozen potato products:



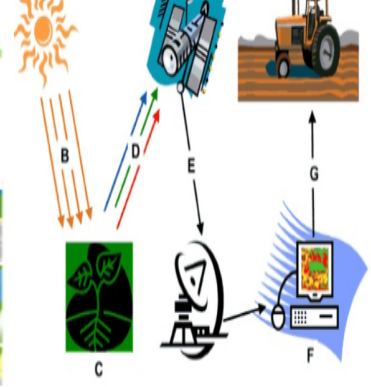
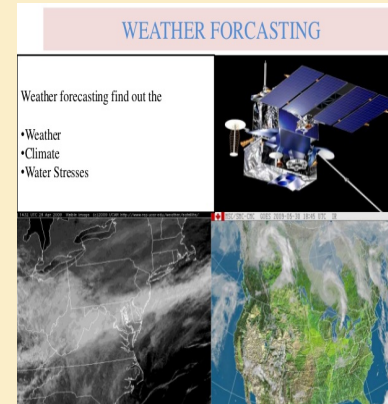
CONTINENTAL COMPARISON OF POTATO PRODUCTION



BENEFITS DERIVED FROM THESE TECHNOLOGIES

Farmers no longer have to apply water, fertilizers, and pesticides uniformly across entire fields. Instead, they can use the minimum quantities required and target very specific areas, or even treat individual plants differently. Benefits include:

- ✓ Decreased use of water, fertilizer, and pesticides. Which in turns keep prices down.
- ✓ High crop productivity
- ✓ Reduce impact on natural ecosystem
- ✓ Less runoff chemicals into rivers and ground water.
- ✓ Increased worker safety and helps improve food safety .
- ✓ Reliable monitoring and management of natural resources, such as air and water quantity. (Robotic technology)




KEY CHALLENGES

- ❖ The technology is costly and there are technical as well as legal restraints.
 - ❖ Besides technical restrictions, even more and more accurate documentation poses a challenge for farmers due to more strict legal restraints, such as agricultural, animal welfare and environmental regulations.
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- ❖ The interconnectivity between apps and software is not always given and information cannot be transferred, so farmers still have to type in a lot of information manually.
 - ❖ Bad internet connections on the field is a big issue.
 - ❖ Problem of having a more accurate public awareness of their work as farmers and better preparation in society.
 - ❖ Poor literacy level
 - ❖ Farmers benefit more from single technology, which communicates information, which is relevant and easy to understand.
 - ❖ Door delivery of information is limited by the fact that there are a very large number of farm households and may not own radios or television sets and may not have access to daily newspaper.

HOW DO WE OVER COME THESE CHALLENGES

- ❖ Ensure a stable broadband internet connection, so that the communication and function of the systems are not at stake anymore. Current 4G network will need to improve to 5G not only in cities, but also in less developed regions, like the countryside.
- ❖ The interconnectivity and integration of the various data sources and devices should be improved in order to avoid time consuming manual input.
- ❖ Last but not the least, farmers call on the agricultural supply companies to inform consumers about their work and thus create a positive reputation in peoples' minds.



THANK YOU ALL