Discussion 1

Person background: Retired Engineer from Eastern Railway, and involved in farming

Question 1: Is there any sector in agriculture where technology, machine can help to make life of farmers easier, time saving or maybe the policies of government regarding crop loans, seed loans, insurance of crops in natural disasters ?

Answer

1. In West Bengal most of the farmers are small farmers, though they do farming in a collaboration, so if it's considered mainly rice, it consumes lots of times in seeding, cutting crops, and machinery for those are big ones and it takes large arrangement to install, which is not possible to afford small farmers. **If small machineries are there it can help small farmers to afford as individual.**

2. There are good policies, loan systems regarding crops, seeds, and in majority in case of natural disasters if government decides to compensate farmers get compensation, sometimes which are not that enough.

3. In havoc rain the lands can fill with unnecessary water, and **there are no advance systems or proper way to throw out that unnecessary water before it gets tool late for the crops to damage.**

4. The installation setup of threshing, winnowing, milling is also large.

Question 2: Why there is always the issue like, the farmers don't get proper price, is it due to the medium involved between farmer to customer or anything else?

Answer:

1. The first issue is not proper setup of storing vegetables, if farmers can store they can control the market, specially most of green vegies are not storable, so they have to send them for market.

2. There is no end-to-end system or pipeline for the vegies from farmers end to market, the farmers do farming irrespective of market demand, or what others are farming or what amount the crop requirement has been reached and also the market price of that vegetable. So, they sell them in small market, and **these vegies are sold for multiple times and at the end the end price is far from the price from the farmers.**

3. Those who has storage sometimes control the market based on market demand, can sell in multiple places.

Ex. If the production is high, the cost in the market may be down, which may not compensate the production cost due to above issue, or vice-versa.

Discussion 2

Person background: Farmer

Question 2: What are the problems you face during farming or the policies from the government related to farming, crop, seed loans, insurance etc.

Answer: He described lot about farming procedures, the pesticides, herbicide they use, and problems involved, I am summarizing below:

1. There are seed loans, crop loans(even if someone wants to start framing something new, he/she has to inform insurance organization), crop insurance based on the compensation scheme farmer chooses(10%, 30%, or more, in some cases they compensate full)

2. The issues he mentioned in potato, pointed gourd, some insects are there if found even in a single leaf can spread very fast over a large area, so **quick action is needed to use pesticides or medicines needed for that scenario based on detecting that leaf disease, also some insects in soil can harm that effectively, so it has to detect in very earlier stage.**

3. Whenever natural disaster happens, the amount of compensation depends on the losses(percentage for individual crops) has to be verified and evaluate, for a large area it's time consuming.

Proposed solutions: (Along with the solutions other mentioned in the team)

1. Drone survey based crop loss detection to evaluate and verify compensation amount of crop loss for individual land, crop type using Computer Vision

2. End to End API des6from crop production to delivery, ML based crop production requirement, individual crop market price prediction

3. Computer Vision based affordable bots(as farmer referred about some small machine) for seeding, crop cutting

4. Drone, Deep CNN based land area, crop type, crop growth stage detection

5. Leaf disease stage detection, soil problems detection and quick action using drone based pesticides spray

6. ML based solutions(have to think) to improve unhealthy process of jute cultivation

7. (Addition) Computer Vision based path planning for processing excessive waters in the fields specially in Heavy Rain, so that it is easier to find quick and shortest path to process waters based on optimal water levels.