

## It's not "Machine against Man" but "Machine for Man"-a case study on the use of robotics by vegetable farmers from the South-24 Parganas district of West Bengal, India

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### INTRODUCTION & AIM

•Implementation of digitized farming technologies along with site-specific precision management are probably the possible responses to ever increasing expectations from the agri-food industry.

•Robotics is demonstrating significant potentials and benefits when integrated into the modernized agriculture.



Sowing Robot in action

### RESULTS & DISCUSSION

Seeding robots could offer precision in agriculture by increasing yield.

Robotic application in disease and pest management (both detection and control) would probably reduce economic damage.

Plant detection robots utilizing high quality sensors are highly reliable for estimation of crop volume and area thereby determining the appropriate amount of fertilizer required.

Usage of robots for crop estimation in the study area would also help in determining the amount of weedcides required thereby preventing damage caused by blanket spraying.

Harvesting robots could assist them in determining the maturity level of fruit and its careful handling without damaging the crop.



Handling of Bottle gourd by robot



Tomato plucking by robot



Watermelon ready to be processed using robotics



Robotic arm plucking cucumber

### STUDY AREA

The present study was designed to recognize the utility of multi-functional robots across vegetable fields

Baruipur, Sonarpur and Jaynagar blocks of South-24 Parganas district, West Bengal, India were selected for the purpose of study



Robotic arm used for selecting cabbage



Irrigation using robotic technology

### METHOD

#### UTILIZATION OF:

- Seeding robots
- Land sowing robots
- Weed detection robots
- Farm irrigating robots
- Plant estimation robot
- Harvesting robots
- Fruit plucking robots

### CONCLUSION

Utilization of robotics by vegetable farmers in this study could create awareness among them regarding the technological innovations in agriculture sector

### FUTURE WORK

Similar such investigation in future among the farmers could open up newer possibilities for reform even for small-scale farmers.



Seeding robot on field



Robots used for tomato harvest



Weed removal using robots