Florida Agriculture Policy Outlook Conference

UF Gulf Coast Research & Education Center

February 26, 2019
HARVEST CROO ROBOTICS
Making Farming Fun Again
Required Labor to Harvest

Shrinking Labor Force
PROBLEM

Global GDP vs Fertility Rate

Fertility Rate

GDP (current US$)

Fertility Rate

Years


10 20 30 40 50 60 70 80

0 1 2 3 4 5 6 7 8

GDP (in trillions)
The growth of the world population to 2100, by age group

Projections from 2016 through to 2100 based on UN median estimates.

- Projected total population
- Projected younger than 15
- Projected younger than 5

Source: UN Population Division (2015 Revision)  OurWorldInData.org/world-population-future-education-now/ • CC BY
CHALLENGE

INDUSTRIAL REVOLUTIONS

- Other industries have evolved from technological advances for centuries

DESTRUCTIVE HARVESTING

- Commodity crops have benefitted from mechanical harvesting, but not specialty crops
Strawberry harvesting has been the same for over 100 years
AGRICULTURE INTELLIGENCE
AUTOMATION COULD REVOLUTIONIZE THE FUTURE OF FARMING
ROCKET SCIENCE
IMPOSSIBLE
If a solution requires laws of physics to be broken then it is **impossible**. Otherwise it's just an engineering problem and nothing is impossible.

Dr. Rex Lee
Pyramid Imaging, Inc. - 2015
COLLABORATIVE EFFORT

2/3 of U.S. Strawberry Industry has Invested in HARVEST CROO
COLLABORATIVE EFFORT

SONOCO

Ramsay HIGHLANDER INC

NovAtel

PYRAMID IMAGING

NVIDIA

ENERDEL™

NIDEC

NIDEC MOTOR CORPORATION

QUANERGY
GARY WISHNATZKI - Managing Director / Co-Founder
3rd Generation Berry Grower/Shipper, CEO Wish Farms, Harvest CROO Robotics Co-Founder

Dr. Joseph McGee- Executive Chairman
Former Executive Vice President of Strategic Planning & Development at Jabil Corporation

PAUL BISSETT - Chief Executive Officer
Wall Street bond trader, PhD in Computational Science, Naval Oceanographer, founder of 2 technology start-ups with exits to Fortune 1000 companies

BOB PITZER - Chief Technology Officer / Co-Founder
Naval Nuclear Submarine Engineer, Intel Manufacturing Design Engineer, Robotic STEM Educator, TV Battle Bot Producer, Harvest CROO Robotics Founder
Patents and Trade Secrets
Pitzer Wheel
Simulation of Robot Positioning with Station-Keeping

Harvest Pro Assembly.
October 2017: Hole Punching Showing Harvester Suspension & Individual Plant Location Positioning
STEREO VISION

Since both triangles are similar, we can use this relationship:

\[ \frac{b}{c} = \frac{d}{e} \]

Which leads to:

\[ c = \frac{d \times b}{e} \]
TARGETING
AGRICULTURE INTELLIGENCE

AUTOMATION COULD REVOLUTIONIZE THE FUTURE OF FARMING
KEY BENEFITS TO GROWERS

- Lower harvest costs
- Works on weekends
- Improve quality
- Save energy & reduce cooler bottlenecks
- Scouting of fields
- Forecasting production
- Runner cutting & pruning
- Increase yields by at least 10%