Monsanto Overview

CALIFORNIA STATE BOARD OF FOOD AND AGRICULTURE

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Monsanto – Calgene Site Director
Davis

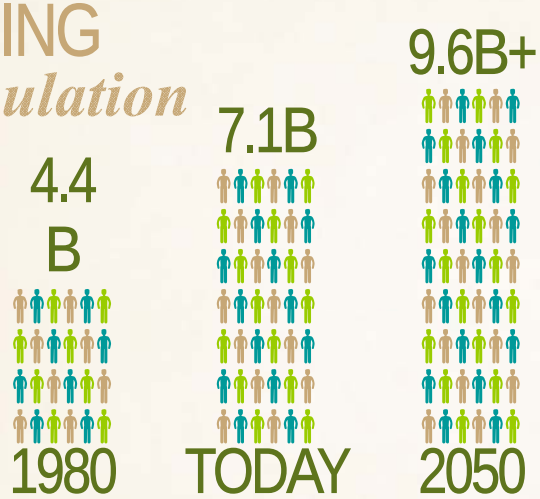
MONSANTO

nsanto Serves Farmers Around The World

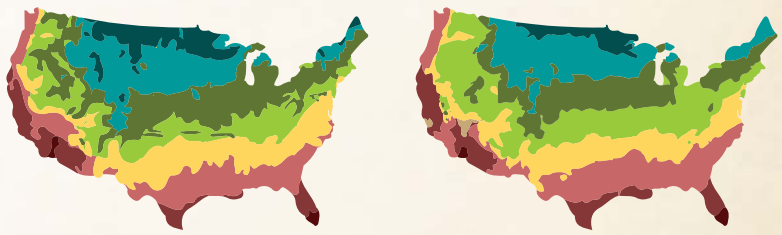
rking With Growers Large And Small, Row Crops And Vegetables

griculture is at the Center of Global Changes

SING
pulation

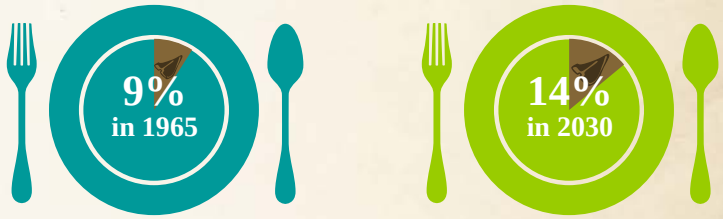


CHANGING
climate



ECLINING
able land

CHANGING
economies & diets



DIETARY PERCENTAGE OF

e Multiply the Benefits of Innovation hen We Combine These Capabilities to olve Problems and Increase Efficiency

Innovation

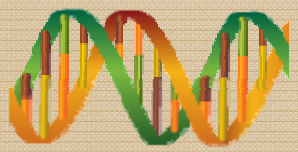
BREEDING

Highest yielding
etics for the environment:
ventional breeding gains
natural disease resistance

BIOLOGICALS

Derived from natural materials to support plant health and pest protection

BIOTECHNOLOGY



Complementary agronomic and yield-enhancing traits

AGRONOMICS

Optimizing farm management practices, including rotations, soil

CHEMISTRY

Seed treatments and selective chemistries protect the crop from pests, weeds and diseases

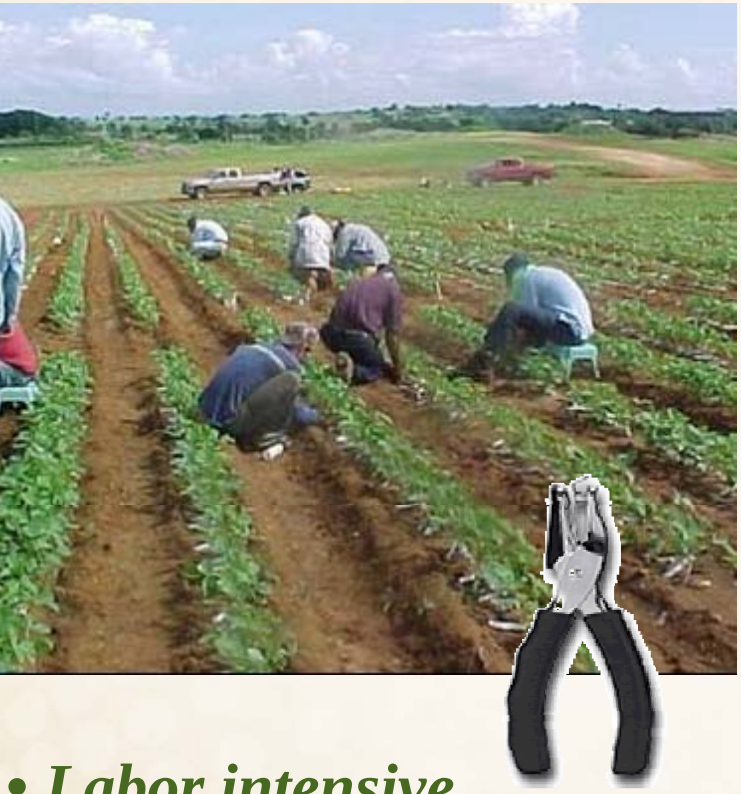
Innovation

BREEDING *technologies*

BREEDING RESEARCH LOCATIONS IN 32 COUNTRIES

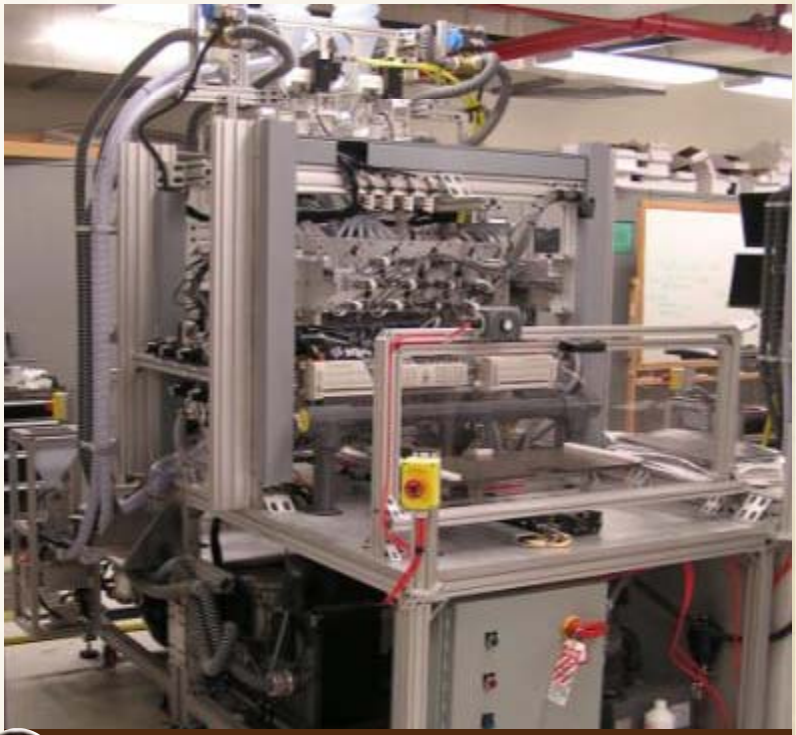
AILED UNDERSTANDING OF THE GENOME enables faster, more
tive breeding to develop better products.

eed Chippers Reduce The Bottleneck Of ollecting Tissue From Plants By Hand



- *Labor intensive*
- *Time-consuming*
- *Low-throughput*

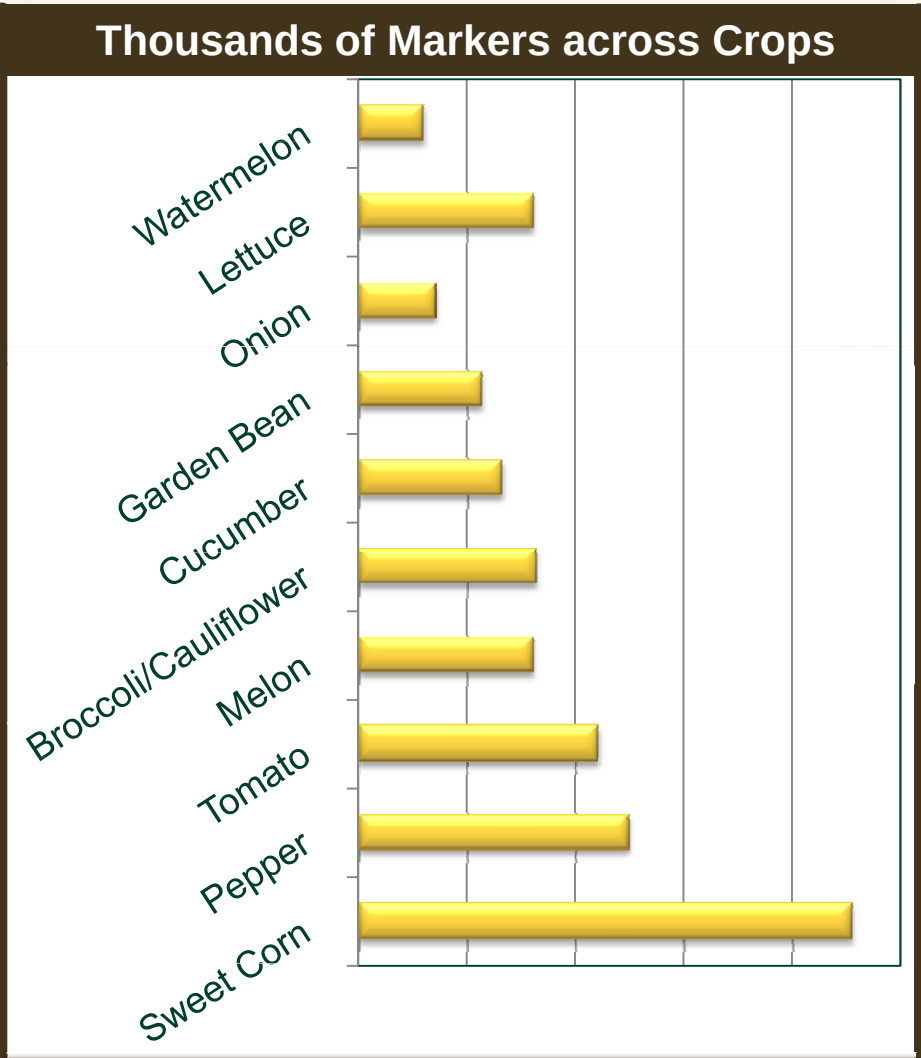
VS.



Monsanto's Cotton Chipper

Capable of analyzing millions of

egetable Breeding Guided by Markers
apped to Genes of Interest



Innovation

BIOTECHNOLOGY
results

Corn that is resistant to drought, insects and disease

Papaya that resists a disease that threatened to wipe out the crop

Cotton with reduced pesticide usage that enables us to produce more fiber for clothing and other goods

ECHNOLOGY IN AGRICULTURE HAS BEEN RESEARCHED FOR R 30 YEARS AND GROWN COMMERCIALLY FOR 17 YEARS

enetically Modified Crops Produce Food That as Safe and Nutritious as Conventional

3.7 Billion ACRES OF FARMLAND
USED FOR GMO CROPS SINCE 1996

600+ INDEPENDENT STUDIES
SUPPORT THAT GMO CROPS ARE JUST AS SAFE AS THOSE DEVELOPED THROUGH TRADITIONAL BREEDING

30 COUNTRIES
AROUND THE WORLD WHERE GM CROPS ARE GROWN TODAY

12 YEARS
REQUIRED TO DEVELOP AND TEST GMO SEEDS BEFORE THEY'RE GROWN COMMERCIALLY IN THE U.S. (MORE THAN MANY MEDICATIONS)

30 YEARS
THAT GMO CROPS HAVE BEEN RESEARCHED AND DEVELOPED

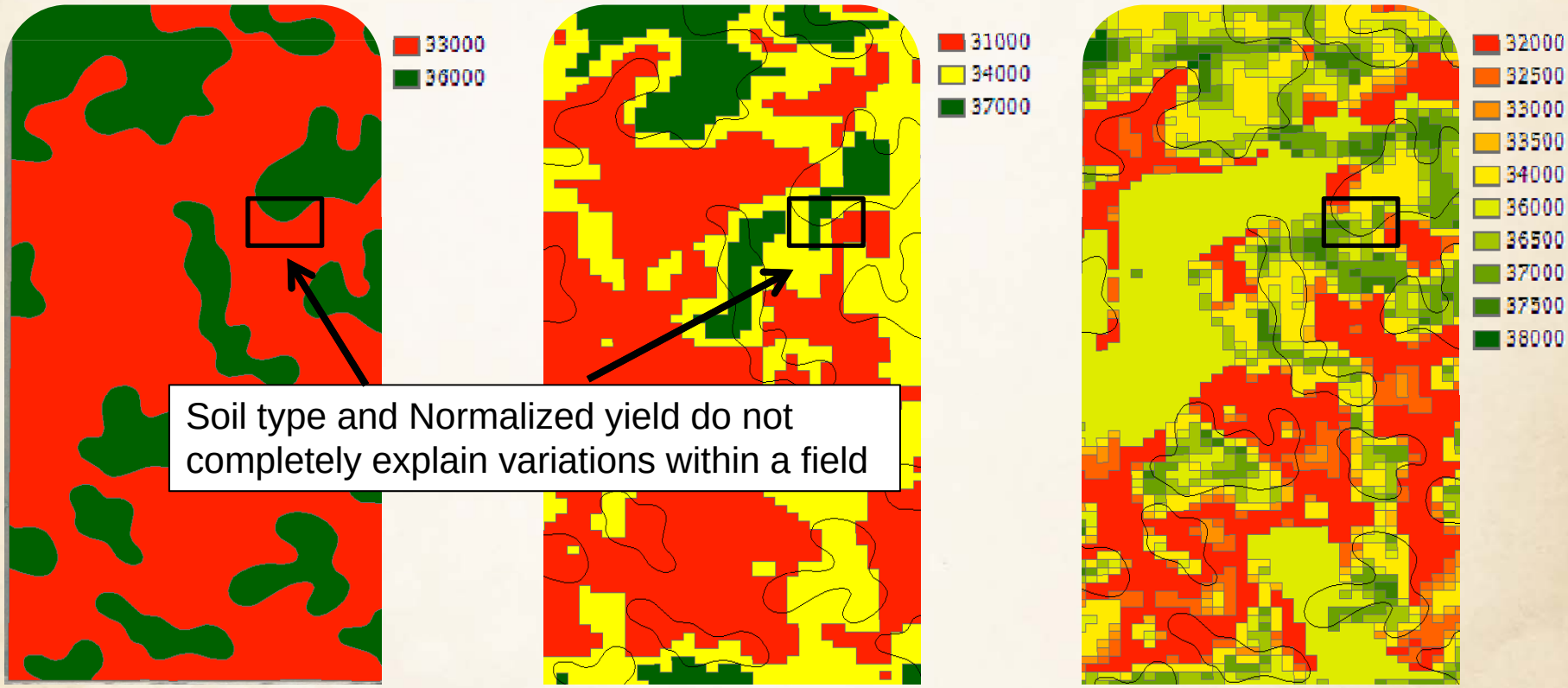
ZERO GMO FOOD
0
SAFETY ISSUES

egrated Farming Systems

mizing Farm Management Practices

FieldScripts® Delivers The Optimal Planting Rate To Maximize Potential Yields

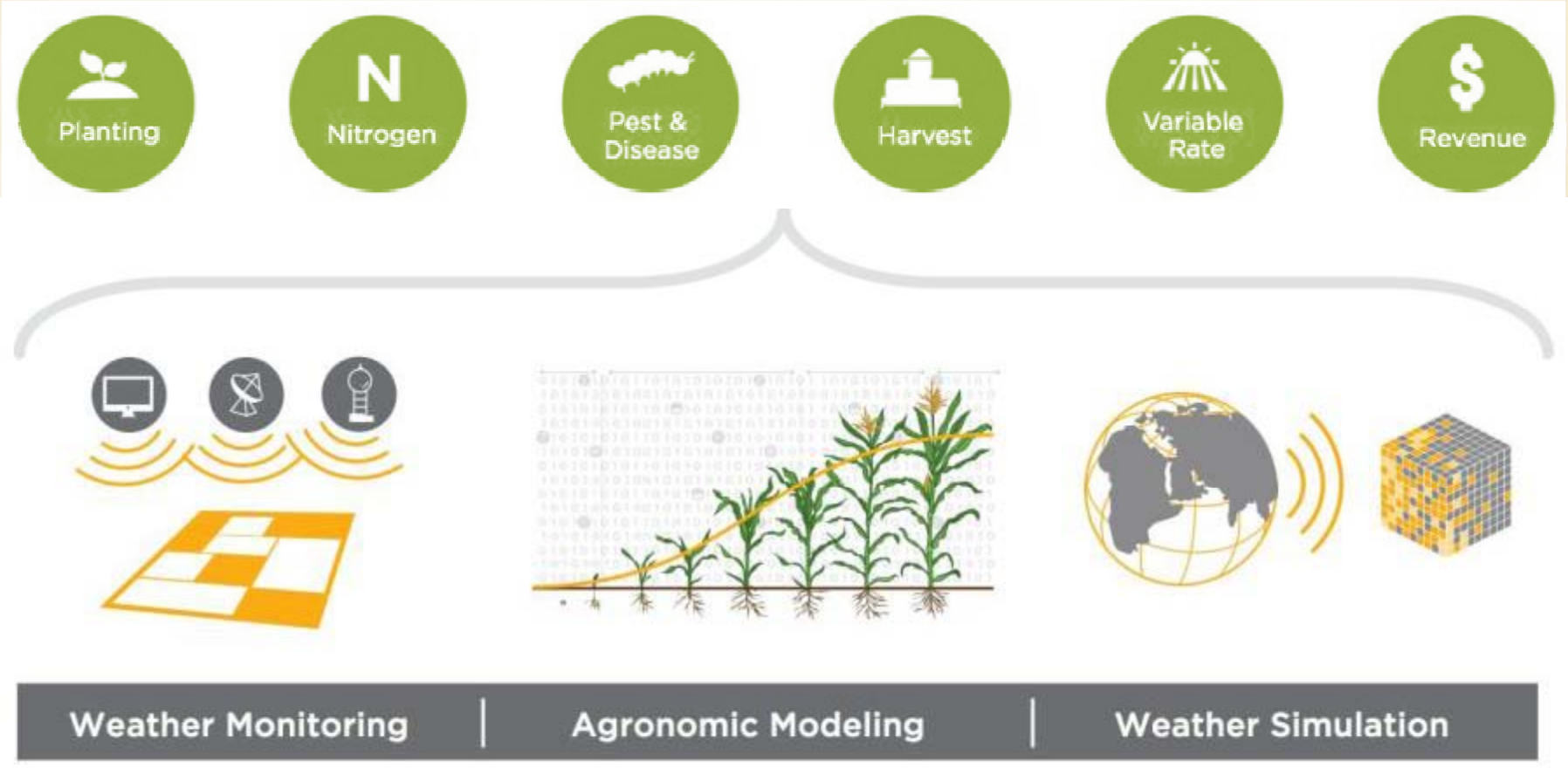
Variable Rate Methodology Comparisons



Soil Type **Normalized Yield** **FieldScripts®**

- **Not all methods for creating a seeding rate prescription are equal**
- **By understanding variability of the environment FieldScripts® is able to deliver the optimal planting rate to maximize potential yields**

The Climate Corporation Brings Value To Growers Through Recommendations and Insights Driven by Data and Analytics



- The Climate Corporation aims to help farmers around the world protect and improve their farming operations & profitability
- Climate Modeling capabilities can optimize management decisions field by field

BIOLOGICALS

Complementing a systems approach
to increasing yield

Technology R&D Hiring

"The Four-Arrow Framework"

Growth Platforms

- RNAi Specialists
- Plant Molecular Biologists (MS & PhD)
- Predictive Analytics Scientists
- Microbiologists (MS & PhD
- Protein Biochemists
- Plant Pathologists
- Geospatial Engineers
- Agronomists
- Plant Breeding & Genetics Scientists
- Lab Research Associates
- Formulations Chemists
- Analytical Chemists

Product Choices & Channels

- Conversion Center Managers
- Trait Integration Breeders
- Field Research Associates & Assistants
- Automation Engineers
- Agronomists

Resources

Geographic Expansion

- Regulatory Affairs Managers
- Regional Leaders
- Toxicologists
- Entomologists
- Agronomists
- Plant Breeding & Genetics Scientists
- Field Research Associates & Assistants
- Stewardship Specialists
- Trait Integration Breeders

Agronomic Performance

- Field Research Associates & Assistants
- Entomologists (MS & PhD)
- Computational Biologists (MS & PhD)
- Statisticians (MS & PhD)
- Weed Scientists
- Plant Breeding & Genetics Scientists
- Plant Molecular Biologists (MS & PhD)
- Protein Biochemists
- Lab Research Associates
- TOM's

INNOVATION

to meet the challenges

of feeding a growing population