

Strategizing Small Farm Viability in the New World of Food Safety Regulation ... which way is the wind blowing for you?

A presentation for Eco-farm
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By

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FSMA in a nutshell

- The Food Safety Modernization Act allows the U.S. Food and Drug Administration to control product as it goes from farms to consumers. *“It’s based on preventative controls or understanding risks and implementing*

Food Safety Costs: impact more severe on smaller growers

- Hardesty & Kusonose, 2009:
 - compliance cost for LGMA approximately \$100/acre
 - Growers @ \$10M+ have staff while growers >\$1M manage food safety themselves
 - Adalja & Lichtenberg, 2018:
 - FSMA compliance cost decreases with increasing size
 - Growers using sustainable practices spend more on food safety practices than conventional growers
- Large farms compliance cost is ~ 0.5 to 1% of

A farm 10 X bigger will have 1/10th of the cost per acre than the smaller farm

- **Fixed expenditures:**

- Inspections for flooding
- Using new harvest containers
- Employee education and training
- Equipment & tool sanitation
- Building sanitation, sewage & trash disposal

- **Variable expenses:**

- Testing water samples
- Washing harvest containers

Economic impact

- Potential substantial impact for growers operating at slim profit margins
- Know your costs, use cost accounting
 - Use comparative standards (published)
 - excessively high costs & operations
 - prices and income

Table 6. Costs and Returns per Acre to Produce Avocados in Riverside County using Organic Production Practices in 2011

UC COOPERATIVE EXTENSION				
	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre
GROSS RETURNS				
Organic Avocados	7,700	lb	\$1.27	\$9,779
TOTAL GROSS RETURNS	7,700	lb		\$9,779
OPERATING COSTS				
Custom:				199
Helicopter rental	1	acre	125	125
Pest Control Advisor	1	acre	36	36
Misc. Road Repairs	1	acre	38	38
Water:				2,268
Riverside Water	42	ac-in	54	2,268
Fertilizers:				896.38
Potassium Sulfate -SOP 0-0-50	100	lb	0.9	90
Organic Crumbles	1903.13	lb	0.41	780.28
Gypsum (Calcium Sulfate)	2175	lb	0.01	26.1
Insecticide:				111.61
Spinosad	3	oz	33.87	101.61
Narrow Range Oil	1	gal	10	10
Harvest:				1,524.37
Picking - \$0.18/lb	7700	lb	0.18	1,386
Hauling - \$0.004/lb	7700	lb	0.004	30.8
CAC Assessment fee - \$0.011	9779	production value	0.011	107.57
Rodenticide:				6.65
Squirrel Trap	1	acre	1	1
Squirrel Bait Station	1	acre	0.23	0.23
Organic Squirrel Bait	0.75	lb	7.23	5.42
Organic Assessment Fee:				30.6
CDFA Registration Fee	1	acre	17.5	17.5
Annual Certification Fee	1	acre	52.5	52.5
USDA - CDFA Cost Share Reimbursement	1	acre	-39.38	-39.4
Labor:				1,640.44
Equipment Operator Labor	27	hr	18	486
Manual Labor	67.96	hr	14	951.44
Irrigation Labor	14.5	hr	14	203
Machinery:				191.19
Fuel-Gas	32.86	gal	3.85	126.5
Fuel-Diesel	0	gal	3.44	0
Lube				18.98
Machinery Repair				45.72
Interest on Operating Capital (5.75%)				127.47
TOTAL OPERATING COSTS/ACRE				6,996
NET RETURNS ABOVE OPERATING COSTS				2,783

- Ben:
- To whom does FSMA apply

- Ben: when does it apply

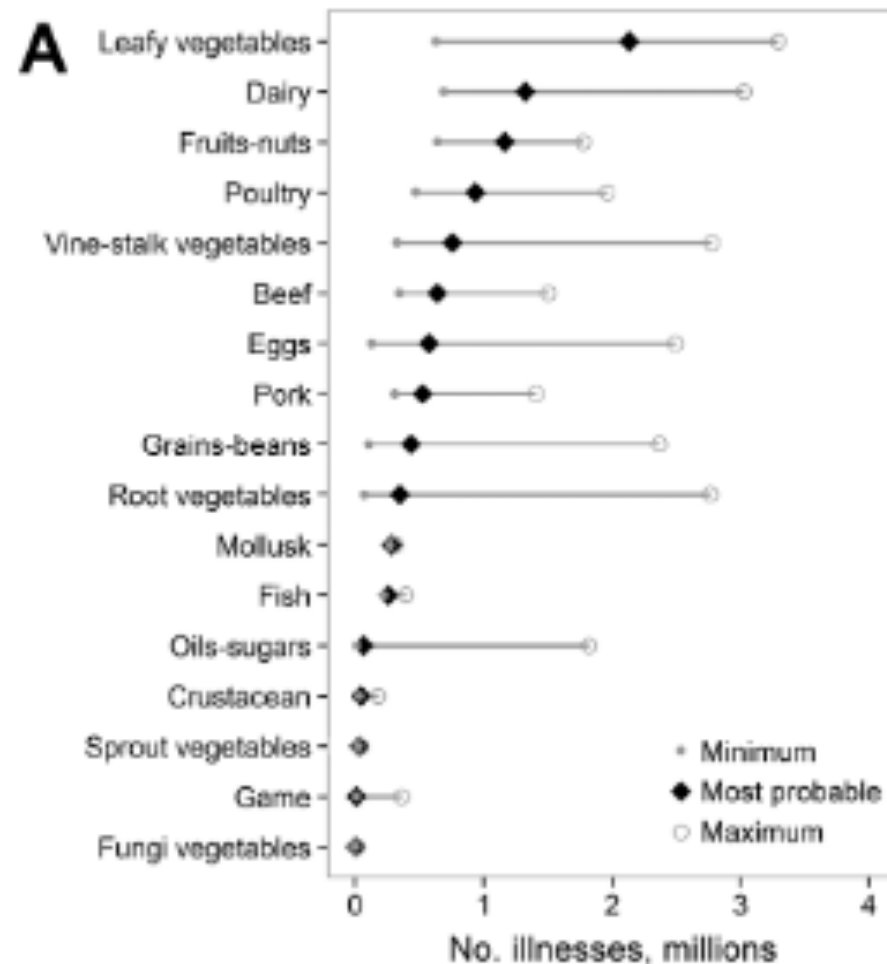
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Origins

- Originally market driven: GAPS. LGMA
 - Traceability for recalls and liability
 - Consultants that design safety programs, inspect and certify (independent and “voluntary”)
- Coming of FSMA
 - Increase of food borne illnesses in produce versus meat products

Attribution of foodborne illnesses

Painter et al. 2013



Multistate Outbreak of *E. coli* O157:H7 Infections Linked to Romaine Lettuce (Final Update)

[Español \(Spanish\)](#)

Posted June 28, 2018 3:30 PM EST

This outbreak appears to be over. *E. coli* is an important cause of illness in the United States. More information about *E. coli*, and steps people can take to reduce their risk of infection, can be found on the [E. coli and Food Safety web page](#).


Highlights

- This outbreak appears to be over as of June 28, 2018.
- CDC, public health and regulatory officials in several states, and the [U.S. Food and Drug Administration](#) (FDA) investigated a multistate outbreak of *E. coli* O157:H7 infections.
 - 210 people infected with the outbreak strain were reported from 36 states.
 - 96 people were hospitalized, including 27 people who developed a type of kidney failure called hemolytic uremic syndrome.
 - 5 deaths were reported from Arkansas, California, Minnesota (2), and New York.

At A Glance

- Case Count: [210](#)
- States: [36](#)
- Deaths: 5
- Hospitalizations: 96
- Recall: No



Between hope and possible  there's a bridge.



Wonkblog • Analysis

Why E. coli keeps getting into our lettuce



A farmworker carries romaine lettuce in fields near Holtville, Calif. (Gregory Bull/AP)



By **Caitlin Dewey**
April 26, 2018

Three responses open to small growers

1. rote compliance leading to uniform industrial practices
2. exemption from FSMA: staying under the radar
3. innovation in business structure crop selection, marketing, and food safety compliance.

Comply? Exempt?

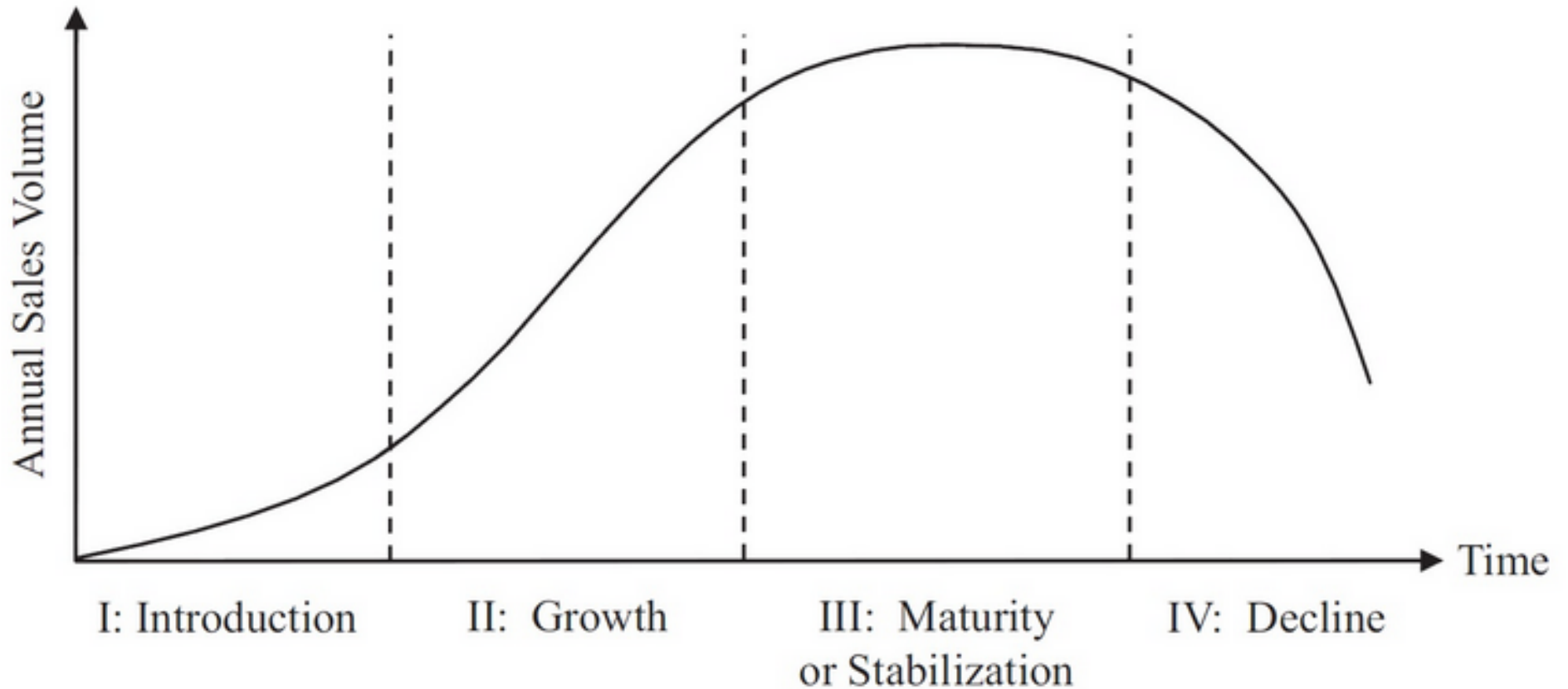


Crop selection and operations

- Ability of grower to:
 - Identify risks
 - Assess risks
 - Create safety plan
 - Monitor plan

**Integrate compliance with better
business practices**

Life cycle of a business



FUTURE FARMS

small and smart

SURVEY DRONES

Aerial drones survey the fields, mapping woods, yield and soil variation. This enables precise application of inputs, mapping spread of pernicious weed blackgrass could increase wheat yields by 2-5%.

FLEET OF AGRIBOTS

A herd of specialised agribots tend to crops, weeding, fertilising and harvesting. Robots capable of microdot application of fertiliser reduce fertiliser cost by 99.9%.



FARMING DATA

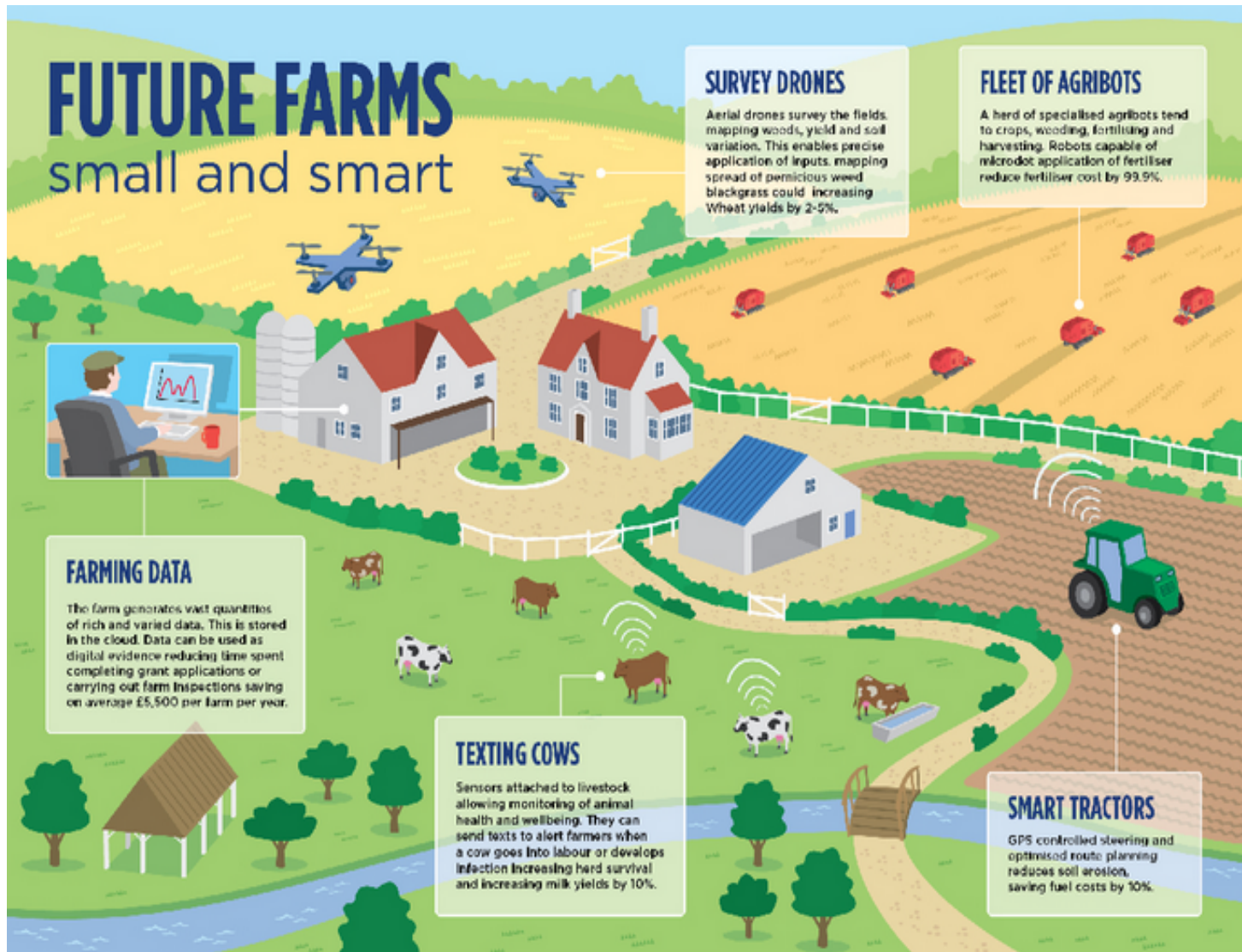
The farm generates vast quantities of rich and varied data. This is stored in the cloud. Data can be used as digital evidence reducing time spent completing grant applications or carrying out farm inspections saving on average £5,500 per farm per year.

TEXTING COWS

Sensors attached to livestock allowing monitoring of animal health and wellbeing. They can send texts to alert farmers when a cow goes into labour or develops infection increasing herd survival and increasing milk yields by 10%.

SMART TRACTORS

GPS controlled steering and optimised route planning reduces soil erosion, saving fuel costs by 10%.



Emerging alternative trends

Microbiome, effect on health

the farm effect

living food

fermented foods

hand grown food

regenerative agriculture

Marketing approach

Strongly conventional ----- Strongly alternative

Walmart --- Natural Food Stores --- Coops --- farmers markets --- Box CSA --- share CSA --- outside money economy

A closer look at alternative business and marketing strategies

1. Low input sustainable agriculture

Extreme LISA -----

Moderate LISA

Fukuoko's natural farming -----

agroecology, regenerative

2. CSA shares, cow-shares, and the like.

3. On-farm consumption, recreation, education as "value added"

4. Outside income, and the first world/fourth world perspective.

5. Compliance with a twist: integrating the alternative markets: applying ecological principles to microbial life and food production: