



128th AFDO Annual Educational Conference

RCA Challenges and Opportunities
for the Fresh Produce Growing
Operations

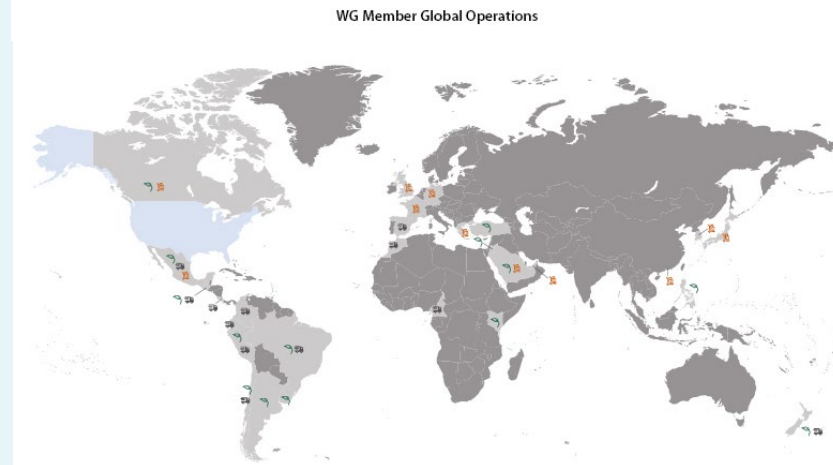
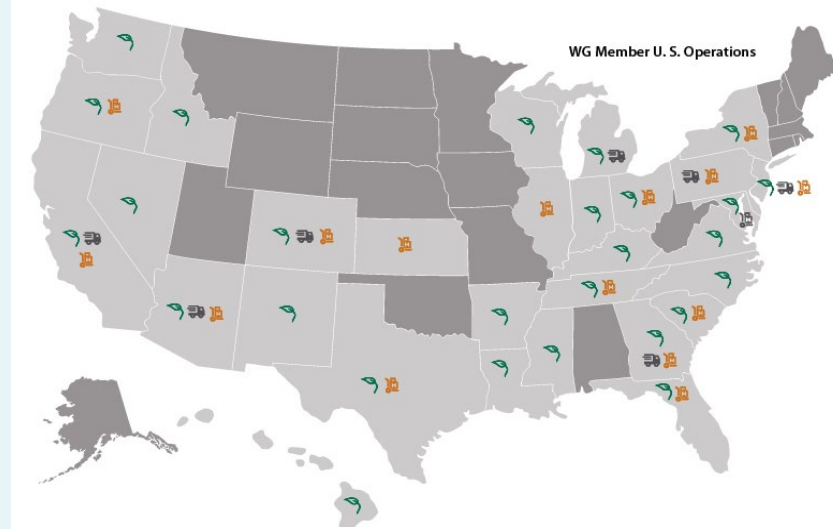


June 11, 2024

GROW WITH
SCIENCE.



- Non-profit – part of the Western Growers Family of Companies
- Members produce over 50% of the nation's fresh fruit, vegetables and tree nuts
- Diverse membership – local and regional farms (size, location, commodities, operations, etc.)

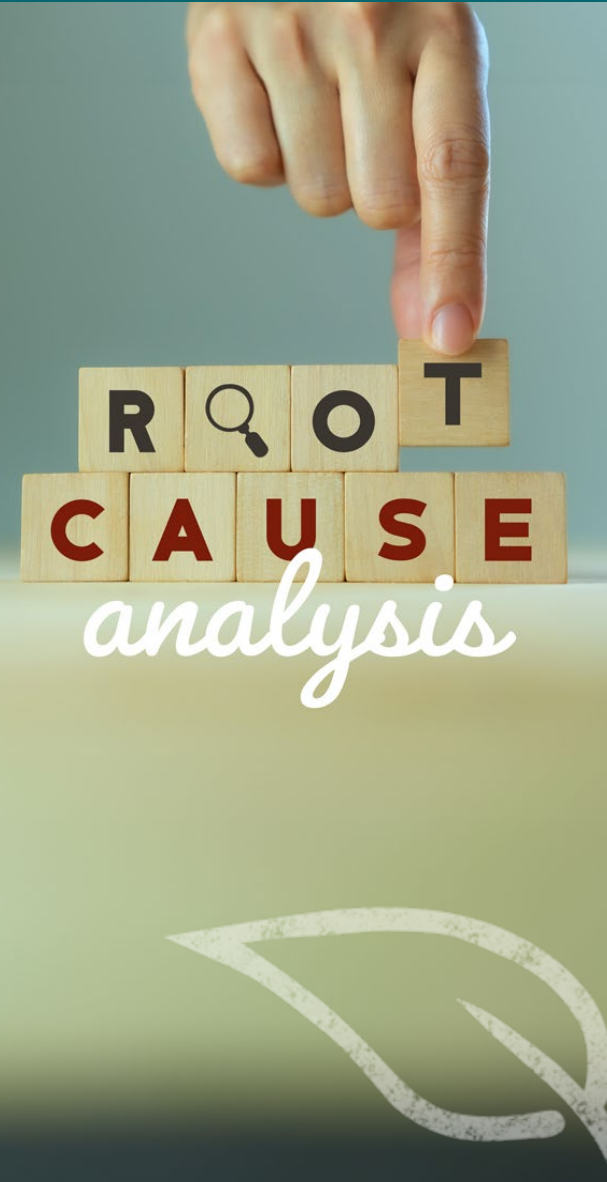


Long history in other industries

- Toyota (5 Whys)
- NASA and Aviation
- Healthcare
- Engineering, etc.

Precursors to RCA in food safety

- Food processing: HACCP – first introduction of systems analysis to food safety
- CDC: Foodborne illness outbreak database – 1990s incorporated 1 of 5 categories of contributing factors



RCA discussed in
LGMA industry
meetings to reduce
repeat NCs

2010

-WG creates more RCA
resources
-LGMAs and WG start RCA
workshops

2020

- WG creates additional RCA resources
- IFPA starts RCA Award

2022

CONTACT RCA
Webinar Series

2023

2019

-LGMA adds RCA requirements for
water
-WG creates Appendix R

2021

LGMA enhances RCA
requirements.
Not just water...

2020-
2023

- FDA and CDC promote RCA
-Healthy People 2030 RCA workgroup
- Additional association resource development

Source: Contact Series, RCA Webinar Part 1 (What and Why) – CA LGMA, Greg Komar, 2023

Outdoor Growing = A Transitory Environment

- Crops – short growth cycle and short shelf-life
- Weather – conditions are transient
- Work crews – contracted; short-term workers
- Different hazards/risks



RCA, RCI, EA are used interchangeable and sometimes as distinct approaches

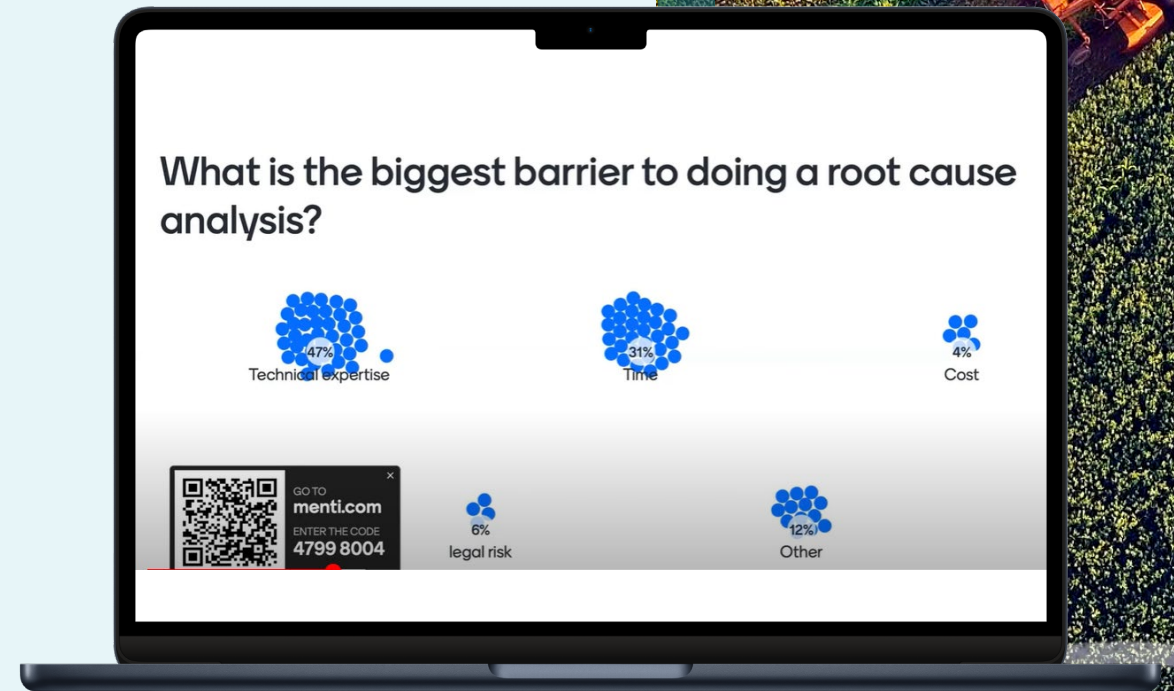
“RCA is simple – anyone can do it” vs. “RCA is time-consuming, requires money, training and expertise”

“If you don’t find the root cause, then you didn’t do the process correctly” vs. “It is ok if you don’t find the root cause as long as you keeping monitoring”



Informal Poll During CONTACT Webinar, Oct 2023

1. Technical expertise
2. Time
3. Other
4. Cost
5. Legal risk



Salmonella outbreak (2014) linked to avocado (Danyluk et al.)

- Preharvest environment – 57 samples
- Harvest – 15 samples (bins)
- Postharvest environment – 198 samples

Salmonella outbreak in peaches (FDA)

- 700 tests

Salmonella issues in tomato growing Delmarva region

- Team: FDA, CDC, USDA, DDA, VDACS, Univ of MD & DE, VTech, etc.



Dole RCA triggered by several pre-harvest tests with multiple salmonella positives

- Additional product, water, soil and soil amendments
- Observations, investigation and data analysis
- Identify root cause (several found)
- Develop, implement, monitor and verify actions (rest of the season)

Dole RCA triggered by an alert of prohibited substance on lettuce.

- Outcome resulted in discussion with neighbors (drift of approved chemical for strawberries on windy day on lettuce field)
- Solution included better communication with neighbor regarding timing of applications.



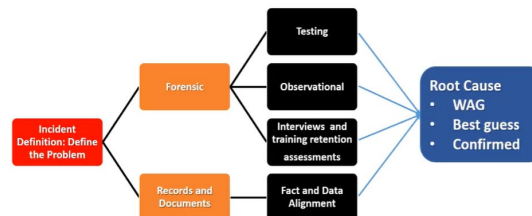
RCA Process Steps

Seems easy enough....

1. Define Problem
2. Collect Data
3. Identify Possible Causes
4. Analyze Data
5. Identify Root Causes
6. Develop Solutions
7. Implement Solutions
8. Monitor and Verify Results

Source: Contact Series RCA Webinar Part 2 (Dole Case Study, Felice Arboisiere, 2023)

Critical Path Analysis May Take Several Converging Investigative Legs

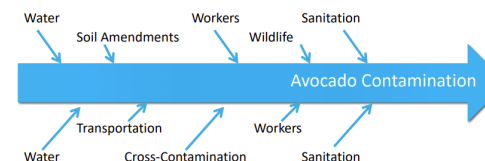


Source: Western Growers Webinar (T&K Suslow Consulting, Dr. Trevor Suslow, 2021)

Where was the *Salmonella* coming from?

Fishbone Diagram

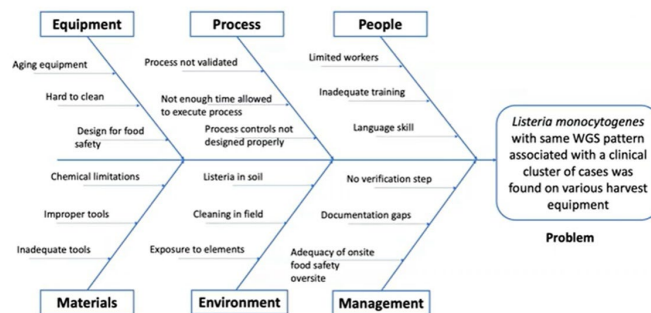
Preharvest



Postharvest

Source: Western Growers webinar (University of Florida, Dr. Michelle Danyluk, 2019)

Fishbone Diagram – Ag operations

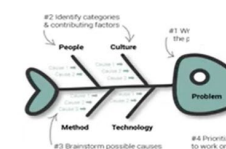


N. Dyenson / Dole / Food Safety Summit

Source: Food Safety Summit (Dole Presentation, Natalie Dyenson, DNA)

Example Diagram(s)

- Many versions of the fish bone diagram
 - Farm factors
 - Farm landscape factors
 - Farm management factors
 - Transport
 - Handling and packing



Source: Contact Series RCA Webinar Part 2 (Virginia Tech, Dr. Laura K. Strawn, 2023)

“RCA, RCI, and EA are meant to uncover a problem and find a solution to advance prevention of future problems”

“Training and education can advance implementation”

Promote the development/implementation of RCA programs

Embrace data analytics and acknowledge the complexity of the fresh produce industry

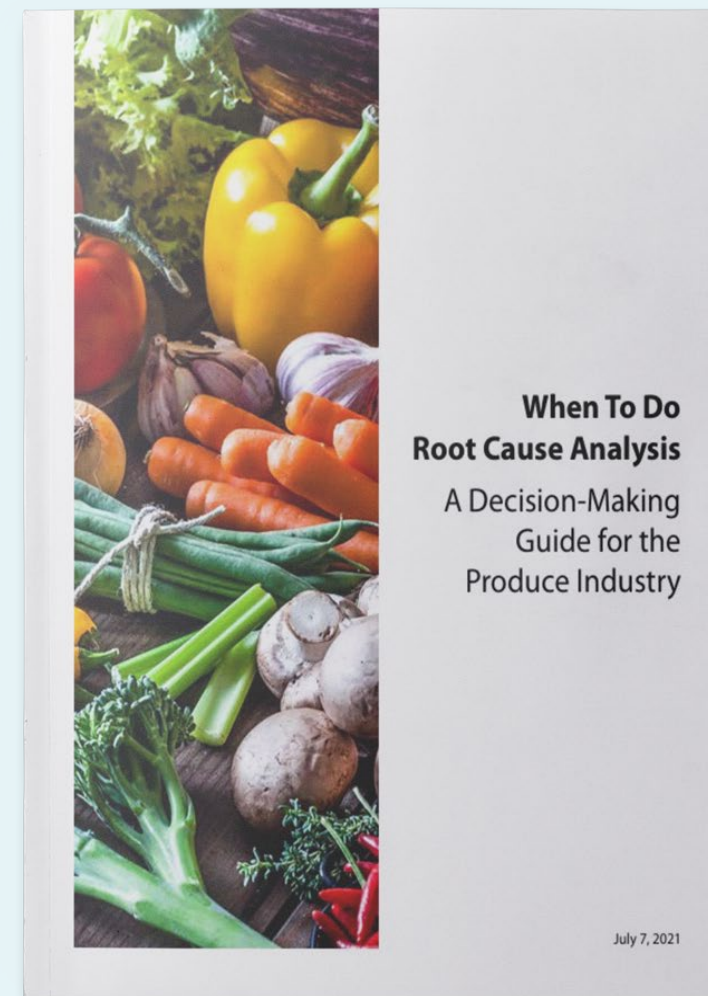
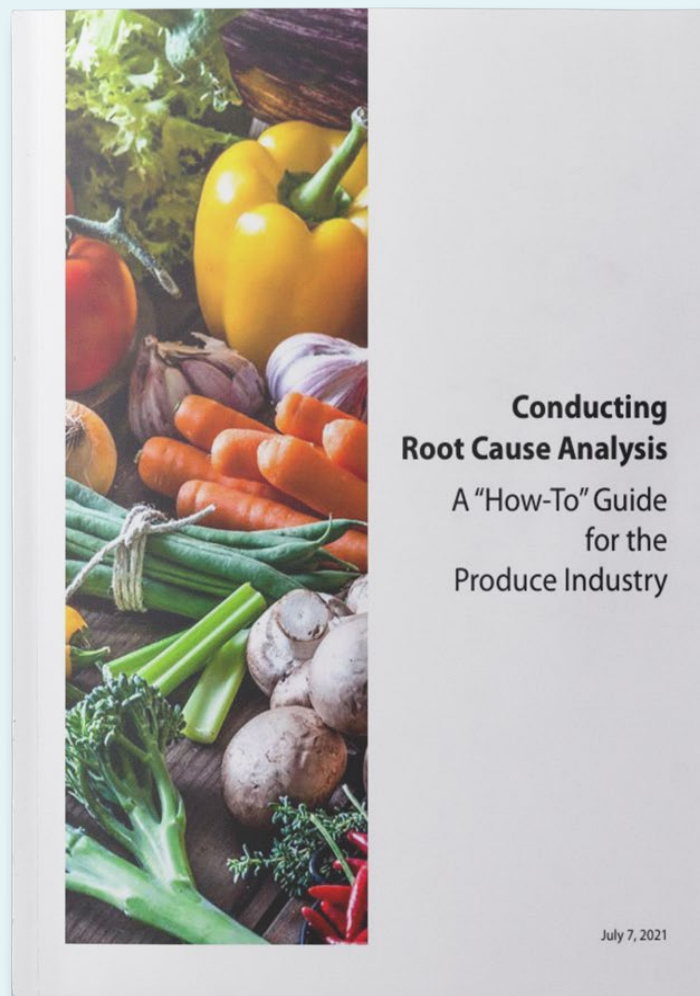
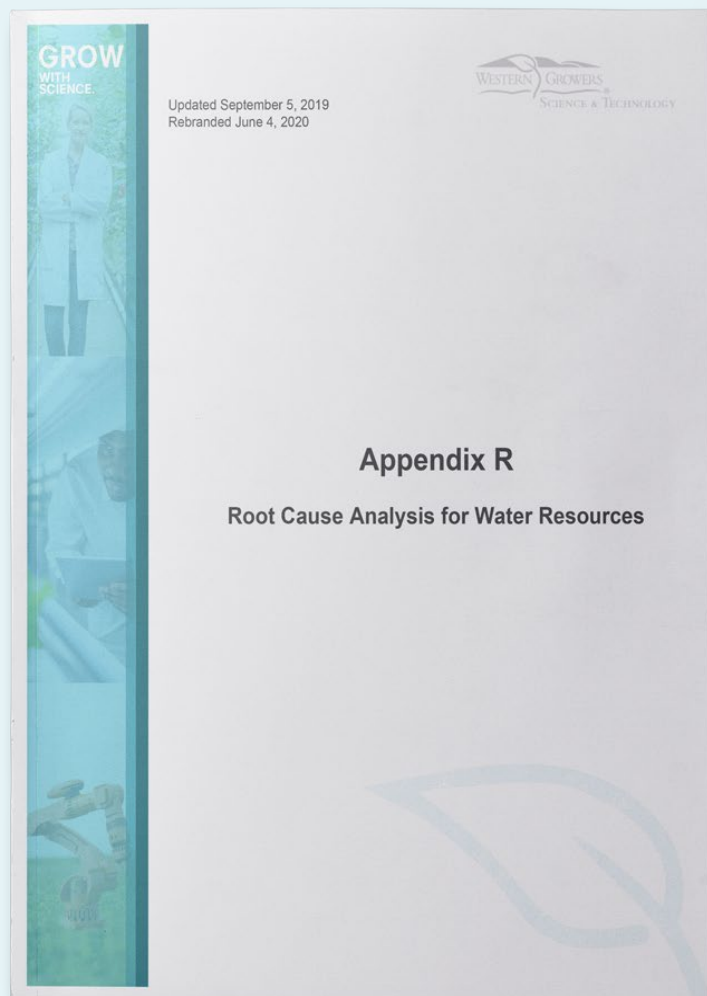


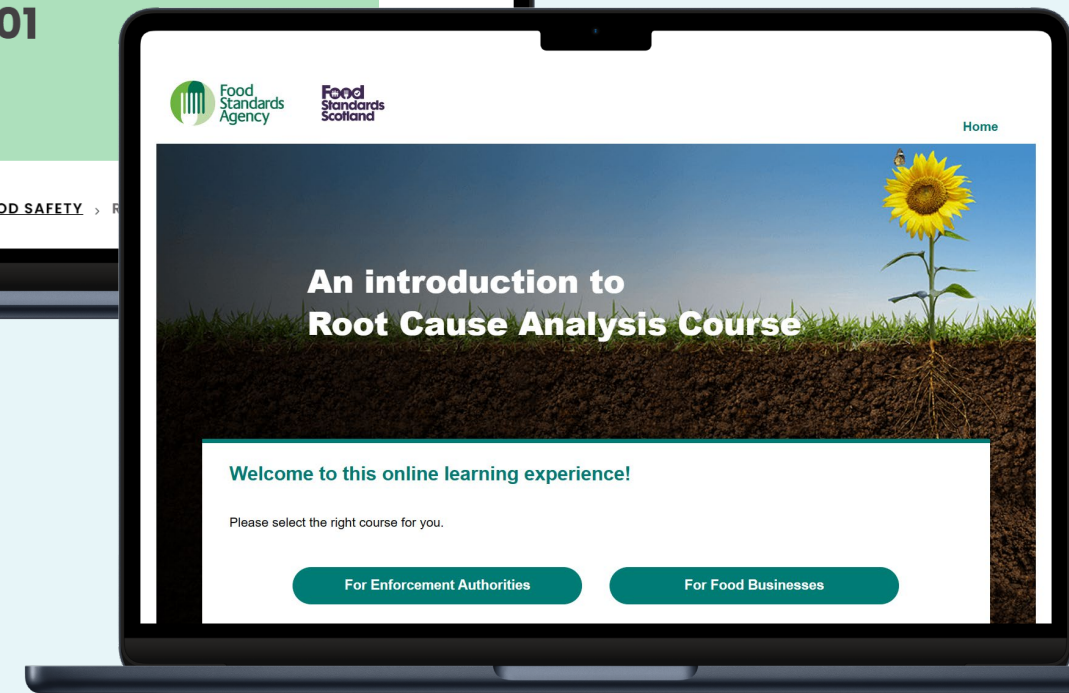
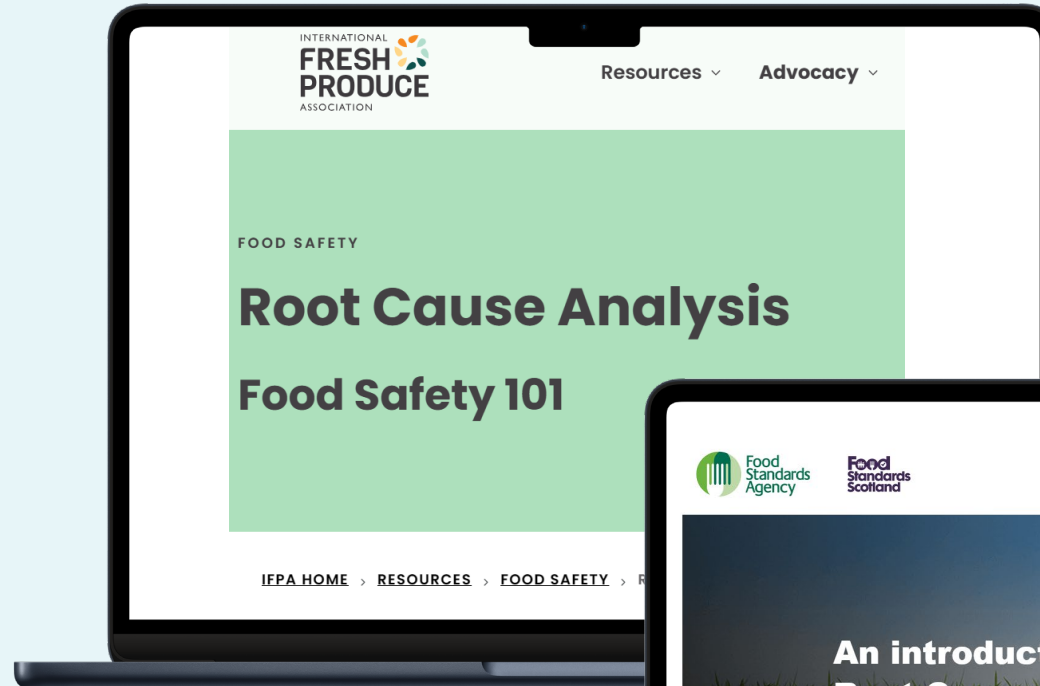
RCA can help find the cause of a problem and ultimately advance effective solutions

- A problem well-stated is a problem half-solved” – Charles Kettering, General Motors 1920-1947

Current RCA efforts (AFDO RCA working group, Colorado State University Program, industry guidance)









THANK YOU!

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