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Fundamentals of Environmental Testing



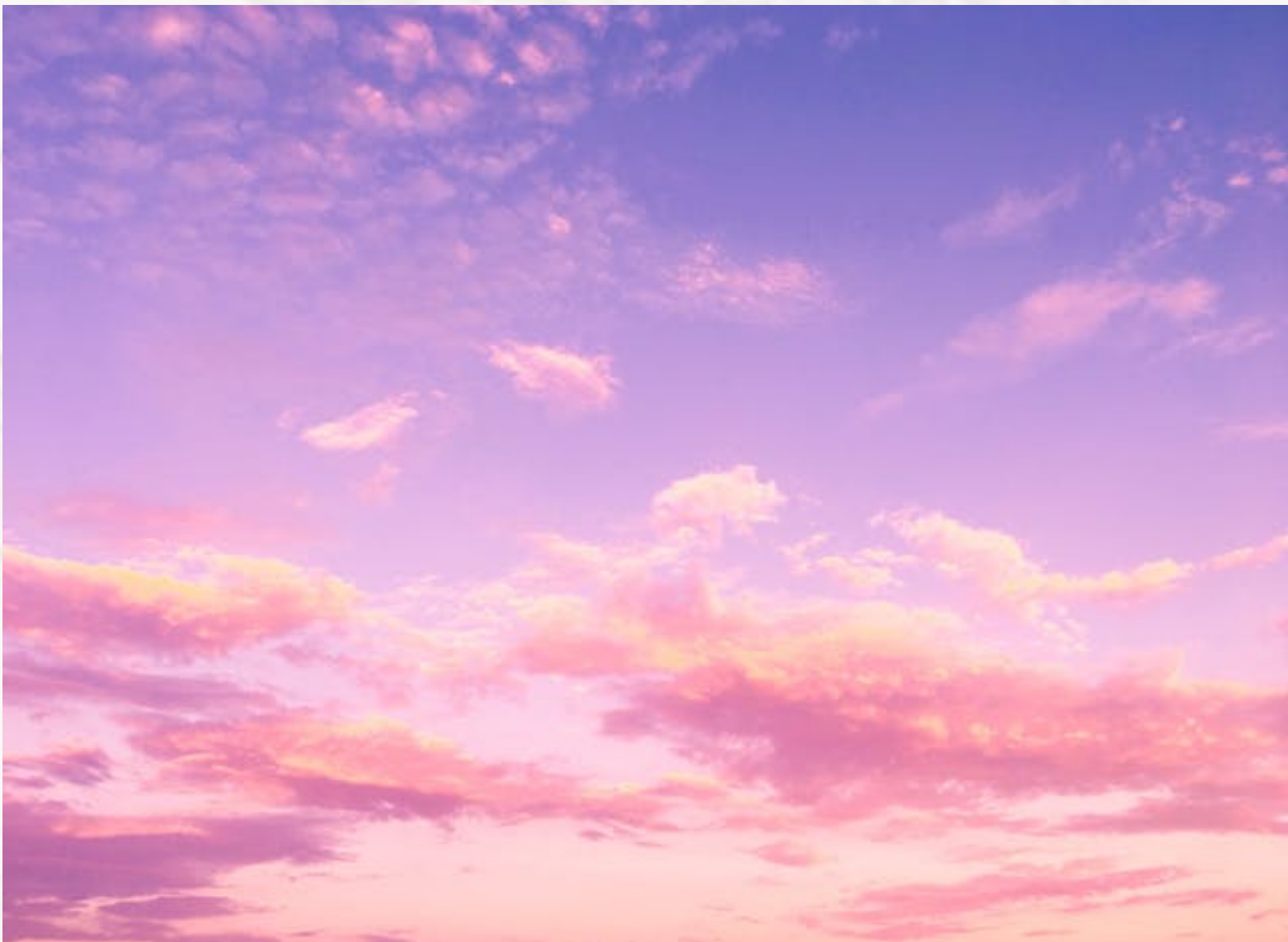
Functions

A wide-angle landscape photograph showing a dirt road curving through a dry, brown field. The sky is a vibrant blue, filled with numerous white, fluffy clouds of various sizes. The horizon is flat, with some distant hills visible on the left. The overall scene conveys a sense of openness and natural beauty.

Environment



Do you really
know where and how?



Hail & Rain

Weather and Use

“Neither snow nor rain nor heat nor gloom of night...”

Average or maximum?

Regular rain or Driving rain?

Are carpet fibers and wildfire smoke environmental conditions?



Critters and Mold

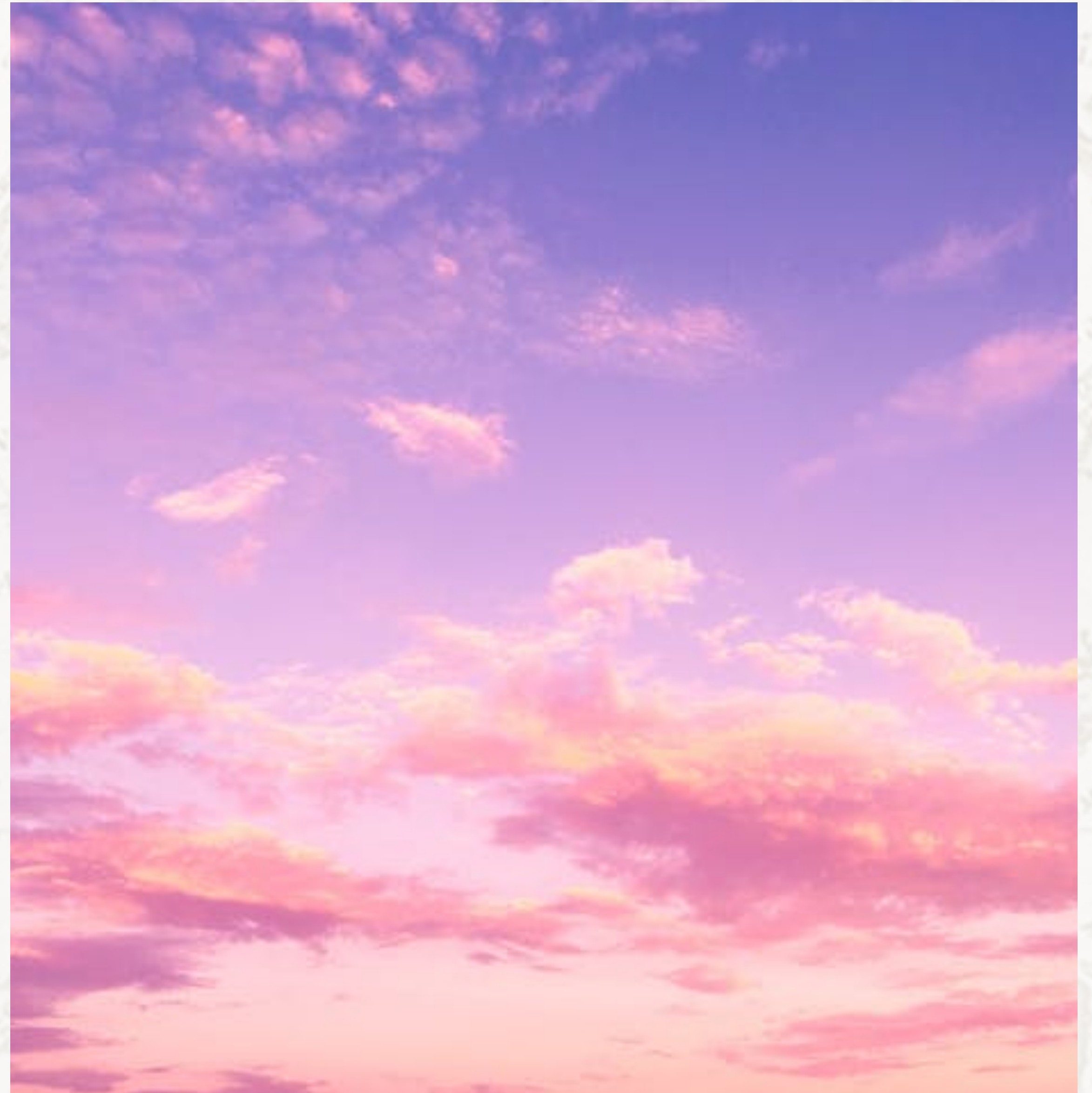
Weather and Use

Every find a rat inside your product?

Insects

fungus

etc.



24/7 or Not

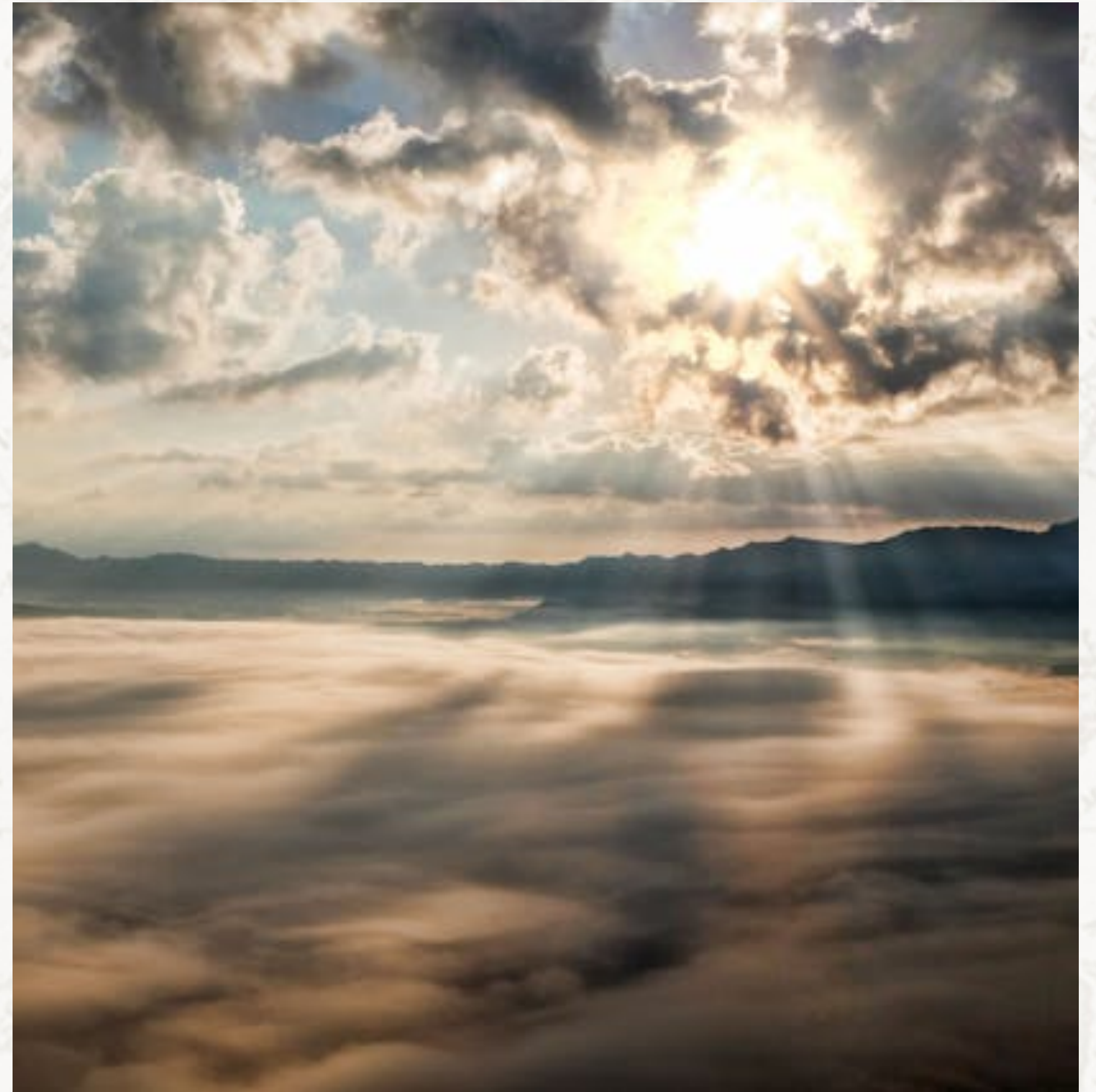
Weather and Use

How often do you use your car?

How does a kitchen toaster wear out when not being used daily?

Phases, stages, seasonal?

Transport, storage, etc.



What has

surprised you?

Testing Approaches



Real Time

Testing Approaches

Use the product as your customers would in real-time.

Simultaneously experiences environmental and use stresses

Not accelerated or takes a long time

How many types of environments?

Is this like beta testing?



Standards

Testing Approaches

Using standards is no substitute for thinking.

If you 'pass' 176 hours at 85°C and 85%RH, what does that mean for your product?



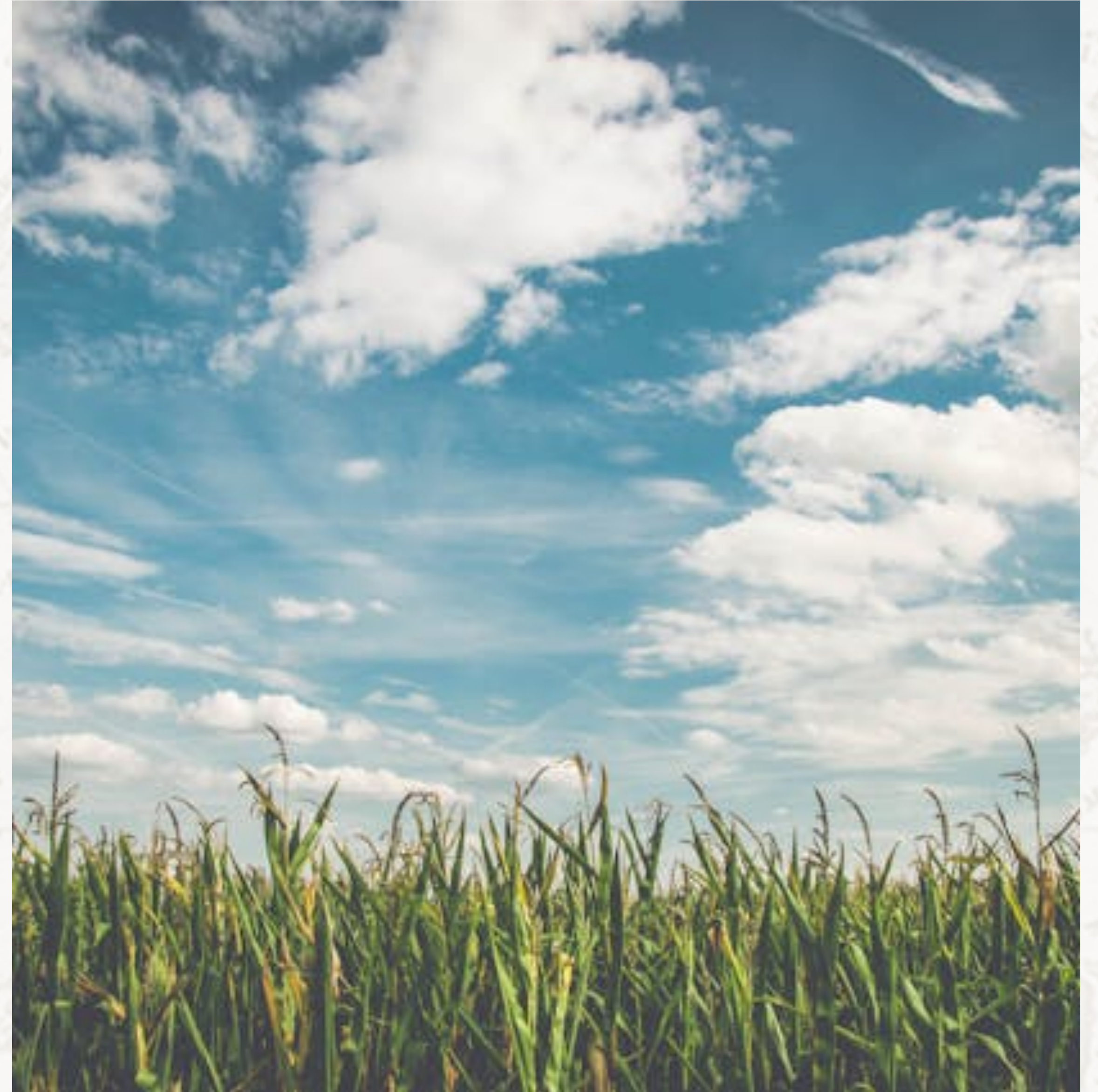
Waterfall

Testing Approaches

Line up testing in a logical way
using one stress at a time

Efficient use of limited samples

Think about how a sequence of
stresses may foster failure
mechanisms



How about salt fog

and vibration?

A Focused Approach



Considerations

A Focused Approach

Knowns and Unknowns

Risks – i.e. Red Flags

Field Data



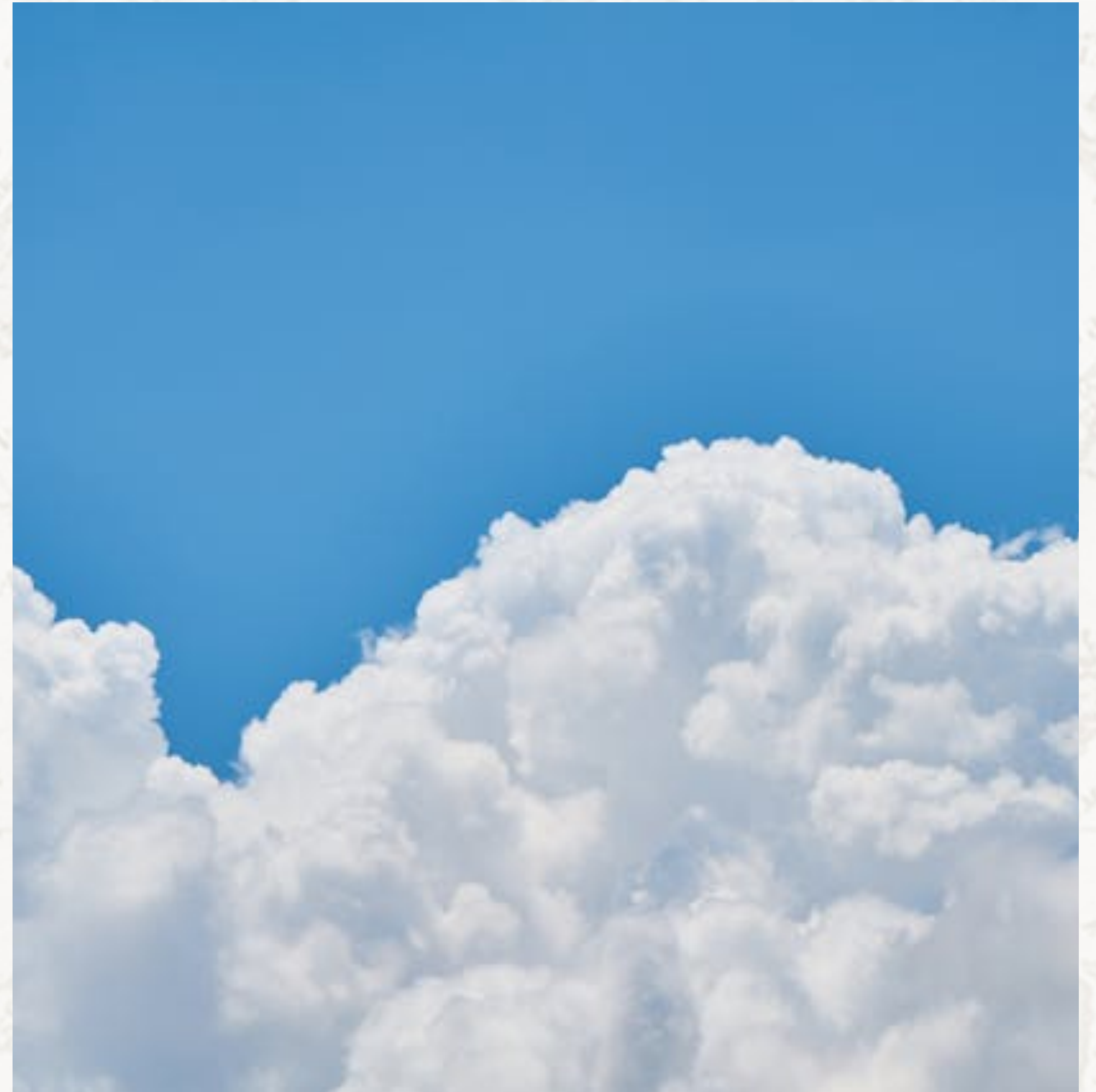
Key Decisions

A Focused Approach

What does your team need to know?

To inform decisions from component selection to ready to launch

Each test much inform a decision maker and add value



Select Tests Carefully

A Focused Approach

Do all tests poorly,
or a few very well?

What is the purpose and possible
outcomes, plus who, specifically,
needs the results



**Is environmental testing
working**

in your organization?

Additional Comments and Questions

Thanks

see more at AccendoReliability.com