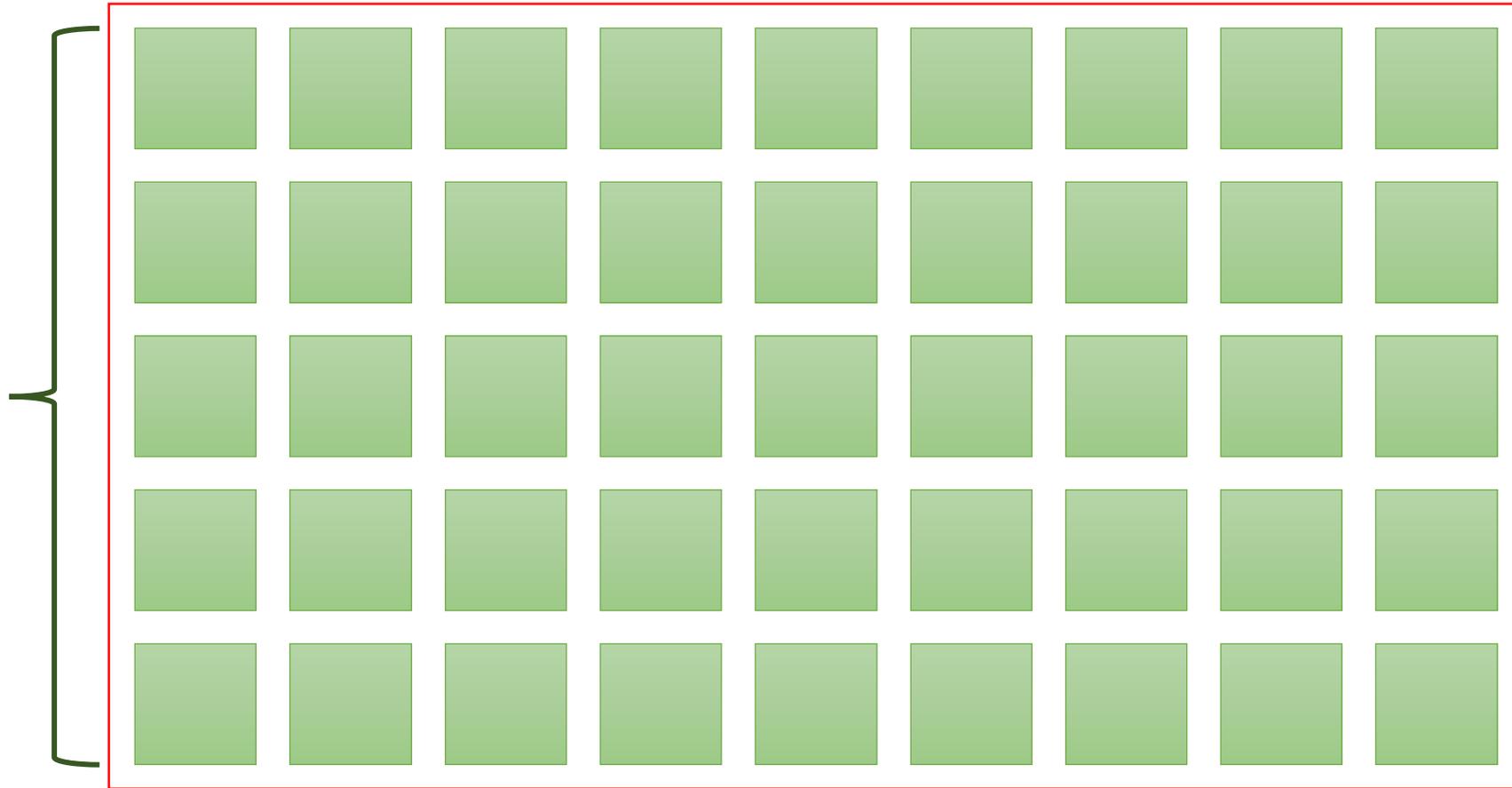


Preharvest Sampling Plan Thought Experiment

- The following slides accompany the 2021 United Fresh Produce Association “thought experiment” to propose a preharvest sampling plan that, with a high degree of statistical confidence, could have detected high levels of contamination that resulted in an outbreak
 - The paper describes the numerous assumptions upon which the sampling plan is based.
 - Slides should not be interpreted or referenced without the paper and accompanying calculation spreadsheet.
- The illustration is not to scale (e.g. sample size vs acre)
- Regardless of size (e.g., 25 g, 150 g etc.), each sample must be representative of the material being tested (e.g., each sample is a composite)

45-acre
sampling
"lot"



Obviously not
to scale; for
illustrative
purposes only

Each sample is
a composite
that is
representative
of the lot

1 square = 1 acre

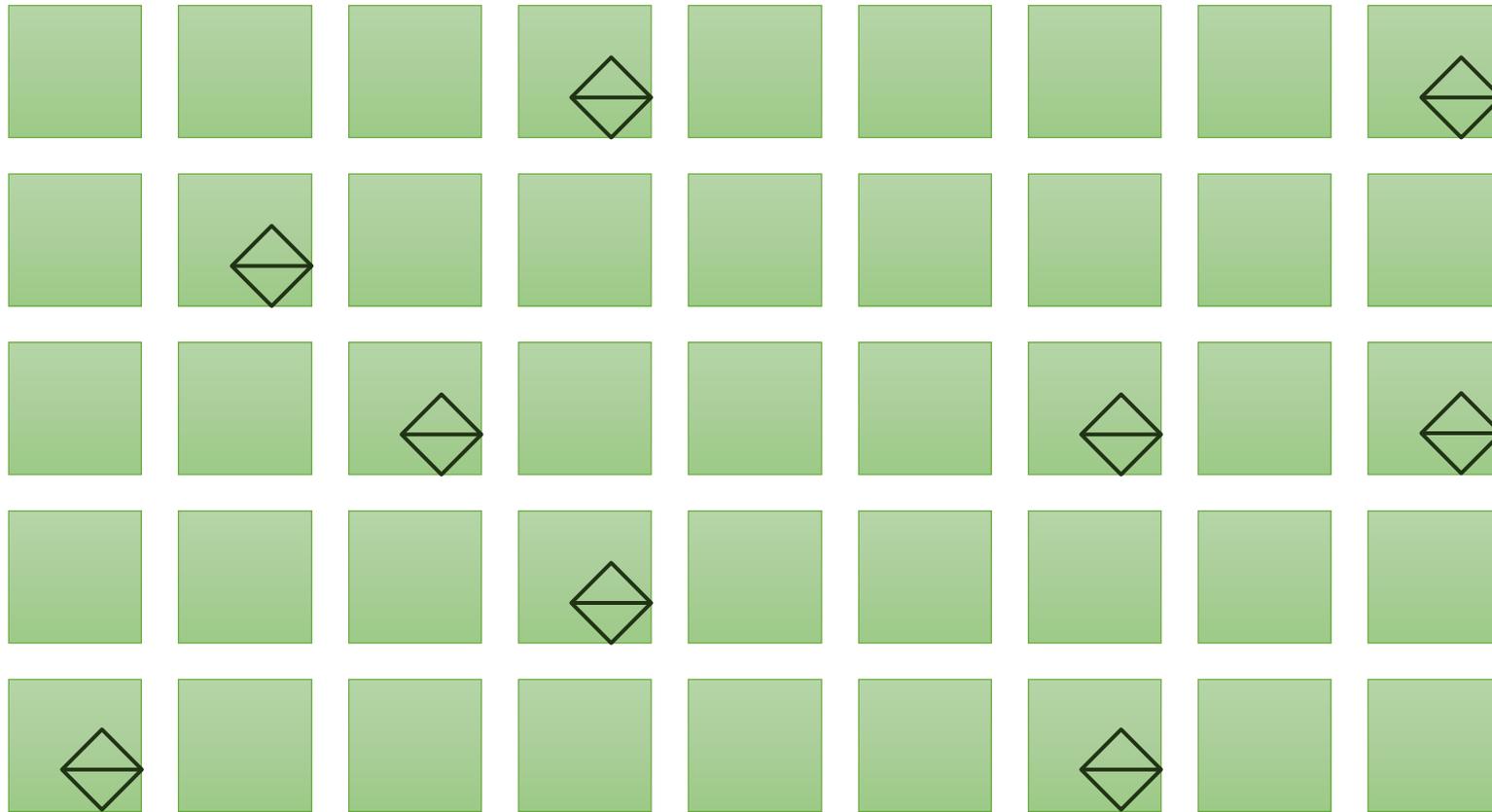


= 150 g sample

△ = 25 g sample

Assumptions:

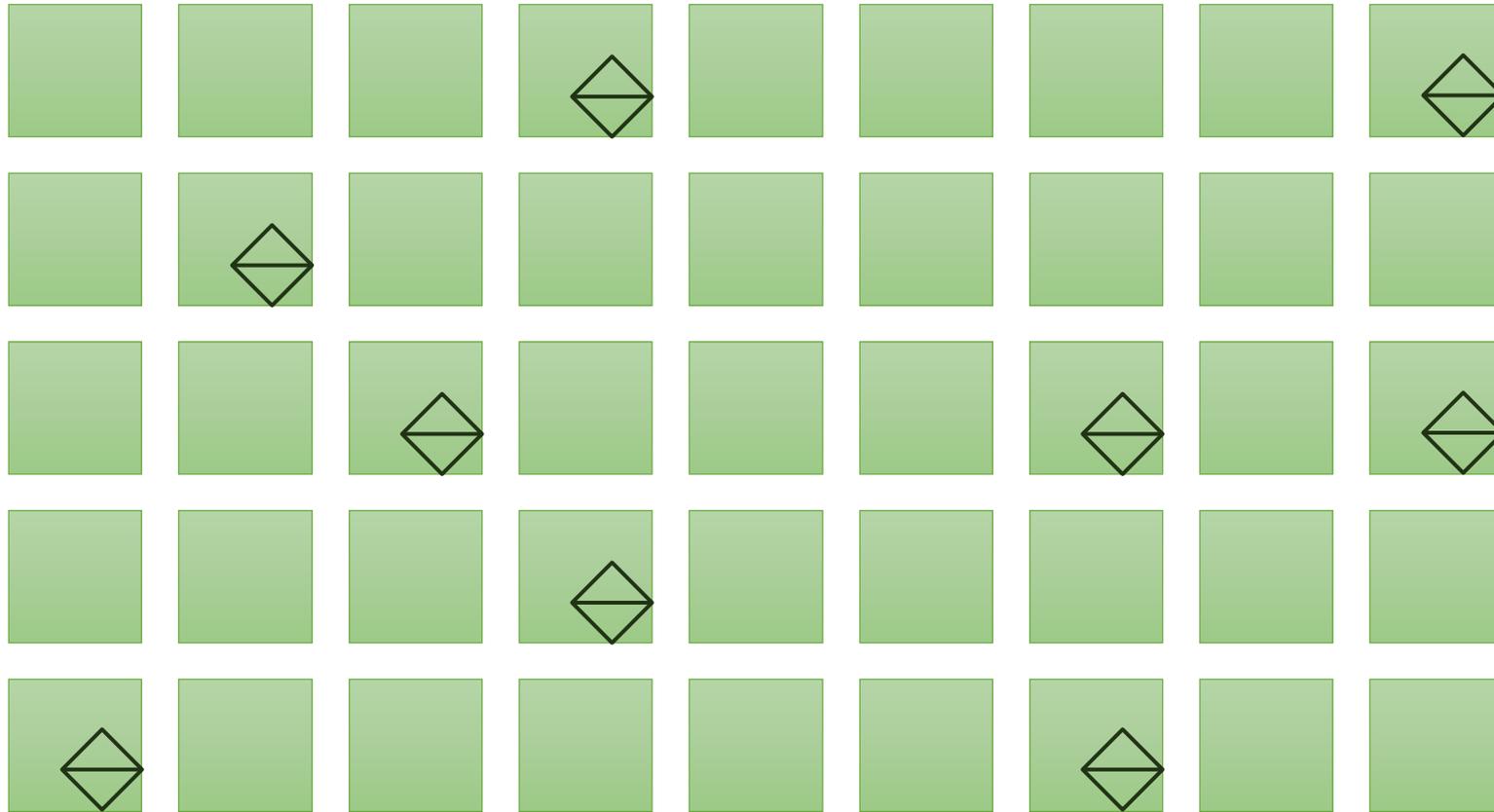
- 1 acre = 38,000 lbs
- 45-acre sampling lot = 1.71 million lbs
- 1618 total cases of illness linked to 45-acre harvested romaine



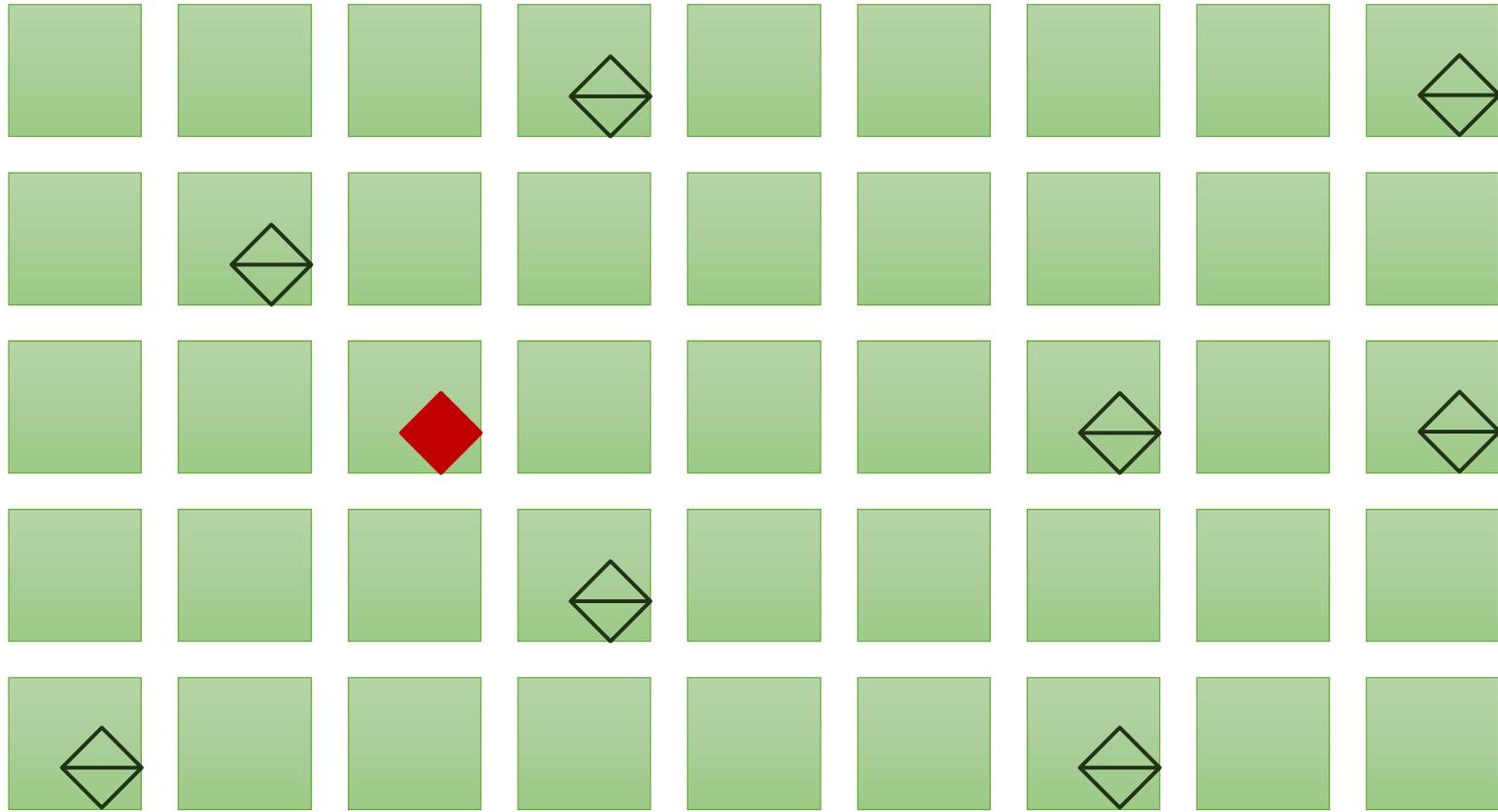
 = 150 g sample

90% confidence of detecting contamination and rejecting the lot:

- Nine, 150 g samples tested from the 45 acre sampling lot (total 1350 g tested)
- Reject full sampling lot if any one of nine samples tests positive

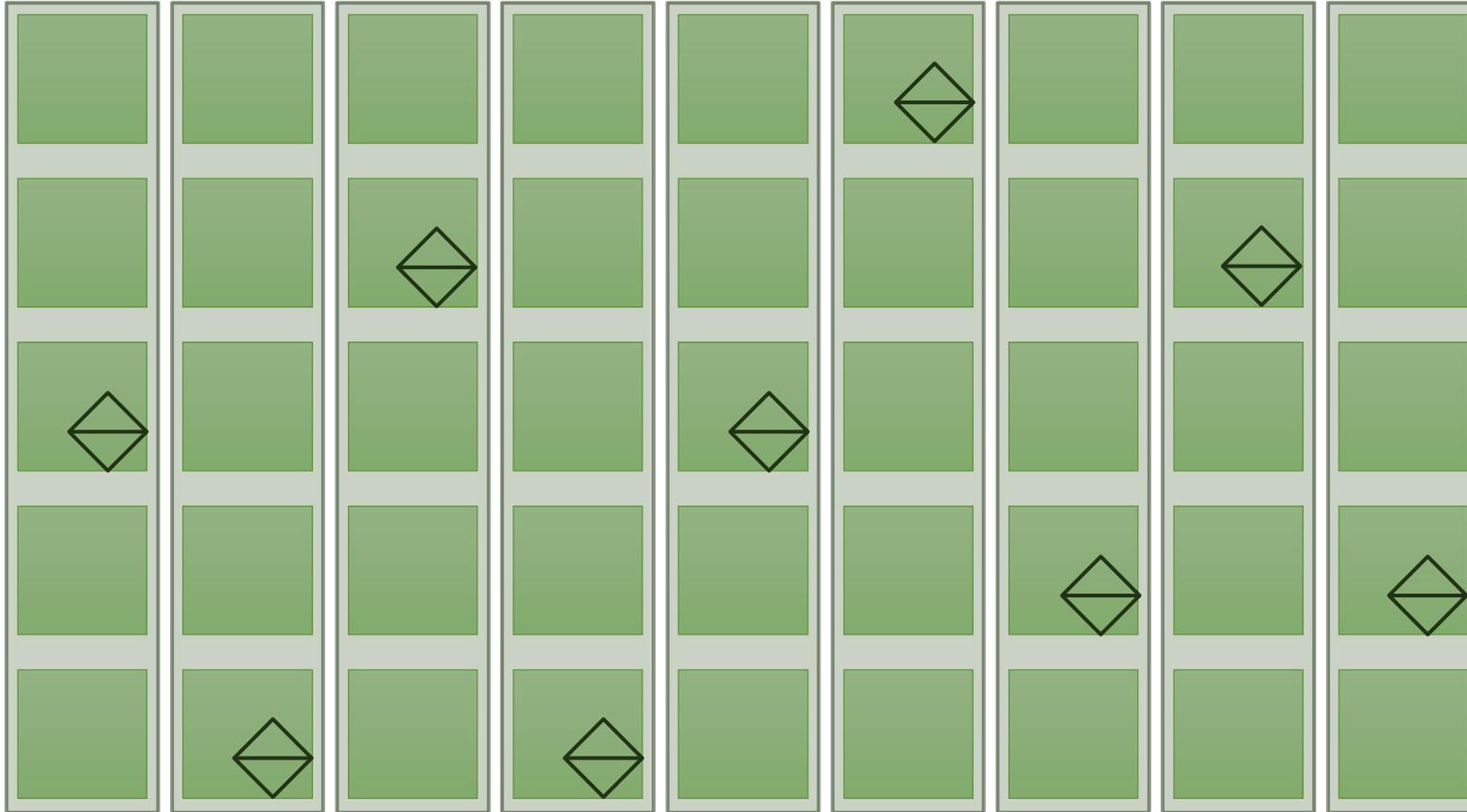


**Accept Sampling Lot if all 9 samples of
150 g each test negative
(90% confidence that the 45 acres is truly
negative; 10% chance that you happened
to miss the positive)**



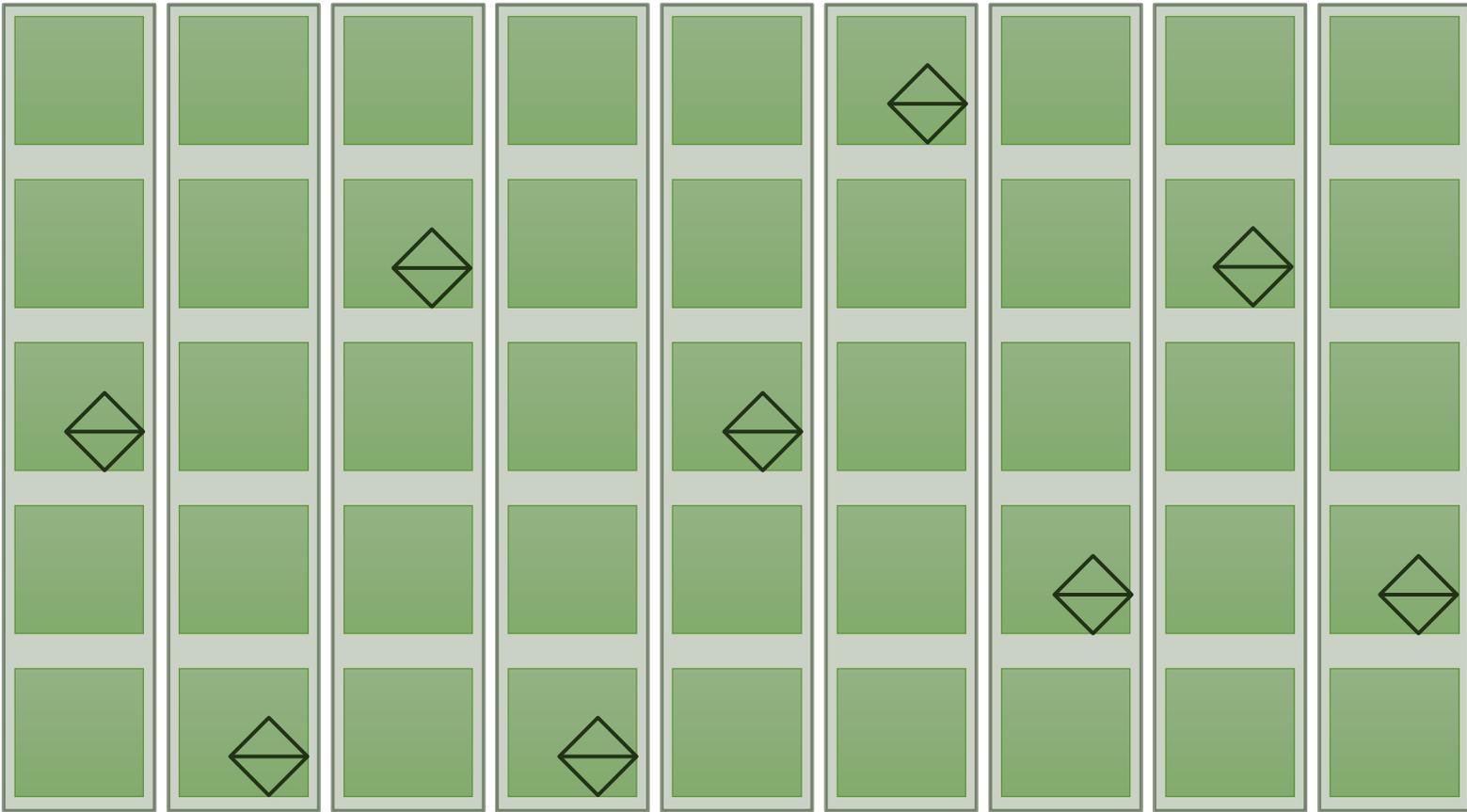
*Red 150 g sample
was positive*

**Reject Sampling Lot-
all 45 acres**

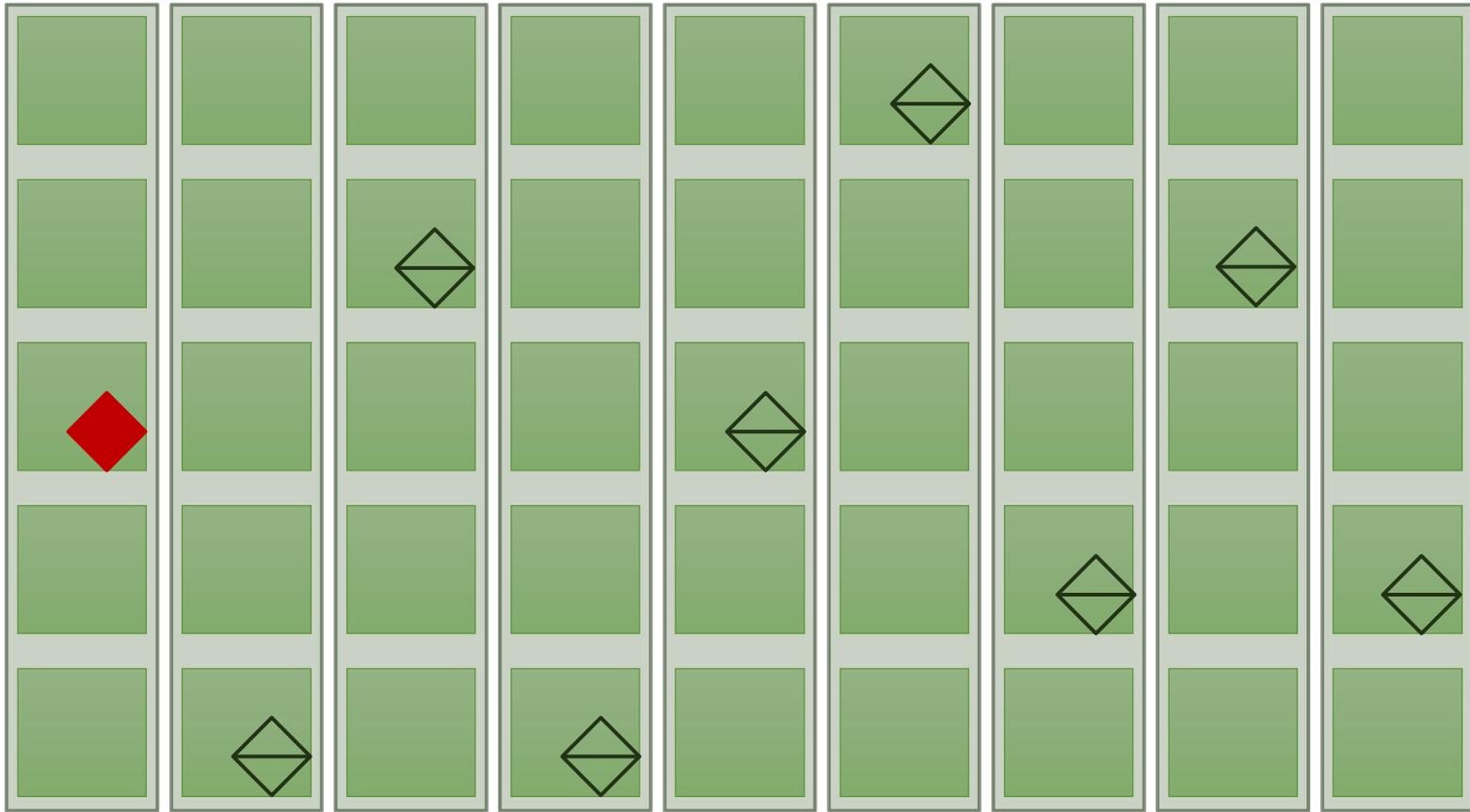


90% confidence of detecting contamination and rejecting the lot:

- Nine, 150 g samples tested from each of the **5- acre sub-lots**
- Reject full 45 acre sampling lot if any one of nine samples tests positive

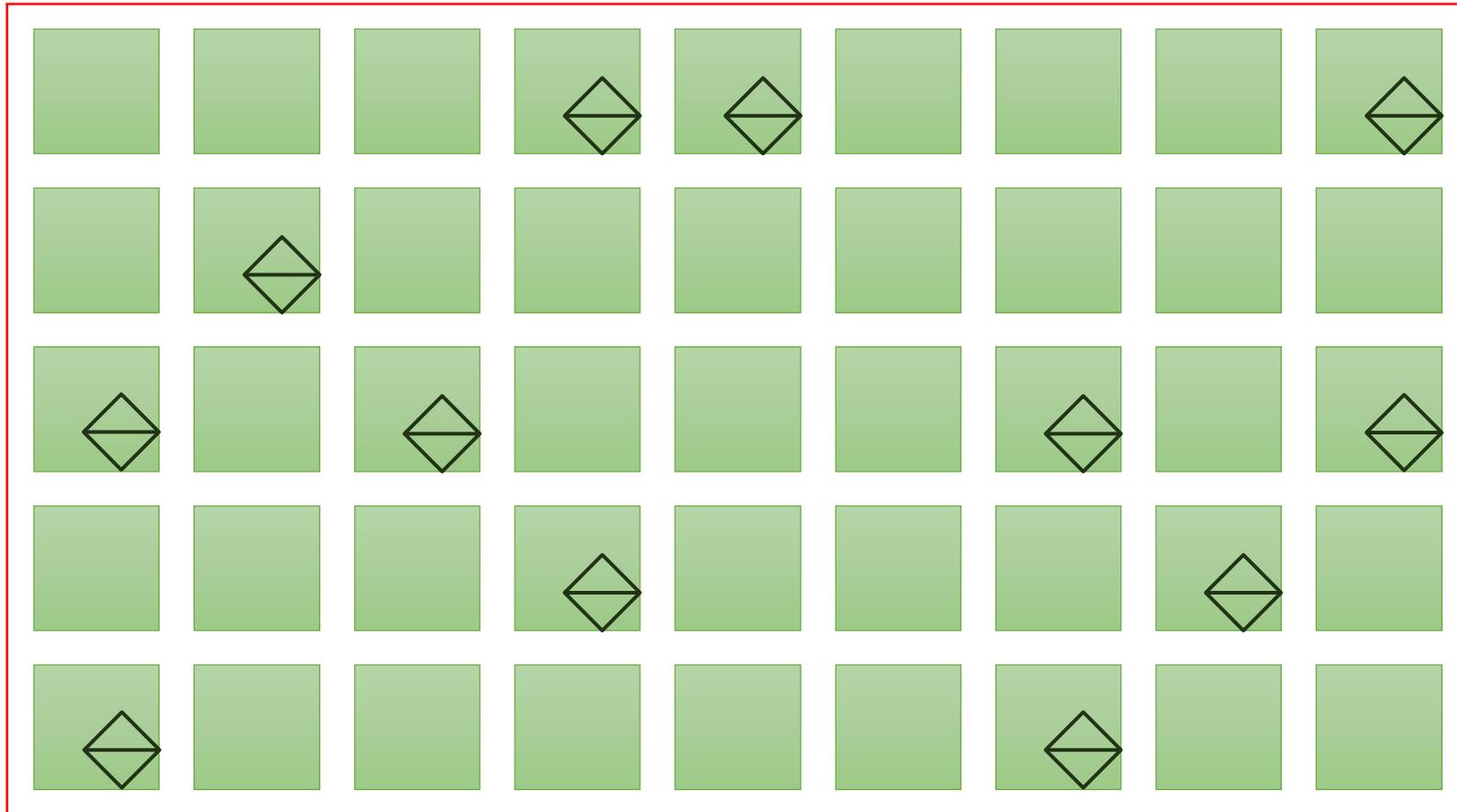


**Accept Sampling Lot
(90% confidence)**



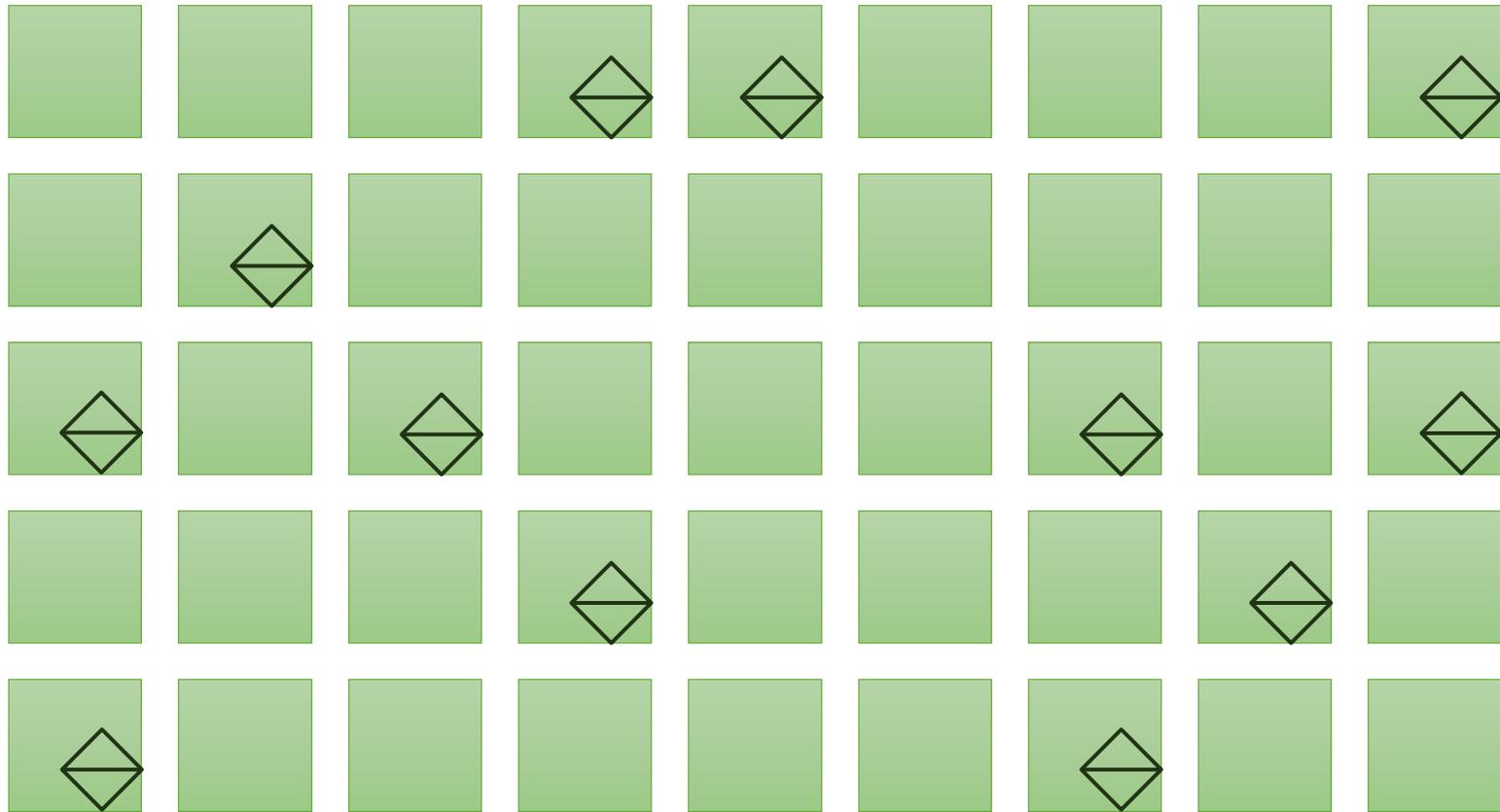
*Red 150 g sample
was positive*

**Reject Sampling Lot
(all 9 sub-lots)**

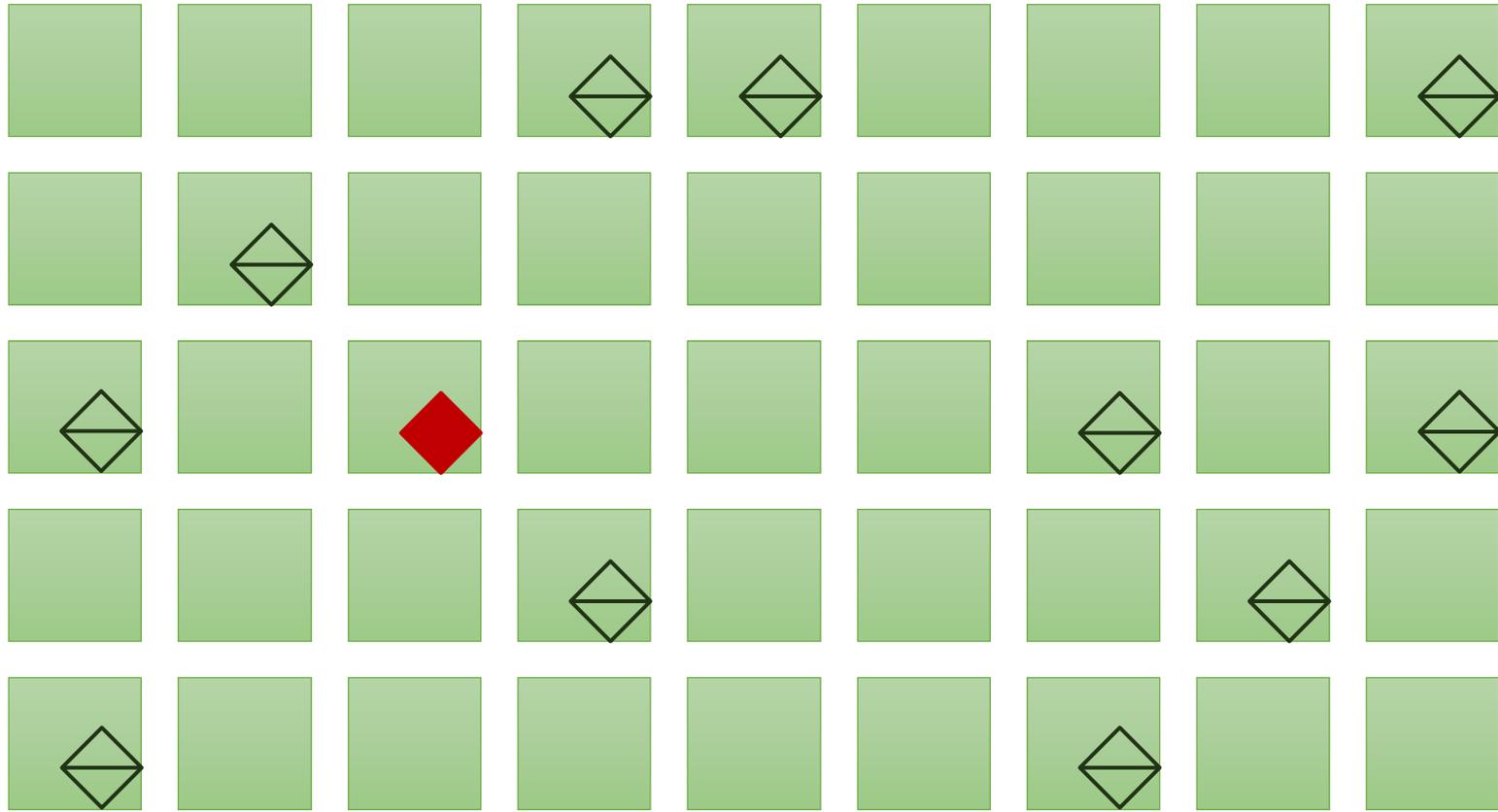


95% confidence of detecting contamination and rejecting the lot:

- Twelve, 150 g samples tested from the sampling lot (total 1800 g tested)
- Reject full sampling lot if any one of twelve samples tests positive

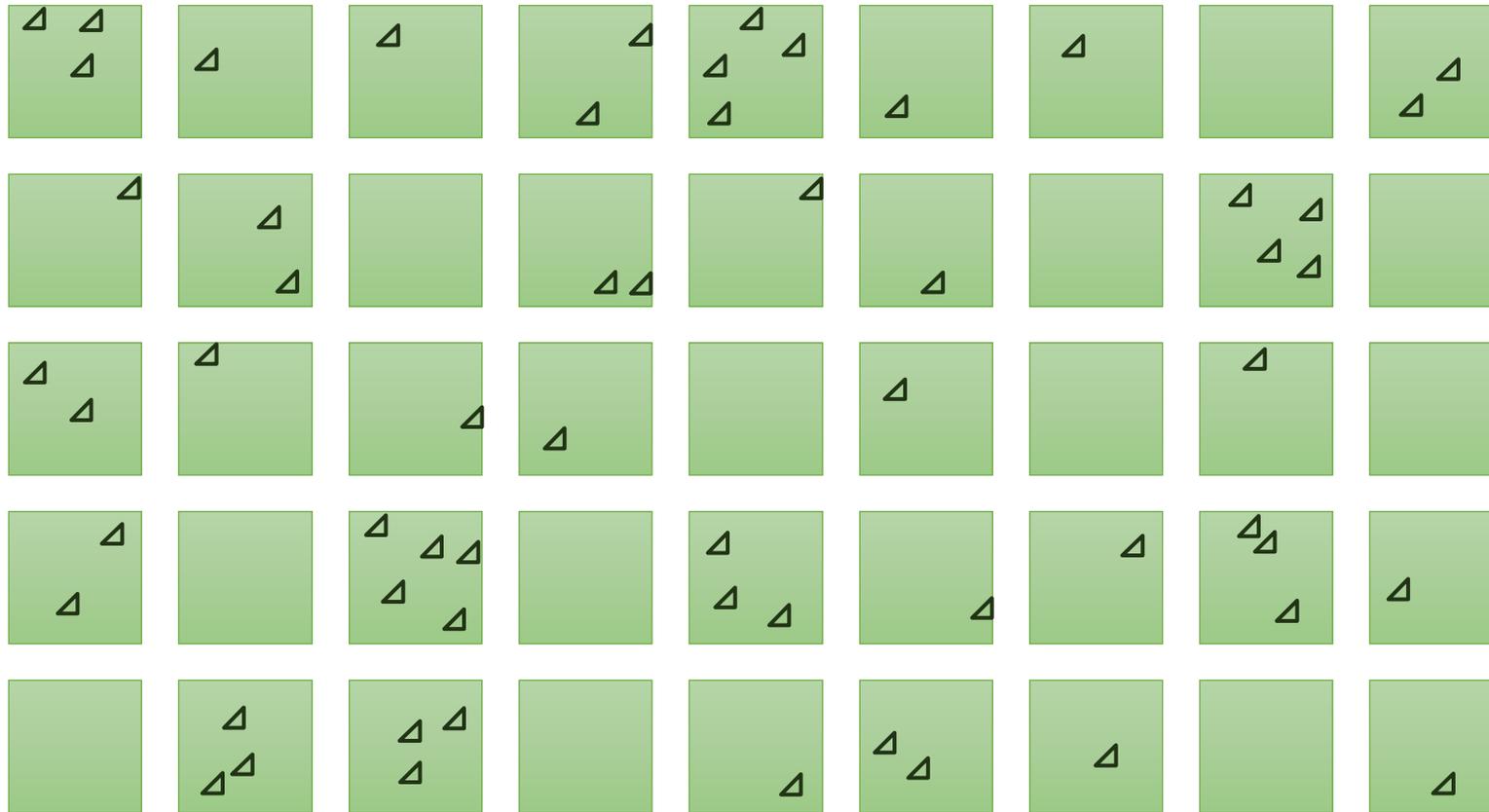


**Accept Sampling Lot
(95% confidence)**



*Red 150 g sample
was positive*

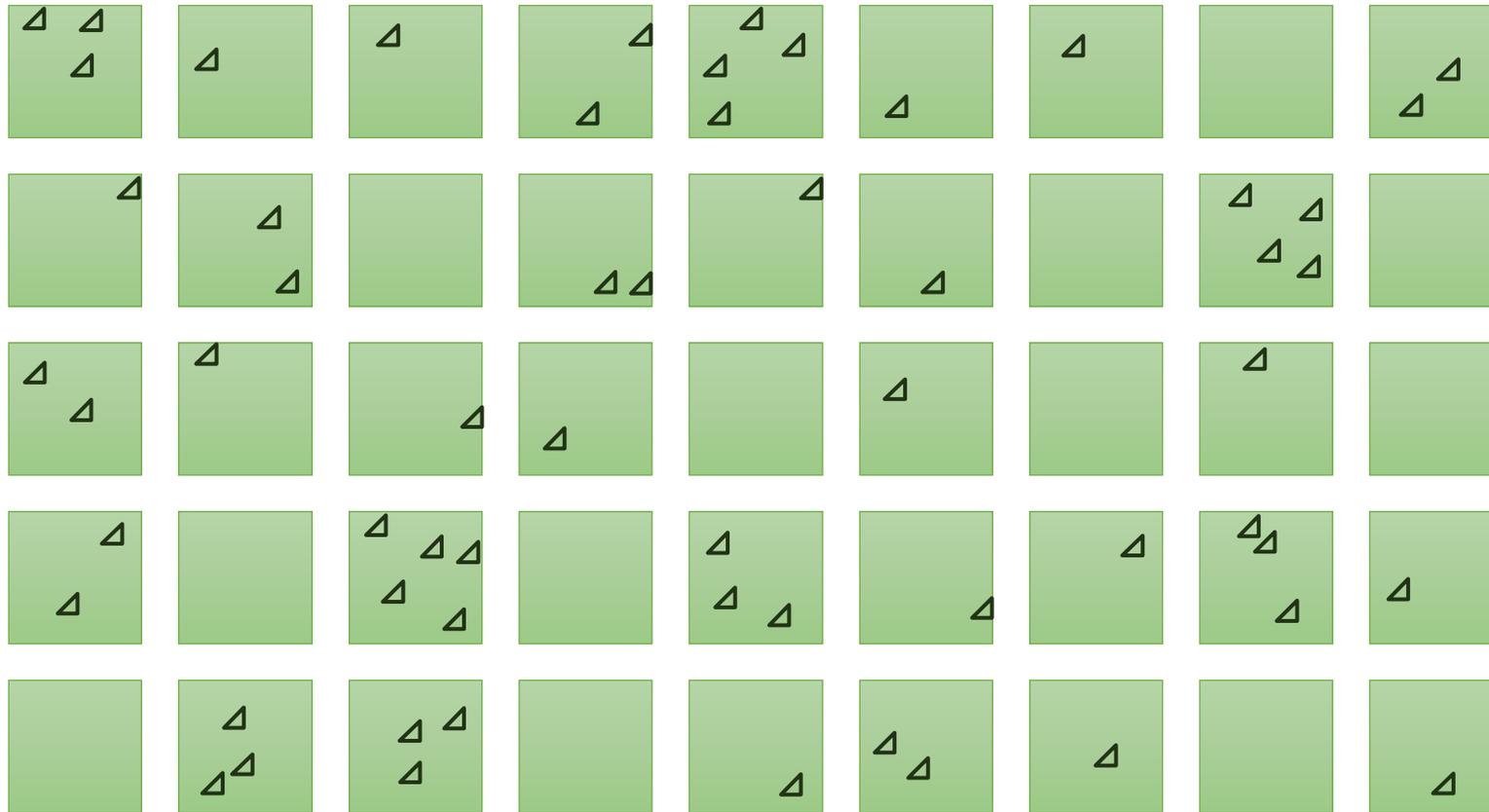
Reject Sampling Lot



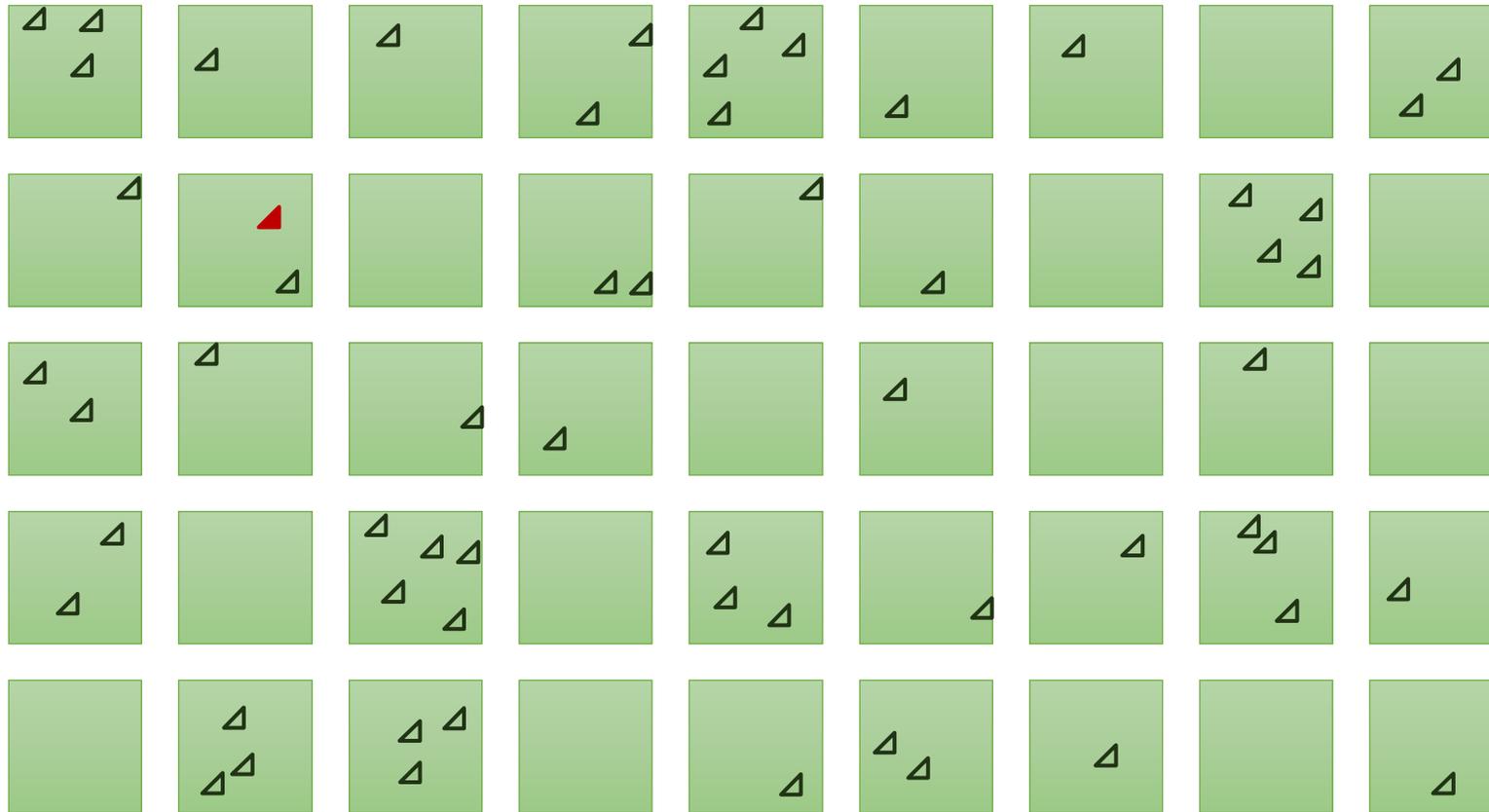
△ = 25 g sample

N60 sampling: Note that 1500 g is in between the 1350 g and 1800 g of the previous slides

- Sixty, 25 g samples tested from the sampling lot (total 1500 g tested)
- Reject full sampling lot if any one of sixty samples tests positive



Accept Sampling Lot



*Red 25 g sample
was positive*

Reject Sampling Lot