



How to Successfully Carry Crops



2015 NGFA Country Elevator Conference

Nick Friant, Cargill

“Come to me early with a problem and you will have a partner in finding a solution. Come to me late with a disaster and you will have a judge.”

- James Preston, Avon





Grain Quality Tenets

Adapted from Charles
Hurburgh as published in
Grain Journal

Grain
quality
never
gets
better



Aeration will
not correct
incomplete
or non-
uniform
drying



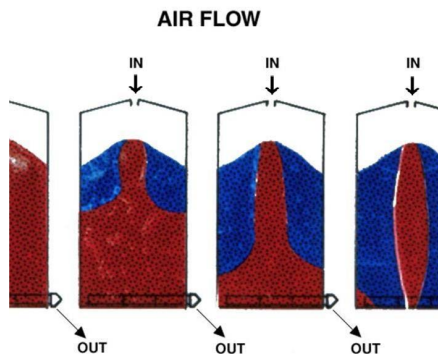
Moisture is
the most
important
factor you
measure



There is no
“silver bullet”
for monitoring/
managing
grain in
storage



**Poor
quality
grain is
more costly
to handle
and store**



**Many
aeration
problems
can be
eliminated
by coring
bins**

**If you do not
grade/inspect
all of your
inbound grain,
you cannot
know what
you have in
storage**



**Grain that
has gone
out of
condition
will always
be a
storage risk**



Pre-Harvest Plan

BINNING PLAN

- Space utilization
- Quality
- Carry
- To pile, or not to pile

STORAGE MONITORING PLAN

- What tools
- Who?
- How often

GROUND PILES

- Tarps
- Walls
- Reclaim plans
- Monitoring
- Quality
- Licensing

LOAD OUT

- Ownership and obligations
- Available Space
- Inbound Grain Expectations (Quantity & Quality)
- Outbound Grain Expectations (Quantity & Quality)
- Special treatment (drying, cleaning, fumigating)

CONTINGENCY???

- Quality issues
- Freight issue
- Weather

A Savings Plan

- Save one hundred dollars a month

A better savings plan

- Max out Roth IRA contributions
- 15% into the 401(k)
- Balance checking account weekly
- Review bank/credit card statements on monthly basis
- Review IRA and 401(k) statements on quarterly basis
- Review credit report/score annually
- Ask spouse about inconsistencies/unusual line items
- Report cases of fraud to bank/credit company/brokerage firm

Storage Monitoring Plans

- Storage space = bank vault
- Today, a million bushels of soybeans in a tank is worth about \$9,000,000
 - Was it worth \$9myn three months ago?
 - Will it be worth \$9myn in three months?
 - Should it be worth \$9myn in three months?

Storage Monitoring Plans

- Every one is going to be different
- The more detail and precision, the better
- Take into account changes in storage plans
- Does your plan include communication
- Are security considerations included



Monitor

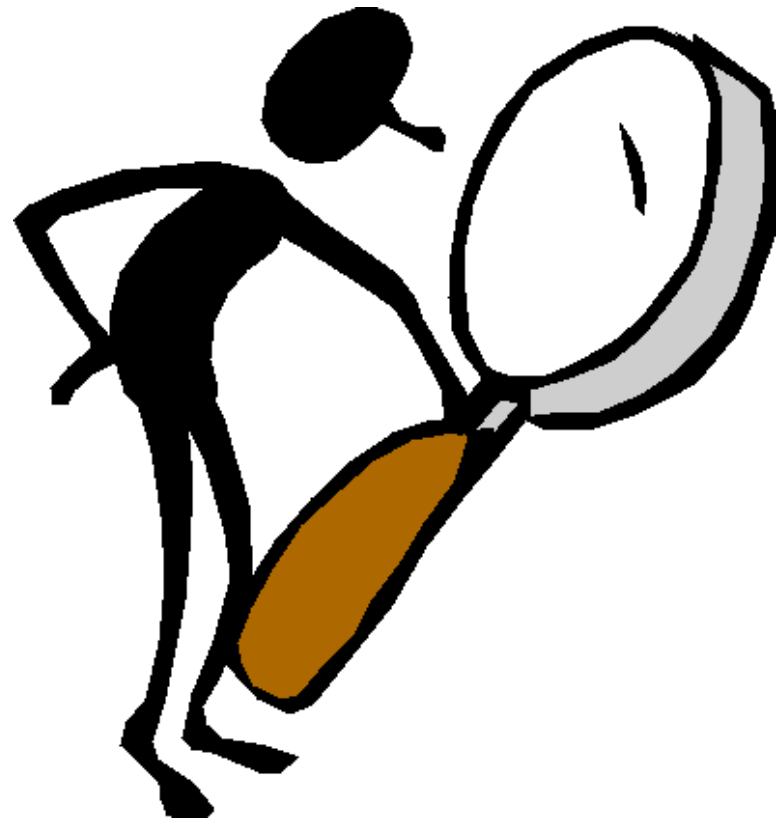
Inform

Act

Key components of managing grain quality

What are the tools?

- Temp cables
- Deep probing
 - Grading samples
- CO₂ monitoring
- Your five senses
- Grain Storage & Monitoring Plan



Who do you tell?

Have you had a discussion with your team about:

- What they should be communicating
- Who they should be telling
- How often they should be communicating



How do you act?

- You already have acted by telling someone about the problem
- Turn the grain
- Fumigate
- Load out
- Ozonate
- Dry
- Aerate



Mold/Insects



Temperature



Moisture



GRAIN

BECOMES



MOLDY

RESULTING IN



WATER



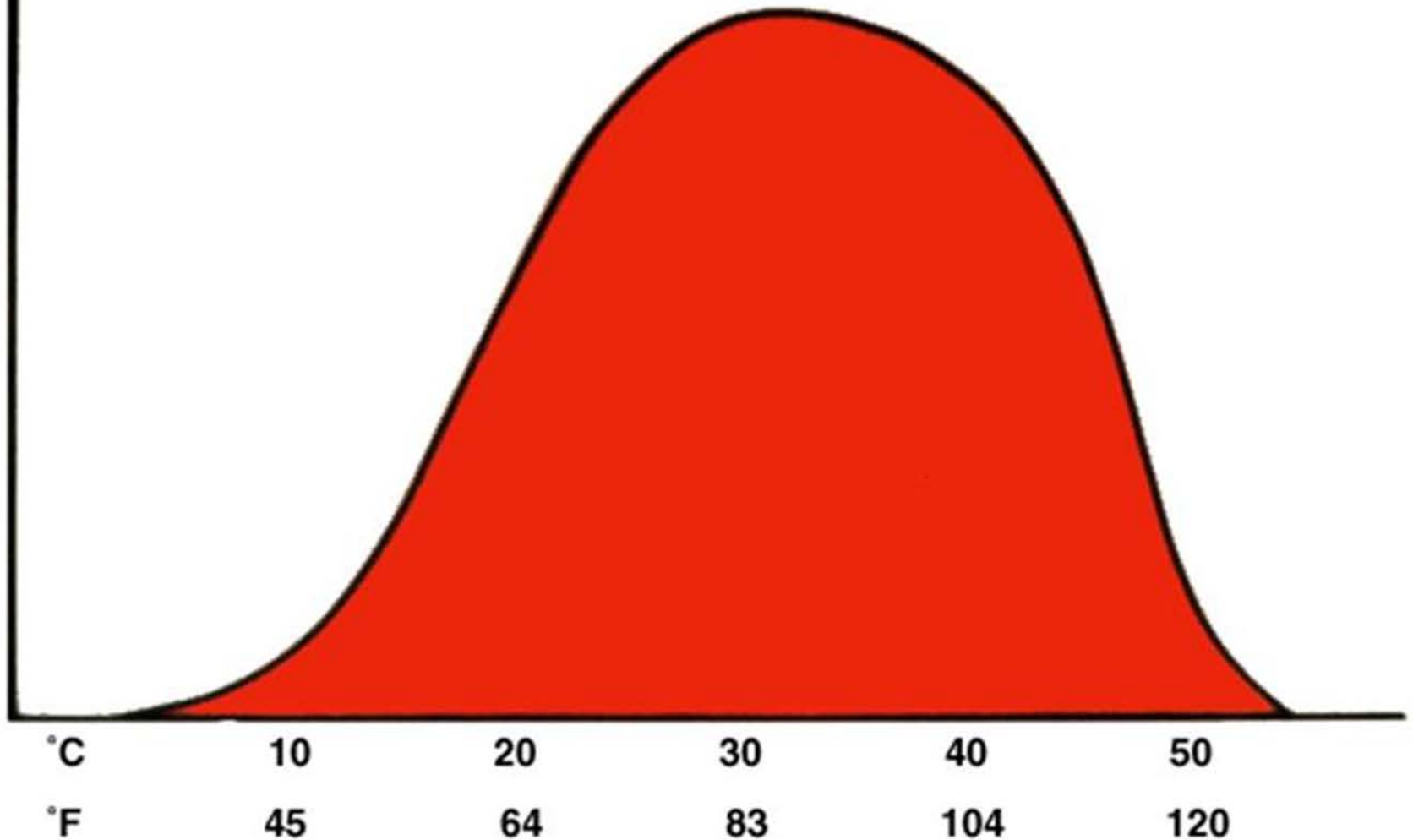
HEAT



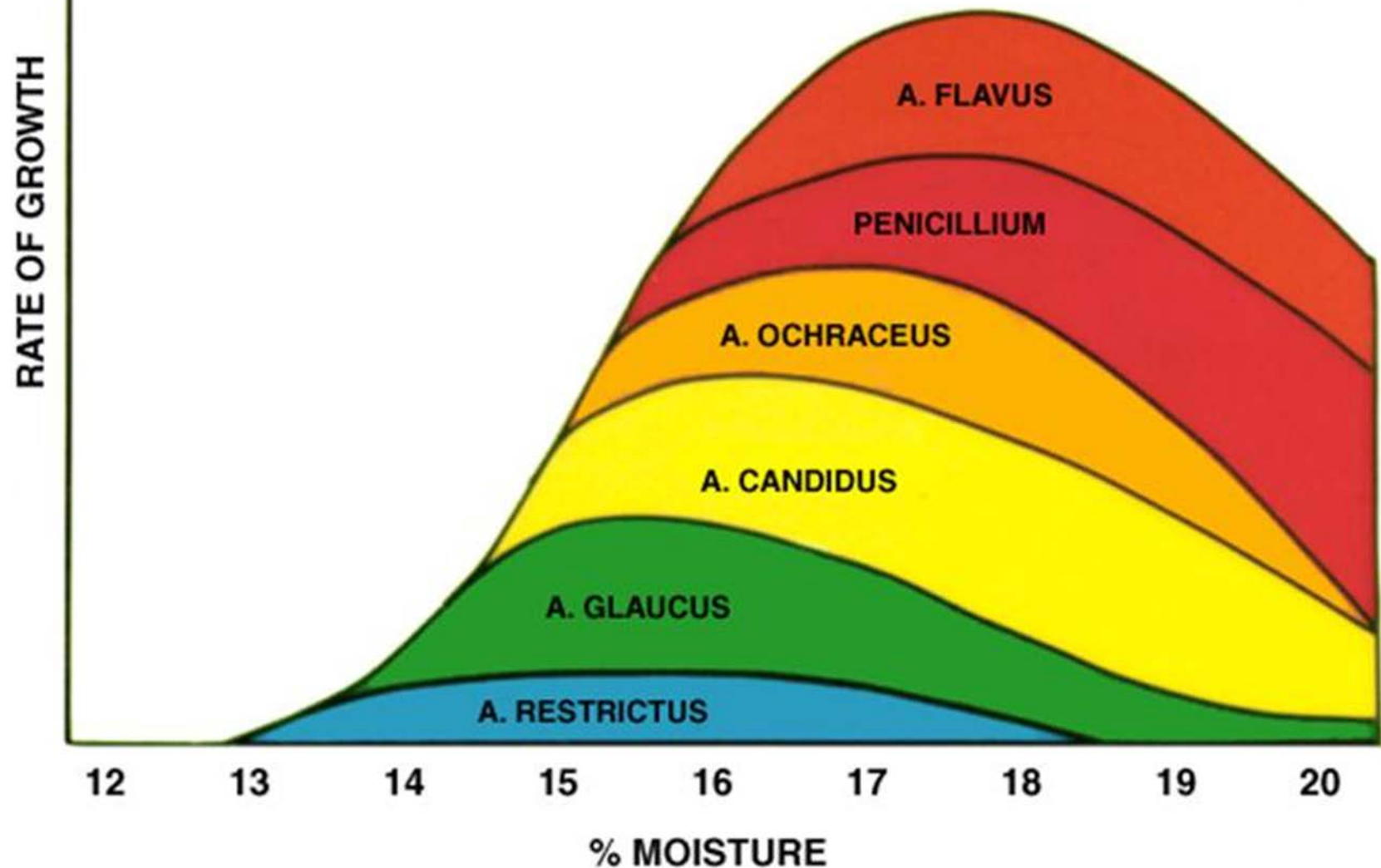
CO₂

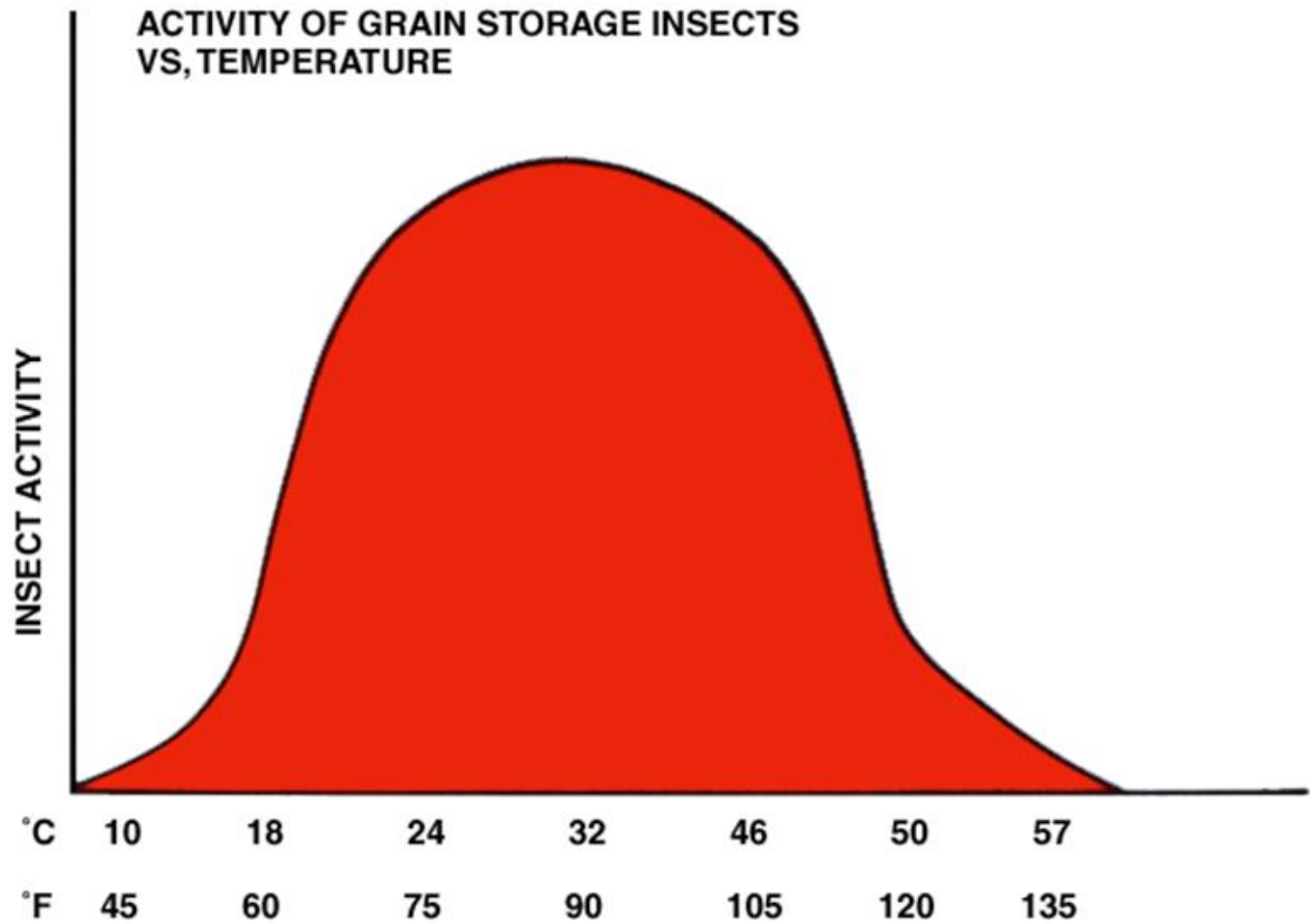
STORAGE FUNGI VS, TEPERATURE FOR CORN AND WHEAT

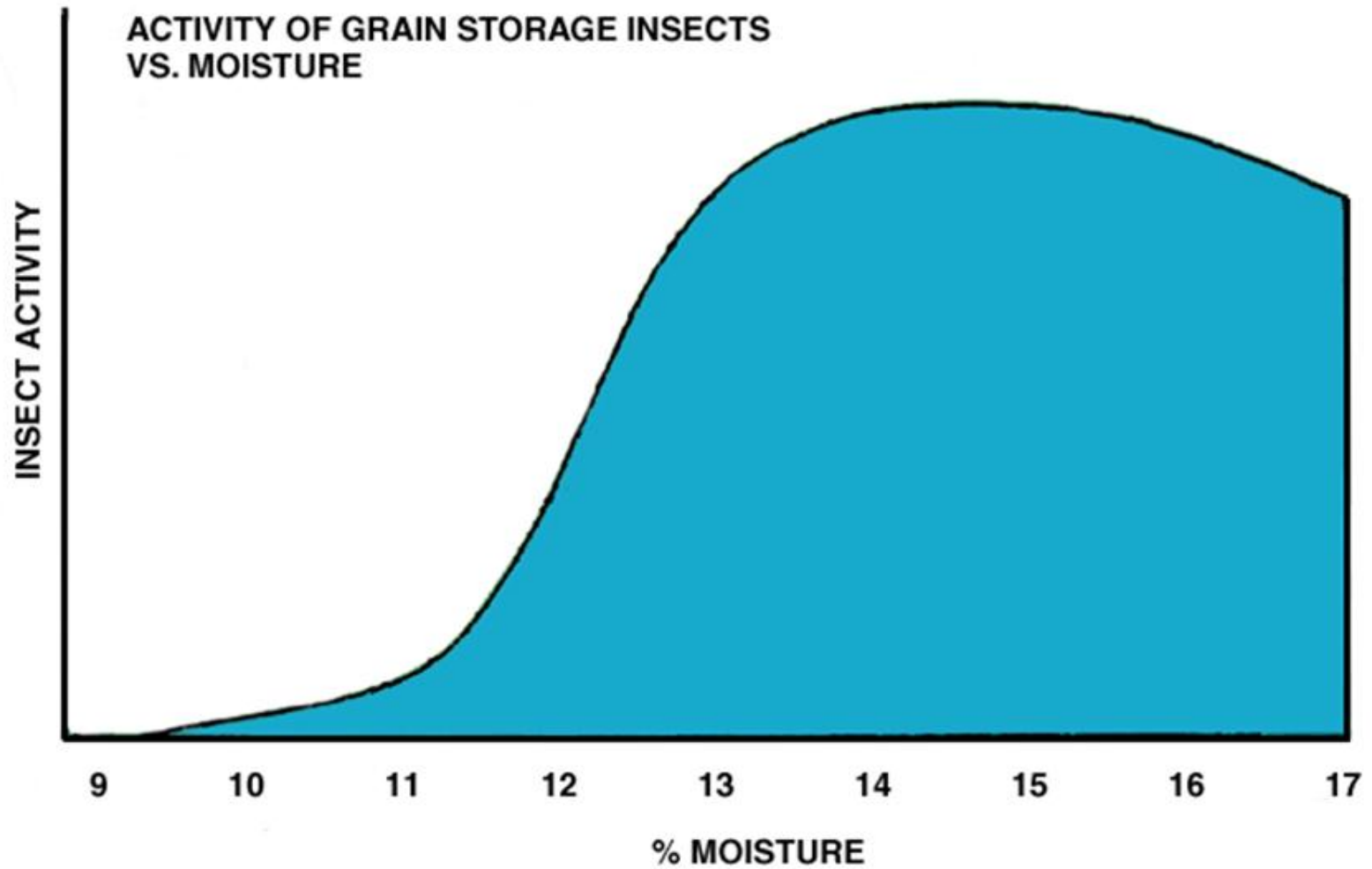
RATE OF GROWTH



STORAGE FUNGI VS, MOISTURE FOR CORN AND WHEAT





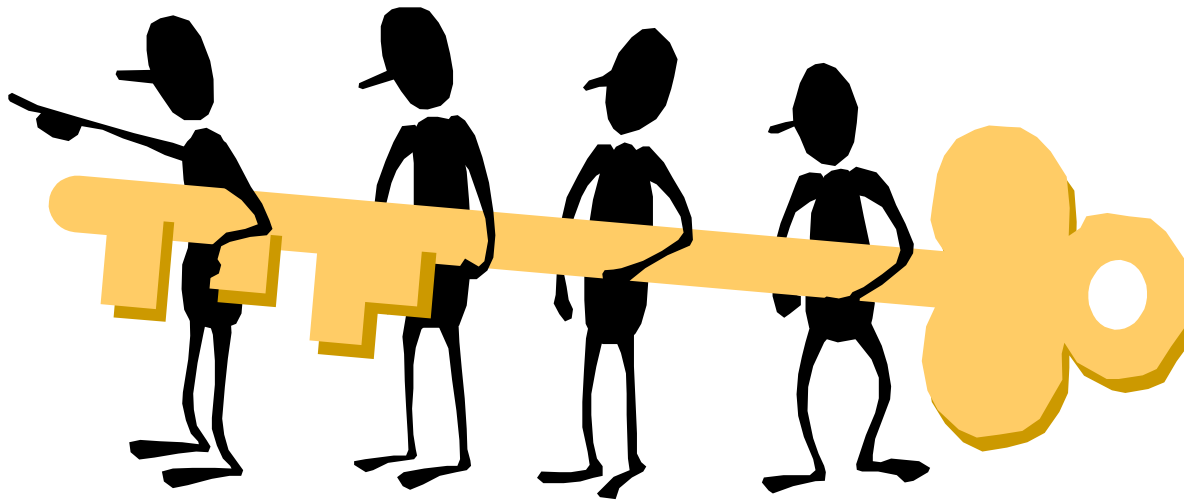


Why is identification important?

- Some are tourists →
- Some are non-important
- Some controls may not work
- Maintain profitability

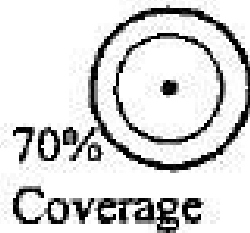


Tool Examples

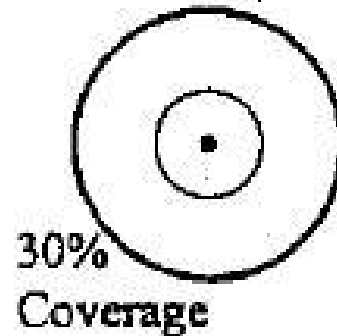


Temperature Cable Installation

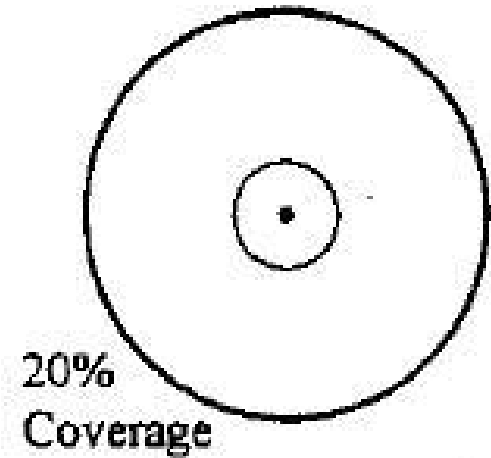
Single Cable



24'

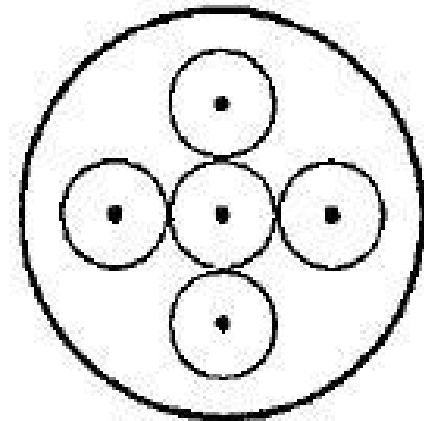
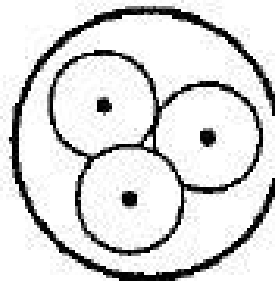


36'



42'

Multi-Cable



Deep Probing

- Lay out a pattern to probe
- Probe as deep as possible
- Probe every 30 days
 - Safe to do so
 - In compliance with confined space entry policy
- Grade samples

CO₂ Monitoring

- Monitor carbon dioxide from fan exhaust and correlate to damage
- Hold monitor 2 – 4 feet from fan exhaust
- Watch for
 - Steadily increasing readings
 - Large jumps CO₂

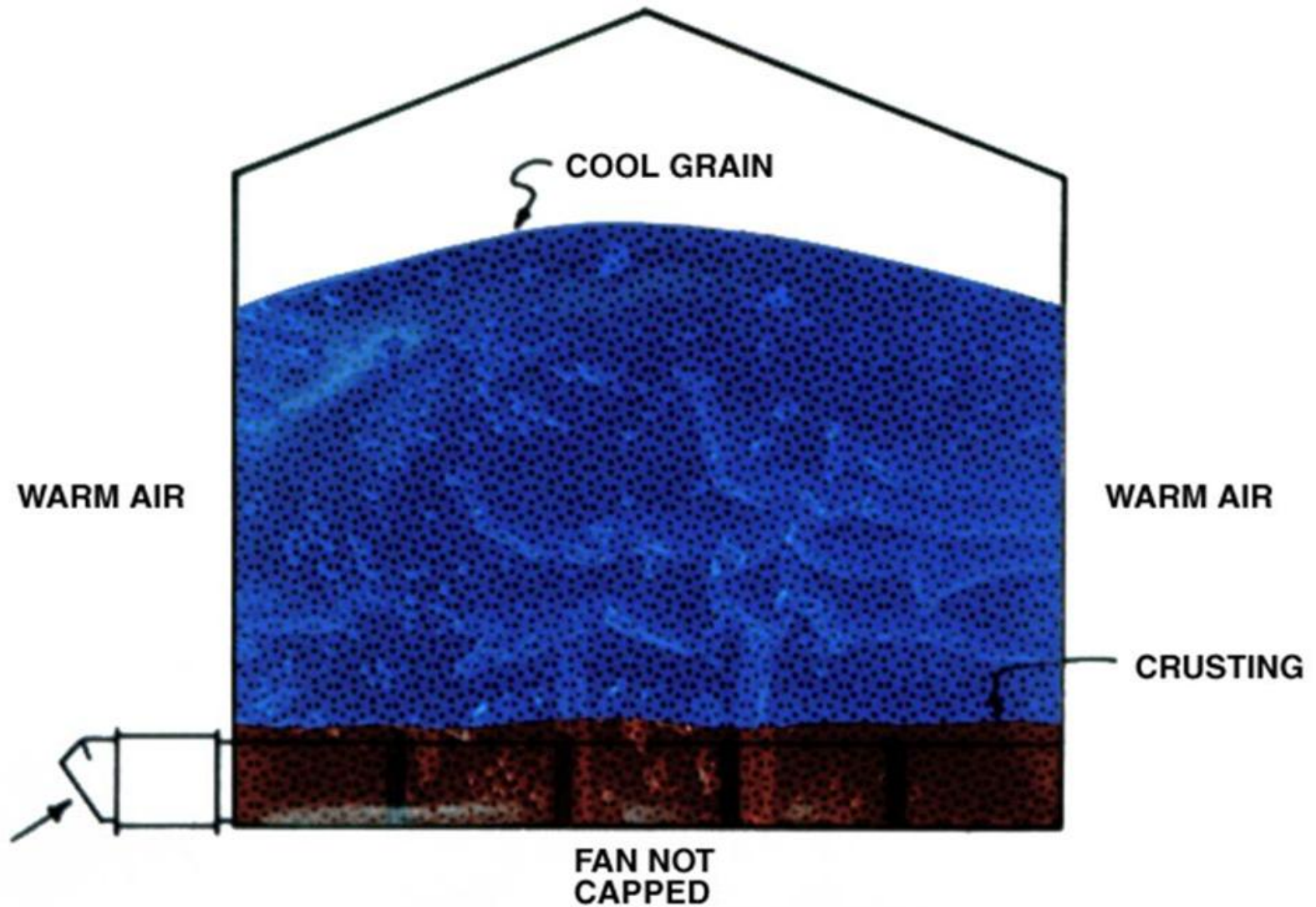


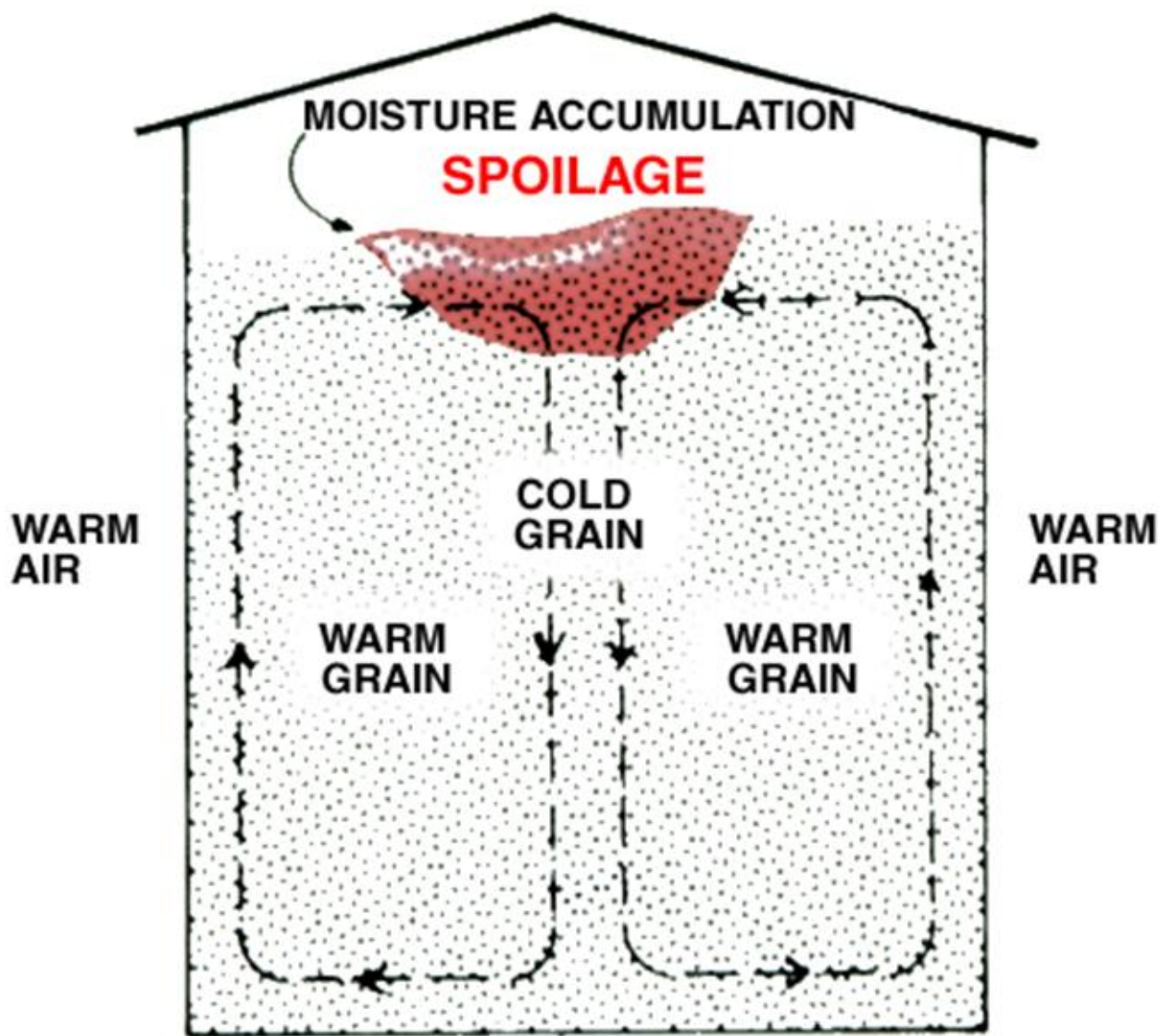
Cooling and Warming

HOW COLD IS TOO COLD?
TO WARM, OR NOT TO WARM?

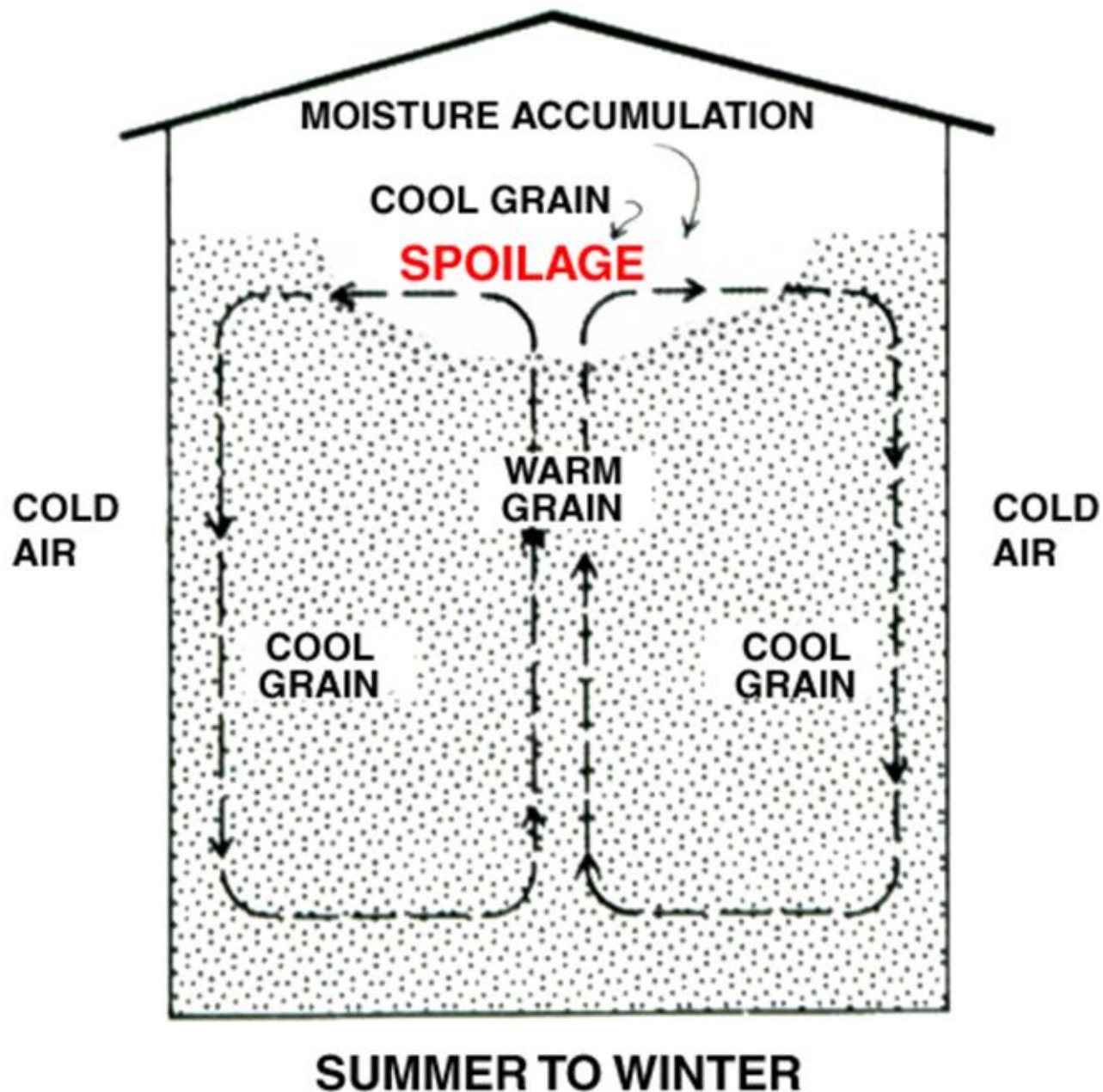
- Cooling grain below 35 - 40°F adds little value
 - Insect activity
 - Mold growth
- Get it cold, keep it cold
- Know your market

Should I cap aeration fans?





WINTER TO SUMMER



SUMMER TO WINTER

Allowable Storage Time for Corn (days)

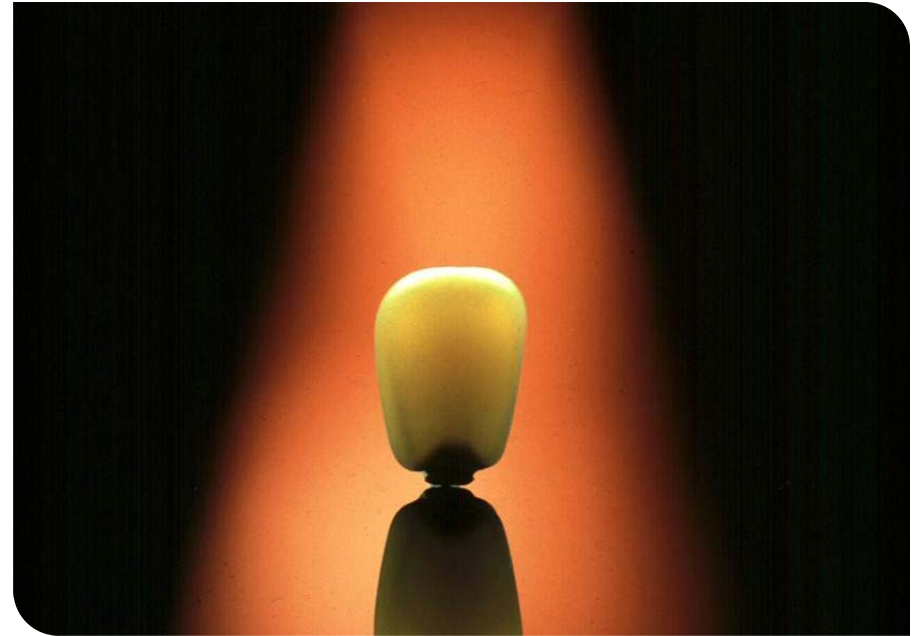
Grain Moisture, %

Temp	15	16	18	20	22	24	26	28	30
35	---	670	265	112	74	49	37	30	25
45	650	385	150	64	42	28	21	17	14
55	360	215	86	36	24	16	12	10	8
60	270	165	65	28	18	12	9	7	6
65	200	125	49	21	14	9	7	5	4
70	152	93	37	16	10	7	5	4	3
80	84	53	17	9	5	4	3	2	2

Allowable Storage Time for Soybean (days)

Temp	<u>14</u>	<u>16</u>	<u>18</u>	<u>20</u>	<u>22</u>
40	230	140	75	40	12
45	175	95	40	19	9
50	134	65	23	12	7
55	100	40	15	9	4
60	76	27	11	7	3
70	41	14	6	3	2
80	25	8	2	1	0

Thank you!!!



Questions??