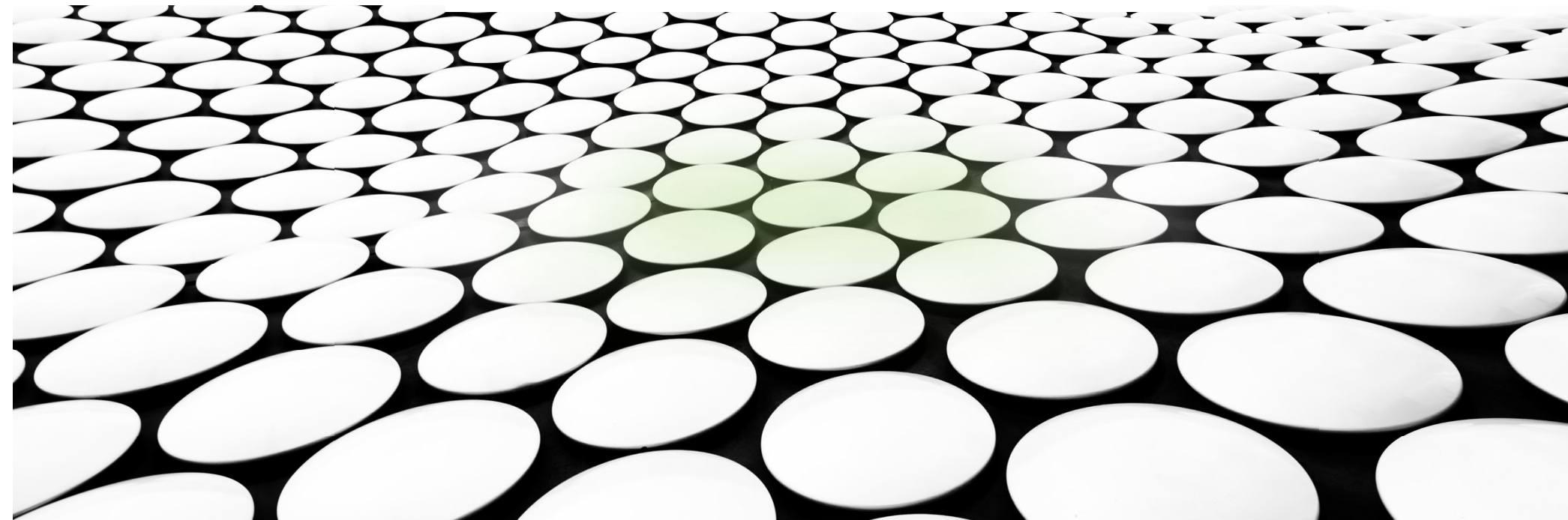




TORTILLA TROUBLESHOOTING

SEPTEMBER 17, 2022





Tortilla Troubleshooting

**SEASONAL EFFECTS ON TORTILLA QUALITY
AND CONSISTENCY**



TROUBLESHOOTING FLOUR TORTILLAS - REVIEW

➤ Main Identifiers of Product Failure

- SIZE
- SHAPE
- COLOR
- TRANSLUCENCY
- ROUGH EDGES
- STICKING
- TOAST POINTS
- ←→
- pH
- MOISTURE
- AW (WATER ACTIVITY)



➤ INFLUENCERS OF SIZE AND SHAPE:

➤ Flour Quality

- Formulation
- Fat to Flour Ratio
- Water Quality

➤ Temperature

- Press Temperature
- Press Pressure
- Shimming

➤ Humidity



FLOUR QUALITY - CONSISTENCY

- Flour is the one ingredient that is naturally never consistent
- Every 'C of A' should be reviewed for changes:
 - Absorption
 - MTI
 - Stability
 - Know and understand the Farinograph Curve

TYPICAL FARINOGRAPH CURVE

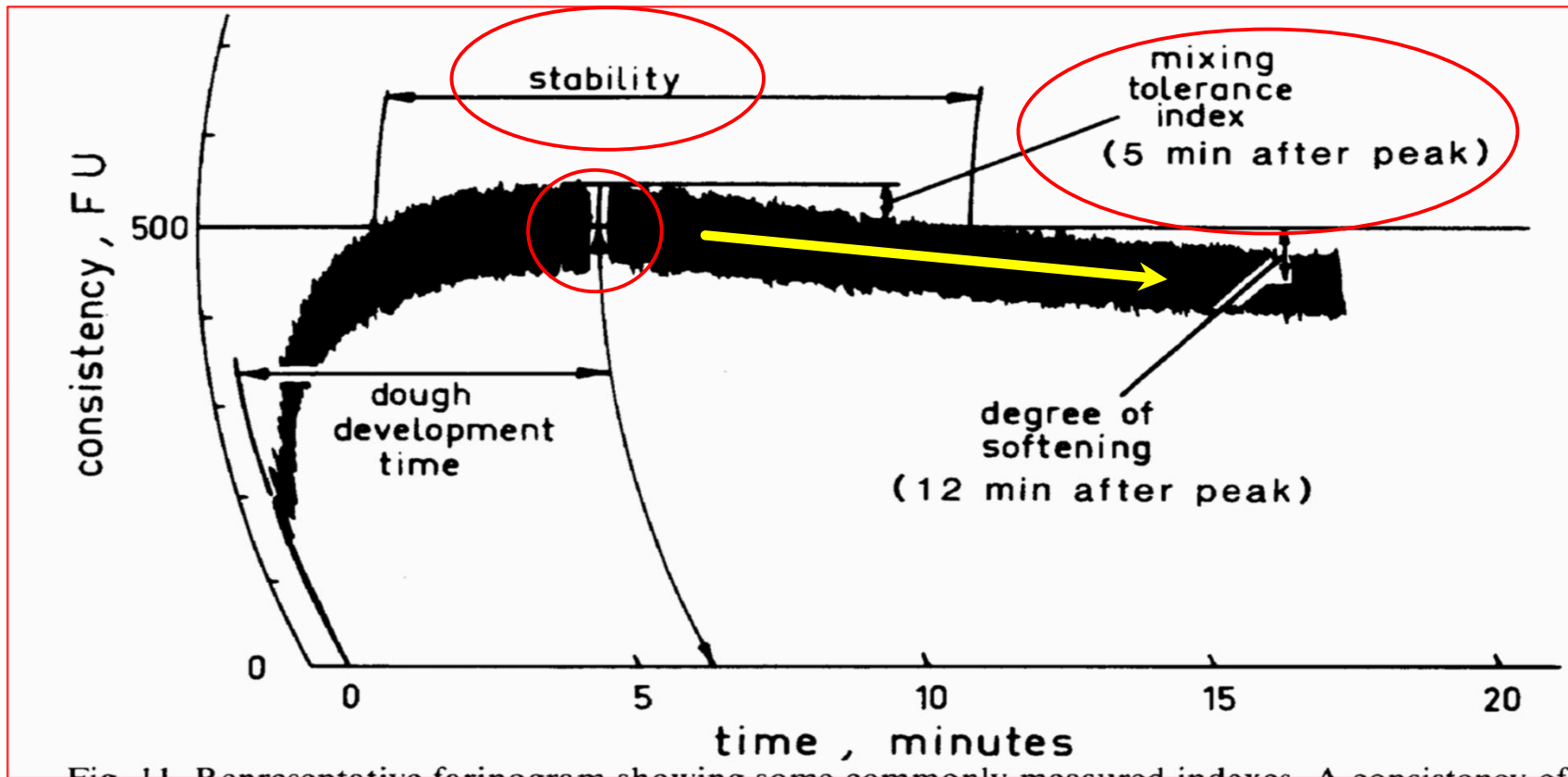
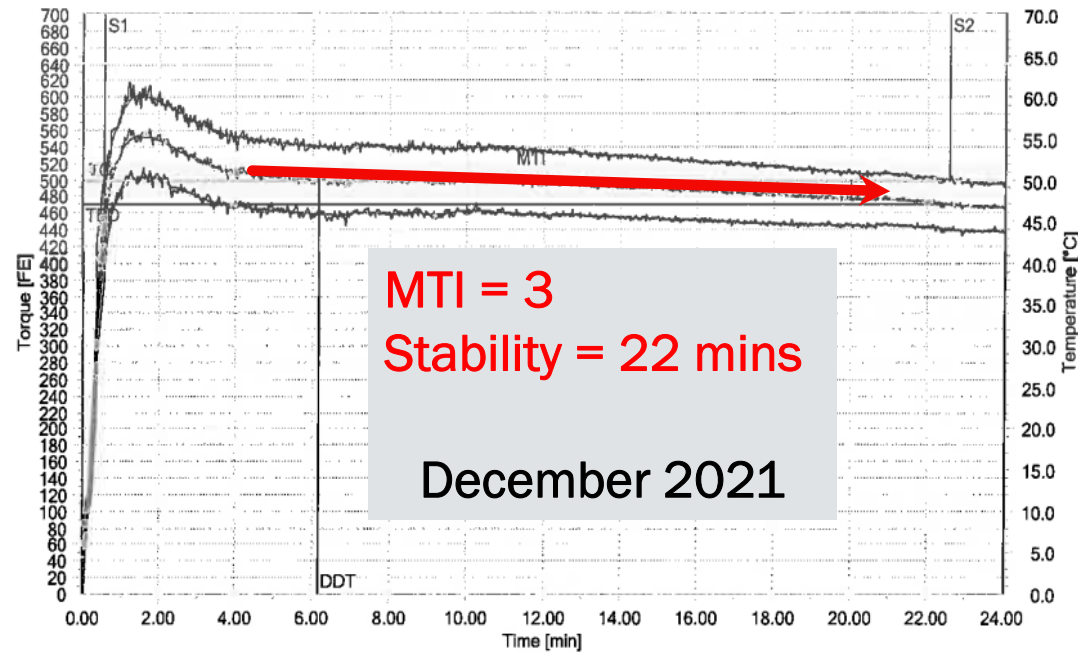
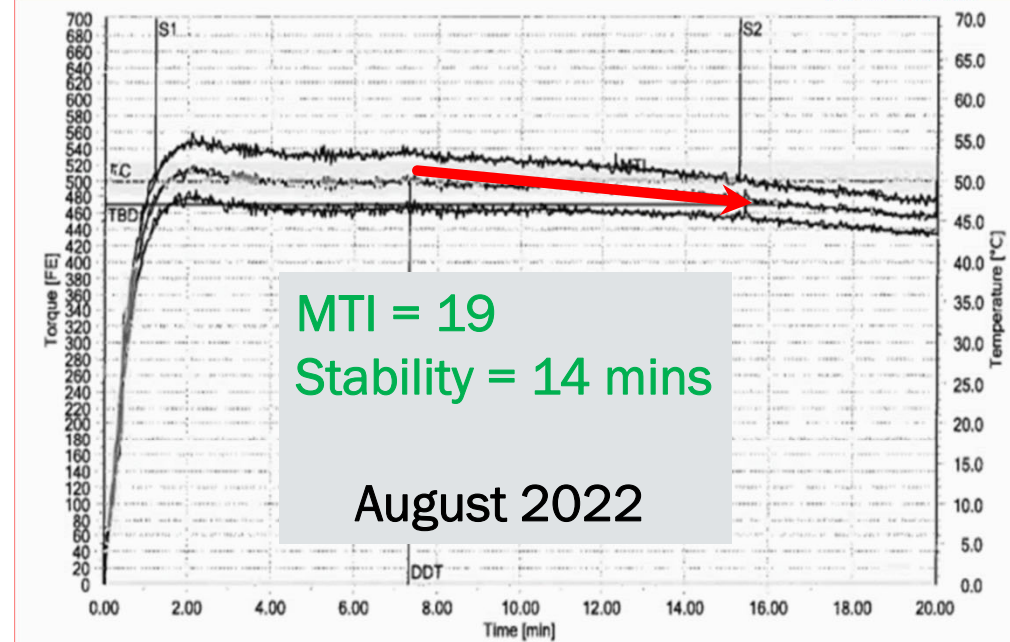


Fig. 11. Representative farinogram showing some commonly measured indexes. A consistency of

FLOUR QUALITY



Evaluation:			
Point	Unit	Value	Description
T	min	29.98	Measuring time
DT	°C	-/-	Dosing temperature
DDT	min	6.17	Development time
C	FE	499	Consistency
WZ	%	54.7	Water added
WAC	%	54.7	Water absorption corr. for default consistency
WAM	%	54.4	Water absorption corr. for default moisture content
S	min	22.01	Stability
MTI	FE	3	Tolerance index (MTI)
FCN	mm	226	Panograph quality number
D	FE	22	Drop-off
TBD	min	22.59	Time to breakdown



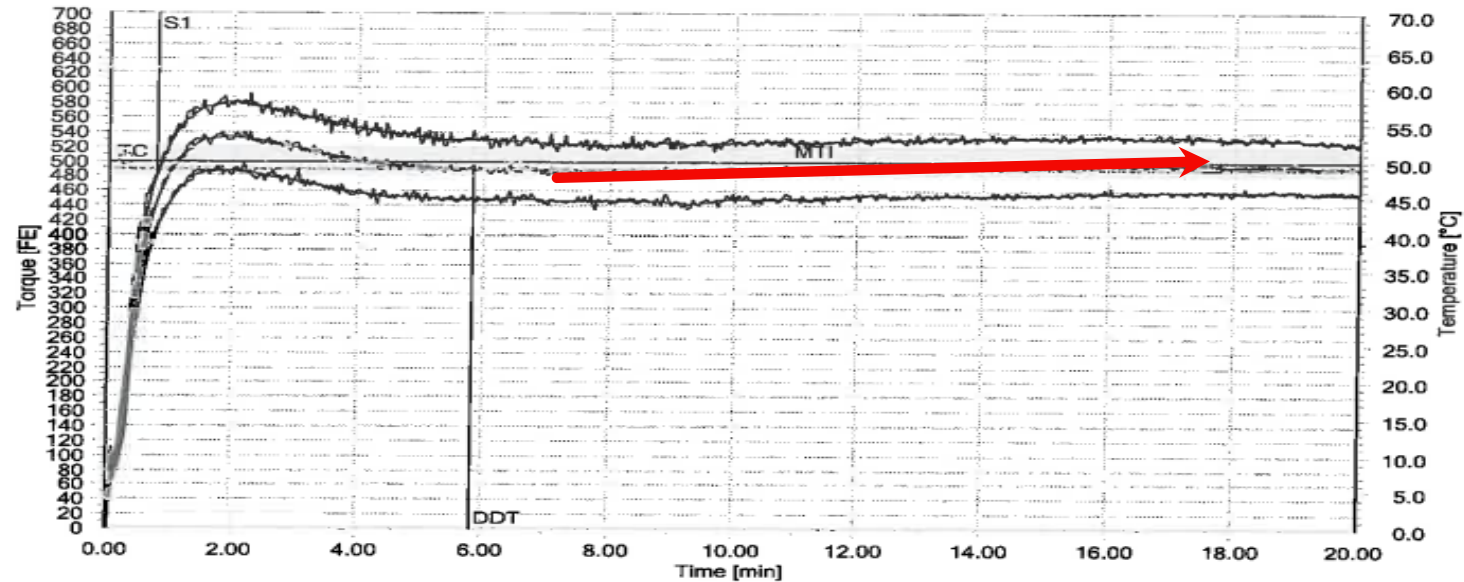
Evaluation:			
Point	Unit	Value	Description
T	min	22.87	Measuring time
DT	°C	-/-	Dosing temperature
DDT	min	7.32	Development time
C	FE	500	Consistency
WZ	%	60.0	Water added
WAC	%	60.0	Water absorption corr. for default consistency
WAM	%	59.4	Water absorption corr. for default moisture content
S	min	14.06	Stability
MTI	FE	19	Tolerance index (MTI)
FCN	mm	165	Panograph quality number
D	FE	46	Drop-off
TBD	min	16.51	Time to breakdown



EFFECT OF FLOUR QUALITY FOR CROP YEAR AUGUST 2020 INTO 2021



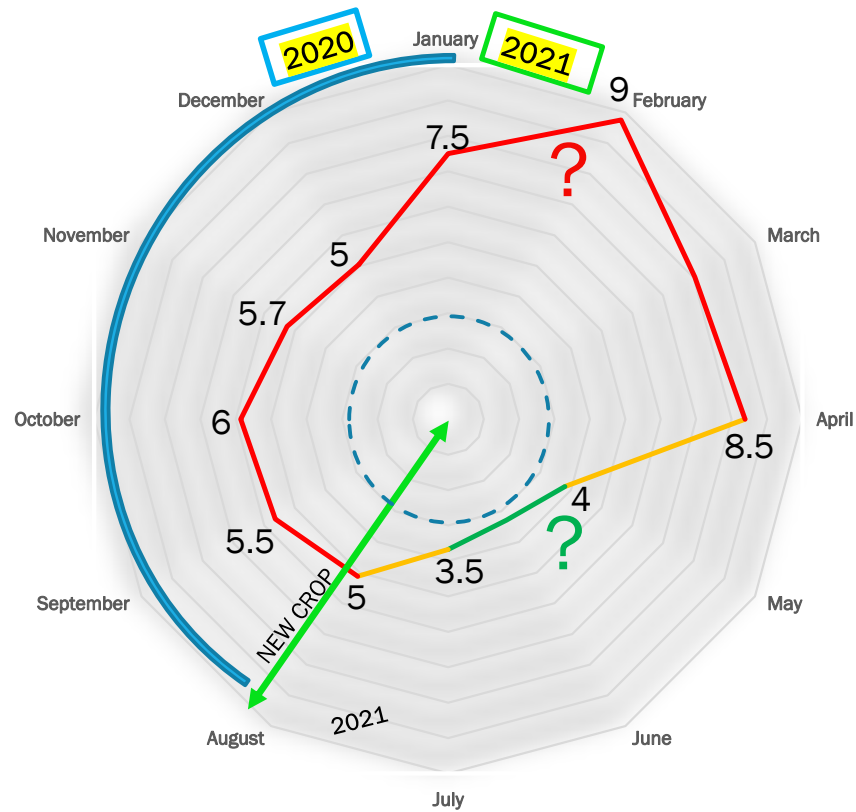
GOING BACK TO - NEW CROP AUGUST 2020



Point	Unit	Value	Description
T	min	26.33	Measuring time
DT	°C	-/-	Dosing temperature
DDT	min	5.86	Development time
C	FE	489	Consistency
WZ	%	58.0	Water added
WAC	%	57.7	Water absorption corr. for default consistency
WAM	%	57.2	Water absorption corr. for default moisture content
S	min	-/- <i>Plot 15</i>	Stability
MTI	FE	2	Tolerance index (MTI)
FQN	mm	-/-	Farnograph quality number
D	FE	1	Drop-off
TBD	min	-/-	Time to breakdown



Monthly % Scrap Levels 2020 into 2021





2020 TO 2021 MAJOR SCRAP ISSUES CAUSED BY STRONG FLOUR

- Size
 - Accuview reject
- Shape
 - Accuview reject
- Translucency
 - QA reject
- Edges – Dents - Holes
 - Accuview

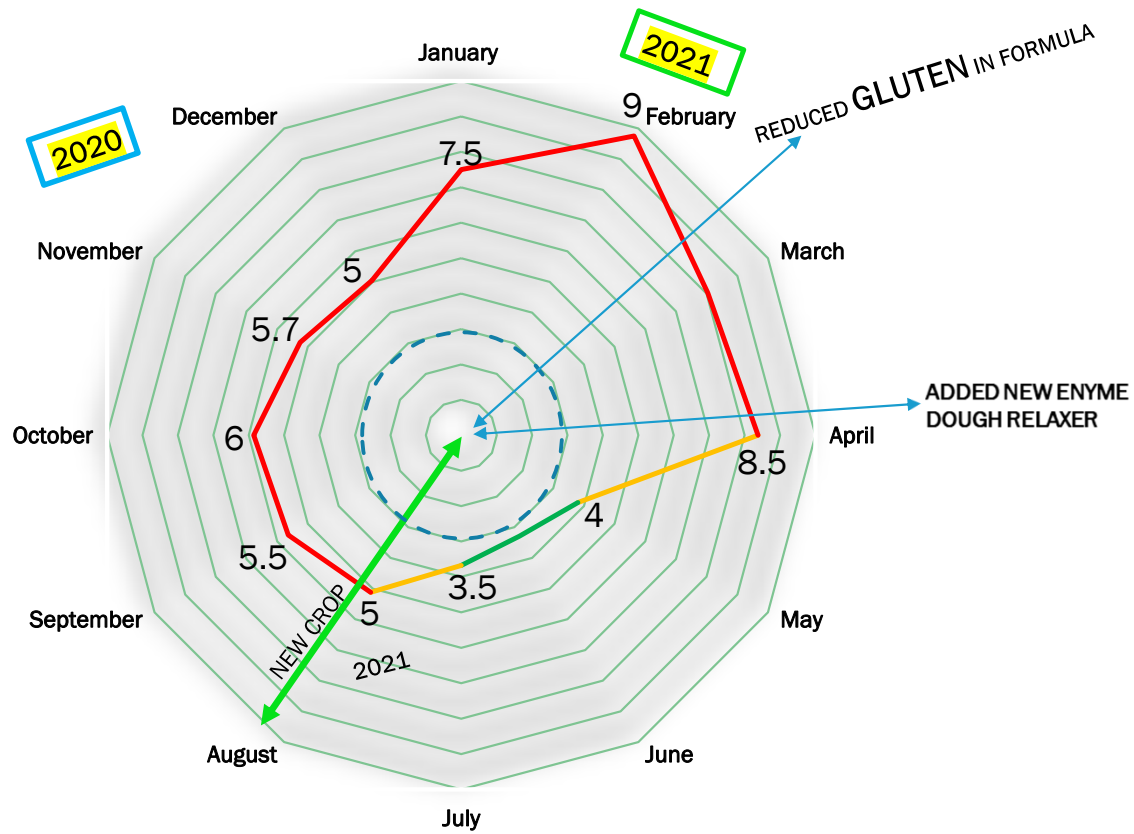


SOLUTIONS FOR STRONG FLOUR

- Reduce gluten if present in the formula
- Increase reducing agents
 - * Sodium metabisulfite
 - * L-Cysteine
 - Inactive yeast
- * Increase mix time
- * Increase dough temperature
- Add cereal-based enzymes



Monthly % Scrap Levels 2020 into 2021





AVERAGE % WASTE PER MONTH OVER THE PAST 6 YEARS



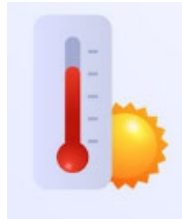


OTHER FACTORS AFFECTING SCRAP %



**SEASONAL EFFECTS ON TOTILLA QUALITY AND
CONSISTENCY**

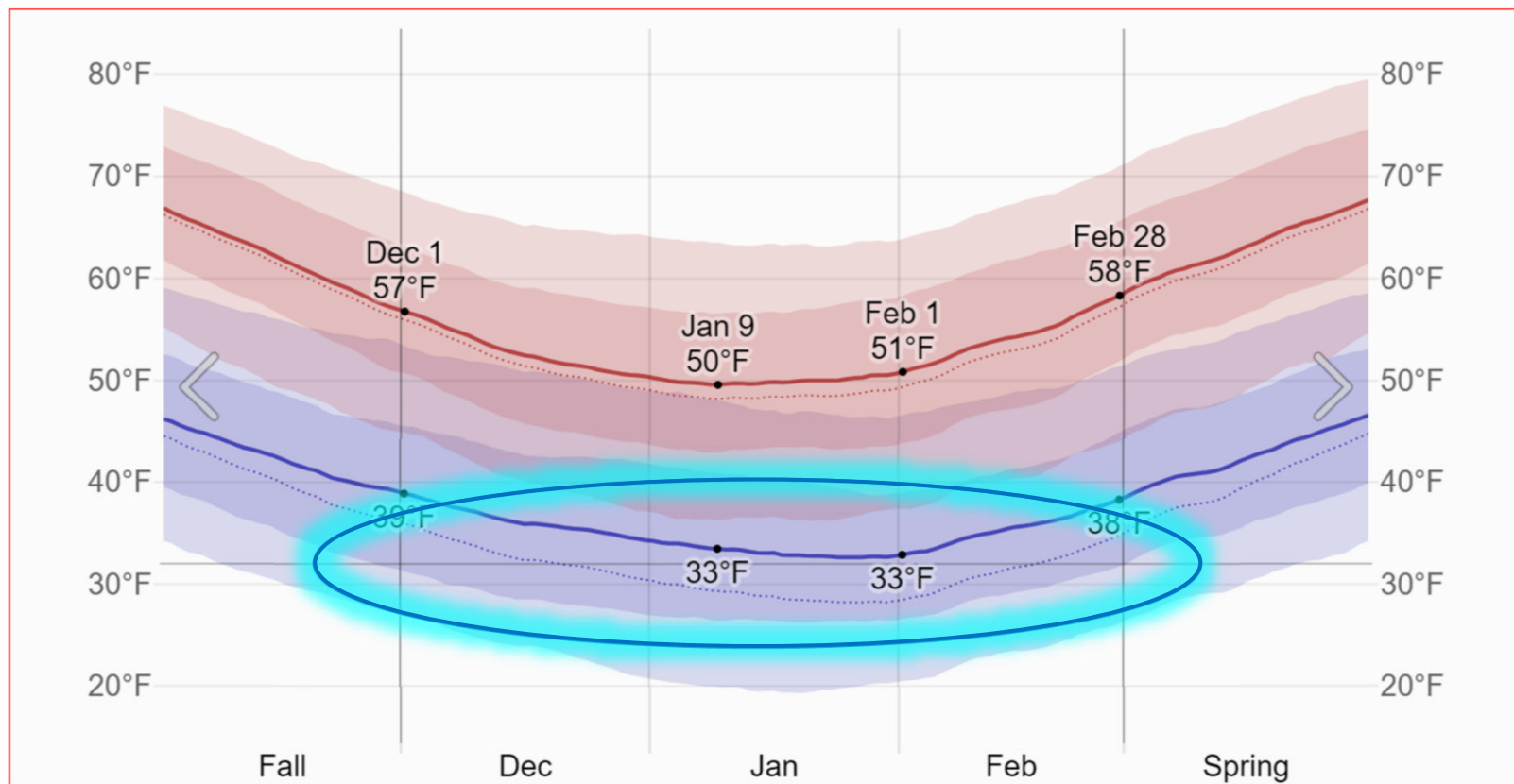
WEATHER EFFECT ON SCRAP





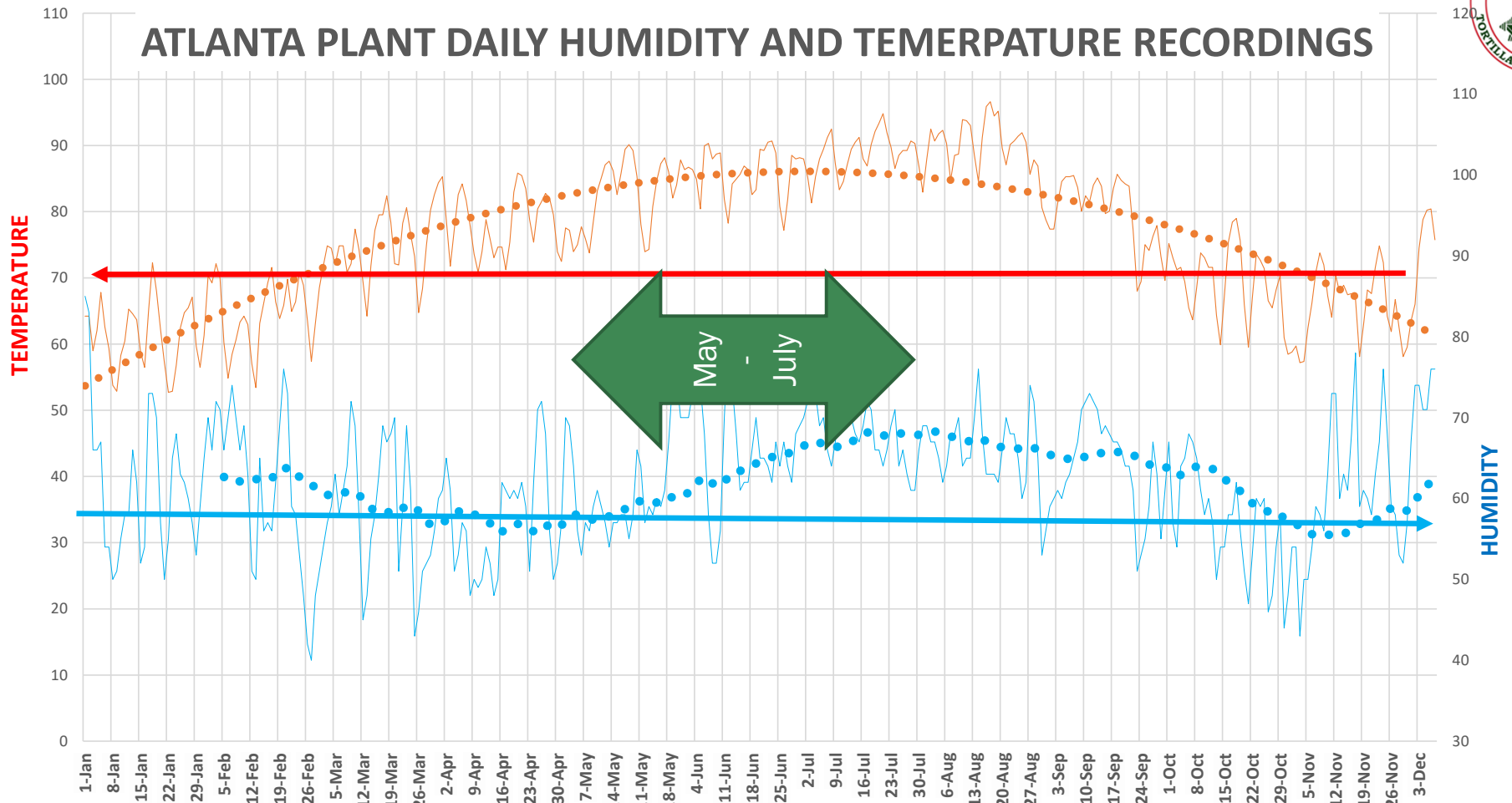


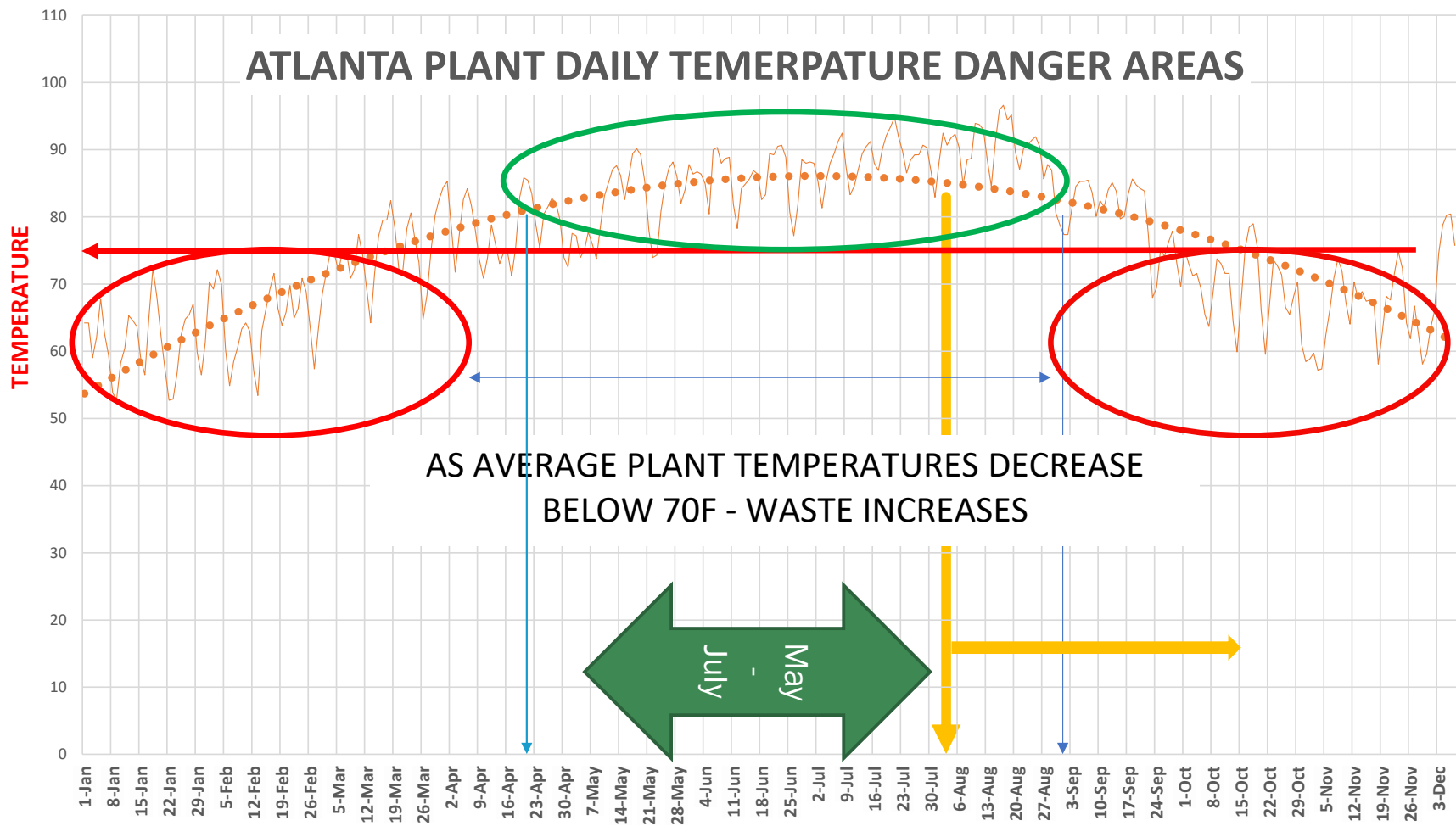
SHIPPING AND STORAGE TEMPERATURES AT FLOUR MILL





ATLANTA PLANT DAILY HUMIDITY AND TEMPERATURE RECORDINGS

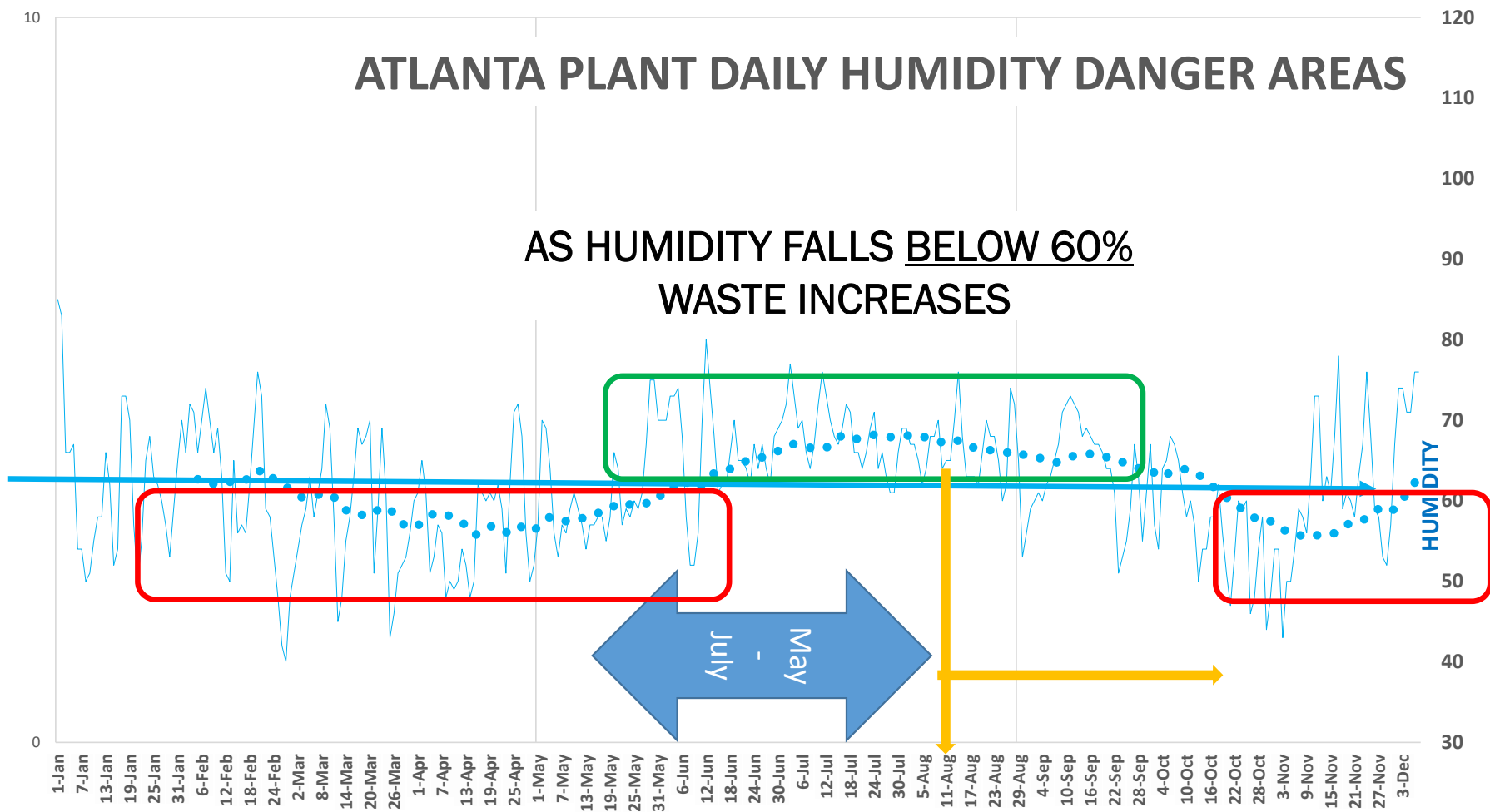






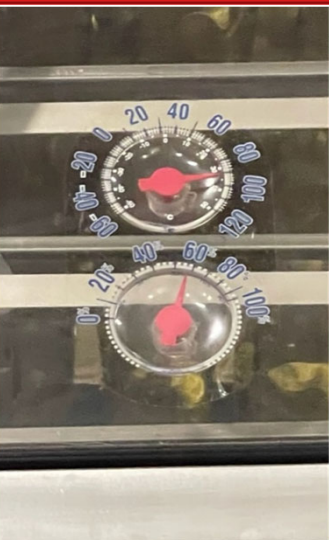
ATLANTA PLANT DAILY HUMIDITY DANGER AREAS

AS HUMIDITY FALLS BELOW 60%
WASTE INCREASES

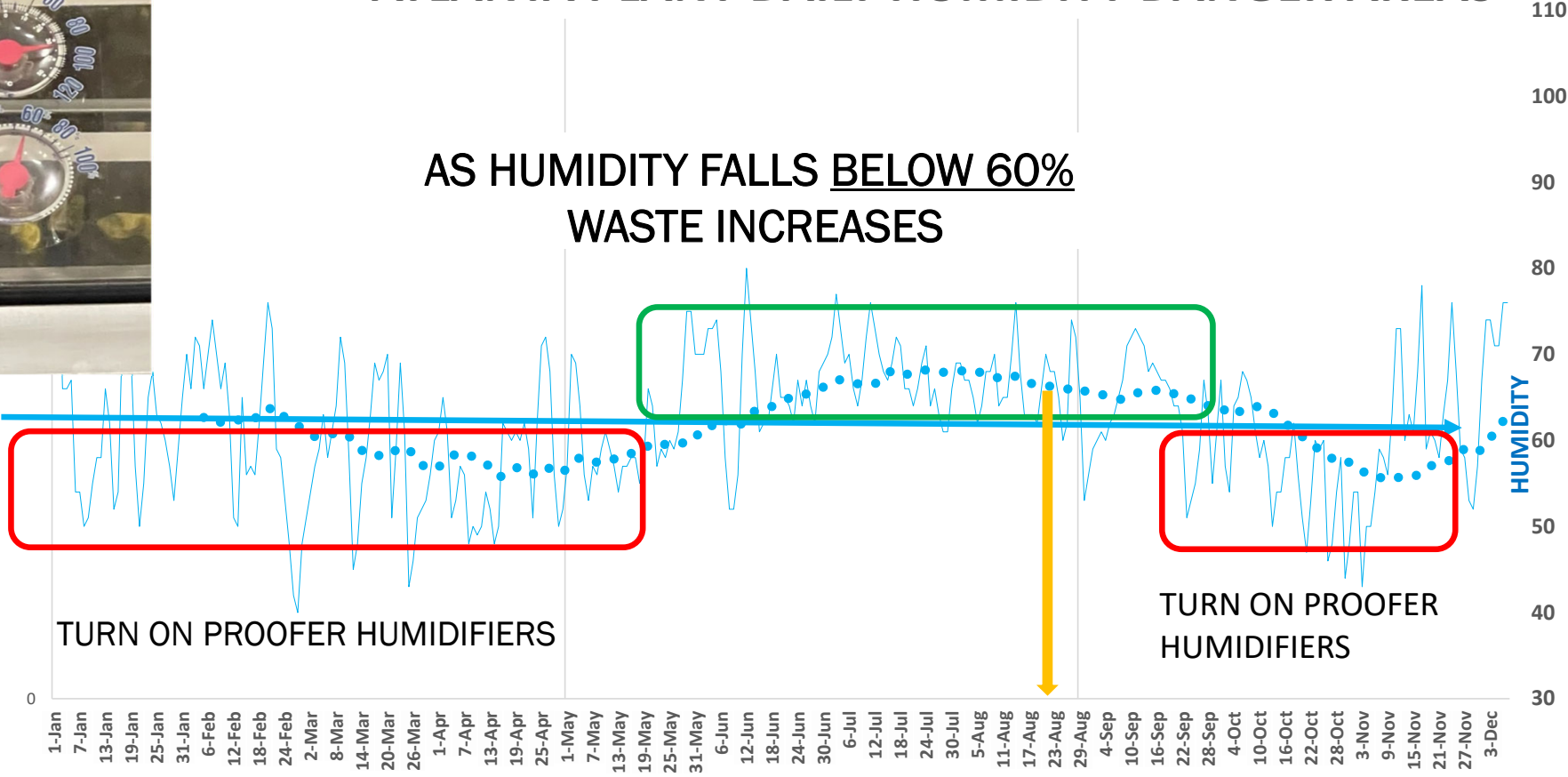




ATLANTA PLANT DAILY HUMIDITY DANGER AREAS



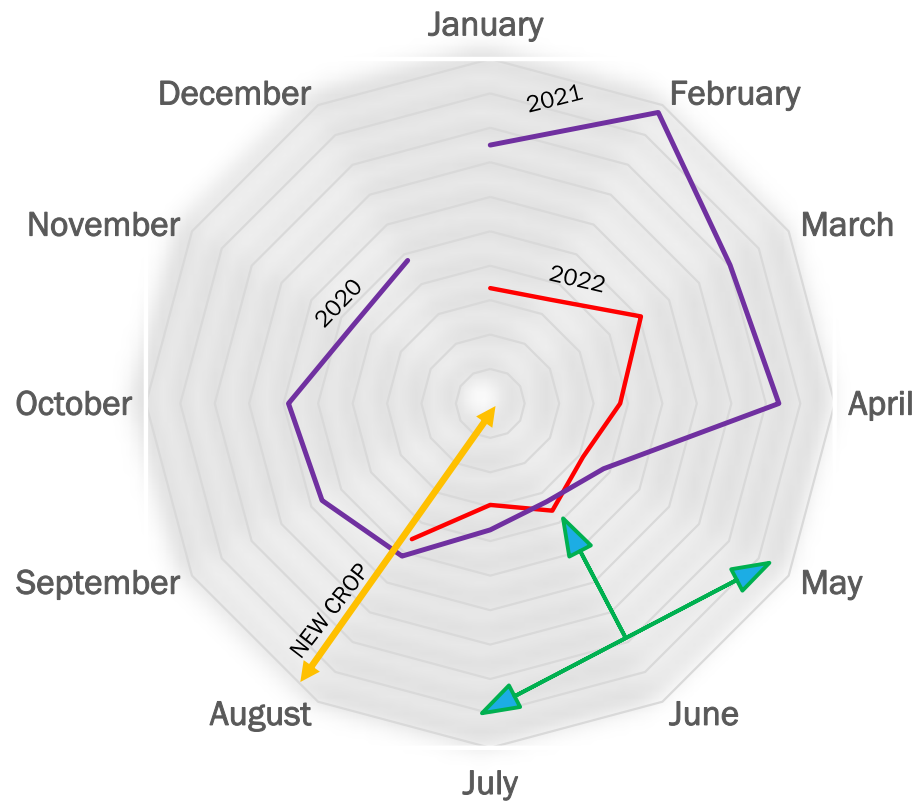
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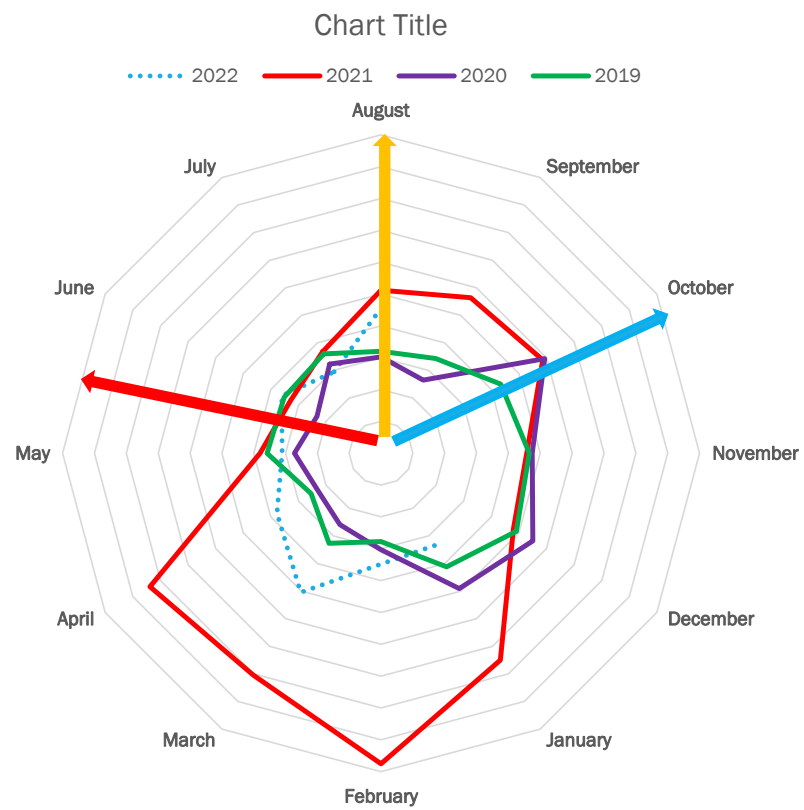


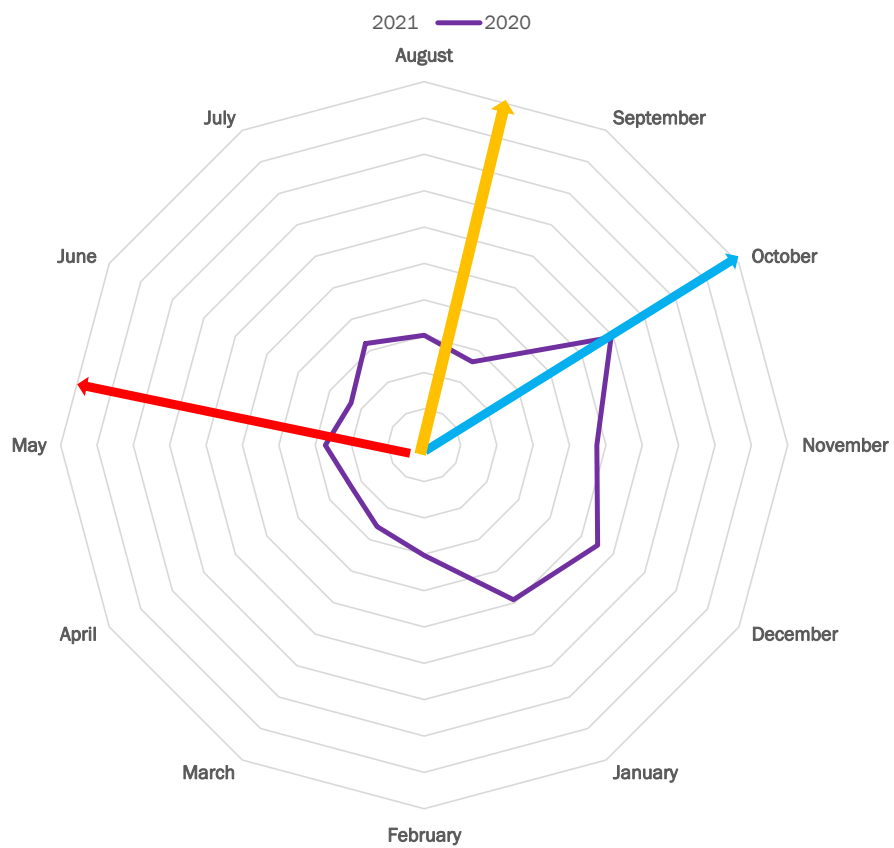
TURN ON PROOFER HUMIDIFIERS

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WASTE NEW CROP 2020 VS 2022 YTD

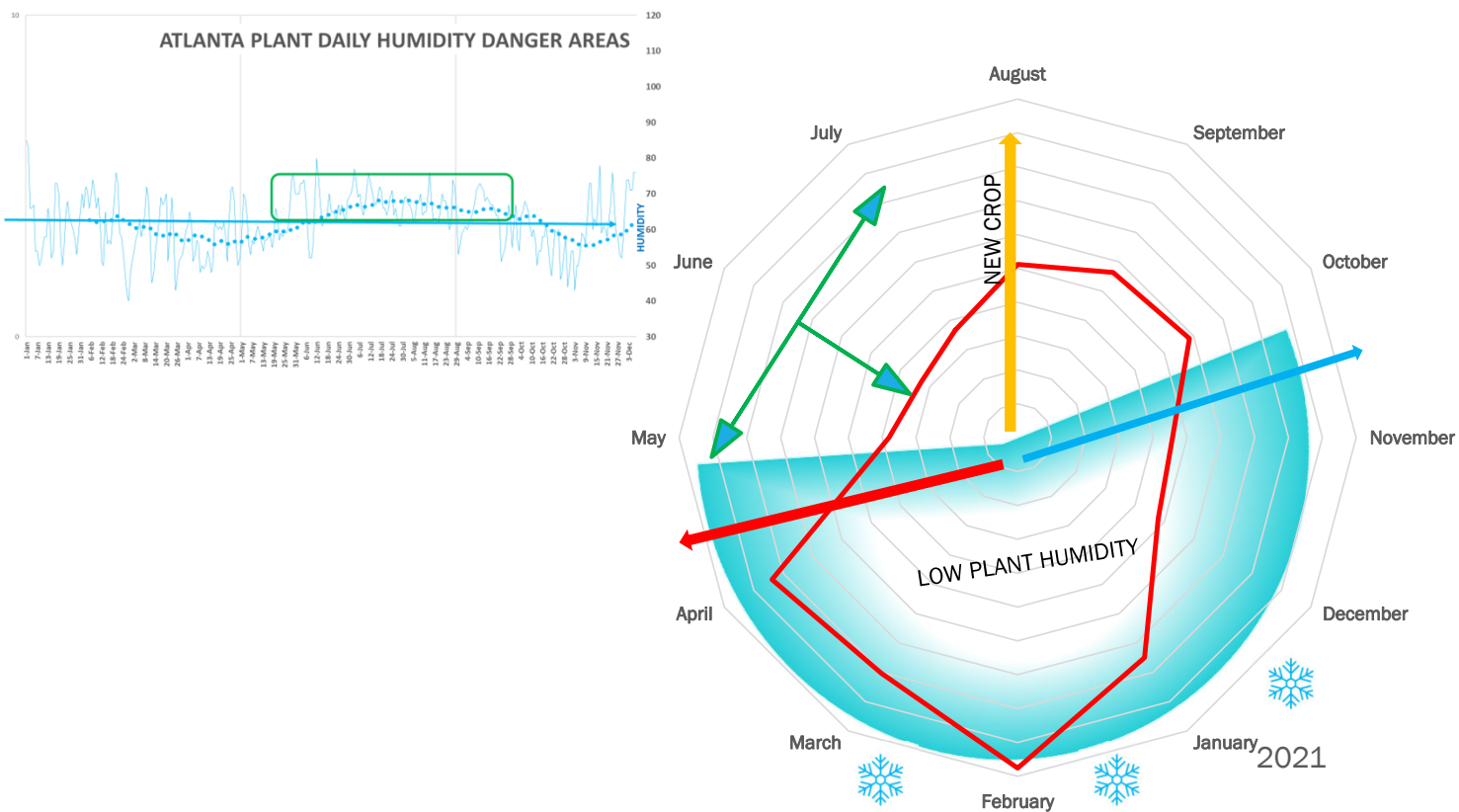




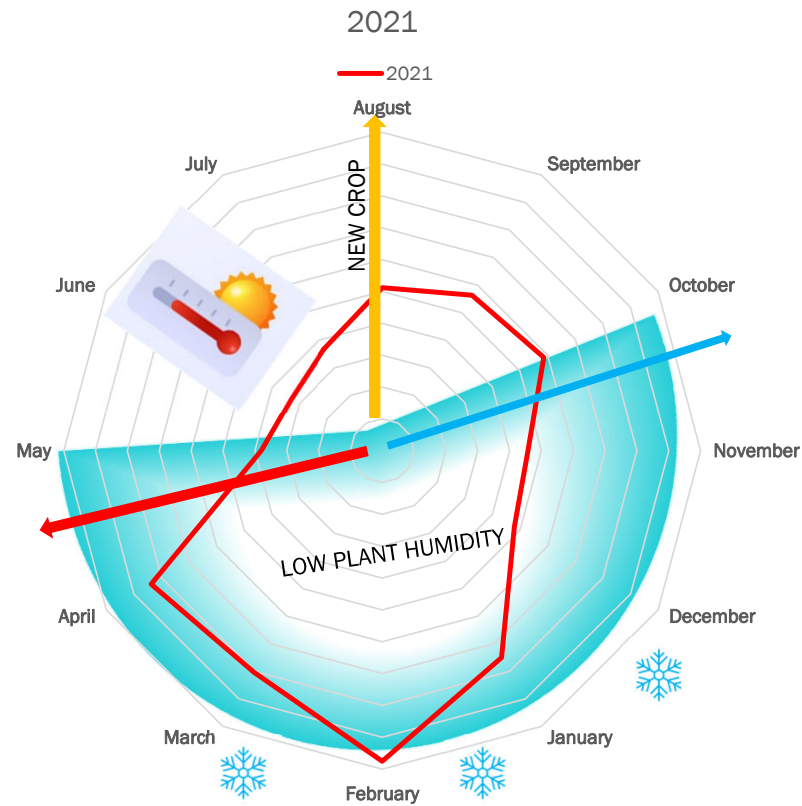
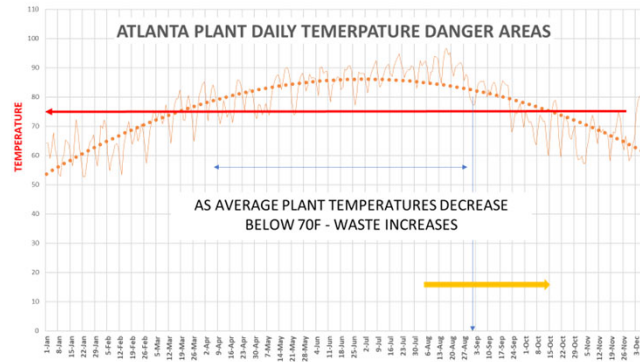


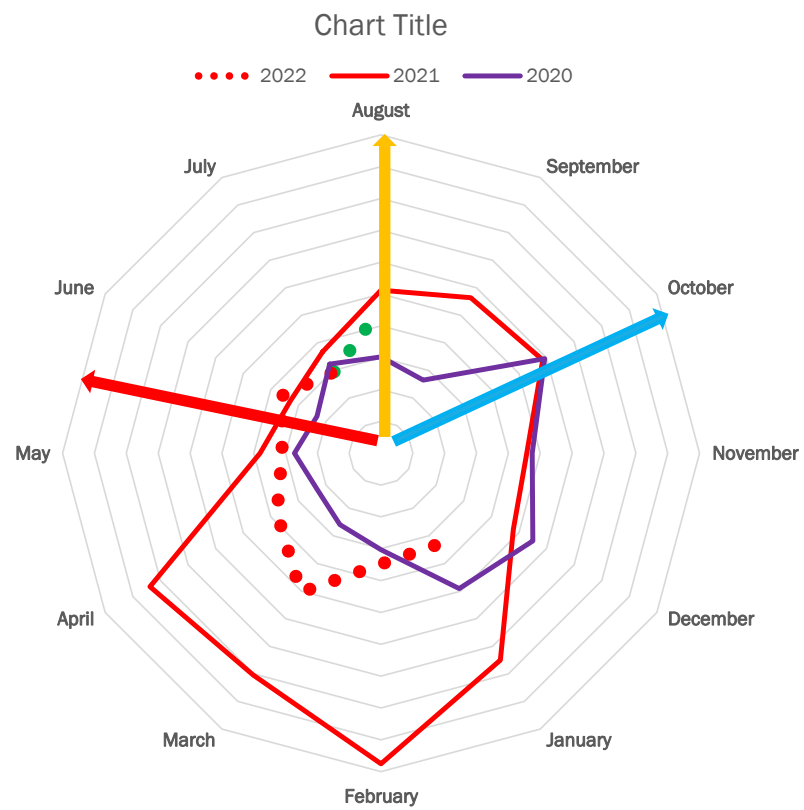


COMPOUNDING EFFECTS OF TEMPERATURE, LOW HUMIDITY AND STRONG FLOUR IN 2020 -2021



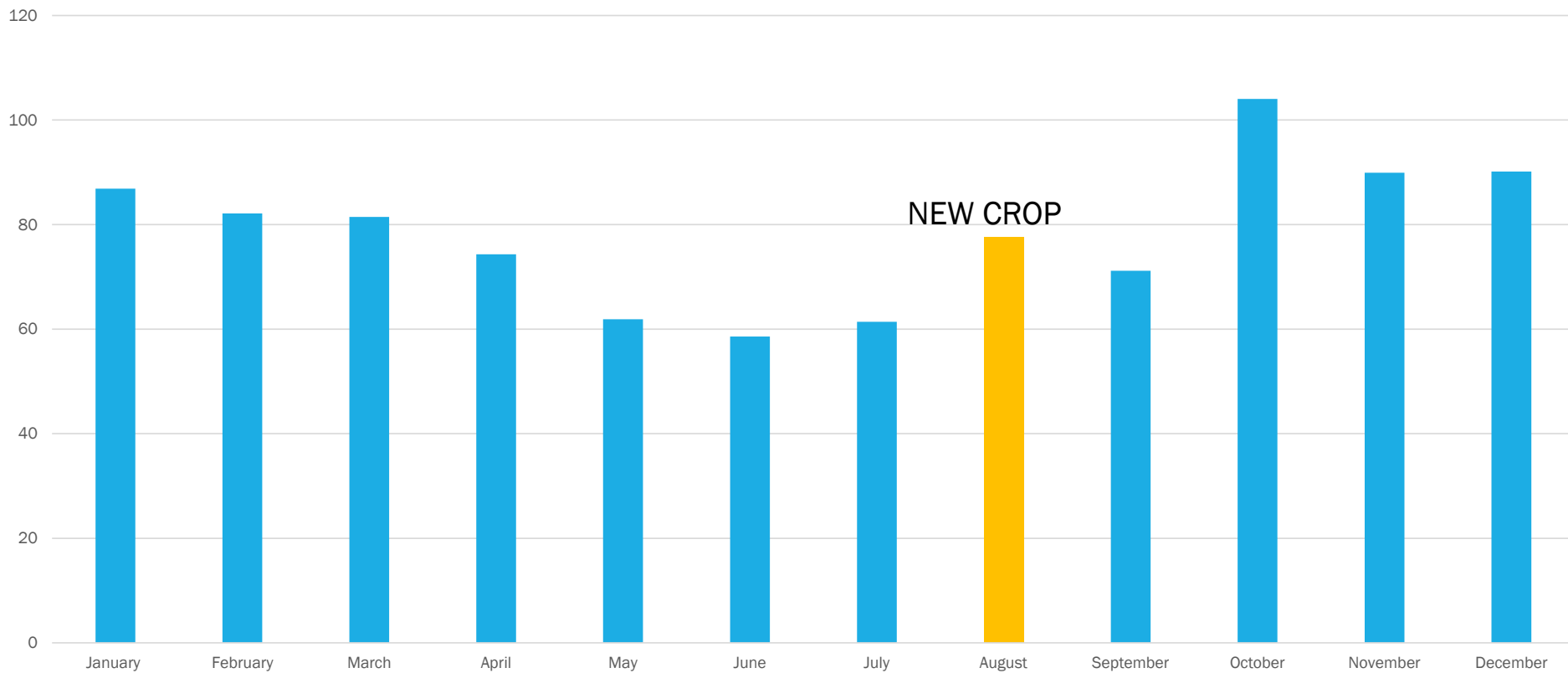
COMPOUNDING EFFECTS OF TEMPERATURE, LOW HUMIDITY AND STRONG FLOUR





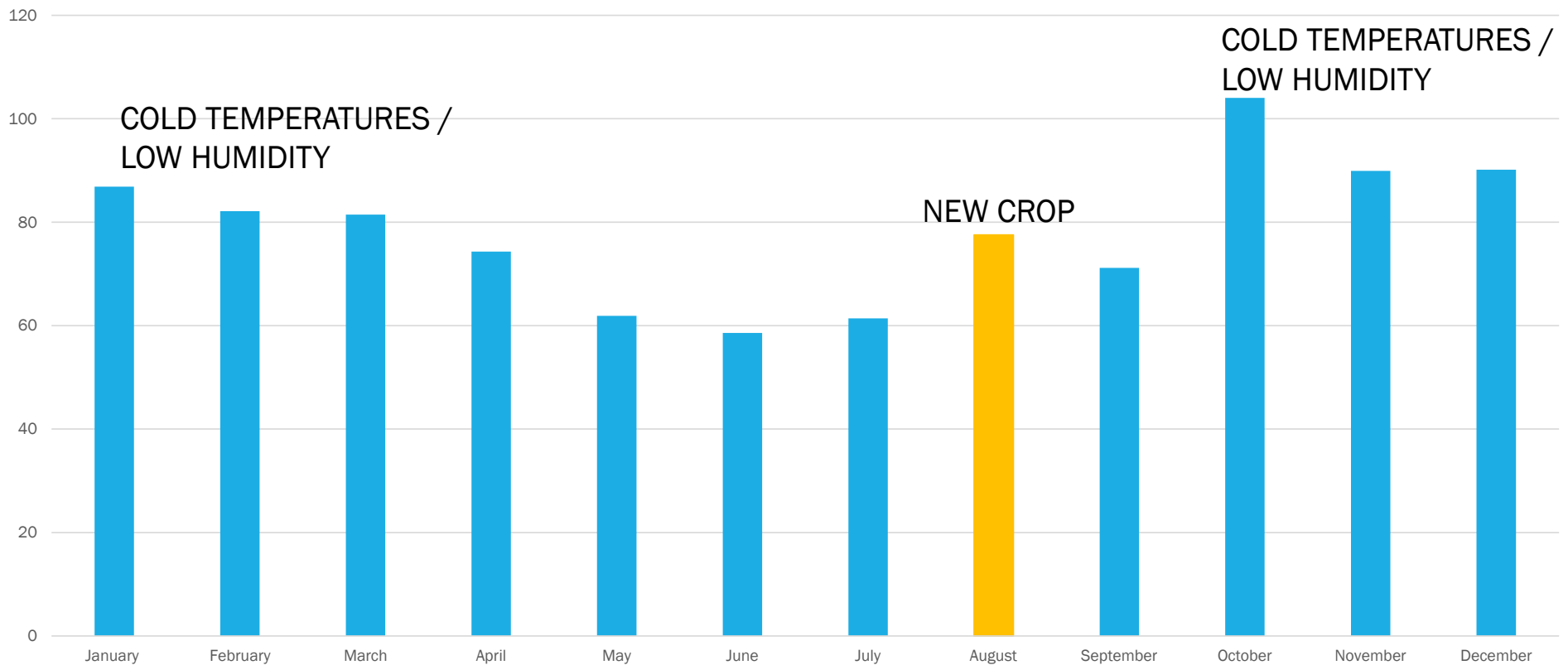


AVERAGE WASTE PER MONTH OVER THE PAST 6 YEARS



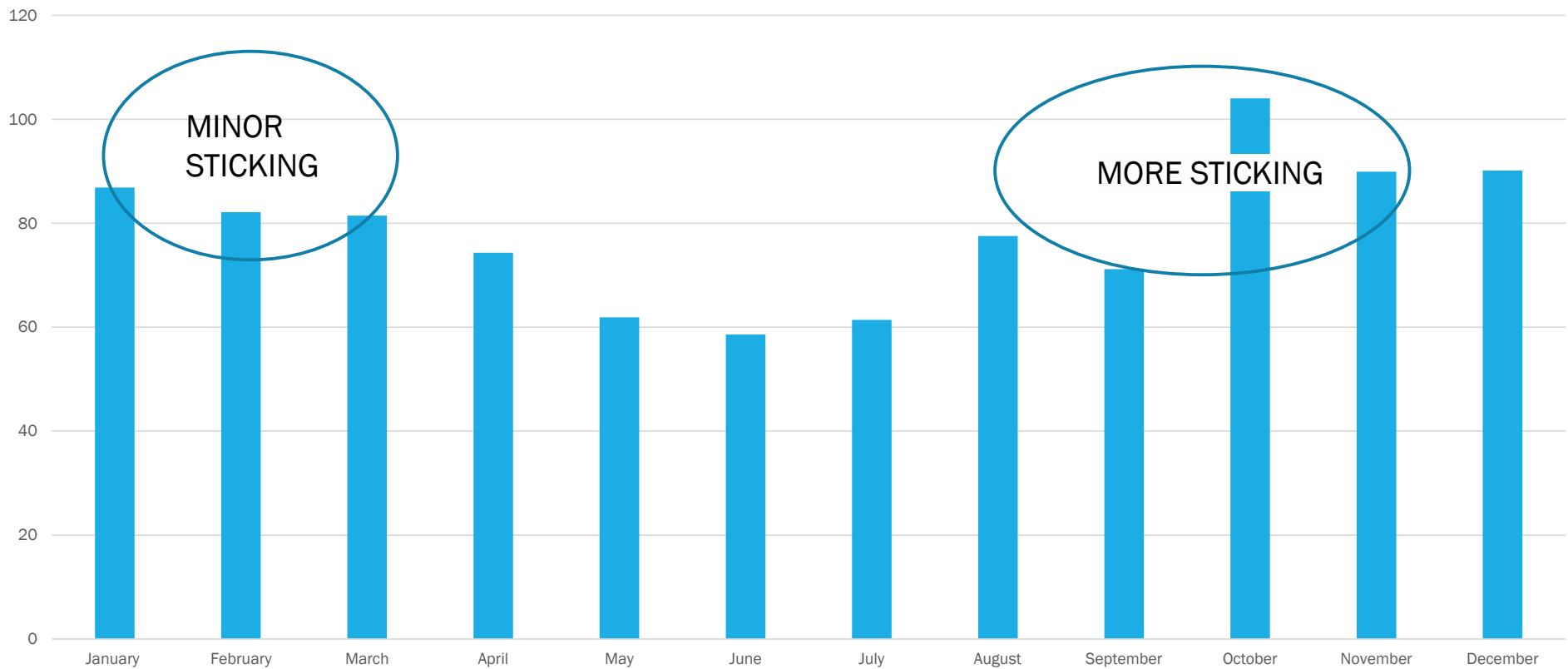


AVERAGE WASTE PER MONTH OVER THE PAST 6 YEARS





HISTORICAL SEASONALITY OF STICKING





➤ Main Identifiers of Product Failure

- SIZE
- SHAPE
- COLOR
- TRANSLUCENCY
- ROUGH EDGES
- STICKING
- TOAST POINTS
- pH
- MOISTURE
- AW (WATER ACTIVITY)

➤ Main Causes of Product Failure

- FLOUR QUALITY
 - NEW CROP
 - NOT AWARE OF FLOUR CHANGES
- ENVIRONMENTAL TEMPERATURE
 - FLOUR TEMPERATURE
- ENVIRONMENTAL HUMIDITY
 - CONDITION OF DOUGH BEFORE PRESSING



CONCLUSIONS –COMPOUNDING ISSUES

- August is always the start of the NEW YEAR
- Know your new crop flour before it is received at your facility
- Be aware of temperature and humidity – REGIONAL
- Flour always performs worse when delivered < 70F
 - Even factoring same final dough temperatures
- Make sure Proof Box HUMIDITY = / > 55% but < 70%
 - Wet Proof Boxes leads to sticking in the proof cups, drop tubes and indexers – dough too sticky
 - Dry Proof Box leads to skinning of the dough ball making it harder to press.