

Planning and Managing an Efficient Lab at a large scale

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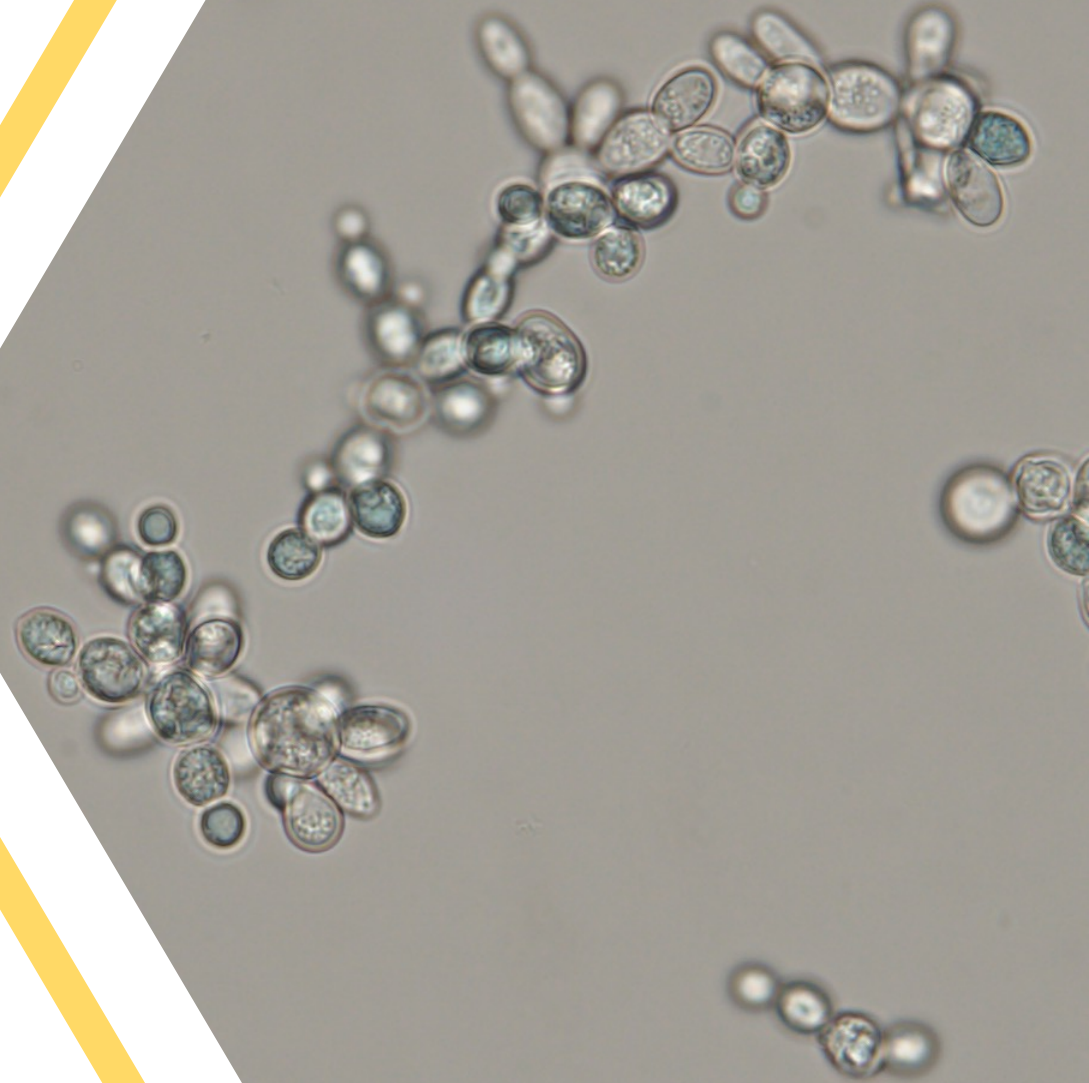
Quality Manager

Firestone Walker Brewing Company



BREWING SUMMIT 2022

Providence, Rhode Island | August 14-16

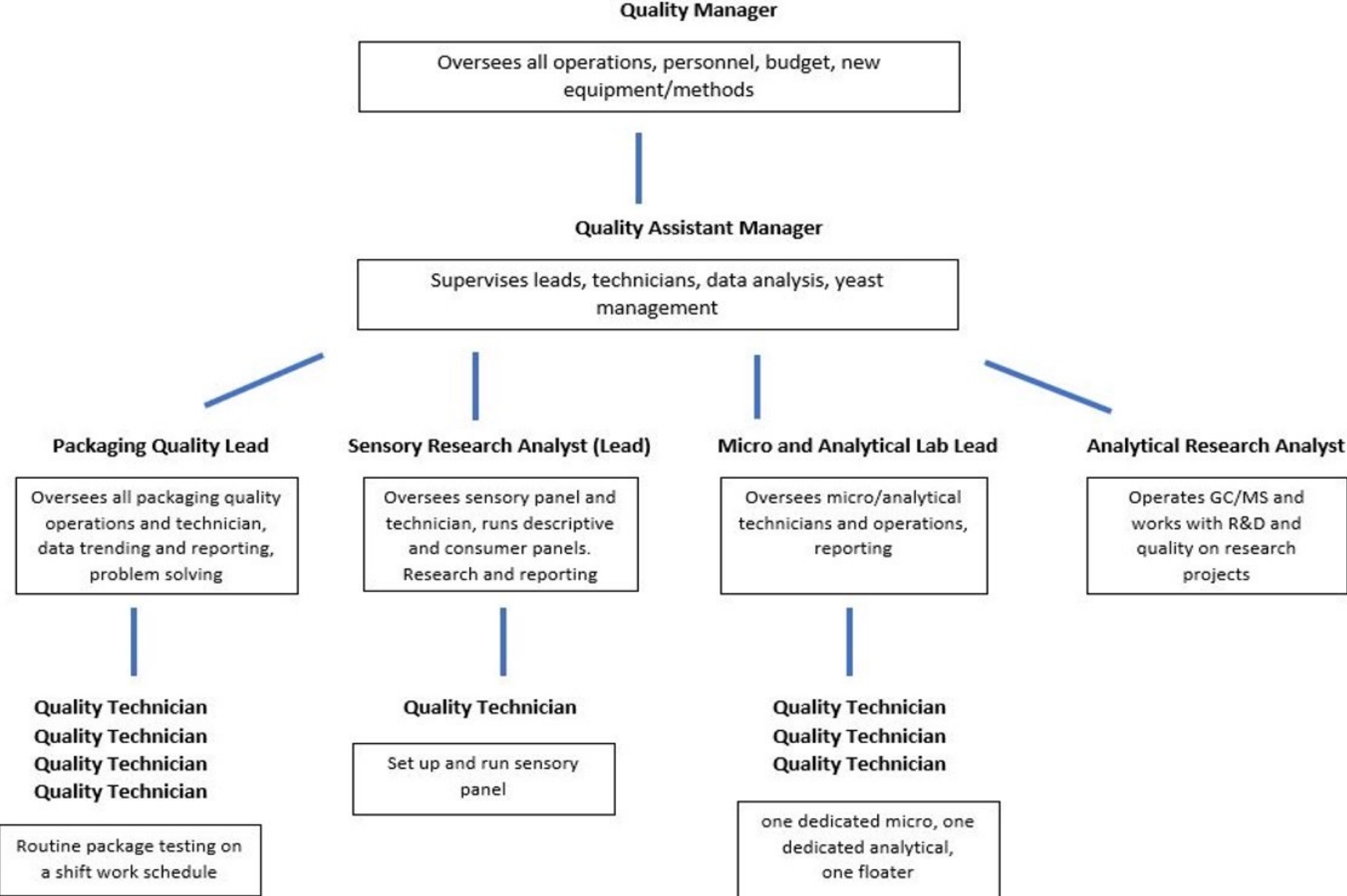


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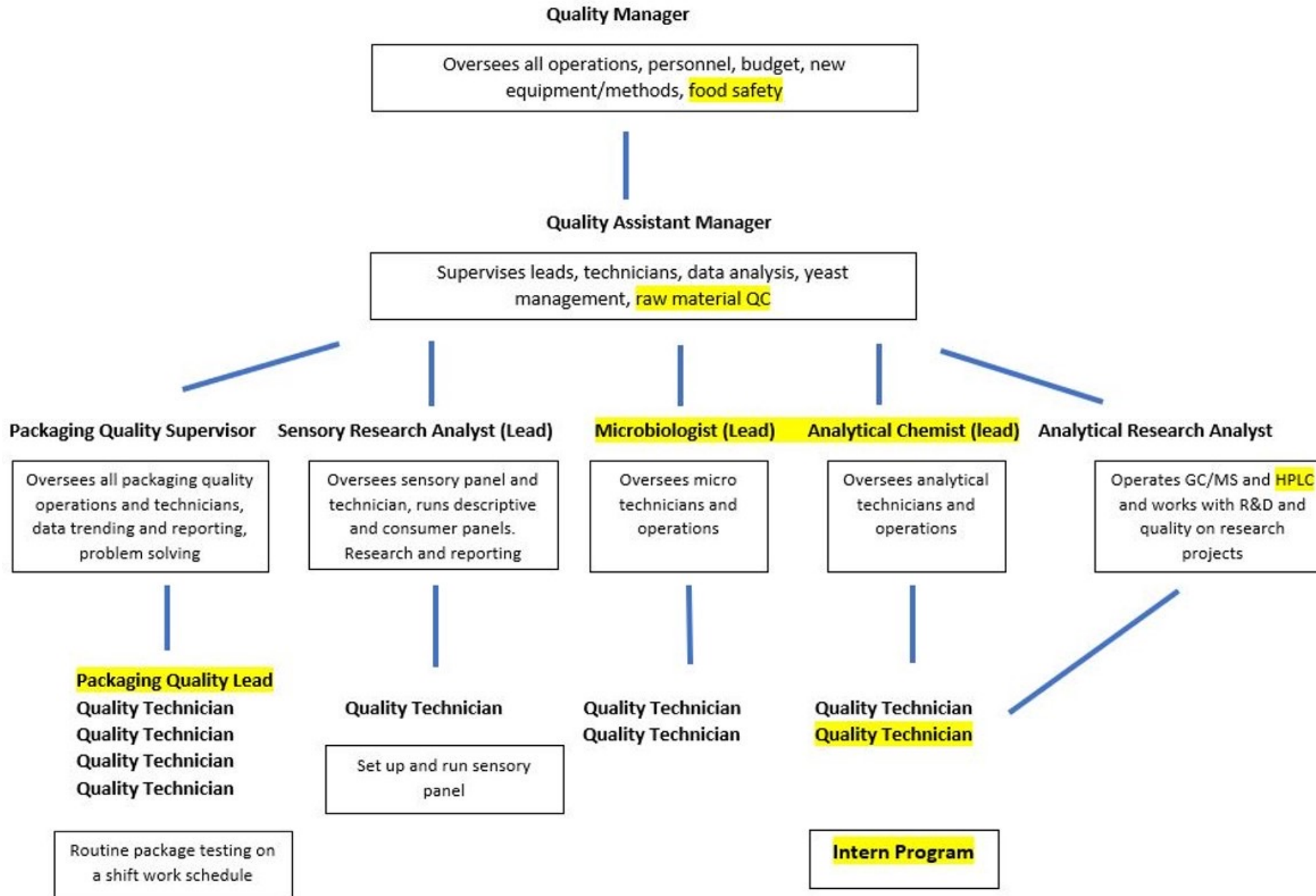


- 600 BBL / year brewery
- 45 Fermenters
- 14 Bright tanks
- 2 bottle lines, 1 can line (2nd in commission), 1 keg line
- 500 employees company wide
- Quality team of 13 employees
- 4 Separate Labs
 - 2x packaging quality
 - Micro/analytical lab
 - Sensory Lab

Firestone Walker Lab Organizational Chart



Firestone Walker Lab Organizational Chart (Potential Future)

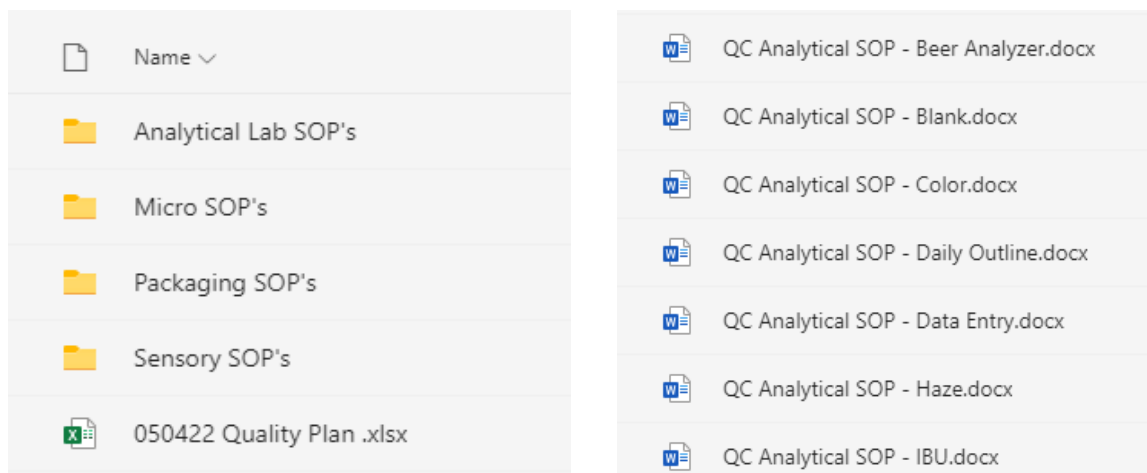


The Key to a Robust and Efficient Quality Program Lies in your Sample Plan

Sample plan: Detailed outline of which measurements will be taken at what times, in what manner, by whom, and where the data is logged.

- **Documented** and accessible to everyone inside and outside the department
- **Tailored specifically** to your breweries needs
- **Reviewed** annually and adjusted when needed
 - Do not be afraid to cut testing of data that is not being utilized for actionable decisions
- Contain **written SOPs** for all testing
 - Enforce SOPs with your staff
- Conscious of **staffing** limitations

Example of FW's Quality Plan Documentation



Analytical Quality Plan						
Quality Control Checks						
Sample Point	Test	Frequency	Corrective Actions	Data locations	Done By	
Fermenters	ABV/Gravity	Crash day and within 3 days of filtration for clear beers or day before filtration for hazy beers, everytime VDK is rerun	out of package TTB spec alert QC and production manager	LIMS-Fermenter Analytics	QC	
	pH	Crash day and everytime VDK is rerun	trending	LIMS-Fermenter Analytics	QC	
	color	Crash day	trending	LIMS-Fermenter Analytics	QC	
	IBU	Crash Day	trending	LIMS-Fermenter Analytics	QC	
	VDK	Day 5, 7 or 10 depending on brand. Every day following until in spec	Do not crash cool tank, rerun tank, alert production manager if needed to filter within 2 days for decision on how to proceed	LIMS-Fermenter Analytics	QC	
	XTF- clear beer	Day 2	rerun	LIMS-XTF page	QC	
	XTF-hazy beer/lager beers	Day 5	Rerun	LIMS-XTF page	QC	
	Acetaldehyde	When requested	alert QC manager	LIMS-Fermenter Analytics	QC	

Use it or Lose it!

- Utilize your data collected or do not collect it
 - Example: **Foam**
 - FW does not use alginate or any other foam enhancers. We have not found any actionable decisions from foam testing data, so we cut testing from our daily routine and use it in special circumstances or R&D
 - Save >200 cases a year plus technician time
 - Example: **Seam Checks**
 - Realized that we can detect if a can is prone to leaking based on measurements from thickness gauge rather than cutting open the seam and inspecting the double seam.
 - Adjusted seam check protocol from cutting the double seams, thickness, and countersink every two hours to full seam check in the morning and only thickness/countersink every two hours following
 - Cans can be put back on the line post seam check saving >500 cases a year, 15 minutes of techs time every seam check, and wear on the saw blade
 - Example: **Micro**
 - High mix pack volume plus a second bottle line doubled amount of packaging changeovers
 - Cut plating scheme down (went from 7 plates and 2 broth jars → 6 plates)
 - Lost no data, technician can process in half the time, save \$\$ on consumables