

# *Staphylococcus aureus*

## EUCAST rapid antimicrobial susceptibility testing (RAST)

Calibration of zone diameter breakpoints to MIC  
values.

# MIC and zone diameter correlates

- The following histograms present inhibition zone diameter distributions from EUCAST rapid antimicrobial susceptibility testing (RAST).
- The reference method is MIC with broth microdilution.
- In addition, SIR interpretations from standard disk diffusion have been used as a reference for isolates for which MICs are lacking.
- In most, the different colours of the bars indicate different MIC values. In some, the colours of the bars indicate a resistance gene or a resistance mechanism. When SIR interpretation from standard disk diffusion have been used as a reference this is shown as striped bars.
- This presentation is based on EUCAST RAST Clinical Breakpoint Table v. 9.0 (based on EUCAST Breakpoint Tables version 16.0).

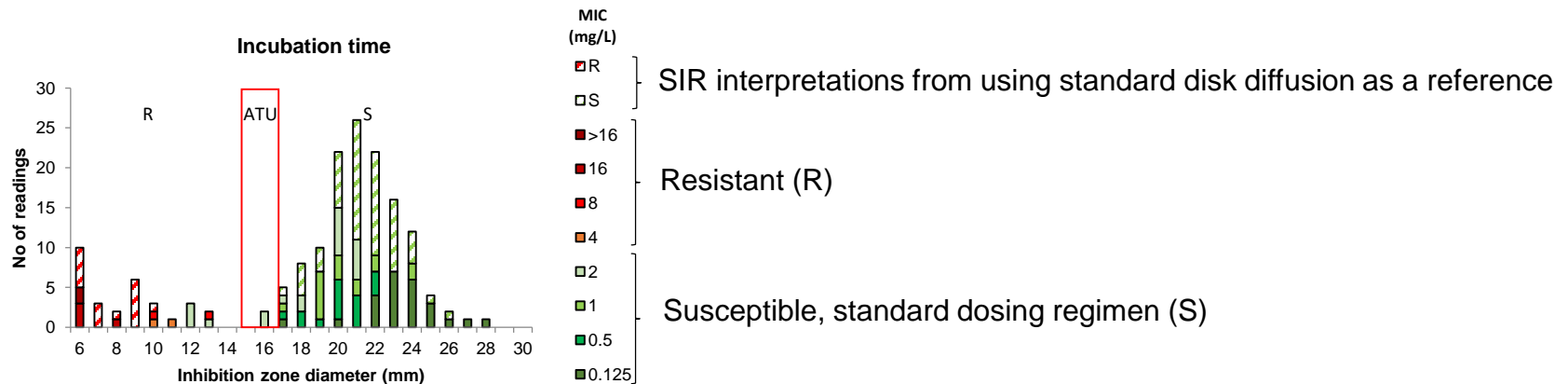
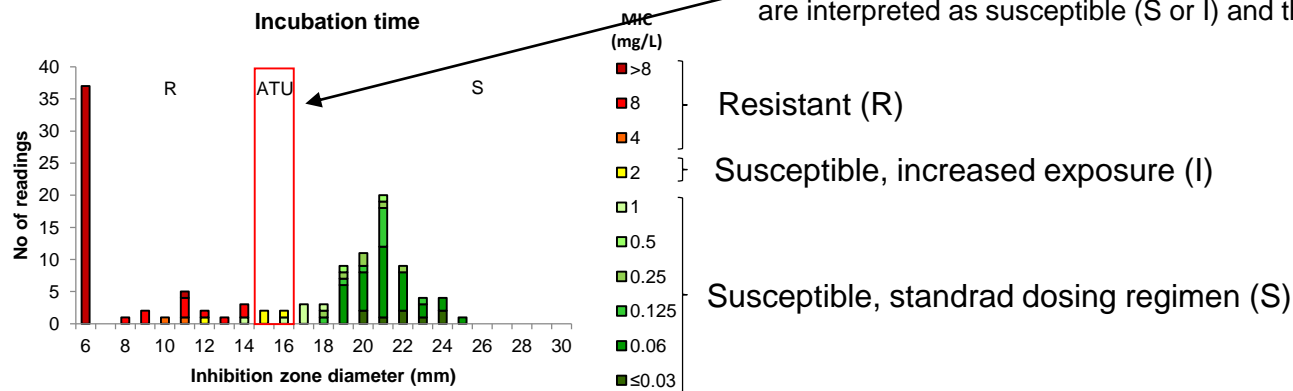
# Changes from previous version

<b>Changes</b>
<ul style="list-style-type: none"><li>• No changes. Breakpoints checked against latest version of EUCAST RAST Breakpoint Tables.</li></ul>

# Explanation of graphs:

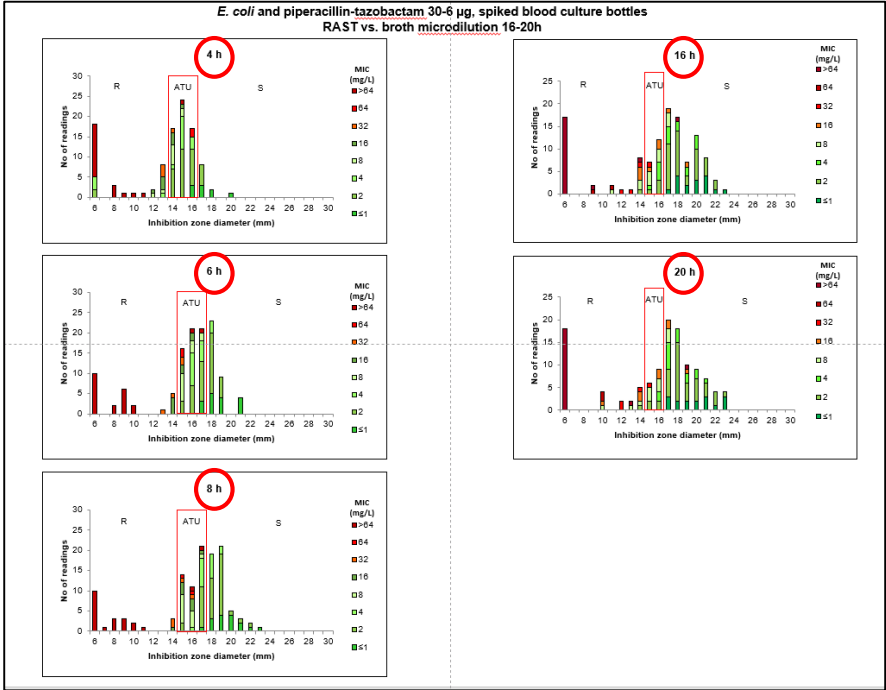
- These graphs show zone diameter distributions with MIC values or resistance mechanisms as coloured bars. Colours are related to current EUCAST MIC breakpoints.

Area of Technical Uncertainty (ATU), inhibition zone diameters above the ATU are interpreted as susceptible (S or I) and those below as resistant (R).



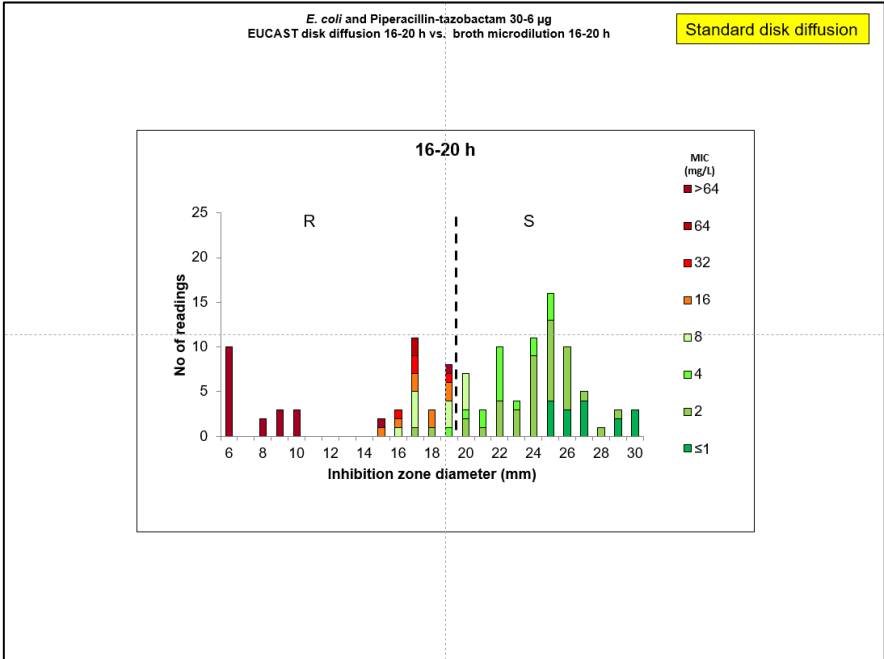
For each species-agent combination, the first slide shows RAST graphs versus reference method and the second slide shows data for the same isolates tested with EUCAST standard disk diffusion method versus reference method\*. Graphs with RAST data are shown per incubation time; data for 16-20 hours incubation are shown as two graphs one for 16 and one for 20 hours.

\*This slide will not be available for species-agent combinations where EUCAST standard disk diffusion is used as the reference.



← RAST versus reference method, one graph per available incubation time.

Standard disk diffusion versus reference method.



# Material and method

- Isolates have been tested from spiked blood culture bottles.
- All isolates have been tested on media agar from two manufacturers. The number of tests are therefore twice the number of isolates except for enterococci where some tests were repeated more than once.

# *Staphylococcus aureus*

## The proportion of readable zone diameters

The proportion of zone diameters (%) which are possible to read\* after 4, 6, 8 and 16-20 h of incubation.

<b>Organism</b>	<b>4 hours (%)</b>	<b>6 hours (%)</b>	<b>8 hours (%)</b>	<b>16-20 hours (%)</b>
<i>Staphylococcus aureus</i>	55**	91	95	100

\*The table displays “possible to read”, not “possible to interpret”, since some of the zone diameters will be in the ATU.

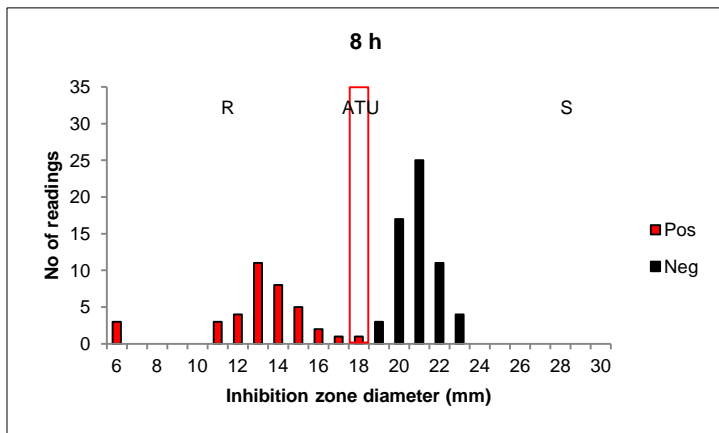
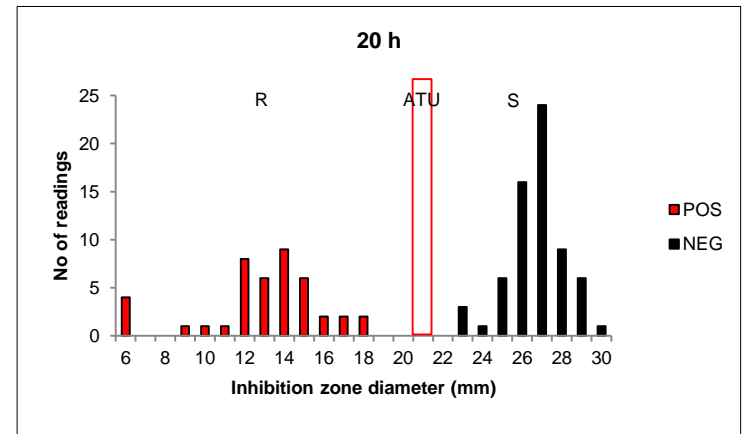
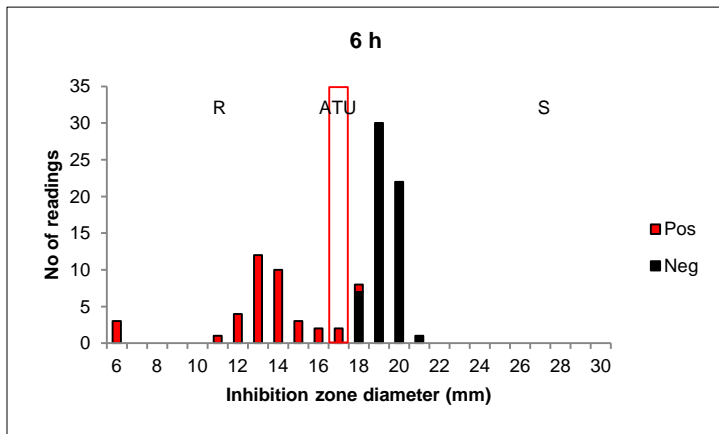
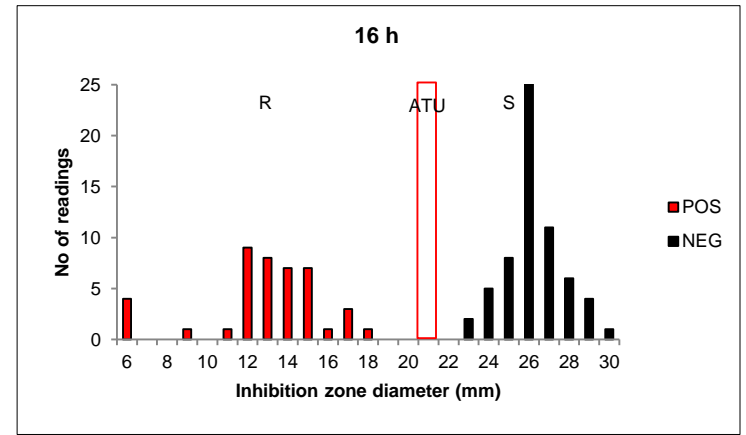
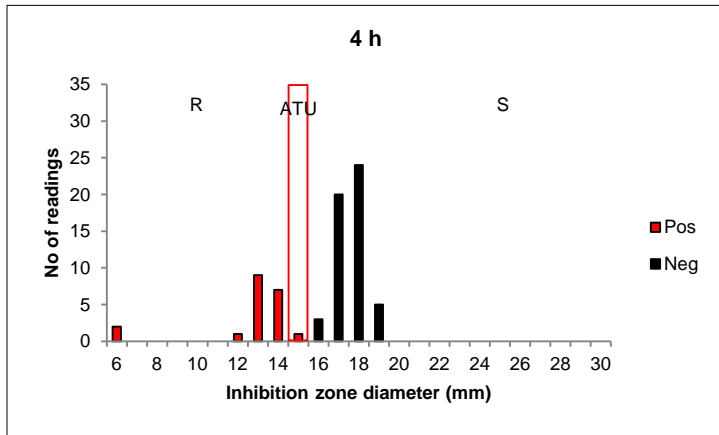
\*\*Cefoxitin and aminoglycosides are easy to read while norfloxacin and clindamycin are more difficult.

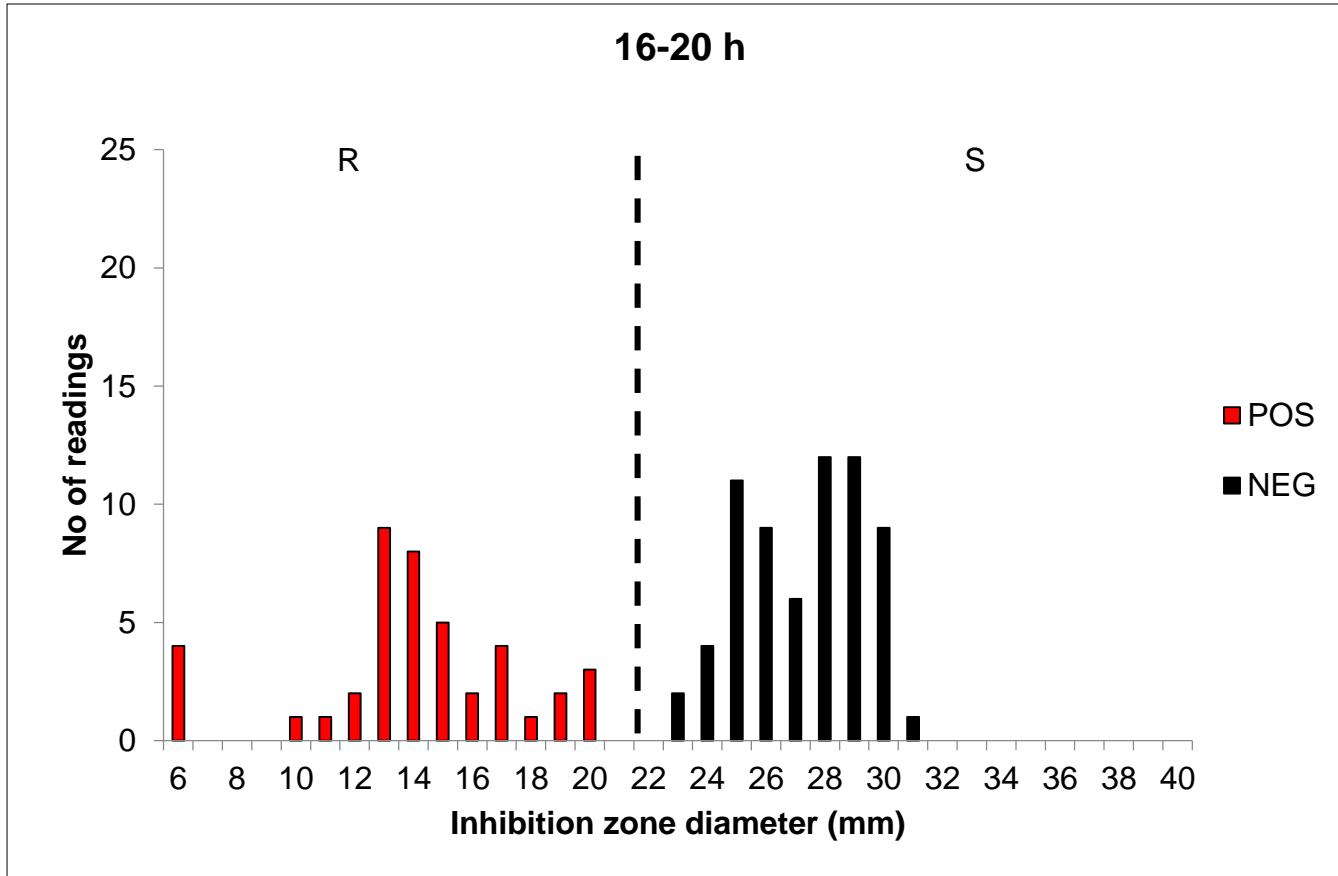
# *Staphylococcus aureus*

## Antimicrobial agent and number of tested isolates

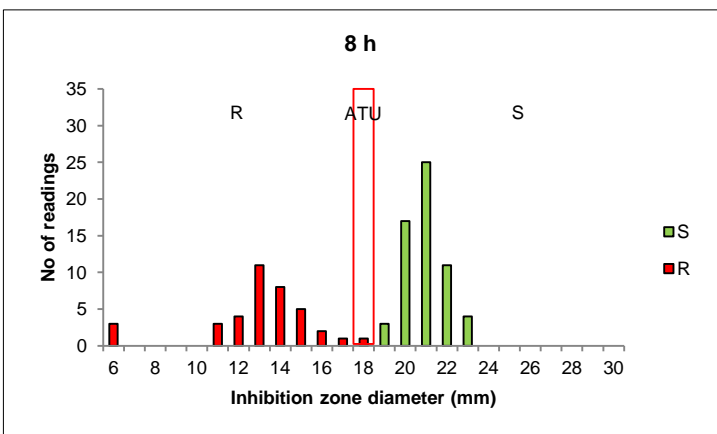
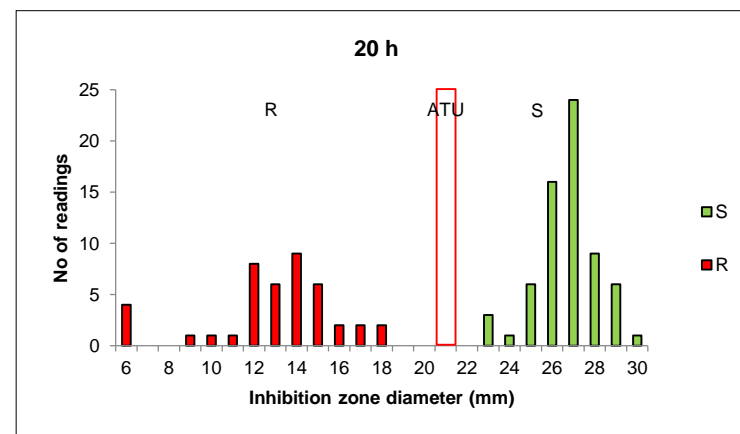
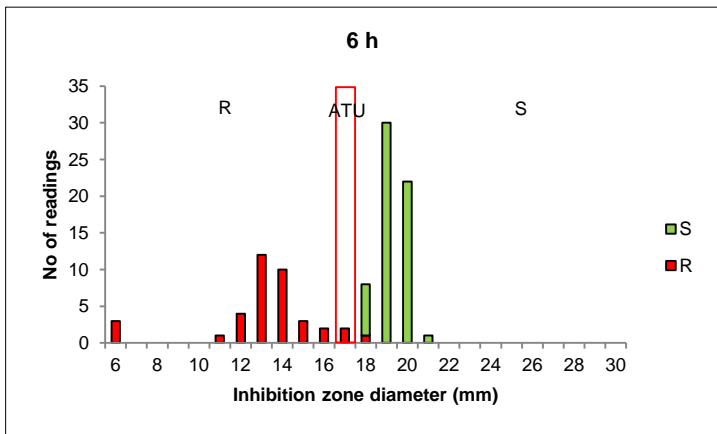
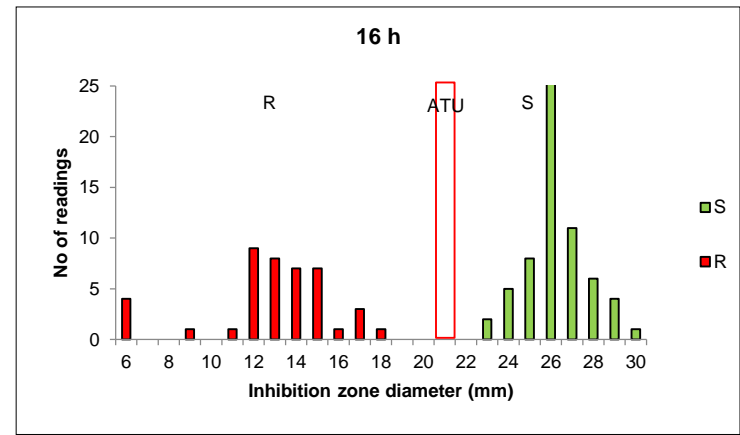
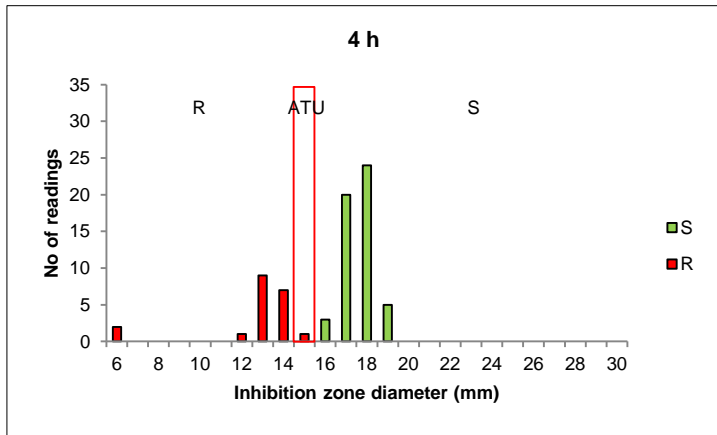
Antimicrobial agent	Number of tested isolates (number of tests)
Cefoxitin	54 (108)
Norfloxacin	54 (108)
Amikacin	30 (60)
Gentamicin	54 (108)
Tobramycin	30 (60)
Clindamycin	54 (108)

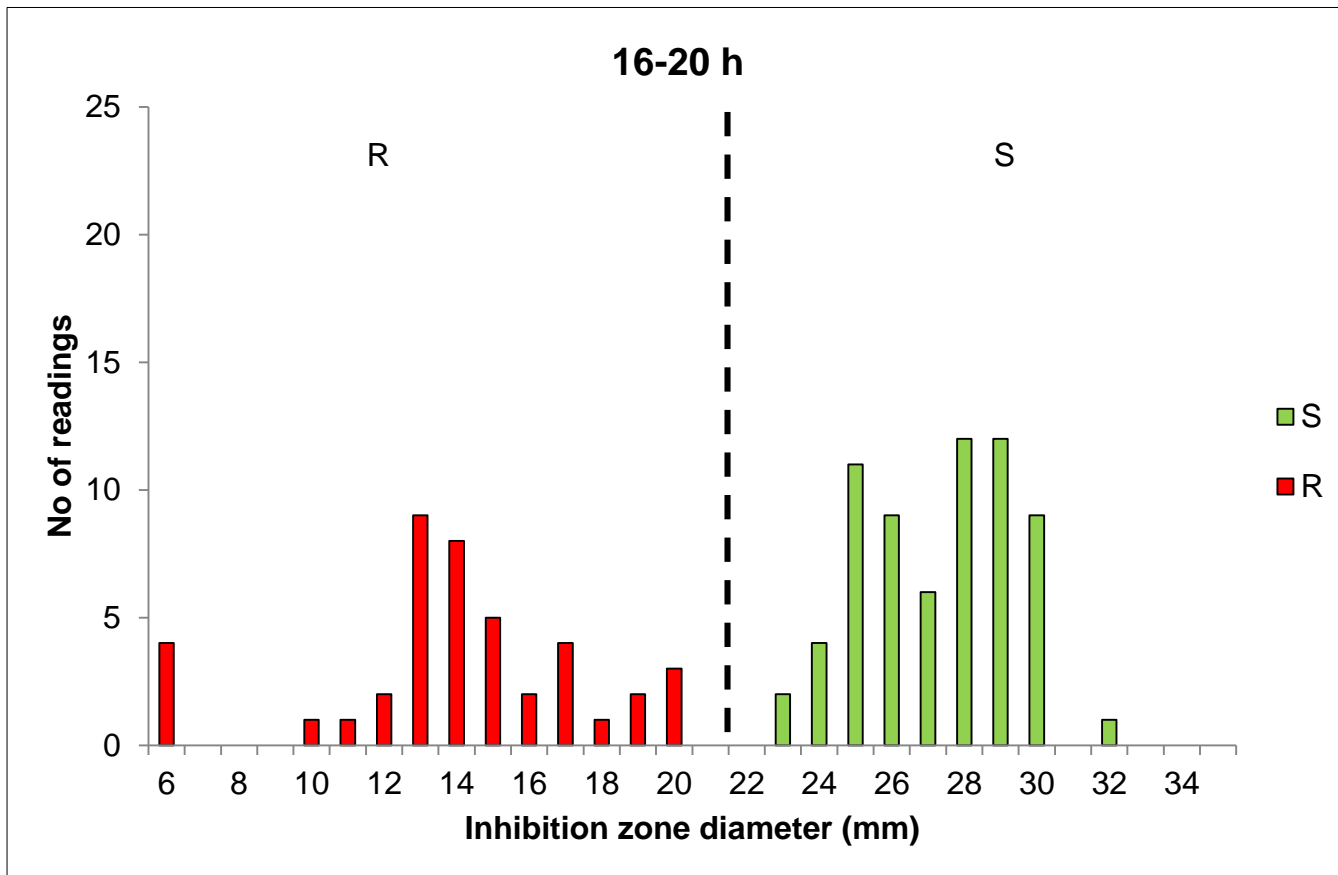
***S. aureus* and cefoxitin 30 µg, spiked blood culture bottles  
RAST vs. *mecA* status**



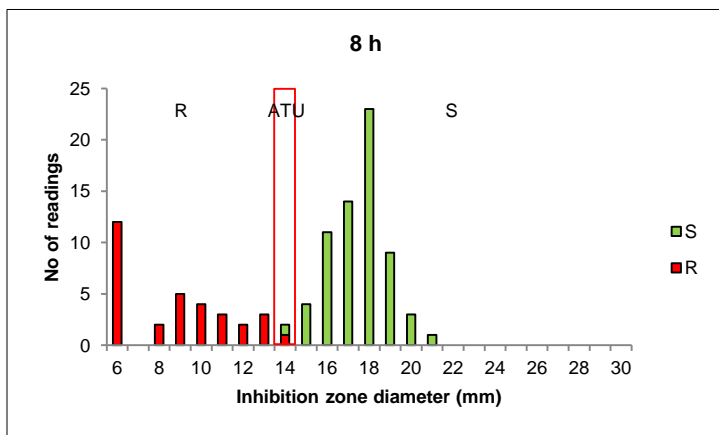
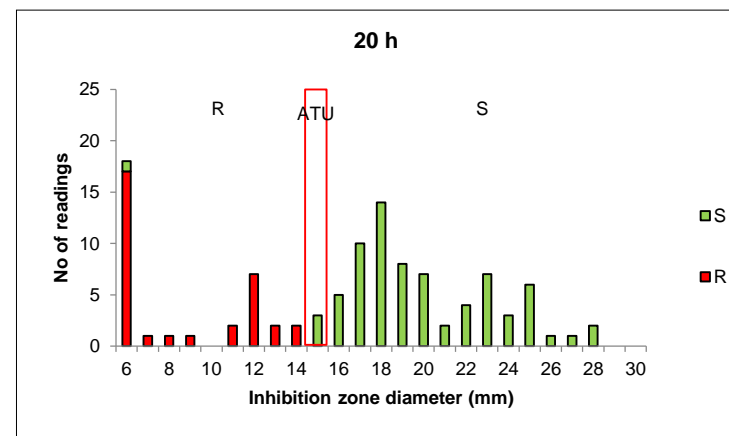
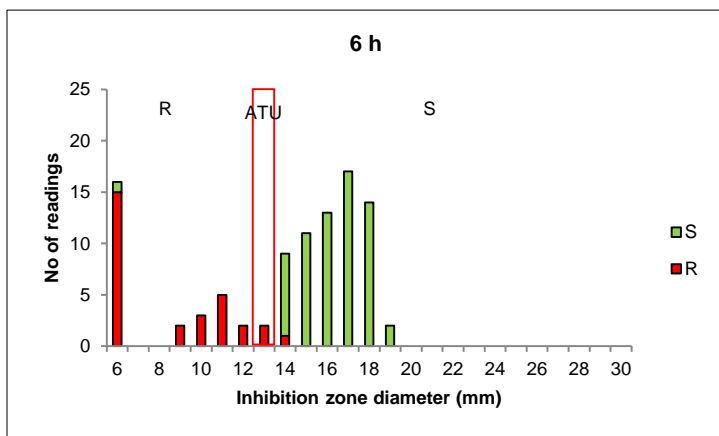
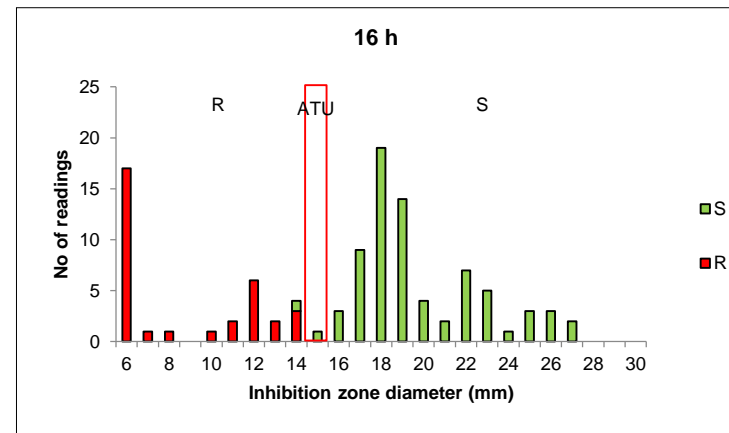
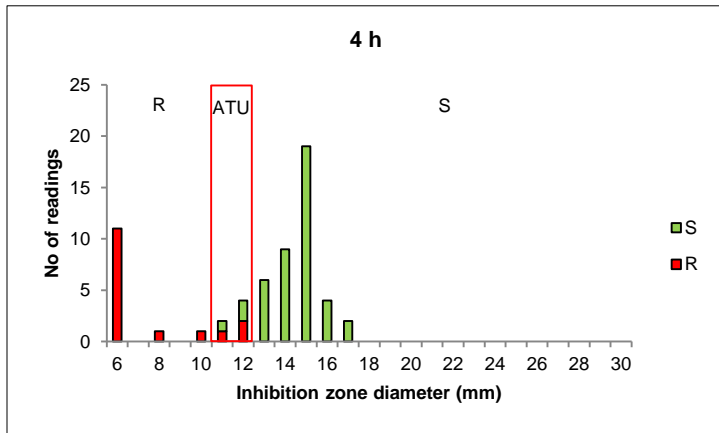


***S. aureus* and cefoxitin 30 µg, spiked blood culture bottles  
RAST vs. EUCAST disk diffusion 16-20h**

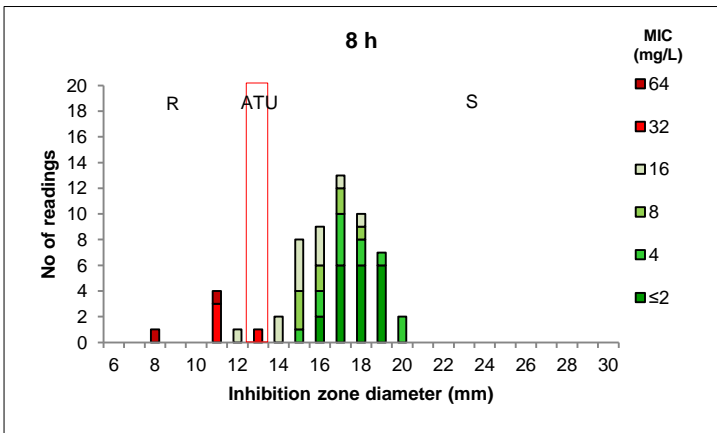
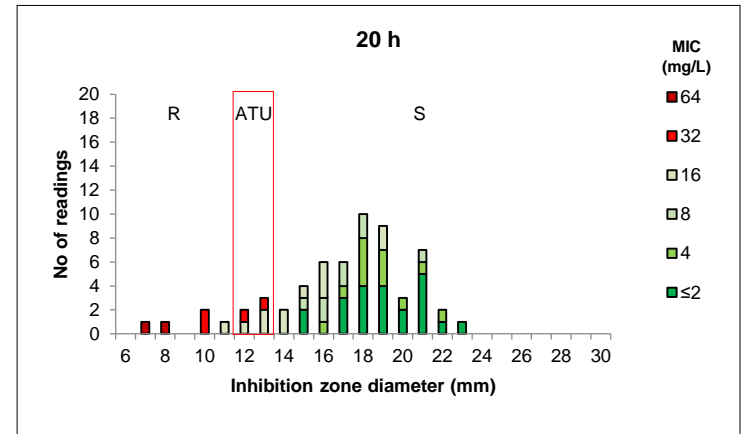
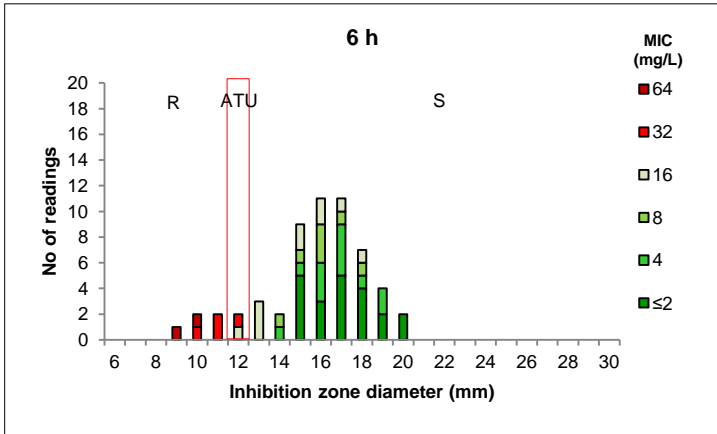
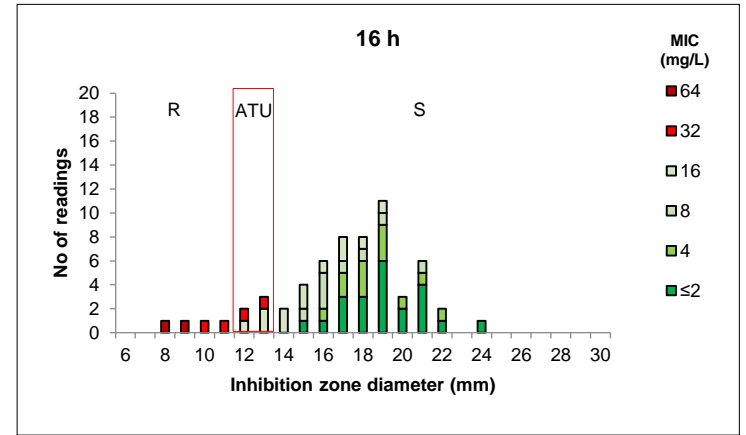
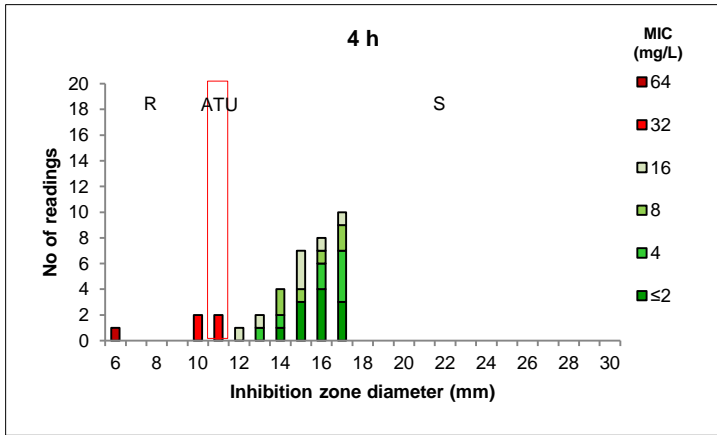




***S. aureus* and norfloxacin 10 µg, spiked blood culture bottles  
RAST vs. EUCAST disk diffusion 16-20h**

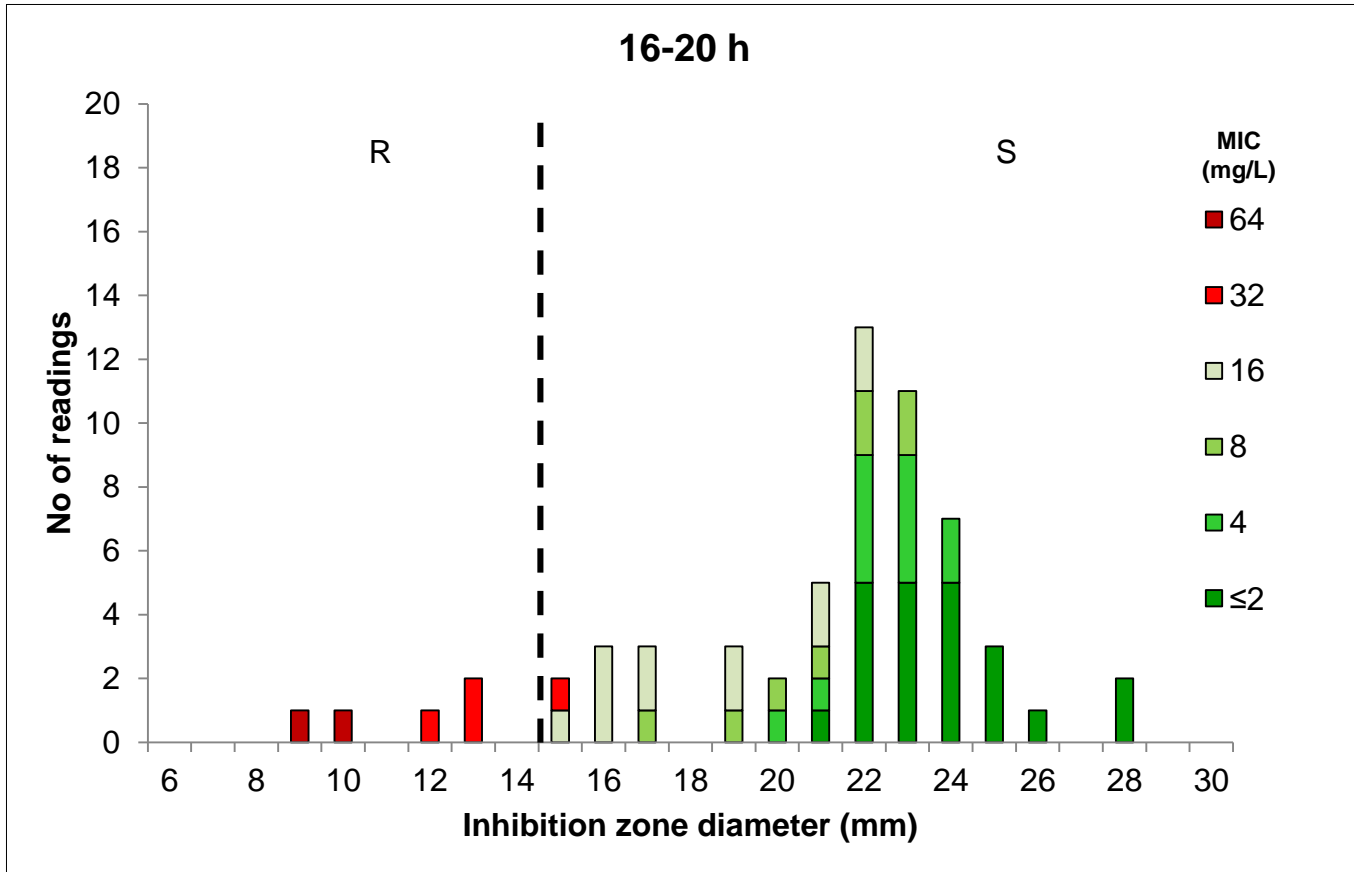


***S. aureus* and amikacin 30 µg, spiked blood culture bottles  
RAST vs. broth microdilution 16-20h**

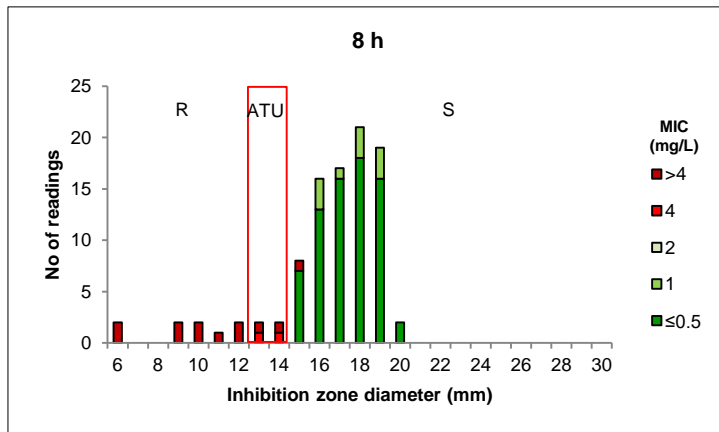
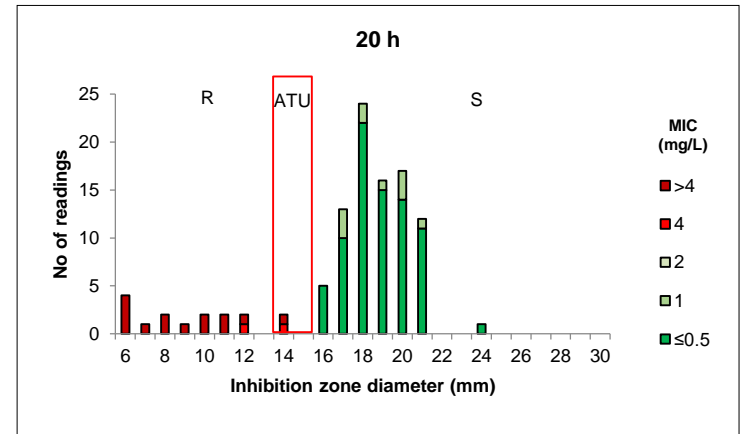
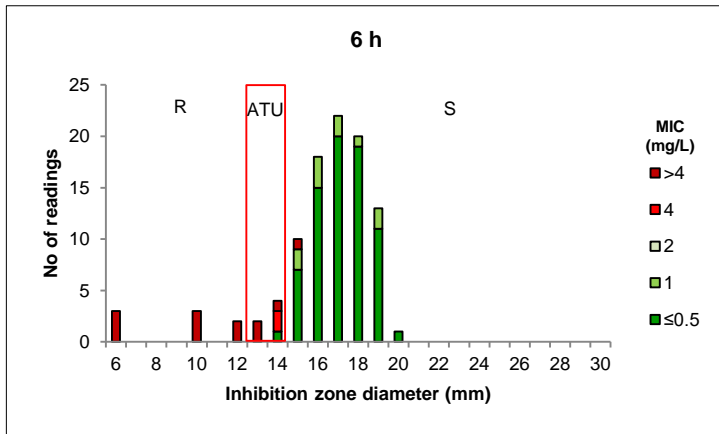
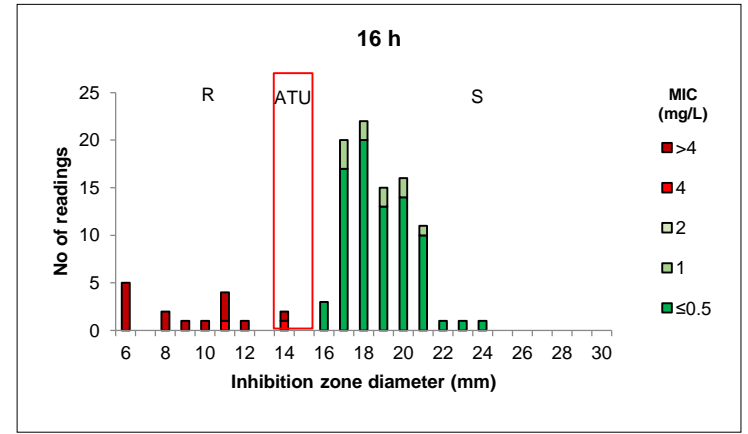
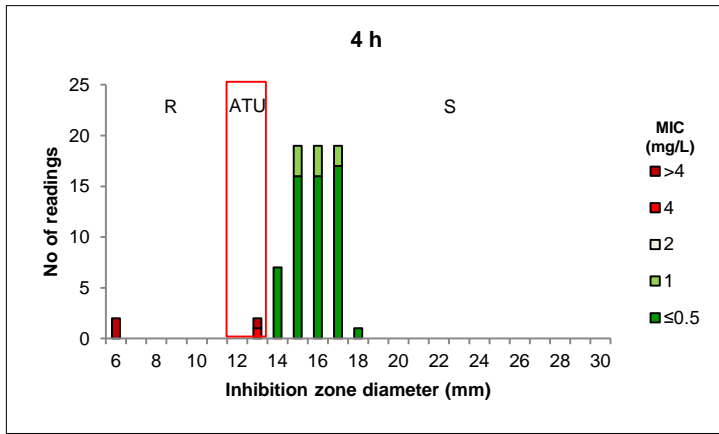


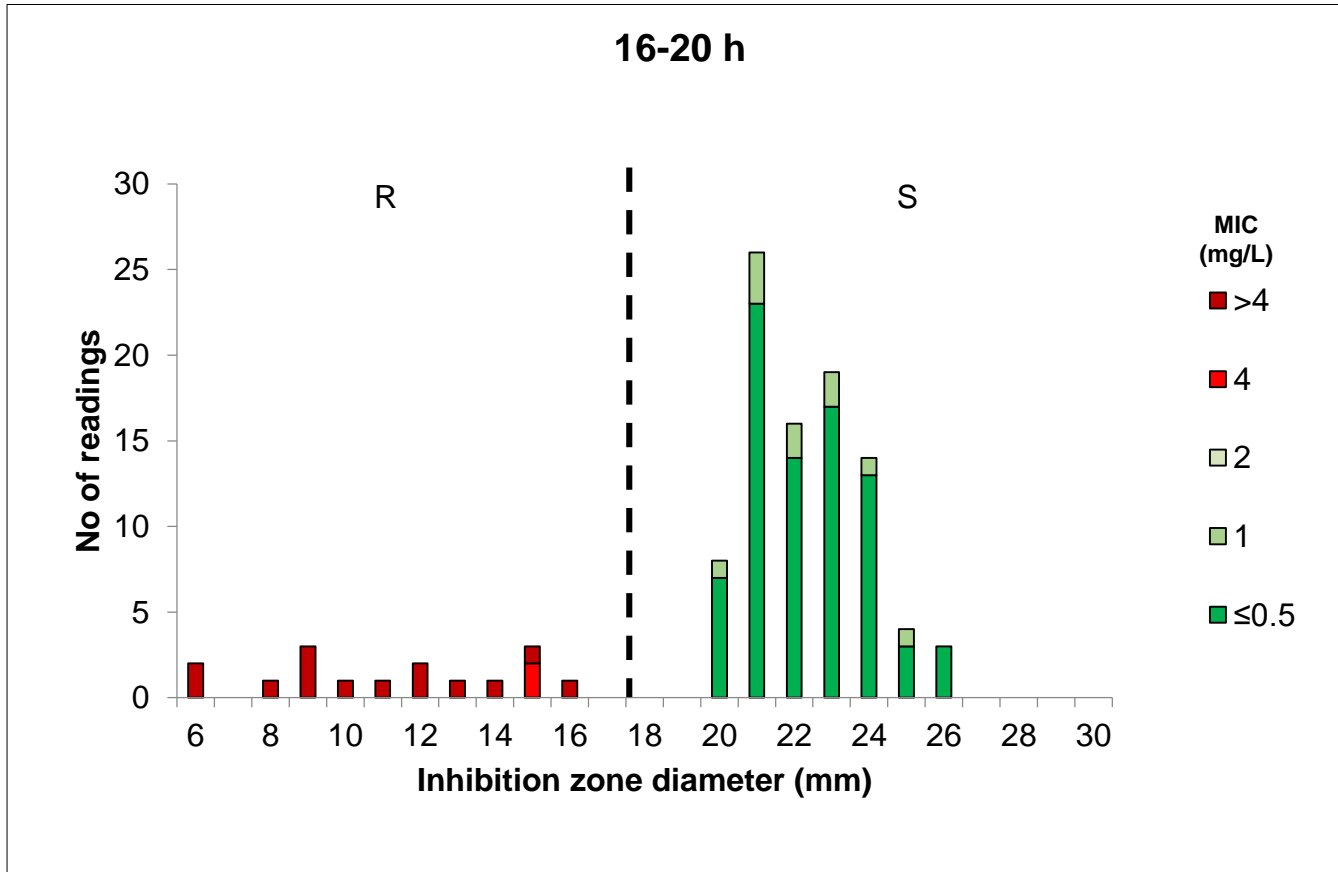
***S. aureus* and amikacin 30 µg**  
**EUCAST disk diffusion 16-20 h vs. broth microdilution 16-20h**

Standard disk diffusion

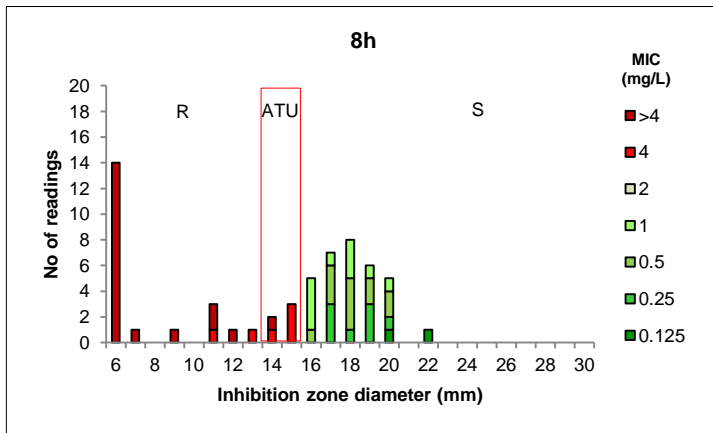
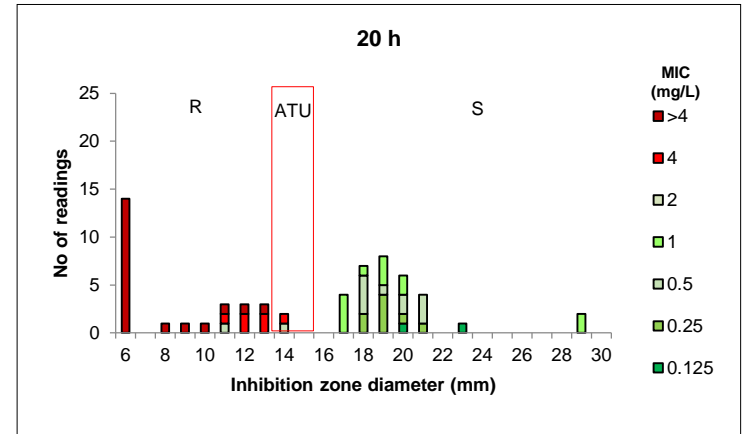
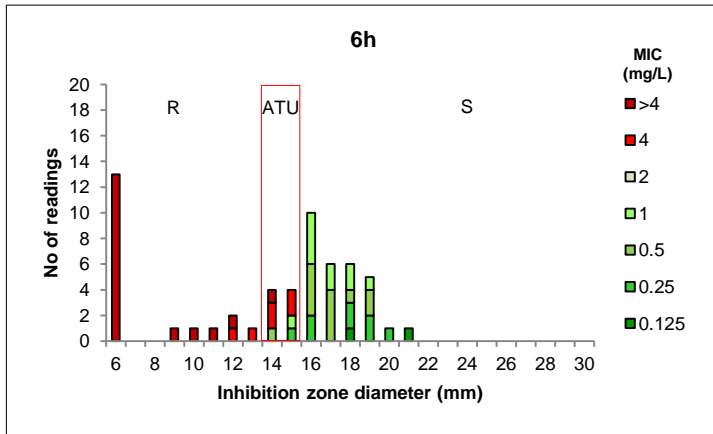
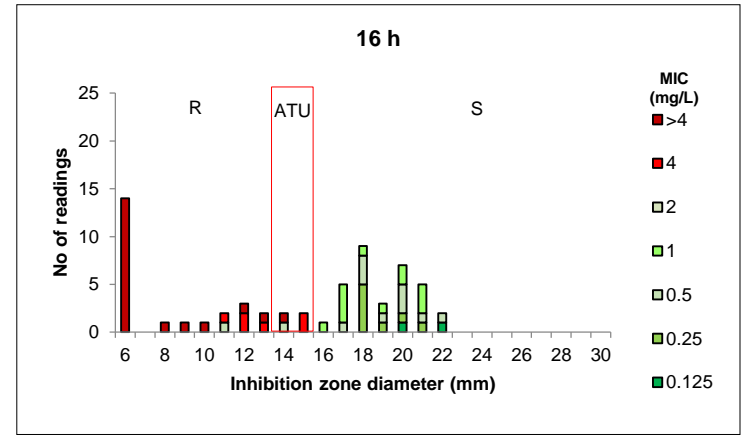
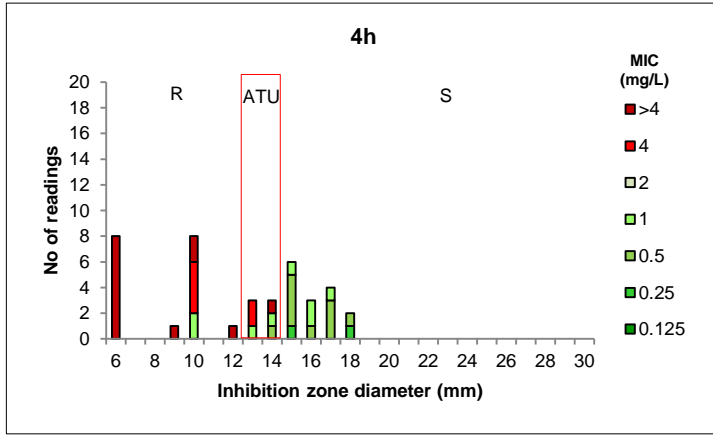


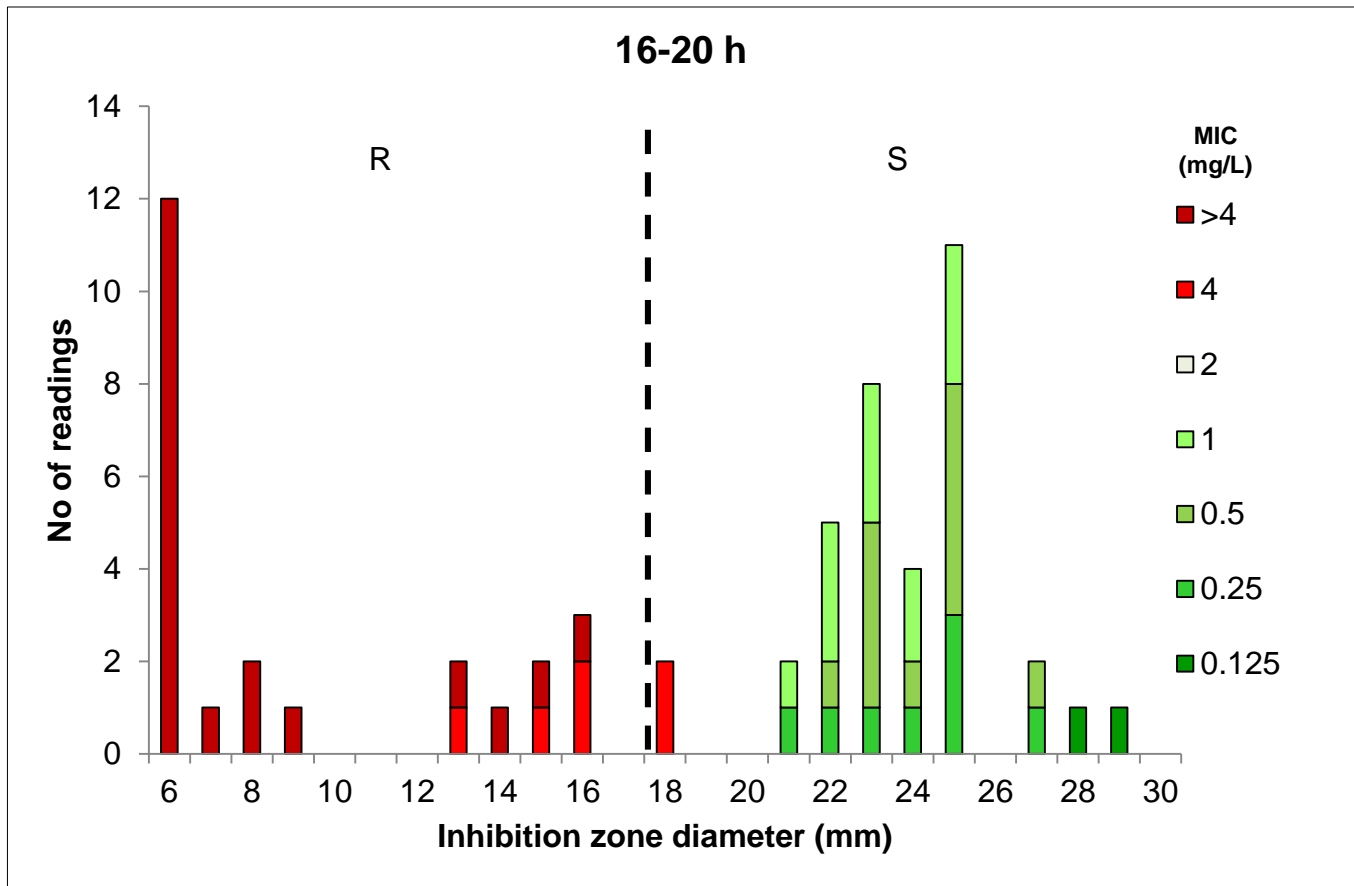
***S. aureus* and gentamicin 10 µg, spiked blood culture bottles  
RAST vs. broth microdilution 16-20h**





***S. aureus* and tobramycin 10 µg, spiked blood culture bottles  
RAST vs. broth microdilution 16-20h**





***S. aureus* and clindamycin 2 µg, spiked blood culture bottles  
RAST vs. broth microdilution 16-20h**

