Temperature, water regime, and yield are important for the color of red-wine grapes

Coloration of grape is an important quality for red-wine grapes.

Many researches including ours have shown that high temperature, excess water, and insufficient sun light inhibited coloration of red-wine grapes from the experiment in experimental vineyards and with potted vines. However, commercial vineyards vary in age of vines, fertilizing condition, etc. Thus, we analyzed 37 samples of Merlot kindly provided by Japanese wineries from Yamagata through Ohita in 2009.

Multiple regression analysis with meteorological data showed that average temperature (May to August), precipitation in July, and yield were negatively correlated with anthocyanin concentration (coloration) in the berry skin. On the other hand, some samples with low yields showed low anthocyanin concentration, which means that the restriction of yields does not always result in good coloration. As was reported in other countries, adequate water and fertilizer seems to be important to control yield and quality of grapes.

Temperature, water regime, and yield are important for the color of red-wine grapes

Previous study using potted vines in a phytotron

High temperature & excess water

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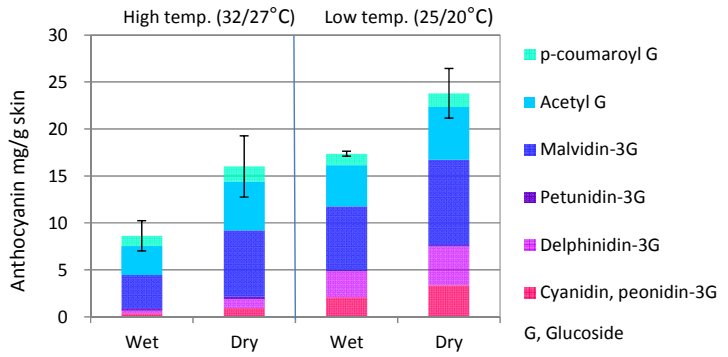
Decrease in anthocyanin concentration (red color)



Commercial vineyards vary in

Other meteorological conditions,
(wind, daylight length)

Age of vines, fertilizer, yield, etc

What is important for coloration of red wine grapes in Japan?

Methods:

Analysis of Merlot grapes from Yamagata to Ohita

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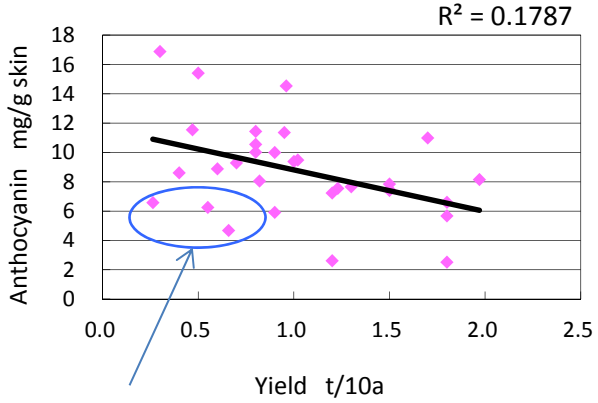
Multiple regression analysis with meteorological data

Results:

Average temperature
(May to August)
Precipitation in July
Yield

} Negatively correlated to Anthocyanin concentration (red color)

However:



Low yields do not always result in good coloration