What is sap flow?
Sap flow is the movement of water in plants. It is called sap flow (not water flow) because the fluid inside of plants contains a mixture of water, nutrients and plant elements.

Sap flow however identifies plant water flow that will become transpiration.

Increased sap flow indicates a healthy and vigorous plant with ample resources for growth and fruit production.

Why measure sap flow?
Useful sap flow applications:
- irrigation scheduling and monitoring
- growth, yield and carbon uptake
- crop and variety selection for future climates
- assessing plant sensitivity or tolerance to extreme weather such as heatwaves.

Measuring sap flow
Sap flow is measured by installing heaters and temperature sensors inside or around the plant.

Sensors measure speed of heat pulse movements up or down the plant. Conversion factors are required to convert temperature readings into sap flow values.

Interpreting sap flow data
Example sap flow data (Figure 2 and 3) over several days indicate:
- sap flow is highest during the day, minimal during the night when little to no transpiration (Figure 2 and 3)
- sap flow is very sensitive to weather conditions. On cloudy or rainy days, sap flow declines (Figure 2)
- plant health, sap flow declines in non-irrigated plants or water stressed plants (Figure 3).

Riverina sap flow demonstration
View live Riverina vineyard sap flow measurements during the 2017-18 season at: