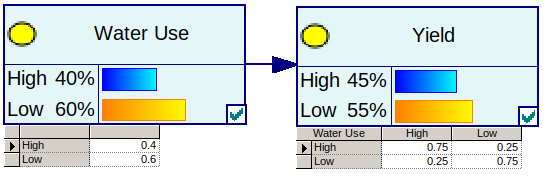
**Bayesian Network Design Workshop**

Bayesian networks are used to model complex problems in an easily understandable and intuitive manner. They consist of ideas that are linked together, such as water use to yield. Each idea is called a node, and each node has a table of how it interacts to the nodes it is connected to, for example:



This is important as it allows the construction of peoples understanding of a system’s components and interactions into a model. We can use these models to illustrate the cause and effects within complicated systems such as vineyards based on peoples understanding.

What is this workshop all about?

* Connecting important vineyard outcomes to their causes.
* Attributing levels of importance to different vineyard operations and resources.
* Relating these connections and outcomes to sustainability.

What do we hope to achieve?

* A better understanding of what drives sustainability.
* A map of cause and effects for vineyards.
* Vineyard sustainability score cards based off this expert elicitation.

What will you have to do?

* Construct a network by connecting different vineyard properties together.
* Weigh in on the level of influence/importance a vineyard property has on other properties.
* Debate the influence of vineyard elements on the economic, social and environmental outcomes.

This workshop will commence with short introductions. Participants will be introduced to an example Bayesian Network that predicts yield. We will show how these networks can be improved using expert knowledge and where this fits into the research that is being conducted on sustainable viticulture.

Participants will then be introduced to a straw man Bayesian Network linking vineyard elements to sustainability. This Network will consist of well known vineyard factors such as water and fuel. Where possible each vineyard element will be limited to strong/good and weak/bad measures to limit the complexity of our final product. Participants will be asked to add new nodes and to fill out the impact these nodes have on elements they are linked to.

As vineyards are unique and complicated entities, we understand that not one model fits all. We want to embrace this as part of the problem and intend to include nodes/elements that may only apply to some vineyards but not all. Multiple models can be created, different ones for more nuanced situations using the inputs from this session.

Supplementary material: