

An assessment method to determine and improve the drought resistance of a farm

Why is it that the field on the left (below) has a much greater resistance to a severe drought than the adjacent field on the neighbouring farm on the right?



... why is it that the same field (below left) is able to recover quicker and better than the neighbouring field on the right?



Photos: Courtesy of R McLean

An El Niño, often associated with below-average rainfall in winter and spring with prolonged drier, hotter conditions, is predicted by The Bureau of Meteorology to hit the Eastern parts of Australia this spring causing potentially severe drought conditions.

To reduce the effect of a drought and increase the resistance of a pastoral farm to drought conditions, there are 18 key measures that farmers can address to increase the drought resistance of their farm. These key factors provide a Drought Resistance Index (DRI) of whether a field is likely to have a high, moderate or low resistance to dry conditions.

The 18 key factors provide the basis of a quick and easy to use scorecard for both pasture and cropping. Anyone of the indicators affects the resistance of a field to drought but collectively, the 18 factors have a significant influence on the drought tolerance of a farm. The Drought Resistance Scorecard (DRS) requires about 20 minutes to complete in the field.

Each of the indicators are scored according to rating scales provided. As the farmer scores each indicator, it becomes immediately apparent what factors are limiting a farms resistance to drought and what specific aspects need to be addressed. This leads to the management options required to

increase the drought resistance of a field. The 18 indicators for pastoral farming are: 1) Percent ground cover by drought resistant pasture species; 2) Residual pasture levels; 3) Rooting depth; 4) Root density; 5) Soil structure; 6) Soil porosity; 7) Ca levels in soil & pasture; 8) Mg levels in soil & pasture; 9) K levels in soil & pasture; 10) Na levels in soil & pasture; 11) Fe levels in soil & pasture; 12) Zn levels in soil & pasture; 13) B levels in soil & pasture; 14) Brix levels; 15) Mycorrhizal colonisation; 16) Active to total fungal ratio; 17) Soil organic carbon levels; 18) Amount and form of fertiliser and N applied. The indicators for cropping are similar except the Method of Cultivation and Percentage Ground Cover are included.

A workshop on the Drought Resistance Index entails a 75 minute powerpoint seminar where each of the 18 drought resistant indicators and the science that underpins them are presented and discussed. This is followed by a practical exercise in the field filling out the scorecard and addressing the management options required to raise the drought resistance of a farm. While the Drought Resistance Index, i.e. the total score gives an overall assessment of whether a field has a high, moderate or low resistance to dry conditions, the individual scores of each indicator provide an action plan as to what needs to be addressed to increase drought resistance; i.e. any indicator scoring 1 or less needs to be looked at as to what has to be done to raise the score to 1.5 or better.

Like the Visual Soil Assessment (VSA) method I wrote, the Drought Resistance Scorecard incorporates a number of visual soil indicators but also requires management input and input from soil and herbage tests. To complete the field exercise, the course participants receive a six page handout of the scorecard and the defining drought resistant rating scales for each indicator.

With the onset of an El-Nino and the potential for the development of a significant soil moisture deficit, it is timely for farmers to start to address those issues that can make their farms more tolerant of drought conditions.

Just drop me a line if you're interested at some stage in running a workshop in areas that are drought prone and/or summer dry.

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