The sheep and beef farm system is complex and variable delivering an unknown amount of feed over any given year to be prioritised and eaten by a myriad of different stock classes with different needs. Farmax is a software tool that manages some of the complexity to allow more informed decisions for improvement or changes to the farm system.

Farm managers differ in their ability to deal with the complexity for a number of reasons. Top managers have an inherent ability to juggle the needs of stock, getting near optimal performance in terms of both stock and finance. However, even the best operators find it difficult to visualise the impact of system changes. Farmax can be used in two ways to aid farmers to increase profitability. As a strategic tool, a model is generated representing the farm in a typical season with typical stock transactions. In this long term mode, various scenarios of different crop and stock options can be generated to compare. As a tactical tool, the current situation on farm can be replicated and updated with the expectations for the period ahead. Once again, various options can be compared to test for both financial and biological feasibility.

What does Farmax do?

Farmax allows farmers and consultants to model a farm system for the purpose of supporting decisions. The farm is modelled by splitting the area available for grazing and crops into blocks, distinct in terms of area and the expected growth rate. Where monthly pasture growth is unknown, an estimate is used and adjustments made to mimic the actual farm growth. Pasture is rated in terms of quality with high, medium and low defaults used to account for changes in energy content at any dry matter cover. Within each block, crops are modelled, either as forages, supplements or even cash crops with the areas of the crops removed from the area available to graze. Crops and feeds are available to feed as supplements or sell for cash.

The stock on a property are also modelled with liveweight profile, mating date, sales and purchases which provide an estimation of energy demand to be met by the feed available. For the capital stock on the property, we expect some fluctuation in liveweight over a calendar year. Often the simple act of weighing a portion of animals to get an idea of where they are at is enlightening. Built in to the system are a series of parameters to limit weight gain and loss based on factors such as breed and sex. There is also room for events to be logged with some farmers keeping animal health treatments logged along with the mob.

With the feed platform and the livestock enterprises modelled, Farmax predicts the annual pasture cover based on the pasture growth, supplements fed and livestock demand. Where feed cover is driven too low to achieve the prediction of stock performance, the model will show as infeasible. Either more feed needs to be made available or animal performance dialed down accordingly. There is usually a lot of questioning at this final stage of a model to ensure the system generated is a fair representation of a typical year. One of the key outputs is the pasture growth profile for the farm which becomes the basis for alternative policies in the strategic models.
Strategic

Once the farm pasture growth profile is known, alternative policies or systems can be modelled giving decision makers a very good representation of the economics and biological feasibility of the changed system. Some questions that can be answered include how hogget lambing might impact on feed supply. In this instance, Farmax can be used to predict a new optimum number of breeding ewes, the new lamb sale profile and also an estimation of the comparative gross margin of the new system. Both the status quo and the new scenario can be compared directly and tested. Options may include changing the lambing date, increasing the lambing percentage, killing heavier lambs. All of these options have an impact on feed intake, which need to be considered along with the financial aspects.

Alternative enterprises can also be modelled prior to any expenditure to check for fit and feasibility. An example could be a decision to include a dairy support component where the feed demand is changed from the usual breeding stock scenario. Farmax in this instance can be used to model changes not only to stock numbers but also the growth and feeding of supplements. As the demand profile of stock changes, so too should the balance of crops and feeds. While Farmax is a great tool for indicating feasibility and potential profitability of options, it does not assess critical items such as risk, operator ability and labour requirements. As a strategic decision support tool, Farmax, when used well, will allow a few scenarios to be offered for further discussion.

Tactical

Farmax is also a powerful tool when used in short term mode where the current position is modelled exactly, enabling decision makers the chance to ‘road test’ a range of options. A typical arrangement is for a farmer and a consultant to generate a model and plan ahead for a year based on a best guess. As the year progresses, the farmer updates his model by entering sales, purchases and feed covers. Once updated, the predicted pasture growth rate used to generate the plan is over ridden by fixing the actual pasture cover. An example of where this can be useful is entering a drought where the predicted future performance of stock is compromised by low feed covers. Various options for sales can be reviewed before the plunge is taken. Likewise, opportunities to make best use of surplus feeds can also be reviewed for fit.

Farmers who have been running Farmax over a long period notice patterns such as consistent periods of growth. One long term user described the confidence in the onset of spring growth and how he exploited the opportunity to purchase stock just prior to the onset while others waited for it to occur. The result was the farmer being able to enter the market at a lower price point. Over a period of time, growth rate variation from previous seasons can be used to increase the confidence of the current prediction. Other issues can also be exposed as a season progresses. Perhaps much less grass is grown than predicted perhaps highlighting a nutrient issue. Lower lamb growth than anticipated can indicate that feed quality or parasitism can be at play.

While Farmax can narrow down some options, there is still the need for the farm support network to craft a plan to achieve the changes that have been suggested. In fact, with greater use of such tools there will be even more need for support for farmers from vets and consultants as change is implemented. When an option to change is taken, the pathway to take is not always clear and there can be unforeseen challenges to deal with. The role I see for Farmax is to check for feasibility from a feed supply perspective and as a basic gross margin comparison tool. The confidence this provides, allows farm decision makers to spend more time assessing risk and capability. The outcome is more profitable farm systems.