

How the components are anticipated to enhance the farming system in the Corangamite / Glenelg Hopkins region and what research and investigation will be undertaken

Consider a farm that has 20% crop, 5% lucerne, 65% pasture (both wool sheep and prime lambs) and 5% native grasslands.

In **summer**, our system would have animals grazing the stubbles and we would be harvesting some straw. Rumen supplementation would be added to improve the utilisation of the stubble and improve animal yields (*Paired paddock and replicated research will be undertaken to ascertain the stubble reduction, liveweight change, subsequent crop establishment and lambing % on the treated and control sites*).

Pastures are spelled over this period, which helps their persistence (*This is already known through SGS and similar research*). The young growing animals or ewes we wish to flush to increase ovulation would be grazing the lucerne that we have sown on 5% of the cropping area as a break crop. (*Paired paddock and replicated research will be undertaken to ascertain the liveweight change of lambs, effectiveness of lucerne as a break crop for weed control, impacts on future crops and subsequent lambing % on the treated and control sites*).

The anticipated benefits are greatly reduced supplementary feeding costs, improved liveweight gain of young stock, improved reproductive performance in ewes. It is unsure of the benefits or negative effects to the crop ie. ease of sowing, weed control, nitrogen additions, subsoil moisture loss. All of these impacts will be measured and used in final systems analysis.

At the **autumn break** the stubbles have been reduced so we can crop with reduced trash problems and we don't need to burn (so fear of soil erosion, organic matter loss, complaints from the wider community about smoke haze are eliminated). (*Paired paddock and replicated research based on the stubble grazing work will be undertaken to ascertain the ability to sow into grazed stubbles and subsequent weed challenge in the treated and control sites*).

The summer grazing is likely to have reduced the major pests problems because the habitat is destroyed by grazing. (*The extent of this pest control will be compared with the no grazed treatments*). Further pest control will be achieved because we have areas of native vegetation strategically establish

throughout our farm, providing habitat to the predators that eat our major pasture pests. *(The composition, extent and spatial distribution of the native vegetation will be determined from the IPM work being conducted)* These actions have reduced spraying *(which will be documented)* and enhanced in native grassland on our farm that is rich in diversity *(determined through the mason / Lefroy biodiversity monitoring)*.

The native grasses in our system are also grazed during this period (using the grazing approach from recently completed DPI and LWW projects). This will further reduce the grazing pressure on the sown pastures.

By **mid winter** our drained pastures are growing better because waterlogging is reduced. *(Paired paddock comparisons of flats V drained pasture will be undertaken to ascertain the pasture yield and quality differences and impacts of grazing on soils)*. The anticipated result is less supplementary feeding in winter (calculated by inference), less pugging and soil structure damage *(measured)* and less cost *(measured)*.

Also in winter we will be strategically grazing our cereal crops. This will provide additional winter feed but may compromise crop yields *(Replicated trials will be undertaken to examine crop type, timing and intensity of grazing and crop yields. Animal production on ewes/lambs will be determined by inference)*. However a likely benefit is the reduction in vegetative canopy leading to less disease problems and less need for foliar sprays *(disease presence will be measured in the replicated trial and any sprays on the area recorded)*.

In other areas where we have high quality pastures, the stubbles conserved from the crops in summer will be fed ad lib to improve winter animal growth rates. *(Paired paddock comparisons of stubble V no stubble will be conducted to compare liveweight changes on weaner animals over winter)*.

In **spring** we have higher stocking rates to handle the spring flush because we have been able to maintain higher stocking rates over summer, autumn and winter and have been able to do so at a reduce supplementary feeding cost.

The various components that are measured will then be modelled to describe the systems impact.