Western Murray Land Improvement Group Inc

Grant Sims Industry Tour

The Subject
Cover crops are plants or a diverse mixture of plants that are grown to help supress weeds, manage soil erosion, soil fertility, soil quality, water, disease, wildlife, and biodiversity. They can be used as a rotation in a cropping pasture system and can provide biomass that can be grazed with very little input.
Bare soil can be easily damaged and washed away by rain, when rain hits the bare soil, it results in a surface crust and when soil is washed down a slope it can be caught in silt traps, however the richest part of the soil is the fine particles and organic matter are usually not caught in the silt traps.
Biofertilizer can make plant nutrients more available to plant and influence the production of plant hormones. They can reduce the need for traditional fertilizers which is a great alternative as the price of fertiliser is making in unaffordable for many

Challenges and objectives
Traditional fertilisers are becoming less affordable which means many people are looking for alternative and ways they can save money by doing more themselves.
People are becoming more aware of the importance of preserving their topsoil which contains a large amount of the beneficial soil biology and a way to do this is to use cover crops to keep the topsoil intact.

Solution
WMLIG had about 50 people attend a field day at Grant Sims multi-enterprise farm where he gave attendees a tour of his biofertilizer manufacturing facility, explained how it works and why he decided to start making his own. He also went through the different cover crop seed mixes they put together and when and where they should be used.
Grant has a wealth of knowledge about biofertilizer and cover crops and was more than happy to share this with our attendees and made everything simple and easy to understand.
There are benefits to livestock and crops when using cover crops this includes:

- Well planned annual cover crops can provide highly nutritious available forage when perennial grass pastures are either unproductive, poor in quality or in need of a rest. This delivers and great benefit to animal health and production.
- Enhances soil biology and improves soil structure.
- Increases infiltration.
- Reduces erosion.
- Assists in supressing weeds.
- Increases nutrient cycling and wildlife propagation.
- Used in a rotation in a cropping or pasture system, cover crops can provide huge amounts of biomass that can be grazed with very little input.
- Cover crops are low risk and low input for maximum production above and below ground - they make the most of out of season rain and improve liveweight while also improving soil health.

Grant has the facilities to make his own biofertilizer on farm, the benefits of biofertilizers are:

- Making plant nutrients more available to the plants.
- Enhances the production of plant hormones.
- Biofertilizers are cost effective when compared to traditional fertilizers.
- Reduce the need for traditional fertilisers.
- There is a potential for yield increases.
- Can improve the physical and chemical structure of the soil.
- It is eco-friendly.

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How cover crops are developed:

- The highest quality seed is sourced and inoculated with worm juice and other microbes to enhance germination and quorum sensing between each species.
- By using a diversity of root architecture and root exudates the multispecies are able to explore larger areas of soil making them more water and nutrient efficient. Each root system has its own unique ability to unlock and solubilise different minerals and nutrients.
- Seeds in the well-designed mixes, the plants will collaborate through the quorum sensing and fungal associations to share and release these minerals and nutrients in the soil, in turn providing greater nutrient density to the animals that graze it. This results in all round gains and gives the earth a greater chance of sequestering and building soil carbon at depth.

Bare soil can be easily damaged and washed away by rain, when rain hits the bare soil, the impact results in a surface crust.
When soil is washed down a slope it can be caught in silt traps, however the richest part of the soil is the fine particles and organic matter which will be likely lost. By keeping the soil covered by plants, the plants absorb the force of the raindrops and slow down the flow of the water on the paddock.

A patchy cover crop will protect your soil almost as well as a bulky cover crop, but a bulky crop is more difficult to manage than a less bulky crop. To benefit from a cover crop it is not necessary to use water and fertiliser to produce a bulky crop.

Providing ground cover, helping to build soil biodiversity and organic matter will contribute to improving nutrient availability, water holding capacity and weed suppression which are all crucial components in a sustainable agricultural system.

Results

All attendees found the information that was presented in the workshop relevant, engaging, and informative and 9 out of 10 were going to make changes to because of the information they received. Including:

- Apply liquid fertiliser, grow cover crops and spread gypsum for calcium.
- Leave more cover on the ground and try some cover crops.
- Manage ground cover better and make own fertiliser.

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Australian Government
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WAKOOL IRRIGATION DISTRICT AGRI-INNOVATION PROGRAM

AG Trends
An AgTrends Event

Other Information

- Seed mix options provided by Down Under Covers:
- High density winter and summer cover crops and forages.
- Starter mixes for winter and summer.
- Soil health biological primers.
- Dairy mixes (annual and perennials)
- Fruit and nut orchard mixes.
- Equine mixes.
- Wine and vine interrow mixes.