JUNIPER
MARGARET RIVER

Viticultural Management Practices

OVERVIEW

The south west of Western Australia is one of the most environmentally pristine regions of the world - an absolutely ideal place to grow grapes.

At Juniper Estate our approach to managing the vineyards is to regard them as ecosystems in which grape vines are the dominant species.

The vineyard ecosystem is comprised of many different elements including vines, other crop plants, volunteer plants (plants that are not planted by man but may not be weeds), water, soil and soil organisms, beneficial and pest invertebrates such as insects, beneficial and disease-causing microbes and adjacent natural habitat.

The management of each of these components is closely interrelated. As a result, intervention in one component is likely to influence the function or management of other components.

Therefore management activities are planned to maximise the desirable consequences and minimise any undesirable consequences. Improving the health of the vineyard ecosystems helps to minimise pest and disease outbreaks which may affect the vines.

The ways in which we are improving the health of our vineyards ecosystem are as follows:

- Improving the number and diversity of microbes in the soil by applying soil microbes and using mulches and compost.
- Improving the soil structure which the soil microbes and insects can thrive in through using mulches and compost.
- Protecting the soil from extremes of heat in summer by using mulch and under-vine cropping (preventing any soil from being uncovered).

Another important aspect of sustainable management is to minimise the need for repeated human intervention (e.g. spraying and cultivation) and the use of inputs such as pesticides.

An example is the way we use cane pruning, shoot removal, leaf removal and wire positioning to create an open canopy structure, hence reducing the need to follow a conventional (but still organically approved) spray program for powdery mildew and downy mildew. This open canopy also exposes bunches enabling them to achieve the full fruit and tannin ripeness and the flavour profile we require for our wines.

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PEST & DISEASE MANAGEMENT

No chemicals are applied which are taken into the vines (systemic chemicals). These types of chemicals are easy to use and effective and hence are commonly used in viticulture - however they cause unintended impacts to the rest of the ecosystem so we do not utilise them.

The only compounds used in our vineyard to control diseases such as mildew are organically registered mineral based i.e. sulphur and copper powders. These work by coating the vines to prevent the growth of powdery and downy mildews respectively. Sulphur and copper has been used on vines for more than a century and are the mainstay of an organic program.

Botrytis infection late in ripening can cause loss of quality and yield in vineyards. Conventionally managed vineyards often apply chemical sprays to control the disease. At Juniper we don't apply these, instead the microbes of the soil and vines in our healthy ecosystem keep things in balance and on the rare occasions that botrytis is an problem the affected bunches are removed by hand.

No herbicides (chemicals to control weeds) or synthetic chemicals to control snails are used, as these have undesirable impacts on beneficial microbes and insects.

COVER CROPPING

We sow a range of crimson clovers, rye and canola as an inter-row cover crop. These plants help to fix nitrogen in the soil, out-compete weeds (obviating the need for herbicides) especially the broadleaf weeds Radish and Cape Weed - the preferred food source of the developing larvae of the Garden Weevil which is a troublesome pest in the South West. Studies have shown that by removing these species of weed and replacing them with particular grasses you can help reduce populations of Garden Weevil in a vineyard. In addition, the deep roots of the cover crops help keep the soil friable and well drained. Also leaving some grass cover shades the soil and moderates the soil temperatures in the top layers over summer, improving conditions for microbes and root growth.

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SLASHING

Slashing is the mowing down of the inter-row crop, leaving the clips on the ground as a green mulch. Green mulch helps to add organic matter to the soil, and contributes towards maintaining good soil structure which is necessary to maintain the right chemical composition. The continual use of herbicides has a negative effect on soil microbes so of course slashing prevents that.

COMPOSTING

Compost is usually a mixture of nutrients (manure) and carbon (mulch) which is decomposed by microbes into humus. Humus is essentially a very fine dark-coloured collection of organic molecules, which is excellent in water and nutrient-holding capacity and allows soil aggregates to hold together - thereby improving soil structure. It not only adds organic matter and nutrients but also soil microbes to maintain or re-establish soil microbial communities. The soil organic matter strongly influences a soil's physical structure and water and nutrient holding capacity, and the living and dead organic matter is the food for organisms. The activity of these organisms, bacterial, fungus, nematodes, worms etc, is responsible for many vital functions such as nutrient cycling, pest and disease suppression, structural development and decomposition of contaminants (such as pesticides).

MANURING

Manures and organic based fertilisers are used rather than chemically extracted NKP type products. Whilst some of the world's best wine producing areas have some of the most impoverished soils (such as Margaret River where the soil is two billion years old and has been extensively leeched over that time) vines still need a minimum amount of soil moisture and nutrient at critical stages in the growing cycle. Manure provides a large range of nutrients and major levels of organic matter (it is mixed with sawdust and straw) as well as microbes. This gives the soil the health to provide the vines with these nutrients and moisture, at a more measured rate than if we were to use standard chemical fertilisers (which over-provide when there is soil moisture around and are not available when the soils dry out later in the year).

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BIRD CONTROL

At Juniper Estate we net vines to protect them from attack from Silver-eyes and other birds. We have no need to harm or shoot any wildlife on site. Any birds found in the nets are released on a regular basis.

LANDCARE

We have fenced off creek lines and areas of remnant vegetation to protect from sheep, cattle and rabbits. Over the years we have planted many hundreds of native sedges, reeds, shrubs and trees which are endemic to the local area. These areas have blossomed and provide a habitat for flora and fauna to thrive.

NATURAL PREDATORS

We release lacewings and native lady birds instead of using insecticides to control problem insects such as scale and mealy bug. Our cover-cropping and tree lines also help provide an alternate habitat for the predator insects - particularly during winter when there are no leaves on the vines.

SOIL COMPACTION

We minimise passes with the tractor and avoid, where possible, travelling along the rows when they are wet or waterlogged in June/July/August/September. We run sheep in the vineyard in winter to save the need to slash and herbicide. Growing cover-crops in the mid-row also helps support the soil structure and reduce compaction.