

Student 2.

Site Establishment and Planting Density of an Apple Orchard.

Site establishment is the most important part of the development of an apple orchard. If the site is not suitable for a apple orchard then it best not to establish an orchard on that site this is because if it s poor site then there will be a poor performance of the apple trees when fruiting.

Things to consider when establishing a apple orchard is the;

- Topography
- Soil type
- Fertility / soil nutrition
- Climate
- Planting considerations
- Water availability

All these things must be right and combine together so the site is suitable for establishment.

Topography.

The topography is the contour of the land and the shape the land has for example the high country of South Island is very hilly and has a rough topography, however, the Canterbury Plains is flat and has a very flat topography allowing good land for cropping and horticulture.

Things to consider when looking at the topography for an apple orchard is;

- Vehicle access – this means not just access for vehicles picking up the harvested apples but access in and around the orchard up and down each row for spraying of the fruit for pests and diseases, if there is no access for spray vehicles there would be little way for preventing any pests and diseases in the orchard. The apple trees will not produce the amount of apples demanded with having pest and diseases eating or affecting the fruit causing deficiencies.
- Low areas – low areas are unwanted as it may have pockets of cold air and have a lot of frosts in the unwanted time of the seasons.
- Flat land – land is wanted to be flat with rows planted North to South. This helps all the rows to be exposed the sunlight at the hottest time of the day giving all the apple trees sunlight. This issue of not enough sunlight to each tree is not so much a problem for the Hawke’s Bay as it gets a lot of sunlight ours and growing hours with the long growing season. However, in Canterbury this is more of a problem because the growing season is not as long. The land also is needed to be flat so the spray vehicles can spray the trees and also in some orchards like in the South Island they can lay reflective mulch sheets

under the trees to reflect light up to lay down apples on the bottom of the tree if the land is not flat then this sheet would be hard to [1].

Soil Type.

Soils for orchards have to be good, they need to have a good pH to allow access to nutrients, good fertility, good drainage, loose friable soil (not compacted). The soil needs to be friable to allow the trees roots to penetrate down so it has more access to the nutrients this also allows in the first few years for the trees to have a good establishing structure to anchor the tree in place. Best soils for apple trees to grow in are silt or sandy loams. Most soils in these categories have a good water holding and nutrient capacity. The soils are often free draining and they drain enough to prevent root rot. The pH that soils generally like is a 5.5 – 6.5 (slightly acidic) this is tested numerous times and just before planting this can vary between different cultivars and can be recommended otherwise, but usually the pH needs to be between these points [2].

Soil Nutrition

If the soil is nutrition deficient then the young trees will struggle and plant must not proceed, as it is easier to fix when there is no trees planted. If the trees are planted then the young trees will struggle. There will be little growth and when they fruit the fruit will be at a small quantity and size. Orchards should be regularly tested for the soils pH to make sure that it is acceptable and the soil is not nutrients deficient in macro and trace nutrients [3].

Climate

Temperatures, frost, sunlight and rainfall has to be considered for an apple orchard. The site before looking at the climate must be suitable. There has to be a considerable amount of rainfall in the winter and spring, however, in summer the soil must not be too wet as the tree can easily catch diseases such as black spot or fungal diseases or even worse the apples could die. Apple trees like a cold winter and after a few hard frosts the trees can be pruned the cold winter aids the buds and help them to bloom in the spring. Temperatures must be moderately warm for apples with a large range between 5 – 30° Celsius this allows the cold winter as well as warm summer to encourage brix levels to increase before harvest. There should be a large amount of sunlight hours for apples to raise their brix levels and for them to gain more colour for marketing of sales. The more sunlight hours there are the better as it allows the tree to photosynthesis and this will increase growth in the apple [4].

Planting considerations

Things to consider when planting the orchard are things like what rootstock to use, the planting density, what type of tree to plant (consider the future market), pollination trees in place and the placement of wires. When choosing the tree the thing that needs to be considered is the marketing for the fruit when planted and in the future years, also how will the tree grow in the soil it may not have enough nutrients in it or it might be very fertile and the tree could grow to vigorously [5].