

Agriculture Assessment

Plant Production - Blackberry

Due: 24th July 2006

For: Mrs Eyb

By: Laura Parsons



Neighbouring Farm

Rifle range
PH 5

Clay loam
PH 5

Holt Shed

Kilnham colliery

Scrub

Spot infestations of blackberry along creek

Loam
PH 5

Orchard - 4ha



20% blackberry
Fruit trees

Clay loam
PH 5.5

Line of trees

Clay loam
PH 5.5

Lucerne

Line of trees

Vegetable plots



CREEK

Road

Pasture

Clay loam
PH 5.5

Cattle yards

Shed House

Agriculture

Shed

Feedlot

Dog shed

Shed

Oats

Loam
PH 5

Silty clay loam
PH 5

Clay loam
PH 5.5

Clay loam

Question 3

Impact blackberry has on school's production systems.

Blackberry can affect many production systems within a farm. The production systems on the school farm, that is sheep, cattle, Lucerne, vegetables, including potatoes, fruit trees, pigs and chickens, are all affected in some way.

Blackberry is found throughout NSW, and found very little in QLD. This indicates that *blackberry thrives in a sub-tropical climate. It needs at least 750mm of rain annually and Orange's annual rainfall is between 800-1000mm on average, but varies from year to year. Summers are mild with temperatures of around 18°C-21°C on average which are excellent growing conditions and winters are cold with severe frosts, but that doesn't affect the blackberry as it is dormant. These climatic conditions make perfect growing conditions for the blackberry, which is one reason it grows so well in the Orange region.*

If the blackberry had been managed earlier, they wouldn't have had the chance to grow so rapidly and spread, so these problems would have been reduced or even avoided.

Stock on the farm that graze around infested areas are affected greatly. Sheep especially, can become tangled in the prickly and sprawling canes, with the spikes tangling in their wool. Often the sheep become so entangled they injure themselves and may even die. This ofcourse results in financial losses for the farm. The thick, dense canes restrict access to water and land and may cause stock to die of thirst or become very poor. Cattle may get injured on the canes prickles, but don't get tangled. With vermin such as rabbits living in the bush and digging holes and burrows, it may cause stock to fall in the holes and cause them to break their leg or ankle or simply injure themselves. Other vermin such as foxes and snakes can become a threat to livestock. Foxes will kill lambs and chickens, and snakes can bite, poison and kill an animal. Again this will lead to deaths and financial losses. Introduced species of birds will come to eat the fruit and can then eat stock food and some birds, like pigeons, carry diseases such as salmonella, which can be passed onto stock resulting in their death. Rabbits and wild pigs will ruin fences on the property and rabbits will graze on the pastures which includes the school's crop of Lucerne and oats.



Majority of blackberry found on the school farm is located in the orchard. The orchard produces very good apples but with an abundance of blackberry competing with them for space and nutrients, this could result in poor quality fruit and low yields. The blackberry bush sucks all the nutrients out of the soil leaving very little for other surrounding plants. With so many blackberry bushes sharing the same soil as the fruit trees, the apples would get very little amounts of nutrients which would stunt tree growth and the result would be small and very few apples would be produced. If these apples were to be sold, many potential buyers would refuse, and if the fruit was eventually sold, it would bring in very little profit.

When the blackberry fruit drops to the ground or is eaten and dropped by birds or foxes, it may end up in pasture crops such as the school's Lucerne and oats. The seeds may germinate in the Lucerne or oats and will grow into a young, prickly plant. This contaminates the crop and if many plants start to grow and are slashed with the Lucerne and oats, the quality of both will be downgraded, and a lot harder to sell. The price will be lowered and therefore a profit will not be made. The small prickly stems can spike people when the contaminated Lucerne is handled and may be unpleasant to eat by stock. The growing bush will also suck nutrients from the soil. To prevent this from occurring, the Lucerne and oats should be thoroughly checked for any signs of blackberry growth and if any, the bush should be pulled out.

The blackberry bushes can also harm grapes that grow abundantly in the surrounding area. Both the blackberry and grape vines hold Botrytis spores and they can be triggered by warm, humid temperatures, water and host conditions. It may also arise from decaying matter. If a blackberry bush contains it, it may spread to the vines causing the berries to shrivel and the sugar to concentrate. The decaying matter of nearby blackberries may fall under the vines and infect them. Symptoms of this damaging disease include yellowing foliage, defoliation, brown, soft areas or circular spots. The disease will reduce the grapes yields and can wipe out a crop.

All of these disastrous and costly impacts from the blackberry can be avoided if the blackberry is controlled. The bush will continue to grow and continue to cause these problems, which will directly affect the school's farm and the schools finance. The blackberry must be managed now before it causes more damage to the valuable production systems.

Question 4

Detailed management plan for managing the blackberry.

There are a number of things that need to be taken into account when planning and carrying out eradication of the blackberry. The most important thing to consider is when the best and most appropriate time to start managing the weed is. This of course depends on the growth stages of the blackberry, the age, climate, topography and weather conditions. The types of chemicals used should be considered and thoroughly checked to determine whether they are suitable and safe.

Before starting the management strategy, the blackberry scrubs may be checked to ensure they have at least 1 metre of regrowth. The plant must also be actively growing and not stressed as this will cause the chemical to not be as effective. The plant could be stressed because of climatic conditions such as in drought or when there are severe high or low temperatures. The density and number of plants will also give an indication as to how the weeds must be treated.

On the school farm, the infestation of blackberry bushes is quite moderate to scattered in both the orchard and creek. In observing this, an appropriate chemical and control method can be established.

The climate and weather are also huge contributing factors as to when certain practices should or shouldn't be carried out. The climate affects the overall growth of the plant and the plant has different growth stages which occur in different months. The right management practice should be chosen to suit the season and stage of growth. The day to day weather should be carefully monitored in advance which will determine when spraying or slashing can commence. The blackberry should not be treated until there has been sufficient rainfall. About one month after rain has fallen is the time the weed should be treated as this gives the plant time to respond to the moist soil. Some herbicides are rain fast and are able to stand rain about 1 hour after been applied.

Woody weeds like blackberry are difficult to control. They may die off after one initial treatment, but it will sprout and develop regrowth. Therefore, to get full control of blackberry, a 3 cycle plan must be carried out over a period of 3 years. In this time, different treatments will be used at specific times of the plants growth.

For the school farm, a 3 cycle plan must be developed with alternating spraying and slashing.

Grazon DS is the herbicide which will be used. Grazon DS would be an appropriate herbicide to use as it has many benefits. Grazon DS saves both time and money. The weed will only have to be sprayed once in each cycle as it doesn't wash off. It is even rain fast just one hour after the application. Grazon DS also kills other noxious weeds and doesn't kill existing grass. It actually helps and allows pasture grasses to provide competition to other noxious weeds which may sprout. Grazon DS provides quick brown-out of leaves so any missed places are easy to spot. Another advantage is it isn't harmful to stock. Grazing can continue where the plants are and no withholding periods apply, though plants should have died off slightly before stock are placed with them. Grazon DS works by restricting cell growth and causes the leaves to die. It is also a group I chemical which means it is a low risk herbicide.

Cycle 1

The first cycle of the management plan will involve spraying the blackberry with a herbicide, the chosen herbicide being Grazon DS. There is however, a specific time that the spraying must be done to guarantee that it will work. First and foremost the blackberry bushes must be checked by the person, who will spray to ensure the weed is not stressed, is actively growing and has at least 1 metre of regrowth. If the canes tips are checked, they should have fresh new leaves and be healthy, not wilted. Spraying should be done before winter defoliation or senescence. Other factors should be checked and noted such as climatic conditions eg drought and the neighbouring plant and animal species. All neighbours, parents and students should be aware of the spraying intentions.

The blackberry should not be sprayed in dry conditions as it will be stressed. Sufficient rain must have fallen at least one month before spraying. The weather should be closely monitored in advance. There should be no sign of rain, high wind speeds or extreme temperatures. These factors should also be checked on the day of spraying. Rain that falls about 1 hour after the application will not affect Grazon DS but it would be preferred if there was no rain. High wind speeds will cause spray drift which could seriously affect other plant species. High temperatures will stress the plant and when the spray comes out of the gun, the heat will evaporate some before it reaches the plant and will evaporate it off the plant. If the climate, growing conditions of the blackberry and weather all permit, the most appropriate time to spray is in late spring to early autumn, (November-March), which is when the weed is actively growing. In this period, the blackberry is germinating, flowering, fruiting and the tip is rooting, so it will easily die off.



Cycle 2

Within 6-8 months of the first spraying application, slashing of the blackberry should take place. This will remove any dead canes and reduce vermin habitat and fire danger. Slashing will also help to open up dense thickets which will assist when spraying for the second time. Slashing will not harm surrounding plants such as the fruit trees like burning will. The slashing will also force regrowth on the plant using uproot reserves and this will result in the plant weakening. The steepness of the creek banks would make it very hard to access, so it would be best to leave the dead canes to rot and help prevent erosion.

Cycle 3

Within 12 months of slashing and after one metre regrowth, another follow up cycle of spraying must occur to cover and kill the regrowth. The same steps must be taken as in the first cycle of spraying.



When applying the spray, a hand gun will be used. High volume spraying is recommended for spot spraying especially in thick infestations. The inside of the bush should be sprayed first and then the outside leaves, runners and tips. When doing this, it is important to only wet the bush, don't drown it. The entire bush should be just covered as over spraying will waste chemical and money. The gun should be held up high pointing downwards and slightly away from the bush to allow for maximum coverage, but the risk of spraydrift must be kept in mind. When spraying near the creek, extra care should be taken so not to contaminate the creek bed.

When slashing, a tractor operated slasher is connected to the back of the tractor and drug over the blackberry bushes.

There are numerous benefits which come from implementing this strategy of blackberry eradication. The first initial spraying of the blackberry will prevent the weed from growing and will cause brown-out on the leaves. After some time though, 6-8 months, the plant must be treated again, this time with slashing in the orchard and leaving the weeds in the creek to rot. Slashing will clear the area of dead canes and access for rehabilitation will be re-established. Vermin and fire danger will be reduced. Slashing will also weaken the plant. However regrowth will occur again so a final knockdown of the blackberry can be done by re-spraying again with Grazon DS. The 3 cycle plan will kill off and eradicate the problem.

By eradicating the blackberry, the benefits will be tremendous. With no blackberry left, there will be little vermin around and a fire risk will be eliminated. The value of the property will be increased as will the carrying capacity of the property. Stock will be able to access waterways much more easily without an obstacle in their way and therefore stock losses will be minimised. When it comes to mustering stock, this will now be a lot easier as stock will not be blocked and get lost in the blackberry. Government regulations are extremely important and with no blackberry infestations, government regulations will be met. *The environment will also benefit as will surrounding crops and vegetation.* To prevent erosion from occurring, a dense competitive pasture can be planted which will also control topsoil loss.

Overall, eradication of this noxious weed will benefit all production systems on the school farm. In the long run, money will be saved and a profit will be made as there is now no problem weed disrupting the farm.

Bibliography

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Noxious and Environmental Weed Control Handbook 2004-2005

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Ivan Hanrahan – Spray Contractor/farmer

Linda Ayres – Agronomist with Orange DPI, Forest Road.

Woody Weed Control guide

Marianne Donnerly – Agronomist with Sid Newham's Bathurst

Google Images



"The Quik Spray is a machine of exceptional quality. I can cover a substantial amount of country in one day - it's surprising. The after sales services is second to none"

Ivan Hanrahan

"Ivanhoe", ROCKLEY, NSW.

Uncle Ivan bought this Quik spray and was very impressed and he quotes.



Blackberry bushes in Orchard



Blackberry bushes surrounding fruit trees



Blackberry bush along creek



Photo of me in a blackberry bush. This shelter in the bush is an ideal home for vermin such as foxes and wild pigs.



The long, prickly canes protrude out and get caught on sheep's wool.



The leaves on a primocane. At the time this photo was taken, the plant was dormant as it was winter.



The blackberry bush is extremely high and has many sprawling canes.