



Best practice weed management and the future of herbicides

Weeds in vineyards are those non-beneficial plants that can have an adverse impact on crop yield, grape quality and vineyard operations. They can also harbour vineyard pests and disease. Weeds are managed in a variety of ways, including with the spraying of herbicides. In this column, AWRI Senior Viticulturist Marcel Essling answers questions about the future of using herbicides to control weeds.

How common is the use of herbicides use to control weeds in Australia?

Herbicides are one option to control weeds in agriculture and many farmers use them. More than half (55%) of the \$2.73 billion spent on agricultural chemicals in 2018/19 in Australia was spent on herbicides (APVMA). The reason for the popularity of herbicides with farmers is that they provide a cheap, efficient and effective way to manage weeds. They can be applied relatively quickly and the control achieved can be very good and persist for the season. One of the key benefits of using chemicals to control weeds in agriculture is avoiding the physical soil disturbance that is a characteristic of some mechanical weed control options.

Will regulation remove access to herbicides in the future?

Agrochemicals are subject to review by regulatory agencies and in Australia this work is done by the Australian Pesticides and Veterinary Medicines Authority (APVMA). Reviews are conducted on a periodic basis, or if new scientific information suggests a change in risk from the use of an agrochemical. It is possible for a herbicide's registration to be revoked if the review process identifies a previously unknown risk that cannot be managed through, for instance, changes to product formulations or new label directions such as buffer zones or personal protective equipment requirements.

The decisions of regulatory agencies are obviously important in determining which chemicals farmers can use, but

community sentiment also plays a role. Wine sellers are aware of the views of some consumer segments about the use of agrochemicals and they may put pressure on suppliers to produce wines using a restricted list of agrochemical inputs. This pressure is not new, but it is increasingly being felt by wineries in relation to the use of some herbicides.

What can be done to maintain access to herbicides?

The agriculture sector, chemical registrants and farmers have a role to play in maintaining access to the agrochemicals registered for use in Australia. Collectively, we must be able to demonstrate how herbicides can be integrated into weed management programs to achieve the best outcome for the farmer, society and the environment. This includes understanding what constitutes best management practice based on research findings and being able to show that such practices are being followed. Farmers and their representative bodies need to be able to prove and articulate to the public the benefits that herbicides bring to maintain a social licence to use them.

What does best practice weed management look like?

Best-practice weed management can be difficult to define because no single strategy is going to suit all situations. Conceptually, it involves having a strong and considered justification for any actions. It requires a deep understanding of the weed you are aiming to control, and the risk that the weed poses if it is not controlled. It also includes considering all the non-chemical control options (livestock, mulch, cultivation, mowing, cover crops etc.) and how they can be used in an integrated manner. Best-practice weed management may also involve uptake of technologies that lead to a more targeted use of herbicides. For example, Weed Seeker is technology that uses sensors to identify weeds and trigger the delivery of the required herbicide dose to the target, resulting in reduced overall herbicide use. There is also a lot

of interest in mechanical weed control tools, which operate on the principle of disturbing the roots of weeds to manage them. These tools come in many forms and can be very effective; however, they do need to be evaluated for their impact on soil structure and their running and maintenance costs..

It is also important to be aware of information available about the weed and the herbicides being considered. Before a herbicide is applied, the label and associated literature should be read carefully and all instructions followed. Understanding the conditions under which the herbicide is most effective and when the weed is most susceptible is also key. Small weeds are easier to control than larger weeds and controlling weeds before they set seeds helps to reduce the risk of resistance being developed and to minimise the seed levels in soil.

CropLife Australia publishes integrated weed management strategies which aim to minimise the risk of weeds developing resistance. In addition to rotating modes of action of herbicides used, these strategies stress the importance of monitoring and record-keeping. Accepting that bare ground is an invitation for seeds to germinate, best-practice weed management requires having a plan for after the weeds are gone and a long-term strategy that derives a benefit from volunteer growth of more desirable species in the vineyard. These benefits can include: suppression of weed species; habitat for beneficial insects; increased soil organic matter; enhanced nutrient cycling; and improved soil structure.

The AWRI is developing a non-chemical weed control tool for the AWRI website and resources to help growers to develop a weed management plan. For more information, please contact the AWRI helpdesk at helpdesk@awri.com.au or 08 8313 6600.

References

APVMA Gazette: No. APVMA 5, Tuesday, 10 March 2020. Available from: https://apvma.gov.au/sites/default/files/gazette_10032020_0.pdf

