

# **Autonomous Agricultural Equipment**

*A brief discussion of the situation in California relative to the use of robotics, self-driving tractors and other autonomous equipment in vineyards and fields.*

## ***The Need***

There is a growing need for the use of autonomous agricultural equipment. This is in part due to a decreasing labor force, increased labor costs, increased environmental regulations, and increased threats of pests. Importantly, the development of autonomous agricultural equipment has shown this to be an option that increases worker safety, decreases environmental threats, and is cost effective for many growers.

Employees want this equipment because they will be trained to use the equipment and in doing so will learn a less labor intensive form of work and a skill that comes with upward mobility in the agricultural industry and is transferable to other industries.

## ***The Problem***

Under Section 3441 of Title 8 of the California Code of Regulations, self-driving agricultural equipment must have a person physically on board the equipment. This regulation is nearly 50 years old and means, for example, that a tractor that is operated by a remote lap top computer must also have a driver sitting at the tractor's steering wheel. This creates several problems, including but not limited to the following:

- Having a person on board the tractor and another person operating the tractor remotely significantly increases the potential for human error thereby needlessly creating safety concerns.
- Having a person on board the tractor potentially exposes that person needlessly to pesticides. While pesticides are used under strict safety standards, the safest thing to do to protect employees is to remove that employee from the vineyard when spraying any chemical. Autonomous ag equipment allows that to happen.
- There is no safety benefit to having a person on board the tractor. Therefore it needlessly increases labor costs.
- Much of the new equipment is not manufactured with controls (brake pedal, steering wheel, etc.) onboard the equipment. Therefore, compliance with the regulation is not really possible.

To our knowledge, no other state or country has the regulatory restrictions that are in place in California.

## ***The Solution***

The California Association of Winegrape Growers is working with other agricultural organizations and with manufacturers to educate regulators on the safety of this equipment and the evolving technology. The goal is that with increased awareness, regulators will see the need to amend this regulation to reflect current technology and to allow for full use of the equipment as it was designed to be operated. This would likely include safety parameters for use of the equipment for it to be operated in California.