



## Chapter 11

# **MATERIAL HANDLING**

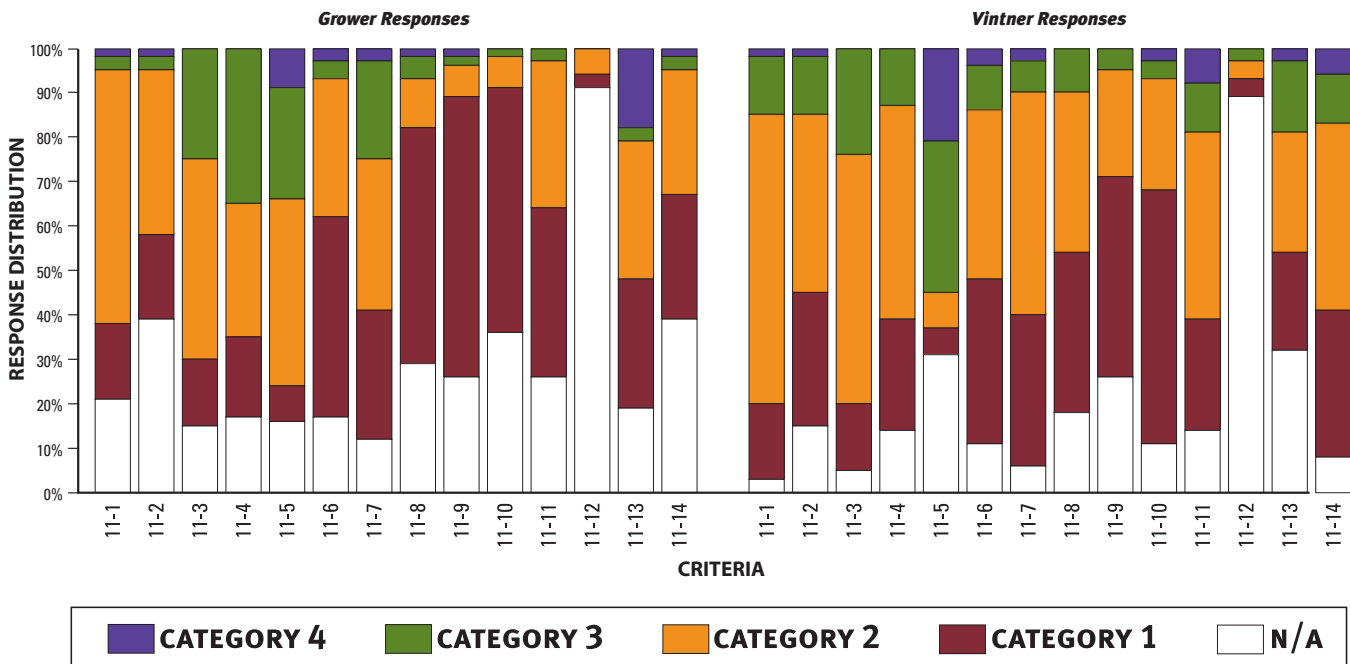
# Background

Materials used in vineyard and winery operations are potentially hazardous if they have one or more of the following properties: flammability, reactivity, toxicity or corrosivity. Reducing the amounts of these materials whenever possible can enhance the health and safety of people at the facility and minimize the risk of exposure to the environment. Any measures that can be put into place to reduce or eliminate the use of hazardous materials and the generation of hazardous waste can also reduce liability exposure.



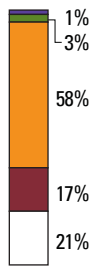
Since the use of hazardous materials leads to the generation of hazardous waste, reducing the use of or replacing these materials with non-hazardous products generates less waste. Accomplishing this task requires growers and vintners to begin practicing a pollution prevention (P2) approach to their operations. The P2 approach takes a full systems view of the operations to help identify the best areas for reduction, substitution or elimination of hazardous materials.

## MATERIAL HANDLING BENCHMARK DATA



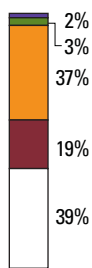
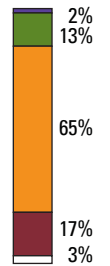
# Benchmark Data

**Grower Response**

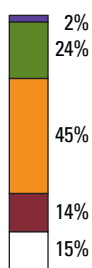
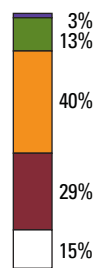


**11-1. PLANNING, MONITORING, GOALS AND RESULTS** To reduce the amount of hazardous materials (haz mat) and the generation of hazardous waste (haz waste), vintners and growers must know how much they use and what materials contribute to the amount of haz waste they generate. 4% of growers and 15% of the vintners monitor and record information on haz mat purchased and haz waste generated, set yearly goals for reduction per specific operation and have contacted regulatory agencies for P2 information. In addition, 1% of the growers and 2% of the vintners have demonstrated a 25% or greater reduction per specific operation and have P2 as part of employee training. 58% of growers and 65% of vintners have begun to monitor and record their information, are in the process of establishing goals and consider regulatory agencies as potential information sources. 17% of growers and vintners have very little idea about their haz mat use and haz waste generation and they consider compliance to be a separate liability issue. 21% of growers and 3% of vintners replied N/A, not applicable or information not available.

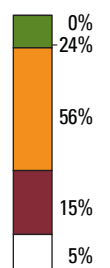
**Vintner Response**



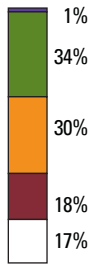
**11-2. GOOD HOUSEKEEPING** By understanding how haz mat and haz waste are related and how the handling of haz waste can prevent liability exposure and environmental contamination, growers and vintners can avoid creating unintended problems. The dumpster area is one of the easiest zones in which to begin an investigation into haz waste moving off site. 5% of growers and 16% of vintners have a formal inspection system for dumpsters; regularly inspect them; put them on cement pads to contain spills; include haz waste identification in employee training; and have bilingual signs posted near dumpsters. 2% of the growers and 3% of the vintners also place the dumpsters in covered areas and have an integrated solid waste and haz mat program that includes dumpsters. 37% of growers and 40% of vintners have an informal inspection system; infrequently inspect dumpsters for leaks, spills and litter; have signs posted; and do not inspect for unintentional haz waste disposal. 19% of growers and 29% of vintners have no scheduled inspection system, rarely inspect for leaks, spills or litter, and do not inspect for unintentional haz waste disposal. 39% of growers and 15% of vintners replied N/A, not applicable or information not available. These could be small growers who don't have dumpsters but are still using some method of disposal of their haz waste.



**11-3. HAZARDOUS MATERIALS STORAGE** Knowing where the haz mat is used on site allows growers and vintners to identify the best way to store the material so that it doesn't spill and lead to potentially expensive haz waste clean-up costs. While 71% of growers and 80% of vintners say they know the amount of haz mat that they have and that they store it away from storm drains, only 26% of the growers and 24% of the vintners keep a haz mat inventory, demonstrated a reduction of haz mat use and replaced one haz mat with a non-hazardous product. 2% of the growers have replaced at least 3 hazardous materials and demonstrated a haz mat reduction of at least 25%. 14% of the growers and 15% of the vintners do not know the total amount of haz mat on site. 15% of growers and 5% of vintners replied N/A, not applicable or information not available.

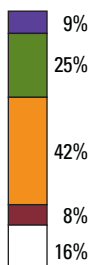
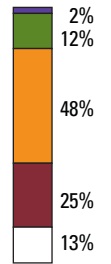


**Grower Response**

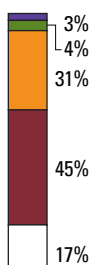
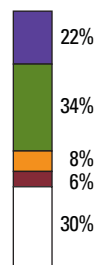


**11-4. HAZARDOUS MATERIALS DISPOSAL** Once hazardous materials are used, the remaining unused material is now considered hazardous waste. How this waste is stored, treated and disposed is critical to reducing liability exposure and protecting human health and the environment. 65% of growers and 62% of vintners know the amount they generate; separate haz waste from solid waste and store it in a centralized location away from storm drains; clearly identify materials that generate haz waste; and train employees in handling and disposal of haz waste. 35% of growers and 14% of vintners also keep a waste log with hauler manifests, have reduced haz waste generation and store some haz waste separately to facilitate recycling. In addition, 1% of the growers and 2% of the vintners have demonstrated a 25% reduction in their haz waste generation. 18% of growers and 25% of vintners do the minimum legal requirements. 17% of growers and 13% of vintners replied N/A, not applicable or information not available.

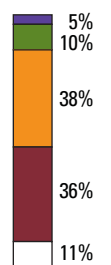
**Vintner Response**



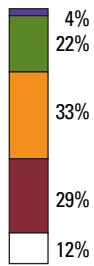
**11-5. TIRES** Some items considered to be haz waste are more familiar to growers and vintners than others. One such item is tires. Disposal practices for tires once considered legitimate may have been updated and are no longer seen as viable options. 76% of growers and 64% of vintners know how many tires they use and how they are disposed. 34% of growers and 56% of vintners take their tires to a tire shop for trade in or recycling, and 9% of the growers and 22% of the vintners go the extra mile to purchase high mileage tires to reduce the number of tires used. 8% of growers and 6% of vintners didn't know how many tires they used or what happened to the used ones. 16% of growers and 30% of vintners replied N/A, not applicable or information not available.



**11-6. BATTERIES** Batteries are haz mat, although often not recognized as such. 7% of growers and 15% of vintners know and track the number of products requiring batteries, and they collect all non-rechargeable batteries and take them to a haz waste collection site. 3% of the growers and 5% of the vintners also have reduced the total number of batteries used by 40% and use rechargeable batteries in at least 75% of their appliances. The other 4% of these growers and 10% of these vintners have reduced the total number of batteries used by 25% and use rechargeable batteries in at least 50% of their appliances. 31% of growers and 38% of vintners know the total number of batteries used and products requiring batteries and use rechargeable batteries in 25% of their appliances; however, they dispose all non-rechargeable batteries in the solid waste. 45% of growers and 36% of vintners know nothing about their battery use. 17% of growers and 11% of vintners replied N/A, not applicable or information not available.

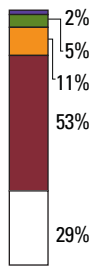
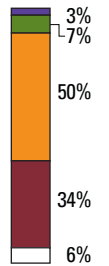


**Grower Response**

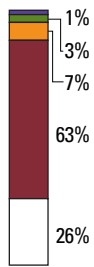
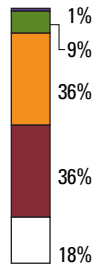


**11-7. LUBRICANTS & OILS** Maintaining vineyard and winery equipment, such as tractors and forklifts, in good working condition is part of the work ethic of most growers and vintners. This maintenance requires that lubricants, oils, coolants and solvents get used and disposed of properly. 59% of the growers and 60% of the vintners monitor the total volume of use and know the methods of disposal for lubricants, oils, coolants and solvents. 26% of the growers and 10% of the vintners also drain and recycle oil filters, separate the waste for recycling, train employees in appropriate disposal methods and use one recycled or refined product. In addition, 4% of growers and 3% of the vintners use two or more recycled or re-refined products and post signs about oil and lubricant recycling. 29% of growers and 34% of vintners do the minimum legal requirements. 12% of growers and 6% of vintners replied N/A, not applicable or information not available.

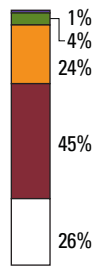
**Vintner Response**



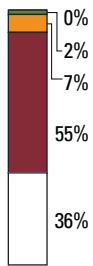
**11-8. PAINT & PAINT THINNER** Painting has come under increasing scrutiny for impacts to the environment, especially air quality. 18% of growers and 46% of vintners know how much paint they use and record the amounts, and store the paints in a centralized location. 7% of the growers and 10% of the vintners also use latex paints, store them in double containment, and train employees about appropriate clean-up and disposal of latex paint. In addition, 2% of the growers and 1% of the vintners only use latex with low VOCs, post signs about clean-up and disposal, and use materials that do not require painting. 53% of growers and 36% of vintners follow minimum legal requirements. 29% of growers and 18% of vintners replied N/A, not applicable or information not available.



**11-9. AEROSOL CANS** The technology used in aerosol cans was developed for easy use and convenience. Since their introduction, science has shown that this technology can also be a pollution source. 11% of growers and 29% of vintners know the amount of aerosol cans used per year, store them in a centralized location and separate out the aerosol cans containing toxic and combustible materials for haz waste disposal. 4% of the growers and 5% of the vintners also calculate the amount of toxic and combustible substance, purchase in bulk (if appropriate), and use refillable compressed air or pump dispensers. In addition, 1% of the growers and vintners have reduced their use by 25% and implemented alternative disposal methods for non-hazardous aerosol cans. 63% of growers and 45% of vintners don't know how many aerosol cans are used, do not store them in a centralized location and throw them away in the solid waste. 26% of growers and vintners replied N/A, not applicable or information not available.

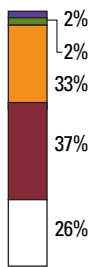
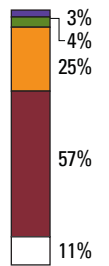


**Grower Response**

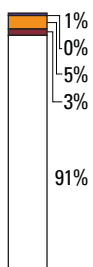
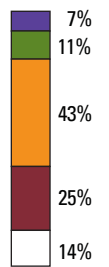


**11-10. LIGHTING** When changing out light fixtures the ballasts can be potentially hazardous, depending on the year they were manufactured. 9% of the growers and 32% of the vintners know when the ballasts were manufactured. 2% of the growers and 7% of the vintners also have identified the ballasts by year manufactured and year replaced, dispose of the replaced ballasts through a licensed toxic waste company and have a *Uniform Hazardous Waste Manifest*. 7% of the growers and 25% of the vintners identify the ballasts by year and dispose of them in haz waste containers. 55% of growers and 57% of vintners do not know when the ballasts used were manufactured and dispose of replaced ballasts in the solid waste disposal system. 36% of growers and 11% of vintners replied N/A, not applicable or information not available.

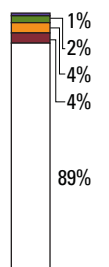
**Vintner Response**



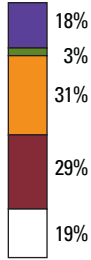
**11-11. STORM WATER & WASTEWATER PROTECTION** Keeping haz waste away from storm drains is critical to protecting water sources. Polluting water bodies exposes a large percentage of the biological community to the direct risk from hazardous substances. For this reason, exposure prevention is also a primary business practice that reduces liability exposure and risk to the entire enterprise. 74% of the growers and 86% of the vintners have identified storm drains. 37% of the growers and 61% of the vintners also store haz mat and haz waste away from storm drains; label all storm drains; do not clean major equipment outside; have diversion valves installed on critical storm drains; and have a Storm Water Pollution Prevention Plan (SWPPP) in place. In addition, 4% of the growers and 18% of the vintners have documented the locations to which the storm drains empty, have visual indicators on the diversion valves and train the management and staff as part of the SWPPP. 2% of the growers and 7% of the vintners have added further measures such as berms to contain major spills. 37% of growers and 25% of vintners do not store haz materials or haz waste away from the storm drains and still wash equipment outside. 26% of growers and 14% of vintners replied N/A, not applicable or information not available.



**11-12. UNDERGROUND STORAGE TANKS** Underground fuel tanks have been known to leak. The fact that 91% of growers and 89% of the vintners stated that this did not apply to them is good news and indicates that most growers and vintners have removed their underground tanks, or never had them in the first place. 6% of growers and 7% of vintners know where their tanks are located, know the amount of fuel and record the amounts, have spill clean-up supplies and train their employees in clean-up techniques. 1% of growers and 3% of vintners also have cement pads for the fueling area, use dry clean-up supplies, and post fueling safety signs. In addition, 1% of growers and vintners have bilingual fueling safety signs posted. 3% of growers and 4% of vintners are doing the minimum legal requirements.

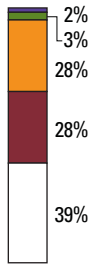
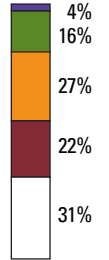


**Grower Response**

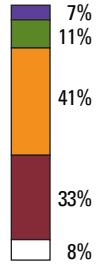


**11-13. ABOVE-GROUND STORAGE TANKS** The leaking underground fuel tank issue has led many growers and vintners to choose above-ground fuel storage tank (AST). The growers and vintners must implement new practices to ensure that any fuel that is spilled is contained on-site so that it can be cleaned up and disposed of properly. 52% of the growers and 47% of vintners know the locations of the AST; know the sizes of the tanks and the amount of fuel is known and tracked; inspect the fueling area regularly; make spill clean-up supplies easily accessible; and train employees in spill prevention, control and clean up. 21% of the growers and 20% of the vintners also have cement pads for the tanks, post signs about fueling procedures and use dry clean-up supplies. In addition, 18% of the growers and 4% of the vintners have bilingual signs. 29% of growers and 22% of vintners meet the minimum legal requirements. 19% of growers and 31% of vintners replied N/A, not applicable or information not available, perhaps because they don't have any fueling tanks on their land.

**Vintner Response**



**11-14. JANITORIAL SUPPLIES** Janitorial products are commonly used and often overlooked as hazardous materials. 33% of growers and 59% of the vintners consider janitorial supplies as potential sources of hazardous or toxic material, read product labels before purchasing and encourage outside janitorial contractors to use low or non-toxic products on site. 5% of the growers and 18% of the vintners also request Material Safety Data Sheets on all janitorial products and have janitorial supplies handling as part of their employee training. In addition, 2% of the growers and 7% of the vintners include employee training as part of a comprehensive Pollution Prevention Plan and use the toll free customer service number to get additional information. 28% of growers and 33% of the vintners do not consider janitorial supplies as potential sources of hazardous or toxic materials and rarely read the labels before purchasing. 39% of growers and 8% of vintners replied N/A, not applicable or information not available. Some growers may not use any janitorial supplies.



## Best Practices

**Statewide Strengths:** Though the material handling criteria are extremely challenging, more than 25% of growers reported using the highest level of material handling practices for hazardous material storage and disposal, and for handling tires, lubricants, oils, coolants, and solvents. Twenty-five percent of vintners reported using the highest level of material handling practices for hazardous material storage.

Sustainable winegrowing and green business practices are throughout the operations of Trinchero Family Estates, and a materials handling program for hazardous wastes is part of the winery's business plan.

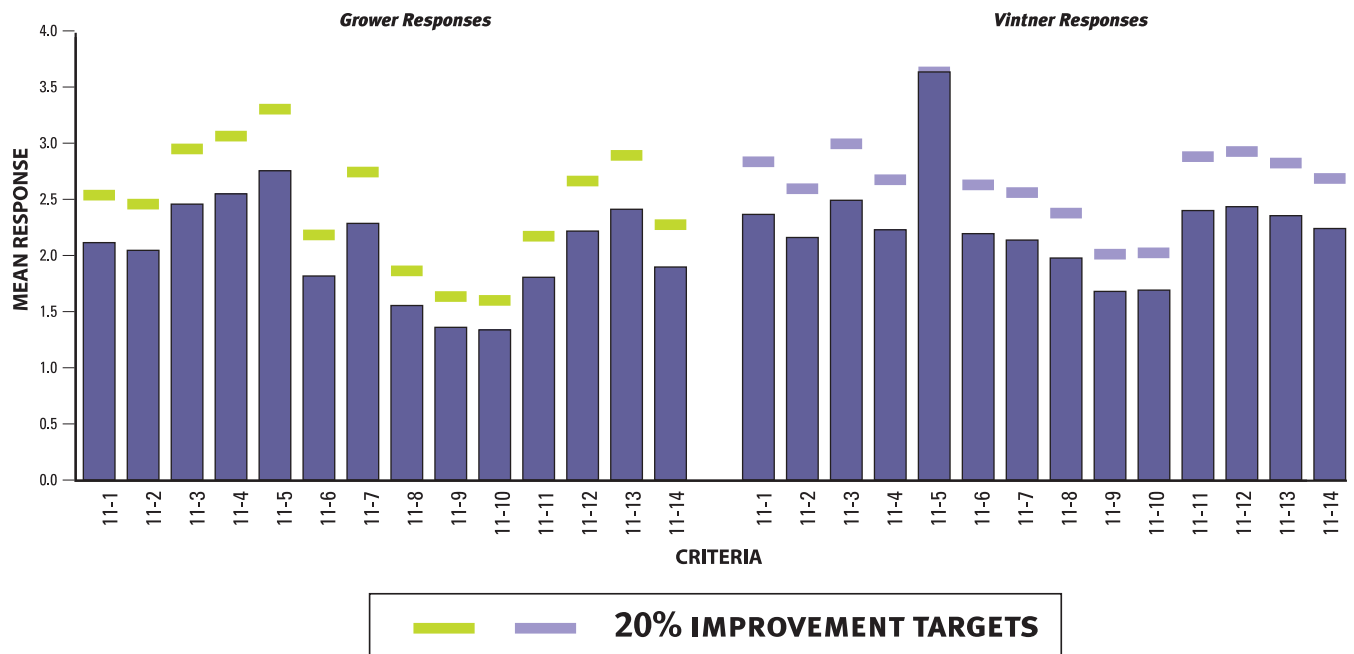
With the goal of not sending hazardous wastes to the normal landfill, the Trinchero program has identified what is in the winery's waste stream, which employees generate it and how the waste will be recycled or safely disposed. A full-time person assures that oils, solvents, batteries, fluorescent lights, paints, cleaning solutions and other hazardous materials are collected and stored in a secure area. The inventory is further segregated to decrease recycling expenses, such as the different types of oils that vary in the cost to recycle. Staff also maintains documents on what wastes are picked up, by whom and on what date to satisfy Cal-EPA regulations and an annual audit by the county. Every effort is made to reduce the use or replace materials with non-hazardous substances. Employees attend training seminars to reinforce the entire program.

The monitoring of storm water runoff and process water is an important part of Trinchero's materials handling program. If contaminated water runs off site into storm drains and streams, a winery could be fined \$20,000 a day, plus clean up costs. Trinchero Vice President of Operations Bob Torres says process water is diverted from storm drains to their ponds, and grape pomace is composted so it doesn't leech into any nearby rivers. Pollution is an accumulative process, so wineries, large and small, all need to stay on top of it, he explains.

## Targets and Timetables

**Statewide Opportunities for Improvements:** There are opportunities for improvement in one or more criteria for the majority of growers and vintners.

The California Sustainable Winegrowing Alliance has set a desired goal of demonstrating improvement in the scores indicated below. By harvest 2009, CSWA will strive to move the average scores to the positions marked in green for growers and purple for vintners. When these goals are attained, practices will have improved from the initial benchmark averages by 20%. To reach these goals, CSWA needs partners. If you are interested in improving material handling practices in the wine industry, please email [info@sustainablewinegrowing.org](mailto:info@sustainablewinegrowing.org).



*“It feels good to be in a pioneering effort.”*

WORKSHOP PARTICIPANT, NAPA COUNTY, MAY 2003