The Connecticut Farm Risk Management Team at UConn Extension is excited to introduce you to the inaugural issue of our UConn Extension Risk Management Program newsletter. This newsletter will be distributed via email and other forms of media to farmers and growers in Connecticut. The goal of this newsletter is to provide helpful and timely information on a variety of risk management topics.

Each issue will contain:

- A Calendar of events
- Updates on RMA and FSA crop insurance programs such as sales closing deadlines, new policies, written agreements and policy changes
- Each issue will also include articles of interest ranging from production practices, market outlook, labor related issues and interviews with farmers.

We encourage all of our readers to provide feedback and suggestions concerning newsletter content. Our goal is to provide a newsletter that provides useful information.

Thank you

Contents:

- Real Farmers – Real Risks: Interview with Preston Ridge Vineyards
- Spotlight: Glyphosate – Risk or Management?
- Risk Management Technology: Exclusion Netting
- IPM – Cultural Practices to Reduce Risks: Mulching
- Schedule of Events
Real Farmers, Real Risks: Interview with Preston Ridge Vineyards

Preston Ridge Vineyard is a beautiful vineyard and winery located in Preston, Connecticut. The owners and team members at Preston Ridge work hard to produce a wide variety of grapes and have an impressive line of local Connecticut wines. Their tasting room and outdoor wedding venue immerse guests in the prestige of the Connecticut countryside. And an extensive events schedule including live music, food trucks, and yoga assure there is something for everyone to enjoy. Because of the highly curated atmosphere and pristine vineyard, it may be hard for guests to imagine the difficulties and risks associated with grape production in Connecticut.

Over the years, Preston Ridge has taken advantage of the resources provided by UConn’s Extension center. Annual nutrient and soils tests have allowed them to make more informed decisions about fertilization while scouting services provided by the extension office help determine the level of risk posed by a range of plant pests. UConn Extension spoke with Sean Kelley of Preston Ridge recently about an unforeseen risk they faced this year and the role that crop insurance played for them.

The Story:

Earlier this summer UConn Extension was contacted by Sean Kelley who said that multiple rows of a particular grape variety were displaying some very concerning symptoms. After review by extension specialists, it was determined that the symptoms were characteristic of herbicide damage, specifically 2,4-D. This was puzzling because herbicides had not been used on the vineyard and the localized damage was not consistent with drift from neighboring farms. The damaged vines were located around the venue’s wedding ceremony area which gave the only clue to the cause of the issue.
Preston Ridge does their own ornamental landscape and lawn care, except for the area used for wedding ceremonies. A private lawn care company is charged with keeping this area in pristine condition. Before visiting to Preston Ridge, the lawn care company had used their equipment on another client’s lawn. This other client had applied the herbicide 2,4-D prior and therefore contaminated the equipment. With the grass clippings and equipment still wet and contaminated with 2,4-D, the company tended to Preston Ridge Vineyard where the herbicide was sprayed with clippings towards grape vines. Here the herbicide was able to volatilize and damage the incredibly sensitive crop. Timing and weather conditions created a perfect storm of conditions allowing a localized herbicide drift situation.

Preston Ridge contacted their crop insurance provider to have the damage assessed. The fruit was removed from the vines in an effort to conserve the vigor of the perennial crop. Months later, the vines seem to be bouncing back and they hope that the vines will make it through the winter. Preston Ridge opted not to file an insurance claim in this situation but stated that they have had crop insurance since they opened and will continue to do so. Sean Kelley asserts that, “you never know what could happen in this business”, referencing an article he read about a vineyard down south who had all their grapes stolen days before harvest, and suggests that crop insurance is a vital part of all agricultural operations.

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**Crop Insurance – The Farm Safety Net**

“Agriculture is an inherently risky business. Farmers and ranchers need to regularly manage for adverse weather and financial, marketing, production, human-resource, and legal risks.

Federal crop insurance is the pre-eminent risk management solution for farmers and ranchers, providing effective coverage that helps them recover after severe weather and bad years of production. For some farming and ranching operations, crop insurance is the difference between staying in business or going out of business after a disaster. For the next generation, crop insurance provides the stability that will allow them to begin farming.”

- USDA
Spotlight – Glyphosate: Risk or Management?

For years glyphosate-based herbicides have been the go-to management solution for weeds within a wide range of cropping systems. Everyone from commercial growers and ranchers to vineyard and home owners are familiar with one of the many formulations containing glyphosate. The long-standing and widespread use of this compound marketed under such names as Roundup, Accord, Agpro, and Weedout attest to its efficacy. However, after over 40 years on the market, the Monsanto patented weed-killer has racked up a number of concerning associated risks. The risks that accompany glyphosate use vary in severity and include: decreased crop quality and residual traces in food products, harm to non-target organisms (including humans), and the development of herbicide resistance.

Although glyphosate is an attractive solution to the issue of weed competition, its use affects the quality of the crops produced within the agricultural systems that it is used. Recent studies on grapes show a measurable effect on the quality of berries produced with glyphosate applications versus those without. Specifically, berries produced in glyphosate treated plots had much lower concentrations of the phytochemicals anthocyanins, a lower pH, and a higher titratable acidity. Both pH and titratable acidity are linked to a wine’s flavor while anthocyanins play a large role in the health benefits afforded to the consumption of wine, mainly for their antioxidant, anti-inflammatory, and anticarcinogenic properties (Donnini et al., 2016). Perhaps more important than these effects on food quality is the accumulation and persistence of glyphosate in products intended for human consumption. Glyphosate has been found in many wines produced in the state of California, and as well as multiple breakfast cereals (Ewg, 2018). Currently, levels are well within the range marked “safe” for human consumption. Continued use may increase accumulation in food products in years to come, closing the gap on what is an acceptable level of glyphosate for humans to consume.

Another concerning risk of glyphosate use is linked heavily to its design and mode of action. Glyphosate is a broad-spectrum herbicide. This means that it affects a wide range of weeds and non-weedy species of plants, including those grown as crops. The systemic nature of glyphosate means that it is taken up into the plant’s vascular system where it accumulates and persists. Because of the nature of this compound, harm to non-target organisms has become increasingly problematic. Accumulation of this chemical in the tissues of crops grown in glyphosate treated areas can cause a range of unintended effects including: decreased vigor and yield, reduced ornamental value, and even crop death, especially in perennial crops where repeat glyphosate applications lead to increased accumulation. Studies have also found that glyphosate is responsible for decreased soil health. Organisms such as earthworms and mycorrhizae, both which greatly attribute to the health of a plant’s rhizosphere or root zone, are both negatively impacted by glyphosate use (UK Soil Association, 2016). Lastly, human exposure to glyphosate and herbicide toxicity is receiving more public attention due to its recent resurgence into the US legal system and media.

Split bark on an ornamental maple tree (S. Feather, UPenn) and grape vine (E. Lentz, UConn) – suspected damage from glyphosate-containing herbicide applications
Possibly the most concerning risk associated with glyphosate use, from an ecological standpoint, is the development of herbicide resistance. Resistance occurs when a plant is no longer susceptible to herbicides. This is a result of ongoing natural evolutionary processes involving genetic mutations. The mutation rate for all organisms is constant and although most mutations are neutral, some are harmful and some may be beneficial. Mutations that are advantageous can allow the plant to either tolerate or resist different environmental stresses such as an herbicide. The regular, widespread use of glyphosate create a situation in which these resistant plants obtain a large advantage in fitness over those without the mutations. This becomes an issue when the only plants left to reproduce are those that have become resistant. Continued use of glyphosate has created tremendous selective pressure for the resistant plants, which continue to grow in number. This phenomenon is not limited to glyphosate, nor is it limited to one species of plant. The more resistant plant species that develop, the more of a problem weed control will become.

Glyphosate use will undoubtedly continue as it is an easy and effective means of controlling unwanted weeds in cropping systems. However, knowing the risks associated with its use allows for more responsible and economically sound decisions to be made. More studies on the adverse side effects of glyphosate will continue to shed light on the role that it will play in the future. For now, an awareness of the risks that glyphosate poses to nontarget organisms, the ecosystems, and the public may steer glyphosate users onto an alternate path. For more information on risks associated with glyphosate use or alternatives that may reduce herbicide use please visit the UConn Extension’s IPM website or contact your local Extension office.

References:

Risk Management Technology: Exclusion Netting

Berry Protection Solutions out of Stephentown, NY has come up with a creative and effective means of controlling one of the largest risks facing New England small fruit growers: Spotted Wing Drosophila. This pest emerged in Connecticut in the summer of 2011. Its arrival was marked by statewide losses in raspberry and blueberry crops. Since
then, SWD has continued to be a huge problem in raspberry, blueberry, strawberry, cherry, peach, and grape crops. The pest is unique in that it lays its eggs in fruit just as the fruit ripens. Eggs within the fruit hatch in 1-3 days; adults emerge 4-15 days after this. The short life cycle of this pest allows for multiple generations in a single growing season. Preventing SWD from laying eggs in fruit and thus preventing the rapid cycling of generations is an effective strategy for control. Berry Protection Solutions’ Exclusion Netting technology has proven to be an incredibly effective means for prevention.

From their website:

“Berry Protection Solutions is part of The Berry Patch in Stephentown New York. We formed this business to help other growers gain the benefits of using exclusion netting to combat Spotted Wing Drosophila (SWD) and other insect pests. We also sell bird netting, hail netting, shade cloth and other agricultural fabrics. We are the first growers in the country to use this exclusion netting - called ExcludeNet - on a commercial planting and we are able to grow pesticide free blueberries and raspberries because of this netting.

Over the course of four years of research, which was done in collaboration with Cornell University, (initially funded by the Northeast SARE Farmer grant program and the NYS legislature) we have proven that exclusion netting effectively prevents infestation of berries by SWD. SWD is an invasive pest, native to Southeast Asia, that hit the berry industry throughout the US very hard. Many growers pulled out plantings because of the inability to control this pest without multiple pesticide applications per season.

We are growers ourselves and we know how important it is to save money and make wise investments. Because this is not our primary business, and because we are not selling other agricultural supplies, we do not have the overhead costs of warehouses, employees, or delivery trucks that your netting has to help pay for. We also encourage group orders to save money for customers. The netting is priced in pricing tiers – the more you buy, the cheaper it is per roll. Since we are growers ourselves, that’s why we are offering the ability for growers to work together to put in a group order that will be delivered to one location.”

For more information on the technology, research, or purchasing please visit Berry Protection Solutions’ website - https://www.berryprotectionsolutions.com/ For more information on Spotted Wing Drosophila, other pests, and management practices please visit the CT Integrated Pest Management website – www.ipm.uconn.edu or contact your local Extension office.
Reducing risks doesn’t always have to be an expensive or laborious. Many times, simple cultural practices can help to prevent or reduce the impact of certain risks. The use of mulch on perennial crops is a simple solution to a range of possible risks. Mulching reduces weedy competition for resources within crop rows. Reduced weed populations can also lower other pest pressure as many weeds are hosts for crop pests. Annual mulching reduces disease pressure for pathogens which overwinter on the soil surface. Usually a few inches of mulch is enough to prevent these overwinter structures from fruiting and infecting crops further.

Shallow rooted crops such as blueberries benefit from mulching as a means of protection from both high and freezing temperatures. Mulches conserve moisture in the hot summer months and act as insulation in the winter. With the highly variable and oftentimes unpredictable weather in New England, protecting a crop’s roots is an effective means of reducing the risk of loss. The Connecticut IPM website is an excellent resource for more cultural control and prevention practices.