

RANDLE JOHNSON: Well, thanks, Peter, it's great to be here; a beautiful spring day. I want to thank everybody that put this thing together. It's a lot of hard work. And I've done a few of them, and I know what's involved. Thanks, George.

Okay. I'm going to dive right into it because there's a lot of territory. You know, Peter called me in March and said, 'Well, I'd like to put you on a panel.' And I said, 'That's cool.' And then I get this phone call in Argentina, 'You're going to be the keynote speaker.' And I just freaked. So, you know, I'm 10,000 miles away, and now you really got to get serious. So I spent some time on it, I hope.

Okay, I'll quote Georges de Latour who at one time said, 'There's three ways to lose a lot of money—slow horses, fast women, and hillside vineyards.' Okay, now, I've taken this oath, and I want everybody... many of the people in this room have taken this oath already, but when you all leave today, I hope that... maybe you don't have to take this oath, but I certainly want you to appreciate it. First thing, every site is independent. It's a whole new world. Every site... and most of the conditions we're going to be discussing today are amplified. It's amped-up in the mountains. Check your preconceptions at the door. You cannot take opinions that you've experienced elsewhere to the mountains; however, you need every shred of knowledge, every shred of experience, and you need every resource at your fingertips, and you have to utilize those resources to their maximum ability. It's going to take a lot of thinking, a lot of minds, a lot of people to make a hillside operation successful.

Strive for vineyard uniformity. Now, that may sound simple, but it's extremely difficult. Every one of us that deals with grapes knows how difficult it is to have uniformity in a vineyard. And my favorite example that's close by of vineyard uniformity is the Gallo property in Asti on the west side of 101. You come over a knoll, and you look out over 600 or 700 acres of rolling knolls, and every single vine looks the same. Now, that means that all those grapes are going to be more or less the same, and that means for better or for worse, the winemaker has a uniform set of grapes to

make wine with. And...as a winemaker, I would like to have that. And I'm sure you guys, as vineyard people, would like to have that as well.

Have a flexible budget. Check your checkbook at the door. And we all have to deal with money, a lot of it. We all have budgets, we all spend a lot of time at it, but I can't think of one mountain vineyard that has ever come in on budget. So you have to have a tremendous amount of financial resource. I know vineyard managers and equity partners that have lost their jobs because they ran out of money, but... you know, we all know the joke: To make a small fortune in the wine business you start with a big one. And it's so true with mountain vineyards.

Okay, first things first. You have to do a site evaluation, and do it thoroughly. Due diligence. Do a feasibility. You know, 'What am I going to be dealing with?' 'How much force? How much rock?' You know, really, it might be beautiful, but you have to take a big step back and say, 'What are the logistics, what is the reality of this site?' We're all very sustainable people in the mountains. We have to be. God... we're next to God and God is not always fun. He dumps a lot of water on us. He throws a lot of wind at us. He throws hail at us, whatever. So to be responsible stewards of the land and the mountains takes extra time and effort. So the three E's of sustainability certainly apply: Environmentally sensitive, equitable socially, and is it economic. And I'm sure that topic is going to come up repeatedly today.

Now, are you going to build a winery on this vineyard site? It's beautiful up here. Wouldn't it be great to have a winery here? Have all these people come up and taste the wines right next to the vineyards. It would be fantastic. We looked at it. We wanted to do it, but you got a lot of logistics. You think the logistics are tough putting in a vineyard in the mountains, try putting a winery in the mountains. And that's a topic for another whole conversation seminar, but the one word that you need to look at first in a feasibility of a winery anywhere is the wastewater. That is probably the number one issue that getting permits is going to deal with: What are you going to do with your wastewater? Regulators view wineries as huge

consumers of water, and even though you may only have 500 gallons, they're going to make you put in a wastewater system that can handle, you know, Gallo in Modesto.

Okay, basic infrastructure. This is tied in, of course, with your feasibility. How many roads are you going to have to put in? Roads are cheap, and they're regulated. Power. You're up in the boondocks on top of a mountain, and you can't just string a couple of wires on a little telephone pole. You're going to need three-phased power because you're going to have pumps and shop, vineyard shops, welders, electric welders, whatever. You need not... you know, you need to get three-phased power, and PG&E ain't fast. So you have to sign up for a three-phased power a year or so in advance.

Water. Okay, huge, probably the number one issue. Most hillside vineyards have too much in the winter and too little in the summer. So what's your water development going to be? There's a lot of good wells in the mountains, believe it or not. You have to go deep, but a lot of sites have good water and wells. Springs. I didn't put creeks in here. My vineyard in Argentina, my best one has a year-round stream. We named the vineyard after it, Rio Blanco. Surface water. Lots of times in the mountains the only water you get is what the rain gives you, so you try to capture surface water and get it into a reservoir. You do that with drains, too. Is the reservoir going to need to be lined? If you're dealing with a lot of rocks, you can't haul in a bunch of clay to compact a reservoir. You've got to throw a liner in there. So 'ka-ching ka-ching' again.

Okay, this is a whole seminar, this is a week of seminar here, but lots of big mountain developments require EIR's now. The largest mountain vineyard in Napa County is just finishing their final phase EIR, and it's for a 100-acre extension of their vineyard, but they're also in a watershed that goes into a semi-public water supply. But the EIR for them took over a year.

If you don't have to go to that level, you're going to have to have an erosion control plan, most likely. This all varies county-to-county. We, in Napa County, deal with the Resource Conservation District, which are good

people. I don't know exactly what the situation is up here, but I know the regulators in Lake County are more than aware of mountain hillside development. And, unfortunately, we're not viewed as good guys anymore. You know, in the older days when I first got in the business, you plant a business. You know, that was ag, that was a plant, it was a good use of the land. Now, we're viewed as like we're putting in a hotel on a mountaintop. So don't think that just because you're going to put in a vineyard, the regulators are going to look kindly on you. You have to maybe even do more than a hotel would require.

Check on your easements, water rights. Big deal. Department of Fish and Game. You've got to fill those ponds. You've to water those plants. You're going to need water rights. You need points of diversion. You're going to build a dam or you're going to do it off-stream, because you're not going to do anymore on-stream dams. Is it going to be state side? Then you've got another whole level of regulation. You're going to have to be very sensitive to environmental groups, very sensitive. I've got a newspaper in my briefcase that will just scare the pants off any hillside vineyard developer right now.

Neighbor relations—big deal, big, big deal. You've got to stay friendly with your neighbors. Be transparent. Let them know the minute you buy the land what you want to do, and be honest, be forthcoming, invite them over, coffee klatch, the minute you buy the land, and start right from there. And tell them what a good steward of the land you're going to be and you're going to follow the three E's.

Okay, so you're going to do it, you're going to bite the bullet. How are you going to farm it? Hopefully, sustainable, we all farm sustainably. Are you going to go organic or are you going to go bio-dynamic? I farm one bio-dynamic vineyard. It's tough. It's expensive, it's labor-consumptive, but it's great. Most of the things we do are done sustainably.

Road direction. Well, if I'm on the valley floor, I'm going to go north-south, or maybe 15 degrees or 20 degrees to the west. But if you're in the

hillside, lots of times the blocks are going to determine the road direction. But if you have a choice, go north-south.

And we also have to go with the slope these days. You can't... terraces sometimes are approved, but most of the time not. And be sensitive to your wind direction.

Pre-plant. All right, you need to gather weather data, and you need multiple stations. There's a tremendous amount of weather data that you need. You're going to have to do temperature—big deal. Precipitation, we just talked about—big deal. Wind, I put in capital letters—check... keep your wind speeds, keep the stuff on computers, and use it. You have to determine your degree days, because your winemakers and your buyers at your wineries are going to want to know what your degree days are. And you'll be surprised. Sometimes you'll think that you have more degree days that you really do, other times it's the opposite. Sometimes you think you're cool, but you really end up being warm. So temperature for degree days is a big deal.

Okay, I've done most of this one already. Block size. Try like hell to have your block back to uniformity. Make your blocks, if you can... lots of times you can't. You have a predetermined block size. But when those vines come up to stake and go out on the wire or whatever, it's not uniform, so you have to be prepared for that and have kind of a back up plan to gain uniformity in the vineyard.

Okay, root stock. We can't... we all hear this and we all know about it, but it is so important, it is so important. And this is part of your feasibility, your due diligence, stuff like that. And, yes, we don't know everything about root stocks, but you need to... if you study your soil, you get... everybody does soil chemistry, everybody will do backhoe pits, maybe you'll use Paul's new device. Learn about your soil and then start talking about root stock. Don't assume that a hillside vineyard is going to be low vigor. Most of the hillside vineyards I deal with are just the opposite. Sterling's Peterson Ranch in Calistoga, mega vigor. Our vineyard on Mount Veeder, in certain blocks,

mega vigor. So don't just assume that you're going to plant 1103 Paulsen, 110-R, or 140 Rugary [?]. There's a little typo there. That should be an 'RU' after 140. But look... if you have water, look at more moderate and devigorating root stocks. My favorites for everywhere are 420A and 101-14. So take a very serious look at that. Hopefully, you have enough water to go with these more moderate root stocks. And they're not low vigor. 101-14 is not low vigor. Okay? I've even done some Riparia in the mountains.

Okay, own roots. This comes under the heading of 'checking your preconceptions at the door.' I went to Argentina and I thought they were crazy. You spend millions of dollars on a vineyard. You're going to put some of this vineyard on own roots? But you know what? After being down there now for close to 10 years, there are certain situations and blocks where own roots are great. And I am a convert, with caution. Okay? You know what? We all hear these stories from the old-timers, pre-phylloxera wines from Bordeaux were better than post-phylloxera wines on root stocks. And you know what? I think there's something to it, especially with Malbec. Malbec does much better in virgin sites in Argentina on its own roots than on root stock. More moderate growth. Better fruit quality.

You know, I didn't talk anything about... I missed a slide back there on pre-plant, the ripping, rock removal. We all know that's a big deal. I want to say a few words about drainage. You have to think about subsurface drains. Some of our drains are nine feet deep, precipitated by erosion control plants and regulators that if you're on an alluvial fan and they think that fan is going to move, they're going to make you put some very deep subsurface drains in. We've had... backhoes—it's out of the realm of backhoes. Sometimes we've had to use excavators to get the drainage down. And it isn't necessarily... the cost is not necessarily in the depth. It's in the rock, getting the rock and around these drains. Surface drains help you fill your reservoirs.

I also mentioned deer and critter fences. You need a deer fence, most likely. And you have to watch the bottom of your deer fence, because there's other

critters are going to come nibbling, too. We all know about rabbits, but how about raccoons or foxes? So... they love grapes, believe me.

All right. So we're on Viticulture Management now. Let me just go back...

I didn't do the varieties. That's a big deal, too, obviously. What varieties? Bordeaux reds usually do well in the mountains, Rhone varieties. Pinot Noir, in certain situations, but Pinot Noir acts like a white grape, and white grapes don't like stress. So if your site is going to be stressful, I would not recommend Chardonnay and Pinot Noir. We tried Pinot Noir on Mount Veeder. It doesn't work. Now, that's, again, preconceptions at the door. It doesn't mean that it won't work everywhere. But be careful. We all know Pinot Noir is hot, but be careful in the mountains. Rhone varieties do very well. Some exotics. I heard things flying around today. We plant Tannat sometimes in the hills. We've had other things. Sauvignon Blanc does very well in the mountains as well. Clones... and we all know the difference between clones and selections, so I'm not going to really go there, but clones are very important selections, but make sure if you can that your material is clean. And we used to hear, 'Well, a little virus helps devigorate. That's... you know, that's okay because it helps devigorate.' But guess what? Winemakers, including myself, are, 'Hang, let them hang.' Okay? So if your material is virused, you're not going to be able to pick, most likely, after Halloween. And you're going to have winemakers who are going to want you to pick in November, and you're not going to be able to do the distance with maturity if you don't have clean material, so you need clean material.

Okay, the vineyard manager, Dr. Jekyll. But he's a good guy. In the old story, Dr. Jekyll was the straight guy, and all you vineyard guys are there are good guys, straight shooters. Utilize your weather data. You're going to gather a ton of it with these computer-generated weather stations, and you have to devote the personnel and the resources to utilize the data. We have tapes and tapes, and we hired a viticulture just a while ago, and he had to analyze about eight years worth of data. But you need the data now,

especially when you're trying to figure out your degree days and make a sales presentation for your grapes to a winemaker. Utilize the data.

Also, try to gather soil radiation—big deal. UV light—big deal in the mountains.

Spacing and trellis, we all know about that. Most of the time we end up with VSP in the mountains, but sometimes we end up with wire, and wire is basically a double VSP. So if you have a vigor situation, I highly recommend wires. Sometimes we don't know we have a vigor situation, so you plant four-by-six, or whatever, and then a few years down the road you end up taking out every other row and putting in a wire, or something like that. So, again, you know, it's... you pay... when do you pay? You pay upfront and be patient and take some time, or do you pay later because we all want to do things quick and fast, and you jump in, you put the vineyard in, and then you go... two or three years later you go, 'Oh-oh, we made a boo-boo here, we made a boo-boo there. We've got to retrofit over here.' So take your time. Try your best to do it right the first time.

Okay, canopy management. No striptease on those leaves. I don't like... no winemaker wants to go out to a vineyard and look at a bunch of naked fruit. I think most of us have learned that, but it's still out there. Dappled sunlight. And if you need to achieve that, a lot of us are removing laterals now, instead of removing leaves—a good idea.

Cover crops. Most likely cover crops are going to be required by the government. And they're a good thing. You don't have to disc anymore. We mow. But they also devigorate. So, again, in your feasibility pre-plant, what kind of cover crops are going to do the best job for you?

Okay, so Dr. Jekyll is also dealing with irrigation. Put in two drip lines on every row. And if you don't want to put the second line in right away, at least put a T and a valve. Drip line emitters are cheap, and if you go down the road and you don't have uniformity in the vineyard, in the block, your second drip line could very potentially turn that non-uniformity around.

You use it for additional water and/or nutrition. And, by the way, nutrition is a big issue and could be a very important stumbling block if you want to go organic or biodynamic, because there are very strict rules in both of those zones about how much nutrient you can add. We don't get slammed on going organic or biodynamic from pesticides. We get hit because of nutrition, the nutritional limits like magnesium, for example. We can't meet the low levels of magnesium requirement for biodynamic in a couple of ranches, so we... on that one issue alone, that ranch or block is not biodynamic.

Okay, bird-netting. Well, we all know about birds in the mountains. But what about the birds and the bees and the wasps? And you get to remote sites, especially for me in the desert, and I'll tell you, every critter comes out of the woodwork because you just put a huge smorgasbord in front of them, and they love sugar. And, again, we're not picking them at 22. We're picking them at 26 and 27, and they start munching at about 24. So you've got three brix and three weeks to protect, additional protection from birds. So once a bird makes a dent, you know that the bees come. The bees can't do it alone. Wasps can, because they have mandibles, and they bite the skin, and then all their buddies in the bee department show up, and it's... it can be huge.

Okay, now we're four or five years down the road, maybe longer, depending on your feasibility study and the regulators, and your neighbors, and now you have to deal with Mr. Hyde, the winemaker. So I'm going to change my hat now, and now I'm the bad guy because I'm sitting out there saying, 'No, you can't pick. No, you can't pick. No, you cannot pick.' And then, as Michel Rolland says, 'When you think they're ready, move in the equipment and wait.' And then when the batteries go dead on the equipment, then you pick. Okay? Pick late. Okay, now I don't want to be our enemy by saying pick late. It's your job to get clean material, have enough water, keep the canopy solid and let me pick the 5<sup>th</sup> of November, the 10<sup>th</sup> of November, or maybe the 20<sup>th</sup> of November. Now, I do grapes, too, and that ain't easy. That's tough. So I wear both hats.

All right, so we all know about ripening. That's the easy part. Maturity. We all know about stems and seeds now. The winemakers are out there crunching on the skins and the seeds, but look at the peduncle, look at the rakis [?], look at the pedicel. They all have indicators for maturity. I learned that from Dominus in Chateau Petrus.

Phenolics... yeah, phenolics—a huge issue. Leo's going to talk about it. And this is why I'm Mr. Hyde, because I'm into phenolics. I don't want green-skinned tannins. I want nice round tannins. And so phenolics are huge. We also get a lot of anthasines [?], we get wonderful color, and that's due to UV light, and there will hopefully be more discussion on that. I have a paper on it in my briefcase. To my knowledge, there isn't a whole heck of a lot of real good work, but maybe Leo can clue us in on that.

Okay, this is just some quick winemaking stuff. Sorting. A lot of wineries sort grapes now. Several wineries sort must. We've got beautiful fruit in the winery now from the hillside vineyard. We're going to do a pre-ferm cold maceration to then those anthasines [?] out into the juice. And we want them cool. We don't... most wineries in the north coast do not have must chillers, so we don't want the grapes sitting on cold soak at 80 degrees. We want them at 60. So we got to them in in the morning or start picking at night to get them into the cold soak at a decent temperature.

Okay, yeast, natural yeast. I've seen natural yeast ferment to 17 alcohol. So we don't have to be shy about that. Most of the time, though, we use selected yeast because there's a whole pantheon of yeast out there. A lot of them are designer yeasts and are really good.

Cab management. Are you pump over? Probably not with mountain fruit. You want to be very careful about tannin extraction. Pigeage cab punching, the Burgundian technique, a lot of wineries use it on Bordeaux reds. Irrigation—those are the sprinklers in the tank. And a lot of people are now using délestage, which is complete drain and pump over the top. And some people do extended maceration on mountain fruit. I don't. I don't really need to. If you get the fruit and the tannin mature in the first place in the

vineyard, you don't need to have chain-building during extended maceration.

All right, I'm getting the hook. I knew this would happen.

Okay, so you're going to age the wine. You're going to use... what kind of barrels are you going to use? Are you going to finish alcoholic in barrels? That happens quite a bit now. Malolactic in barrels. Are you going to stir the lees? And mountain fruit usually takes a little bit longer in barrels.

You know ... are you going to blend these wines you made from hillside grapes, or are these stand-alone? Sometimes they're stand-alone, especially if you want a vineyard-designated. Bordeaux varieties lend themselves very well to blending from the mountains. Sometimes we could do Rhone blends. And sometimes you'll blend for a stand-alone clone.

And what about finding the softened tannins? Again, if you get the tannins mature in the first place, you don't have to work so hard on fining with egg water shells and get your tannin profile better. And how about filtration? Do you have a good, solid wine, which hillside grapes usually do? Sometimes you can get away without filtering, but you'll end up probably throwing a little sediment in the bottle.

Packaging. The bottom from mountain hillside grapes... we've got expensive grapes here. We all know that. We got expensive wine, as a result. Now we've got to put it in an expensive package. We want to because we're proud of it. So the bottle is usually elegant. The closure is usually cork, unless you're doing Plumpjack's Reserve Cabernet in a screw-top. The capsule is usually tin, sometimes with wax. And with the label, nothing is usual, which is good because that builds our diversity. And how are you going to label it? Are you going to do appellation specificity, which that's one of the reasons we're here today, or a vineyard designate?

Okay, what's it's all about, Alfie? We spent millions of dollars growing these grapes, making these wines. We fulfilled our oath. We have killer

wine in a beautiful package. Will the marketplace appreciate these wines and the time they took to create? We spent four to five years in the vineyard, two years in the winery, a year of bottle age, a lot of money. Will these wines be appreciated for what they are? And we'll deal with that in the afternoon. And will the marketplace pay for them, and on what basis? Are they going to pay for them based on your brand, an emerging brand, an established brand? Are they going to pay extra for them because of the appellation, a sub-appellation or a new designate? Are they going to pay more for them because it's in this beautiful package? Or are they going to pay more for them because opinion leader ratings and gatekeepers say they're great?

So throw a dart, hit the dartboard, and as a great marketing guy told me ... I couldn't get this picture on my slides, but, 'You can always tell the pioneers because they're the ones with the arrows in their ass.'

Okay. Now, I've got some beauty shots here, and I'm going to do my best to go through them. This is our vineyard at 7,500 feet in Argentina. And it's not just there because of the little hotel in the back. It's there... I hope you can see it in the foreground, you can see non-uniformity. Can you see the non-uniform grapevines there on the bottom? You can't see it. Oh, rats. Oh, well. They're non-uniform. Bad.

Okay, just a beauty shot of the area. A lot of this... this is at about 8,000 feet. And the Indians there had beautiful cities and ruins that look a lot like the Anasazi ruins of Arizona and New Mexico.

That's some cemented... a volcanic of ash. And that's very typical of parent material in Northern Argentina.

Now, there's soil variation for you. Hopefully, you can see in the background there the little scallop. And I just threw that in there because you never know what the hell soils you're going to have, and that's part of your feasibility, to learn all the different soil types you have. This is a little beauty shot of a cactus.

Okay, here's our vineyard at... this guy here is at 8,500 feet. I threw this in here because of the sprinkler. I didn't really touch on frost protection, but frost protection in mountain vineyards can be an issue. We all think that with slope that the cold air is going to run down, but at these elevations we get a lot of frost, so we have... we use little micro-sprinklers. Though we're going to... in certain situations, we're going to do a more full coverage sprinkler. You can see the Andes there in the background.

Okay, this is another... just a beauty shot. Now, we've changed vineyards. This is our vineyard at 9,800 feet. Here's harvest. This is 2000 harvest. We're doing Tempanillo right here because poor... our Pinot Noir was at 28, and the Tempranillo was at 24, and the birds didn't give a damn about the Tempranillo so we didn't even have to net it. But the birds were very interested in the Pinot Noir. That's our site manager there in the blue coat.

I just threw this in. This is netting for bees and wasps. What a pain. Just think when we get a full crop. And don't think that your canopy is going to hide the fruit from the bees and the wasps. Uh-uh, they know.

Okay, Pinot Noir harvest. We harvest in small boxes just like we do here. We have smaller ones that those, which you're familiar with here, the FYB's. That's a little bit bigger box. That's about a 40-pound box.

Here we are on the sorting table, must sorting. That's our enologist doing her stint on the sorting table.

And there's our Pinot Noir fermenter for the year. The entire crop fit in that barrel. You can't quite see it, I think, in this shot, but we have a heating plate in there to both warm and cool. That's another thing for your wineries or developing wineries, winemakers out there—we spend more effort warming musts than cooling them, especially when with high sugar fermentations are longer, and at these elevations we have like 20% less oxygen. So a ferm that would take 10 or 15 days down here can take up to two weeks, 20 days up there, just because of the lack of oxygen. So you

have to coddle the yeast and keep them warm, keep them happy. And I didn't mention feeding the yeast. For you winemakers out there, yeast nutrition is huge. Feed your yeast and feed them on time or you will pay with a stuck ferm.

Here we are on Mount Veeder, and we have the typical fog coming in from San Pablo Bay, but on hillside sites, many sites are above the fog line, so your degree days start happening sooner. This is why you need a weather station above the fog and one below the fog.

This is cemented rhyolitic tuft from the Sonoma volcanics. A lot of our vineyards are based in this kind of soil on Mount Veeder.

Now, low vigor? Guess again. Look at those. They are way too happy. Look at those tanvilles [?], look at those shoots, they're reaching for the moon, and the roots are reaching for China. Okay, we have a soil profile there of 18 feet. We've done some retrofitting drainage, and we found vine roots on Mount Veeder at 18 feet, and not just one or two, but a whole bunch. So do not, again, think that your site's going to be low vigor.

All right, the uniformity—fairly decent there in that picture. Contour, the old style, contour planting not done anymore. Contour there, again. And here's a wire, retrofitted wire at our upper ranch at 1650. We combined two rows into one, and we have a nice situation there now, retrofitted wire, again.

And that's it. Okay, thanks.