



HOME GROWN

Food Summit

Property Purchase Checklist
-Geoff Lawton

Marjory W.:

Hello and welcome to the Home Grown Food Summit. In this presentation we are going to spend time with probably the world foremost permaculturalist. I'm really excited and delighted to have Geoff 's presentation here. Geoff is a world renown permaculture consultant, designer and teacher. He's done thousands of permaculture designs in at least six different continents and close to 50 countries around the world.

His clients have included private individuals, groups, communities, governments, aid organizations, non-governmental organizations and multinational companies. Geoff learned permaculture in 1983 directly from it's founder the legendary Bill Mollison. When Bill retired he choose Geoff to establish and direct the new permaculture research institute in Australia. Geoff is still the managing director of the non-profit which is expanding into the US, Georgia, Jordan, Canada, Chile, Turkey, Greece and Afghanistan.

He has won numerous awards and in 1996, Geoff was accredited with the permaculture community services award by the permaculture movement. PRI Australia also won the Humanitarian Water and Food award for 2010 for their initiative greening the desert. Geoff really is a renowned teacher and has educated over 1500 students in permaculture world wide. I tell you even though I've already gotten permaculture certification design twice, I'm actually thinking of taking of taking his whole certification program again this year. His insights and his ability to read the landscape is fascinating. Watch this presentation and you'll really have appreciation for what Geoff can see and do.

Geoff:

Hey. Geoff Lawton here and I'm going to take you for a tour to Zaytuna Farm to show you how we actually live this permaculture design system. I am right at the front gate I've got a water harvesting feature. It's actually just an earth mount on the front drive way to make sure the water goes past the front gate and goes on down to a large pitted pipe that fits one of our top dams called big slope. Inside the front gate we've got immediately two more little earth mounts on the drive way that fit a pipe in a vdrain and a pipe and a vdrain.

As soon as you get inside the property we are directing water. We are directing it off hardware which might cause a problem into vdrains and then pits and pipes that actually feed dams and swales in permanent spon swales sackers live part of the sight. A large shade here at the front gate 200 square meter of commercial shade that's a lot of work. It's fully covered almost with solar panels.

This whole site is off grid, there's no connection to the outside world and that's how we like it, apart from telephone and internet which is the big communication system today. We're completely standalone. We have compost toilets, we have rebate grey water. We have our own solar panels and right now you might hear, there's a generator running. That generator is backing up our solar system because we have quite a lot of people here. They don't all understand how you need to manage electricity.

Its cloudy rainy season day in mid-summer so, they've used a little bit too much electricity. We keep developing so that sort of thing happens on an institute. Now, I'm stopped here because that's where I came through as a front gate and that's the formal gate, I can't change that. We've brought the drive way in as gently as we can and at this point on it's absolutely gun barrel level on contour. Now it's really passive. Now it's a beautiful profile drive way, that's really easy to maintain.

It's a two percent grade off the middle off the center line, it grades both ways. That side doesn't need a vdrain. This side needs a vdrain because the water will sit in there. This vdrains, very minor feature but it's level, though it's not got a lot of flow. Minimum maintenance. We've cleaned up, we don't have to do this we've done it for you guys on the film. We've cleaned up this pit and pipe. This is a dog passing passel "Get out of there, come on." This is a very vague pit and a very basic pipe. Vdrains have been cleaned up but they don't have to be cleaned up. This water just passively drops in the pit and goes though under the road.

Here's a education center and [wonder 00:05:11] recycling. We've recycled shipping containers to build the infrastructure. Right next to the drive way, we are developing a new kitchen garden system. It's all covered in cover crops at the moment. We're fertilizing it with a nitrogen fixing ground cover. Here the drive way picks up water and runs it into these really level foot paths. Then I've got raised beds on either side. This is in preparation for really diverse kitchen garden.

We are taking this through a process with our students and this will allow us to put in a whole new kitchen garden system. This is a real great experience to teach people how to do this. It's a recycled education center and it's a well traveled building. They've been on ships going all around the world delivering goods. These are shipping containers. They've had a previous life and now they've got an interesting sustainable life here for quite a bit longer. We teach in this big open space, partly opened some tropical climate.

The kids use it as a home schooling classroom when there's no permaculture courses on. So like a commercial kitchen and a court room and a students kitchen and a common room and we've had a lot of group male's here. You can just have a little peek through here and see how some people camp on camping shelters. There's only a little peep holes here and through the bamboo. Anyway, let's go a long this way because it changes in a minute from education center to a new food forest.

Right next to education center, we've been putting in a new food forest with a real mixture of species. Actually there's a beautiful thing here. Look at that, if you haven't seen it that's what turmeric looks like when it flowers. This is the beautiful root crop turmeric, which has lots of health benefits but it's also a gorgeous flower. We just happened to get it as we were going past.

Our ridge camp site on that side and our giant roof water, rain water tanks

[through 00:07:52] here. We have our drinking water. We are self sufficient in drinking water. 44000 gallons of water here in these two tanks. We have four of these onsite catching roof water. That's pumped on top of the hill and gravity fed back down.

While we are going passed, let's show you another way stream because we'll get it while we can. We've apart from supplying our water like most animals we drink water, it doesn't stay on our bodies, it comes out the other end as urine and humanure. We have our own compost toilet systems. These are all batched toilets and up there is a shower and toilet block where the deliveries take place.

At the bottom any surplus urine goes into our grey water systems. We have grey water reed beds that deal with our waste water. This are batched composters that deal with our composed humanure. We have not just this type, we have two other types. That's three different types of compost toilets on the side. One is a [minimized 00:09:10] one is a [faralone 00:09:11] and one is batch system. Demonstrate in different ways that you can deal with your waste products.

Let's dive down into this swale and have a look at what these water harvesting systems looks like with a bit more maturity. This is quite an adventure down in here. We have bamboo on the outside, we have food forest on the lower side. We've got grain covers and matched crops. It's almost like a little secret zone down in here. It goes right on land on contours zigzagging thought the property. This could be up to my knees in water at times when we have heavy rains. That always pacified on contours sits here completely level and soaks in to this great [ridge 00:10:00] long receiving edge. Gradually going down and continuously hydrating the property.

This is a water harvesting, water pacifying and rehydrating system. If it's not explained to you it looks well almost looked too funky. You don't really realize what it is you looking at because the living systems love this infrastructure. They really secret bazzle. Secret bazzle gum, well it's really smelly stuff secret bazzle, makes the drink tossy and almost grows wild here. These systems are really populated by wildlife. The wildlife is part of the balancing element on the farm, it's balanced by wildlife. We get extra nutrients and pest and predator balance so going past the right away.

Here's another pipe because here's is another crossing point. At the point of the ridge at the end of the camp site, we have a ridge track now. Ridge tracks and ridge access are much more stable than going the side of the hill. You want to go on contour like our drive way up there with passive pits and pipes or if possible right down the middle of ridge lines. Right down in the middle of ridge lines the water 50 percent run off on either side means you don't need any extra vdrains. You don't need any extra earth [place 00:11:30]. You have a much easier access track way, access drive way.

This is a swivel pipe on a swale. Here, it allows us to adjust the water in the swale.

Next to a crossing pipe, we've got a swivel pipe. The swivel pipe means that we can turn the swale in a flat mitigation system. We can even take it off if we like, it connects to a loose fit elbow a plumbing fitting. That allows us to not only adjust the high area water but also take the pressure off the whole system. When this swale is so full it's almost overflowing, everything in the landscape is already wet. We don't really need any more water at that stage. It's flood torn.

When we're getting light rains or after the flooding and we want to retain more water for longer which is a good idea, we can adjust the height that we hold the water. Good little trick. Now, here's is a ridge track and it goes straight down the ridge. In this case, it's access and animal line way. It links from here as vehicle access to animal access as well. Here is a line way that brings the dairy cows up. We are walking the cows on contour or down the center of ridges to reduce the impact on the landscape.

Some places we need impact, some places you actually want disturbance. Though over here we have a food forest overgrown with some weeds and it needs a bit of assistance to move into faster succession. We need to reduce our work in maintaining this. A lot of our plants are actually in position. All they need is a little bit of designed disturbance. I like that statement, designed disturbance. Over on the other side of the track we have then designed disturbance. This area is been disturbed and maintained by chickens.

We came through, cut the weeds, we put the chicken net which is now a bit further along. They are moving along with their designed disturbance. They've dug it all over, they've disturbed the ground but not too bad. They've manure the ground, they've spread their organic matter about. We've come in and put in some extra plantings because we thought we need a bit more density. We've put in a grain cover seed, there's grain cover seed everywhere here. I'm going to show you what this looks like down the timeline, a plenty of grain cover still here and it's going to join in.

The chickens are on doing the next section for us, they love this. They lay more eggs, they're healthier birds, they love doing this work. We're just allowing the chickens to be better chickens. This is how chickens like to live not in factories, they don't like that they like this, this is what they like. They love being the minor disturber and dropping manure and shredding things. "Don't you girls?". All right, we'll move them on probably tomorrow and we'll plant the food for ourselves. We like food forest, in fact they like food forest later on. They like actually like to be under the mature food forest later on.

Everybody like's learning these stuff too. We are going to pretend to be perfect, we're definitely not perfect I think perfect is pretty boring actually. We can sneak up on some of the interns here. They are actually working for their food which is a real good learning experience actually. How much work you have to put in to survive with good food coming out. Over here there's a whole lot of them. You can see him on the Zaytuna farm Facebook page. You can see write ups about all these

guys, they are from all over the world. They are chosen from an interview process so it's our fault if they are not the right people.

One of the features that we've been able to install now after a few years of putting in different earth works and directing water passively. There's this green area we're coming towards at the moment. That is, I'm proud to say our first rice paddy. People don't have rice paddies in this area but we do. We've got this quite new little feature. We've to control the water input here with little rock stabilizing systems. Person who's going to demonstrate is quite shallow. Here we have our overflow pipe, you can see it's actually overflowing. It's just dribbling down that little dribble pipe.

Here is our dribbler pipe. "Come on [inaudible 00:16:45] get out of the way and try not falling." Till you get to capture water, slow it soak it, grow with it indefinite [cronic 00:16:56] systems. [Caleb 00:16:58] you do enough of the right thing you end up with a watery wonderland of environment. It's like you create a heaven on earth really by design. When we get on down here and we're into main crop, you can see everything again is still on contour. There's minor earthworks on the foot paths to major minor earthworks to major growing systems, that's good statement I like that.

We've got all kinds of crops grown here. There're actually lots of people practicing to grow the crops, I always say we can do it better. I don't like to take over and take control. Each intern has got a block. The older interns with a little bit more experience have got a block of growing space and the newer interns are instructed by the older interns. It's a relay rise of experience passing on the button regularly. All of this is really controlled by earthworks initially. Earthwork panning, access planning and structural positioning or element positioning, there's a reason this system is positioned here.

The landscape is not too steep, it's low enough in the landscape to get a good water flow and it's got a good aspect to the sun. It's not rocket science but you do have to put this elements together to end up with the right result. The result can be very different in different situations but it's more a good result. That will come up with a different result but it's a good result and it's interesting and people have a healthy lifestyle and they have a healthy food supply.

Let's go for a quick walk through because I'm sure you'd like to see some of the funky things. This green mulch here is pigeon pea which has been pruned off here which is a nitrogen fixing pea. It's lived for seven years in the climate, it's actually dull. We are changing irrigation systems, more chickens. More chickens creating designed disturbance. These are a main crops tractor chickens with a recycled trailer. "How are you going guys?"

Interns: We are doing good [inaudible 00:19:30] the line

Geoff: We are just exposing you to the general public. Lot's of organic matter been

recycled in the foot paths. Lots of recycling the organic matter off the garden beds. "How are you going there?"

Interns: Good. Plenty.

Geoff: You are doing a bit of cheeping there?

Interns: Yeah.

Geoff: Just clean it up. More controlled disturbance, designed disturbance, hand tools [most 00:19:57] for foot paths. Everything returns actually, it's a cycle of return. One of our most useful tools [inaudible 00:20:04] is what we do a lot of chipping organic matter with. Beds being prepared, crops being planted. Irrigation being continuously evolved, rejected and changed. Always coming up with a simpler system somehow. This's just a rough cut video to show a few people the personal inner space. We're playing around with interesting super food like chir. There's a crop of chir, "How trendy is that?"

Here is watermelons, pumpkins, corn, okra, capsicum, mustards, a regular rocket, more pigeon pea for mulch, sweet potato crop, egg plants and Ethiopian cabbage, more corn we're in summer of course. Another legume crop here pigeon pea but also some cassia, [abazzles 00:21:17], more okra, more rocket, more egg plant, some mashed sorghum, some zucchini, some more pigeon pea in-between. Here's [Mulhaiya 00:21:29]. This the [cocola soliatolis 00:21:32] food of the [farerose 00:21:35], a food of the Middle East. It's the highest green leaf potassium in the world. An incredible crop a lot of people don't know about and very easy to grow. We like easy to grow.

Let's go walk another ridge track. This one's definitely got security planted. This is gigantic [clower 00:22:01] bamboo, a clumping bamboo which is made it very stable. This track is straight down the ridge so it shares the water on either side. We have our recycling area here because we don't get any weeds growing under the bamboo. We get less snakes. We have our nursery here so our plants are hard enough in a nursery. We have a shade house and polytunnel on the sun side and it's also the nursery for the children. Because mum's work here quite a lot where they can look after little rascals like this guys. "Hey."

Amelia: Hey.

Geoff: Amelia and [Brigit 00:23:04]. Pineapple there which is unusual. Coffee here grown which is [another 00:23:11] story for food forest. Fruit trees and vegetables all propagated in the same zone. We have an all time waterer here which I don't want to push up because it will start sprinkling in here. When this gets wet it goes down, when this gets dry it goes up switches the water on automatic. Nurseries there're always incubators of projects, incubators of little people, aren't they? "You've been incubated here?"

Little girl: We've made made mud pies.

Geoff: You've made mud pies? Wow!

Little girl: Now we clean the table up, we cleaned all place where we played with the mad pie and now, it's all clean.

Geoff: "You're always making mud pies aren't you? You go that way because I'm going to go for a big walk. Alright see you in a minute. See you" Okay. We are on contour again but now we are above the swale. We have a food forest on the left, it's a bit older and it's got permanent ground cover on the right. We've got an area that the chickens have just disturbed and been replanted. It's grown the cover crop. The cover crop's grown over the last months. We've replanted we've thickened up the planting, we've installed the cover crop, we've adjusted some of the support spaces and that food forest is on its way towards permanent stability.

The chickens are here and they've nearly finished, so they must be two months on that one. There's about another month of chicken work here and they are about to be moved as well. They have done their job. That's definitely a nicely disturbed area. They'll moving to the long grass area, we'll cut a bit to help them get going and they'll do this again. On this side it's a little bit older again. We did this about two three months ago and that's on its way towards stability again.

This are features that we've worked with to make it move towards a faster stability. There's a bit of cuttings been going on here by some of the interns to cut the plants we don't want. This favor the plants we don't want and favor the plants we do want. Right behind me is a beautiful small dam in the middle of a swale, we call this [cubby house dam 00:25:46]. We've even occupied a floating garden raft, so right here we are gardening on the water. This is a bamboo floating raft with a soil container made out of an old water proof [tappallen 00:26:08]. This is a tap that in the middle with a better footer soil in it about 300 millimeter of soil we've planted Chinese water chestnuts. We are going to get a massive yield of Chinese water Chestnuts because it's the most productive food crop in the world by wide.

We are still doing some inter-planning [inaudible 00:26:32] fruit salad fruit [inaudible 00:26:38], vine pine, rose apple, cherry guava, coffee in the [industry 00:26:47], casted apple, Brazil chili, plam pine native of Australia. There's native and non-native in here, chocolate pudding fruit, [inaudible 00:27:01], [David's and palm 00:27:01] another Australian native, peanut tree over there, another Australian native and some [soakiac 00:27:16] mango jack fruit they are all here. We've got [mass guava 00:27:21] here because a little of them just above us. The mass guava are on that same square line, they're adding fertility to the water plus giving us production.

That water when it floods come all the way down the swale. They are actually an aquatic fertilizing element. You can see over here, they just love little pond and they feel very safe around the bamboo. We are researching nest sites inside of

bamboo for security so nest site security is part of what we like to do. We like to make lots of things feel secure actually. Make living things feel secure and they positively interact.

Okay. We're walking over the top of one of my favorite dams actually. This is plug in the hole and it's beautiful, African night flowering lillies out there. There're some of flowering lilly. This is a beautiful clear dam. We are walking out away from the more hectic and busy sections of the property. We are walking out into the other zones. It's the cattle line way here is on contour of course on top of a dam wall. It's electrified at the bottom and the top wire is just a [perceiver 00:28:55]. It's a pretend wire it's not really electric.

Our animals, our grazing animals move from the line way and they're done there up to their bellies in grass as they usually are. They complain if it's 15 centimeter high or 6 inches high, they complain they want to be moved. They don't like short grass. They're grazing their way through [lash 00:29:27] growth. We cycle them though the property. Here we have access for moving animals threaded through the diversity of the property. It's level on top of the dam walls and then wherever possible we go close to level but of course we have to climb certain hills to get around the property.

As we go over the electric fence then we are going to have to climb. We lock the animals up in the line way at night so that we capture manure and I am walking though tones of manure here. The line way is also a transport of us, we come through here, we pick up the manure, we take it to where we can process it and use it for growing systems. Then we move the animals on. This line way quickly recovers. It's a design disturbance again in relation to harvest. That everywhere throughout the property we have the ability to water animals and crops and vegetation because we have water up hill.

Up above us are the top dams that give us gravity irrigation. All of this taps run water, sooner or later, there, that's gravity water from just above us not that high, it's not far above us. I can plug that it to my drink trough and I know the animals are going to drink. We can do that with our crops, we can do that with our animals. We have water security though the whole site. It [dry past 00:31:28] and far across the site.

Here where the line way comes up, we are coming closer to level but we are still not quite level. We've got a pipe, we've got another crossing pipe. This dam there is just over six months old. It has a dribbler pipe, the pipe here dribbles water because there's almost always an overflow water on this dam. It keeps that spill way we just crossed dry most of the year. It's not continuously dribbling water off the spill wide. It's dribbling water over this dribble pipe.

It's lots of different pipes, there's crossing pipes, dribbler pipes, there's swivel pipes, there's irrigation pipes. This dribbler pipe keeps spill wide dry so it doesn't get chopped up by the cattle. It doesn't get chopped up by the vehicles. It keeps it

most of the time dry. Of course in really big rains it's going to be flowing but we are not really driving around or we aren't going to move animals at that time, we will wait it to dry off. Most of the time the dribbler pipe keeps it dry. That dribbler comes though the top of the wall not the bottom of the wall and just takes that [strapless 00:32:46] water on then the valley.

Let's go on now to some of our most recent earthworks and then you can see what it looks like in the role, more or less undressed. Here on the side of the line way, it's pretty overgrown because the cattle haven't been here for a while they'll be here soon. We have a spring. It starts to dribble here. it's been a problem because it drips across the tracks and it makes the track wet. We picked up this spring. It's quite high on the property and we've directed it to the vdrain next to the access track, next to the cattle line way which we also use for vehicle access.

As we come down and I know it looks a little over grown but this reality premaculture TV here. You'll seeing here, you'll seeing it run. This not pollution, this is an iron oxide that is released by an aerobic bacteria. Australian soils are very high in iron hence we have all this iron mining and this is ancient cotton. As it is an aerobic bacteria in the water and when it gets to the surface it oxidizes the soluble iron. Lots of people think it's pollution. It's a sign of an aerobic condition. This is definitely an aerobic, it airless because the springs always running. It's not a problem, I know you can be worried about that. It's just an iron oxide at the surface released by an aerobic bacteria. It's always a natural process actually.

Now what we've done is we've directed the spring off to the side of the track. When the track starts to bend down the hill and goes down the center of the ridge line onto our [inaudible 00:34:48] grazing area. We've directed it off and way from the track and down. It's keeping this track dry. We've nearly succeeded, I say nearly because we do have some wetness appearing here. We actually haven't fully succeeded there's still some moisture coming out at this point and we still have to deal with this. We've got most of the moisture.

Now let me show you what we've done with the moisture, here the spring comes off the side and we've taken it off the hill, we've stopped it and we've directed it in a diversion drain to a crossing pipe just below our feet now. Then over into a brand new dam so come on down here. Here's that same spring water. The spring water here you can see it running.

This spring water is coming though the pipe, the new pipe which comes under our track. That taken most of that water off the track [inaudible 00:36:15] we haven't completely succeed, we've got some moisture there but most of this is now directed somewhere else. That somewhere else is down here. Most of the iron oxide already gone because it goes though that little aeration track.

Here we are, this is level silk spill way at the end of a brand new swale and at the other end of the brand new swale is a beautiful dam we call fun gully. This swell, rises up from the level silk spill way the end there. What I'm walking though is

cover crop. It's Japanese millet and kalthy. It's been put on to make this brand new earthwork secure. This is only two months old. Two months ago we were digging this hole earthwork system out. Now it looks quite lush. We seeded it heavily and we can see in the landscape where the cover crop is germinated well and where the cover crop is not germinated well.

We can see soil fertility painted in the vegetative response. We put the seed there, we put the Japanese millet. We put the cow pea down but you can see areas where it's obviously more fertile and less fertile. You are not guessing now. The plant's indicating for you where you got good fertility, good water way or poor fertility and poor water soakage. You are pilling the undercoat on the landscape and you can see the response. Live responses are usually very dependable. We've created a beautiful little scene. This is all been recorded on video as well as an earthworks lesson. This is what we like to teach people to do.

From here on it's a regrown forest I've allowed this forest to grow. We didn't plant it just grew itself. Forested ridge track. This is the steepest ridge track on the property, come though this regrowth forest. That is all grown on it's own. In the last 15 years we have allowed it to grow. We didn't plant it just grew itself. This is one of the more vague ridge tracks on the property used by tractors, used by forward drives when it's drying up. Used by the cattle and the grazing animals, we direct them down this ridge tracks or contour line ways. There you go.

I hope, you've enjoyed this little inside story of Zaytuna farm. I've gone for a quick pass ground with [inaudible 00:39:48] observing explaining, trying to give you a bit of an idea of what the reality is in relation to living the permaculture life. Now here in the older ground part of the property we're really just a passive observer. We are really just a visitor. We have everything to learn and everything to loose. This is my sanctually and it's been great to share it with you.

Marjory W.:

There was Geoff Lawton and you can click on the button to the right to get in touch with Geoff and learn more about his permaculture design certification trainings. He also has a bevy of really well produced videos that are for free and available to learn information of all kinds. Every aspect of growing food and especially working with the landscape and earthworks. I really appreciate his distinctions and ability with that. Click on the button to the right and get in touch with Geoff Lawton.

Now today we are almost wrapping up the home grown food summit here but we've got quite a few other presentations. "Eating dirt. Why each dirt?" Doctor Joesh asked. Such a pretty short one I think you'll really enjoy it. Extraordinary eggs with Patricia Foreman that is an amazing present I had no idea about thing about eggs and Patrica brings forth a lot of good ones. Tomorrow we've got extreme composting the movie. That's pretty funny David, the good is always bringing out great stuff and picking heritage pigs three steps to jump starting you urban farm as well as herbal treatment of wounds and lacerations. Lots more coming up. This is Marjory Wildcraft ill see you at another one at the home grown food summit

