Polyculture Farming Must Serve As The Foundation

Last January I went on a road trip across California with my brother Adam in my Aunt and Uncle's VW Camper. I remember the awe we experienced as we gazed out the window at hundreds of acres of grapevines young and old. As we traveled along the countryside and outskirts of cities, we tactfully dodged mudslides in Big Sur, flooding, 80 mph winds in San Luis Obispo, where we hunkered down for the night at the El Chorro Regional Park next to the Botanical Garden, and a snow storm in Yosemite. Luckily the highway apps allowed us to safely maneuver our way between two beautiful National Parks in the winter. If you haven't visited Yosemite or Joshua Tree National Parks, they must be on your bucket list!

I never really thought to consider viticulture as a thriving monoculture movement until I was bombarded with rows of vineyards in my peripheral view. Just as the picture indicates, there's a succinct system in play within the viticulture industry and it's hard not to miss the lack of biodiversity in this industry alone. While there is a cover crop of grass in between the rows, there are other solutions that could be utilized to make verticulture production more sustainable. Encouraging organic viticulture is an ongoing debate but there are winerys all over the globe that work with nature to create a wine that is better for all living things.

In the twenty-first century the "tri-lemma; food, fuel, and the environment," are the driving forces that should propel biodiversity and agrobiodiversity. Power postulates that innovation is thwarted by decisions that farmers must make in response to policies and market trends, with landscape changes devised to meet these demands (2009). Power presents the dilemma that ecosystem services must support and detract between agricultural services and ecosystem services, and that they must be supported by biodiversity (2009). I believe that farming methods used to cultivate crops, like polyculture vs. monoculture, play an essential role in biodiversity and agrobiodiversity.

Ecosystem services must incorporate polycultural agricultural systems in order to build the foundation for more sustainable

food systems. Landis, Wratten, and Gurr (2000) previously discussed how monocultural cropping systems prevent the occurrences of beneficial insects to run their course due to the use of pesticides, and how polycultures provide a welcoming environment for multiple species to coexist and work with nature over time. Polycultural farming methods should serve as the foundation of policies and programs.

Agricultural systems are implemented as a result of agricultural practices driven by the demand in global markets (Power 2009). Agricultural systems must support alternative landscapes like permaculture in order to be effective at maintaining conservation, resource recycling, and water harvesting, while creating more biodiversity (Conrad 2013). Hesterman states that we are chipping away at transforming the food system through a systems change, emphasizing that we can't afford to wait, "we need to act more directly and forcefully now" (Oran B. Hesterman 2011, 43). Furthermore, policies should mandate that farms incorporate "adaptive landscaping" (Power 2009) on their farms in order to receive funding, and claim agricultural exemptions. Insisting that giant monoculture viticulture farms adhere to **biodiverse systems** would provide more sustainable solutions for dealing with drought.

Bibliography

Conrad, Abigail. "The benefits of alternative farming methods." *The Guardian.* April 23, 2013. http://www.theguardian.com/global-development-professionals-network/2013/apr/23/farming-methods-agroecology-permaculture (accessed October 10, 2014).

Douglas A. Landis, Stephen D. Wratten, Geoff M. Gurr. "Habitat Management to Conserve Natural Enemies of Anthropod Pests in Agriculture." *Annual Review Entomol* (Annual Reviews) 45 (2000): 175-201.

Oran B. Hesterman, PhD. *Fair Food.* Philadelphia: PublicAffairs, 2011.

Power, Alison G. "Agricultural Systems and Ecosystem Services: Trade-offs or Synergies?" *Twenty-First Century Ecosystems: Systemic Risk and the Public Good .* The National Academies of Sciences Engineering and Medicine, February 12, 2009.

Summertime Primetime

And the livin’s easy…actually far from it! Especially if you know us and our ridiculous determination.

My 35th birthday was amazing! Thank you everyone for your thoughtful wishes and splendid gifts of joy and blessings! I received a wonderful turquoise garden gnome from our great friends Will & Megan which we will add to our herb garden. Our beautiful friend Nikki gave us a great birdhouse handcrafted by her friend Harris. The birds will love it just as much as we do I’m sure! We had a marvelous evening among friends and the homemade mason jar tiki torches Davin made kept the mosquitoes away too!

I wish I could’ve posted in June but I’ve been trying to balance life and swat all the flies! We had a gathering to celebrate our spring progress at our Suburban Homestead. It’s been a very busy spring indeed! I started teaching at Green Gate Farms, New Farm Institute in June and I’m trying to transfer to Green Mountain College in Vermont in the fall. They have an innovative and empowering Master of Science Degree in Sustainable Food Systems that I would love to get! Although I have excelled during my Masters program at Texas State University I would love to have the opportunity to have a greater impact on the food movement through sustainability and Green Mountain’s program is cutting edge and in a league of its own! Plus it’s in one of the best states in America! One that we’ve even considered moving to. Plus we even have family there and throughout New England!

Davin’s added 3 fences to our backyard homestead to keep the lovely ladies(our hens) out of the beds. They have however enjoyed feasting on many heirloom tomatoes, both green and red, a number of times, thanks to Davin forgetting to check the gates before he’s let them out. He did a lot of research in the best fencing methods and went with some old school

approaches. His overalls have found many uses most weekends spring and summer.

ANIMALS in General

While at Green Gate I've learned a little bit more about Guinea Hogs, Pigs, Chickens, Bunnies, and Goats. During Farm Camp I have had the opportunity to feed them daily, help improve some of their habitats, and ring them back into the pen. Last week the Guinea Hens and Bunnies froliced freely and I assisted in coralling them back in. The kids loved it even though it was a bit of a nuisance in the pouring rain and heat. None the less it still taught a lesson in proper livestock framework.

Yesterday a volunteer brought a baby bunny to the farm. Although he was going to feed it to the hogs, I tried to rescue it to release back in the wild. Although I did my best, little bunny didn't make it and passed on to greener pastures this afternoon. If anything it was an experiment in the hopes that one day I'll be more successful in rescuing such adorable creatures. I was told the success rate would be slim. I did learn what and how to feed it and the raw milk from a local farm as well as a liquid vitamin blend and water administered rather well in a dropper. It was pretty neat and cute watching it succle the food. It was about two weeks old we think. Last night we came home from the movie and it had actually jumped out of the shoe box on the counter, with a lid on, and scattered into the next room to hide under the piano. The fact that it surpassed two of our stealthiest cats won it the title of 'Lucky' bunny by Davin. It's unfortunate that Lucky didn't live another day but we learned a little bit more about raising Rabbits in the process.

CHICKEN Challenges: CROP in Trouble & Other News

We have also had to recently cull 2 of our hens at home, :(. Davin did make Chicken Noodle soup out of Elsa; one of our Golden Naked Neck Hens that had an Impacted crop for a week. After endless hours of feeding with olive oil, coconut oil, honey in probiotic yoghurt, and a little cooked egg after periods of no food because of the impacted crop (which later

turned into Pendulous Crop), my husband threw in the towel; even though he wasn't the one taking care of her the whole time! She continued to drink the probiotic and electrolyte water on her own and we noticed if we tapped the waterer with our finger it prompted her to drink fluids on her own. Staying hydrated was not an issue. She did turn a little green from the excessive amounts of olive oil we administered which could only be seen because here skin is so visible due to her breed.

We did a great deal of research individually online. I stumbled upon a very helpful website worth recommending if you have chickens; The Chicken Chick wrote a useful article; Answers from The Chicken Vet on Impacted, Sour & Pendulous Crops by Kathy Shea Mormino. Definitely worth reading and adding to your favorites. I tend to prefer finding answers in books but unfortunately my only chicken book on hand, Raising Chickens by Storey, didn't have the answers I was searching for, even though it is a good book for a beginning chicken owner. The local bookstore I went to, Half Price Books, had one book about chickens and it was of funny looking breeds; not very useful. We are still looking for a Chicken Veterinary Book so if you have any recommendations that would be wonderful!

We also contacted several people in search of a quick and inexpensive fix even though those who raise birds for their meat or eggs in large quantities advised just to cull the hen. I was able to speak with a Veterinary Assistant on behalf of a Chicken Vet at Bastrop Veterinary Clinic who discussed other options of using antibiotics to help reduce the swelling in the crop area and that had provided success for some. Other options they suggested that I had also researched on my own was cutting the skin and removing the material myself from the crop. We heard that the surgery was risky and that we'd have to be transferred to a different doctor. We heard of a miraculous woman who has done it on her own for years using a straight edge razor blade and some craft glue (or medical grade suture glue) to stick the wound back up; from one of the Elders at Calahans. Apparently she has had reliable unended success and it works everytime. I am in search of meeting this woman and learning her trade. The other option we researched a

bit was helping the bird purge the matter back through the esophagus but we also discovered that he usually resulted in fatal incidents. We did however watch a video on Youtube of a gentlemen who did this with a parrot and the video provided great detail. My husband the makeshift medic that he is, decided against both of those surgical or medical procedures because the probability of survival was so low.

By the following Monday and much nursing from myself and our blessed neighbor Amber and family; whose youngest daughter named her, Davin bid her ado. The other naked neck I had named from the start, Frankie was a tough bird and obstinate, always going her own way while free ranging, ruthless and fearless. On Sunday night she was culled because she was shaking and listless. Not sure if it was from getting injured in the coop the day before because she was startled and injured herself or from coming down with an illness in less than 24 hours. We spray the coop daily and add probiotics to their water which has proven to be very successful and highly recommended as a daily regimine by the owner of Blue Star Ranch, where we bought our organic pullets from. My husband put her out of her misery in the field using similar techniques that we learned while harvesting ducks at Munkebo Farm. He buried her in the field. All of the other birds seem to be fine and we continue to spray and administer with electrolytes and probiotics every day.

HENS in the HEAT

The heat has been a bit of a drag on our chickens but the cool clay and cement from our house allows the birds to cool down through conduction. Drinking cool water also allows the birds body to cool down too. We also have a fan located in this area and three different water sources to drink from. Vinegar has helped them continue to drink water in the heat. Our hens haven’t laid yet and we’ve never had chickens before so everything is a new experience. We haven’t had a hot summer compared to the years prior but none the less it’s warmer than they’d like for production. We’ve also read that using oats as scratch help birds eat and stay hydrated during hotter temperatures. Having birds like Naked Necks in your flock also

provides more heat tolerant options. Another way to cool the birds down has been to spray them with a mist of cool water. We have the perfect mister on our hose attachment or you can purchase a misting fan. They love the breeze and the mist once they get used to it. As you may have seen in our pictures of the Hen Heat Hut for free ranging in the yard, as well as our Rainwater Chicken Waterer, we also use drip nozzles for efficiency and ease. They provide less waste and if introduced to your flock while still young(we started using them after a few months old) then they will adjust readily. We have seen them used by chicks and in large livestock establishments. We are very happy with their capabilities and the hens use them often and they work well. We additionally offer cool fruit, veges, healthy food scraps, organic whole milk and greek yogurt which the chickens enjoy. I think it helps cool them down too and they make a mess of a shower with the milk and yoghurt. Make sure your chickens have a cool habitat, fresh water, plenty of shade and safety from the sun and predators when they free range. If you need to build a Hen Heat Hut, your birds will thank you later, as well as your other pets who enjoy climbing on their new tower.

PROGRESS in the Garden

I’m happy to announce that our Eggplant, Grapes, Gold Wax Beans, Boar Heirloom Tomatoes, Marigolds, Basil, Thyme, Marjoram, Oregano, Sage, Rosemary, Lemon balm, Cilantro, Dill, Fennel, Pok Choy, Sunflowers, Quinoa, Hot Peppers, Onions, Leeks, Carrots, Romaine Lettuce, Strawberries, Chocolate Mint, Spearmint, Catmint, Catnip, Raspberries, Lavender, Chives and a large variety of other herbs, have all had a successful season. Many of them continue to bear fruit, flower, and provide sustenance and growth. We have had our most successful year since living here in the gardens. I finally feel like I’m grasping gardening a whole lot better and that everything that we’ve learned along the way has allowed us to come thus for. It’s amazingly empowering to be able to have successful gardens finally after so much effort, research and experimentation using a variety of methods. This spring I tried my hand at gardening biointensively and it has definitely shown great results especially with the size and

production of many of the plants grown in small gardening spaces. Red, orange, and pink zinnias line our garden terrace. Fat sunflowers grow along side the green beans, and Morning Glory vines up along side our cucurbitaceae family bed.

Our grapes are the best, sweetest, and biggest so far and we added 2 Concord trees this spring to our wilderness. I also planted 2 Elderberry bushes and they are finally taking off. I potted 3 more blueberry bushes because my love for them is too great to quit and we tried using just peat moss this time instead since a local grower raved about the success she has seen trying just that. We added some humus, microflora and pine bark compost to the top of it too. They seem to be doing well.

We have had more rain this spring and summer than any other year that I've lived in Texas since 2006. I actually saw that the Barton Creek Aquifer status was no longer registering drought! We haven't had to water much and have been very reliant on the rain. Our filtered watering system in the backyard has done wonders in maintaining the health and growth of our plants! We even planted native seed in our front yard to be more water wise. We laid down straw afterwards to help during the growing period. It continues to be a work in progress. We amended the clay soil slightly by adding 1 yard of Triple Compost and 1 yard of screened sand to the front lawn. We also used Thunder Turf, purchased from Native American Seed Company in Junction, Texas!

Our latest permaculture experiment has been gardening with straw bales. So far so good. I'll keep you posted on that one. I planted them on the east side of the house so they get afternoon shade.

BUGS that are Back

We have been spraying every week or every other week all of the gardens with a mixture of homemade compost tea that I make in a 5 gallon bucket. We have also sprayed with sulfur to minimize the chiggers in our gardens/yard. We've never had a problem with them in the past but the flies, mosquitoes, and chiggers are very bad this year. We do have a great deal of

beneficial insects and hummingbirds in our gardens. We don't have any problems with birds eating our tomatoes but have heard many complaints from other gardeners that it's a problem. We think that our permacuture set up has helped prevent this from happening. We do monitor the grapes and strawberries though because we have seen that become a problem in the past. A plastic livestock netting that you can get inexpensively at a local hardare store or garden center works fine as a covering. We have aphids on our grapes but we constantly squish them or pinch off the young growth that they've attached to every 2-3 days. Our Maximilian Sunflowers have been a marvelous host plant and lady bugs and other insects continue to thrive on them, reducing the destruction on other plants. Leaf hoppers are very bad this year, and we've had a Tomato Hornworm take out an entire bell pepper but it recovered and the hens were pleased to devour it. We continue to have many flowering herbs as hosts for the beneficial insects; herbs like basil, fennel, dill, oregano, horehound, mints, etc. have been a huge help. We leave them to flower in the gardens and they help boost pollination counts although we haven't seen many bees this summer and more so in early spring. We have a few new citrus plants that I've introduced to the container garden mix but they continue to challenge me. I'm determined to get better at growing them however even though my recent research has taught me that they are more work than I initially thought. Why can't everything grow as easy as grapes, strawberries, and raspberries do here? Just kidding. Nothing is really easy in Texas to grow, but I have figured out a lot of things that do. If you are a laid back gardener in need of good landscaping plants, stick to the natives. You won't have to water much if at all.

RECOMMENDATIONS for your Garden

Marigolds and Basil should be replenished everywhere! I have the largest Marigold plant I've ever seen in my entire life simply from popping the dead heads and spreading them throughout my garden. This plant actually came from a random head I beseeded in the fall. Although I should relocate it in another area since it is taking up space and vital nutrients from our largest garden bed, I simply can't because I want to

see how big it can get! Marigolds and Basil are both essential to detering pests in your gardens. If you aren't a large organic farmer you can surely pop the tops and spread the seed everywhere! The bugs and your gardens will love it and they both make wonderful bouquets and are great edible landscapes, especially with so many varieties! I have 15 different basil plants after ordering seeds from seedsavers. Botanical Interests has also allowed me to introduce new edible culinary varieties of Marigold to our diet.

Let the good insects live on and relocate them if you have too. Most spiders are a huge plus to your gardens. Our favorite is the "banana spider" and wolf spiders. Have you ever seen glowing eyes in the grass at night? Take out a flash light when it's dark and shine them into the yard. The little sparkles that you see are actually from arachnids! Pretty neat or pretty scary for those who are arachnophobic. Get your hand on an insect book for bugs in your state so that you can decide on your own if they are harming or helping your garden. Every day is a new adventure in your own backyard! Especially when a bug hunt is involved! I forgot to mention that I actually saw a lightning bug a couple nights in a row while gardening by the light of the moon. That was amazing. I've never seen one here and something that I'm reminiscent about.

Other bugs to watch out for? Kissing bugs are very bad and we have seen them this year, they can make you very sick and leave a huge welt so be weary and squish when you can. The best organic method is your fingers, but a dilution of neem oil, citrus oil or tomato leaves, onions, garlic and hot peppers, also work wonders too! Compost tea, diluted dish soap, and milk also are other great aides. Jerry Baker has some great books out with tons of recipes for your lawn and garden. Add one to your collection. Make sure your measurements are accurate and that you aren't spraying your plants to late or early in the day. You don't want to burn your plants so do your research first if you haven't tried using them before.

Praying mantis and walking sticks are great to have around, even though some have said that they can be invasive. If they

eat the bad bugs they are good in my book, as long as they stay away from my precious hummingbirds! Have you ever seen a picture of a praying mantis eating a hummingbird? It's crazy!

Toads are a good sign that your backyard oasis is in balance within the ecosystem. Make sure not to use pesticides in your lawn and garden and you can count yourself an avid organic gardener, no certification needed to grow local, fresh, inexpensive food in your own garden. Another way you can help your family flourish, by choosing to live and eat better.

Don't forget to pick blueberries at Moorhead Blueberry Farm in Conroe, Texas! We picked 16 pounds in May with some of our Vear family members and made some new friends too! I've made blueberry cobbler and blueberry ice cream and have eaten plenty by the handful! I plan to can the rest. Come to the Manor Farmers Market on Wednesdays in Texas and buy one of my yummy homemade treats!

Happy Fourth of July! Thank you to everyone who has served our country in one way or another, especially the men and women in uniform. Our blessings and prayers go out to you and your families every day! We wouldn't be here without you keeping us safe. Thank you!

Enjoy the summer trails, and for the record, Davin says I'm the scientist and he's the engineer. What a miser.

Laughing joyfully, Kristin & Davin

May Moments Bring Us Joy

Another Wednesday at the Manor Farmers Market. I

met quite a few wonderful people today! I always enjoy engaging conversations with others who are involved in similar projects and experiments at home. We were talking citrus and although I love this fruit dearly, it has been an ongoing challenge of mine to get our Meijer Lemon, Lime, and Tangerine to grow fruitfully in the past. I reluctantly gave up this winter only to find myself getting new varieties this spring and more literature. The fact that I didn't have a single book on the matter is quite silly since I am immersed in so many others that revolve around food and dirt. My most favorite reads this spring have definitely been carried around with me wherever I go, thinking I'll have a minute or two.

How to Grow More Vegetables **by John Jeavons, which John recommended (Natural Gardener). When I interviewed him in March I asked, if you could suggest one book, what would it be, and that was the one he promoted. I encourage you to get your hands on a copy. It incorporates biointensive growing methods, how many plants and calories you need to feed a certain number of people, and companion planting, ecosystem balance, charts, soil fertility, sustainability,composting, open-pollinated seeds, propagation, seed saving, and of course so much more that I can't go into detail. You'll just need to get a copy yourself Build that library, put stickers-the ones you get sent to you in the mail with your address on them, in your paper passions and share them with your**

neighbors and friends who could use to earn a little more. Currently also reading the $64 Tomato.

In that past month we've literally transformed our backyard haven with Davin adding gates to the gardens closest to the house to prevent our feathered friends from embarking on beans, peas, eggplant, and grapes. For some reason Davin thought it'd be funny to show them new things they could eat, before he built the fence, which meant flock sitting was necessary.

Our biggest accomplishment of the year in promoting sustainability is from our direct influence and education to our friends and neighbors on the importance of growing your own food, harvesting rainwater, repurposing materials, and alternative methods to grow plants, fruits, and vegetables. Right before we got the April/May issue of Mother Earth(ME) we sent a subscription to our neighbors the Calebs, since they had begun their conquest in transforming their backyard. Once we got that issue in the mail the letter from the Editor of ME asked readers to send a subscription to someone new, I was gleaming with joy knowing that I did this right before they told others to! The stars are aligned. When affordability of growing a garden was brought up, I piped up, "you can't afford not to!" And thus their journey began. It has been extremely exciting watching them get enthralled in projects

that procure Mother Earth. More importantly their children are also learning new skills too! We will be sharing pictures with you and the impressive strides they've made since February. The picture displayed is a picture with one of their girls helping Davin with beak trimming. When the Calebs started asking some basic gardening questions I decided they needed more than my blundering mind so I put together a small resource booklet for them of some of the things that were important. I included crop charts for the year, Ag Extension charts on crops that do well in our county, companion planting information, farmer's almanac info, basic gardening principles for handling drought and intense heat, seed companies to order from and gave them a stack of my Spring seed catalogs from various companies. I also advised them on local gardening centers, online resources and opportunities that might interest them. We've also opened up our green library to them which includes books and old issues of Mother Earth News. They sprung forward and have already learned the ever challenging journey that attaining a green thumb isn't always promising and definitely not easy. They take pride in the fact that they have joined just in time to learn from all of our mistakes. It makes Davin and I chuckle for sure. We have had years of disappointment on growing certain crops here and are always researching this seasons insect challenges. We are very flattered that our methods of living have rubbed off on someone new,

especially a family of six! We are thrilled to exchange ideas and lessons learned each week. Gardening humility keeps us humble and surely reminds me of what I'm here for and what my great grandmother taught me.

I got extensions on my two research projects at the University. I hope to finish them in the next month. I still have marketing surveys for seaweed compost and can email you one if you are interested, message me on Facebook or send me a message through our contact form. The sustainable agriculture project on agrivoltaic methods is more like farming in a third world country. I'm learning new skills that I didn't know I had, including learning how to balance extreme circumstances in the dirt, adversity against all odds, farming in the field alone.

Our spring projects combine different endeavors. Davin's been keeping busy learning about Hugulkultur, bee collecting, watching countless Wranglerstar youtube videos, searching for Morels in Texas and Missouri, and fishing Trout. He also went to Engineering school for work and has been actively building new projects most every weekend. This past weekend he made a Heat Hut-a place for animals to dwell in the shade in the heat of the sun, three gates, and fenced in our greenhouse chicken coop, outdoor kitchen and shower, grapescape, long garden beds and clothesline lounge.

Some of our updated project pictures are shown.We will try to upload them by projects to our Project section on our site including new pictures of the updated Greenhouse and Chicken Coop that Davin finished in April. Some of the projects you see are my Ag Research Project on Agrivoltaic Systems, Heat Hut, Outdoor Garden Fencing, Spring Landscaping Projects in the front yard, Gardening Methods, Beneficial Insects, Rainwater Drip System, and Free Range Waterer.



Papilio glaucus- Eastern Tiger Swallowtail



Herbs in the garden designated for beneficial insects



Davin’s May Project 2014









Mic fenced in…





Herbs, Blueberries, and Table Grapes



Back Gate



Cover for Tomatoes



Tomatoes, Onions, Garlic, Peppers, Carrots, Radishes, Beets,



Pergola Garden Bed May 2014



Misty, Jubilee, Sweetheart, Sharpblue Blueberries



Container Gardening with Potatoes



Davin stapling the burlap down to the frame





Let your free range animals find shade from the sun!



Rafe on the new heat hut.







Make your own free range feeder!





Easy to move free range water feeder



From the underside







Eversweet and Tristar Strawberries



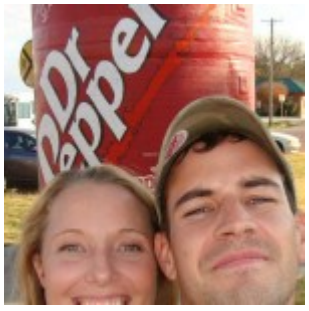
Herb Garden experiments



Cedar Hinged Door with lock for easy access.



Davin created this rainbarrel to collect rain from the Greenhouse coop which runs into the 4 drip feeders inside the coop.



Dublin, Texas in 2011



The ladies grazing



Prickly Pear Cactus, Cana Lily, Esperanza, Thyme, Marjoram, Bulbine



Transplants and Turf



Front Garden Bed



Kristin’s Spring 2014 project: front lawn



After working soil, still digging…



Spreading Dirt, KK’s project



New Front Spring Bed Near Curb March 2014



New Front Spring Corner Bed April 2014, Kristin’s Project



Garden Music



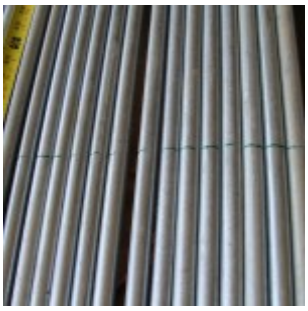
Ground I’m growing in, Kristin’s Project for Sustainable Studies in Graduate School at Texas State University



More dirty madness



Sharpening the stakes



Measure the poles



Prop up the pole before you cut it



Cutting the stake



Bucket of 6 foot stakes



Sustainable Agriculture Project Spring 2014





Control and Testing Site



Test site







Student Sustainable Farm Side Shade Paneling



Handpainted repurposed materials.