From cotton for export to local organic vegetables: A case study of social ecological resilience in the Delta

Abstract. One family's enduring crusade to create a healthy local food system in central Arkansas illustrates the factors which engender ecological resilience. The experience of two brothers and a father periodically reorganizing after external disruptions reveals the adaptive cycle common to all ecological systems. The unique paths followed by each illustrates eight facets of resilience exemplified in the building and periodic transformation of a resilient local food system.

Introduction. The advent and resilience of the most enduring local food system in Central Arkansas is a story of one family: the Hardins. As in most of the Mississippi Delta where the Hardins settled in the late 1800s, cotton was the big money crop. Cotton required plenty of labor, mostly supplied by the descendants of former slaves, and produced thousands of fortunes. As produced since WWII in the US, cotton is doused with more pesticides than any other crop[1]. Local organic vegetable systems use no chemical pesticides. When the two are grown on adjoining fields, the organic vegetables always lose out. Josh Hardin lost 20,000 seedlings in one day near Grady, Arkansas, when a neighbor's herbicide spray drifted. In the U.S., cotton is an export crop. Nearly all clothing manufacturers have left the South. China is the big market nowadays. Lavish federal commodity payments support production of these exports. Production of healthy vegetables for local sales gets no government support to speak of[2].

Today, these two diametrically opposed systems are both fighting for existence in the Delta of Arkansas. With high grain prices in recent years, growers have been switching to corn and soy from cotton. As a result, cotton gins, left without enough volume to even break even, have been closing right and left. Without a gin to separate the cotton from the seed, even more cotton farmers have to switch crops. The newly dominant grain crops are even less friendly to organic vegetable production since the herbicides which kill broadleaf weeds in corn, sorghum and rice also kill nearly all vegetables on neighboring fields. Josh was able to buy a small farm in an adjacent county where he has 25 certified organic acres surrounded by woods. His brother Jody is building an organic farm in the middle of the city. Both now rest easier with the spray planes never coming close.

Both Jody and Josh got their starts in farming on their father Randy's land near Grady, Arkansas, where he had was among the very first in Central Arkansas to see the potential of local food systems. But the roots of the Hardins' transformation of the central Arkansas food system begins much further back.

Randy's great grandfather and grandfather were all traditional cotton growers. His grandmother began to diversify the family enterprises—though largely outside of farming. His grandfather made the first, conservative attempt at diversification. Then, in the late 1980s Randy, decided to get away from commodity production, partly to avoid dependence on government programs, but also because he saw

[1] http://www.panna.org/resources/cotton
[2] http://farm.ewg.org/

a trend emerging of people wanting healthy, locally produced food produced from heritage varieties with heritage processing.

Such local foods are all the rage today, but only recently. As late as 2000, USDA policy papers addressing the evolving food and agriculture system do not mention local foods. USDA then viewed our food system as a mature market with changes expected only around the edges. In perplexing contrast to this supposedly stable, mature market, the USDA did recognize a new "consumer driven era" for our food system, moving toward a more product-based rather than commodity-based system.[3] By 2010, USDA was on the bandwagon promoting local and regional food systems.[4]

The Hardin family made the switch 30 years before USDA caught on to the trend. What's it like for a family to make this shift? How does it occur? The Hardin family of Central Arkansas have much to tell us about the tribulation and exhaltation of making the change from raw commodity producers to local food system entrepreneurs. Randy, Josh and Jody haven't quite made the shift all the way to organic. Practical, conservatively flexible Jody is intent on building up an organic farm on 63 acres of a former orphanage overlooking Little Rock, but he had to use fungicide treated seed to get his crops started the first year on former pasture ground. He told us: "I hate to do it, but we have to get these plants off to a good start." Josh still helps on his father's vegetable farm where spraying chemicals and spreading chemical fertilizer is de rigueur.

Will the shift to organic be widespread in the Delta? Or is it just one example of innovation that conservative flexibility will reel back in? This is not quite settled. A few years ago a local construction magnate came with a foundation executive to seek Randy's advice on building a series of organic farms in the Delta with poor farmers. "I told em' like it was" he says, "and they never came back" and never implemented the project. The construction company wanted to come in, level the land, put in irrigation lines, provide some shelters and give it to someone to run. Randy explained that they needed to have a marketing strategy to distribute the product but, "they throw the money at one thing and they don't realize it's a chain, and a chain is only as strong as its weakest link."

His sons are focusing on marketing and staking their future on local, organic food. All three have a complementary diversity of farm enterprises. How did the Hardin family become two generations of local food impresarios? What obstacles did they face, what disturbances moved them in new directions, what decisions have they had to make?

The following case study of the Hardins and the central Arkansas local food system is one of nine case studies the Resilience Project has undertaken to understand ecological resilience by examining successful, lasting local food systems in regions of the US where such systems are rare. In these studies, we seek to explore in social ecological systems the adaptive cycle common to all ecological systems.[5]

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[3] USDA/ERS. 2000. Food and Agricultural Policy, p. 16-35.

[4] USDA/ERS. 2010. Local Food Systems. Economic Research Report No. 97.

[5] Holling, C.S. Resilience and stability of ecological systems. Annual Review of Ecology and Systematics, 4:1-23.

We also seek to explore the indicators or facets of resilience common to both natural ecological systems and social ecological systems.[6]

"Family is the glue we can't unglue." The Hardin family was settled in the Arkansas long after the Civil War, arriving in the late 1800s. The first Hardins in Arkansas grew crops pretty traditionally, growing rich off the fertile Delta soil, and became active in politics. Their political success reached an apogee with Randy's Uncle Joe. Joe, born June 1, 1898, was President of Arkansas Farm Bureau for several years and was the pro-integration opposition candidate to Governor Orval Faubus. He lost badly and didn't run for anything else after that. Instead he worked on less politically charged projects such as getting locks and dams on the Arkansas River. Joe didn't have any children and his father died when Joe was an infant. His mother raised five children and ran the family farm. That's where the diversification began. Bettie Hardin in 1898 needed to support five young children, among them Joe and ---- (father of Ned, grandfather of Randy and great-grandfather of Josh and Jody). "She operated the farm," Ned says. "She was the manager and my daddy was the manual labor. She raised hogs and chickens. She raised corn and we ground it up into cornmeal. She bought my father a cotton gin." "My great-grandmother was the bonding agent that got the family through the Depression," Randy interjects. "She did everything imaginable. She sold stuffed pillows, chickens and hot tamales. She did sewing and took in boarders. She soaked corn cobs in coal oil to build a fire with. She kept the shucks to make tamales with. She plucked the feathers off of chickens and geese to make pillows. She saved the farm.[7]"

The diversification of the family's enterprises continued when Randy's grandfather planted the family's pecan trees 80 years ago as a crop to utilize labor after cotton harvest. At the time of planting there were plenty of good workers who would come to pick cotton and then, and unless his grandfather could provide them something to do, he would lose them to someone else. It was great plan in the 1920s and 30s, but it didn't pan out when the pecan trees matured twenty years later. Then, when the trees had reached harvesting age, most of the good workers had moved up north to take jobs working for various manufacturing companies. The Hardin men decided to hand the responsibility to their wives to manage. The women harvested the product, packaged it and sold it so they could buy Christmas presents for the family. About this time Ned was elected to county office and Randy had an opportunity to manage the farm.

Randy has been working with pecans seriously in 1979 when it became too difficult for his mother to find labor to pick up the nuts. After scouring the country for a solution, Randy introduced the mechanized pecan picker. The picker was so successful in his family's fields that he began using it in neighboring pecan groves. Within the first month he had paid off the first picker and purchased another

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[6] Cabell, J. and M. Oelfse, 2012. An Indicator Framework for Assessing Agroecosystem Resilience. Ecology and Society 17:18. http://www.ecologyandsociety.org/vol17/iss1/art18/; Toolkit for Resilient Cities, 2014. http://w3.siemens.com/topics/global/en/sustainable-cities/resilience/Documents/pdf/Toolkit_for_Resilient_Cities_Summary.pdf

[7] Owen, R., 2013. Family's farming roots run five generations deep. First published in August 2012 in Arkansas Democrat-Gazette. http://lifeuntelevised.com/2013/08/20/familys-farming-roots-run-five-generations-deep/

one, and then a third. Now he has a total of 9 pickers in operation harvesting 3 million pounds of pecans a year in three states. That's nearly as much as is produced in all of Arkansas.

The pecan picking enterprise whetted Randy's appetite for alternative enterprises. He felt they weren't making much from conventional farming and was tired of being dependent on government payments. "We began growing vegetables in 1985 on a small scale. We progressed to commercial vegetable production, but that proved to be less profitable that we had hoped." More direct marketing is the route he chose. "We're going to continue moving into the direct marketing aspect of agriculture."

From the start in 1985, vegetables have been a risky business for the family, with swarms of Arkansas insects, too much or too little rainfall, temperature fluctuation, insecure markets, and banks unwilling to loan to a vegetable grower when they are used to standard corn or soybean producers. One massive incident, though, stimulated Randy to diversify even more.

Randy often applies fungicide to his crops due to the perfect growing conditions for fungi in the Delta climate. One year, Randy and a host of other growers received an accidental mixture of fungicide and herbicide from DuPont. When combined the two chemicals created an extremely volatile mixture which killed his entire vegetable crop and those of many other farmers in the Delta. It took months and the unifying of farmers to challenge DuPont with a lawsuit and receive compensation for the massive crop failure. Randy hasn't stopped using such products, but the experience made him want to lessen his dependence on the integrity of such multi-national companies.

In the wake of the settlement, and wanting to try something new, in 1989 Randy decided to jumpstart direct marketing local produce by attracting kids and their parents. He planted some pumpkins. As the pumpkins began to ripen he opened up the field for a group of children (his daughter's kindergarten class) to come through and pick some pumpkins just before Halloween. Word spread quickly and soon enough, Randy not only ran out of pumpkins, he had a customer base that was hoping to harvest pumpkins the next year. The next year Randy planted a few more rows of pumpkins and offered a hay ride around the property with great success. In 1999, Hardin Farms expanded its tourism business again with the addition of a corn maze. The success of the venture was evident by the crowds of families and school groups that gathered each morning outside the admission gate.

A big part of the mission at the Hardin Farm and Pumpkin Patch (HFPP) was to offer practical education to their visitors. Taking this pretty seriously, Randy went with his friend Linda up to St. Louis, Missouri, and traveled the route that Lewis and Clark took so that they could offer a thorough history. With Linda's help, the Lewis and Clark cabin and the Indian shelters were always accompanied by a guide to talk about cultural traditions and the history that went with the structures. His farm was a maze of education and simple fun activities. Randy even featured a glass paneled beehive so that people could see the inner working of bees. His first lesson though, before the bees or Lewis and Clark exhibits, was showing the simple act of pollination. He would gather the visiting children and adults around and, using 2 pumpkin flowers, he would demonstrate how pollination worked. His intention has always been, "to show people where their food comes from", and he is proud he has successfully passed this onto his son and a few others over the years.

In 2001, Hardin Farms completed "our on-farm fresh market, candy kitchen and restaurant, which has been a big step in leaving the wholesale market and getting into retail."

Run for 20 consecutive years, the pumpkin patch became a staple for people in the surrounding area. People came back every year excited to see what the Hardin family would add to the mix. These included the pumpkins, corn maze, pig races, the custom built replicas of Lewis and Clark cabins and a fort to match, accurate replicas of Osage, Quapaw and Cherokee Indian buildings and tools, other varied educational exhibits, a restaurant, and the "Sky Walk". The "Sky Walk" was one of the more popular exhibits and featured walkways through the trees that goats frequently climbed on, and anyone could climb up there with them.

Randy believes people are drawn to farms like HFPP in their search for a wholesome and unique outdoor activity for the whole family. "This type of recreation is educational for the kids, and parents often enjoy re-visiting their own childhood memories vicariously through our farm. And, it is a great value when you consider the recreational aspect relative to other competing attractions, such as movies and malls," he said.

At the height of the farm's success, a highway bypass came through and Hardin Farm and Pumpkin Patch was split right in half. The pumpkin and corn maze fields ended up on one side of the highway and exhibits on the other. With the new highway having no exits near his farm, while the old highway went right by it, the farm began to lose its appeal for both Randy and his customers, leading Randy to close it down and make new plans for the future. Fifty seasonal workers lost their jobs. The largest employer in Grady, Arkansas, was out of business.

This need to rework his business model, however uncomfortable, was only a challenge for Randy. He found a site on a major highway near where son Jody was farming at the time and built a new market in Scott, Arkansas. The plan was to recreate the pumpkin patch on Jody's farm which was next to a pioneer settlement museum with dozens of 19th century houses, barns, mills and other structures. Randy used his own small sawmill to build a new store and meat smoking facility.

When we visited, he pointed around Hardin Farms and Market Too to the tables, rafters, shelving, and chairs explaining that, "we built all of it!" This enabled him to go into the new location without debt. More daunting are other challenges facing businesses in early 21st century America such as the regulations on a market in a more urban area, finding (and keeping) quality staff, dealing with legal issues from past employees, while simultaneously farming, harvesting pecans, and managing projects like his wood shop.

Randy contends that one of the family members needs to be in the store all the time to explain the products to people and really sell the produce. Jody helped out for a while but he moved on to other projects. The clerks Randy has will smile at people, and run the check-out counter but it's a challenge to find someone who will actively be on the floor like Randy telling people that, "the cantaloupe was picked this morning".

Today Randy farms and manages about 1000 acres. “We farm about 750 acres of soybeans and rent the rest to neighbors,” Randy says. “I have about 100 acres planted in vegetables.” While bumping along in his pickup truck along narrow roads winding through the farmland surrounding Grady, Randy points out 15 acres of watermelons, eight acres of cantaloupes, 40 acres of sweet corn, 25 acres of purple hull peas, three acres of squash and two acres of cucumbers. The crops are planted in neat, virtually weed-free rows watered with a drip irrigation system. “We’ve had to put up this electric fence to keep out the coyotes and ‘coons from eating them up,” he says, gesturing toward wire strung along the melon patches. “We have several varieties of watermelon. We have icebox, seedless and some bigger watermelons that get to 30-40 pounds.” Some crops are sold to wholesale produce dealers, but most are sold directly to consumers at the Scott location. Some is sold by son Josh at farmers markets. Customers can also order through the market website. They’re contacted the day it’s picked, Randy says.

Randy’s pioneering ventures jump-started the local food system in central Arkansas. His sons have expanded and catalyzed the local food system in totally different ways. Jody, Randy’s first son to come back to farming, attended boarding school out of state and then the University of Tampa, where he received his Bachelor of Science in Economics and Finance in 1994. At 19 years old, he was the youngest investment banker ever registered in the state of Arkansas with the National Association of Securities Dealers. He worked in banking in Little Rock, while still working on Randy’s farm in the summer and beginning to learn about marketing produce instead of securities.

Jody conceived a plan for an indoor year-round market associated with a thriving new farmers market in downtown Little Rock to sell not only his own, but other farmers’ products too. He waited five years to obtain an indoor space at Arkansas then-premier farmers market: the Little Rock River Market. In November of 2004, Jody began selling home-grown produce and meats seven days a week in the Hardin's River Mercantile. The first week he offered Arkansas black apples, sweet potatoes, lettuces, organic tomatoes, pasteurized pork, lamb, beefalo, and more for downtown grocery shoppers. Ready-made eats like cucumber salad and fresh fruit cups were also available.

The River Market appeared to be a perfect spot for Jody’s concept. Market management was very receptive to Jody, even clearing previously unavailable space in the River Market for Hardin's River Mercantile. The city even gave Jody a couple of months to get established before deciding on a price for the space. Jody had the help of more than a dozen other farmers who sold their produce and meats through HRM. Hardin's River Mercantile was also the storefront of a co-op network that offered buyers discounted rates on the products, so long as they make a year-long commitment. This CSA program was established to allow home-canners, hotels, caterers, and families about $60 worth of produce every month for a share of the co-op, which costs $700 a year. "They get what's in season every month," Hardin said. This venture was later branded BAM or Basket-a-Month and grew to serve nearly 200 families.[8]

[8] https://www.stlouisfed.org/publications/br/articles/?id=610

In three years, however, Jody was fed up with lack of parking and declining sales at the River Market. In December 2007 he said, "We just realized that we're really wanting to do local food and the River Market is not really promoting or creating policies that are conducive to local foods or local farmers." He estimated that almost seventy percent of the food sold in the River Market Farmer's Market came from outside the state. "Farmers often say they stop growing and start wholesaling and reselling at the market and the rules permit this."

The national magazine Grist picked up the story. River Market manager, Shannon Light, told Grist she saw nothing wrong with vendors at the market reselling produce from California, Mexico and beyond. Light admitted she didn't know how many of the 200 registered vendors are actually Arkansas farmers. "I don't exactly divide them that way,' she said. "Some people don't care about buying local, they just want fresh," Light says. '"They wouldn't be bringing watermelons in May if it wasn't selling. It's profitable and something that people want. If you are dipping strawberries and you can get big and beautiful ones from California while buying your winter squash, you should go ahead and get them for your party on Tuesday."

She said there is room for everyone in what she describes as 'the special event I am having ... like a little circus.' Indeed, the market under her management is akin to a yuppie street fair featuring mimes and bongo players.

"Is this a farmers' market or a global bazaar?" Jody asked. "Peddlers are lying, saying they have gardens. That is irritating. They don't put any money into growing their product."[9] There's nothing wrong with that, another city official seemed to think. Bryan Day, Little Rock's assistant city manager, told a television news channel that bringing in produce from outside of Arkansas is a necessity. "Because we're in Arkansas, to have a full market, that would be very hard to do, so we do have to allow produce to come in from other states and sometimes from other countries."

River Market management did set aside an area for local growers to try to appease Jody and other local growers, but to this day peddlers and pinhookers and trinkets are an integral part of the River Market. The minor change was not enough for eight growers. Especially when a progressive city administration across the river was eager to have their own farmers market.

As the farmers prepared to pull out of the River Market, Jody vowed to open a real farmers market for truly local farmers selling their own produce. Jody proceeded to do just that creating Argenta Certified Arkansas Farmers' Market (CAFM) across the Arkansas River from the River Market. The CAFM concept spread to Searcy, Mountain View, and the Fort Roots VA Center in North Little Rock.

Then, with help of local investors, a year-round indoor market, Argenta Market, was created in former auto repair garage across the street from the farmers market. A USDA grant helped get it off the ground. "We were able to leverage the grant to build one of the most exciting new farmers markets in the state, one that has attracted thousands of customers, chefs, children, and tourists to a once blighted

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[9] http://trulylocal.typepad.com/truly_local/arkansas/

downtown food desert," Hardin said. Sales jumped from $300,000 in 2008 to $1.5 million in 2010, he said. Jody was invited to Washington to describe his success at a Senate Agriculture Committee hearing.

About this time, one magazine writer won an award writing about Jody this way: "I find myself in awe of the guy who stood up for local farmers when he thought a farmers market turned corrupt, who jump-started a handful of programs to promote locavorism, and who just won't settle until farmers, chefs, and consumers unite. So, no, maybe celebrity isn't my word choice, but crusader fits just fine."[10]

Jody attracted a number of chefs to his "Arkavore" version of locavorism. "More and more people are willing to pay for fresh, unprocessed food," said Lee Richardson, then executive chef at the Capital Hotel in Little Rock. Richardson was known for his use of locally grown food at Ashley's and Capital Bar and Grill. "Fake processed food is cheaper than natural food," Richardson said. "This food we're trying to bring back was originally the food for peasants. It's really ironic." Richardson recalled his initial surprise at the wealth of local food available in Arkansas. "I thought, Arkansas?" he says of his reluctance to move to Little Rock in 2006. "Jody's shop and his work was probably the single biggest influence in my deciding to come. Through Jody's lens I could see a snapshot of what was available here. I found there really was an Arkansas story to tell. There's a down-home soulfulness to this food." Shane Henderson, executive chef at the Argenta Market agreed. "Why send your money out of state when you can keep it here?"

Argenta Market carried non-local items, too. Hardin and his investors received some harsh criticism for this. "Customers don't want to stop five times on their way home to get items for dinner," Henderson said. "We'll have everything they need with an emphasis on local products." "We want to be sustainable," Jody said. "You can't be too radical. We're being careful and slowly building a different concept." Jody saw that being a little conservative in your innovation is not always a bad approach.

The Argenta Market concept (a full service grocery store with several chefs on staff competing with Wal-Mart and Kroger while trying to sell increasingly locally produced items in an urban food desert) proved too ambitious. All Jody's savings along with several other investors' more substantial capital was lost when the market closed its doors February 8, 2014. However, less than eight months later, a team of locavores is reinvigorating the location. They feature offerings more attuned to the needs of a rapidly gentrifying neighborhood. Three businesses are working together: a butcher shop, a juice company, and a well-known chef creating unique prepared meals—all using solely local food.

Scott Heritage Farm. During the last years of Argenta Market, Jody had already been distancing himself from day to day operations as he yearned to get back to farming. The Ω phase of the Argenta Market experience engendered anα phase.[11] He partnered with one of the farmers who had also left the River Market with him, to found Scott Heritage Farm (SHF). Located in Scott, Ark., adjacent to the Scott Plantation Settlement, SHF was conceived as sustainable demonstration farm. According to Jody, his

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[10] Dement, N. E., 2010. Arkansas' Farming Revolutionary. Arkansas Life. http://www.regionalmagazines.org/downloads/competition/2010-ARLIFE-CTGY4.pdf

[11] Holling, C.S., 2001. Understanding the Complexity of Economic, ecological and social systems. Ecosystems. 4:390-405.

goal is to "create a learning opportunity for adults, families and school-aged children, and to educate the public through interactive hands-on farm projects that re-connect people to how their food is grown." He was hoping to rebuild an enterprise similar to what his father had built in Grady.

SHF expanded the Basket-a-Month CSA with the additional benefit to subscribers that families who join have the opportunity to come out to the farm for work days where they may build greenhouses or chicken coops; feed pigs; milk goats; make sorghum; and many other farm tasks. The farm provides pastured pork, honey, chicken, grass-fed beef, basil, arugula, green beans, watermelons, squash, cherry tomatoes, sweet and hot peppers, cabbage, broccoli, cauliflower, turnips, mustard and collard greens, chard, okra, eggplant and eggs.[12]

As the farm was being developed, Randy established HFMT nearby. He and Jody had plans to recreate the pumpkin patch on Jody's new farm. His partner, however, wanted to run the farm her own way and gained control of the lease. The possibility of reviving the Pumpkin Patch at Scott was moot. Jody dissolved the partnership and moved over to work with his dad on building up the Hardin Farm and Market Too and plan the next phase of the local food movement in central Arkansas. The Ω phase which always follows severe disturbance of a system.

Laughing Stock Farm. While Jody was trying out the concept of a local grocery to compete with Wal-Mart, his brother Josh took a different route. Josh spent most of his childhood in Indiana and describes himself as a "city kid." When he was a teenager, his dad brought him down to Arkansas and the family farm. While he learned a lot about farming from the Hardin family, most of what Josh does now diverges from what he was taught. "I think my ethics, my work habits, and all of that came from my family. A lot of this other stuff I've just had to learn on my own," Josh explains. "They didn't really understand sustainable soil management or a lot of those things." He tells us that his father, Randy, is continually learning new things. He thinks this is what keeps Randy active on the farm as he enters his 60s.

"My generation is so anti-labor, so anti-grunt work, that I feel like I'm kind of the mortician in a way. I feel like no one else is willing to do it. I turn crap into food." We laugh. "I don't think it's something I knew I wanted to do," Josh continues. "I think it's something I just realized, this is what I'm here for."

Josh graduated from the local Star City High School. At one time, he wanted to be a professional rollerblader. "I was going to do that for a living," he said with a laugh, "but I woke up."

Josh studied organic agriculture through the Center for Agroecology and Sustainable Food Systems apprenticeship program in Santa Cruz, Calif. "There is a whole revolution in the food movement out there," he said. "I got a taste of it and came back home to try to make a go of it. I'm putting my all-and-all into it and am seeing it begin to pay off."

Laughing Stock Farm began in 2006 on a piece of land Josh leased from his family. After a long time "rolling quarters and scraping money together," as Josh puts it, he was finally able to put a down payment his own farm far from the spray planes. He was tired of growing in the middle of row crops and

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[12] http://www.aymag.com/March-2012/Green-Living-It-Feels-Good-to-Eat-Local/

getting sprayed all the time. “This year I lost 20,000 plants to a neighbor over spring,” he tells us. “The day my plants went into the ground, they were all wiped out.”

“I think that’s the key to sustainability, not trying to do it all at once,” says Josh, “especially when you don’t know what you’re doing. Take your time and learn things on a small scale, so that when you’re bigger, you don’t make the mistakes that cost you. I think I’ve taken my time with all this.” Right now, some of Josh’s more unusual crops include turmeric, lemongrass, Hawaiian ginger and galangal (a Thai ginger), goji berries, purple and yellow beans, fingerling and colored potatoes, several varieties of cabbage, colored carrots, heirloom and hybrid squash, heirloom cherry and grape tomatoes, several varieties of sweet and hot peppers, baby pickling cucumbers, lemon cucumbers, shallots and fairytale eggplant.

“I choose crops that are challenging and things that not everybody can do,” he says. From his time in college in California, “I still have a lot of friends who farm out there and they keep me informed,” he tells us. Josh tries to grow things which are hard to buy locally in Central Arkansas. Then he sells them primarily to upscale restaurants, such as Capital Hotel and the local country club, as well as Whole Foods. “I want to grow things that have a high price that nobody wants to grow,” says Josh. “On a small scale, you have to focus on those things. You can’t compete with Del-Monte, you can’t grow watermelons and cucumbers and those things. You have to find things that are niche and have a fairly high value.”

“I’m getting chefs to try new things,” he said. “And their customers are beginning to appreciate the new foods and are feeling comfortable with them because they ate them. They now want to go home and try cooking with the new foods themselves.”

According to Josh, what he sells is more than food. “It’s a service I provide, not just a product,” he says. The chefs he sells to are interested in the crop itself. “We keep them informed. We’re teaching them about the food, about varieties. They love that.” We walk through the rows of ginger, eggplant, and squash. It seems that not even a scrap of land is wasted. At one point in the conversation Josh stoops to sift through an apparently empty row and comes up with four small blue potatoes.

Other peculiarities of Laughing Stock Farm include the equipment Josh has put together himself. He shows us the truck he uses to transport food. It’s a large white van, insulated with spray foam by Josh himself. “This is the redneck produce wagon,” he quips. Nearby is the cooling room, which is not a conventional walk-in freezer but simply a room with an air conditioner. Josh has switched out the controls inside the air conditioner to make a Cool-Bot allowing him to keep the room much cooler at less cost than normal air conditioner. Most of Josh’s key equipment are things he’s made himself. “That’s the only way to do it. Don’t let anybody tell you different,” Josh says. “If it ain’t homemade, you’re probably gonna go broke.”

Many of his plants are grown in hoop houses, whose sides can be rolled up for instant ventilation or kept closed for heat. The hoop houses allow Josh to plant in January instead of waiting for the spring months.

Josh remains committed to sustainable farming, and throughout our conversation he does express concern for human impact on the environment. However, he emphasizes that he doesn't look down on non-organic or less eco-friendly methods. "It's really cannibalistic to go against something that feeds you every day, and to say the GMOs are wrong, conventional agriculture is wrong," he explains. "That's where we came from. For whatever it's worth, that's what's gotten us here. It's what's given us the ability to talk about organics and sustainable." Josh says that he doesn't understand farmers who reject conventional agriculture as wholly bad, swapping it out instead for visions of small farms using only natural methods. "That's a great vision, but the reality is when disease and weeds and bugs come, you've got to have a plan." Conservative flexible Josh does what he must to be resilient.

To Josh, sustainability is not dogma. One of the reasons he decided to go organic was because as a small-scale farmer, it was essentially the only way to make a profit. "I think growing things in season, in a climate where they're meant to be grown is inherently cheaper to do," he says. Non-native crops, like ginger, grow well because they have no natural enemies in the area and are thus less prone to affliction. "I think sustainability has less to do with chemicals and more to do with commitment and hard work."

Hardin is working on a bachelor's degree at the University of Arkansas at Pine Bluff and eventually wants to teach agricultural education to perpetuate the art of organic farming. Josh works with the Grant County Conservation District Board of Directors and often conducts classes at the Grant County Cooperative Extension Service office. "I am blessed to be able to grow things, and I have a passion for growing," he said. "I am proud to be a fifth-generation farmer, and I want my kids to become the sixth generation."

His daughter Miriam wanders quietly in from the kitchen and climbs into her father's lap. She watches us seriously, her tiny chin barely visible from over the top of the table. Josh laughs and asks her what it's like to be sixth-generation farmer. She loves to go outside, he tells us. "Outside!" was one of her first words.

Josh carries her over to the kitchen where wife Anna is finishing their dinner. He tells us he met her the one place he never expected to meet a girl—Grady. She laughs and tells us that she had been passing through with some friends on the way to New Orleans when they met Josh, and they invited him along. "I was like, nooo, I'm broke, I've got blackberries to prune," Josh says. They laugh. There's an easy nature between them, filled with jokes and banter. "We're crazy about each other, don't let us fool you." The Hardins gained local recognition as the 2013 Grant County Farm Family of the Year.

Josh and Anna are supporters of the Society of Saint Andrew, which is an ecumenical, nonprofit charitable organization that salvages, or "gleans," produce from the fields of American farmers when the crops might otherwise be left to rot. The society gives that food, free of charge, to local agencies that serve the hungry. "I am the Arkansas coordinator," Josh said. "I coordinate the gleaning in Arkansas. We give the produce to local food banks." Josh visits schools, churches and other groups seeking support for the program. He also works with those who have smaller farms to encourage them to take part in the program, which partners with the Rice Depot and the Arkansas Hunger Relief Alliance. He said the Society of Saint Andrew has gleaned 40 million pounds of food during the past decade.

An abandoned orphanage becomes St. Joseph Farm. While Josh is gradually developing his organic farm while continuing to work with his father, brother Jody has taken on a new challenge. He decided in late May of May 2013 to leave the family operation and was soon invited to the former St. Joseph orphanage surrounded by 63 acres overlooking downtown Little Rock. He knew he belonged there and convinced the non-profit Board trying to revitalize the property that they should let him turn the facility into an organic demonstration and training farm.

He quickly began attracting interest from a variety of funders—most significantly Heifer International. Heifer was in the process of redesigning its strategy for helping the poorest regions of the US and Jody's St. Joseph Farm has become a linchpin of the new Heifer effort. With support of Heifer and other funders, Jody has six or more interns on staff--learning organic agriculture for 6 months each-- with some staying on for permanent positions.

Two of those who stayed on are now running a CSA with 100 members and selling produce from the farm at several farmers markets in the area. Jody and other staff host regular workshops open to the public in soil-building techniques, as they build up the soil on land overgrazed for decades. St. Joseph's is also training African-American farmers from the Delta to grow organic vegetables and free-range chicken. St. Joseph Farm has hosted numerous farm to table dinners to increase interest in healthy local food. The President of Heifer International likes the project so much he has moved into the former orphanage where he lives alongside the interns and staff.

SJF is moving toward a more resilient system by incorporating Hugelkultur, a permaculture/food forest, and culturing local indigenous microbes to make their farming system more ecologically integrated.

Beginning October 1, 2014, Jody revived his father's pumpkin patch and crop maze as the Saint Joseph Farm Fest. He and his staff have incorporated a huge variety of additional activities on resilient, sustainable and healthy local food systems, in what is planned to be an annual event. The first month-long festival attracted several hundred people. Hardin Farm Pumpkin Patch has been reborn in the middle of the largest urban area in Arkansas[13].

Embodying the factors of resilience. This case study of three vibrant and unique managers and a host of productive enterprises illustrates resilience over several generations. It is one of nine case studies of resilient local food systems in regions of Arkansas, Tennessee and Mississippi culture, agriculture and policy do not encourage local food systems. Randy, Jody and Josh Hardin continue to be pioneers in creating a healthy, resilient local food system in Central Arkansas. They embody many of the factors which generate resilient systems as shown in our analysis of all nine case studies and the literature on social ecological resilience. The key factors apparent in their system include an emphasis on modular connectivity, local control, redundancy, periodic reformation, complementary diversity, building assets, ecological integration, and conservative flexibility[14].

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[13] http://www.stjosephfarm.com/

[14] For an introduction to this literature, see Cabell, J. F., and M. Oelofse. 2012. An indicator framework for assessing agroecosystem resilience. Ecology and Society 17(1): 18. http://dx.doi.org/10.5751/ES-04666-170118

Modular connectivity. Connectivity is universally recognized as inherent to resilient systems. Resilient systems have many weak connections to other systems and a few strong ones. Resilient systems respond to feedback from a vast number of other systems, but are only strongly respond to a few. The connectivity of resilient systems, however has a unique quality: modularity. Systems must not be so intimately connected to other systems that they fail if the other system fails. Computer systems are notoriously focused on modularity, but all systems require it. Josh had to establish modularity for his organic system by placing it far away from conventional grower's spray planes. Josh is also tightly connected to Randy's operation, but establishing an independent farm. His new farm is a module connected to a number of other systems, but independent. Josh and Randy are learning from each other and benefiting from each other's knowledge and work ethic.

Randy has an independent operation with high modularity but connected to a vast number of suppliers and buyers.

Jody has established a variety of independent businesses while still connected to Randy's operations. Now he has very weak connections to Randy and Josh's operations, but has established a number of other strong connections (with Heifer International) and a variety of less Heifer dies, Jody dies. Bring in chefs Josh and Jody Josh SSAWG, various farmers markets

Some refer to the strong family ties as bonding social capital and the weaker, but crucial ties to others outside the family or close friends as bridging social capital. The Hardins show high levels of each, though the bonding frays now and then due to brotherly rivalry between Josh and Jody. Josh considers his Hispanic workers as family, extending bonding social capital beyond blood relations or ethnicity.

Local control is shown most clearly in the move to direct marketing by Randy continued by Josh and Jody.

Complementary Diversity is illustrated by the immense variety of crops and enterprises at Randy's Pumpkin Patch and Jody and Josh's farms. Diversity is also seen in the variety of marketing channels, including Farm to Table dinners, CSAs, farmers markets, farm to chef and storefronts.

Redundancy is shown in this case study at several scales beginning with the two sons staying in farming, with Josh continuing to help on the original family farm which has been maintained for over 150 years. Josh and Jody have each been involved in mentoring and nurturing other farmers, especially those just beginning to farm—creating a more redundant system at the community level. Jody has now established an intern program at St. Joseph Farm which is creating more ecological redundancy not just in central Arkansas, but wherever the interns end up. One is already working in Alaska, two others are traveling as WWOOF-ers.

Increasing physical infrastructure. The importance of growing assets to resilience is reflected in the pecan harvesters Randy invested in, his saw mill, the restaurant and other facilities at his Pumpkin Patch and Hardin Farms, Too. Jody's accumulation of a storefront for Argenta Market and then the facilities of

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St. Joseph Farm for his new operation. Josh's homemade reefer truck and his cool-bot are all assets he has built himself which increase his resilience.

Conservative innovation is shown in Randy's continuing focus on the pecan business, but introducing mechanical harvesting and innumerable other innovations by all three which maintain tried and true traditional approaches.

Periodic transformation could hardly be better illustrated than with Randy's bouncing back with a new store after the highway ruined his old operation. Jody has transformed his efforts an amazing number of times.

Ecological integration is shown most directly at St. Joseph Farm where Jody has implemented Hugelkulture, a permaculture food forest, culturing of local indigenous soil microorganisms and many other activities designed to transition to natural ecological processes to build resilience.

Conclusion

Resilience at the farm level is evident when a great-great grandson is farming the original home place, as Josh is doing. However, ecological resilience is even higher when farmers radically transform their operations when faced with external influences, as all three Hardins have done. All the other key factors in resilience have enabled the Hardins to continue to be on the forefront of creating local food systems in Arkansas.