



Working Landscapes Certificate

AN INTERVIEW WITH ANGELA AND KERRY KNUTH

Embracing the latest technologies, diversifying their operation and pioneering new markets are just part of life today for Angela and Kerry Knuth, who farm more than 3,000 acres of corn and soybeans near Mead, Nebraska.

Over the past decade, Kerry and Angela have used software and computers to track the true costs of their crops and more accurately gauge how much they save when they change up their practices, such as eliminating a trip over a field. Utilizing satellite and mapping

technology, the Knuths are able to vary fertilizer and seed rates accordingly; measure the physical and chemical properties, water-holding capacity, and salinity of the soil. In-field weather stations and soil moisture probes connected to the Internet offer them the ability to remotely monitor real-time field conditions and schedule irrigation events based on field-water loss and precipitation, greatly increasing the efficiency of their water and energy use.

manufacturing, marketing and selling agricultural related products throughout the United States. Perhaps it was a natural fit then, in 2011, for the Knuths to explore the new market of more sustainable corn production linked to the bioplastics sector through the Working Landscapes Certificate program.

The Working Landscapes Certificate program

The Working Landscapes Certificates (WLC) program allows end users of commodity crops to encourage sustainable crop production by providing additional income to farmers for the environmental benefits understood to be associated with more sustainable farming practices. Participating farmers, such as the Knuths, agree to raise crops according to more sustainable agricultural production criteria. The farmer then has two products to sell: the crop itself and the quantified ecological benefits associated with



Kerry and Angela also look for opportunities to diversify their farm business and explore new markets, as they did in the 1990s, when Kerry became an area retailer with Norfolk Iron and formed Knuth Iron LLC. Kerry and his brother began designing,

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the more sustainable production practices—termed the Working Landscapes Certificate.

Due to the nature of bioplastic production, in which the “feedstock” material used (i.e., corn) is processed in a giant mill which feeds multiple product streams (including food ingredients, high fructose corn syrup, ethanol, etc.), direct sourcing of the crop directly into the bioplastic is prohibitive from a cost and process perspective. As a result, the corn produced under the WLC criteria is not guaranteed to be used in the production of the finished product (i.e., a bioplastic)—it is only the attributes of production of an equivalent amount of corn needed for bioplastic production that are linked to this finished product. But, the purchase of WLCs does promote more sustainable production practices in the fields near the bioplastic plant, which addresses many of the key concerns around corn-based bioplastics. Additionally, this approach has the added benefit of demonstrating to all farmers that a growing market exists for commodity crops grown in a more sustainable manner.

An insider's perspective

Farmers selling WLCs take specific, measurable steps to improve the environmental impact of their commodity crop production. WLC's are voluntary, and motivation for program participation, as well as program challenges, are unique for each WLC producer. The Knuths shared with us some of their personal reasons for participating in the WLC program.

The Knuths were motivated to participate in the program because they liked the financial incentives the WLC program provided, which made it easier for them to test out some non-GMO crop varieties—something they were interested in pursuing. While other farmers may be apprehensive to try out new programs, like the WLC program, because of the added paperwork, the Knuths saw this as an interesting way

to test their management abilities. The Knuths did perceive some challenges going into the program, which included the limited availability of non-GMO seed varieties and concerns about the risk they might take on by avoiding seed coatings. While they were surprised to not encounter too much difficulty or threat from either of these concerns, they know they always need to manage the risk that is associated with a change in their practice.

Learn more about the Knuths personal reasons for participating in the WLC program, the challenges they faced, and the rewards they reaped.

What are your motivations for participating in the WLC program?

ANGELA: We liked the incentives of the extra dollars for participating. We were not afraid of the paperwork, as we feel we keep good records and saw this as an interesting way to test our management abilities. Also we had been thinking of trying some non-GMO crop varieties. This was the first time [other than refuge] that we worked non-GMO corn into our acreage.

KERRY: A big driver is that we know that certain products are not good for the environment and the soil. We weren't using some of those products [glyphosates, poncho seed treatment] anyway, so it was easy to make the switch. Where we were using these products we knew there were ways around it.

In the end we have saved cost on inputs/products and our yields within this program, with the restrictions, have been equal to the yields on our other fields.



What have been the biggest rewards from participating in the WLC program?

ANGELA: It was very rewarding to find that one of our dryland fields with a non-GMO variety yielded as well as our irrigated. We can guarantee that this was the best this field has ever yielded in its production life and it was a pleasant surprise that it was a non-GMO variety.

KERRY: I like that we are treating our soils and end-users better. We are taking care of the environment, trying to be good stewards of the land and impacting the end-user. We've learned what some of these products can do down the line and bringing awareness to more people about where their products come from is rewarding—hopefully we are on the front end of something that becomes big.

What are the biggest challenges you have encountered with the WLC program?

ANGELA: Implementation was not too difficult—we had to answer some more questions, but we were interested in testing out these same questions and collecting/tracking this data for ourselves anyway.

Maybe need a clearer understanding of how we are paid as far as delivery times and understanding the full program. Having to stay with non-irrigated has also been a challenge.

KERRY: We thought seeds would be a challenge in companies we work with, but it has not been a challenge. Very recently we were hearing from the seed companies that in the near future it would be very difficult to find non-GMO seed, but now we've learned that some of the seed companies are now testing more and more of the non-GMOs—they know that there are concerns about GMOs and that a growing market of end users for non-GMO products exists. We also thought that the seed coating would be a challenge because the seed companies do it so early. They like it treated because it makes their product better—they wanted it treated to help with the problems out there.

ANGELA: It is kind of scary to not have that protection there. You don't know what is going to eat your seed and we do fear we are vulnerable to this without the seed coating.

Where do you wish to see the WLC program going in the future?

ANGELA: We would like you to consider [research and understand] the advances in irrigated crops and water management. Water management is going to be huge—if you embrace that and reward

a farmer for proper water management and product application it will help the adoption of this program.

KERRY: We've been using soil moisture sensors over the past five to six years. Today, using one of the best probes on the market, this technology along with cellular communication is working for us enabling us to water in the most efficient manner possible. We know what is going on in the field at all times. We can water accordingly and we can water at different rates across the entire circle.

[The WLC program is currently limiting the number of acres of irrigated production in the program while it explores with the Knuths and others some of the sustainability questions associated with irrigation.]

How have your farming practices changed in the past five to ten years and do you see any specific philosophical/personal/practical changes for the future?

ANGELA: Big changes in farming! Having precision guidance on equipment and geographic referencing operating on our equipment is such an increase in efficiency [regardless of whether or not you are gathering and analyzing data]. The reduction of inputs [reducing overlap, reducing fuel costs, product application] has made a huge difference.

ANGELA: Just in the past five years there has been an increased awareness concerning the management and dissemination of all of the information being gathered. The focus of future technology on seamless information exchange between the cab and the office such as with telematics will improve decision-making

abilities. We see farms of the future as being highly efficient operations. Telematics will allow the information gathered out in the field to automatically in real-time upload into software back at the farm office—there will be seamless talking between the software and hardware. We will be able to spend more time analyzing the data [not uploading it, collecting it, and downloading it]. I personally believe that our ability as producers to manage data is going to play a major role in the future advancements of a farming operation.

KERRY: Not just collecting data to store it on a shelf—it's time it's brought us something that helps us better ourselves, improve the margins for farmers.

ANGELA: For example, we have EM surveys of our fields. This data gives us geo-referenced maps of a field's soil type which tells us its water holding capacity. Geo-referenced maps of landscape changes in the field which tells us runoff and flooding potential. By combining these two data layers together we can build a variable rate irrigation prescription which when uploaded to the pivot varies the amount of water applied to areas in the field based on the soils ability to hold water and or run-off or ponding potential—we think that the farmer that is doing these types of management practices will have better margins. Farmers ride the cyclical ride of the markets and we know that while prices are good now, it will not always be that way—the current picture being painted by advisors is not that rosy. The more efficient we can run, the longer we will be around.

Learn more about the Working Landscapes Certificate program at <http://www.iatp.org/issue/rural-development/environment/agriculture/working-landscapes>.

