



A WIU agriculture business instructor sought out land near Macomb that was pesticide-free because the chair of the Agriculture department requested a search. The department chair at the time had previously been a USDA Agricultural Research Service program leader and wanted WIU to be well positioned to conduct research related to Low Input Sustainable Agriculture, the USDA's new focus area in the late 1980s.

The WIU/Allison Organic Research Farm was owned by Marion and Pauline Allison when it was first identified as a research site. In the late 1980's, when Mr. Allison was asked by a WIU faculty member why he didn't use pesticides, he responded with the question "Do you take drugs?" The faculty member said "No." Mr. Allison then said "Neither does my farm." The Allison's standard crop rotation was corn-corn-oats/hay-hay-oats from 1953 until the early 1990s. Livestock were also part of the farm until the mid-1980s.

Yes, with the exception of a 20 acre field that received a half-rate application of atrazine (a corn herbicide) in 1989. The first field was certified organic in 1997 and the whole farm has been certified organic since 2009.

The WIU Organic Research Program cash rents the farm from Doris Foust, daughter of Marion and Pauline Allison.

Our main crops are corn, soybeans and small grains such as wheat or oats. Typically we harvest 1-5 tractor trailer loads of these crops each season.

On several occasions when field work was delayed by wet weather, we have grown sunflowers because sunflowers can be planted as late as mid- July. In 2017, we planted sunflowers when we were not able to secure a contract for pumpkins. We grew processing pumpkins in 2015 and 2016.

Most years we grow a small amount of hay, but it is challenging to find a market for organic hay in this region, especially since we don't have storage.

We have produced a small amount (< 1 acre) of purple and gold popcorn - WIU school colors, every year since 2007. We have also produced small amounts of other specialty crops for local markets.

We choose our crops based on markets, crop rotations, and research objectives. When we were first certified organic, it was much easier to market organic soybeans than any other crop. Now, there are better markets for organic corn and small grains. Longer more diverse crop rotations generally result in better crop and soil health, but can create marketing challenges.

After an initial phase focused on characterizing soil resources and biological communities, research at the Allison Farm has addressed basic production issues such as performance of organic crop varieties, weed control, nutrient management, equipment performance and effectiveness of commercial products.

We typically conduct about

Our overall goal is to conduct large-scale practical research that will principally benefit organic grain farmers but also benefit conventional farmers who are interested in enhancing soil health, crop diversification and reduced input costs. We frequently get feedback from organic and conventional farmers indicating that they appreciate the

establishment of a good crop stand that emerges uniformly and rapidly ahead of weeds and has a competitive advantage over weeds that emerge after the crop. This normally involves tillage shortly before or during planting (in the case of ridge-till) to eliminate any weeds that are already growing but a strong uniform stand of a cover crop like cereal rye can also prevent weed germination in organic no-till systems. Precision planting technology and tractor guidance are very helpful in establishing a good crop stand. Selection of crop genetics with good emergence, use of biological seed treatments and banded fertility can also help with establishment of a vigorously growing crop.

After planting, blind cultivation practices like rotary hoeing and tine weeding can be very effective at reducing early weed pressure, especially when crops are planted in a furrow or when a soil crust is present. After wide-row crops are well established, row cultivation can be used to physically remove weeds in the inter-row zone and bury weeds in the row. Effective row cultivation requires good soil tilth, suitable plant size and the right tools set and operated properly.

Over the past decade, we have made major progress in controlling in-row weeds through controlled flow of soil into the row during the FIRST cultivation using an IH153 cultivator modified by Gary McDonald (2012-2021) and more recently a prototype Accuraflow cultivator (2020-2021). Additional tools, such as flame weeding and weed zapping, can be employed when soil conditions are not suitable for mechanical cultivation but we are not currently involved in this type of research.

Integrated crop and livestock production (i.e., generation of manure on-farm or on a nearby farm) is the easiest way to build soil fertility on an organic farm, but use of manure alone can result in excessive nutrient levels (e.g., extremely high soil phosphorus) and/or nutrient imbalances so manure should be integrated with legume cover crops whenever possible.

Organic farms that are not located near livestock facilities often purchase dried and sometimes pelletized manure products (e.g., 5-3-2 pelletized chicken litter). When manure is not an option, more intensive use of cover crops and longer crop rotations combined with strategic use of mineral inputs (e.g., micronutrients, rock phosphate or lime) can be used to build soil fertility. Low rates of expensive but concentrated N sources like Chilean nitrate (16-0-0) and Nature Safe 13-0-0 can also be used to increase N availability at critical times. These types of materials can be metered accurately and provide more predictable release of N than cheaper sources.

It's more challenging, but it can be done with legume cover crops such as alfalfa, clovers, or peas and non-manure based organic fertilizers. At the Allison Farm, we use modest rates of

animal manures but also supply N using legume cover crops and non-manure based organic fertilizers, such as Nature Safe 13-0-0 and Chilean nitrate. In 2014, many corn plots that only received 50 lbs of N/a in the form of Nature Safe 13-0-0 yielded over 170 bu/a. In 2018, multiple corn plots with cover crop fallow in 2017 and a modest rate of pelletized chicken litter (1 ton/a, ~ 55 lbs of N/a) in spring 2018 yielded over 220 bu/a.

The main economic opportunity for organic farmers is that wholesale organic prices are often 50-150% higher than conventional prices. Direct marketing of organic crops can add even more value. Organic costs of production may or may not be higher than conventional costs depending on labor requirements and use of purchase inputs.

There are plenty of risks. For example, if weeds are not effectively controlled, they can greatly reduce crop yields. Some weed control strategies that work well during a dry year are much less effective during a wet year. Selection of crop genetics that are well adapted to your farm c

The Allison Farm is a unique site where large-scale practical organic research is conducted to solve problems faced by organic farmers (and conventional farmers who are interested in cover crops, soil health, crop diversification...).

We regularly host public events including a large summer field day that usually draws a crowd of 150+ people including many from several hours away. At the field day, we have guest speakers, demonstrations, plot tours, farmer panels, and a complimentary meal featuring local and organic products. In addition to the field day, we have Twilight Tours targeted at students and local farmers each fall. If individuals can't attend a scheduled event, they can contact us to set up a personal tour of the farm.

Additional information is available on the WIU Organic Program website:
<http://www.wiu.edu/ag/organicfarm>

Specific questions can be sent to Dr. Joel Gruver (Director of the WIU Organic Program) or Andy Clayton (Farm manager and research technician):

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