

The Oasis in the Desert

Thoughts on protecting Wayne County's Farmland

By Ron Becker, Ohio State University, IPM Program Coordinator, retired

Imagine an oasis in the desert. One that not only supplied water but that, due to its unique attributes, could supply plentiful food and shelter to its inhabitants. It produced enough that even those that inhabit the desert surrounding it could even partake of its bounty.

At first, everyone enjoyed, recognized, and appreciated the natural gifts of the oasis. However, over time, some began to take the oasis for granted. One desert community decided that it wanted the oasis for itself and started diverting the water to its lands, not realizing it was a combination of features that made the oasis what it was. Once the water was diverted, the oasis was not as fruitful as it had been before. Not only did the oasis suffer, but the desert community and surrounding communities felt the effects as well. There was no way to restore the oasis to the condition that it was in before, furthering the impact not only on the surrounding communities but on future generations that would never experience the fruitfulness that those in the past had enjoyed.

Now, think of Wayne County as that oasis, which it truly is. A food oasis among food deserts. Due to the naturally occurring features of the area, a rich diversity of agriculture and related businesses have thrived – enough to provide for the local community as well as the communities around us. It was likely due to the recognition of the land's ability to provide the essentials of life that it was settled in the first place. These essentials: food, water, and shelter are all dependent on natural resources. Springs, surface water, and hand-dug wells provided sources of water. Plants growing in rich soils provided food and shelter that allowed the community to survive and prosper.

When I speak of soils, it is not just the topsoil that is easily seen, but also the subsoils on which the topsoil rests. Compare this to a mattress that may have a pillowtop, but it is the springs below that give the pillowtop its support and makes it useable. The same is true of the soil. The subsoil is an important factor of the soil as a whole as is the topography or "lay of the land" (which way your mattress leans or if it has lumps). According to several publications from the Division of geological survey, a branch of the Ohio Dept. of Natural Resources, both our subsoil and topography are the result of glacial movement. Particularly for our area, it was the Killbuck lobe of the last glacier of the last ice age and Wayne county's proximity to where the glacier stopped that determined what our soils and topography would be. It stopped near current-day Millersburg, dropping what is called "end moraine." End moraine is a hodge-podge of materials from the face of the glacier. As the glacier recessed north, the deposits were what is referred to as "ground moraines" which are often productive soils. These deposits or "tills" are composed of mixtures of boulders, gravel, sand, silt, and clay. These materials were picked up from the northern part of the state and possibly even from Canada and deposited in places, like Wayne County, as the glacier melted. Each combination of these materials has its unique characteristics which help us determine the best potential use for the land.

Understanding our soils

Gravelly soils with large particle sizes and air spaces allow for easy drainage and a firm base. Therefore, these soils tend to be more drought-prone.

Sandy soils, having smaller particle size and air space as well as more surface area than gravel, allow for some moisture to adhere, but are still well-drained. These soils are not as prone to drought conditions as gravel, but still more so than other soils.

Clay soils have very small particle sizes and small air spaces that inhibit the movement of water through them. This can be problematic for plant growth as clay soils are difficult for plant roots to penetrate. Poor drainage also creates conditions that are favorable for root rots and other soil-borne diseases. However, this impermeable characteristic of clay can also protect groundwater from pollution. As the air spaces are already small, very little compaction is needed to provide a sturdy base.

Silt soils are a happy medium. They are similar to a sponge, holding moisture to a point of saturation, then allowing water to drain into lower layers of the soil. Because silt soils are more porous than clay soils, it takes much more compaction to beat down the soil and create a base as sturdy as clay. That compaction not only affects the soil on the surface but also the subsoil many feet below.

As stated in Geofacts no. 33 "the deposits left behind by ice ages leave lasting impressions on Ohio's scenic landscape and influence the lives of many people. Understanding glacial deposits allow us to properly utilize and protect our natural resources.

According to the Glacial deposits of Wayne County Ohio map and the bulletin "Glacial Geology of Wayne county, Ohio", the largest expanse of ground moraines is found in the northern part of the county. They are found to some extent in all those townships, but "almost all of Wayne township." The topography of this deposit is smoothly rolling with minor irregularities. Of those four ground moraines found in this area, one is considered sandy, the second is very sandy, the third is clay, and the fourth is silty. This silt deposit takes up most of Wayne township, making it the largest expanse of this valuable deposit in the county. Yet, it is also Wayne township where Wooster continues to focus its relentless expansion. This is despite the areas of the open ground it already has within its borders. The many times the latest development has had to compact the ground to create a suitable base for a building site is a testimonial in itself that the soil was better suited for crop production rather than commercial buildings.

Understanding Crop Growth

Not every crop can be grown everywhere. Crops grow best where the proper soil conditions intersect with the proper climate conditions. One key factor for crop growth is moisture, so the drainage or water retention capabilities of the soil are a very important consideration. Topsoil conditions, such as organic matter and pH can be limiting, but controllable, factors. For climate conditions, the length of the growing season, temperature extremes, rainfall, and day length are all relevant. Try putting a coconut tree in the sandy soils of Wayne County. Perhaps the soil conditions are suitable, but the climate conditions would not be. When you consider the latitude and our position relative to the great lakes and the east coast, you will find that Wayne County has a unique microclimate. The latitude determines the length of our growing season, the length of daylight, as well as our temperature extremes. Though not in the primary snow belt, we are on the fringe and receive our fair share of the winter and summer lake effect weather. As storms come up the east coast, we often get a share but not the full brunt of the rain. Even the Ohio Valley funnels some storm systems our way. There are also several micro-climates within the county depending on such things as elevation and relation to swamps. All these factors can have an impact on the success of growing crops.

The climate is changing as it always has. If it is changing at a more rapid pace than it has in the past, the more soil we have available, the easier it will be to adapt to the changes.

The loss of our soil is permanent. When an acre of ground is developed, especially when compacted, the soil's structure and maximum productivity potential are lost forever. When you abuse the springs on a mattress, you have the option to flip your mattress or buy a new one. For an acre of prime farmland, those options are not available. It cannot be replaced, and it can only be turned by the one that created it in the first place, with lots of time and likely another ice age.

The Water Cycle

Open soils are an important part of the water cycle. The water cycle refers to the constant recycling of the earth's finite amount of water. Water can be located in one of three places: the atmosphere, the surface water, or in the ground. The water on the surface, either as part of the surface waters or on the soil surface, will evaporate into the air to the point of saturation at which point it precipitates back to the soil surface or into the surface waters. However, in open, permeable soils a significant portion of the water will percolate through the different layers of the soil where it is filtered, purified, cooled, and in some cases even stored. Silty soils, and to some extent sandy soils, will act like a sponge, absorbing the water to a point of saturation. The waters will then be

released to the deeper layers of the soil to provide water to springs that feed surface waters or aquifers that supply us with water for our deep wells. The waters in that sponge-like subsoil may also act like a reservoir from which water may be wicked back to the topsoil as it dries or may be utilized by deeply rooted plants.

When soil structures are destroyed by compaction or covered by impervious surfaces, the water cycle is disrupted. Most often, runoff from those surfaces goes directly to surface waters, or from storm drains to surface waters, where it carries with it the heat and pollutants from those surfaces. This causes both chemical and thermal pollution of the surface waters. Since that volume of water is not held in soils to be filtered and cooled, it increases the total volume of water, pollutants, and heat forced into the surface waters and air.

Plants that would also normally be growing on the open soils have their impact on the water cycle by way of evapotranspiration. This allows for the return of soil moisture to the air via the plant's roots and leaves. They also help to keep the soils cool whereas paved surfaces radiate heat into the atmosphere.

How this would impact the moisture in the air and the resulting weather conditions, I'll leave up to someone else. Perhaps the way we treat our soils has more to do with the tipping point of our climate than we realize. We have more opportunity to control the fates of our soils than we do the fate of our weather.

Considering our Past, Present, and Future

Compared to most of the world, we are a young nation. Less than 250 years old, whereas other nations are many hundreds to thousands of years older. So, what can we learn from our elders? In the middle east, cities used to be built on top of old ones, preserving their croplands and water resources. China is huge in terms of land area, though not all of it is suitable for crop production. They, as well as other nations, are now buying U.S. farmland. If there is no rule saying they have to market their product here, how can we stop them from exporting all their products grown here back home to feed their people? 50 years ago, or so, I remember news reports about all the empty store shelves in Russia. Perhaps, their invasion of Ukraine (the breadbasket of that part of the world) has a little bit to do with making sure their store shelves don't go empty again.

All around the world, food security is an issue due to natural causes or human disruption of ecosystems. Some nations are trying to prepare before they have problems, others do what they can to deal with their circumstances, yet still, some can only suffer.

How long do we want to exist and how are we allowing future generations to exist? Though we now live in what some refer to as the modern-day "land of plenty, flowing with milk and honey" (in which Wayne County is both a dairy and bee yard) how long will that last given the rate at which we are destroying the life-giving soils?

In 2020, it was reported that the U.S. was losing 3000 acres of prime farmland each day. Ohio was second, only behind Texas, in loss of prime farmland. According to the USDA, in 2021 that number had increased to 3500 acres per day. This is prime farmland that we're talking about, not scrubby soils incapable of producing crops. To put this into perspective, Wooster would be consumed in 3 days and Wayne County in a little over 3 months.

When you consider all that the generations before us have done and sacrificed to give us the lives we have, can we honestly say we are doing the same by limiting the life of our country by limiting the provisions for future generations?

Even today, when you consider all the nations dealing with food insecurity and starvation, sometimes it's a result of severe poverty. Other times, the food is just not available to buy. It reminds me of a song that we used to sing in church that referred to the rapture. It had a verse that read "a piece of bread could buy a bag of gold" the refrain was "sure wish we'd all been ready." Are some nations in that position today? And when will it be our turn?

The Economics of Farmland Loss

The purpose for the development of farmland is often the economic gain associated with that development – as short-term as that may be. I also believe vanity or egotism of the city or developer is in the shadows of that as well. Yes, convenient outlets for the dispersal of products produced by the soil are needed, but not at the cost of being able to fill the shelves of the outlets. It is not only foods that are provided by the soil but fibers for clothing and lumber for structures as well. Some soils are better utilized for buildings and some are best suited for crop production. Turning productive soils into building sites is an "opportunity cost." Once that soil grows buildings, the crop production potential is greatly reduced or even lost.

Consider the long-term prospects of preserving farmland and the businesses dependent on it. Many products our society now seems enthralled with are frills. What is grown on the land to give food clothing and shelter are essentials and always will be. If a community cannot grow these resources themselves, they are dependent and at the mercy of others that can provide. If we preserve what we have, on which we know we can do well, we can be the supplier. The longer we can provide for ourselves as well as others, the longer we can prosper. So, do we want short-term gains for a few or long-term gains for all?

Everybody is saying to buy local to support the local economy. If we cannot grow the crops locally, how will that help? Perhaps the retail sector should also consider how they will be able to buy locally in the future, supporting our local economy rather than that of a distant supplier.

And should you believe that using local retailers is the only way to support the local economy, be aware that agriculture and agriculturally related businesses constitute 21% of the county's income, 15% of the labor force, and 20% of the labor income.

It's more likely the profits gained by these local operations will stay circulated in the local economy than do those of national chains. Out of Ohio's 88 counties, Wayne is ranked number 1 in milk production, fruit and tree nut production, hay, and non-timber woody crops (Christmas trees and nursery crops). Wayne is number 2 in the state for cattle and calf production and number 3 for sheep and goats for milk, wool, and total overall sales. We are also number 4 in the state for poultry and egg production and equine animal production. In fact, in all but 3 categories (two of which we do not produce due to climate conditions and the length of the growing season) we rank in the top 20 counties in the state. Out of the nation's 3077 counties, Wayne County, Ohio ranks 55th for milk production, 62nd for production of equine animals, and 63rd for non-timber woody crops. We are an oasis that serves a large part of the desert. We also rank number 1 for sales of local foods. With many processors, big and small, some nationally recognized, we are part of the largest local and regional food economy in Ohio.

It may sound like I'm bragging, but it needs to be realized how important Wayne County is in providing products to a large customer base that has come to rely on us. It truly is an oasis, all of which needs to be protected.

Our soils are versatile and can be used to grow many crops, depending on the need. Just because they may currently be used for field crops does not mean they cannot be used for horticultural crops in the future, especially if the subsoil structure is good. The rankings discussed earlier include 16 different categories, of which 14 are produced in Ohio (sorry, no cotton or tobacco).

Wayne County has a prime spot in the food supply and distribution system and if we don't protect the prime farmland on which our agriculture depends, not only are we letting down future generations, but those that currently depend on us as well. If you think inflation and food prices are bad now, wait until we have to start importing more of our food.

What Can Be Done? Some Suggestions:

An immediate halt to annexation and development until thoughtful and educated decisions can be made. For cities to do their part to conserve, they need to practice the three R's. Reduce – is the project important enough

to take resources away from future generations? Are they willing to use open ground already within their limits? Recycle – can a current structure or area be repurposed to fill the need? Reuse – If no repurposing can fill the need, tear down what's there, and rebuild.

Regarding open ground within the city, it should be transferred to the county authority or the city should be encouraged to use it for the purposes that cause the least destruction to soil structure. No annexation or extensions to city services should take place until all available lands already within city limits are used.

The authority of a city to control development within three miles of its limits should be rescinded and given to the county planning commission. If not, the residents within that area should be given the right to vote in the election for city leaders. The residents of affected townships should also be given the right to determine if a request for development or annexation should be granted. **No domination without representation.** The city can and should be required to work with the county planning commission to discuss and find ways to use suitable soils, preferably within or adjacent and parallel to current city limits.

Should a city or developer fail to work with or abide by the decisions of the county planning commission, each will be assessed \$50,000 per acre per year for ten years. The funds will go to the county planning commission to be used for the purchase of development rights. These rights can be purchased back at cost when essential development is determined, and a suitable soil location is found.

A strategic reserve of soils with good soil structure, composition, and topography should be established to provide future generations with the ability to provide for themselves. Climate conditions and water resources for irrigation, if needed, should be taken into account.

Quality Comes Before Quantity

The words of wisdom "quality comes before quantity" are especially true as they relate to crop production. Without quality soils, the quantity, as well as the quality of crops, can be reduced. These reductions result in fewer available products and income for the grower and the community. It would take more unavailable acreage to make up for the loss.

Perhaps cities are using the loss of prime farmland for excessive retail centers as a "loss leader" trying to lure more people to the community. But when is it enough and when does the loss from the loss leader override any profits? There is also a loss in quality to those already in the rural community as well as those that may come to get away from the crowded conditions of larger cities. The loss in quality not only comes in the loss of aesthetics but also in increased crime in the city and surrounding areas.

We've been blessed with quality soils. 80% of Wayne County's farmland is recognized among the nation's best farmland. This compares to 72% for Ohio and only 39% for the nation.

How do we compare to other areas?

Why do we have such a high percentage of prime farmland compared to the rest of the country? To know that, you need to know what the other areas of the country (or state) contend with.

There are areas where the topography is very limiting. Mountainous areas such as southeast Ohio tend to be prone to erosion if used for annual crops, and are better suited for permanent crops such as pastures and woodlands. Other areas have soils that were formed by deposits left by flooding that are composed primarily of sand and tend to be drought-prone.

Still, others were on the upper end of the glacial trek having what soils there were removed to the benefit of areas such as Wayne County. They now have a thin layer of soil that has formed due to weatherization by the elements and plant life which also adds organic matter. Though not in the U.S., the Canadian Shield is a good example of this. It is difficult to even grow a home garden in some northern areas where the layer of topsoil is so thin. The glacial grooves on Kelly's island on Lake Erie are good evidence of this.

The climate is also a limiting factor in some areas. Most recently this has become evident in the southwest. The soil is well drained and has long growing seasons, but a reliable water supply for irrigation is required to grow necessary and desired crops there. Before overdevelopment in that area, water was not as much of a limiting factor. However, providing water for development has taken priority over food production. Plus, there is less precipitation possibly due to climate change. Where and on what available ground will we make up for that loss in production? Or will we be forced to rely on foreign imports?

As a result of that over-development, production is already being lost, not only to that area but to any other area of the country that has come to rely on it and its production. Once gone, is there anything within our power that can be done to bring these important lands back?

With these and other limitations that others have to contend with, they have no choice but to rely on areas of plenty like Wayne County. We are not the only ones that can provide, but we are also not the only ones sacrificing prime farmland for the sake of development.

Since the beginning of civilization, we have gone from nomadic hunter/gatherers to the agrarian age which allowed us to stay in one place. Then came the industrial age and currently the technological age. The last two seem to have given rise to the age of consumerism. But no matter what, we can never leave the agrarian age behind. Agrarian societies are essential to our population's survival. It is only possible with open ground and works best with soils that have good structure and content. Otherwise, we have no place to migrate to that will provide. We either protect the self-sustaining community we have or force our descendants to do without.

Addressing arguments against Conservation

We have so much ground! In addition to the fact that not all ground is tillable or in a suitable climate, consider the once seemingly innumerable passenger pigeon. A single flock would take several days to pass over and contain billions of birds. But one by one they were killed to the point of extinction. The direct result of human activity, careless acts, and failure to recognize the impact of our actions.

Then there was the dust bowl. Thick, seemingly endless acres of the prairie were plowed under. Then nature came by with drought and wind. Ton after ton of soil went airborne from the Midwest to the eastern part of the country. Again, careless human activity is magnified by nature. If we continue to develop prime farmland, how will we fare if nature decides to strike again?

The point is, no matter how high we perceive the number to be, the careless acts of man combined with the uncertainty of nature can drastically reduce those numbers. Another thing, the passenger pigeons continued to reproduce even as their populations fell; and with much cost and effort over many years we were able to restore some of the topsoils that were lost during the dust bowl. The subsoils that we develop and destroy can be neither reproduced nor restored to their original potential.

We have plenty of food! Food is the most needed essential when you hear about the need for humanitarian aid, both foreign and domestic. When covid-19 first hit, many large cities in the food desert had to deal with empty store shelves because they had come to rely on large distant processors, suppliers, and transportation, all of which failed to meet the demand. Wayne County, with its bounty of growers and processors, was able to refill the shelves for local stores as well as surrounding areas. This ability goes back to the presence of quality soils. If any problem existed, it was a shortage of processors to accommodate the plentiful harvest of our soils.

Other areas of the country are envious of Wayne County's rich farming industry and the supporting agricultural industry that has grown up within and around it over the last 200 years. They are looking to see what they can do to replicate it in their areas. Likewise, other countries are seeing the value of the soils in the U.S. and are purchasing acreage for production. Are we just too spoiled to appreciate what we have, or are we a society that has grown too far away from the farm and putting up our own goods, to know the necessity of the soil?

It not only takes the soil, but the knowledge, experience, and willing hands of the growers to provide a harvest for everyone. With the loss of ground, we will lose growers as well. Some countries, as well as other areas of

our own, due to the aging farmer population and lack of interest by younger generations to continue working on the farm, have become dependent on imported products for their survival. Wayne County still has a rich resource in its youth that have experience and interest in carrying on their family occupations. But as urban encroachment makes it more difficult to operate a farm, we too may lose our independence when it comes to our ability to provide for ourselves.

Wisdom from the Sugarbush

A sugarbush is a wooded area composed of mainly maple trees to produce maple syrup. I'm including this for those who say the lost acreage is "just a drop in the bucket." One must realize that the maple sap comes into the bucket just one drop at a time. Eventually, all those single drops will fill that bucket. Taking into account that many trees are doing the same thing, it doesn't take long before a large amount of sap results from all of those single drops in the bucket. Likewise, a single acre of irreplaceable farmland is that drop in the bucket that soon adds up to many acres.

Back to the sugarbush. The trees in the woods had always been there. The original settlers, aware of their worth and potential, when building structures for the sugarbush used the least productive types of trees for lumber, to provide for their harvest of syrup as well as for future owners.

The current owner now needs to build a stand to market his product as well as other projects. He has to make a decision. Should he use the better-producing trees along the trail used for gathering the sap because they would be easier to get to OR less productive trees that are not as close to the trail? One way was easier but would impact his ability to provide a product for his stand. It would also prevent future generations from having a bountiful sap harvest. The other was not as convenient, but less destructive. Likewise, should a city be allowed to develop the best-producing ground due to convenience rather than using the less productive ground that may not be as desirable a site, but is more suitable for development?

The development of farmland tends to be a domino effect. As one tract of land is developed and annexed into a city, the developers and city officials consider any adjacent ground to be "fair game." This can be seen in Wooster's track north.

And yes, as one person pointed out, "the farmers are the ones that sell out." However, other than selling off frontage for low-density housing, I doubt many farmers would be the ones to initiate contact with a developer or city for larger tract sales and development.

An Update from the Oasis

Recently, another portion of the oasis was diverted to that community in the desert. This portion was special, not only because of the friable, life-giving soil but also because of the topography. It was gently rolling, making it less prone to erosion. It also had a hilltop elevation. This elevation allowed the last of the spring cold air as well as the first of that in the fall to drain down the hill, providing for a longer frost-free growing season. In addition, the elevation provided for increased air movement through the crops, reducing the likelihood of foliar diseases. All of these attributes would have made the location excellent for raising fruits and vegetables. That opportunity is now gone until at least the next ice age. It was composed entirely of prime farmland.

Epitaph

Perhaps a memorial marker should be raised on the site with the following epitaph: "Here lies what was once a productive field, conceived by the creator of all for the benefit of all life, born of the Killbuck lobe of the ice age glaciers, beaten to death in 2022 by the developers and city leaders and buried under economic development whose shelves it could have helped fill. The world will little note, nor long remember what I write here, but it can never forget what they did here, for what they have done is forever.

Perhaps the names of those responsible for this should be added as well, as I feel it is only fitting and proper that future generations should know who to thank for their hardships.

Who is responsible for the preservation of our soils?

At one time, the farmer was responsible as it concerned his growing practices as it related to the loss of topsoil. And many made changes to preserve topsoil at great effort and cost.

The land referred to in the "update from the Oasis" was cared for by generations of the family, providing excellent, stable, and highly productive topsoil. That was all wiped out in a matter of weeks.

But as we now need to preserve the entire soil profile, that responsibility falls on everyone. Developers and city leaders need to realize the long-term impacts of their actions. Legislators need to pass legislation making it difficult or costly to destroy these irreplaceable resources. Individuals need to make their leaders aware of their concerns so that action can and will be taken. Especially those residing in those cities. You elected your officials, and only you have a chance of being listened to.

If you think, "I'm just one person", remember the "drop in the bucket." Also, think about what happens when you throw a pebble in a pond. Even that one pebble makes a far-reaching ripple. A bunch of pebbles thrown in can make enough ripples to cause a wave. Every pebble or drop counts.

If you think "I'll just wait to see what happens", it's like waiting to help save a friend or tell him how much he means to you till after he dies.

If the developers or city officials complain, it will be costly or will interfere with their plans, I would like to think that acting now for the survival of future generations would have a priority over short-term plans that would only benefit a few. Maybe eminent domain could apply to cities just as well as it does to rural communities.

In the end, would you rather say "sure wish we'd all been ready" or go a few generations longer and be able to say "at least we tried"?

Are you a part of the desert or oasis?

If you have no option, that is the location, to provide for yourself due to lack of open ground, you are part of the desert and need to take action. If you have the option and do provide products or related services for yourself and those in the desert, you are part of the oasis. Thank you, but it would be best if you take action as well.

No matter how much of an oasis a desert community takes in, it only becomes more desert. And the fewer and more distance between each oasis, the harder it is for the desert dwellers to survive.

What we do now will have a far-reaching impact, not only for us and those around us, but also for the future generations of our community, our country, and our world. Let's keep it ours and not the developers or city leaders.

As it was recently reported that for the first time in history "our country became a net importer rather than net exporter of food," this topic of farmland preservation certainly merits state and national attention and action. But if we don't start locally, nothing will happen at all. So, let's start, let's be that "drop in the bucket" by taking action to provide for future generations to provide for themselves by preserving what is left of our oasis in the desert.

About the Author: Ron Becker has spent most of his life in Wayne Township in the heart of Wayne County, Ohio. He left briefly to attend Taylor University near Indianapolis where he received a degree in elementary education and general science. After graduation, he returned home where he was hired by Ohio State University Extension as an IPM (Integrated Pest Management) scout in 1980 and took over program responsibilities in '81. Ron pursued his Master's Degree to become an Extension Educator, but fell one class short due to a stroke in 2009. He retired in 2011 after 30 years in the fields of Wayne County and continues to have a deep caring for the land as well as a concern for future generations. Ron can be reached at 330-347-4350 or via Farmland Preservation AgPlan@WayneOhio.org
Wayne County Planning Dept., 428 West Liberty Street, Wooster, Ohio 44691 – 330-287-5420