

Healthy Environment, Healthy Children, Healthy Future: The Role of Urban Agriculture and Pesticides

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We began this series on children's health and the environment with an article in EGJ 13 (Johnson, 2000) on essential information resources. The second column focused on health problems associated with air pollution and pollen, such as asthma (Johnson 2001). Original data on the relationship between emergency room visits for children with asthma and local pollen counts has since become available and will be presented as a follow-up to the information presented in part two of this series.

Urban agriculture and the educational opportunities it offers is now the focus. This is exemplified well at Fairview Gardens in Goleta, California (Ableman 1998). Additionally, we will touch upon the impact of pesticides on children's health as we draw this particular series to a close.

The Land is Good

On Good Land: The Autobiography of an Urban Farm by Michael Ableman (1998) offers hope as the author explores the connection between good farming, good food, and a good life. Certainly, many other factors contribute to a good life, but good food is something everyone can enjoy everyday. However, convenience and peer pressure influence what Americans now eat more than consideration of nutrition, real cost, and health. Therefore, Ableman explains how Fairview Gardens not only feeds a growing suburban population, but also educates children from near and far in the ways of the earth and provides a place for music and cultural events. This multifaceted approach toward survival has played a key role in the present and future viability of this growing enterprise.

It is amazing how a personal experience can change your entire worldview. Ableman relates how his experience on this farm changed his outlook on life as he began to appreciate what it means to work with nature rather than against it. Very often we view our interaction with nature as a battle where we fight against a foe, rather than a dance where we move in a graceful give and take with an intimate partner. Machinery and other technological innovations occasionally exacerbate this dance, separating those who have become so close over the span of hundreds of generations (people and the land). While such "improvements" are designed to increase efficiency, they can mean the loss of something personally valuable to the individual

partners of land and people and eventually the broader community.

If the picture of farmer and farm dancing is outside your grasp, what about the image of a family? Ableman states, "The prospect of a new orchard brings a sense of responsibility; it's like starting a new family. I find myself reflecting on the future when I plant a tree. Each planting is an unspoken contract that ties me closer to the land-will I be here to prune, to weed, to compost, to nurture it over the years to fruition?" I picture Ableman, "Looking over the fields of young trees like my granddad used to look over his extended family, with great pride and hope for the future."

Details

Grand schemes are great for planning long journeys, but by the time the first step is taken, the focus must shift to one of details. The big picture can create a big head. Any job, profession, or topic is only an idea until the details begin to unfold. Ableman's definition of good farming utilizes details, lots of them. Good farming is "not so much about broad strokes and big ideas. It grows from the confluence of millions of details."

One of the more subtle details in a garden involves pruning and the lessons to be learned on the end of a pair of shears. Reading manuals and talking to the experts may only reveal conflicting opinions. Ableman counsels us to find our own way. He says, "Trees will speak to you if you listen; they will guide your hands and shears." Seek a balance between over and under pruning he advises. Each cut will stimulate a response, too much will mean rank and vigorous growth, too little, a loss of vitality. No action is inconsequential. Everything you do on a farm is important.

Pruning is one way for a farm or garden to be made to look quite pretty. I often wonder whether or not nature is even part of the landscape. Ableman reminds us "Every farm or garden needs its wild spaces." These places offer owls and coyotes refuge. They also offer people the opportunity to reconnect with the wildness found down deep in every soul. A soul's hungers for wildness may be filled with any number of substitutes but only genuine wildness can ever satisfy.

Farming well means spending time on the land; walking, watching, patiently waiting, and wondering. There is no substitute for walking the rows of crops, feeling the moisture in the soil, seeing the shadows cast by the leaves,

smelling the fruit ripen on the stem. Ableman considers such time, well spent. "If I don't walk the land, I miss things-the chance to head off a disease or to cultivate at just the right moment to insure a bountiful harvest. These walks are a safeguard. They are also a joy."

Today community farms in America are isolated and out of context. Once it was the other way around and while it would be pointless to suggest a return to the "good old days," says Ableman, it would be worthwhile to consider the real cost of losing a sense of connectedness with the land, with our community, with one another. How could such cost be measured? Time? Health? Security? Crime?

Relationships

Fairview Gardens came under attack more and more as developments encroached around it. Housing tracks, shopping malls, and fast food restaurants finally closed in. The lack of a buffer between civilization and the farm led to conflicts over roosters crowing and the aromas of fertilizer. However, Ableman points out that the real conflict had more to do with our loss of a relationship with the natural world. Ableman was faced with a choice of building walls to keep the "aliens" out or building bridges to reach out to the changes taking place around Fairview Gardens. He chose the latter and set a new course for this community enterprise.

A farm is a social as well as an ecologically dynamic mix of people, plants, politics, personalities, problems, pressures, pleasures, and potentialities. "When farming at my best," Ableman says, "I scarcely intervene at all. I am just one participant in the millions of forms of life in my world. Only by observation and experience can I gently tip the balance in favor of my crops." Farming is an excellent way in which to keep things in perspective, to keep your priorities straight, and to probe beyond the surface for real solutions to interrelated problems.

One of the most common problems on a farm is pest control. Spraying may be the worst way to solve insect problems. If there is enough of an infestation that chemical control seems necessary, the real solution probably lies deeper and suggests a variety of questions. Was the crop planted at the wrong time? Was it too wet or too dry? Is the balance between predatory insects and prey out of balance? Only by knowing the land, could the grower hope to uncover the right combination of answers to such questions.

Timing

Ableman does not elaborate, but his suggestion that "attitude" plays an

important role in weed control is worth considering. He mentions attitude, not in the sense of "he's got an attitude," but in the sense of "perspective," where attitude frames a person's worldview. An attitude can be positive or negative, reactive or proactive. It is not the main factor when it comes to weeds, but it interacts with all the other factors to make the job of growing food easier or harder.

Timing, on the other hand, is the main factor, especially when it comes to weed control. Early cultivation, along with the right tool and proper attitude help to keep weeds under control. The goal is to never weed but to cultivate. Cultivation aerates the soil around the plants and cuts off or buries young tender weeds. If you must weed, you are too late, and have created just more work for yourself.

Ableman acknowledges that most city kids have nowhere to go to find elements of nature and the sense of place they provide. However, minimal exposure to nature is only part of the problem and a small part at that. Even in the most expansive landscape of concrete jungle, nature can be found. The problem has more to do with spending lots of quality time interacting with nature and seeing that it is more important to spend time with plants and soil than video games or television programs. City kids lack nature, this is true, but what they really lack are mentors and role models who value and appreciate nature. A city kid may be given an explanation of a natural process but lack a real experience to reinforce the message. Without the experience it is merely an academic exercise. A community farm supplies such an experience in practical ways.

Given the demands of each day, there is little time to explain farming. Many lessons take a season or more to unfold. Looking back over what has been done, what has changed in the landscape as well as in the soul, opens up a view into us. Growth is evident everywhere and in every dimension. The cultivation of real educational experiences at Fairview Gardens is the most important crop sown there.

Kids Say the Darnedest Things

Ableman's son has grown up on the farm. He has worked the fields and has also made a small contribution to his dad's book. From his son's perspective, life on the farm is different and his insight is useful in the effort to reach children with the message of how fun and worthwhile it is to stay in touch with the land. He says, "I think that kids who have a close connection to their food, who understand where it came from or took part in the process of growing or preparing it, have an easier time understanding other things as well." The land is a good teacher, whose lessons apply to many other areas

of life from relationships to finances and from science to spiritual development. The garden provides a learning environment where lessons come alive. The garden puts things in context. It's a place where people become connected and anchored to a place, so they may find joy in real solutions to real problems. Expressed as a formula, we have "Together + Nature = Joy."

A community farm or garden provides a way for people to reclaim the process of growing the food their family eats—one of the most important and intimate things we can do. Intimacy builds trust. Centralization of this process and many others is typical today. The consequences of which are frequently subtle, yet severe. When the direct link between people and their food supply is severed, an element of trust is lost. Ableman would amend the phrase, "In God We Trust" to "In God and Land We Trust." The land has been entrusted to us by God and by trusting and obeying Him as land stewards, the land will not fail to sustain us and nourish the relationships upon which trust is built (Johnson, in press).

Pesticides: Point-Counter Point

Point

A great deal of attention has been given to the long-term impact of pesticides upon people. Long-term exposure begins with children, sometimes before they are born. While many of the conclusions drawn from these studies are controversial, it is clear that our children, as the most vulnerable members of our society, are worth protecting. The question centers on methodology.

Daniels, Olshan, and Savitz (1997) reviewed a number of recent studies, and despite the limited understanding of the mechanisms involved, a number of associations between pesticides and childhood cancers have been reported in epidemiological studies. They acknowledge the speculative nature of many studies, however, and that the direct connection between pesticides and childhood cancer is far from proven.

White (1998) emphasized that children are more at risk than adults from pesticide residues and that exposure early in life leads to a greater risk of chronic effects being expressed after long periods of latency. What is the difference between children and adults when it comes to pesticide hazards? Shannon (2000) lists these differences:

Oral habits:

Children put more stuff in their mouths and consume more food per unit of body weight than adults.

Diets:

Children eat 7 to 15 times more fruits and vegetables than adults, foods that frequently contain more pesticide residues.

Physiology:

Children have an immature renal system.

Children have an under-developed blood brain barrier and a limited ability to metabolize many xenobiotic agents.

Children are less able to perform certain Phase I biotransformations, resulting in delayed elimination of toxins.

Longer life span:

Toxins with long latency or cumulative toxicity pose greater risk to the young.

If I were to err on the side of over protection or under protection from pesticide hazards, I would much rather err on the side of over protecting our children as long as the actions actually taken, do, in fact, result in their protection.

Counter Point

Several studies report that children are not really at a higher health risk from pesticides. They claim that scientific evidence is lacking and that the political winds of alarmism are causing many to over react.

Marwick (1997) stated that "the enemy is reliance on outdated assumptions and experimental models," where inadequate information is common. However, he also claimed that the degradation of the environment directly results in disease, especially in children.

Huebner and Chilton (1999) cautioned against over reacting to reports such as the one by the Council for Agricultural Science and Technology (1993) on the threat of pesticides to our children's health. They suggested that by

looking more carefully at the evidence, the health threat from environmental hazards, such as pesticides, is relatively small and unproven. When compared to the benefits of a varied and plentiful food supply, the health risks from pesticides should not be a source of great concern.

Asthma is one of the greatest health threats to children. Asthma cases have risen sharply around the world but the link to specific environmental factors (ozone, particulates, and so forth) is dubious. Some have linked pollen directly to the increase and created complex schemes to categorize the pollen threat (Ogren 2000). However, the incidence of asthma related emergency room visits in Phoenix, Arizona, do not correlate with pollen counts (Table 1). In fact, as pollen counts approached their highest levels in the spring of 2001, asthma cases in the emergency room of the Maricopa Integrated Health System (County Hospital) actually declined.

Table 1

Pollen / Asthma Relationship

Date	Asthma Visits¹	Pollen Count²	Pollen Sources³
1/4/01	2	4.2	Cedar, Juniper, Grass
1/5/01	2	4.5	Cedar, Juniper, Grass
1/6/01	3	5.4	Cedar, Juniper, Grass
1/7/01	5	5.8	Cedar, Juniper, Grass
1/8/01	5	6.1	Cedar, Juniper, Grass
1/10/01	4	6	Cedar, Juniper, Grass
1/11/01	2	6.3	Cedar, Juniper, Grass
1/13/01	1	5.9	Cedar, Juniper, Grass
1/14/01	2	5.8	Cedar, Juniper, Grass
1/15/01	5	6.2	Cedar, Juniper, Grass
1/16/01	3	5.7	Cedar, Juniper, Grass
1/17/01	4	6	Cedar, Juniper, Grass
1/18/01	2	6.2	Cedar, Juniper, Grass
1/19/01	1	6.6	Cedar, Juniper, Grass
1/20/01	3	7	Cedar, Juniper, Grass
1/21/01	1	7.4	Cedar, Juniper, Grass

1/22/01	2	7.2	Cedar, Juniper, Grass
1/23/01	3	6.7	Cedar, Juniper, Grass
1/24/01	5	7.2	Cedar, Juniper, Grass
1/25/01	3	7.2	Cedar, Juniper, Grass
1/26/01	2	6.9	Cedar, Juniper, Grass
1/28/01	0	4.6	Cedar, Juniper, Grass
1/29/01	12	5	Cedar, Juniper, Grass
2/5/01	4	5.1	Juniper, Cedar, Ash
2/7/01	6	4.7	Juniper, Cedar, Ash
2/9/01	1	4.3	Juniper, Cedar, Ash
2/10/01	4	4.3	Juniper, Cedar, Ash
2/11/01	6	4.1	Ash, Cedar, Juniper, Grass
2/12/01	4	4.8	Ash, Cedar, Juniper, Grass
2/13/01	3	4.3	Ash, Cedar, Juniper, Grass
2/16/01	1	4.9	Ash, Cedar, Juniper, Grass
2/17/01	4	5.2	Ash, Cedar, Juniper, Grass
2/18/01	6	5.1	Ash, Cedar, Juniper, Grass
2/19/01	5	5.5	Ash, Cedar, Juniper, Grass
2/20/01	2	5.4	Ash, Cedar, Juniper, Grass
2/21/01	3	5.5	Ash, Cedar, Juniper, Grass
2/22/01	4	5.7	Ash, Cedar, Juniper, Grass
2/23/01	1	5.4	Ash, Cedar, Juniper, Grass
2/24/01	5	4.9	Ash, Cedar, Juniper, Grass
2/25/01	2	5.1	Ash, Cedar, Juniper, Grass
2/27/01	4	4.3	Ash, Cedar, Juniper, Grass
2/28/01	2	5.4	Ash, Cedar, Juniper, Grass
3/1/01	4	6.3	Ash, Cedar, Juniper, Grass
3/2/01	5	6.9	Ash, Cedar, Juniper, Grass
3/3/01	1	8.1	Ash, Cedar, Juniper, Grass
3/4/01	4	8.6	Poplar, Cottonwood, Ash, Cedar, Juniper
3/5/01	0	8.8	Poplar, Cottonwood, Ash, Cedar, Juniper

3/6/01	1	5.6	Poplar, Cottonwood, Ash, Cedar, Juniper
3/8/01	2	8.5	Poplar, Cottonwood, Ash, Cedar, Juniper
3/9/01	4	9.4	Poplar, Cottonwood, Ash, Cedar, Juniper
3/10/01	5	8.4	Poplar, Cottonwood, Ash, Cedar, Juniper
3/11/01	4	8.4	Poplar, Cottonwood, Ash, Cedar, Juniper
3/12/01	4	8.9	Poplar, Cottonwood, Ash, Cedar, Juniper
3/13/01	3	9.7	Poplar, Cottonwood, Ash, Cedar, Juniper
3/14/01	2	9.9	Poplar, Cottonwood, Ash, Cedar, Juniper
3/15/01	2	9.9	Poplar, Cottonwood, Ash, Cedar, Juniper
3/16/01	8	9.7	Poplar, Cottonwood, Ash, Cedar, Juniper
3/17/01	3	9.7	Poplar, Cottonwood, Ash, Cedar, Juniper
3/18/01	0	10.2	Mulberry, Cedar, Juniper, Mulberry
3/19/01	0	10.4	Mulberry, Cedar, Juniper, Mulberry
3/20/01	6	10.6	Mulberry, Cedar, Juniper, Mulberry
3/21/01	2	10.7	Mulberry, Cedar, Juniper, Mulberry
3/22/01	3	10.7	Mulberry, Cedar, Juniper, Mulberry
3/23/01	2	10.6	Mulberry, Cedar, Juniper, Mulberry
3/24/01	1	11.7	Mulberry, Cedar, Juniper, Mulberry
3/25/01	1	11.7	Mulberry, Cedar, Juniper, Mulberry
3/26/01	4	11.6	Mulberry, Cedar, Juniper, Mulberry
3/27/01	4	11.5	Mulberry, Cedar, Juniper, Mulberry
3/28/01	1	11.8	Mulberry, Cedar, Juniper, Mulberry
3/29/01	5	11.6	Mulberry, Cedar, Juniper, Mulberry
3/30/01	2	11.8	Mulberry, Cedar, Juniper, Mulberry

3/31/01	4	11.8	Mulberry, Cedar, Juniper, Mulberry
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¹ Emergency room visits where either the primary or secondary condition included asthma. Data provided by Maricopa Integrated Health System. Children include any patient less than 20 years of age.

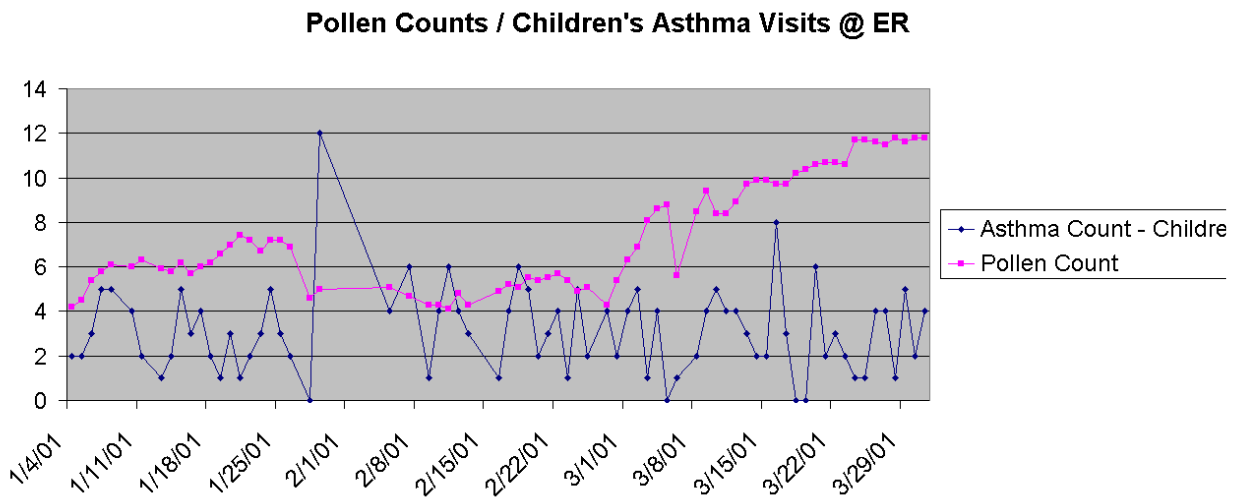
² Pollen Counts provided by the Arizona Republic via email for the East Valley. The scale is from 1-12. Highlighted cells are considered high. All other cells are considered moderate in the quantity of pollen recorded.

³ The primary pollen constituents are indicated in no particular order.

Table 1 is graphically represented in Figure 1, which clearly shows that in March, when pollen levels became high, asthma counts actually declined to their lowest level over the three months when medical data was provided. This information suggests that any claim of a direct relationship between pollen counts and asthma cases among children is an over simplification (Ogren 2000).

Figure 1

Pollen / Asthma Relationship



Conclusion

A healthy future requires healthy children. Healthy children require a healthy environment free from hazardous exposure to pesticides and related compounds. One of the best insurance policies for a healthy future includes a prescription for more community gardens and farms such as Fairview Gardens. The educational and cultural programs they offer, provide an

anchor of hope to a hungry and sick world.

This concludes the series, "Healthy Environment, Healthy Children, Healthy Future." My next column will examine the intersection of music therapy and environmental conservation. The message delivered through music can be more effective than other delivery models. The question is, how has music been used to create a healthier and cleaner environment?

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