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SUMMER 2015

Jack Dennerlein at the 2015 Lela Morris COEH Symposium. Read more about the symposium's focus on ergonomics, workplace design, and health beginning on page 8.

Spotlight on

New Director of the California AgrAbility Project: Fadi Fathallah

Fadi Fathallah from UC Davis received a 4-year grant to fund California AgrAbility, a program that improves the lives of people with disabilities by helping them to stay working in agriculture. The program offers bilingual technical assistance, rehabilitation, education, referrals, and advocacy to workers with disabilities along with its partner, AbilityTools.

"Agriculture is one of the most hazardous industries in the United States, with over 20,000 disabling injuries in California each year," reports Principal Investigator Fathallah, a professor of Engineering in the UC Davis Department of Biological and Agricultural Engineering.



A modified tractor. Photo is courtesy of California AgrAbility

than 600 small farmers and Latino farmworkers with disabilities with funding from the U.S. Department of Agriculture National Institute on Food and Agriculture. The program offers assistive technology solutions as simple as ergonomic handles for moving potted plants in nurseries, to more complex solutions such as modified steering wheels in farm vehicles, or assistive lifts to help drivers enter their tractors or operate heavy equipment.

One farmer who recently benefited from the program is Anna. When her disease symptoms began to interfere with her work on the farm, she realized it was time to get help. Anna has multiple sclerosis,

California AgrAbility has helped more

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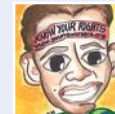
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Summer 2015 Letter from the Director



John R. Balmes

This summer has seen a lot of activity about climate change, both in California and globally. In May, Governor Jerry Brown signed an agreement between California and 10 other U.S. states and foreign provinces to sharply limit emissions of greenhouse gases by 2050. The 10 jurisdictions that signed the agreement in addition to California are Oregon, Washington, Vermont, Ontario, Baja California, Jalisco, Catalonia, Wales, Acre (Brazil), and Baden-Württemberg (Germany). Together, these states and provinces represent 100 million people and a gross domestic product of \$4.5 trillion. The signatories committed to reducing greenhouse gases by at least 80 percent below 1990 levels by 2050 or to achieve a per-capita annual emission target of less than 2 metric tons by that year. California already has this goal mandated by AB32, the Global Warming Solutions Act, and Governor Brown recently issued an executive order to establish a new mid-term California greenhouse gas reduction target of 40 percent below 1990 levels by 2030. He has characterized this ambitious goal as follows: "California basically is presenting a challenge to Washington, to other states, and to other countries. It's going to take something like what I laid out, but what I laid out is daunting."

Not to diminish California's leadership on efforts to mitigate climate change, but perhaps the biggest news about the world's most pressing environmental challenge this summer was the Pope Francis' encyclical, *Laudato Si'* or *Praise Be to You*. In this encyclical, the pope

noted that combustion of fossil fuels by humans was responsible for most of global warming and warned of an "unprecedented destruction of ecosystems, with serious consequence for all of us" if strong and swift actions to mitigate are not taken. He put the onus on developed, industrialized countries to help low and middle income countries confront the crisis.

Pope Francis made the case that there is a moral imperative for those who have reaped great profits from industrialization based on extraction of natural resources and combustion of fossil fuels to redress the environmental devastation that has resulted. He argued for a new partnership between science and religion to combat human-driven climate change — a position that brings him into direct conflict with climate change skeptics, whom he chides for their denial of the scientific consensus.

The encyclical shows impressive command of policy strategies to mitigate climate change. Pope Francis specifically calls for increased public transit, carpooling, tree planting, limiting unnecessary power use, recycling, and even boycotts of certain products. However, his deep suspicion of the free market leads him to criticize one of California's major mitigation strategies, a cap-and-trade mechanism, in which CO₂ emissions are capped at a certain value and industrial facilities are granted allowances to emit specific levels of CO₂. The allowances can be traded, i.e., a facility that installs clean technology and emits less than it is allowed can sell the unneeded allowance to a facility that has not reduced its emissions. This approach has been criticized by environmental justice groups as not providing sufficient incentive for polluting facilities to clean up their act and reduce harm to the health of residents in adjacent, often low-income neighborhoods. Pope Francis' encyclical states that, "The strategy of buying and selling 'carbon credits' can lead to a new form of speculation which would not help reduce the emission of polluting gases worldwide. It may simply become a ploy which permits maintaining the excessive consumption of some countries and sectors."

A carbon tax is often thought to be a better approach to putting a price on carbon by environmental justice advocates. A cap-and-trade system puts a cap on emissions but allows the price on

carbon to vary; a carbon tax puts a price on carbon, but allows the emissions to vary. Certainly, a tax is theoretically easier to administer, avoids the potential gaming of a carbon market scheme, and could put greater pressure on polluters to clean up their act. But the biggest problem with the carbon tax approach is that while it puts a price on carbon, i.e., x \$ per metric ton of CO₂ emitted, it does not put a cap on emissions. In other words, the taxing jurisdiction has to correctly estimate the level of tax that will incentivize reduction of emissions. Because levying taxes is often politically difficult, increasing the tax if the jurisdiction does not get it right initially may prove problematic.

When the California legislature tasked the state Air Resources Board (CARB) with the implementation of AB32, including the ability to develop a mechanism to place a price on carbon emissions, Governor Arnold Schwarzenegger refused to allow CARB to openly discuss a carbon tax, fearing that it was a politically impossible approach. In response, CARB worked to develop a credible and a gaming-free cap-and-trade system. That system was launched in 2012 and has been a remarkable success to date. Quebec linked with California in 2014 and since the inception of the program over \$2.2 billion in revenue has been raised from the sale of auctions. By California law (SB535), 25 percent of that revenue has to be spent to the benefit of disadvantaged communities as defined by the CalEnviroScreen mapping tool designed by the Office of Environmental Health Hazard Assessment. During the period that the cap-and-trade program has been in place, the California economy has shown steady growth. My assessment at this point is that the pope got it wrong about California's cap-and-trade system.

That said, I am enthused by the pope's weighing into the climate change debate. He is a heavy hitter when it comes to moral authority, and he has spoken out forcefully about the needs for effective and equitable mitigation policies. Jerry Brown has described the pope's efforts as "bringing a moral and theological dimension that adds to the market and political calculation." Brown also said that, "We face an existential threat to human existence as we know it. It's not being taken seriously by the vast majority of powerful people. When the pope, as a powerful person, issues this encyclical, it's a helpful addition to the mix."

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or MS. People with MS can experience a temporary worsening of their symptoms through physical exertion or hot weather. In Capay Valley, where Anna works, temperatures reach well over 100 degrees in the summer months. Anna approached Esmeralda Mandujano at California AgrAbility, who provided support and guidance on strategies to reduce fatigue so Anna could work more comfortably, despite the challenges of MS.



Anna wearing her cooling vest. Photo is courtesy of California AgrAbility

Through a collaboration between California AgrAbility and the California Department of Rehabilitation, Anna received financial support for two assistive device interventions — a cooling vest and an air conditioning unit — to cool her body temperature in periods of extreme heat. "This [AC] unit will revolutionize my work capacity and my general ability to fully engage in life and community during the hotter months," noted Anna. "I can barely imagine how summer life will be, since I have spent so many summers incapacitated at my home."

Fathallah and his colleagues not only connect workers like Anna with the latest health and safety interventions, they also design new ones. For example, to bring nursery propagation workers back from disability due to repetitive strain injury of the hand, wrist, and arm, the University of California Agricultural Ergonomics Research Center developed air powered sheers, funded by a grant from the National

Institute for Occupational Safety and Health.

Now, instead of workers hand-cutting an average of 5,000 stems a day for plant propagation, the "Air Klipper" cuts the plant for them, virtually eliminating the need for repetitively and forcefully gripping manual sheers. By reducing hand and arm fatigue, the new technology can increase worker productivity.

Over the past years, California AgrAbility has targeted its resources toward injured U.S. veterans. Working with a partner organization, the Farmer-Veteran Coalition, they encourage veterans re-entering the workforce to consider farming as a viable career alternative. "A lot of them have a misconception that they have lost their livelihood due to an amputation or injury. We reach out to them and provide resources to help them adapt," says Fadi.

Older adults, minorities, and the medically underserved are the at-risk populations assisted by California AgrAbility. Due to language or cultural barriers, many of these workers



California AgrAbility Program's mission is to promote independence in farming and rural living for people with severe injuries and disabilities and illnesses. Photo is courtesy of California AgrAbility

have difficulty locating health providers, filling out medical forms, and understanding directions on medicines. Too often, they lack services to manage chronic health conditions, including rehabilitation and counseling. In addition to reaching out to these workers through workshops, webinars, and community support systems, California AgrAbility networks with affiliated non-profits and government agencies across the state. For more

information on California AgrAbility, visit: <http://calagrability.ucdavis.edu>.

Watch the webinar by California AgrAbility and Ability Tools: YouTube via Ability Tools Channel.

LOHP Offers Health and Safety Training to Workers with Intellectual and Developmental Disabilities

Workers with intellectual and developmental disabilities (ID/DD) are injured at higher rates as compared to the general population due to the hazardous nature of the work they most commonly perform, such as light manufacturing, recycling, assembly, janitorial tasks, landscaping services, and warehouse work.

While the provision of health and safety training to workers in general is limited, it is even rarer for workers with ID/DD. A needs assessment conducted by LOHP in 2006 found almost no examples of comprehensive health and safety training for this population.

To address this gap, LOHP created the Staying Safe at Work curriculum in 2009. Program Coordinator Robin Dewey is currently collaborating with NIOSH to update the health and safety curriculum customized to workers with ID/DD. Next, she plans to promote it nationally to high school transition programs serving students with disabilities, employment support agencies, community rehabilitation programs, and other places of employment for adults with disabilities. For more information about Staying Safe at Work, visit: <http://lohp.org/safe-at-work-curriculum>.

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