

REVOLUTION IN GREEN

ALUM HOY BUELL IS FINDING NEW USES FOR PLANTS

BY LEAH KOLT

FUTURE WARS AND CONFLICT will not be about oil but about water, plants and food, predicts Horticulture and Crop Sciences Department Head John Peterson.

In fact, the world is already in the midst of a “second green revolution,” driven this time by technology.

The first revolution, in the '60s and '70s, focused more on enhancing yield to feed a growing world population.

“This time we are seeing a shift in the way we use our plant resources and the resulting impact on the way we live,” Peterson said.

Alumni Hoy Buell – whose Greenheart Farms in Arroyo Grande is one of the largest vegetable transplant growers in the U.S., as well as the largest producer of rose plants – agrees: “If the political will is there, we can make significant changes and begin using our plant resources in beneficial new ways, such as fuel alternatives to oil and petroleum-based products.”

He’s not talking about corn ethanol, either. Buell points out that there are researchers and start-up companies developing new green products to replace current energy crops. For example, *Miscanthus*, a common ornamental grass that grows to 20 feet in some parts of the world, can be used as a fuel to produce electricity – without the negative impact on food prices that resulted from switching corn from a food crop to a biofuel.

Last year, researchers at the University of Illinois determined that this giant perennial grass outperforms current biofuels sources. To meet the White House’s goal of producing enough biofuel to offset 20 percent of gasoline use would take 25 percent of current U.S. cropland out of food production if corn were used. *Miscanthus* could do it with only 9.3 percent of current agricultural acreage, the researchers claim.

This new wave of plant exploration is also discovering new uses for green things that have benefits beyond food and fuel production. The *Ulex* plant, commonly called gorse, is an example of a product with benefits in the medical world. A genus

of about 20 species of spiny evergreen shrubs in the pea family, it can be used as a substitute for latex, the rubber product which causes allergic reactions in many people.

This research was actually begun during World War II, when our southeastern Asia rubber supply was threatened, Buell explained. Now it is being reevaluated for its non-allergenic qualities. “Many medical personnel are allergic to latex gloves, and patients to breathing bags. So this plant product is a good alternative,” Buell said.

To help protect important natural areas and native species, which may yield important discoveries in the future, Buell is participating in a project to reclaim lands with native plants on the Colorado River.

For this pilot project, aimed at converting 8 acres of farmland to bird habitat, Hearthstone tests native seeds for viability and takes cuttings of native species. They then grow the plants in containers to optimum transplant age, which assures faster results and a more predictable success rate than other methods, such as bare root transplanting or direct seedling.

Greenheart also produces salt-tolerant grasses, plants, shrubs and trees for other restoration projects around the country.

There is also a new dimension to this second revolution, according to Peterson, a growing consciousness that we must do it more sustainably and “protect the green.”

“It’s amazing how intrinsic plants are to our survival – for our oxygen supply, food, and medicines,” Peterson observed. “And it’s interesting that while we depend on them for survival, they don’t depend on us.”



Hoy Buell in the greenhouse at his Greenheart Farms.

Editor’s Note: For more on this story, view our accompanying photo slideshow at www.magazine.calpoly.edu for a look at how Greenheart Farms uses technology to produce a billion plants per

year. Additionally, you can listen to a podcast of a conversation between John Peterson and Hoy Buell as they discuss Cal Poly’s fast-growing wine and viticulture degree program and the local wine industry.