



Larry Hoelscheler, third from left, Dr. Dan Reynolds, Ronnie Carey and Mike Morris, far right, meet with a group at the Kumiai Life Science Institute where both laboratory and field research is conducted.

When East Meets West

Researchers, dealers travel to Japan to understand rice production practices, innovations & consumer demands

Though rice farms in the United States and Japan may differ greatly, producers in both countries have found common ground when it comes to improving production.

Last fall, a contingency of people associated with the U.S. rice industry took an eye-opening and educational trip to the rice fields and research facilities of Japan. During the week-long trip – hosted by Valent U.S.A. Corporation, Kumiai Chemical Industry Co., Ltd. and Ihara Science Corporation – the U.S. contingency witnessed firsthand the differences and similarities of American and Japanese rice production, practices and technology.

“From a rice industry standpoint, many of the same concerns and issues regarding rice production here in the United States also affect Japan,” says Valent’s Mike Morris, who is based in Wynne, Ark. “When you communicate with people from other countries about rice production, you often find that they face similar issues that we face. It’s good to see how they address those issues and, in turn, compare their solutions to ours. As we learn more about what each other does,

it makes us all better rice growers and helps strengthen the overall rice industry.”

Finding similarities among our differences

As with most agricultural markets, the group discovered Japanese rice production and seed choices are largely driven by consumer demand. Ronnie Carey of St. Francis County Farmers Association in Forrest City, Ark., learned the Japanese prefer their cooked rice to have a stickier consistency.

“U.S. rice currently doesn’t have much share in the Japanese rice market except for some medium grain,” he says. “They do not buy our long grain because it doesn’t have the consistency and taste they like.”

Beyond basic rice varieties, the group noted significant differences with the scale of the farming operations in Japan. According to a recent study by Tokyo’s Nihon University, an extremely small portion (approximately 15 percent) of Japan’s mountainous land can be cultivated. As a result, Japanese growers maintain a highly intricate, space-conscious system of terrace farming.

“Agriculturally, Japan is a whole different mindset and scale. In Japan, a 10-acre rice farm is a pretty good size,” says Dr. Dan Reynolds, professor of weed science at Mississippi State University. “Their combines for commercial harvesting are something that we would use for small plot research. It appears that a high percentage of harvest is still done by hand.”

The Japanese government also holds a great stake in crop planting allocations.

“The Japanese can raise rice for personal consumption, but it has to be authorized by the government. Every planting is reported to the government, who in turn decides how much rice they can plant,” says Valent’s Larry Hoelscher, who is based in El Campo, Texas. “The government maintains tight controls on the amount of production; they plant only as much as they will consume and whatever they want to export. The Japanese have little carryover.”

“We’re fortunate here in the United States,” Hoelscher adds. “In Japan, they produce enough rice for their family and maybe a neighbor who doesn’t produce rice.”

A universal fight for better yields

Reynolds says despite some of the basic differences witnessed in production on the tour, Japanese rice growers struggle with many of the same issues U.S. growers face – namely solid crop protection.

“Although there are differences in farm sizes between the two countries, we can learn some things from them, like different approaches to weed management,” Reynolds says. “They essentially try to achieve season-long weed control in a single herbicide application with way more tank mixes than what we use.”

Morris agrees with the issues common to both U.S. and Japanese rice growers.

“The Japanese also have weed resistance problems,” he says. “Additionally, like us, they want to protect their environment and water supply.”

These similar concerns have led to a West-meets-East collaboration as both the U.S. and Japanese rice industries push for better crop protection research and innovation. As part of the tour, the U.S. group visited Kumiai’s Life Science Research Institute to view several field trials and tour one of Ihara’s manufacturing plants where certain Valent products are produced.

Eastern facilities among the best

“Their manufacturing plants are as high-tech as the ones I have toured here in the

United States,” Carey says. “We went through an experiment station, which was very impressive, especially their equipment with which they conduct their research. We saw extensive plot work being conducted with some experimental compounds for controlling grass and broadleaf weeds. It’s great seeing some potential new tools coming down the pike.”

Kumiai develops and screens experimental compounds in their research facilities. They face the same regulatory issues that U.S. companies face when registering and labeling a pesticide for use in Japan.

“The quality of their research and facilities and manufacturing sites means a lot to them; they take a lot of pride in what they do and want to turn out quality products,” Morris says. “It is research you can depend on.”

According to Morris, Kumiai’s research facilities develop new products that benefit U.S. growers by improving production. In addition to numerous materials in their pipeline, Bolero and Regiment herbicides are two examples of their work, both widely used in U.S. rice fields.



Space is a precious commodity that is not wasted, so it was not uncommon to find rice fields in residential areas. In this photo, the rice has been harvested and placed on racks to dry under the birdproof nets.

Available for many years, Bolero is a pre-emerge product that controls barnyardgrass, sprangletop and aquatic weeds in rice and is used in tank mixes with other pre-emerge herbicides (including Command, Facet and Prowl), propanil products and Regiment.

Researchers collaborate on herbicides

Regiment is a postemerge contact herbicide that is used for control of barnyardgrass, coffeebean, indigo, smartweed and aquatic weeds in rice. Aside from the propanil products, Regiment mixes well with most of the

rice herbicides.

Reynolds had the opportunity during the tour to meet the Japanese researchers who helped introduce Regiment.

Reynolds has spent time researching Regiment, looking at its performance with an approved surfactant that either contains UAN, a urea-ammonium nitrate solution or has UAN added.

“There were some inconsistent performance issues with Regiment, so Valent approached us about testing several adjuvant systems,” Reynolds says. “We tested various combinations, and we found the methylated seed oil/organosilicone adjuvants with UAN dramatically increased the absorption of the herbicide.”

Morris says that Dr. Reynolds determined that UAN adjuvants improve the absorption of this product tremendously.

“UAN adjuvants improve the absorption of Regiment by as much as a five-fold increase,” Morris says.

“In all the research that Japan has given us plus U.S. research with Regiment and Dr. Reynolds’ and others’ research, Regiment

tank mixed with an approved surfactant plus UAN or an approved surfactant containing UAN went from a 9 to 18 percent absorption up to an 80 percent absorption rate. That research has been correlated with increased, consistent weed control in the field.”

Morris notes this type of ongoing research and innovation is critical to the constant evolution of rice crop protection and improving growers’ peace-of-mind. ♡

Archer Malmo, who represents Valent, contributed information for this article.