

Knowledge in the Making

Cotton Breeder Reaches Milepost In Project to Benefit Workers' Health

A unique trait from wild cotton plants of Baja California, put into field-type cotton by University of Arizona plant breeder Dr. Hiroshi Muramoto, might clean up a dust problem linked to textile workers' brown-lung disease. The trait is the shedding of bracts, which are specialized leaves adjoining the base of the cotton boll. Mechanical pickers harvest the bracts along with the bolls, then ginning pulverizes the brittle bracts so they become a major part of the dust in textile mills.

In all commercially grown cotton and most wild cotton relatives, the bracts remain attached to the bolls, but two wild cotton species from Baja California drop their bracts as the bolls mature. Muramoto bred this trait, called "caducous bract" into a hybrid between the wild cotton and commercial cotton 16 years ago. Since then, he has worked to bring the chromosome number of the caducous-bract hybrids back to the number of chromosomes in commercial cotton. He reached that goal this year. Meanwhile he has selected for fiber quality and other favorable qualities in the bract-dropping cotton.

Dust limits set in the 1970s apply to U.S. cotton mills, but most Arizona-grown cotton is spun in Asia.



Dr. Hiroshi Muramoto with his bract-dropping cotton in a university greenhouse. (Photo by Ray Albright.)

Name Changes Give College Nine "Agricultural Centers"

The University of Arizona's farms all have new names this year. Each of the nine facilities from Yuma to Safford now bears the title Agricultural Center, preceded by a geographical designation. Agriculture Dean Dr. Bartley P. Cardon explained that the new names reflect the variety of roles played by the farms.

The geographical names for the agricultural centers are Yuma Valley, Yuma Mesa, Maricopa, Mesa, Marana, Oracle (Page Ranch), Campus (Campbell Avenue), West Campus (Casa Grande Highway in Tucson), and Safford.

Floating Water Flowers May Clean Tucson Sewage

The University of Arizona and Pima County are planning a small, man-made swamp with floating water hyacinths to clean some Tucson sewage. If the final plan is okayed, a pilot facility could soon be treating 25,000 to 100,000 gallons of sewage daily. Water hyacinths use organic wastes from the water as nutrients for growth.

The system would be patterned on a two-year-old sewage treatment project in San Diego that uses water hyacinths, fish and other aquatic organisms, said Dr. Kenneth E. Foster, director of the UA Office of Arid Land Studies.

The UA researchers are studying water hyacinths' treatment capacities and temperature tolerances and assessing potential uses for harvested plants and fish.

Oil Dip for Citrus Strengthens Cold Storage Alternative to EDB

A dunking in vegetable oil and water can protect grapefruit from surface blemishes commonly caused by extended cold storage, shows research by University of Arizona citrus researcher Dr. Albert Huff and co-workers. Protecting cold-stored grapefruit could improve treatments that Florida scientists have developed as alternatives to ethylene dibromide (EDB) against fruit flies. Also, the protection could broaden marketing options by extending the season for a given region's supply of fresh-quality fruit.

Restrictions on EDB use threaten to hurt sales of fresh U.S. citrus to countries that will not accept shipments with any living Caribbean fruit flies. Extended cold-storage can kill the flies in citrus, Florida scientists have demonstrated. But cold storage also can reduce the value of fruit due to pits and spots on the peel. Grapefruit from desert areas such as Arizona develop the chilling injury easiest. In one test, Huff's simple oil-and-water dip prevented damage in 99 percent of grapefruit stored cold for 12 weeks, while 80 percent of untreated grapefruit were in unmarketable condition by that time.