

Local

TAMU nuts' used to top salads

A&M develops edible cotton seed

By USCHI MICHEL-HOWELL

Battalion Staff  
There is one problem that afflicts non-industrialized nations more than any other: hunger.

In research to come up with new food sources, Texas A&M University is developing an edible cotton seed, which has a high protein content and can be used as flour, oil or nuts.

Dr. Edmund W. Lusas, director of the Texas Engineering Experimentation Station, is developing seeds of glandless cotton seed.

"With a world's supply of 65 million bales of cotton a year, a nation about the size of the United States could be fed with the edible cotton seed," Lusas said.

To prepare the cotton for food use, the seeds are shaken out of their lint, dehulled and either ground up or toasted.

At present, Texas farmers are growing the glandless cotton variety on 90,000 out of eight million acres of cotton fields, Lusas said.

James T. Lawhon, research engineer at the Food and Protein Research Center, originated a roasted variety of the cotton seed, called TAMU nut, in 1969. Lawhon said he led the research project, which tested several ways of roasting the glandless seeds.

The Food and Protein Research Center now works on isolating pro-

teins from cotton seeds, Lawhon said.

"As much as 90 percent protein can be recovered from extracts of cotton oil seeds and flour," he said.

Protein, in liquid form, is extracted from defatted flour or oil and then filtered through membranes to separate it from other non-protein substances. This process is called ultra filtration (UF) in reverse osmosis (RO), and it produces protein isolates, Lawhon said.

UF and RO membrane systems could lessen waste products that accumulate during previous protein isolation processes, according to a USDA agriculture research service publication.

Storage proteins, originating from discrete bodies within the seed, can be dissolved in low acidic beverages, thereby fortifying them.

The idea of using cotton seed is not new. In early American times, the Hopi Indians used a form of the glandless seed, but the lint yield was very low. Thus, glandless cotton was unattractive to the farmer, who is mainly interested in lint itself, not the seed, Ronda Simmons, research assistant, said.

Cotton seed meal has also been used as animal feed in the past.

The seed's oil is used in many foods, making it the world's fourth most important source of oil, Lusas

said. It is used in margarine, shortening and salad oil, for example.

Cotton seed is normally toxic, because it contains a pigment gland called gossypol. The only animals that can digest gossypol without damage to the nervous system are cattle, Lusas said.

The glanded cottonseed has reddish-brown specks, which indicate gossypol. The glandless seed is light yellow to brown in color.

Developing the cotton seed as a food would benefit both those who buy it and the farmers.

"If farmers grew the glandless cotton variety, they could sell the seed and use the money to pay for their

cotton gins," Simmons said.

The TEEX is promoting the use of the glandless seed, which has been researched for over 30 years, Simmons said, but farmers are slow to change their ways.

In a salad bar at Texas A&M University, TAMU nuts are offered as a salad topping, next to sunflower seeds and bran.

TAMU nuts contain 39 percent protein, as compared to 29 percent in peanuts. Cotton seed flour has 60 percent protein, which makes it a good source of protein, Simmons said.

Cotton seeds are attractive when used as a flour or a filler product,

because their flavor is more bland than soybeans, for example, said a TEEX technical bulletin.

Cotton can be used as a protein supplement in breads, tortillas, cookies, cake doughnuts and frankfurters. A substance that can be whipped can also be made from the seeds for use on cakes.

A high-protein bread, containing cotton seed, has been marketed by Mrs. Baird's Bread Co.

The TAMU nuts that are sold on campus are sold by Rogers Delinted Cotton Seed Co., of Waco. Board Chairman, T.W. Rogers, said a lot of other countries have expressed interest.

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