

State's Food-Output Potential Great

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Oklahoma agriculture produced more food and more income last year than ever before. Yet, this state is far from the limits of its potential food output, as scientists search for new things and new ways.

Research going on at Oklahoma Agricultural Experiment Station, Stillwater, shows promise of crop opportunities that have been given little regard in the past, as well as advancements for older crops.

For example, Oklahoma might become a major commercial vegetable-producing area in the years ahead. Prof. James E. Motes says 375 people from all over the state attended the Asparagus Field Day held at the Bixby substation, south of Tulsa, in April. Some were considering 60- to 80-acre plantings, commercial-sized fields.

High costs of fuel and land are influencing changes in vegetable growing in California and the Rio Grande Valley. Motes said Cad-do County, OK, has 100,000 acres of irrigated land that could grow vegetables. It now is used mostly for growing peanuts, which are limited in acreage because of supply and demand.

"In the major vegetable-producing states, these crops have been grown by the same families for years — just as wheat has here in Oklahoma," Motes said. "We don't have that expertise here now."

Still, he says the potential is great for growing tomatoes, sweet corn, potatoes, bell peppers, summer squash, turnip greens, cucumbers and other crops. OSU has been pushing the growing of asparagus and peppers, with paprika indicating high potential.

eliminate unwanted characteristics.

One method described by Ulrich Melcher, associate professor of biochemistry, concerns introduction of "protein building blocks" of methionine, which is abundant in wheat and corn, into legumes to improve their quality as livestock feed.

In other experiments, ways to transfer genes for high lysine content from soybeans to wheat plants are being sought. Melcher explained that lysine is one of the amino acids required for human nutrition and by adding this gene to wheat, protein quality of wheat flour could be improved.

Another example of gene-transfer research aims to incorporate nitrogen-fixing capacity of legumes into grassy type plants, so they would be able to produce part of the plant nutrients needed.

Since different spe-

cies of plants (such as soybeans and wheat) don't crossbreed, OSU scientists are investigating a virus-bacteria interchange as a possibility for making the transition of genes.

Cloning methods also are being studied as a means of deleting undesirable genes or adding desirable ones, says OSU biochemistry scientist, Dr. Earl Mitchell.

One such method duplicates plants in the laboratory by placing leaf cuttings the size of a postage stamp in growth solutions. Each tiny square then produces a number of identical new plants.

Plant growth regulator research, going on at OSU since 1973, appears to offer promise if applications can be developed for large scale use in growing vegetables and field crops. So far, one product has been authorized for use on Oklahoma peanuts. Another is being tested that, hopefully, will cause uniform opening of cotton bolls to facilitate harvest.