A diet rich in the right foods may someday replace surgery and conventional medication to prevent and treat prostate cancer, researchers say.

Scientists at Texas A&M University's Institute of Biosciences and Technology in Houston say their studies suggest that a diet rich in vegetables, fruits, whole grains and soy could help men avoid prostate cancer, currently the second leading cause of death among men.

Molecular biologist Wallace McKeehan and a team of researchers at IBT are exploring how nutritive factors may treat or even prevent the development of prostate cancer and related diseases. If making dietary changes can fight prostate cancer, says McKeehan, director of IBT's Center for Cancer Biology and Nutrition, then costly and painful treatments like surgery could be used less often.

Cancer researchers have suspected for some time that environmental factors may cause prostate problems. McKeehan says prostate disease is much less common in Asia than it is in the West.

Knowing that, scientists have tried to explain why Chinese and Japanese men who move to the United States experience 10 to 30 times more prostate cancer and benign prostatic hyperplasia (BPH) than do their brethren who stay home. In fact, after several generations, Asian-Americans' levels of prostate disease equal that of the white population, says McKeehan.

While environmental factors like greater pollution and greater consumption of dietary fat in the United States were thought to cause this jump in prostate disease, research has yet to prove a connection.

Researchers have recently turned their attention to dietary factors that seem to keep the prostate functioning properly. The Asian diet -- high in vegetables, fruits, whole grains and soy -- seems related to healthy prostates, says McKeehan. Nutritional components in these foods appear to maintain the proper working systems within the prostate and prevent the cellular disruptions that lead to metastatic cancer.

A second type of dietary product also seems to be beneficial. While the first class come from conventional foods, the second comes from plants not normally considered to be foods, explains McKeehan. These non-food dietary products are called nutraceuticals.

Preliminary research shows that extracts made from the saw palmetto berry and the bark of the African tree keep prostates working right. American doctors have largely ignored these beneficial nutraceuticals, McKeehan says, but European doctors are prescribing them both to prevent prostate cancer and to replace surgery for prostate problems.

In the United States, these nutraceuticals are found in health food stores. As the American population
ages and prostate problems continue to grow, more man are trying these extracts.

Through his research, McKeehan is trying to find the active ingredients in foods and nutraceuticals that keep prostates healthy. He and his colleagues intend to find how they work in both normal and diseased prostate tissues. Once the scientific basis for what makes these dietary products work is better understood, practical applications can be made and commercial possibilities will arise, the researchers say.

Working with Texas A&M experts in plant biotechnology, McKeehan can help design new plants with high levels of cancer preventive agents and nutraceuticals. This can either be done by classical plant breeding or genetic engineering. Next, these new plant strains can be administered as foods in the diet or as purified agents in food additives or as pharmaceuticals used in treatment.

McKeehan's research also can pave the way to designing new processed foods acceptable to North American tastes. These foods will essentially have the healthy benefits of the Asian diet but be more palatable for consumers in the United States. One of McKeehan's collaborators in England is already working with food processors there to develop baked goods that include additives that preliminary research has shown to prevent both prostate and breast cancer.

New plants developed to produce nutraceuticals also could become alternative commercial crops. For example, the saw palmetto thrives on lands currently unsuitable for conventional crops. Crop diversity and alternative land uses are necessary to keep pace with rapid changes in agriculture and world economies.