

Food Security & Staple Crops

For health experts, food security is assured “when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life”, according to the WHO. Much of that security depends on a surprisingly small number of plants, called staple crops.

Of more than 50,000 edible plant species in the world, only a few hundred contribute significantly to our food supplies. Almost all of the world’s food energy intake is satisfied by just a few crop plants. Rice, maize and wheat make up two-thirds of this already small group of foods.

These three grains are the staple foods for more than four billion people both as a source of nutrition and income. A staple crop, by definition, dominates the major part of our diet and supplies a major proportion of our energy and nutrient needs. If staple crops are threatened by drought, pests or nutrient-poor soils, hunger and poverty can rise dramatically.

Staple crops are commodities traded all over the world. If disease or difficult growing conditions limit their harvest then economic consequences are felt globally. When harvests are poor or when crops are used to make fuel, rather than food or fodder, then prices escalate, farmers face financial ruin, food becomes too expensive for the poor, national revenues are expended on food imports, adding to national and individual vulnerability.

A changing climate that triggers more crop-decimating droughts, floods, and storms, while increasing the temperature



range within which plant diseases can propagate, will increase food vulnerabilities in the future. The risk of crop failure and low yields, caused by drought, disease or rising salinity in irrigation water, can be reduced by breeding more robust crops that better withstand and flourish under harsher growing conditions.

To find tougher plants, the FAO/IAEA Joint Division of Nuclear Techniques in Food and Agriculture focuses on improving varieties of staple foods. It also supports Member States’ efforts to improve their techniques in plant genetic mutation, speeding up the plant breeding process to develop new varieties to improve the disease-resistance and stress-tolerance of staple crops and help to identify better strains with superior nutrition and higher yields.

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Staple Food Around the World

Typically, people live on a diet based on one or more of the following staples: rice, wheat, corn, millet, sorghum, roots and tubers (such as potatoes, cassava, yams and taro), and animal products such as meat, milk, eggs, cheese and fish. Rice feeds almost half of humanity. Roots and tubers are important staples for over one billion people in the developing world, of which, approximately 40% are consumed by half the population of sub-Saharan Africa.

Meat and Milk

The Maasai of Kenya and Tanzania have traditionally relied on food for the majority of their diet that is provided by cattle: milk, meat, and blood. Today, grain has become a staple food of the Maasai, but they still drink one liter of milk per person/day. In some regions, diets are limited by the climate: fresh fruits and vegetables are scarce in the Arctic, where people rely heavily on meat and fish as food staples. For example, the Eskimo tribes of Alaska and northern Canada have traditionally eaten seal, walrus, and whale meat in addition to fish.

Tubers

Tubers are high in carbohydrates, calcium and vitamin C, but low in protein. However, per capita consumption of roots and tubers has decreased in many countries since the early 1970s, mainly because urban populations have found it cheaper and easier to buy imported cereals. Habits are changing and increasing global reliance on a handful of plants. For instance, rice consumption in the Pacific Islands has risen by 40% since 1970, while root and tuber consumption dropped by 8%. Although cereal grains and tubers make up the majority of food staples, they are not the only dominant foods in the world.

Fruits and Legumes

People in tropical climates rely on starchy fruits such as plantains and breadfruit. In parts of Africa and Asia, especially India, legumes such as beans, lentils, and chickpeas are staple foods. Economic development, increase in income and free trade are contributing factors as to why many countries have shifted away from traditional foods. Despite this trend, there is growing recognition of the importance of traditional staple crops in nutrition.

www.fao.org/docrep/u8480e/u8480e07.htm