

PROTEIN FOODS AND SUSTAINABLE FOOD PRODUCTION

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The current way of production and consumption food has a considerable impact on the environment. This impact is expected to increase in the future due to population and the consumption of animal product growth. This requires an increased production of food and feed, and a competitive use of available cropland. In addition, the conversion of plant protein to animal protein is rather efficient way of production in compare with direct consumption. Increasing of plant protein consumption is suggested as one of the most considerable ways to reduce negative pressure on environmental system by food production.

Novel Protein Food was selected as an alternative option for meat and its ingredients. It is the plant-protein-based food product developed with modern technologies, including biotechnology, and designed to possess desirable flavour and texture. It can be made of peas, soybeans, other crops and even grass. NPF was developed to make food production more sustainable.

Today scientists all over the world studies the current meat-based protein chains in human ration and try to replace meat with plant protein food. Researches are focused on two references: production and consumption effects. Meat production causes large environmental impact both in developing and developed countries. Crops for protein food are the suitable protein source for people and can be grown in most places of Earth.

Food production and consumption impose considerable pressure on the environment, but environmental impact analysis of food has mainly focused on only a few stages of the chain, particularly the agricultural stage or on specific environmental impacts. Further studies are needed to understand the environmental impacts of an entire protein chain, from the primary production to distribution and consumption.

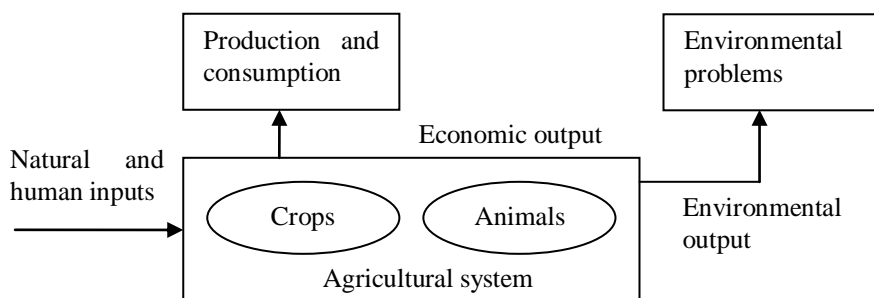


Figure 1 – Environmental problems in the agricultural system

Environmental life-cycle assessment helps to analyze and assess the environmental impacts of a material, product, process or service throughout its entire life-cycle. It is an increasingly important tool for supporting choices at both the policy and industry levels. The results of environmental life-cycle assessment have a comparative significance rather than providing absolute values on the environmental impact related to the product. The assessment usually consists of four phases: goal and scope definition, inventory of environmental inputs and outputs, impact assessment and lastly interpretation.

Using complex systems of economical, ecological and social indicators today scientist try to define economically efficient, environmentally friendly and socially desirable food chains. Replacing animal protein by plant protein is promising in reducing environmental pressure, especially acidification. Redesigning the food chains can achieve lower environmental pressure and impacts. Through chain management, economic and environmental efficiency of the chains can be improved.