

Notes

Ethical Issues: -

In modern Biotechnology ethical concerns are separated into following two classes.

Intrinsic:

The intrinsic objection claimed that modern biotechnology's method is unacceptable in and of itself. This notion is linked to the assertion of unnaturalness, altering nature, and playing 'God.' People's attitudes toward nature influence how they assess biotechnology products. Nature and all that is natural are useful and excellent in and of itself; all types of biotechnology are unnatural in that they contradict and interfere with nature, particularly the crossing of natural species boundaries.

Extrinsic:

Extrinsic objections refer to concerns about the application of technologies, such as the potential hazards of various biotechnology applications, consumer rights, and patenting challenges. All of these challenges must be addressed because they have far-reaching implications for human, environmental, and societal safety.

- **ENVIRONMENTAL CONCERNS:**

GMOs are 'novel' products which have the potential to reduce or change nature's biodiversity (BABAS 1999; Phillips 1994; Third World Network 1995) or to upset the balance of nature perhaps in unintended ways (FAO 2001). For example, the environmentalists are concerned about the possibility of GM crops having herbicide or insecticide resistance to cross-pollinate with wild or related species, and unintentionally create hard-to-eradicate super-weeds respectively (Hails 2000; Kaiser 1999). There is also concern on the possibility of horizontal gene transfer of transgenic DNA and the potential to create new viruses and bacteria that cause diseases (Hails 2000; Phillips 1994; Ho 1998/1999). Certain genetic alteration in animal or plant pathogens have led to enhance virulence and increased resistance to pesticides and antibiotics (NAS 1987) and the potential of GMOs to harm non-target organisms have been reported (Hails 2000; Goldberg & Tjaden 1990; Ho 1998/1999).

- **SOCIOECONOMY:**

The social impacts of biotechnology in agriculture and food production have been classified into three major categories (Thompson 1997; BABAS 1999): 1. Impacts on small farms. The most debated ethical issue in this context concerns the possibility of market monopoly by big companies and threatening the survival of small farms. 2. Impacts on the economies of developing countries. Many authors have forecast serious impacts on rural economies of the developing countries with a redistribution of benefits from small to large and better off farmers, according to the same pattern predicted for the industrialized world. 3. Impact on scientific community. Many authors have predicted that increasing commercialization of science would shift the focus of research from publicly beneficial objectives to more profitable corporate activities. These raised ethical concerns about scientific purity, the social function of science and public trusts in scientists (Thompson 1997). However, these concerns are not restricted to food biotechnology.

- **CONSUMER'S RIGHT TO FOOD SAFETY AND INFORMATION:**

Basic consumer claims concerning GM food are about the rights to health to be informed and to choose (BABAS 1999). The first one refers to food safety and the right of consumers to have their health protected from possible hazards derived from eating GM food. Three main areas of concerns area: toxicity, allergenicity and nutritional value. The second issue is the right of consumers to know the information about the foods offered to them (mainly the natural or GM character of food products and their composition) so that they can make an informed choice. This freedom is important because there are food related religious or cultural belief such as the halal (Muslim dietary rule) and kosher (Jewish dietary rule) practices, as well as vegetarians.

- **PATENTING:**

Some of the issues in patenting of GMOs is that patenting which allows big corporations to have monopoly of genetically modified plants and animals violates the sanctity of life (Uzogara 2000). Many critics also oppose the fact that seeds are now regarded as propriety products, moreover with the 'terminator gene' technology which renders the seeds sterile (Koch 1998). The farmers are force to buy new seeds each year from multinational companies instead of sowing seeds from previous years' harvest.